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13. ABSTRACT (Maximum 200 words)

The Federal Aviation Administration, Office of Environment and Energy (FAA-AEE) has developed the Aviation Environmental Design Tool (AEDT) version 2b software system with the support of the following development team: FAA, National Aeronautics and Space Administration (NASA), U.S. DOT Volpe National Transportation Systems Center (Volpe Center), ATAC Corporation, Metron Aviation, CSSI, Inc., Foliage, MIT, and Georgia Tech. AEDT 2b is designed to model aviation related operations in space and time to estimate fuel consumption, emissions, noise, and air quality consequences.This Reference Guide provides a description of the AEDT Standard Input File (ASIF) file format. It is intended for analysts and programmers who wish to create or modify an ASIF to import data into an AEDT study.

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Table of Contents

1 Introduction

The AEDT Standard Input File (ASIF) provides a standard file format to allow for the import of data into an AEDT study. An ASIF can be used to create new AEDT studies and to update existing AEDT studies.

This guide provides a description of the ASIF format for the ASIF schema version 1.2.11. It also provides an overview of ASIF usage and annotated sample studies. The guide is intended for analysts and programmers who wish to create ASIFs.

1.1 Overview of the ASIF Format

The ASIF format allows users to import a complete AEDT study including airports, scenarios, cases, operations, tracks, and other study definitions. Users can also use the partial ASIF import function to update portions of existing AEDT studies.

ASIF is based on the XML file format. XML is a text-based file format that is readable by both humans and computers. Data values are tagged with elements and organized in a hierarchical manner such that the elements can contain other elements or data. XML elements can also have attributes which provide metadata that affect how the ASIF importer processes the data in the XML file. This document assumes users have basic familiarity with the XML file format. For additional information about XML, see http://xmlfiles.com/xml/.

An ASIF can be created and edited in a standard XML editor. The *XML Notepad* and *Notepad++* are XML editors that can be downloaded for free online.

1.2 ASIF Schema Documentation and Sample ASIFs

The *C:\Program Files\FAA\AEDT\Examples* directory contains the following:

- *ASIF Schema Reference* folder: *AsifMerge.html* is a HTML version of the schema documentation, and it contains the same information as the Sections 6 through 9 in this Reference Guide.
- ASIF schema (.xsd) files.
- Sample ASIF files, including full study files and partial ASIF files.

1.3 Importing External Studies

AEDT also supports import of INM and EDMS studies by converting these legacy tools into ASIF format and importing into AEDT. See the AEDT 2b User Guide for more information on importing legacy studies.

2 XML Hierarchy

There are two types of ASIF import files: a full-study import and a partial-study import. The following sections describe each type of import file.

2.1 Create New Study with ASIF

AEDT supports the creation of new studies via ASIF. For a full-study import, the ***content*** attribute of the <AsifXML> element must be set to "study".

The ASIF schema describes the hierarchical relationship of structural XML elements within the ASIF import file; some elements are optional.

Please see Section 3 for two sample studies.

2.2 Partial ASIF Import

Partial ASIF is used to import specific pieces of data into an existing AEDT study. A partial ASIF file is organized similarly to a full ASIF, except that it contains a single type of data – the ***content*** attribute of the <AsifXML> element must specify the data type. There are twelve data types that can compose a partial ASIF:

- airportLayoutSet
- annualization
- case
- fleet
- receptorSets
- scenario
- boundary
- trackOpSet
- runup
- userGroundSupportEquipmentSet
- stationarySourceSet
- operationalProfileSet

The format for a partial ASIF is outlined below. The header is the same as a full ASIF, except that the ***content*** attribute is not "study". Instead, the ***content*** attribute should specify the data element that appears in the file.

```
<?xml version="1.0" encoding="UTF-8"?>

<AsifXml xmlns:AsifXml="http://www.faa.gov/ASIF"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" version="1.2.11"
content="ENTER_CONTENT_TYPE_HERE">

<!-- The content code block follows here: -->

      <*content type here*>
```

```
        ...
      </*end content type*>
</AsifXml>
```

Note that some of these elements rely on information provided in other data blocks. If this information is not provided by the base study when loading the partial ASIF, an error will be generated. For example, attempting to load a partial ASIF containing a <scenario> element that references an airport that does not appear in the base study will cause an error.

2.2.1 Example Files

A set of sample partial ASIF is located in *C:\Program Files\FAA\AEDT\Examples* directory. These files can be imported into an existing study. The files are designed to be used with the study that is created by importing *asif_small.xml*.

- PartialASIF_airportLayoutSet.xml– contains airport layout data.
- PartialASIF_annualization.xml – contains annualization data. When importing this file, select "*1 - Baseline_1990*" as the existing scenario.
- PartialASIF_receptorSets.xml – contains receptor set data.
- PartialASIF_scenario.xml – contains scenario data.
- PartialASIF_userGroundSupportEquipmentSet.xml – contains user-defined ground support equipment data.

First, import the *asif_small.xml* to create a baseline study. Then the sample partial ASIFs can be imported afterwards into the baseline study. Once the partial ASIF has been loaded into a study, their data can be manipulated just like data from the full ASIF.

3 ASIF Examples

This section provides simple steps to assist in the creation of ASIFs for possible studies. See Section 3.1 on developing an ASIF for a simple study and Section 3.2 for an emissions dispersion study.

3.1 Create a Simple Study

Follow the steps below to develop an ASIF for a simple AEDT study:

1. Create an empty study file.
2. Populate the airport section.
3. Create a receptor set (required for studies with noise analysis).
4. Create a scenario and case hierarchy.
5. Populate the scenario's cases with tracks and air operations.
6. Create a scenario annualization tree.

The following sections provide examples of each of the above steps. This example should be used as an aid for understanding the ASIF format, and not as a data reference.

Step 1: Create empty study file

At a minimum, an ASIF consists of the standard XML declaration, a study section, and study metadata. In the example below, the ASIF tags appear between <> or </> braces. The sample study information (which can be set by the user) appears between these tags. Comments appear between <!-- and --> marks.

```
<AsifXml version="1.2.11" content="study"
xmlns:AsifXml="http://www.faa.gov/ASIF"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <study xmlns:asif="http://www.faa.gov/ASIF">

  <!-- User-defined study name -->
  <name>ASIF_example</name>

  <!-- Study type - Emissions, Dispersion, Noise and Emissions, or Noise and
Dispersion -->
  <studyType>Noise and Emissions</studyType>

  <!-- Indicate the units used in the study -->
  <emissionsUnits>Kilograms</emissionsUnits>

  <!-- User-defined study description -->
  <description>A sample NIRS study</description>

  <!-- Optional - Set the boundaries of the study area -->
  <boundary>
   <polygon>
    <vertex>
     <latitude>40.636993970695244</latitude>
     <longitude>-89.21758333055047</longitude>
    </vertex>
    <vertex>
     <latitude>40.636993970695244</latitude>
```

```
     <longitude>-86.59119444944956</longitude>
    </vertex>
    <vertex>
     <latitude>43.3047921364604</latitude>
     <longitude>-86.53522348936178</longitude>
    </vertex>
    <vertex>
     <latitude>43.3047921364604</latitude>
     <longitude>-89.27355429063823</longitude>
    </vertex>
   </polygon>
  </boundary>

  <!-- Add airport layouts here -->

  <!-- Add receptors here -->

  <!-- Add scenarios here -->

 </study>
</AsifXml>
```

Step 2: Populate airport layouts section

AEDT requires all airports in the study area to be declared. Import airport runway definitions from the AEDT system data or via ASIF runway tags. In the example below, KORD is defined using system runways, and KMDW is defined using user-defined runways.

```
  <airportLayoutSet>

   <airportLayout>
    <!-- Airport with no runway tags will import runways from the AEDT system
data. -->
    <airportCode type="ICAO">KORD</airportCode>
   </airportLayout>

   <airportLayout>
    <!-- User can specify an airport with user-defined runway -->
    <airportCode type="ICAO">KMDW</airportCode>

    <!-- Airports can have one or more runways defined -->
    <runwaySet>
     <runway>
      <!-- Runway length (in feet) -->
      <length>5932</length>

      <!-- Runway width (in feet) -->
      <width>150</width>

      <!-- One or more runway ends -->
      <runwayEnd>
       <!-- user-defined name for runway end -->
       <name>04R</name>

       <!-- latitude and longitude of runway end -->
```

```
      <latitude>41.779496</latitude>
      <longitude>-87.75876</longitude>

      <!-- elevation in feet -->
      <elevation>0.0</elevation>

      <!-- threshold crossing height (in feet) -->
      <threshCrossHeight>50.0</threshCrossHeight>

      <!-- glide slope for an approach to this runway end -->
      <glideSlope>3.0</glideSlope>

      <!-- displaced threshold for departure-->
      <depDispThresh>0.0</depDispThresh>

      <!-- displaced threshold for approach -->
      <appDispThresh>0.0</appDispThresh>

      <!-- Percent change in airport average headwind -->
      <percentWind>0.0</percentWind>
     </runwayEnd>
     <runwayEnd>
      <name>22L</name>
      <latitude>41.791167</latitude>
      <longitude>-87.743554</longitude>
      <elevation>0.0</elevation>
      <threshCrossHeight>50.0</threshCrossHeight>
      <glideSlope>3.0</glideSlope>
      <depDispThresh>0.0</depDispThresh>
      <appDispThresh>0.0</appDispThresh>
      <percentWind>0.0</percentWind>
     </runwayEnd>
    </runway>
   </runwaySet>
  </airportLayout>
 </airportLayoutSet>
```

Step 3: Create receptor set

If the study includes noise analysis, then one or more <receptorSet> elements must be created, as indicated in the following example. Receptor sets define points at which noise measurements will be taken. Receptor sets can be defined either as a grid, or as an individual point.

```
 <receptorSet>
  <!-- user-defined name -->
  <name>gridfile_100x100</name>

  <!-- Receptor definition, either grid or centroid -->
  <grid>
   <!-- Latitude and longitude of southwest corner of grid -->
   <latitude>41.97872</latitude>
   <longitude>-87.90439</longitude>

   <!-- Width and height of grid (in nautical miles) -->
   <width>100.0</width>
   <height>100.0</height>
```

```
    <!-- Number of points across height and width of grid -->
    <numWidth>100</numWidth>
    <numHeight>100</numHeight>
   </grid>
  </receptorSet>
   <receptorSet>

   <!-- User-defined name -->
   <name>pop120x160.txt</name>

   <!-- Receptor definition, either grid or centroid -->
   <centroid>

    <!-- Optional census state identifier -->
    <stateFips>1</stateFips>

    <!-- Optional census county identifier -->
    <countyFips>1</countyFips>

    <!-- Optional census BLOCK ID -->
    <blockId>0</blockId>

    <!-- Optional census BNA ID -->
    <bnaId>0</bnaId>

    <!-- Latitude of the centroid -->
    <latitude>40.642384</latitude>

    <!-- Longitude of the centroid -->
    <longitude>-87.29556</longitude>

    <!-- Population count of the centroid -->
    <count>3</count>

   </centroid>
  </receptorSet>
```

Step 4: Create study scenario and case hierarchy

An AEDT study is organized into scenarios. Scenarios contain a set of cases that are used to perform baseline or alternative analyses. Cases are used to group aircraft tracks and operations. Cases are used in annualization of results and during Change Analysis and Impact Evaluation.

This sample demonstrates a simple case structure similar to legacy INM studies. A case can also contain one or more child cases to provide a more robust annualization tree.

```
  <scenario>
   <!-- user-defined scenario name and description -->
   <name>Baseline_1990</name>

   <!-- user-defined start time for scenario -->
   <startTime>2009-11-10T15:02:00</startTime>

   <!-- Duration of scenario (in hours) -->
```

```
   <duration>24</duration>

   <!-- Taxi model for scenario -->
   <taxiModel>UserSpecified</taxiModel>

   <!-- Aircraft performance model -->
   <acftPerfModel>SAE1845</acftPerfModel>

   <!-- Enable/disable bank angle calculations for aircraft performance
modeling -->
   <bankAngle>true</bankAngle>

   <!-- Sulfur related settings -->
   <sulfurConversionRate>0.05</sulfurConversionRate>
   <fuelSulfurContent>6.8E-4</fuelSulfurContent>

   <!-- A description of the scenario -->
   <description>A NIRS scenario</description>

   <!-- List of airports to use for the scenario -->
   <scenarioAirportLayoutSet>
    <scenarioAirportLayout>
     <airportLayoutName>KMDW</airportLayoutName>
    </scenarioAirportLayout>
    <scenarioAirportLayout>
     <airportLayoutName>KORD</airportLayoutName>
    </scenarioAirportLayout>
   </scenarioAirportLayoutSet>

   <caseSet>
    <!-- One or more case elements -->
    <case>
     <!-- sequential case number unique in this scenario -->
     <caseId>0</caseId>

     <!-- user-defined case name -->
     <name>PlanB</name>

     <!-- Noise emissions source -->
     <source>Aircraft</source>

     <!-- Case start time and duration -->
     <startTime>2009-11-10T15:02:00</startTime>
     <duration>24</duration>

     <!-- Add trackOpSet elements here -->

    </case>
   </caseSet>
  </scenario>
```

Step 5: Populate cases with tracks and air operations

The <trackOpSet> element defines a single track and any number of air operations to be flown on that track. Tracks can be composed of subtracks with dispersion values. Operations defined for the track will be dispersed based on the dispersion weight amongst any subtracks that make up the track.

```
     <trackOpSet>
      <!-- Single track element -->
      <track>
       <!-- user-defined track name -->
       <name>DJM04R_EON.10803</name>
       <!-- Track operation type: A = Arrival, D = Departure, O = Overflight
-->
       <optype>D</optype>

       <!-- Airport and runway for this track -->
       <airport type="ICAO">KMDW</airport>
       <runway>04R</runway>

       <!-- tracks can be composed of multiple dispersed subtracks -->
       <subtrack>

        <!-- the user-defined ID for the subtrack -->
        <id>0</id>

        <!-- The sum of the dispersionWeights for all subtracks within a
given track must equal 1 -->
        <dispersionWeight >1.0</dispersionWeight>

        <!-- Set of trackNode or trackVector elements, all must be the same
for each subtrack -->
        <trackNodes>
         <trackNode>
          <latitude>40.65640</latitude>
          <longitude>-73.71322</longitude>
         </trackNode>
         <trackNode>
          <latitude>40.65640</latitude>
          <longitude>-53.71322</longitude>
         </trackNode>
        </trackNodes>

       </subtrack>
      </track>

      <operations>
       <!--operation element represents one or more flights on a track-->
       <operation>
        <!-- user-defined operation id -->
        <id>T9.1</id>

        <!-- AEDT aircraftType for this operation -->
        <aircraftType>
         <airframeModel>Raytheon Beech 1900-C</airframeModel>
         <engineCode>PT67B</engineCode>
         <engineModCode>NONE </engineModCode>
        </aircraftType>

        <!-- number of times to fly this operation -->
        <numOperations>1.0</numOperations>

        <!-- user-defined flight number -->
```

```
        <flightNumber>CKE545</flightNumber>

        <!-- user-defined operation type  -->
        <userType>MU3001</userType>

        <!-- user-defined parameter data -->
        <userParam>J</userParam>

        <!-- arrival or departure airport and runway -->
        <departureAirport type="ICAO">KMDW</departureAirport>
        <departureRunway>04R</departureRunway>
        <arrivalAirport type="FAA">LIT</arrivalAirport>

        <!-- offTime for departures or onTime for arrivals -->
        <offTime>2009-11-10T15:02:00</offTime>

        <!-- aircraft profile  for this operation -->
        <saeProfile>STANDARD</saeProfile>
      </operation>
     </operations>
    </trackOpSet>
```

Step 6: Create scenario's annualization tree

Annualization is the process of performing a weighted summation[1] over the noise and emission results from some or all of the cases within a scenario in order to create results that represent noise and emissions exposures over a time period of interest. Each scenario element may contain an annualization element describing the weighted annualization tree.

```
  <annualization>
   <!-- user-defined scenario annulalization name -->
   <name>Alternative.config</name>

   <!-- Define one or more groups of cases and groups -->
   <annualizationGroup>

    <!-- Define rolloup weight for this group -->
    <weight>2.0</weight>

    <annualizationGroup>
     <weight>0.7</weight>

     <!-- Associate scenario case with this annualization group -->
     <annualizationCase>

      <!-- Specify case name to include -->
      <name>PlanB</name>

      <!-- Define rollup weight for this case -->
      <weight>1.0</weight>
```

[1] The word 'summation' is used figuratively and the actual process of correctly summing or adding together noise or emissions results depends upon the metric being used. For example: energy metric results would not be directly added together for a result since they are logarithmic values, but would rather be log-added.

```
      </annualizationCase>
     </annualizationGroup>
    </annualizationGroup>
   </annualization>
```

Step 7: Full ASIF of Simple Study

The full simple study ASIF is as follows:

```
<AsifXml version="1.2.11" content="study"
xmlns:AsifXml="http://www.faa.gov/ASIF"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">

 <study xmlns:asif="http://www.faa.gov/ASIF">

  <!-- User-defined study name -->
  <name>ASIF_example</name>

  <!-- Study type - Emissions, Dispersion, Noise and Emissions, or Noise and
Dispersion -->
  <studyType>Noise and Emissions</studyType>

  <!-- Indicate the units used in the study -->
  <emissionsUnits>Kilograms</emissionsUnits>

  <!-- User-defined study description -->
  <description>A sample NIRS study</description>

  <!-- Optional - Set the boundaries of the study area -->
  <boundary>
   <polygon>
    <vertex>
     <latitude>40.636993970695244</latitude>
     <longitude>-89.21758333055047</longitude>
    </vertex>
    <vertex>
     <latitude>40.636993970695244</latitude>
     <longitude>-86.59119444944956</longitude>
    </vertex>
    <vertex>
     <latitude>43.3047921364604</latitude>
     <longitude>-86.53522348936178</longitude>
    </vertex>
    <vertex>
     <latitude>43.3047921364604</latitude>
     <longitude>-89.27355429063823</longitude>
    </vertex>
   </polygon>
  </boundary>

  <airportLayoutSet>

   <airportLayout>
```

```
    <!-- Airport with no runway tags will import runways from the AEDT system
data. -->
    <airportCode type="ICAO">KORD</airportCode>
   </airportLayout>

   <airportLayout>
    <!-- User can specify an airport with user-defined runway -->
    <airportCode type="ICAO">KMDW</airportCode>

    <!-- Airports can have one or more runways defined -->
    <runwaySet>
     <runway>
      <!-- Runway length (in feet) -->
      <length>5932</length>

      <!-- Runway width (in feet) -->
      <width>150</width>

      <!-- One or more runway ends -->
      <runwayEnd>
       <!-- user-defined name for runway end -->
       <name>04R</name>

       <!-- latitude and longitude of runway end -->
       <latitude>41.779496</latitude>
       <longitude>-87.75876</longitude>

       <!-- elevation in feet -->
       <elevation>0.0</elevation>

       <!-- threshold crossing height (in feet) -->
       <threshCrossHeight>50.0</threshCrossHeight>

       <!-- glide slope for an approach to this runway end -->
       <glideSlope>3.0</glideSlope>

       <!-- displaced threshold for departure-->
       <depDispThresh>0.0</depDispThresh>

       <!-- displaced threshold for approach -->
       <appDispThresh>0.0</appDispThresh>

       <!-- Percent change in airport average headwind -->
       <percentWind>0.0</percentWind>
      </runwayEnd>
      <runwayEnd>
       <name>22L</name>
       <latitude>41.791167</latitude>
       <longitude>-87.743554</longitude>
       <elevation>0.0</elevation>
       <threshCrossHeight>50.0</threshCrossHeight>
       <glideSlope>3.0</glideSlope>
       <depDispThresh>0.0</depDispThresh>
       <appDispThresh>0.0</appDispThresh>
       <percentWind>0.0</percentWind>
      </runwayEnd>
```

```
    </runway>
   </runwaySet>
  </airportLayout>
 </airportLayoutSet>

 <receptorSet>
  <!-- user-defined name -->
  <name>gridfile_100x100</name>

  <!-- Receptor definition, either grid or centroid -->
  <grid>
   <!-- Latitude and longitude of southwest corner of grid -->
   <latitude>41.97872</latitude>
   <longitude>-87.90439</longitude>

   <!-- Width and height of grid (in nautical miles) -->
   <width>100.0</width>
   <height>100.0</height>

   <!-- Number of points across height and width of grid -->
   <numWidth>100</numWidth>
   <numHeight>100</numHeight>
  </grid>
 </receptorSet>
  <receptorSet>
  <!-- User-defined name -->
  <name>pop120x160.txt</name>

  <!-- Receptor definition, either grid or centroid -->
  <centroid>

   <!-- Optional census state identifier -->
   <stateFips>1</stateFips>

   <!-- Optional census county identifier -->
   <countyFips>1</countyFips>

   <!-- Optional census BLOCK ID -->
   <blockId>0</blockId>

   <!-- Optional census BNA ID -->
   <bnaId>0</bnaId>

   <!-- Latitude of the centroid -->
   <latitude>40.642384</latitude>

   <!-- Longitude of the centroid -->
   <longitude>-87.29556</longitude>

   <!-- Population count of the centroid -->
   <count>3</count>

  </centroid>
 </receptorSet>

 <scenario>
```

```
   <!-- user-defined scenario name and description -->
   <name>Baseline_1990</name>

   <!-- user-defined start time for scenario -->
   <startTime>2009-11-10T15:02:00</startTime>

   <!-- Duration of scenario (in hours) -->
   <duration>24</duration>

   <!-- Taxi model for scenario -->
   <taxiModel>UserSpecified</taxiModel>

   <!-- Aircraft performance model -->
   <acftPerfModel>SAE1845</acftPerfModel>

   <!-- Enable/disable bank angle calculations for aircraft performance
modeling -->
   <bankAngle>true</bankAngle>

   <!-- Sulfur related settings -->
   <sulfurConversionRate>0.05</sulfurConversionRate>
   <fuelSulfurContent>6.8E-4</fuelSulfurContent>

   <!-- A description of the scenario -->
   <description>A NIRS scenario</description>

   <!-- List of airports to use for the scenario -->
   <scenarioAirportLayoutSet>
    <scenarioAirportLayout>
     <airportLayoutName>KMDW</airportLayoutName>
    </scenarioAirportLayout>
    <scenarioAirportLayout>
     <airportLayoutName>KORD</airportLayoutName>
    </scenarioAirportLayout>
   </scenarioAirportLayoutSet>

   <caseSet>
    <!-- One or more case elements -->
    <case>
     <!-- sequential case number unique in this scenario -->
     <caseId>0</caseId>

     <!-- user-defined case name -->
     <name>PlanB</name>

     <!-- Noise emissions source -->
     <source>Aircraft</source>

     <!-- Case start time and duration -->
     <startTime>2009-11-10T15:02:00</startTime>
     <duration>24</duration>

     <trackOpSet>
      <!-- Single track element -->
      <track>
       <!-- user-defined track name -->
```

```
        <name>DJM04R_EON.10803</name>
        <!-- Track operation type: A = Arrival, D = Departure, O = Overflight
-->
        <optype>D</optype>

        <!-- Airport and runway for this track -->
        <airport type="ICAO">KMDW</airport>
        <runway>04R</runway>

        <!-- tracks can be composed of multiple dispersed subtracks -->
        <subtrack>

         <!-- the user-defined ID for the subtrack -->
         <id>0</id>

         <!-- The sum of the dispersionWeights for all subtracks within a
given track must equal 1 -->
         <dispersionWeight >1.0</dispersionWeight>

         <!-- Set of trackNode or trackVector elements, all must be the same
for each subtrack -->
         <trackNodes>
          <trackNode>
           <latitude>40.65640</latitude>
           <longitude>-73.71322</longitude>
          </trackNode>
          <trackNode>
           <latitude>40.65640</latitude>
           <longitude>-53.71322</longitude>
          </trackNode>
         </trackNodes>

        </subtrack>
       </track>

       <operations>
        <!--operation element represents one or more flights on a track-->
        <operation>
         <!-- user-defined operation id -->
         <id>T9.1</id>

         <!-- AEDT aircraftType for this operation -->
         <aircraftType>
          <airframeModel>Raytheon Beech 1900-C</airframeModel>
          <engineCode>PT67B</engineCode>
          <engineModCode>NONE </engineModCode>
         </aircraftType>

         <!-- number of times to fly this operation -->
         <numOperations>1.0</numOperations>

         <!-- user-defined flight number -->
         <flightNumber>CKE545</flightNumber>

         <!-- user-defined operation type  -->
         <userType>MU3001</userType>
```

```
        <!-- user-defined parameter data -->
        <userParam>J</userParam>

        <!-- arrival or departure airport and runway -->
        <departureAirport type="ICAO">KMDW</departureAirport>
        <departureRunway>04R</departureRunway>
        <arrivalAirport type="FAA">LIT</arrivalAirport>

        <!-- offTime for departures or onTime for arrivals -->
        <offTime>2009-11-10T15:02:00</offTime>

        <!-- aircraft profile  for this operation -->
        <saeProfile>STANDARD</saeProfile>
       </operation>
      </operations>
     </trackOpSet>

    </case>
   </caseSet>

   <annualization>
    <!-- user-defined scenario annulalization name -->
    <name>Alternative.config</name>

    <!-- Define one or more groups of cases and groups -->
    <annualizationGroup>

     <!-- Define rolloup weight for this group -->
     <weight>2.0</weight>

     <annualizationGroup>
      <weight>0.7</weight>

      <!-- Associate scenario case with this annualization group -->
      <annualizationCase>

       <!-- Specify case name to include -->
       <name>PlanB</name>

       <!-- Define rollup weight for this case -->
       <weight>1.0</weight>

      </annualizationCase>
     </annualizationGroup>
    </annualizationGroup>
   </annualization>
  </scenario>
 </study>
</AsifXml>
```

3.2 Create an Emissions Dispersion Study

An emissions dispersion study contains the same core elements as a simple study (Section 3.1), but requires more information about vehicles and features around the airport.

The following sections provide examples of the steps. This example should be used as an aid for understanding the ASIF format, and not as a data reference.

Step 1: Create empty study file

```
<?xml version="1.0" encoding="utf-8"?>
<AsifXml xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" version="1.2.11"
content="study">
 <study>
  <name>asif_emissions_example</name>
  <studyType>Dispersion</studyType>
  <emissionsUnits>Kilograms</emissionsUnits>
  <description>A sample emissions study</description>

  <!-- Add airport layouts here -->
  <!-- Add receptors here -->
  <!-- Add scenarios here -->

 </study>
</AsifXml>
```

Step 2: Populate airport layouts section

AEDT requires all airports in the study area to be declared. In addition to runways, declare stationary sources of emissions, such as generators, training fires, or boilers in this section. Also declare gates, terminals, and taxiways.

This sample demonstrates a simple case similar to the STUDY_PVD example study included with AEDT 2b. This sample uses simplified taxiway definitions, a single runway, and a single aircraft type.

Step 2a: Declare basic airport layout

The basic airport information and surrounding buildings can be defined according to the following example.

```
  <airportLayoutSet>
   <airportLayout>
    <name>Baseline-Theodore Francis Green State-2004</name>
    <airportCode type="ICAO">KPVD</airportCode>
    <!-- Start date of the study-->
    <startDate>2004-01-01</startDate>
    <!--Elevation of the airport above MSL in feet-->
    <elevation>55</elevation>
    <latitude>41.723999</latitude>
    <longitude>-71.428221</longitude>
    <buildingSet>
     <building>
      <!--Name of the building-->
      <name>Terminal</name>
      <!--Elevation of the building in meters-->
      <elevation>16.764</elevation>
      <!--Height of building in meters-->
      <height>0</height>
      <polygonCoords>
```

```
      <vertex>
       <latitude>41.74214308945087</latitude>
       <longitude>-71.413044097333525</longitude>
      </vertex>
      <vertex>
       <latitude>41.7418685788759</latitude>
       <longitude>-71.4124212593739</longitude>
      </vertex>
      <vertex>
       <latitude>41.742856388006238</latitude>
       <longitude>-71.411523291021965</longitude>
      </vertex>
      <vertex>
       <latitude>41.743130903444673</latitude>
       <longitude>-71.4121461346995</longitude>
      </vertex>
     </polygonCoords>
    </building>
   </buildingSet>
```

Step 2b: Create stationary sources

Define each stationary source with an individual location definition, as well as other properties that describe the nature or amount of emissions. Each stationary source may have different elements associated with it. The example below gives the declaration for a simple emergency generator.

```
   <stationarySourceSet>
    <stationarySource>
     <!-- Name of the stationary source -->
     <name>Emergency Generator-Baseline-KPVD-2004</name>
     <pointStationarySource>
      <pointCoord>
       <!-- Lat/lon coordinates-->
       <latitude>41.743248909982285</latitude>
       <longitude>-71.41216809054572</longitude>
      </pointCoord>
      <!--Elevation in meters-->
      <baseElevation>16.764</baseElevation>
      <!-- Release height in meters-->
      <releaseHeight>12.192</releaseHeight>
      <!-- Velocity of release gas in meters/sec-->
      <gasVelocity>15</gasVelocity>
      <!-- Diameter of stack where gas escapes the source in meters-->
      <stackDiameter>0.100584</stackDiameter>
      <!-- Temperature at point in Fahrenheit-->
      <temperature>400</temperature>
     </pointStationarySource>
     <categoryGenerator>
      <!-- Type code of object-->
      <typeCode>2</typeCode>
      <!-- Horsepower rating-->
      <powerRatingHorsepower>1340</powerRatingHorsepower>
      <!-- Emissions factors-->
      <CO_EF>3.03</CO_EF>
      <TOC_EF>1.14</TOC_EF>
      <NOx_EF>14</NOx_EF>
```

```
      <SOx_EF>0.93</SOx_EF>
      <PM10_EF>0.998</PM10_EF>
      <!-- Percent of emissions removed by pollution control measures-->
      <pollutionControlFactorTOC>0</pollutionControlFactorTOC>
      <pollutionControlFactorCO>0</pollutionControlFactorCO>
      <pollutionControlFactorNOx>0</pollutionControlFactorNOx>
      <pollutionControlFactorSOx>0</pollutionControlFactorSOx>
      <pollutionControlFactorPM10>0</pollutionControlFactorPM10>
      <pm25ToPm10Ratio>1</pm25ToPm10Ratio>
     </categoryGenerator>
    </stationarySource>
   </stationarySourceSet>
```

Step 2c: Define airport gates

Airport gates are polygons defined by a set of latitude and longitude coordinates. This example declares a single gate for simplicity; other studies will feature multiple gates, depending on traffic quantity and composition.

```
   <gateSet>
    <gate>
     <name>AC</name>
     <!-- Elevation of the gate in meters-->
     <elevation>16.76</elevation>
     <releaseHeight>1.499616</releaseHeight>
     <!-- Horizontal dispersion parameter-->
     <sigmaY>0.1</sigmaY>
     <!-- Vertical dispersion parameter-->
     <sigmaZ>0.1</sigmaZ>
     <polygonCoords>
      <!-- Coordinates of gate vertices-->
      <vertex>
       <latitude>41.745139411257995</latitude>
       <longitude>-71.41015590887973</longitude>
      </vertex>
      <vertex>
       <latitude>41.744540948170368</latitude>
       <longitude>-71.408847926936545</longitude>
      </vertex>
      <vertex>
       <latitude>41.739914698948347</latitude>
       <longitude>-71.412700203804789</longitude>
      </vertex>
      <vertex>
       <latitude>41.740535077331714</latitude>
       <longitude>-71.414048427453068</longitude>
      </vertex>
      <vertex>
       <latitude>41.74214308945087</latitude>
       <longitude>-71.413044097333525</longitude>
      </vertex>
      <vertex>
       <latitude>41.741863092355707</latitude>
       <longitude>-71.4124359172483</longitude>
      </vertex>
      <vertex>
```

```
        <latitude>41.743155492229967</latitude>
        <longitude>-71.411380309528937</longitude>
       </vertex>
       <vertex>
        <latitude>41.743501289605305</latitude>
        <longitude>-71.411515795554152</longitude>
       </vertex>
      </polygonCoords>
     </gate>
    </gateSet>
```

Step 2d: Declare taxiways

Taxiways are line segments that link gates, runways, and other taxiways. They are composed of sequences of latitude and longitude coordinates, and specify the speed of aircraft that use them at each node.

```
    <taxiwaySet>
     <taxiway>
      <name>AC to 23</name>
      <!-- Width of emmission dispersion around taxiway in meters-->
      <dispersionWidth>20</dispersionWidth>
      <taxiNodeSet>
       <taxiNode>
        <latitude>41.742510605080867</latitude>
        <longitude>-71.411486738878608</longitude>
        <!-- Elevation in meters)-->
        <elevation>16.76</elevation>
        <!-- Speed of aircraft at node in meters/sec-->
        <speed>17.26</speed>
       </taxiNode>
       <taxiNode>
        <latitude>41.746840990965104</latitude>
        <longitude>-71.397780701297123</longitude>
        <elevation>16.76</elevation>
        <speed>17.26</speed>
       </taxiNode>
      </taxiNodeSet>
     </taxiway>
     <taxiway>
      <name>AC to 5</name>
      <dispersionWidth>20</dispersionWidth>
      <taxiNodeSet>
       <taxiNode>
        <latitude>41.742510605080867</latitude>
        <longitude>-71.411486738878608</longitude>
        <elevation>16.76</elevation>
        <speed>17.26</speed>
       </taxiNode>
       <taxiNode>
        <latitude>41.730402908060768</latitude>
        <longitude>-71.411541169494924</longitude>
        <elevation>16.76</elevation>
        <speed>17.26</speed>
       </taxiNode>
```

```
    </taxiNodeSet>
   </taxiway>
  </taxiwaySet>
```

Step 2e: Create runways

Runways are used by departing and arriving aircraft, and are linked by taxiways. A single physical runway is defined from both ends; a runway from point A to point B is considered a separate runway than point B to point A.

```
  <runwaySet>
   <runway>
    <!-- Length of runway in feet-->
    <length>7069</length>
    <!-- Width of runway in feet-->
    <width>150</width>
    <runwayEnd>
     <name>05</name>
     <latitude>41.730402908060768</latitude>
     <longitude>-71.411541169494924</longitude>
     <!--Elevation of the runway in feet-->
     <elevation>54.986875960838894</elevation>
     <!-- Glide slope for runway's endpoint in degrees-->
     <glideSlope>3</glideSlope>
    </runwayEnd>
    <runwayEnd>
     <name>23</name>
     <latitude>41.746840990965104</latitude>
     <longitude>-71.397780701297123</longitude>
     <elevation>54.986875960838894</elevation>
     <glideSlope>3</glideSlope>
    </runwayEnd>
   </runway>
  </runwaySet>
```

Step 2f: Assemble taxipaths

Taxipaths are a series of taxiways that guide an aircraft from the gate to the runway. In this example, simple two-point taxiways are used to connect the gate and the runway. In other studies, taxipaths can be composed of multiple taxiway line segments, and separate taxipaths may share taxiways in common as paths across the airport.

```
  <taxipathSet>
   <taxipath>
    <!-- Name of the gate associated with the path-->
    <gateName>AC</gateName>
    <!-- Name of the runway associated with the path-->
    <runwayName>05</runwayName>
    <!-- Traffic direction-->
    <direction>Outbound</direction>
    <!-- Name of the taxiways in the path-->
    <taxiwayName>AC to 5</taxiwayName>
   </taxipath>
   <taxipath>
    <gateName>AC</gateName>
    <runwayName>05</runwayName>
```

```
    <direction>Inbound</direction>
    <taxiwayName>AC to 5</taxiwayName>
   </taxipath>
   <taxipath>
    <gateName>AC</gateName>
    <runwayName>23</runwayName>
    <direction>Outbound</direction>
    <taxiwayName>AC to 23</taxiwayName>
   </taxipath>
   <taxipath>
    <gateName>AC</gateName>
    <runwayName>23</runwayName>
    <direction>Inbound</direction>
    <taxiwayName>AC to 23</taxiwayName>
   </taxipath>
  </taxipathSet>
```

Step 2g: Define tracks

Tracks are paths flown by aircraft, and are defined for an aircraft type (fixed-wing or rotary-wing) and an operation type (arrival, departure, or touch & go). Each track is made up of nodes and defined for a runway. The following example provides the structure for one track- a full study must have at least one track defined for each operation type, runway, and wing type of aircraft in the study.

```
  <trackSet>
   <track>
    <name>05_A_FixedWing</name>
    <!-- Operation type for the track; arrival (A), departure (D), or touch
    & go (T)-->
    <optype>A</optype>
    <!-- Wing type; fixed (F) or rotary (R)-->
    <wingtype>F</wingtype>
    <airport type="ICAO">KPVD</airport>
    <runway>05</runway>
    <subtrack>
     <!-- ID of the subtrack-->
     <id>0</id>
     <!-- Dispersion of traffic across this subtrack-->
     <dispersionWeight>1</dispersionWeight>
     <trackNodes>
      <!-- Nodes that make up this track-->
      <trackNode>
       <latitude>40.328096427261926</latitude>
       <longitude>-72.555207007324171</longitude>
      </trackNode>
      <trackNode>
       <latitude>41.730402908060768</latitude>
       <longitude>-71.411541169494924</longitude>
      </trackNode>
      <trackNode>
       <latitude>41.746840990965104</latitude>
       <longitude>-71.397780701297123</longitude>
      </trackNode>
     </trackNodes>
    </subtrack>
```

```
    </track>
```

Step 2h: Create airport configurations

Airport configurations give the number of arrivals and departures per hour, and the distribution of flights across associated runways. A single configuration is used in the following example, but multiple configurations could be used in a study.

```
  <airportConfigGroupSet>
   <airportConfigGroup>
    <groupName>Baseline-Theodore Francis Green State-2004</groupName>
    <airportConfig>
     <configurationName>Configuration</configurationName>
     <!-- Flag to use an operation distribution-->
     <useDistribution>false</useDistribution>
     <airportCapacity>
      <!-- Pareto curve points for airport operations-->
      <capacityPoint>
       <arrivalsPerHour>27</arrivalsPerHour>
       <departuresPerHour>52</departuresPerHour>
      </capacityPoint>
      <capacityPoint>
       <arrivalsPerHour>52</arrivalsPerHour>
       <departuresPerHour>27</departuresPerHour>
      </capacityPoint>
     </airportCapacity>
     <runwayAssignmentSet>
      <runwayAssignment>
       <!-- Aircraft size for assignments; small (S), large (L),
       or heavy (H)-->
       <aircraftSize>S</aircraftSize>
       <runway>23</runway>
       <!-- Percent of arrival operations on runway; all arrival
       percentages must sum to 100%-->
       <arrivalPercentage>60</arrivalPercentage>
       <!-- Percent of departure operations on runway; all departure
       percentages must sum to 100%-->
       <departurePercentage>60</departurePercentage>
       <!-- Percent of touch & go operations on runway; all touch & go
       percentages must sum to 100%-->
       <tgoPercentage>60</tgoPercentage>
      </runwayAssignment>
      <runwayAssignment>
       <aircraftSize>S</aircraftSize>
       <runway>05</runway>
       <arrivalPercentage>40</arrivalPercentage>
       <departurePercentage>40</departurePercentage>
       <tgoPercentage>40</tgoPercentage>
      </runwayAssignment>
      <runwayAssignment>
       <aircraftSize>L</aircraftSize>
       <runway>23</runway>
       <arrivalPercentage>60</arrivalPercentage>
       <departurePercentage>60</departurePercentage>
       <tgoPercentage>60</tgoPercentage>
```

```
        </runwayAssignment>
        <runwayAssignment>
         <aircraftSize>L</aircraftSize>
         <runway>05</runway>
         <arrivalPercentage>40</arrivalPercentage>
         <departurePercentage>40</departurePercentage>
         <tgoPercentage>40</tgoPercentage>
        </runwayAssignment>
        <runwayAssignment>
         <aircraftSize>H</aircraftSize>
         <runway>23</runway>
         <arrivalPercentage>60</arrivalPercentage>
         <departurePercentage>60</departurePercentage>
         <tgoPercentage>60</tgoPercentage>
        </runwayAssignment>
        <runwayAssignment>
         <aircraftSize>H</aircraftSize>
         <runway>05</runway>
         <arrivalPercentage>40</arrivalPercentage>
         <departurePercentage>40</departurePercentage>
         <tgoPercentage>40</tgoPercentage>
        </runwayAssignment>
       </runwayAssignmentSet>
      </airportConfig>
     </airportConfigGroup>
    </airportConfigGroupSet>
```

Step 2i: Declare operational profiles

Three profiles are required when using operational profiles in AEDT – quarter-hourly, daily, and monthly. These profiles provide a weighting factor that determines how often activity occurs during the time period. Aircraft, stationary sources, and ground vehicles can all be assigned operational profiles. For this example, the same three profiles are being used for all vehicles, but in practice profiles will differ for GSEs, aircraft, and stationary sources.

Only the first part of the quarterly-hour profile is shown here, for brevity. The entire profile is given in the example file.

```
    <quarterHourlyProfileSet>
     <quarterHourlyProfile>
      <profileName>Example Quarter-Hour-Baseline-KPVD</profileName>
      <!-- Weighting of operations at this time bin-->
      <temporalFactor startHour="0" startMinutes="0">0.1777</temporalFactor>
      <temporalFactor startHour="0" startMinutes="15">0.1777</temporalFactor>
      <temporalFactor startHour="0" startMinutes="30">0.1777</temporalFactor>
      <temporalFactor startHour="0" startMinutes="45">0.1777</temporalFactor>
      <temporalFactor startHour="1" startMinutes="0">0.0967</temporalFactor>

  ...

     </quarterHourlyProfile>
    </quarterHourlyProfileSet>

    <dailyProfileSet>
     <dailyProfile>
```

```
      <profileName>Example Daily-Baseline-KPVD</profileName>
      <temporalFactorSunday>0.7939</temporalFactorSunday>
      <temporalFactorMonday>0.9916</temporalFactorMonday>
      <temporalFactorTuesday>0.9867</temporalFactorTuesday>
      <temporalFactorWednesday>1</temporalFactorWednesday>
      <temporalFactorThursday>0.9245</temporalFactorThursday>
      <temporalFactorFriday>0.8743</temporalFactorFriday>
      <temporalFactorSaturday>0.7887</temporalFactorSaturday>
     </dailyProfile>
    </dailyProfileSet>

    <monthlyProfileSet>
     <monthlyProfile>
      <profileName>Example Monthly-Baseline-KPVD</profileName>
      <temporalFactorJanuary>0.6265</temporalFactorJanuary>
      <temporalFactorFebruary>0.6791</temporalFactorFebruary>
      <temporalFactorMarch>0.775</temporalFactorMarch>
      <temporalFactorApril>0.8322</temporalFactorApril>
      <temporalFactorMay>0.8741</temporalFactorMay>
      <temporalFactorJune>0.9033</temporalFactorJune>
      <temporalFactorJuly>1</temporalFactorJuly>
      <temporalFactorAugust>0.9876</temporalFactorAugust>
      <temporalFactorSeptember>0.7994</temporalFactorSeptember>
      <temporalFactorOctober>0.9428</temporalFactorOctober>
      <temporalFactorNovember>0.8522</temporalFactorNovember>
      <temporalFactorDecember>0.7806</temporalFactorDecember>
     </monthlyProfile>
    </monthlyProfileSet>

    <activityProfileSet>
     <activityProfile name="ActivityProfile-Baseline-KPVD-6-5-6">
      <quarterHourlyProfile>Example Quarter-Hour-Baseline-
KPVD</quarterHourlyProfile>
      <dailyProfile>Example Daily-Baseline-KPVD</dailyProfile>
      <monthlyProfile>Example Monthly-Baseline-KPVD</monthlyProfile>
     </activityProfile>
  </activityProfileSet>
```

Step 3: Create receptor set

The receptor set defines a set of points or an area in which noise or in this example, emission concentrations will be modeled. One or more <receptorSet> elements are required in order to generate emissions results.

```
  <receptorSet>
   <name>CartesianReceptors-Baseline-KPVD</name>
   <pointReceptor>
    <name>01</name>
    <latitude>41.75569223042968</latitude>
    <longitude>-71.401734633637048</longitude>
    <!-- Elevation above MSL in feet-->
    <elevation>54.986875960838894</elevation>
    <!-- Height of the receptor above ground in feet-->
    <receptorHeight>5.9099999269584984</receptorHeight>
   </pointReceptor>
   <pointReceptor>
```

```
    <name>01D</name>
    <latitude>41.732126660490067</latitude>
    <longitude>-71.4141821642798</longitude>
    <elevation>54.986875960838894</elevation>
    <receptorHeight>5.9099999269584984</receptorHeight>
   </pointReceptor>
   <pointReceptor>
    <name>01S</name>
    <latitude>41.762630555759486</latitude>
    <longitude>-71.386077230440634</longitude>
    <elevation>54.986875960838894</elevation>
    <receptorHeight>5.9099999269584984</receptorHeight>
   </pointReceptor>
  </receptorSet>
```

Step 4: Create scenario and case hierarchy

An ASIF study is organized into scenarios. A scenario contains a set of cases, which contain groups of aircraft operations, non-aircraft operations, and runup operations.

Step 4a: Define airport scenario properties

Define the basic scenario properties including airport information, weather data, and study time.

```
  <scenario>
   <name>2004-Baseline</name>
   <!-- Scenario start time-->
   <startTime>2004-01-01T00:00:00</startTime>
   <!-- Scenario duration in hours-->
   <duration>8760</duration>
   <!-- Taxi model type for scenario-->
   <taxiModel>Sequencing</taxiModel>
   <!-- Time in mode; either Performance or ICAO-->
   <timeInModeBasis>Performance</timeInModeBasis>
   <!-- Aircraft performance model-->
   <acftPerfModel>SAE1845</acftPerfModel>
   <!-- Flag to include bank angle calculations-->
   <bankAngle>false</bankAngle>
   <!-- Portion of fuel that becomes sulfuric acid when combusted-->
   <sulfurConversionRate>0.005</sulfurConversionRate>
   <description>A sample emissions study scenario</description>
   <scenarioAirportLayoutSet>
    <scenarioAirportLayout>
     <airportLayoutName>Baseline-Theodore Francis Green State-2004
     </airportLayoutName>
     <!-- Height where vigorous mixing of gases takes place, in feet-->
     <mixingHeight>2226</mixingHeight>
     <!-- Flag to use hourly meteorological data, rather than
     annual averages-->
     <useHourlyMetData>true</useHourlyMetData>
     <!-- Average temperature in Fahrenheit-->
     <averageTemperature>50.4</averageTemperature>
     <!-- Average daily high temperature in Fahrenheit-->
     <dailyHighTemperature>69.35</dailyHighTemperature>
     <!-- Average daily low temperature in Fahrenheit-->
     <dailyLowTemperature>48.65</dailyLowTemperature>
     <!-- Average barometric pressure in inches Hg.-->
```

```
    <pressure>29.92</pressure>
    <!-- Average barometric pressure at MSL in inches Hg.-->
    <pressureMSL>29.92</pressureMSL>
    <!-- Relative humidity percentage-->
    <humidty>60</humidty>
    <!--Wind speed at surface-->
    <windSpeed>8</windSpeed>
    <!-- Wind direction in degrees-->
    <windDirection>0</windDirection>
    <!--Ceiling in feet-->
    <ceiling>99999.99</ceiling>
    <!--Visibility in miles-->
    <visibility>50</visibility>
   </scenarioAirportLayout>
  </scenarioAirportLayoutSet>
```

Step 4b: Define the stationary sources case

There are two cases in this example; the first contains operations by the airport's stationary sources and a population of defined GSEs, while the second contains the operations by aircraft and GSEs specifically assigned to those aircraft. This first case defines operations by stationary sources and their properties.

```
  <case>
   <caseId>-1623425151</caseId>
   <name>2004_Baseline_Theodore Francis Green State_NonAircraft</name>
   <startTime>2004-01-01T00:00:00</startTime>
   <duration>8760</duration>
   <stationarySourceOperationSet>
    <stationarySourceOperation>
     <refName>Emergency Generator-Baseline-KPVD-2004</refName>
     <emissionsUsage>
      <!--Annualized ammount of emissions-->
      <yearlyValue>500</yearlyValue>
      <activityProfile>ActivityProfile-Baseline-KPVD-6-5-6
      </activityProfile>
     </emissionsUsage>
    </stationarySourceOperation>
   </stationarySourceOperationSet>
   <groundSupportEquipmentPopulationOperationSet>
    <groundSupportEquipmentPopulationOperation>
     <!--ID for GSE type-->
     <gseID>30</gseID>
     <!--Fuel used by the GSE-->
     <fuelType>Diesel</fuelType>
     <!--GSE type-->
     <gseType>Generator</gseType>
     <!--Number of GSEs-->
     <numUnits>1</numUnits>
     <!--Operation time, yearly, in hours-->
     <annualOpTime>1630</annualOpTime>
     <!--Profile of activity to use-->
     <activityProfile>ActivityProfile-Baseline-KPVD-6-5-6</activityProfile>
     <!--Horsepower of GSE-->
     <horsepower>158</horsepower>
     <!--User nonroad flag-->
```

```
      <useNonRoad>false</useNonRoad>
      <groundSupportEquipmentGateAssignmentSet>
       <groundSupportEquipmentGateAssignment>
        <!--Gate the GSE is assigned to-->
        <gate>AC</gate>
        <!--Fraction of GSE assigned to gate-->
        <fractionAssigned>1</fractionAssigned>
       </groundSupportEquipmentGateAssignment>
      </groundSupportEquipmentGateAssignmentSet>
     </groundSupportEquipmentPopulationOperation>
    </groundSupportEquipmentPopulationOperationSet>
   </case>
```

Step 4c: Define the aircraft operations case

This case defines operations performed by aircraft, as well as operations performed by GSEs assigned specifically to those aircraft. In this example, a single aircraft type is used, with a simplified set of assigned GSEs. In practice , a variety of aircraft types and GSEs would appear in a single study.

```
   <case>
    <caseId>466140608</caseId>
    <name>2004_Baseline_Theodore Francis Green State_Operations</name>
    <startTime>2004-01-01T00:00:00</startTime>
    <duration>8760</duration>
    <!--Number of minutes to complete a taxi-in-->
    <totalTaxiInTime>7</totalTaxiInTime>
    <!--Number of minutes to complete a taxi-out-->
    <totalTaxiOutTime>19</totalTaxiOutTime>
    <!--Number of minutes to complete an unimpeded taxi-in-->
    <unimpededTaxiInTime>0</unimpededTaxiInTime>
    <!--Number of minutes to complete an unimpeded taxi-out-->
    <unimpededTaxiOutTime>0</unimpededTaxiOutTime>
    <operation>
     <id>D_1</id>
     <aircraftType>
      <!--Aircraft type-->
      <airframeModel>Airbus A319-100 Series</airframeModel>
      <!--Engine type-->
      <engineCode>3CM028</engineCode>
      <!--APU type-->
      <apuName>APU GTCP 36-300 (80HP)</apuName>
      <!--GSEs assigned to the aircraft-->
      <groundSupportEquipmentLTOOperationSet>
       <groundSupportEquipmentLTOOperation>
        <gseID>13</gseID>
        <fuelType>Gasoline</fuelType>
        <horsepower>107</horsepower>
        <!-- Loading of the GSE-->
        <loadFactor>0.55</loadFactor>
        <!--Operation time for a departure-->
        <departureOpTime>38</departureOpTime>
        <!--Operation time for an arrival-->
        <arrivalOpTime>37</arrivalOpTime>
       </groundSupportEquipmentLTOOperation>
       <groundSupportEquipmentLTOOperation>
```

```
      <gseID>14</gseID>
      <fuelType>Gasoline</fuelType>
      <horsepower>107</horsepower>
      <loadFactor>0.5</loadFactor>
      <departureOpTime>24</departureOpTime>
      <arrivalOpTime>24</arrivalOpTime>
     </groundSupportEquipmentLTOOperation>
    </groundSupportEquipmentLTOOperationSet>
   </aircraftType>
   <!--Number of operations-->
   <numOperations>5</numOperations>
   <!--Type of operation; A, D, or T-->
   <opType>D</opType>
   <departureAirport type="ICAO">KPVD</departureAirport>
   <departureGate>AC</departureGate>
   <!--Operation time for APU for departure in minutes-->
   <departureApuTime>3.5</departureApuTime>
   <!--Taxi-out duration in minutes-->
   <taxiOutDuration>10.72</taxiOutDuration>
   <!--Taxi-in duration in minutes-->
   <taxiInDuration>6.24</taxiInDuration>
   <!--Activity profile to use-->
   <activityProfile>ActivityProfile-Baseline-KPVD-6-5-6</activityProfile>
   <!--Aircraft's weight in pounds-->
   <actypeWeight>146100</actypeWeight>
   <!--Sulfur content of the fuel used in this operation in percentage-->
   <fuelSulfurContent>0.00068</fuelSulfurContent>
  </operation>
  <operation>
   <id>A_1</id>
   <aircraftType>
    <airframeModel>Airbus A319-100 Series</airframeModel>
    <engineCode>3CM028</engineCode>
    <apuName>APU GTCP 36-300 (80HP)</apuName>
    <groundSupportEquipmentLTOOperationSet>
     <groundSupportEquipmentLTOOperation>
      <gseID>13</gseID>
      <fuelType>Gasoline</fuelType>
      <horsepower>107</horsepower>
      <loadFactor>0.55</loadFactor>
      <departureOpTime>38</departureOpTime>
      <arrivalOpTime>37</arrivalOpTime>
     </groundSupportEquipmentLTOOperation>
     <groundSupportEquipmentLTOOperation>
      <gseID>14</gseID>
      <fuelType>Gasoline</fuelType>
      <horsepower>107</horsepower>
      <loadFactor>0.5</loadFactor>
      <departureOpTime>24</departureOpTime>
      <arrivalOpTime>24</arrivalOpTime>
     </groundSupportEquipmentLTOOperation>
    </groundSupportEquipmentLTOOperationSet>
   </aircraftType>
   <numOperations>5</numOperations>
   <opType>A</opType>
   <arrivalAirport type="ICAO">KPVD</arrivalAirport>
```

```
      <arrivalGate>AC</arrivalGate>
      <arrivalApuTime>3.5</arrivalApuTime>
      <taxiOutDuration>10.72</taxiOutDuration>
      <taxiInDuration>6.24</taxiInDuration>
      <activityProfile>ActivityProfile-Baseline-KPVD-6-5-6</activityProfile>
      <actypeWeight>137800</actypeWeight>
      <fuelSulfurContent>0.00068</fuelSulfurContent>
     </operation>
    </case>
```

Step 5: Create scenario's annualization tree

Like the noise study (Section 3.1), the emissions results must be annualized in order to create results that represent emissions over a time period of interest.

```
   <annualization>
    <!-- user-defined scenario annulalization name -->
    <name>Sample Annualization</name>

    <!-- Define one or more groups of cases and groups -->
    <annualizationGroup>

     <!-- Define rolloup weight for this group -->
     <weight>2.0</weight>

     <annualizationGroup>
      <weight>0.7</weight>

      <!-- Associate scenario case with this annualization group -->
      <annualizationCase>

       <!-- Specify case name to include -->
       <name>2004_Baseline_Theodore Francis Green State_Operations</name>

       <!-- Define rollup weight for this case -->
       <weight>1.0</weight>

      </annualizationCase>
     </annualizationGroup>
    </annualizationGroup>
  </annualization>
```

Step 6: Full ASIF of a Sample Emissions Dispersion Study

The full emissions dispersion sample ASIF is as follows:

```
<?xml version="1.0" encoding="utf-8"?>
<AsifXml xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" version="1.2.11"
content="study">
 <study>
  <name>emissions_sample_asif_short</name>
  <studyType>Dispersion</studyType>
  <emissionsUnits>Kilograms</emissionsUnits>
  <description>A sample emissions study</description>
```

```
<airportLayoutSet>
 <airportLayout>
  <name>Baseline-Theodore Francis Green State-2004</name>
  <airportCode type="ICAO">KPVD</airportCode>
  <!-- Start date of the study-->
  <startDate>2004-01-01</startDate>
  <!--Elevation of the airport above MSL in feet-->
  <elevation>55</elevation>
  <latitude>41.723999</latitude>
  <longitude>-71.428221</longitude>
  <buildingSet>
   <building>
    <!--Name of the building-->
    <name>Terminal</name>
    <!--Elevation of the building in meters-->
    <elevation>16.764</elevation>
    <!--Height of building in meters-->
    <height>0</height>
    <polygonCoords>
     <vertex>
      <latitude>41.74214308945087</latitude>
      <longitude>-71.413044097333525</longitude>
     </vertex>
     <vertex>
      <latitude>41.7418685788759</latitude>
      <longitude>-71.4124212593739</longitude>
     </vertex>
     <vertex>
      <latitude>41.742856388006238</latitude>
      <longitude>-71.411523291021965</longitude>
     </vertex>
     <vertex>
      <latitude>41.743130903444673</latitude>
      <longitude>-71.4121461346995</longitude>
     </vertex>
    </polygonCoords>
   </building>
  </buildingSet>
  <stationarySourceSet>
   <stationarySource>
    <!-- Name of the stationary source -->
    <name>Emergency Generator-Baseline-KPVD-2004</name>
    <pointStationarySource>
     <pointCoord>
      <!-- Lat/lon coordinates-->
      <latitude>41.743248909982285</latitude>
      <longitude>-71.41216809054572</longitude>
     </pointCoord>
     <!--Elevation in meters-->
     <baseElevation>16.764</baseElevation>
     <!-- Release height in meters-->
     <releaseHeight>12.192</releaseHeight>
     <!-- Velocity of release gas in meters/sec-->
     <gasVelocity>15</gasVelocity>
     <!-- Diameter of stack where gas escapes the source in meters-->
     <stackDiameter>0.100584</stackDiameter>
```

```
      <!-- Temperature at point in Fahrenheit-->
      <temperature>400</temperature>
     </pointStationarySource>
     <categoryGenerator>
      <!-- Type code of object-->
      <typeCode>2</typeCode>
      <!-- Horsepower rating-->
      <powerRatingHorsepower>1340</powerRatingHorsepower>
      <!-- Weighting factors for emissions elements-->
      <CO_EF>3.03</CO_EF>
      <TOC_EF>1.14</TOC_EF>
      <NOx_EF>14</NOx_EF>
      <SOx_EF>0.93</SOx_EF>
      <PM10_EF>0.998</PM10_EF>
      <!-- Percent of emissions removed by pollution control measures-->
      <pollutionControlFactorTOC>0</pollutionControlFactorTOC>
      <pollutionControlFactorCO>0</pollutionControlFactorCO>
      <pollutionControlFactorNOx>0</pollutionControlFactorNOx>
      <pollutionControlFactorSOx>0</pollutionControlFactorSOx>
      <pollutionControlFactorPM10>0</pollutionControlFactorPM10>
      <pm25ToPm10Ratio>1</pm25ToPm10Ratio>
     </categoryGenerator>
    </stationarySource>
   </stationarySourceSet>
   <gateSet>
    <gate>
     <name>AC</name>
     <!-- Elevation of the gate in meters-->
     <elevation>16.76</elevation>
     <releaseHeight>1.499616</releaseHeight>
     <!-- Horizontal dispersion parameter-->
     <sigmaY>0.1</sigmaY>
     <!-- Vertical dispersion parameter-->
     <sigmaZ>0.1</sigmaZ>
     <polygonCoords>
      <!-- Coordinates of gate vertices-->
      <vertex>
       <latitude>41.745139411257995</latitude>
       <longitude>-71.41015590887973</longitude>
      </vertex>
      <vertex>
       <latitude>41.744540948170368</latitude>
       <longitude>-71.408847926936545</longitude>
      </vertex>
      <vertex>
       <latitude>41.739914698948347</latitude>
       <longitude>-71.412700203804789</longitude>
      </vertex>
      <vertex>
       <latitude>41.740535077331714</latitude>
       <longitude>-71.414048427453068</longitude>
      </vertex>
      <vertex>
       <latitude>41.74214308945087</latitude>
       <longitude>-71.413044097333525</longitude>
      </vertex>
```

```
      <vertex>
       <latitude>41.741863092355707</latitude>
       <longitude>-71.4124359172483</longitude>
      </vertex>
      <vertex>
       <latitude>41.743155492229967</latitude>
       <longitude>-71.411380309528937</longitude>
      </vertex>
      <vertex>
       <latitude>41.743501289605305</latitude>
       <longitude>-71.411515795554152</longitude>
      </vertex>
     </polygonCoords>
    </gate>
   </gateSet>
   <taxiwaySet>
    <taxiway>
     <name>AC to 23</name>
     <!-- Width of emmission dispersion around taxiway in meters-->
     <dispersionWidth>20</dispersionWidth>
     <taxiNodeSet>
      <taxiNode>
       <latitude>41.742510605080867</latitude>
       <longitude>-71.411486738878608</longitude>
       <!-- Elevation in meters)-->
       <elevation>16.76</elevation>
       <!-- Speed of aircraft at node in meters/sec-->
       <speed>17.26</speed>
      </taxiNode>
      <taxiNode>
       <latitude>41.746840990965104</latitude>
       <longitude>-71.397780701297123</longitude>
       <elevation>16.76</elevation>
       <speed>17.26</speed>
      </taxiNode>
     </taxiNodeSet>
    </taxiway>
    <taxiway>
     <name>AC to 5</name>
     <dispersionWidth>20</dispersionWidth>
     <taxiNodeSet>
      <taxiNode>
       <latitude>41.742510605080867</latitude>
       <longitude>-71.411486738878608</longitude>
       <elevation>16.76</elevation>
       <speed>17.26</speed>
      </taxiNode>
      <taxiNode>
       <latitude>41.730402908060768</latitude>
       <longitude>-71.411541169494924</longitude>
       <elevation>16.76</elevation>
       <speed>17.26</speed>
      </taxiNode>
     </taxiNodeSet>
    </taxiway>
   </taxiwaySet>
```

```
<runwaySet>
 <runway>
  <!-- Length of runway in feet-->
  <length>7069</length>
  <!-- Width of runway in feet-->
  <width>150</width>
  <runwayEnd>
   <name>05</name>
   <latitude>41.730402908060768</latitude>
   <longitude>-71.411541169494924</longitude>
   <!--Elevation of the runway in feet-->
   <elevation>54.986875960838894</elevation>
   <!-- Glide slope for runway's endpoint in degrees-->
   <glideSlope>3</glideSlope>
  </runwayEnd>
  <runwayEnd>
   <name>23</name>
   <latitude>41.746840990965104</latitude>
   <longitude>-71.397780701297123</longitude>
   <elevation>54.986875960838894</elevation>
   <glideSlope>3</glideSlope>
  </runwayEnd>
 </runway>
</runwaySet>
<taxipathSet>
 <taxipath>
  <!-- Name of the gate associated with the path-->
  <gateName>AC</gateName>
  <!-- Name of the runway associated with the path-->
  <runwayName>05</runwayName>
  <!-- Traffic direction-->
  <direction>Outbound</direction>
  <!-- Name of the taxiways in the path-->
  <taxiwayName>AC to 5</taxiwayName>
 </taxipath>
 <taxipath>
  <gateName>AC</gateName>
  <runwayName>05</runwayName>
  <direction>Inbound</direction>
  <taxiwayName>AC to 5</taxiwayName>
 </taxipath>
 <taxipath>
  <gateName>AC</gateName>
  <runwayName>23</runwayName>
  <direction>Outbound</direction>
  <taxiwayName>AC to 23</taxiwayName>
 </taxipath>
 <taxipath>
  <gateName>AC</gateName>
  <runwayName>23</runwayName>
  <direction>Inbound</direction>
  <taxiwayName>AC to 23</taxiwayName>
 </taxipath>
</taxipathSet>
<trackSet>
 <track>
```

```
      <name>05_A_FixedWing</name>
      <!-- Operation type for the track; arrival (A), departure (D), or touch
& go (T)-->
      <optype>A</optype>
      <!-- Wing type; fixed (F) or rotary (R)-->
      <wingtype>F</wingtype>
      <airport type="ICAO">KPVD</airport>
      <runway>05</runway>
      <subtrack>
       <!-- ID of the subtrack-->
       <id>0</id>
       <!-- Dispersion of traffic across this subtrack-->
       <dispersionWeight>1</dispersionWeight>
       <trackNodes>
        <!-- Nodes that make up this track-->
        <trackNode>
         <latitude>40.328096427261926</latitude>
         <longitude>-72.555207007324171</longitude>
        </trackNode>
        <trackNode>
         <latitude>41.730402908060768</latitude>
         <longitude>-71.411541169494924</longitude>
        </trackNode>
        <trackNode>
         <latitude>41.746840990965104</latitude>
         <longitude>-71.397780701297123</longitude>
        </trackNode>
       </trackNodes>
      </subtrack>
     </track>
     <track>
      <name>05_D_FixedWing</name>
      <optype>D</optype>
      <wingtype>F</wingtype>
      <airport type="ICAO">KPVD</airport>
      <runway>05</runway>
      <subtrack>
       <id>0</id>
       <dispersionWeight>1</dispersionWeight>
       <trackNodes>
        <trackNode>
         <latitude>41.730402908060768</latitude>
         <longitude>-71.411541169494924</longitude>
        </trackNode>
        <trackNode>
         <latitude>41.746840990965104</latitude>
         <longitude>-71.397780701297123</longitude>
        </trackNode>
        <trackNode>
         <latitude>43.13711787619534</latitude>
         <longitude>-70.202867639680548</longitude>
        </trackNode>
       </trackNodes>
      </subtrack>
     </track>
     <track>
```

```
      <name>05_T_FixedWing</name>
      <optype>T</optype>
      <wingtype>F</wingtype>
      <airport type="ICAO">KPVD</airport>
      <runway>05</runway>
      <subtrack>
       <id>0</id>
       <dispersionWeight>1</dispersionWeight>
       <trackVectors>
        <trackVector>
         <type>S</type>
         <distance>60761.15234375</distance>
        </trackVector>
        <trackVector>
         <type>R</type>
         <angle>180</angle>
         <radius>18228.345703125</radius>
        </trackVector>
        <trackVector>
         <type>S</type>
         <distance>121522.3046875</distance>
        </trackVector>
        <trackVector>
         <type>R</type>
         <angle>180</angle>
         <radius>18228.345703125</radius>
        </trackVector>
        <trackVector>
         <type>S</type>
         <distance>60761.15234375</distance>
        </trackVector>
       </trackVectors>
      </subtrack>
     </track>
     <track>
      <name>23_A_FixedWing</name>
      <optype>A</optype>
      <wingtype>F</wingtype>
      <airport type="ICAO">KPVD</airport>
      <runway>23</runway>
      <subtrack>
       <id>0</id>
       <dispersionWeight>1</dispersionWeight>
       <trackNodes>
        <trackNode>
         <latitude>43.13711787619534</latitude>
         <longitude>-70.202867639680548</longitude>
        </trackNode>
        <trackNode>
         <latitude>41.746840990965104</latitude>
         <longitude>-71.397780701297123</longitude>
        </trackNode>
        <trackNode>
         <latitude>41.730402908060768</latitude>
         <longitude>-71.411541169494924</longitude>
        </trackNode>
```

```
    </trackNodes>
   </subtrack>
  </track>
  <track>
   <name>23_D_FixedWing</name>
   <optype>D</optype>
   <wingtype>F</wingtype>
   <airport type="ICAO">KPVD</airport>
   <runway>23</runway>
   <subtrack>
    <id>0</id>
    <dispersionWeight>1</dispersionWeight>
    <trackNodes>
     <trackNode>
      <latitude>41.746840990965104</latitude>
      <longitude>-71.397780701297123</longitude>
     </trackNode>
     <trackNode>
      <latitude>41.730402908060768</latitude>
      <longitude>-71.411541169494924</longitude>
     </trackNode>
     <trackNode>
      <latitude>40.328096427261926</latitude>
      <longitude>-72.555207007324171</longitude>
     </trackNode>
    </trackNodes>
   </subtrack>
  </track>
  <track>
   <name>23_T_FixedWing</name>
   <optype>T</optype>
   <wingtype>F</wingtype>
   <airport type="ICAO">KPVD</airport>
   <runway>23</runway>
   <subtrack>
    <id>0</id>
    <dispersionWeight>1</dispersionWeight>
    <trackVectors>
     <trackVector>
      <type>S</type>
      <distance>60761.15234375</distance>
     </trackVector>
     <trackVector>
      <type>R</type>
      <angle>180</angle>
      <radius>18228.345703125</radius>
     </trackVector>
     <trackVector>
      <type>S</type>
      <distance>121522.3046875</distance>
     </trackVector>
     <trackVector>
      <type>R</type>
      <angle>180</angle>
      <radius>18228.345703125</radius>
     </trackVector>
```

```
        <trackVector>
         <type>S</type>
         <distance>60761.15234375</distance>
        </trackVector>
       </trackVectors>
      </subtrack>
     </track>
    </trackSet>
    <airportConfigGroupSet>
     <airportConfigGroup>
      <groupName>Baseline-Theodore Francis Green State-2004</groupName>
      <airportConfig>
       <configurationName>Configuration</configurationName>
       <!-- Flag to use an operation distribution-->
       <useDistribution>false</useDistribution>
       <airportCapacity>
        <!-- Pareto curve points for airport operations-->
        <capacityPoint>
         <arrivalsPerHour>27</arrivalsPerHour>
         <departuresPerHour>52</departuresPerHour>
        </capacityPoint>
        <capacityPoint>
         <arrivalsPerHour>52</arrivalsPerHour>
         <departuresPerHour>27</departuresPerHour>
        </capacityPoint>
       </airportCapacity>
       <runwayAssignmentSet>
        <runwayAssignment>
         <!-- Aircraft size for assignments; small (S), large (L), or heavy
(H)-->
         <aircraftSize>S</aircraftSize>
         <runway>23</runway>
         <!-- Percent of arrival operations on runway; all arrival
percentages must sum to 100%-->
         <arrivalPercentage>60</arrivalPercentage>
         <!-- Percent of departure operations on runway; all departure
percentages must sum to 100%-->
         <departurePercentage>60</departurePercentage>
         <!-- Percent of touch & go operations on runway; all touch & go
percentages must sum to 100%-->
         <tgoPercentage>60</tgoPercentage>
        </runwayAssignment>
        <runwayAssignment>
         <aircraftSize>S</aircraftSize>
         <runway>05</runway>
         <arrivalPercentage>40</arrivalPercentage>
         <departurePercentage>40</departurePercentage>
         <tgoPercentage>40</tgoPercentage>
        </runwayAssignment>
        <runwayAssignment>
         <aircraftSize>L</aircraftSize>
         <runway>23</runway>
         <arrivalPercentage>60</arrivalPercentage>
         <departurePercentage>60</departurePercentage>
         <tgoPercentage>60</tgoPercentage>
        </runwayAssignment>
```

```
      <runwayAssignment>
       <aircraftSize>L</aircraftSize>
       <runway>05</runway>
       <arrivalPercentage>40</arrivalPercentage>
       <departurePercentage>40</departurePercentage>
       <tgoPercentage>40</tgoPercentage>
      </runwayAssignment>
      <runwayAssignment>
       <aircraftSize>H</aircraftSize>
       <runway>23</runway>
       <arrivalPercentage>60</arrivalPercentage>
       <departurePercentage>60</departurePercentage>
       <tgoPercentage>60</tgoPercentage>
      </runwayAssignment>
      <runwayAssignment>
       <aircraftSize>H</aircraftSize>
       <runway>05</runway>
       <arrivalPercentage>40</arrivalPercentage>
       <departurePercentage>40</departurePercentage>
       <tgoPercentage>40</tgoPercentage>
      </runwayAssignment>
     </runwayAssignmentSet>
    </airportConfig>
   </airportConfigGroup>
  </airportConfigGroupSet>
  <quarterHourlyProfileSet>
   <quarterHourlyProfile>
    <profileName>Example Quarter-Hour-Baseline-KPVD</profileName>
    <!-- Weighting of operations at this time bin-->
    <temporalFactor startHour="0" startMinutes="0">0.1777</temporalFactor>
    <temporalFactor startHour="0" startMinutes="15">0.1777</temporalFactor>
    <temporalFactor startHour="0" startMinutes="30">0.1777</temporalFactor>
    <temporalFactor startHour="0" startMinutes="45">0.1777</temporalFactor>
    <temporalFactor startHour="1" startMinutes="0">0.0967</temporalFactor>
    <temporalFactor startHour="1" startMinutes="15">0.0967</temporalFactor>
    <temporalFactor startHour="1" startMinutes="30">0.0967</temporalFactor>
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    <temporalFactor startHour="2" startMinutes="45">0.046</temporalFactor>
    <temporalFactor startHour="3" startMinutes="0">0.0683</temporalFactor>
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    <temporalFactor startHour="4" startMinutes="0">0.18</temporalFactor>
    <temporalFactor startHour="4" startMinutes="15">0.18</temporalFactor>
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    <temporalFactor startHour="5" startMinutes="0">0.4146</temporalFactor>
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    <temporalFactor startHour="6" startMinutes="15">0.5774</temporalFactor>
    <temporalFactor startHour="6" startMinutes="30">0.5774</temporalFactor>
```

```
      <temporalFactor startHour="6" startMinutes="45">0.5774</temporalFactor>
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startMinutes="30">0.7424</temporalFactor>
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startMinutes="45">0.7424</temporalFactor>
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startMinutes="30">0.8579</temporalFactor>
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startMinutes="45">0.8579</temporalFactor>
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startMinutes="15">0.8573</temporalFactor>
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startMinutes="30">0.8573</temporalFactor>
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startMinutes="45">0.8573</temporalFactor>
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startMinutes="15">0.8666</temporalFactor>
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startMinutes="30">0.8666</temporalFactor>
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startMinutes="45">0.8666</temporalFactor>
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      <temporalFactor startHour="15"
startMinutes="15">0.8425</temporalFactor>
      <temporalFactor startHour="15"
startMinutes="30">0.8425</temporalFactor>
      <temporalFactor startHour="15"
startMinutes="45">0.8425</temporalFactor>
      <temporalFactor startHour="16" startMinutes="0">1</temporalFactor>
```

```
      <temporalFactor startHour="16" startMinutes="15">1</temporalFactor>
      <temporalFactor startHour="16" startMinutes="30">1</temporalFactor>
      <temporalFactor startHour="16" startMinutes="45">1</temporalFactor>
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startMinutes="30">0.9063</temporalFactor>
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startMinutes="45">0.9063</temporalFactor>
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      <temporalFactor startHour="18"
startMinutes="45">0.7221</temporalFactor>
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startMinutes="15">0.5799</temporalFactor>
      <temporalFactor startHour="19"
startMinutes="30">0.5799</temporalFactor>
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startMinutes="45">0.5799</temporalFactor>
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      <temporalFactor startHour="20"
startMinutes="15">0.5254</temporalFactor>
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      <temporalFactor startHour="20"
startMinutes="45">0.5254</temporalFactor>
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startMinutes="30">0.5512</temporalFactor>
      <temporalFactor startHour="21"
startMinutes="45">0.5512</temporalFactor>
      <temporalFactor startHour="22" startMinutes="0">0.465</temporalFactor>
      <temporalFactor startHour="22" startMinutes="15">0.465</temporalFactor>
      <temporalFactor startHour="22" startMinutes="30">0.465</temporalFactor>
      <temporalFactor startHour="22" startMinutes="45">0.465</temporalFactor>
      <temporalFactor startHour="23" startMinutes="0">0.3655</temporalFactor>
      <temporalFactor startHour="23"
startMinutes="15">0.3655</temporalFactor>
      <temporalFactor startHour="23"
startMinutes="30">0.3655</temporalFactor>
      <temporalFactor startHour="23"
startMinutes="45">0.3655</temporalFactor>
     </quarterHourlyProfile>
    </quarterHourlyProfileSet>
    <dailyProfileSet>
     <dailyProfile>
      <profileName>Example Daily-Baseline-KPVD</profileName>
      <temporalFactorSunday>0.7939</temporalFactorSunday>
      <temporalFactorMonday>0.9916</temporalFactorMonday>
```

```
      <temporalFactorTuesday>0.9867</temporalFactorTuesday>
      <temporalFactorWednesday>1</temporalFactorWednesday>
      <temporalFactorThursday>0.9245</temporalFactorThursday>
      <temporalFactorFriday>0.8743</temporalFactorFriday>
      <temporalFactorSaturday>0.7887</temporalFactorSaturday>
     </dailyProfile>
    </dailyProfileSet>
    <monthlyProfileSet>
     <monthlyProfile>
      <profileName>Example Monthly-Baseline-KPVD</profileName>
      <temporalFactorJanuary>0.6265</temporalFactorJanuary>
      <temporalFactorFebruary>0.6791</temporalFactorFebruary>
      <temporalFactorMarch>0.775</temporalFactorMarch>
      <temporalFactorApril>0.8322</temporalFactorApril>
      <temporalFactorMay>0.8741</temporalFactorMay>
      <temporalFactorJune>0.9033</temporalFactorJune>
      <temporalFactorJuly>1</temporalFactorJuly>
      <temporalFactorAugust>0.9876</temporalFactorAugust>
      <temporalFactorSeptember>0.7994</temporalFactorSeptember>
      <temporalFactorOctober>0.9428</temporalFactorOctober>
      <temporalFactorNovember>0.8522</temporalFactorNovember>
      <temporalFactorDecember>0.7806</temporalFactorDecember>
     </monthlyProfile>
    </monthlyProfileSet>
    <activityProfileSet>
     <activityProfile name="ActivityProfile-Baseline-KPVD-6-5-6">
      <quarterHourlyProfile>Example Quarter-Hour-Baseline-
KPVD</quarterHourlyProfile>
      <dailyProfile>Example Daily-Baseline-KPVD</dailyProfile>
      <monthlyProfile>Example Monthly-Baseline-KPVD</monthlyProfile>
     </activityProfile>
    </activityProfileSet>
   </airportLayout>
  </airportLayoutSet>
  <receptorSet>
   <name>CartesianReceptors-Baseline-KPVD</name>
   <pointReceptor>
    <name>01</name>
    <latitude>41.75569223042968</latitude>
    <longitude>-71.401734633637048</longitude>
    <!-- Elevation above MSL in feet-->
    <elevation>54.986875960838894</elevation>
    <!-- Height of the receptor above ground in feet-->
    <receptorHeight>5.9099999269584984</receptorHeight>
   </pointReceptor>
   <pointReceptor>
    <name>01D</name>
    <latitude>41.732126660490067</latitude>
    <longitude>-71.4141821642798</longitude>
    <elevation>54.986875960838894</elevation>
    <receptorHeight>5.9099999269584984</receptorHeight>
   </pointReceptor>
   <pointReceptor>
    <name>01S</name>
    <latitude>41.762630555759486</latitude>
    <longitude>-71.386077230440634</longitude>
```

```
    <elevation>54.986875960838894</elevation>
    <receptorHeight>5.9099999269584984</receptorHeight>
   </pointReceptor>
  </receptorSet>
  <scenario>
   <name>2004-Baseline</name>
   <!-- Scenario start time-->
   <startTime>2004-01-01T00:00:00</startTime>
   <!-- Scenario duration in hours-->
   <duration>8760</duration>
   <!-- Taxi model type for scenario-->
   <taxiModel>Sequencing</taxiModel>
   <!-- Time in mode; either Performance or ICAO-->
   <timeInModeBasis>Performance</timeInModeBasis>
   <!-- Aircraft performance model-->
   <acftPerfModel>SAE1845</acftPerfModel>
   <!-- Flag to include bank angle calculations-->
   <bankAngle>false</bankAngle>
   <!-- Portion of fuel that becomes sulfuric acid when combusted-->
   <sulfurConversionRate>0.005</sulfurConversionRate>
   <description>A sample emissions study scenario</description>
   <scenarioAirportLayoutSet>
    <scenarioAirportLayout>
     <airportLayoutName>Baseline-Theodore Francis Green State-
2004</airportLayoutName>
     <!-- Height where vigorous mixing of gases takes place, in feet-->
     <mixingHeight>2226</mixingHeight>
     <!-- Flag to use hourly meteorological data, rather than annual
averages-->
     <useHourlyMetData>true</useHourlyMetData>
     <!-- Average temperature in Fahrenheit-->
     <averageTemperature>50.4</averageTemperature>
     <!-- Average daily high temperature in Fahrenheit-->
     <dailyHighTemperature>69.35</dailyHighTemperature>
     <!-- Average daily low temperature in Fahrenheit-->
     <dailyLowTemperature>48.65</dailyLowTemperature>
     <!-- Average barometric pressure in inches Hg.-->
     <pressure>29.92</pressure>
     <!-- Average barometric pressure at MSL in inches Hg.-->
     <pressureMSL>29.92</pressureMSL>
     <!-- Relative humidity percentage-->
     <humidty>60</humidty>
     <!--Wind speed at surface-->
     <windSpeed>8</windSpeed>
     <!-- Wind direction in degrees-->
     <windDirection>0</windDirection>
     <!--Ceiling in feet-->
     <ceiling>99999.99</ceiling>
     <!--Visibility in miles-->
     <visibility>50</visibility>
    </scenarioAirportLayout>
   </scenarioAirportLayoutSet>
   <caseSet>
    <case>
     <caseId>-1623425151</caseId>
     <name>2004_Baseline_Theodore Francis Green State_NonAircraft</name>
```

```
      <startTime>2004-01-01T00:00:00</startTime>
      <duration>8760</duration>
      <stationarySourceOperationSet>
       <stationarySourceOperation>
        <refName>Emergency Generator-Baseline-KPVD-2004</refName>
        <emissionsUsage>
         <!--Annualized ammount of emissions-->
         <yearlyValue>500</yearlyValue>
         <activityProfile>ActivityProfile-Baseline-KPVD-6-5-
6</activityProfile>
        </emissionsUsage>
       </stationarySourceOperation>
      </stationarySourceOperationSet>
      <groundSupportEquipmentPopulationOperationSet>
       <groundSupportEquipmentPopulationOperation>
        <!--ID for GSE type-->
        <gseID>30</gseID>
        <!--Fuel used by the GSE-->
        <fuelType>Diesel</fuelType>
        <!--GSE type-->
        <gseType>Generator</gseType>
        <!--Number of GSEs-->
        <numUnits>1</numUnits>
        <!--Operation time, yearly, in hours-->
        <annualOpTime>1630</annualOpTime>
        <!--Profile of activity to use-->
        <activityProfile>ActivityProfile-Baseline-KPVD-6-5-6</activityProfile>
        <!--Horsepower of GSE-->
        <horsepower>158</horsepower>
        <!--User nonroad flag-->
        <useNonRoad>false</useNonRoad>
        <groundSupportEquipmentGateAssignmentSet>
         <groundSupportEquipmentGateAssignment>
          <!--Gate the GSE is assigned to-->
          <gate>AC</gate>
          <!--Fraction of GSE assigned to gate-->
          <fractionAssigned>1</fractionAssigned>
         </groundSupportEquipmentGateAssignment>
        </groundSupportEquipmentGateAssignmentSet>
       </groundSupportEquipmentPopulationOperation>
      </groundSupportEquipmentPopulationOperationSet>
     </case>
     <case>
      <caseId>466140608</caseId>
      <name>2004_Baseline_Theodore Francis Green State_Operations</name>
      <startTime>2004-01-01T00:00:00</startTime>
      <duration>8760</duration>
      <!--Number of minutes to complete a taxi-in-->
      <totalTaxiInTime>7</totalTaxiInTime>
      <!--Number of minutes to complete a taxi-out-->
      <totalTaxiOutTime>19</totalTaxiOutTime>
      <!--Number of minutes to complete an unimpeded taxi-in-->
      <unimpededTaxiInTime>0</unimpededTaxiInTime>
      <!--Number of minutes to complete an unimpeded taxi-out-->
      <unimpededTaxiOutTime>0</unimpededTaxiOutTime>
      <operation>
```

```
      <id>D_1</id>
      <aircraftType>
       <!--Aircraft type-->
       <airframeModel>Airbus A319-100 Series</airframeModel>
       <!--Engine type-->
       <engineCode>3CM028</engineCode>
       <!--APU type-->
       <apuName>APU GTCP 36-300 (80HP)</apuName>
       <!--GSEs assigned to the aircraft-->
       <groundSupportEquipmentLTOOperationSet>
        <groundSupportEquipmentLTOOperation>
         <gseID>13</gseID>
         <fuelType>Gasoline</fuelType>
         <horsepower>107</horsepower>
         <!-- Loading of the GSE-->
         <loadFactor>0.55</loadFactor>
         <!--Operation time for a departure-->
         <departureOpTime>38</departureOpTime>
         <!--Operation time for an arrival-->
         <arrivalOpTime>37</arrivalOpTime>
        </groundSupportEquipmentLTOOperation>
        <groundSupportEquipmentLTOOperation>
         <gseID>14</gseID>
         <fuelType>Gasoline</fuelType>
         <horsepower>107</horsepower>
         <loadFactor>0.5</loadFactor>
         <departureOpTime>24</departureOpTime>
         <arrivalOpTime>24</arrivalOpTime>
        </groundSupportEquipmentLTOOperation>
       </groundSupportEquipmentLTOOperationSet>
      </aircraftType>
      <!--Number of operations-->
      <numOperations>5</numOperations>
      <!--Type of operation; A, D, or T-->
      <opType>D</opType>
      <departureAirport type="ICAO">KPVD</departureAirport>
      <departureGate>AC</departureGate>
      <!--Operation time for APU for departure in minutes-->
      <departureApuTime>3.5</departureApuTime>
      <!--Taxi-out duration in minutes-->
      <taxiOutDuration>10.72</taxiOutDuration>
      <!--Taxi-in duration in minutes-->
      <taxiInDuration>6.24</taxiInDuration>
      <!--Activity profile to use-->
      <activityProfile>ActivityProfile-Baseline-KPVD-6-5-6</activityProfile>
      <!--Aircraft's weight in pounds-->
      <actypeWeight>146100</actypeWeight>
      <!--Sulfur content of the fuel used in this operation in percentage-->
      <fuelSulfurContent>0.00068</fuelSulfurContent>
     </operation>
     <operation>
      <id>A_1</id>
      <aircraftType>
       <airframeModel>Airbus A319-100 Series</airframeModel>
       <engineCode>3CM028</engineCode>
       <apuName>APU GTCP 36-300 (80HP)</apuName>
```

```
      <groundSupportEquipmentLTOOperationSet>
       <groundSupportEquipmentLTOOperation>
        <gseID>13</gseID>
        <fuelType>Gasoline</fuelType>
        <horsepower>107</horsepower>
        <loadFactor>0.55</loadFactor>
        <departureOpTime>38</departureOpTime>
        <arrivalOpTime>37</arrivalOpTime>
       </groundSupportEquipmentLTOOperation>
       <groundSupportEquipmentLTOOperation>
        <gseID>14</gseID>
        <fuelType>Gasoline</fuelType>
        <horsepower>107</horsepower>
        <loadFactor>0.5</loadFactor>
        <departureOpTime>24</departureOpTime>
        <arrivalOpTime>24</arrivalOpTime>
       </groundSupportEquipmentLTOOperation>
      </groundSupportEquipmentLTOOperationSet>
     </aircraftType>
     <numOperations>5</numOperations>
     <opType>A</opType>
     <arrivalAirport type="ICAO">KPVD</arrivalAirport>
     <arrivalGate>AC</arrivalGate>
     <arrivalApuTime>3.5</arrivalApuTime>
     <taxiOutDuration>10.72</taxiOutDuration>
     <taxiInDuration>6.24</taxiInDuration>
     <activityProfile>ActivityProfile-Baseline-KPVD-6-5-6</activityProfile>
     <actypeWeight>137800</actypeWeight>
     <fuelSulfurContent>0.00068</fuelSulfurContent>
    </operation>
   </case>
  </caseSet>
  <annualization>
   <!-- user-defined scenario annulalization name -->
   <name>Sample Annualization</name>

   <!-- Define one or more groups of cases and groups -->
   <annualizationGroup>

    <!-- Define rolloup weight for this group -->
    <weight>2.0</weight>

    <annualizationGroup>
     <weight>0.7</weight>

     <!-- Associate scenario case with this annualization group -->
     <annualizationCase>

      <!-- Specify case name to include -->
      <name>2004_Baseline_Theodore Francis Green State_Operations</name>

      <!-- Define rollup weight for this case -->
      <weight>1.0</weight>

     </annualizationCase>
    </annualizationGroup>
```

```
    </annualizationGroup>
   </annualization>
  </scenario>
 </study>
</AsifXml>
```

4 ASIF Design Consideration

4.1 Event Consolidation

AEDT calculates noise for all air operations (e.g. all instances of an aircraft and track) in a given case, which differs from the legacy tool, NIRS. In order to optimize noise modeling performance in AEDT, it is suggested to combine like operations in a case into a representative single air operation for entry into the ASIF.

4.2 Number of Operations in a Case and Results Reuse

AEDT has the ability to reuse previously calculated results when running a new job. The smallest unit of results that can be reused is a set of air operations in a case. Run time can be optimized by designing the ASIF with this capability in mind.

4.3 Control Codes in AEDT

AEDT will fly AtOrBelow control codes as close to the specified altitude as possible, which differs from the legacy tool NIRS that accepts any altitude at or below the specified altitude. Similarly, AEDT will fly AtOrAbove control codes as close to the specified altitude as possible while NIRS accepts any altitude at or above the specified altitude.

AEDT will not use control codes below 500 ft. AFE. Since NIRS does not use control codes below 3000 ft. AFE, any NIRS control codes that are converted to ASIF that are at or below 3000 feet should be changed to the AEDT AtOrBelow control code.

When modeling runway to runway operations using sensor path data, define the flight path using the ASIF sensorPath element rather than the track element. Sensor paths provide more direct control of altitude for an aircraft trajectory.

AEDT will fly the length of ground tracks without requiring altitude control codes at the beginning and end of the tracks. See section 9.82 on defining control codes (nodeControlType).

5 Notation

This section describes notation used in the schema. The next two tables describe the notation for XML tag types and the notation for required number of elements.

Notation for ASIF XML Tag Types

Type	Description
integer, float, double, boolean	The standard numeric types
floatInclusiveN	A floating value in the range [0..n]. For example, floatInclusive24 is a floating value in the range [0..24].
boolean	T, true, or 1 for TRUE values, and F, false, or 0 for FALSE values.
stringN	A string with up to N characters.
datetime	A date and time string of the format YYYY-MM-DD HH:mm:SS.sss YYYY: four digit year MM: two digit month (from 01-12) DD: two digit day of the month (from 01 to last day) HH: two digit hour (from 00-23) mm: two digit minutes (from 00-59) SS: (optional) seconds (from 00-59) sss: (optional) milliseconds (from 000-999)
enum	An enumeration. See the element's description for valid values.
G	A group type. This type indicates that the actual element tag is really a placeholder for a group of element tags. XML tags with the group type will be italicized.
S	Special. See the element description for details.
-	A complex type that contains other elements.

Notation for the Required Number of Elements

Num	Description
+	1 or more instances are required.
*	0 or more instances are required, implying the element is optional if 0 elements are desired.
?	0 or 1 instance is required, again implying an optional element.
N	N instances are required, where N is a positive integer.
N+	N or more instances are required, where N is a positive integer.
S	In some cases, the requirement of an element (or group of elements) may depend on special circumstances, in which case the element (or group of elements) will be marked with an S and the specific requirements will be detailed in the description section.

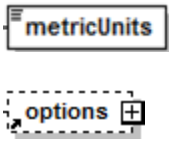
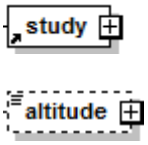
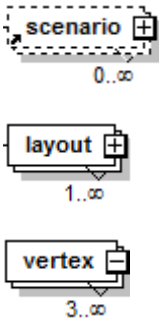
Some element descriptions include a Choice column. This column indicates the need to choose between one of the elements associated with the same choice letter. For example, referring to the table in section latlonCoordGroup, choice “a” refers to a choice between the latitude and latitudeDMS elements, and choice “b” refers to the longitude and longitudeDMS elements. When creating a tag of type latlonCoordGroup, you can include one element from choice “a”, and one element from choice “b”.

Some ASIF elements contain attributes. For example, when specifying an airport, the airportCode element can be included. This element has a type attribute which indicates the type of airport code. In the example below, the type attribute indicates that the type of airport code is ICAO:

```
<airportCode type="ICAO">KMDW</airportCode>
```

The following section describes attributes when they are defined for a particular element. The schema diagram illustrates the structure and contents of each XML element. It facilitates understanding the relationship between XML elements, and the rules and properties of each element.

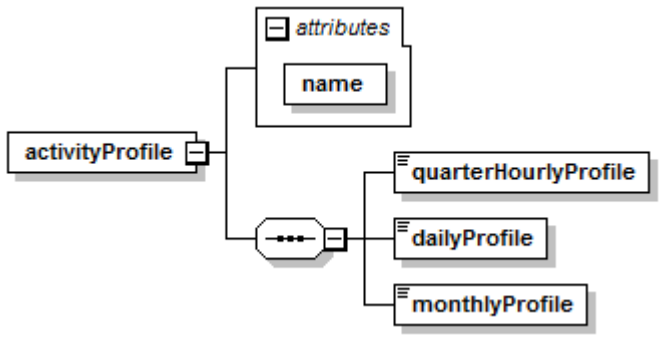
Notation for Schema Diagram

Notation	Icon	Description
Choice indicator		Only one of the elements contained in the selected group can be present
Sequence indicator		Child elements must appear in the specified sequence
Element		Represented by a rectangle with solid or dotted border Solid rectangle – required element Dotted rectangle – optional element
Element with (+) sign		Indicates that the element has child element(s) and/or attribute(s)
Element with min and max bound		Specifies the min/max number of times an element can occur in the parent element

XML elements in ASIF must be in the order as specified in the ASIF schema.

6 Element Descriptions

6.1 activityProfile



Supports legacy EDMS studies relating to content combinations of QUARTER_HOURLY_PROFILES, DAILY_PROFILES, and MONTHLY_PROFILES.

Structure

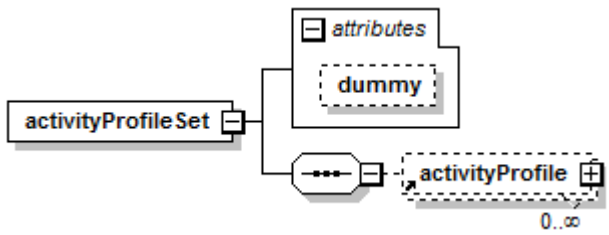
See Notation for information about reading this table.

XML Tag	Type	Num	Description
quarterHourlyProfile	string100	1	Defines scaling factors for operations during a particular quarter-hour.
dailyProfile	string100	1	Defines scaling factors for operations on a particular day.
monthlyProfile	string100	1	Defines scaling factors for operations during a particular month.

Attributes

XML Tag	Type	Use	Description
name	string100	required	A string up to 100 characters long.

6.2 activityProfileSet



Supports the definition and use of QUARTER_HOURLY_PROFILES, DAILY_PROFILES, and MONTHLY_PROFILES variation of operations.

Structure

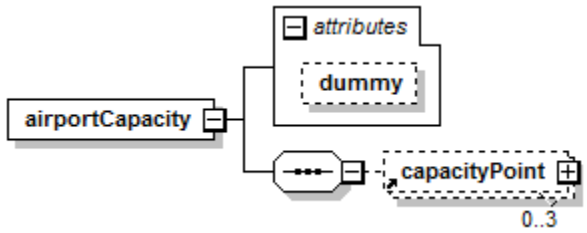
See Notation for information about reading this table.

XML Tag	Type	Num	Description
activityProfile	-	*	Supports legacy EDMS studies relating to content combinations of QUARTER_HOURLY_PROFILES, DAILY_PROFILES, and MONTHLY_PROFILES. See activityProfile.

Attributes

None.

6.3 airportCapacity



Supports legacy EDMS studies relating to content contained in the RUNWAY_CONFIGURATIONS table. This element supports the definition of airport capacities based on various points within an airport.

Structure

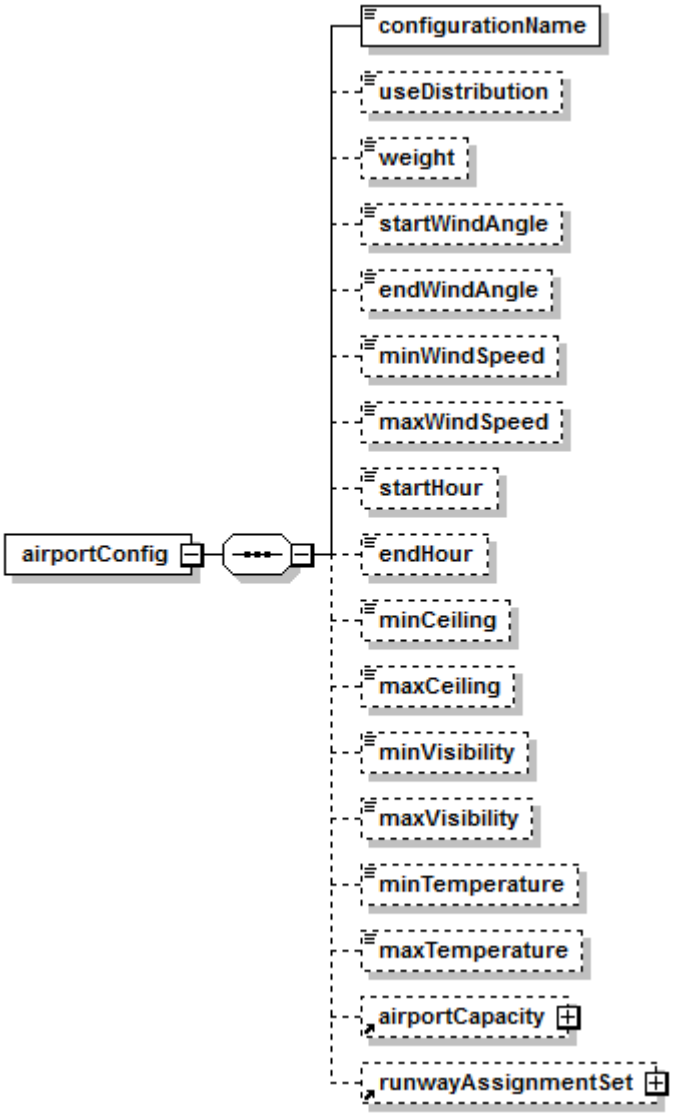
See Notation for information about reading this table.

XML Tag	Type	Num	Description
capacityPoint	-	*	Supports legacy EDMS studies relating to content contained in the RUNWAY_CONFIGURATIONS table. This element supports the definition of airport capacities based on various points within an airport. See capacityPoint.

Attributes

None.

6.4 airportConfig



Supports legacy EDMS studies relating to content contained in the RUNWAY_CONFIGURATIONS table. This element supports the definition of airports and their runway configurations for a given scenario layout. Airports operate under different configurations (the pattern of aircraft arrivals and departures on specific runways) over the course of a year depending on the weather, capacity, and noise abatement issues.

Structure

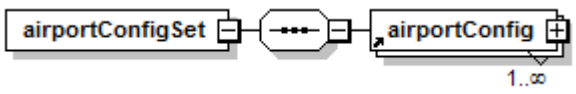
See Notation for information about reading this table.

XML Tag	Type	Num	Description
configurationName	string100	1	Runway configuration name.
useDistribution	xs:boolean	*	Flag to use a distribution for the configuration.
weight	xs:double	*	Runway configuration weight factor.
startWindAngle	int0to360	*	Start wind angle. Valid values: 0.00 to 359.00. (degrees)
endWindAngle	int0to360	*	End wind angle. Valid values: 0.00 to 359.00. (degrees)
minWindSpeed	doubleExclusive100	*	Minimum wind speed. Valid values: 0.00 to 100.00. (kts)
maxWindSpeed	doubleExclusive100	*	Maximum wind speed. Valid values: 0.00 to 100.00. (kts)
startHour	doubleInclusive24	*	Start hour. Valid values: 0.00 to 23.00.
endHour	doubleInclusive24	*	End hour. Valid values: 0.00 to 23.00.
minCeiling	xs:double	*	Minimum ceiling. Valid values: 0.00 to 100000.00. (ft)
maxCeiling	xs:double	*	Maximum ceiling. Valid values: 0.00 to 100000.00. (ft)
minVisibility	xs:double	*	Minimum visibility. Valid values: 0.00 to 100.00. (mi)
maxVisibility	xs:double	*	Maximum visibility. Valid values: 0.00 to 100.00. (mi)
minTemperature	xs:double	*	Minimum temperature. Valid values: -100.00 to 150.00. (°F)
maxTemperature	xs:double	*	Maximum temperature. Valid values: -100.00 to 150.00. (°F)
airportCapacity	-	*	Airport runway capacity points. See airportCapacity.
runwayAssignmentSet	-	*	The runway assignments. See runwayAssignmentSet.

Attributes

None.

6.5 airportConfigSet



Contains one or more airportConfig elements.

Structure

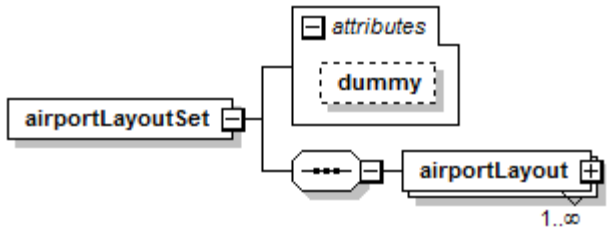
See Notation for information about reading this table.

XML Tag	Type	Num	Description
airportConfig	-	*	Supports legacy EDMS studies relating to content contained in the RUNWAY_CONFIGURATIONS table. This element supports the definition of airports and their runway configurations for a given scenario layout. Airports operate under different configurations (the pattern of aircraft arrivals and departures on specific runways) over the course of a year depending on the weather, capacity, and noise abatement issues. See airportConfig.

Attributes

None.

6.6 airportLayoutSet



Contains layouts for ASIF partial import into an existing study.

Structure

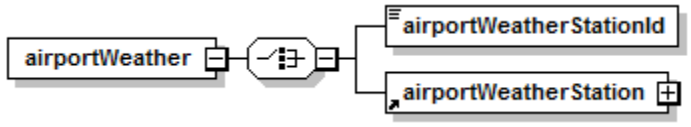
See Notation for information about reading this table.

XML Tag	Type	Num	Description
airportLayout	airportLayoutType	*	Contains information about the available layout of each airport in the study. See airportLayoutType.

Attributes

None.

6.7 airportWeather



NOAA weather station closest to the airport where meteorological data existed for each month.

Structure

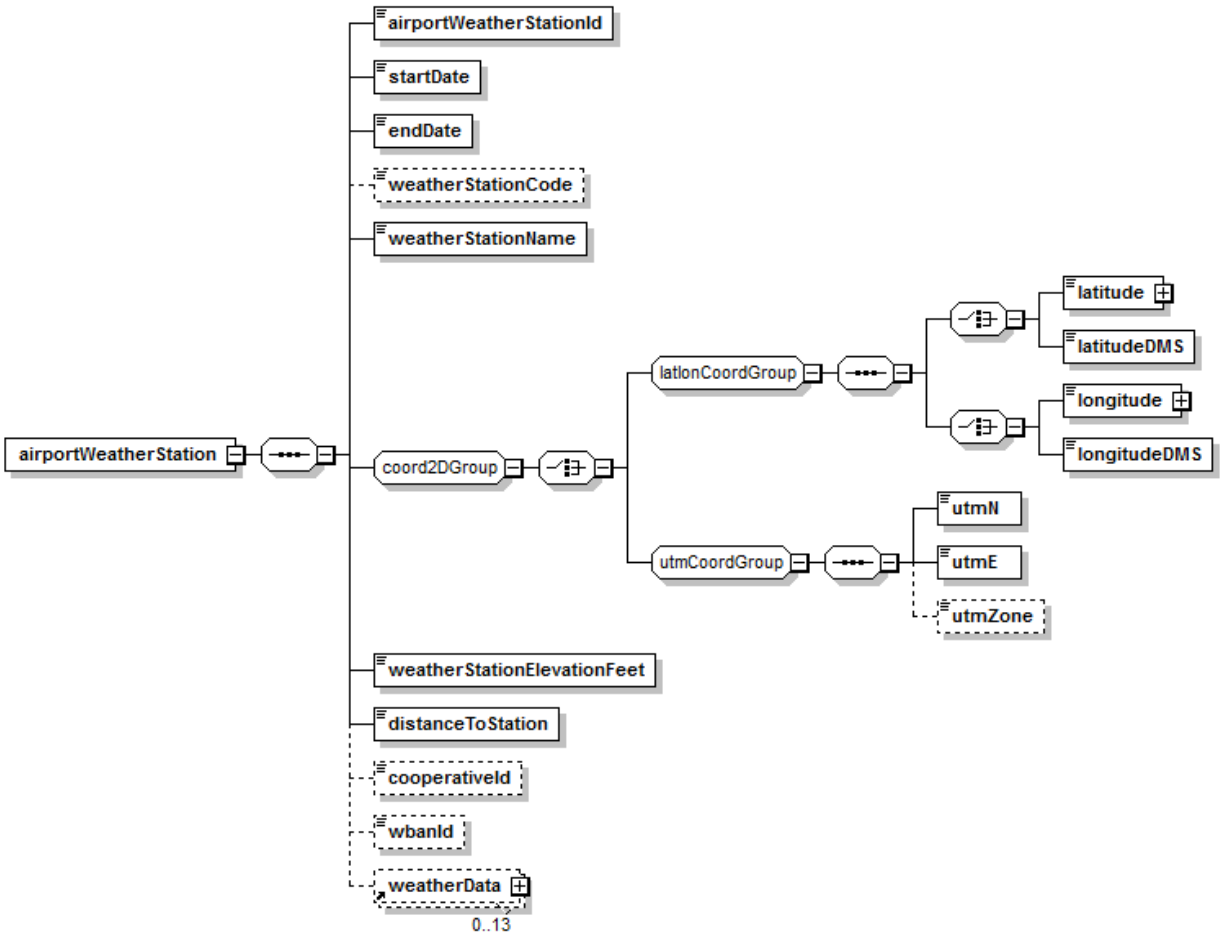
See Notation for information about reading this table.

XML Tag	Type	Num	Choice	Description
airportWeatherStationId	xs:int	1	a	Numerical ID used by NOAA (and this database) to identify a particular weather station.
airportWeatherStation	-	1	a	User-defined NOAA weather station closest to the airport where meteorological data existed for each month. See airportWeatherStation.

Attributes

None.

6.8 airportWeatherStation



User-defined NOAA weather station closest to the airport where meteorological data existed for each month.

Structure

See Notation for information about reading this table.

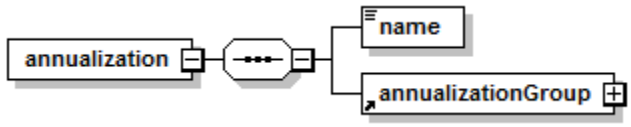
XML Tag	Type	Num	Description
airportWeatherStationId	xs:int	1	Numerical ID used by NOAA (and this database) to identify a particular weather station.
startDate	xs:date	1	Effective start date for the information in the current record.
endDate	xs:date	1	Expiration date for the information in the current record.

XML Tag	Type	Num	Description
weatherStationCode	string5	*	4-5 letter code that may also identify a weather station.
weatherStationName	string25	1	Name of the weather station.
coord2DGroup	-	1	Indicates how a two-dimensional group is specified. See coord2DGroup.
weatherStationElevationFeet	xs:int	1	Elevation of the weather station UNITS: Feet above MSL.
distanceToStation	xs:double	1	Distance to weather station where the 30 year normal data was acquired from UNITS: Nautical Miles.
cooperativeId	string6	*	Cooperative ID where the 30 year normal data was acquired from.
wbanId	string5	*	Weather Bureau/Army/Navy ID where the 30 year normal data was acquired from.
weatherData	-	*	Contains information about weather data elements. See weatherData.

Attributes

None.

6.9 annualization



Contains annualizations for ASIF partial import into an existing study.

Structure

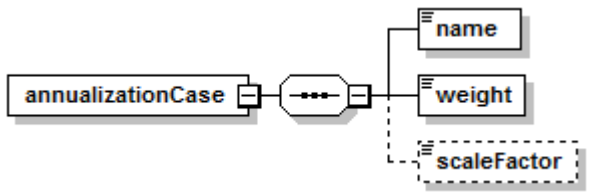
See Notation for information about reading this table.

XML Tag	Type	Num	Description
name	string255	1	Name of annualization.
annualizationGroup	-	1	Contains one or more weighted annualization group cases. See annualizationGroup.

Attributes

None.

6.10 annualizationCase



Collection of study cases whose results are weighted in the scenario annualization rollup.

Structure

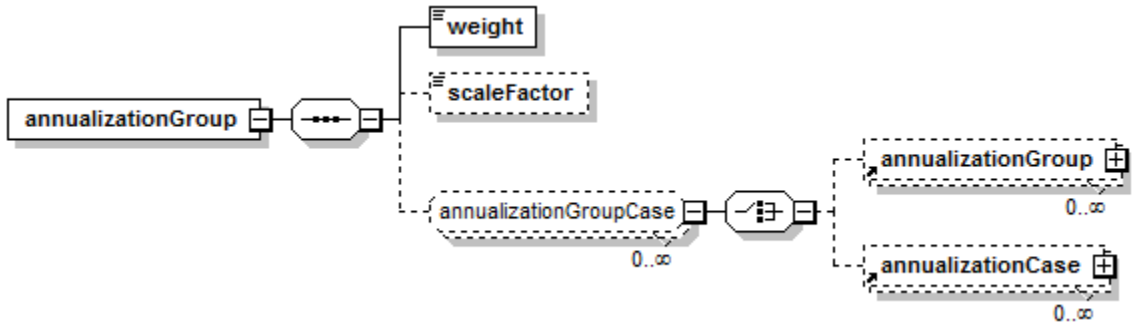
See Notation for information about reading this table.

XML Tag	Type	Num	Description
name	string255	1	Description of the case.
weight	xs:double	1	Weight associated with the case.
scaleFactor	xs:double	*	Scale factor applied to results for the case. Default: 1.

Attributes

None.

6.11 annualizationGroup



Contains one or more weighted annualization group cases.

Structure

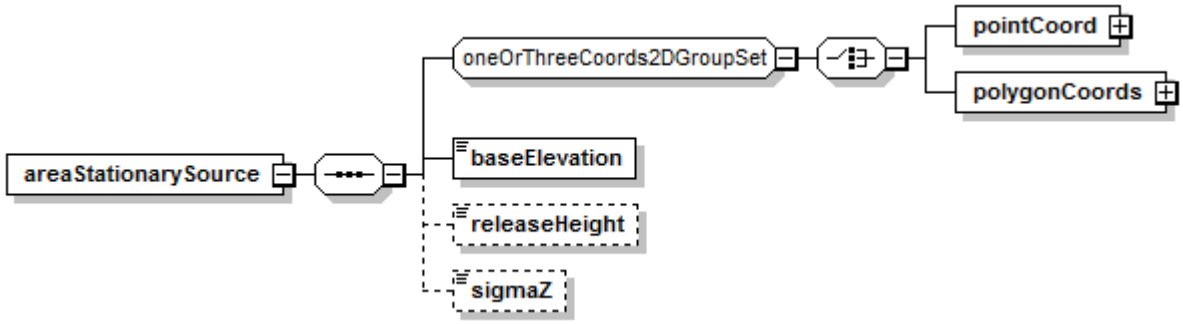
See Notation for information about reading this table.

XML Tag	Type	Num	Description
weight	xs:double	1	Weight associated with the annualization group.
scaleFactor	xs:double	*	Scale factor applied to results for the annualization group. Default: 1.
annualizationGroupCase	-	*	Allows for grouping cases into groups, and groups into parent groups. See annualizationGroupCase.

Attributes

None.

6.12 areaStationarySource



Specifies the area in space occupied by a stationary source of emissions.

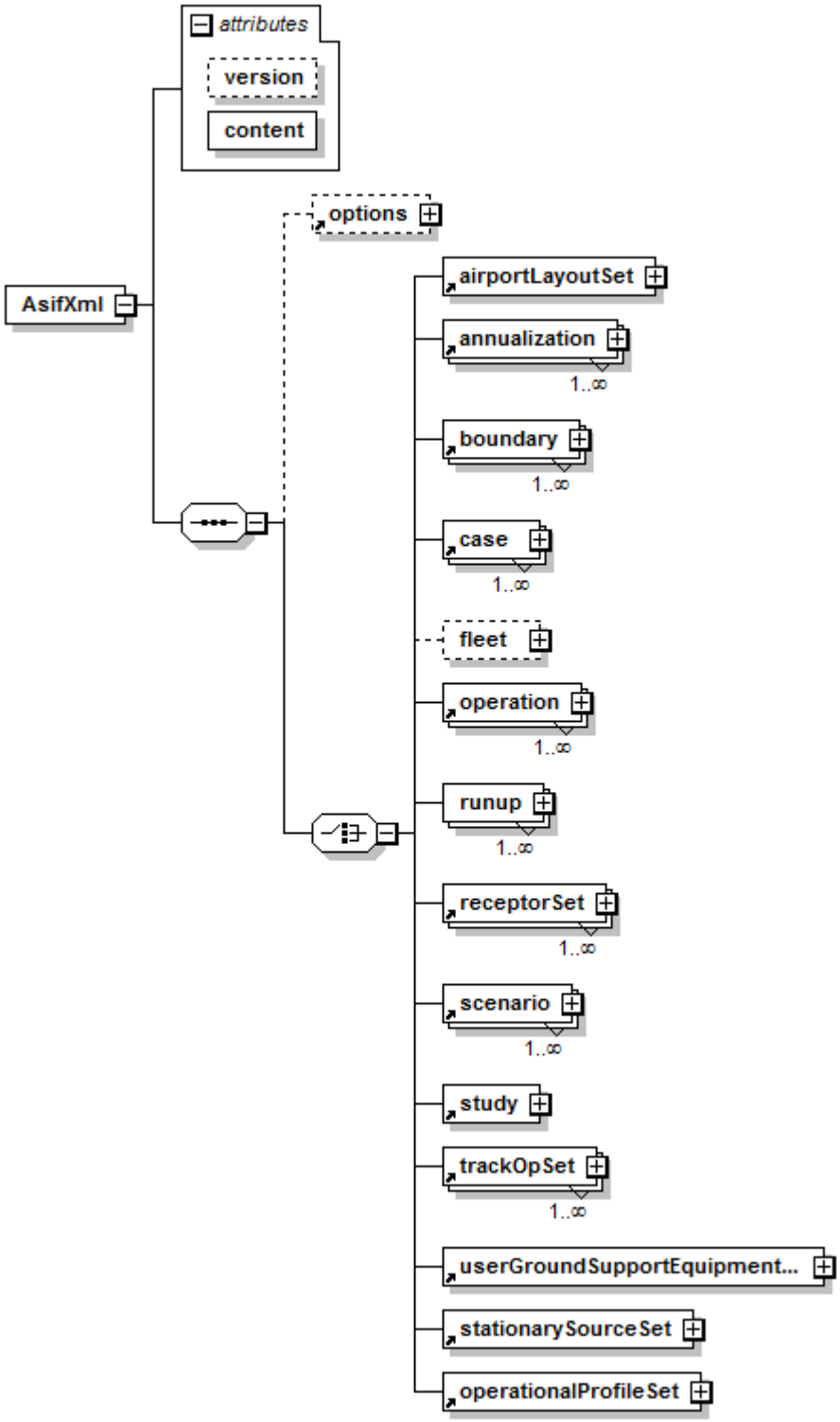
Structure

See Notation for information about reading this table.

XML Tag	Type	Num	Description
oneOrThreeCoords2DGroupSet	-	1	Type of coordinate specifying the area. See oneOrThreeCoords2DGroupSet.
baseElevation	xs:double	1	Elevation in MSL of area, valid values -500 to 5000 (m)
releaseHeight	doubleInclusive100	*	Height at which emissions are released into the atmosphere. Valid values: 0 to 100 (m) Default: 0.
sigmaZ	xs:double	*	Vertical dispersion parameter. For additional information, see the EDMS Application Manual. Valid values: 0.1 to 100. Default: 0.

Attributes
None.

6.13 AsifXml



Root node of the ASIF tree.

Structure

See Notation for information about reading this table.

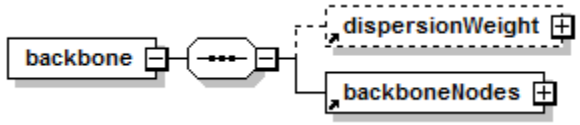
XML Tag	Type	Num	Choice	Description
options	-	?		Contains default option values applied to the study. See options.
airportLayoutSet	-	1	a	Contains layouts for ASIF partial import into an existing study. See airportLayoutSet.
annualization	-	*	a	Contains annualizations for ASIF partial import into an existing study. See annualization.
boundary	-	*	a	Specifies the boundaries of a study or other element contained within a study. When a study boundary is specified, all flight paths resulting from departure, arrival, and overflight operations are calculated to and/or from the study boundary. See boundary.
case	-	*	a	Describes general parameters for a case. See case.
fleet	fleet	?	a	Contains study fleet data for ASIF partial import into existing study. See fleet.
operation	-	*	a	Describes an aircraft flight operation. See operation.
runup	runup	*	a	An aircraft runup operation type.
receptorSet	-	*	a	Contains one or more receptor sets at various locations. See receptorSet.
scenario	-	*	a	Encapsulates a scenario - such as Baseline or Alternative See scenario.
study	-	1	a	Contains specific information about a study. See study.
trackOpSet	-	*	a	Lists tracks and associated operations. See trackOpSet.
userGroundSupportEquipmentSet	-	1	a	Supports legacy EDMS studies relating to content contained in the USER_CREATED_GSE table. This element supports the definition of user defined ground support equipment.

XML Tag	Type	Num	Choice	Description
				See userGroundSupportEquipmentSet.
stationarySourceSet	-	1	a	Container of stationary sources contributing emissions. See stationarySourceSet.
operationalProfileSet	-	1	a	Definitions for temporal activity profiles that are subsequently used to weight individual operations for any given hour of the year. See operationalProfileSet.

Attributes

XML Tag	Type	Use	Description
version	string16	optional	A string up to 16 characters long.
content	xs:string	required	Valid values: airportLayoutSet, annualization, case, fleet, receptorSets, scenario, study, boundary, trackOpSet, runup, userGroundSupportEquipmentSet, stationarySourceSet, operationalProfileSet.

6.14 backbone



Represents the centerline of a set of dispersed tracks.

Structure

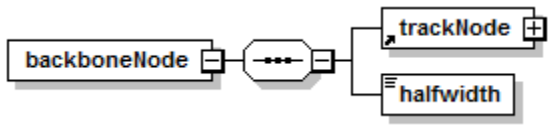
See Notation for information about reading this table.

XML Tag	Type	Num	Description
dispersionWeight	-	*	Dispersion weights associated with the subtracks for this backbone. Subtracks are numbered in increasing order from the backbone outward. The allowable number of subtracks for a backbone are 1, 3, 5, 7 and 9. Valid dispersion weight values are greater than one and less than or equal to 1. The sum of the dispersion weights for this backbone must equal 1. See dispersionWeight.
backboneNodes	-	1	The set of 3D nodes for the backbone. See backboneNodes.

Attributes

None.

6.15 backboneNode



A 3D node that is part of a backbone.

Structure

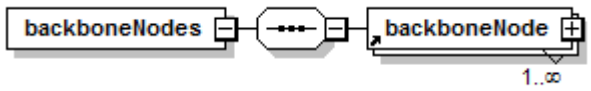
See Notation for information about reading this table.

XML Tag	Type	Num	Description
trackNode	-	1	A flight track node. See trackNode.
halfwidth	xs:double	1	Halfwidth in nautical miles. (nmi)

Attributes

None.

6.16 backboneNodes



The set of 3D nodes for the backbone.

Structure

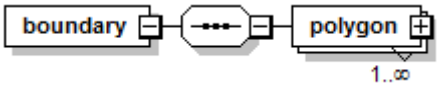
See Notation for information about reading this table.

XML Tag	Type	Num	Description
backboneNode	-	*	A 3D node that is part of a backbone. See backboneNode.

Attributes

None.

6.17 boundary



Specifies the boundaries of a study or other element contained within a study. When a study boundary is specified, all flight paths resulting from departure, arrival, and overflight operations are calculated to and/or from the study boundary.

Structure

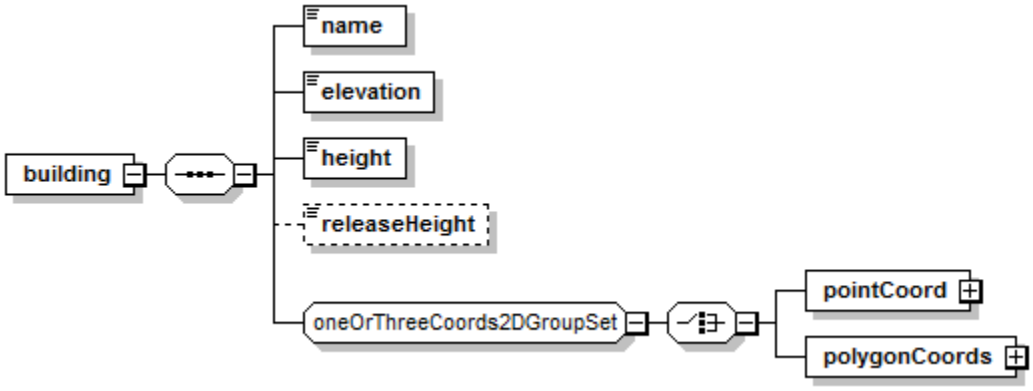
See Notation for information about reading this table.

XML Tag	Type	Num	Description
polygon	polygon2DType	*	Set of coordinates defining the boundary. See polygon2DType.

Attributes

None.

6.18 building



Supports legacy EDMS studies relating to content contained in the BUILDINGS table. This element supports the definition of airport buildings. These building sources affect the emitted point source plumes by essentially serving as obstacles to those sources, and therefore have a significant impact on concentrations resulting from stationary source emissions. Buildings have no effect on the concentrations estimated from volume and area sources such as aircraft, APU, GSE, roadways, and parking facilities.

Structure

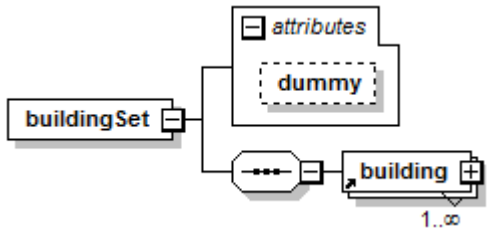
See Notation for information about reading this table.

XML Tag	Type	Num	Description
name	string255	1	Name of the building.
elevation	xs:double	1	Elevation of building. Valid values: -500 to 5000. (m)
height	xs:double	1	Height of building. Valid values: 0 to 100 (m)
releaseHeight	xs:double	*	Height at which emissions are released into the atmosphere. Valid values 0 to 100 (m)
oneOrThreeCoords2DGroupSet	-	1	Type of coordinate specifying the area. See oneOrThreeCoords2DGroupSet.

Attributes

None.

6.19 buildingSet



Supports legacy EDMS studies relating to content contained in the BUILDINGS table. This element supports the definition of airport buildings. These building sources affect the emitted point source plumes by essentially serving as obstacles to those sources, and therefore have a significant impact on concentrations resulting from stationary source emissions. Buildings have no effect on the concentrations estimated from volume and area sources such as aircraft, APU, GSE, roadways, and parking facilities.

Structure

See Notation for information about reading this table.

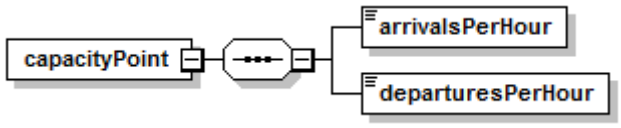
XML Tag	Type	Num	Description
building	-	*	Supports legacy EDMS studies relating to content contained in the BUILDINGS table. This element supports the definition of airport buildings. These building sources affect the emitted point source plumes by essentially serving as obstacles to those sources, and therefore have a significant impact on concentrations resulting from stationary source emissions. Buildings have no effect on the concentrations estimated from

XML Tag	Type	Num	Description
			volume and area sources such as aircraft, APU, GSE, roadways, and parking facilities. See building.

Attributes

None.

6.20 capacityPoint



Supports legacy EDMS studies relating to content contained in the RUNWAY_CONFIGURATIONS table. This element supports the definition of airport capacities based on various points within an airport.

Structure

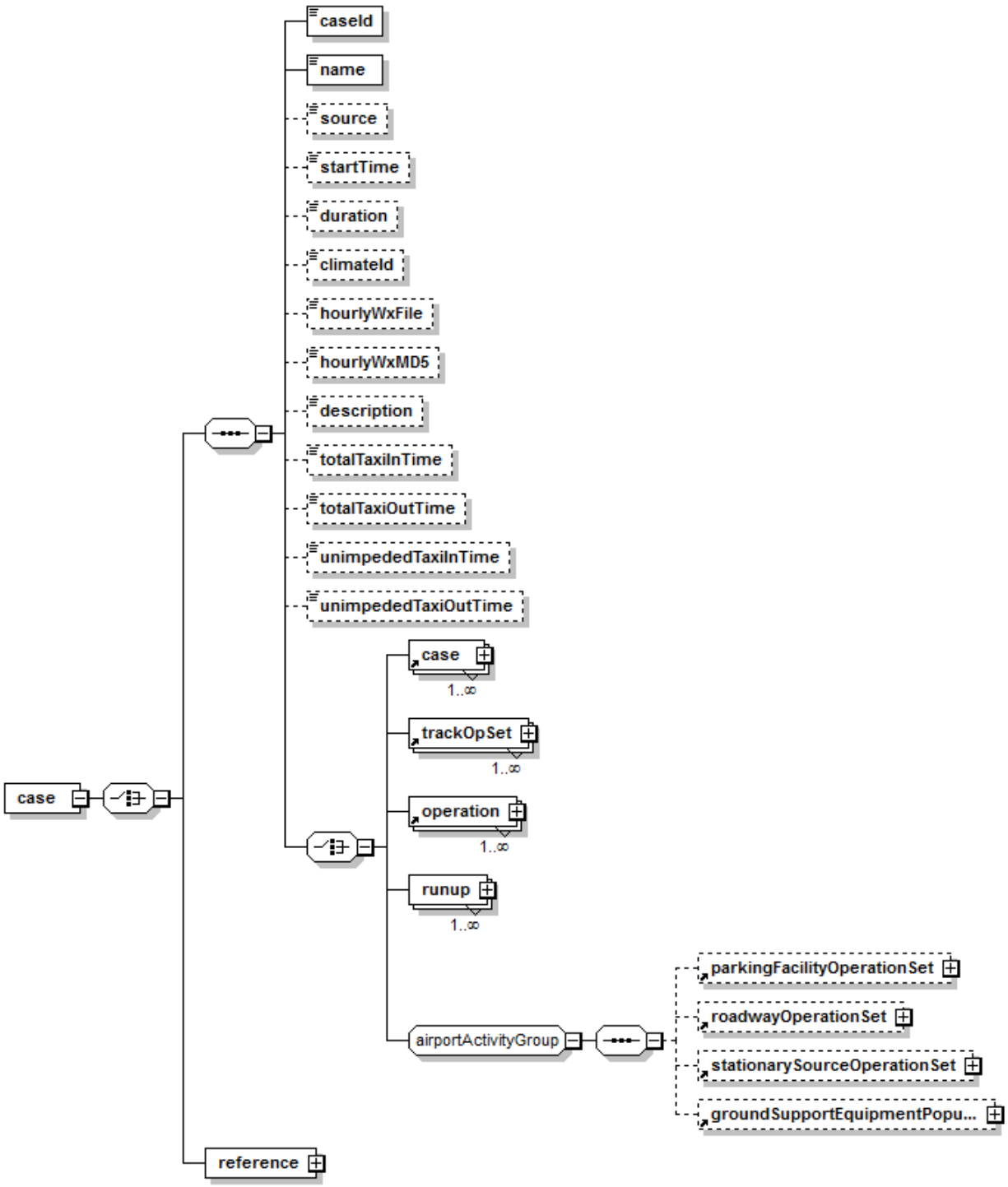
See Notation for information about reading this table.

XML Tag	Type	Num	Description
arrivalsPerHour	xs:double	1	Number of arrivals per hour. Valid values: 0.00 to 400.00. (operations per hour)
departuresPerHour	xs:double	1	Number of departures per hour. Valid values: 0.00 to 400.00. (operations per hour)

Attributes

None.

6.21 case



Describes general parameters for a case.

Structure

See Notation for information about reading this table.

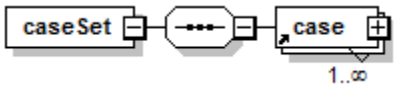
XML Tag	Type	Num	Choice	Description
caseId	xs:int	1		Case ID.
name	string255	1		The name of the case (must be unique within the scenario).
source	emissionsSourceType	*		Source of emissions.
startTime	xs:dateTime	*		Case's start time. If not defined, the value specified in the scenario element will be used. Must match the value for startTime for the scenario. Accepts dateTime string.
duration	xs:int	*		Case's duration. If not defined, the value specified in the scenario element will be used. Must match the value for duration for the scenario. For AEDT2b this is restricted to 24 hours (1 day). All cases within a scenario must have the same duration as the scenario. (hr).
climateId	string8	*	a	ID of a climate condition.
hourlyWxFile	string255	*		The file containing the hourly weather data used for emissions calculations. This element is not supported in AEDT2b.
hourlyWxMD5	string16	*		The weather file's MD5 checksum. If not present, the MD5 checksum will be computed for the user at the time of importing the ASIF. This element is not supported in AEDT2b.
description	string255	*		Description of the case.
totalTaxiInTime	xs:double	*		Number of minutes to complete a taxi-in. (min)
totalTaxiOutTime	xs:double	*		Number of minutes to complete a taxi-out. (min)
unimpededTaxiInTime	xs:double	*		Number of minutes to complete an unimpeded taxi-in. (min)

XML Tag	Type	Num	Choice	Description
unimpededTaxiOutTime	xs:double	*		Number of minutes to complete an unimpeded taxi-out. (min)
case	-	*	b	Describes general parameters for a case. See case.
trackOpSet	-	*	b	Lists tracks and associated operations. See trackOpSet.
operation	-	*	b	Describes an aircraft flight operation. See operation.
runup	runup	*	b	o An aircraft runup operation. This will be the same as a runup operation in INM.
airportActivityGroup	-	1	b	Contains a set of activities conducted at an airport. See airportActivityGroup.
reference	-	1	a	Refers to a case by its scenario name and case name. Conditions required: a) all airport layouts in the referenced scenario must be assigned to the target scenario, and b) the referenced case must have a unique name in the new scenario.

Attributes

None.

6.22 caseSet



Placeholder for one or more cases.

Structure

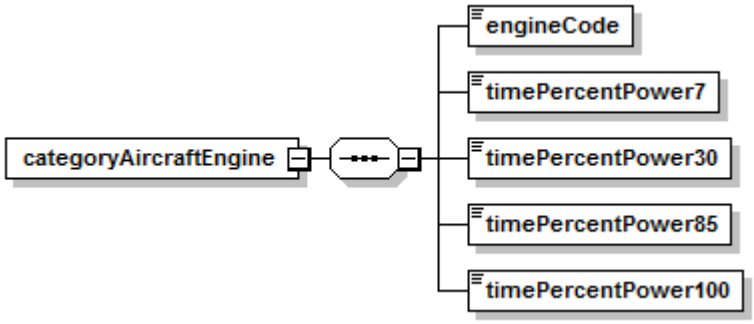
See Notation for information about reading this table.

XML Tag	Type	Num	Description
case	-	*	Describes general parameters for a case. See case.

Attributes

None.

6.23 categoryAircraftEngine



Describes a category for the time an aircraft engine is at various power levels.

Structure

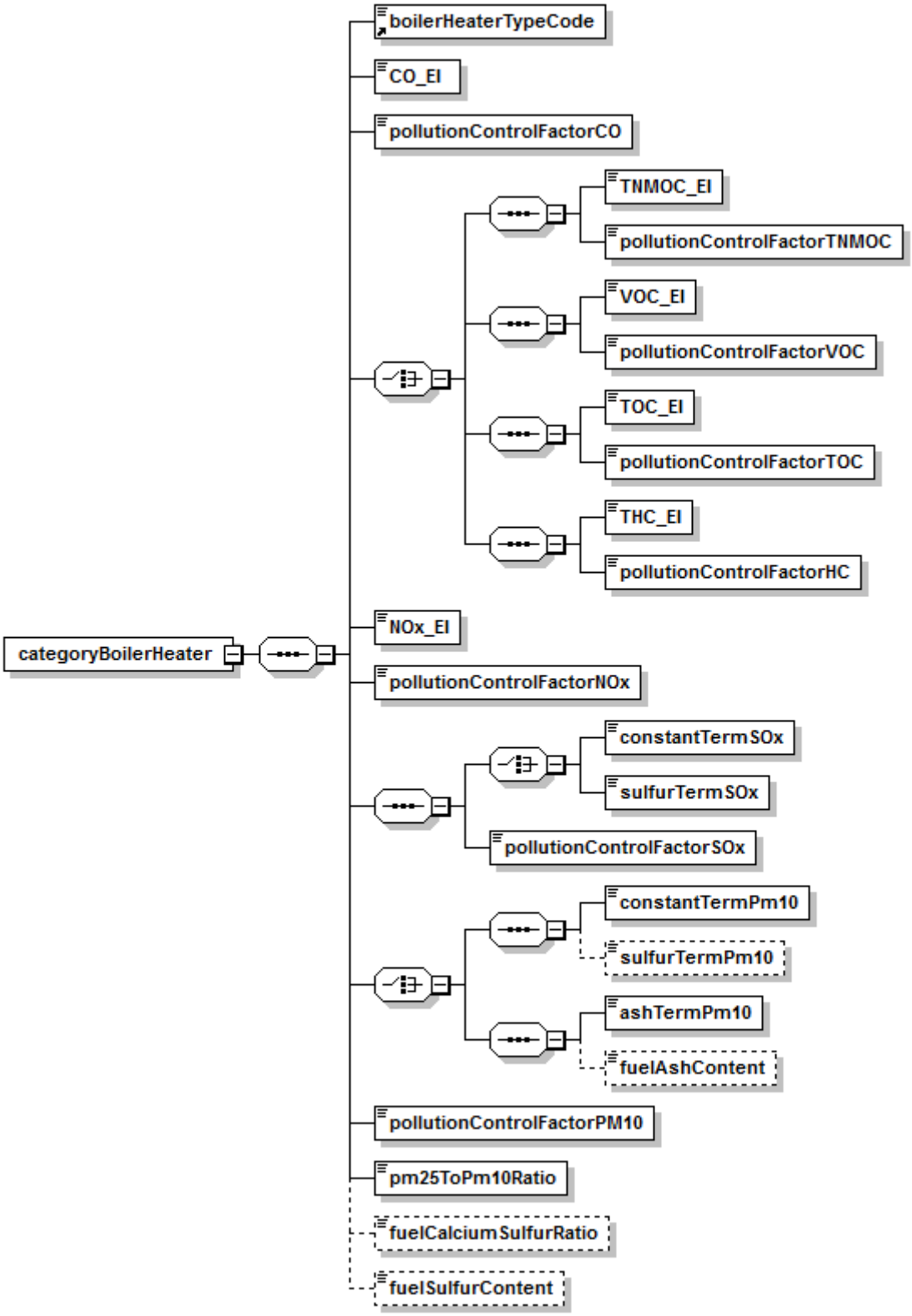
See Notation for information about reading this table.

XML Tag	Type	Num	Description
engineCode	string255	1	A string up to 255 characters long.
timePercentPower7	doubleExclusive1000	1	Time at which engine is operating at 7% (taxi) power. Valid values: 0 to 1000. (min) Default: 0.
timePercentPower30	doubleExclusive1000	1	Time at which engine is operating at 30% (approach) power. Valid values: 0 to 1000. (min) Default: 0.
timePercentPower85	doubleExclusive1000	1	Time at which engine is operating at 85% (climbout) power. Valid values: 0 to 1000. (min) Default: 0.
timePercentPower100	doubleExclusive1000	1	Time at which engine is operating at 100% (takeoff) power. Valid values: 0 to 1000. (min) Default: 0.

Attributes

None.

6.24 categoryBoilerHeater



Describes the operational characteristics of a source in the boiler/heater category.

Structure

See Notation for information about reading this table.

XML Tag	Type	Num	Choice	Description
boilerHeaterTypeCode	-	1		An integer value for the Boiler/Heater type represented. This value comes from the SUBCATEGORY_ID column of the STN_CATEGORY table in the AEDT FLEET database. Valid values: 1 to 37, 50 to 75, 80 to 93. See boilerHeaterTypeCode.
CO_EI	doubleInclusive1000	1		CO emissions index, dependent on fuel type. Valid values: 0 to 1000. (Kg/Metric Ton or Kg/Kiloliter or Kg/1000 m^3) Default: 0.
pollutionControlFactorCO	doubleInclusive100	1		Percent of carbon monoxide removed by pollution control measures. Valid values: 0 to 1000. (%) Default: 0.
TNMOC_EI	doubleInclusive1000	1	a	TNMOC emissions index, dependent on fuel type. Valid values: 0 to 1000. (Kg/Metric Ton or Kg/Kiloliter or Kg/1000 m^3) Default: 0.
pollutionControlFactorTNMOC	doubleInclusive100	1		Percent of total non-methane organic compounds removed by pollution control measures. Valid values: 0 to 1000. (%) Default: 0.
VOC_EI	doubleInclusive1000	1	a	VOC emissions index, dependent on fuel type. Valid values: 0 to 1000. (Kg/Metric Ton or

XML Tag	Type	Num	Choice	Description
				Kg/Kiloliter or Kg/1000 m^3) Default: 0.
pollutionControlFactorVOC	doubleInclusive100	1		Percent of volatile organic compounds removed by pollution control measures. Valid values: 0 to 1000. (%) Default: 0.
TOC_EI	doubleInclusive1000	1	a	Total organic compound emissions Index, dependent on fuel type. Valid values: 0 to 1000. (Kg/Metric Ton or Kg/Kiloliter or Kg/1000 m^3) Default: 0.
pollutionControlFactorTOC	doubleInclusive100	1		Percent of total organic compounds removed by pollution control measures. Valid values: 0 to 100.(%) Default: 0.
THC_EI	doubleInclusive1000	1	a	Total hydrocarbon emissions Index, dependent on fuel type. Valid values: 0 to 1000. (Kg/Metric Ton or Kg/Kiloliter or Kg/1000 m^3) Default: 0.
pollutionControlFactorHC	doubleInclusive100	1		Percent of hydrocarbons removed by pollution control measures. Valid values: 0 to 100. (%) Default: 0.
NOx_EI	doubleInclusive1000	1		NOx emissions Index, dependent on fuel type. Valid values: 0 to 1000. (Kg/Metric Ton or Kg/Kiloliter or Kg/1000 m^3) Default: 0.
pollutionControlFactorNOx	doubleInclusive100	1		Percent of nitrous oxides removed by pollution control measures. Valid values: 0 to 1000. (%) Default: 0.
constantTermSOx	doubleInclusive1000	1	a	SOx emissions Index, dependent on fuel type. Valid values: 0 to 1000.

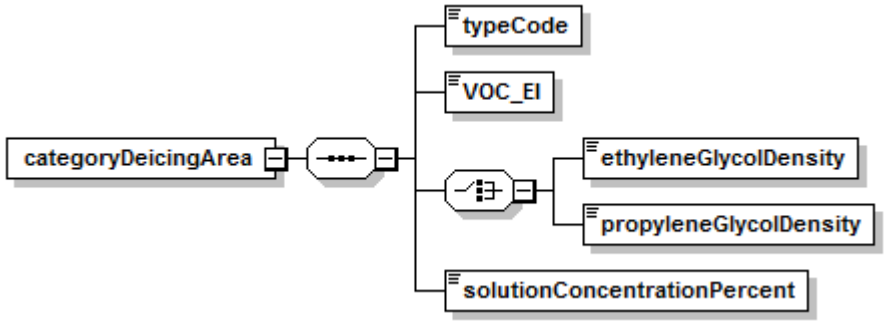
XML Tag	Type	Num	Choice	Description
				(Kg/Metric Ton or Kg/Kiloliter or Kg/1000 m^3) Default: 0.
sulfurTermSOx	doubleInclusive1000	1	a	SOx sulfur EI term, fuel dependent. Valid values: 0 to 1000. (Kg/1000 m^3 - %Sulfur, or Kg/Kiloliter - %Sulfur, or Kg/Metric Ton - %Sulfur) Default: 0.
pollutionControlFactorSOx	doubleInclusive100	1		Percent of sulfur oxides removed by pollution control measures. Valid values: 0 to 1000. (%) Default: 0.
constantTermPm10	doubleInclusive1000	1	b	PM10 emissions Index, dependent on fuel type. Valid values: 0 to 1000. (Kg/Metric Ton or Kg/Kiloliter or Kg/1000 m^3) Default: 0.
sulfurTermPm10	doubleInclusive1000	*		PM10 sulfur EI term, fuel dependent. Valid values: 0 to 1000. (Kg/1000 m^3 - %Sulfur, or Kg/Kiloliter - %Sulfur, or Kg/Metric Ton - %Sulfur)
ashTermPm10	doubleInclusive1000	1	b	PM10 ash term. Valid values: 0 to 1000.(Kg/Metric Ton - %Ash) Default: 0.
fuelAshContent	doubleExclusive100	*		Percent of fuel that is ash. Valid values: 0 to 1000. (%)
pollutionControlFactorPM10	doubleInclusive100	1		Percent of 10-micron particulate matter removed by pollution control measures. Valid values: 0 to 1000. (%) Default: 0.
pm25ToPm10Ratio	doubleInclusive1	1		PM 2.5 to PM 10 ratio. Valid values: 0 to 1000. (dimensionless) Default: 1.
fuelCalciumSulfurRatio	doubleExclusive1000	*		Ratio of calcium to sulfur within the fuel. Valid

XML Tag	Type	Num	Choice	Description
				values: 0 to 1000. (dimensionless)
fuelSulfurContent	doubleExclusive100	*		Percent of fuel that is sulfur. Valid values 0 to 1000. (%)

Attributes

None.

6.25 categoryDeicingArea



Describes the operational characteristics of a source in the deicing area category.

Structure

See Notation for information about reading this table.

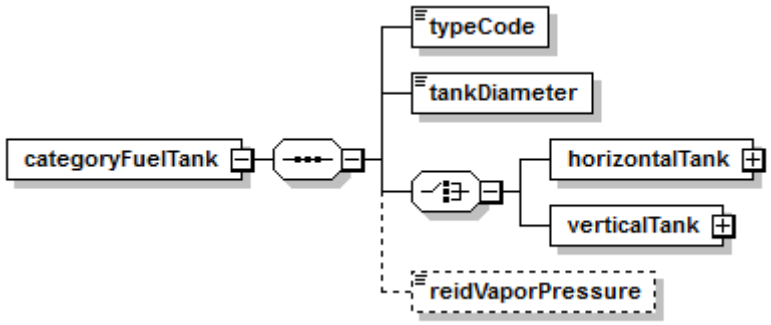
XML Tag	Type	Num	Choice	Description
typeCode	int1to4	1		Describes this category.
VOC_EI	doubleInclusive1000	1		VOC emissions index, fuel type dependent. Valid values: 0 to 1000. (Kg/Metric Ton or Kg/Kiloliter) Default: 0.
ethyleneGlycolDensity	doubleExclusive2000	1	a	Ethylene glycol solution density. Valid values: 0 to 1000. (g/L) Default: 0.
propyleneGlycolDensity	doubleExclusive2000	1	a	Propylene glycol solution density. Valid values: 0 to 1000. (g/L) Default: 0.

XML Tag	Type	Num	Choice	Description
solutionConcentrationPercent	doubleExclusive100	1		Concentration of deicing solution. Valid values: 0 to 1000. (%) Default: 50.

Attributes

None.

6.26 categoryFuelTank



Describes the operational characteristics of a source in the fuel tank category.

Structure

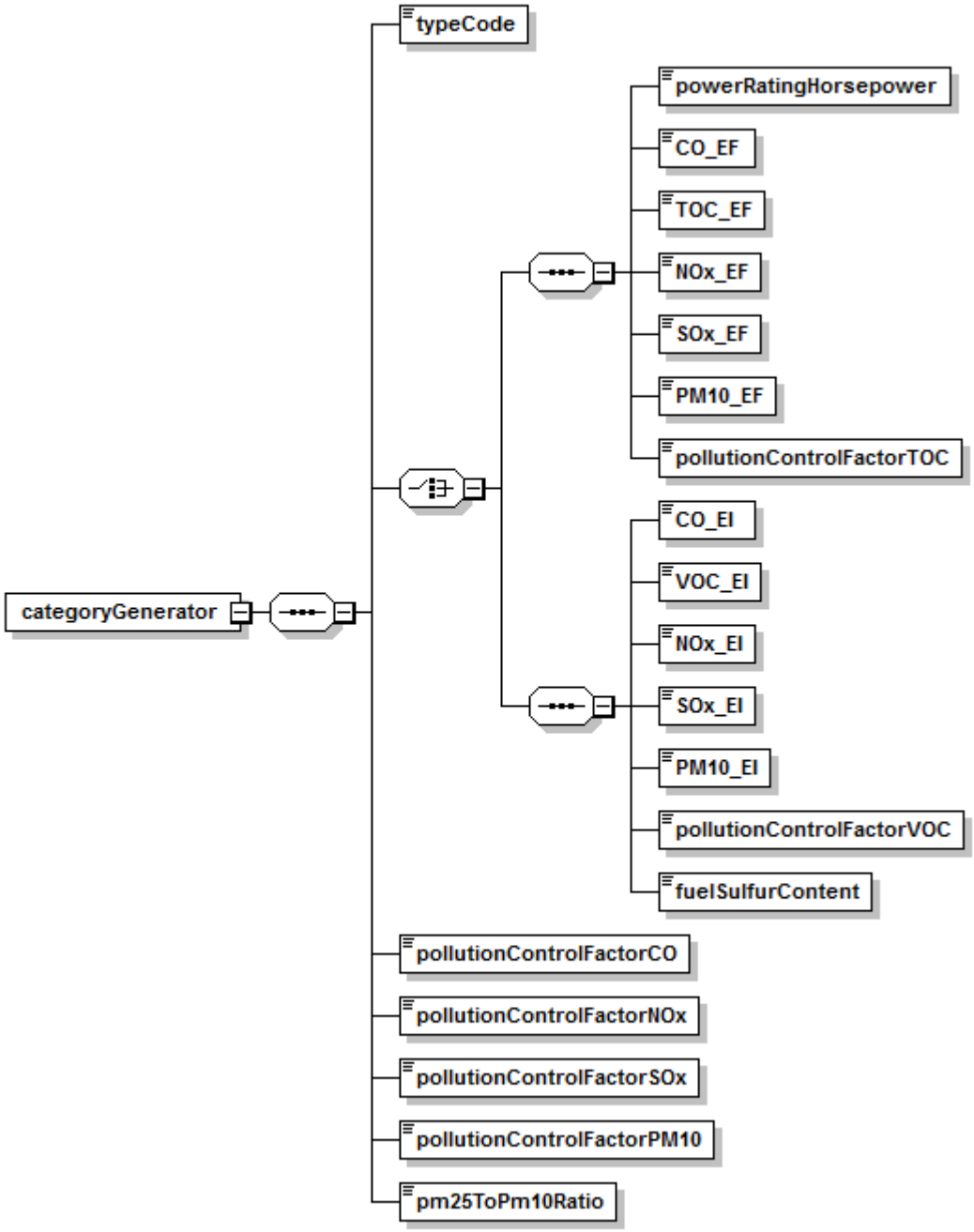
See Notation for information about reading this table.

XML Tag	Type	Num	Choice	Description
typeCode	int1to25	1		Describes this category.
tankDiameter	doubleExclusive1000	1		Diameter of tank. Valid values: 0 to 1000. (m) Default: 0.
horizontalTank	-	1	a	Describes a horizontal tank.
verticalTank	-	1	a	Describes a vertical tank.
reidVaporPressure	int6to13	*		Reid vapor pressure. Valid values: 0 to 1000. (PSI) Default: 10.

Attributes

None.

6.27 categoryGenerator



Describes the operational characteristics of a source in the generator category.

Structure

See Notation for information about reading this table.

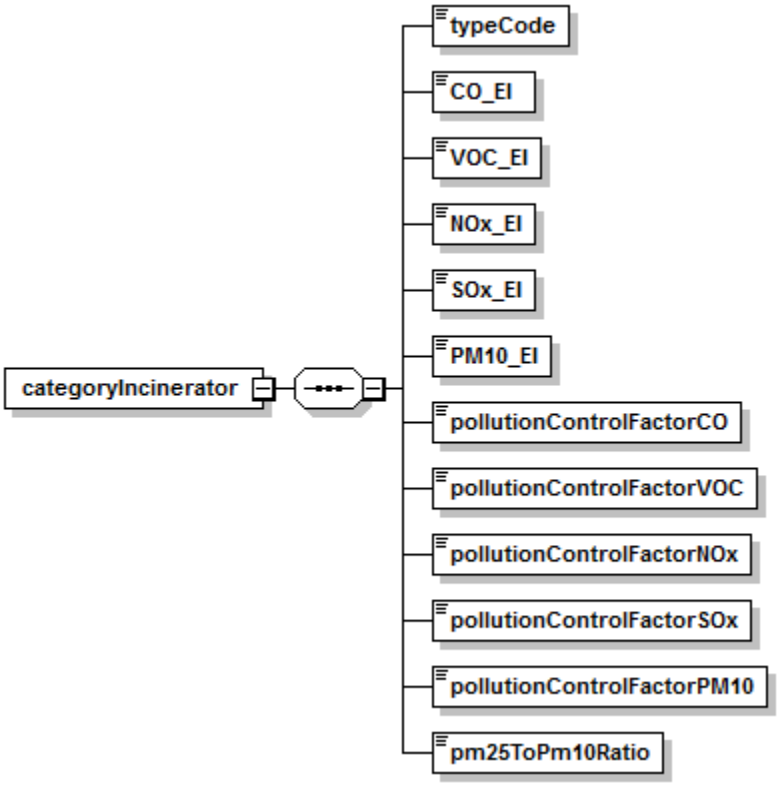
XML Tag	Type	Num	Choice	Description
typeCode	int1to8	1		Describes this category.
powerRatingHorsepower	doubleInclusive10000	1	a	The rated power of the generator in horsepower. Valid values: 0 to 10000. (hp) Default: 0.
CO_EF	doubleInclusive1000	1		CO emissions factor. Valid values: 0 to 1000. (grams/hp-hr) Default: 0.
TOC_EF	doubleInclusive1000	1		TOC emissions factor. Valid values: 0 to 1000. (grams/hp-hr) Default: 0.
NOx_EF	doubleInclusive1000	1		NOx emissions factor. Valid values: 0 to 1000. (grams/hp-hr) Default: 0.
SOx_EF	doubleInclusive1000	1		SOx emissions factor. Valid values: 0 to 1000. (grams/hp-hr) Default: 0.
PM10_EF	doubleInclusive1000	1		PM10 emissions factor. Valid values: 0 to 1000. (grams/hp-hr) Default: 0.
pollutionControlFactorTOC	doubleInclusive100	1		Percent of total organic compounds removed by pollution control measures. Valid values: 0 to 1000. (%) Default: 0.
CO_EI	doubleInclusive1000	1	a	CO emissions index. Valid values: 0 to 1000. (Kg/Kiloliter or Kg/1000 m^3) Default: 0.
VOC_EI	doubleInclusive1000	1		VOC emissions index. Valid values: 0 to 1000. (Kg/Kiloliter or Kg/1000 m^3) Default: 0.
NOx_EI	doubleInclusive1000	1		NOx emissions index. Valid values: 0 to 1000. (Kg/Kiloliter or Kg/1000 m^3) Default: 0.
SOx_EI	doubleInclusive1000	1		SOx emissions index. Valid values: 0 to 1000. (Kg/Kiloliter or Kg/1000 m^3) Default: 0.

XML Tag	Type	Num	Choice	Description
PM10_EI	doubleInclusive1000	1		PM10 emissions index. Valid values: 0 to 1000. (Kg/Kiloliter or Kg/1000 m^3) Default: 0.
pollutionControlFactorVOC	doubleInclusive100	1		Amount of volatile organic compounds emitted. Valid values: 0 to 1000. (%) Default: 0.
fuelSulfurContent	doubleExclusive100	1		Percentage, by weight, of sulfur in the fuel used for emissions calculations as % or grains per 100 cu ft of gas vapor (fuel dependent). Valid values: 0 to 1000. (%) Default: 0.
pollutionControlFactorCO	doubleInclusive100	1		Percent of carbon monoxide removed by pollution control measures. Valid values: 0 to 1000. (%) Default: 0.
pollutionControlFactorNOx	doubleInclusive100	1		Percent of nitrous oxides removed by pollution control measures. Valid values 0 to 1000. (%) Default: 0.
pollutionControlFactorSOx	doubleInclusive100	1		Percent of sulfur oxides removed by pollution control measures. Valid values: 0 to 1000. (%) Default: 0.
pollutionControlFactorPM10	doubleInclusive100	1		Percent of 10-micron particulate matter removed by pollution control measures. Valid values: 0 to 1000. (%) Default: 0.
pm25ToPm10Ratio	doubleInclusive1	1		PM 2.5 to PM 10 ratio. (dimensionless) Default: 1.

Attributes

None.

6.28 categoryIncinerator



Describes the operational characteristics of a source in the incinerator category.

Structure

See Notation for information about reading this table.

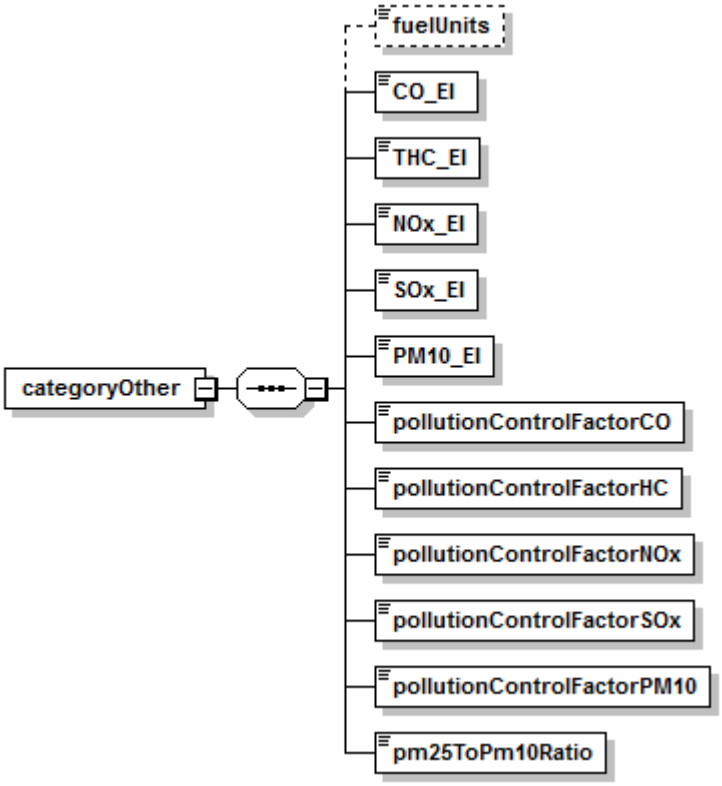
XML Tag	Type	Num	Description
typeCode	int1to2	1	Describes this category.
CO_EI	doubleInclusive1000	1	CO emissions index. Valid values: 0 to 1000. (Kg/Metric Ton) Default: 0.
VOC_EI	doubleInclusive1000	1	VOC emissions index. Valid values: 0 to 1000. (Kg/Metric Ton) Default: 0.
NOx_EI	doubleInclusive1000	1	NOx emissions index. Valid values: 0 to 1000. (Kg/Metric Ton) Default: 0.
SOx_EI	doubleInclusive1000	1	SOx emissions index. Valid values: 0 to 1000. (Kg/Metric Ton) Default: 0.
PM10_EI	doubleInclusive1000	1	PM10 emissions index. Valid values: 0 to 1000. (Kg/Metric Ton) Default: 0.

XML Tag	Type	Num	Description
pollutionControlFactorCO	doubleInclusive100	1	Percent of carbon monoxide removed by pollution control measures. Valid values: 0 to 1000. (%) Default: 0.
pollutionControlFactorVOC	doubleInclusive100	1	Amount of volatile organic compounds emitted (kg/unit). Valid values: 0 to 1000. (%) Default: 0.
pollutionControlFactorNOx	doubleInclusive100	1	Percent of nitrous oxides removed by pollution control measures. Valid values: 0 to 1000. (%) Default: 0.
pollutionControlFactorSOx	doubleInclusive100	1	Percent of sulfur oxides removed by pollution control measures. Valid values: 0 to 1000. (%) Default: 0.
pollutionControlFactorPM10	doubleInclusive100	1	Percent of 10-micron particulate matter removed by pollution control measures. Valid values: 0 to 1000. (%) Default: 0.
pm25ToPm10Ratio	doubleInclusive1	1	PM2.5 to PM10 ratio. Valid values: 0 to 1000. Default: 1.

Attributes

None.

6.29 categoryOther



Describes the operational characteristics of a source in the “other” category.

Structure

See Notation for information about reading this table.

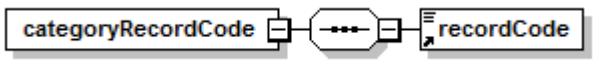
XML Tag	Type	Num	Description
fuelUnits	int0to5	*	Defines fuel units. Also defined in the STN_FUEL_UNITS table in FLEET. Valid values: 0 = Metric Tons, 1=Kiloliters, 2 = 1000s of m3, 3 = Hours, 4 = Test Cyles, 5 = Gallons. Default: 0.
CO_EI	doubleInclusive1000	1	CO emissions index per unit of fuel. Valid values: 0 to 1000. (kg/unit) Default: 0.
THC_EI	doubleInclusive1000	1	Hydrocarbon emissions index per unit of fuel. Valid values: 0 to 1000. (kg/unit) Default: 0.

XML Tag	Type	Num	Description
NOx_EI	doubleInclusive1000	1	NOx emissions index per unit of fuel. Valid values: 0 to 1000. (kg/unit) Default: 0.
SOx_EI	doubleInclusive1000	1	SOx emissions index per unit of fuel. Valid values: 0 to 1000. (kg/unit) Default: 0.
PM10_EI	doubleInclusive1000	1	PM10 emissions index per unit of fuel. Valid values: 0 to 1000. (kg/unit) Default: 0.
pollutionControlFactorCO	doubleInclusive100	1	Percent of carbon monoxide removed by pollution control measures. Valid values: 0 to 1000. (%) Default: 0.
pollutionControlFactorHC	doubleInclusive100	1	Percent of hydrocarbons removed by pollution control measures. Valid values: 0 to 1000. (%) Default: 0.
pollutionControlFactorNOx	doubleInclusive100	1	Percent of nitrous oxides removed by pollution control measures. Valid values: 0 to 1000. (%) Default: 0.
pollutionControlFactorSOx	doubleInclusive100	1	Percent of sulfur oxides removed by pollution control measures. Valid values: 0 to 1000. (%) Default: 0.
pollutionControlFactorPM10	doubleInclusive100	1	Percent of 10-micron particulate matter removed by pollution control measures. Valid values: 0 to 1000. (%) Default: 0.
pm25ToPm10Ratio	doubleInclusive1	1	PM2.5 to PM10 Ratio. Valid values: 0 to 1000. Default: 1.

Attributes

None.

6.30 categoryRecordCode



An integer value for a category to use as the basis of a new stationary source operation. This value comes from the CATEGORY_REC_ID column in the STN_CATEGORY table in the AEDT FLEET database.

Structure

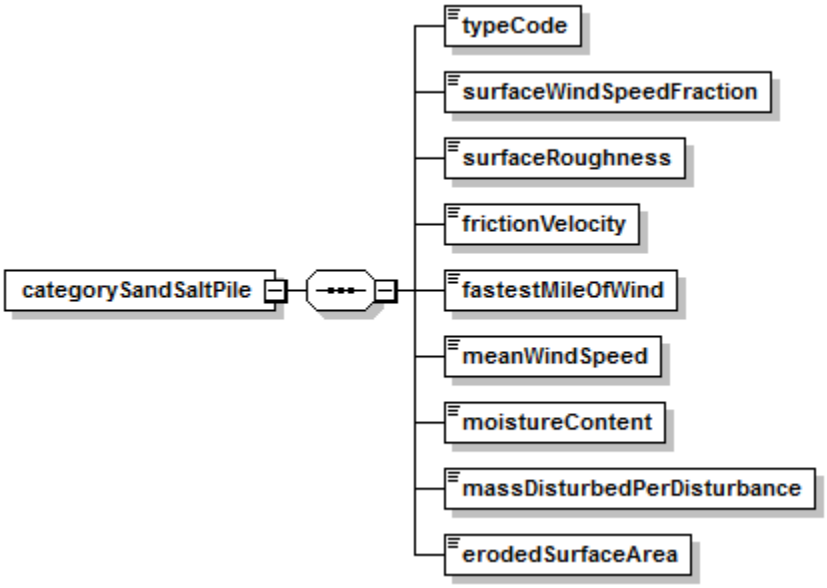
See Notation for information about reading this table.

XML Tag	Type	Num	Description
recordCode	-	1	An integer value for a category to use as the basis of a new stationary source operation. This value comes from the CATEGORY_REC_ID column in the STN_CATEGORY table in the AEDT FLEET database. Valid values: 0 to 87, 89 to 148. See recordCode.

Attributes

None.

6.31 categorySandSaltPile



Describes the emissions characteristics of a source in the sand or salt pile category.

Structure

See Notation for information about reading this table.

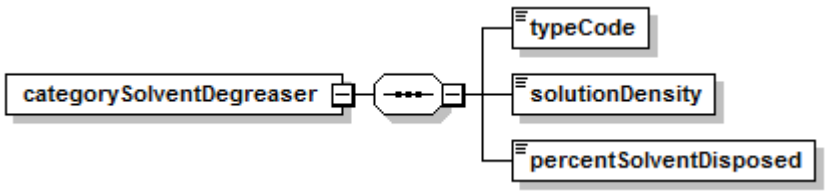
XML Tag	Type	Num	Description
typeCode	int1to5	1	Describes this category.
surfaceWindSpeedFraction	doubleInclusive1	1	Surface wind speed fraction. Valid values: 0 to 1000. (unitless) Default: 0.
surfaceRoughness	doubleExclusiveRange100	1	The surface roughness of the pile. Valid values: 0 to 1000. (cm) Default: 0.01.

XML Tag	Type	Num	Description
frictionVelocity	doubleExclusive100	1	Friction velocity. Valid values: 0 to 1000. (m/s) Default: 0.
fastestMileOfWind	doubleExclusive100	1	Fastest mile of wind. Valid values: 0 to 1000. (m/s) Default: 0.
meanWindSpeed	doubleExclusive100	1	Average wind speed at sand or salt pile. Valid values: 0 to 1000. (m/s) Default: 0.
moistureContent	doubleExclusiveRange100	1	Percentage of sand or salt pile that is moisture. Valid values: 0 to 1000. (%) Default: 0.01.
massDisturbedPerDisturbance	doubleExclusive1000	1	The mass disturbed per disturbance. Valid values: 0 to 1000. (Metric Tons) Default: 0.
erodedSurfaceArea	doubleExclusive10000	1	Eroded surface area of pile. Valid values: 0 to 1000. (meters²) Default: 0.

Attributes

None.

6.32 categorySolventDegreaser



Describes the operational characteristics of a source in the solvent degreaser category.

Structure

See Notation for information about reading this table.

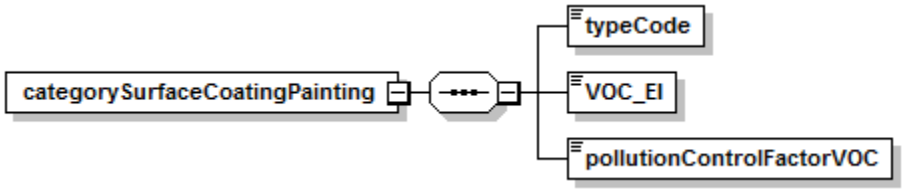
XML Tag	Type	Num	Description
typeCode	int1to13	1	Describes this category.
solutionDensity	doubleExclusive2000	1	Density of the deicing solution. Valid values: 0 to 1000. (g/L) Default: 0.

XML Tag	Type	Num	Description
percentSolventDisposed	xs:double	1	Percentage of solvent removed by environmental controls. Valid values: 0 to 1000. (%) Default: 0.

Attributes

None.

6.33 categorySurfaceCoatingPainting



Describes the operational characteristics of a source in the surface coating or painting category.

Structure

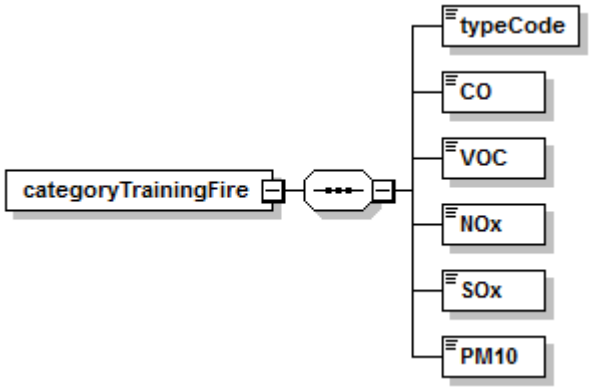
See Notation for information about reading this table.

XML Tag	Type	Num	Description
typeCode	int1to8	1	Describes this category.
VOC_EI	doubleInclusive1000	1	VOC emissions index. Valid values: 0 to 1000. (kg/kiloliter) Default: 0.
pollutionControlFactorVOC	doubleInclusive100	1	Percentage of volatile organic compounds removed by environmental controls. Valid values: 0 to 1000. (%) Default: 0.

Attributes

None.

6.34 categoryTrainingFire



Supports legacy EDMS studies relating to content contained in the TRAINING_FIRES table. This element supports the definition of training fires for scenario layouts. Training fire data are used in both emissions and dispersion analyses.

Structure

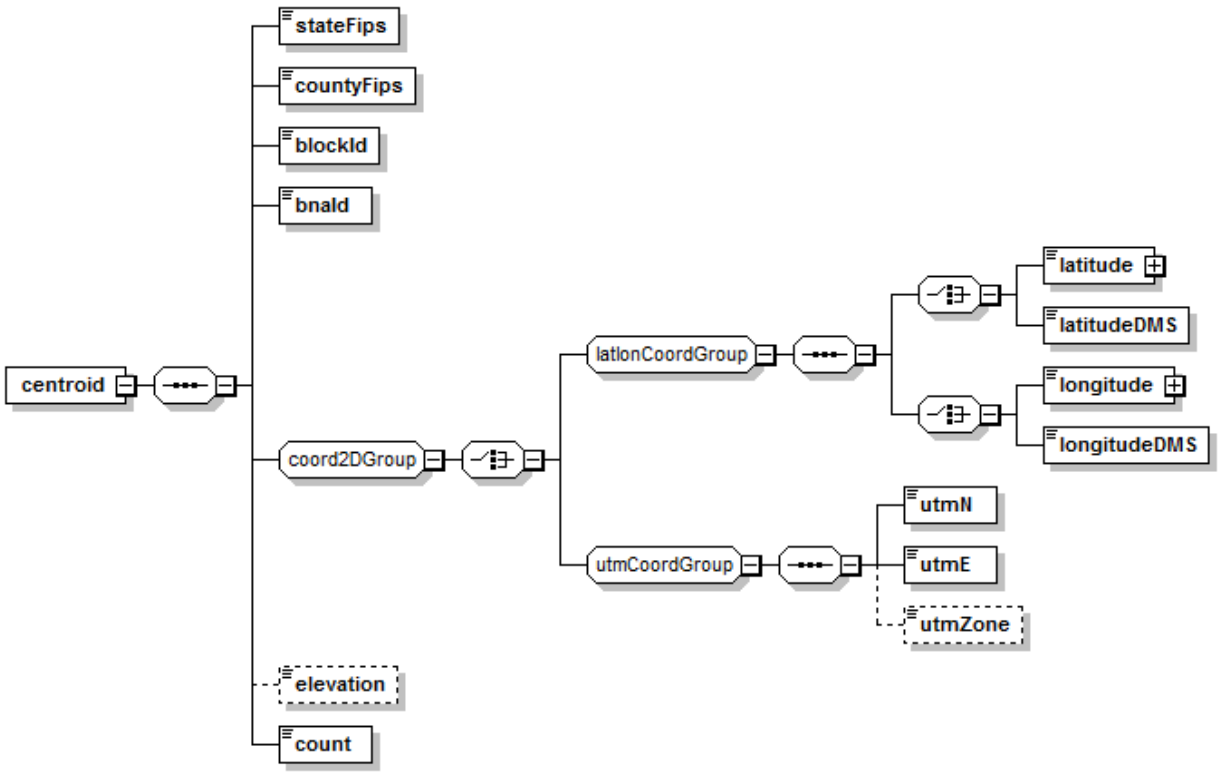
See Notation for information about reading this table.

XML Tag	Type	Num	Description
typeCode	int1to5	1	Describes this category.
CO	xs:double	1	Amount of carbon monoxide emitted. Valid values: 0 to 3000. (g/gal)
VOC	xs:double	1	Amount of volatile organic compounds emitted. Valid values: 0 to 100. (g/gal)
NOx	xs:double	1	Amount of nitrous oxides emitted. Valid values: 0 to 100. (g/gal)
SOx	xs:double	1	Amount of sulfur oxides emitted. Valid values: 0 to 10. (g/gal)
PM10	xs:double	1	Amount of 10-micron particulate matter emitted. Valid values: 0 to 1000. (g/gal)

Attributes

None.

6.35 centroid



Describes the geometric center of a polygon.

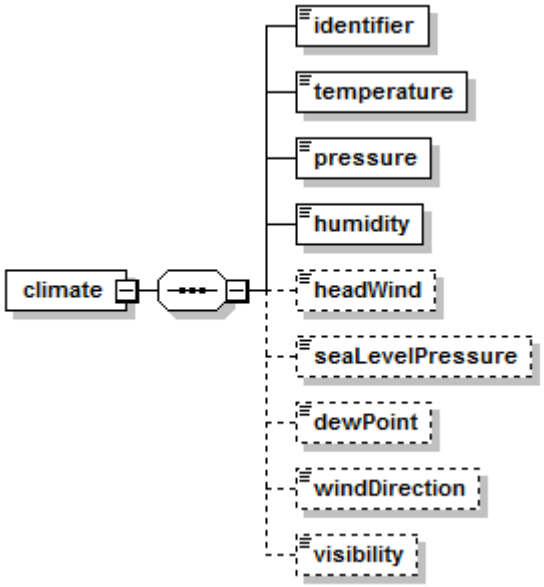
Structure

See Notation for information about reading this table.

XML Tag	Type	Num	Description
stateFips	xs:int	1	Optional census state identifier.
countyFips	xs:int	1	Optional census county identifier.
blockId	xs:int	1	Optional census BLOCK ID.
bnaId	string6	1	Optional census BNA ID.
coord2DGroup	-	1	Indicates how a two-dimensional group is specified. See coord2DGroup.
elevation	xs:double	*	The centroid's elevation above MSL (ft) if terrain not used. If not specified, AEDT2b will use elevation of operation airport.
count	xs:int	1	The population count of the centroid. Valid values: 0 to 999999.

Attributes
None.

6.36 climate



Characterizes the climate during the study.

Structure

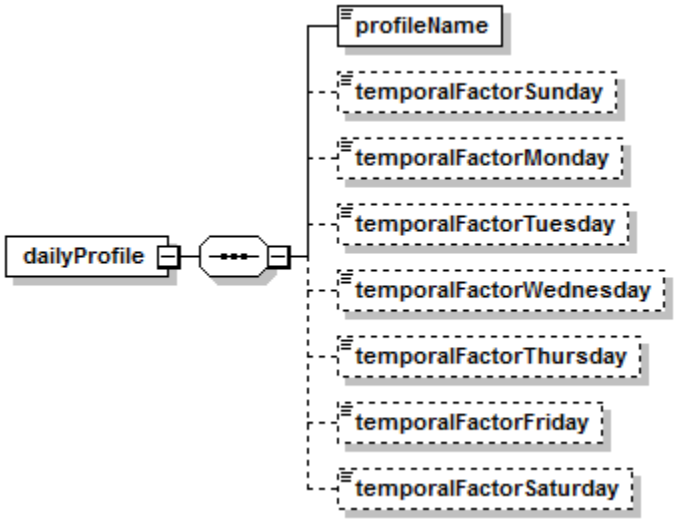
See Notation for information about reading this table.

XML Tag	Type	Num	Description
identifier	string8	1	Identifier of the climate condition.
temperature	xs:float	1	Temperature in the climate condition. (°F)
pressure	xs:float	1	Atmospheric pressure in the climate condition. (in Hg)
humidity	xs:double	1	Humidity in the climate condition. (%)
headWind	xs:float	*	Velocity of headwind. (kts)
seaLevelPressure	xs:double	*	Atmospheric pressure at sea level. (in Hg)
dewPoint	xs:double	*	Dew point in the climate condition. (°F)
windDirection	xs:double	*	Wind direction. Valid values: 0-360. (degrees)
visibility	xs:double	*	Visibility in the climate condition. (mi)

Attributes

None.

6.37 dailyProfile



Supports legacy EDMS studies relating to content contained in the DAILY_PROFILES. This element supports the definition of temporal factors on a daily operational basis.

Structure

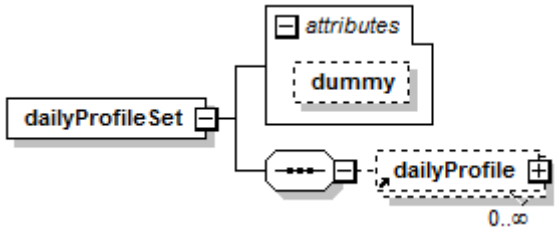
See Notation for information about reading this table.

XML Tag	Type	Num	Description
profileName	string100	1	Name of profile.
temporalFactorSunday	doubleMin0	*	Factor applied to activity for operations on Sundays. Valid values: 0.0000 to 1.0000.
temporalFactorMonday	doubleMin0	*	Factor applied to activity for operations on Mondays. Valid values: 0.0000 to 1.0000.
temporalFactorTuesday	doubleMin0	*	Factor applied to activity for operations on Tuesdays. Valid values: 0.0000 to 1.0000.
temporalFactorWednesday	doubleMin0	*	Factor applied to activity for operations on Wednesdays. Valid values: 0.0000 to 1.0000.
temporalFactorThursday	doubleMin0	*	Factor applied to activity for operations on Thursdays. Valid values: 0.0000 to 1.0000.
temporalFactorFriday	doubleMin0	*	Factor applied to activity for operations on Fridays. Valid values: 0.0000 to 1.0000.
temporalFactorSaturday	doubleMin0	*	Factor applied to activity for operations on Saturdays. Valid values: 0.0000 to 1.0000.

Attributes

None.

6.38 dailyProfileSet



Supports the definition and use of DAILY_PROFILES for the daily variation of operations.

Structure

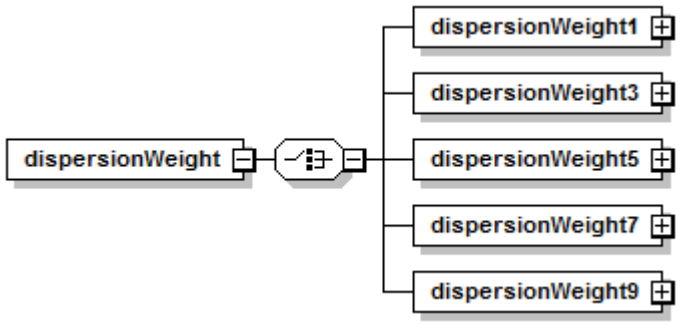
See Notation for information about reading this table.

XML Tag	Type	Num	Description
dailyProfile	-	*	Supports legacy EDMS studies relating to content contained in the DAILY_PROFILES. This element supports the definition of temporal factors on a daily operational basis. See dailyProfile.

Attributes

None.

6.39 dispersionWeight



Dispersion weights associated with the subtracks for this backbone. Subtracks are numbered in increasing order from the backbone outward. The allowable number of subtracks for a backbone are 1, 3, 5, 7 and 9. Valid dispersion weight values are greater than one and less than or equal to 1. The sum of the dispersion weights for this backbone must equal 1.

Structure

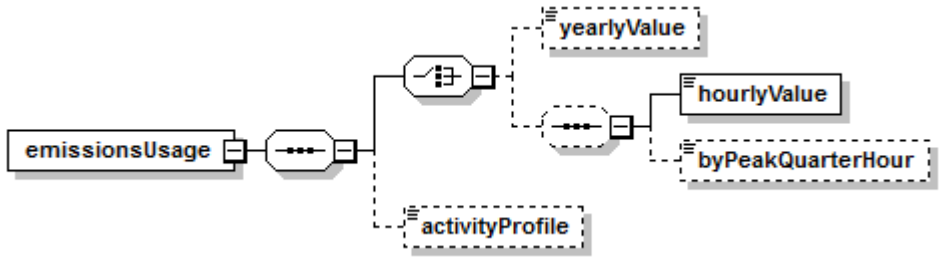
See Notation for information about reading this table.

XML Tag	Type	Num	Choice	Description
dispersionWeight1	dispersionWeight1Type	1	a	Abstract type used to specify the dispersion weight for the backbone subtrack. This type is intended only to be a base class and will not be used in ASIF files directly. See dispersionWeight1Type.
dispersionWeight3	dispersionWeight3Type	1	a	Specify the dispersion weight for a backbone with 2 subtracks.. See dispersionWeight3Type.
dispersionWeight5	dispersionWeight5Type	1	a	Specify the dispersion weight for a backbone with 4 subtracks. See dispersionWeight5Type.
dispersionWeight7	dispersionWeight7Type	1	a	Specify the dispersion weight for a backbone with 6 subtracks. See dispersionWeight7Type.
dispersionWeight9	dispersionWeight9Type	1	a	Specify the dispersion weight for a backbone with 8 subtracks. See dispersionWeight9Type.

Attributes

None.

6.40 emissionsUsage



Describes the amount of emissions for a given activity profile.

Structure

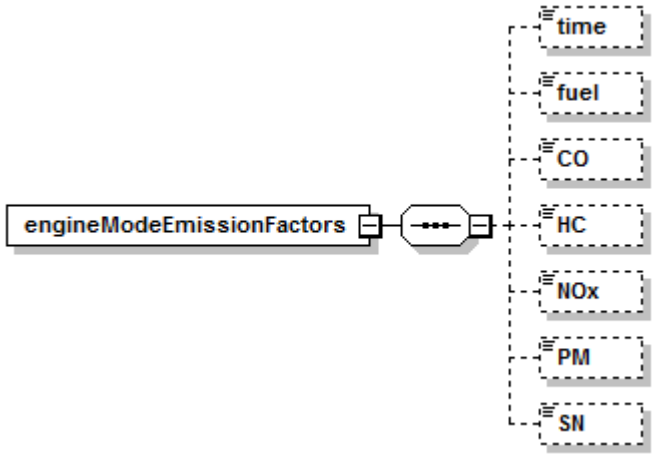
See Notation for information about reading this table.

XML Tag	Type	Num	Choice	Description
yearlyValue	xs:double	*	a	Annualized amount of emissions.
hourlyValue	xs:double	1	a	Hourly amount of emissions.
byPeakQuarterHour	xs:boolean	*		Indicates if the hourly value is the peak hourly value. Default: false.
activityProfile	string40	*		An activity profile type (e.g. reference to one of hourlyProfile, dailyProfile or weeklyProfile).

Attributes

None.

6.41 engineModeEmissionFactors



Supports legacy EDMS studies relating to content contained in the USER_CREATED_AIRCRAFT table. This element supports the definition of custom emission factor elements.

Structure

See Notation for information about reading this table.

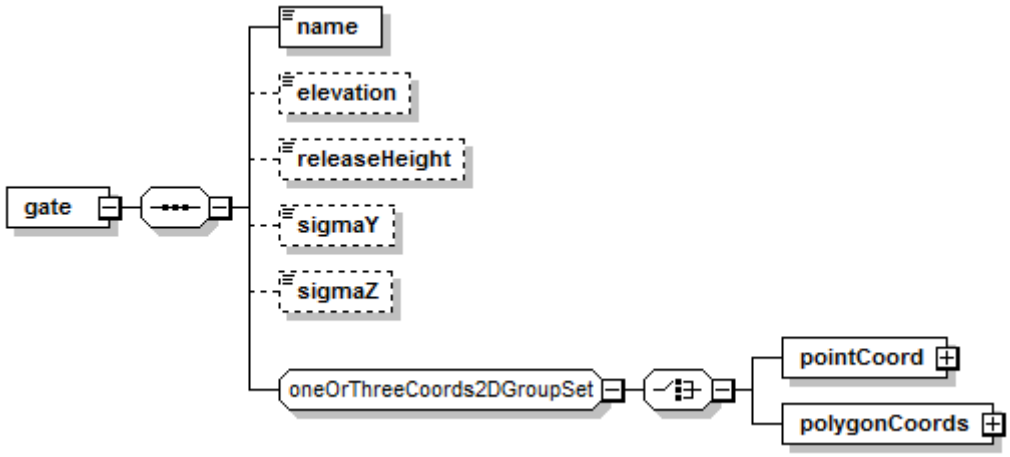
XML Tag	Type	Num	Description
time	xs:double	*	Time engine operates in a given mode. Valid values: nonnegative. (minutes) Default: 0.
fuel	xs:double	*	Rate of fuel burn in given mode. Valid values: nonnegative. (kg/s) Default: 0.
CO	xs:double	*	Amount of carbon monoxide emitted. Valid values: nonnegative. (kg/s) Default: 0.

XML Tag	Type	Num	Description
HC	xs:double	*	Amount of hydrocarbons emitted. Valid values: nonnegative. (kg/s) Default: 0.
NOx	xs:double	*	Amount of nitrous oxide emitted. Valid values: nonnegative. (kg/s) Default: 0.
PM	xs:double	*	Amount of particulate matter emitted. Valid values: nonnegative. (kg/s) Default: 0.
SN	xs:double	*	Smoke number for the engine mode. Valid values: nonnegative. (kg/s) Default: 0.

Attributes

None.

6.42 gate



Supports legacy EDMS studies relating to content contained in the GATES table. This element supports the definition of gates within an airport layout. In dispersion analyses, GSE, AGE, and APU emissions originate from the gate locations. Gates are needed for sequence modeling, which includes all dispersion analyses.

Structure

See Notation for information about reading this table.

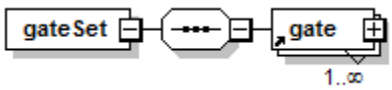
XML Tag	Type	Num	Description
name	string40	1	Identifying name of gate.
elevation	xs:double	*	Gate's elevation above mean sea level in meters. Valid values: -500 to 5000. (m)

XML Tag	Type	Num	Description
releaseHeight	xs:double	*	Height above ground level at which emissions are released into the atmosphere. Valid values: Variable, by airport. (m)
sigmaY	xs:double	*	Horizontal dispersion parameter. For additional information, see the EDMS Application Manual. Valid values: Variable, by airport. (m)
sigmaZ	xs:double	*	Vertical dispersion parameter. For additional information, see the EDMS Application Manual. Valid values: Variable, by airport. (m)
oneOrThreeCoords2DGroupSet	-	1	Type of coordinate specifying the area. See oneOrThreeCoords2DGroupSet.

Attributes

None.

6.43 gateSet



Supports legacy EDMS studies relating to content contained in the GATES table. This element supports the definition of gates within an airport layout. In dispersion analyses, GSE, AGE, and APU emissions originate from the gate locations. Gates are needed for sequence modeling, which includes all dispersion analyses.

Structure

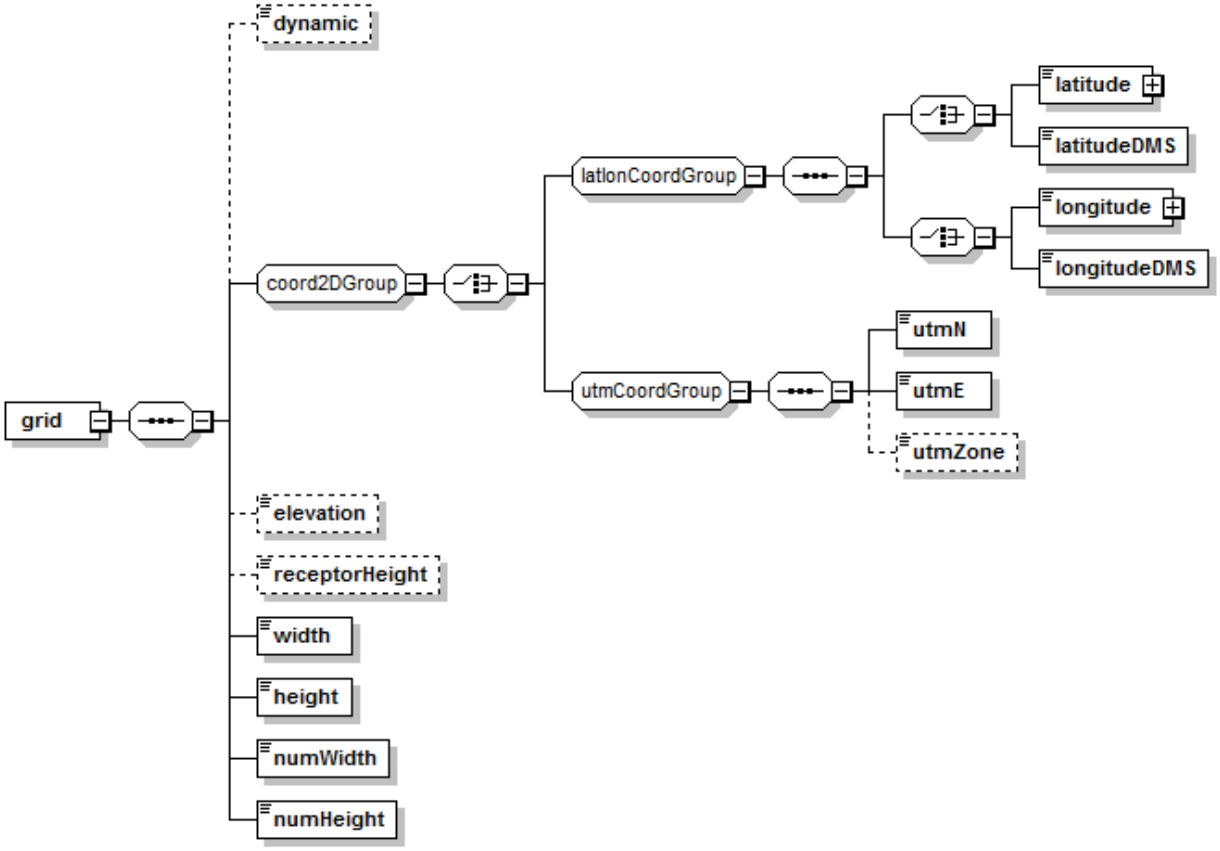
See Notation for information about reading this table.

XML Tag	Type	Num	Description
gate	-	*	Supports legacy EDMS studies relating to content contained in the GATES table. This element supports the definition of gates within an airport layout. In dispersion analyses, GSE, AGE, and APU emissions originate from the gate locations. Gates are needed for sequence modeling, which includes all dispersion analyses. See gate.

Attributes

None.

6.44 grid



Describes a grid of points.

Structure

See Notation for information about reading this table.

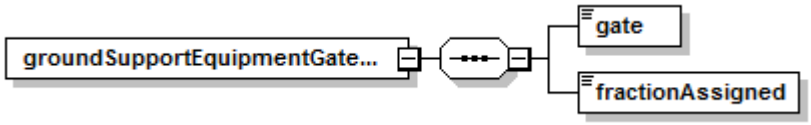
XML Tag	Type	Num	Description
dynamic	xs:boolean	*	Marks the grid as either a dynamic grid or a receptor grid. Default: false.
coord2DGroup	-	1	Indicates how a two-dimensional group is specified. See coord2DGroup.
elevation	xs:double	*	The grid's elevation above MSL (ft) if terrain not used. If not specified, AEDT2b will use elevation of operation airport.
receptorHeight	xs:double	*	The height of the receptor above ground. (m)
width	xs:double	1	Width of the grid. (nmi).
height	xs:double	1	Height of the grid (nmi).
numWidth	xs:int	1	Number of points to spread across the width of the grid. The total number of points in the grid is numWidth × numHeight.

XML Tag	Type	Num	Description
			Points will be located along width of grid using the formula i × (width÷numWidth) where i is the index of the point (0 … numWidth − 1). Valid values: 1 to 999.
numHeight	xs:int	1	Number of points to spread across the height of the grid. The total number of points in the grid is numWidth × numHeight. Points will be located along height of grid using the formula: i × (width÷numHeight) where i is the index of the point (0 … numHeight − 1). Valid values: 1 to 999.

Attributes

None.

6.45 groundSupportEquipmentGateAssignment



Supports legacy EDMS studies relating to content contained in the USER_CREATED_GSE table. This element supports the definition of user defined ground support equipment.

Structure

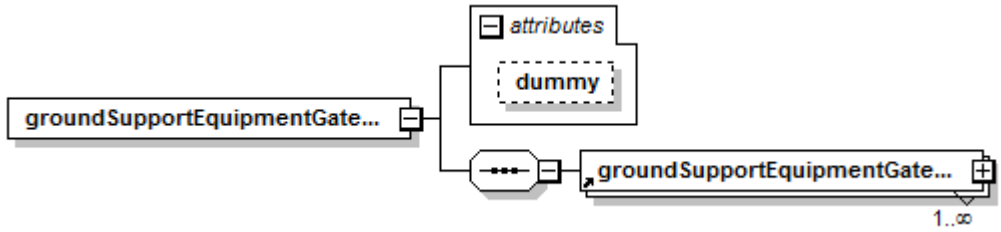
See Notation for information about reading this table.

XML Tag	Type	Num	Description
gate	string20	1	Gate to which GSE is assigned.
fractionAssigned	doubleInclusive1	1	Fraction of GSE assigned to this gate. Must sum to 1.0 for all gate assignments for the GSE. Valid values: 0.0 to 1.0.

Attributes

None.

6.46 groundSupportEquipmentGateAssignmentSet



Supports legacy EDMS studies relating to content contained in the GSE_POPULATION_GATE_ASSIGNMENTS table. This element supports the definition of gate to ground support equipment assignments.

Structure

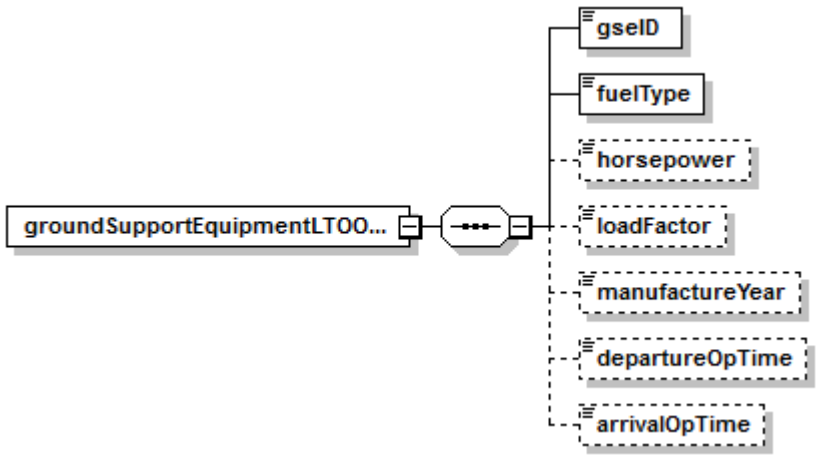
See Notation for information about reading this table.

XML Tag	Type	Num	Description
groundSupportEquipmentGateAssignment	-	*	Supports legacy EDMS studies relating to content contained in the USER_CREATED_GSE table. This element supports the definition of user defined ground support equipment. See groundSupportEquipmentGateAssignment.

Attributes

None.

6.47 groundSupportEquipmentLTOOperation



Describes operation of GSE operation.

Structure

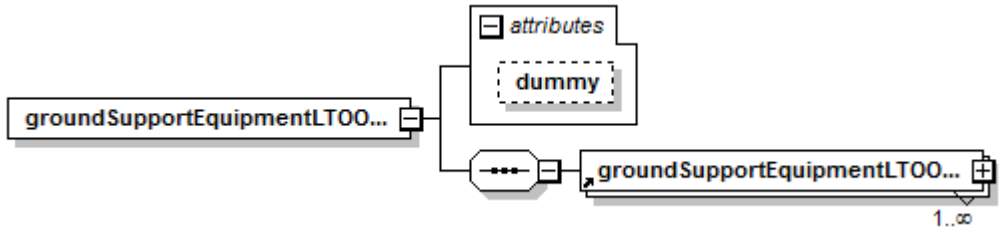
See Notation for information about reading this table.

XML Tag	Type	Num	Description
gseID	xs:int	1	The GSE ID.
fuelType	fuelType	1	Supports legacy EDMS studies relating to content that contains different types of fuel use. Fuel types can be based on either gasoline, diesel, compressed natural gas, liquid propane gas, or electric based.
horsepower	xs:double	*	GSE horsepower in bore hp. Valid values: 0.00 to 10000.00. (hp)
loadFactor	xs:double	*	Load factor of GSE (will be empty for APU). Valid values: 0.00 to 100.00.
manufactureYear	xs:int	*	The manufacture year and age of the equipment, if not using system defaults. Valid values: 1940 to 2050. (Latest valid year will the year of the study.)
departureOpTime	xs:double	*	The number of minutes used for a departure aircraft operation. Valid values: 0.00 to 480.00. (min)
arrivalOpTime	xs:double	*	The number of minutes used for an arrival aircraft operation. Valid values: 0.00 to 480.00. (min)

Attributes

None.

6.48 groundSupportEquipmentLTOOperationSet



Supports legacy EDMS studies relating to content contained in the GSE_POPULATION table. This element supports the definition of user defined ground support equipment in operational usage.

Structure

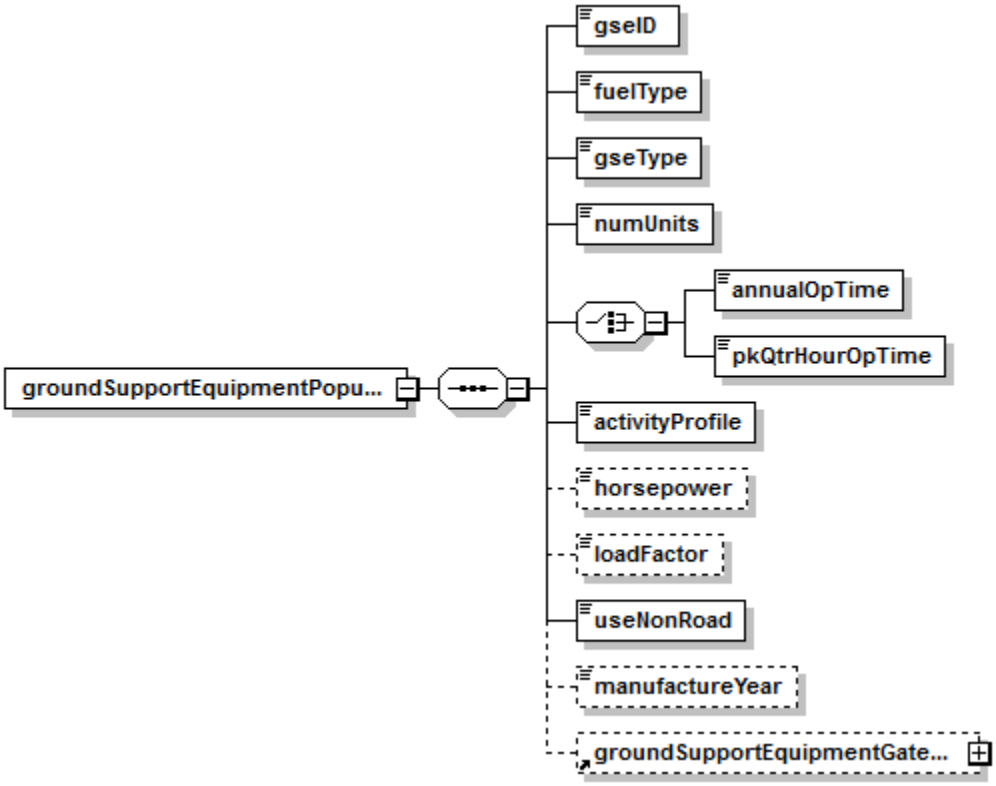
See Notation for information about reading this table.

XML Tag	Type	Num	Description
groundSupportEquipmentLTOOperation	-	*	Describes operation of GSE operation. See groundSupportEquipmentLTOOperation.

Attributes

None.

6.49 groundSupportEquipmentPopulationOperation



Supports legacy EDMS studies relating to content contained in the GSE_POPULATION table. This element supports the definition of user defined ground support equipment in operational usage.

Structure

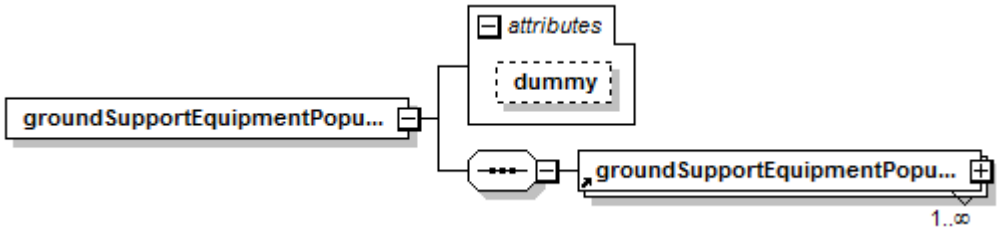
See Notation for information about reading this table.

Fuel type for a specific piece of GSE.

XML Tag	Type	Num	Choice	Description
gseID	xs:int	1		The GSE ID.
fuelType	fuelType	1		Supports legacy EDMS studies relating to content that contains different types of fuel use. Fuel types can be based on either gasoline, diesel, compressed natural gas, liquid propane gas, or electric based.
gseType	xs:string	1		The type of GSE.
numUnits	xs:double	1		GSE number of units. Valid values: 0 to 10000.
annualOpTime	xs:double	1	a	Operation time, yearly. Valid values: 0 to 8784. (hr)
pkQtrHourOpTime	xs:double	1	a	Peak quarter hour operation time. Valid values: 0 to 15. (min/hr)
activityProfile	string40	1		Activity profile; (quarterly, daily, monthly).
horsepower	xs:double	*		Horsepower is in hp units. Valid values: 0 to 10000. (hp)
loadFactor	xs:double	*		Load factor of GSE. (Will be empty for APU.) Valid values: 0 to 100.
useNonRoad	xs:boolean	1		User non-road version flag.
manufactureYear	xs:int	*		The manufacture year and age of the equipment, if not using system defaults. Valid values: 1940 to 2050. (Latest valid date will be the year of the study.)
groundSupportEquipmentGateAssignmentSet	-	*		Supports legacy EDMS studies relating to content contained in the GSE_POPULATION_GATE_ASSIGNMENTS table. This element supports the definition of gate to ground support equipment assignments. See groundSupportEquipmentGateAssignmentSet.

Attributes
None.

6.50 groundSupportEquipmentPopulationOperationSet



Supports legacy EDMS studies relating to content contained in the GSE_POPULATION table. This element supports the definition of user defined ground support equipment in operational usage.

Structure

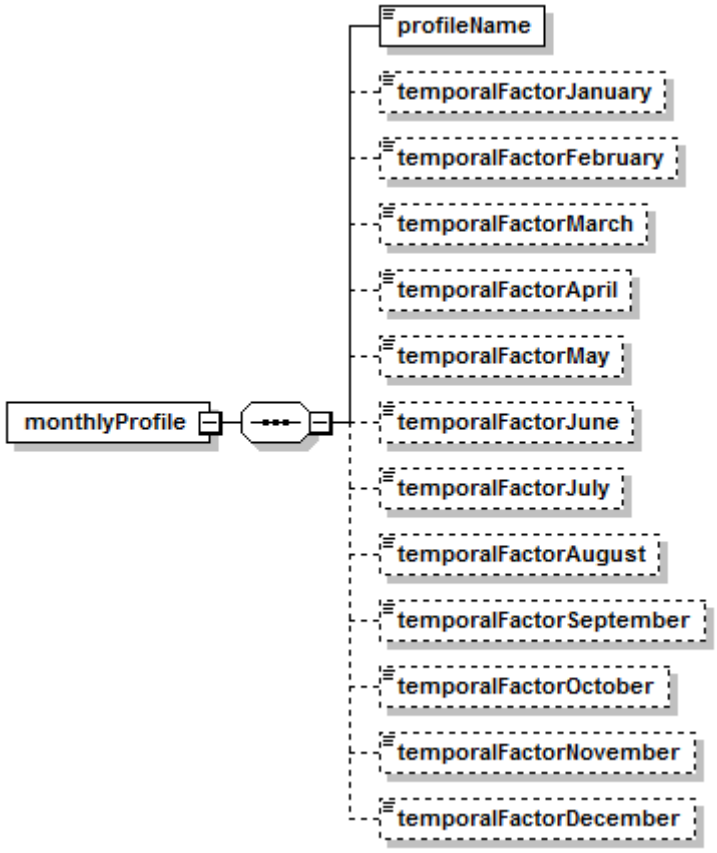
See Notation for information about reading this table.

XML Tag	Type	Num	Description
groundSupportEquipmentPopulationOperation	-	*	Supports legacy EDMS studies relating to content contained in the GSE_POPULATION table. This element supports the definition of user defined ground support equipment in operational usage. See groundSupportEquipmentPopulationOperation.

Attributes

None.

6.51 monthlyProfile



Supports legacy EDMS studies relating to content contained in the MONTHLY_PROFILES. This element supports the definition of temporal factors on a monthly operational basis.

Structure

See Notation for information about reading this table.

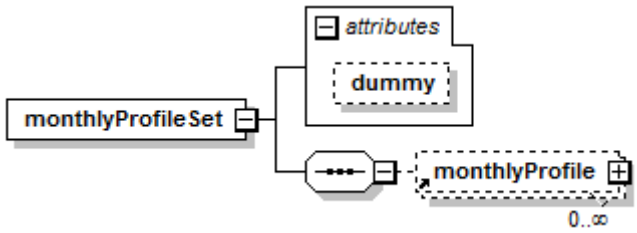
XML Tag	Type	Num	Description
profileName	string100	1	Name of profile.
temporalFactorJanuary	doubleMin0	*	Factor applied to activity for operations during January. Valid values: 0.0000 to 1.0000.
temporalFactorFebruary	doubleMin0	*	Factor applied to activity for operations during February. Valid values: 0.0000 to 1.0000.
temporalFactorMarch	doubleMin0	*	Factor applied to activity for operations during March. Valid values: 0.0000 to 1.0000.
temporalFactorApril	doubleMin0	*	Factor applied to activity for operations during April. Valid values: 0.0000 to 1.0000.

XML Tag	Type	Num	Description
temporalFactorMay	doubleMin0	*	Factor applied to activity for operations during May. Valid values: 0.0000 to 1.0000.
temporalFactorJune	doubleMin0	*	Factor applied to activity for operations during June. Valid values: 0.0000 to 1.0000.
temporalFactorJuly	doubleMin0	*	Factor applied to activity for operations during July.Valid values: 0.0000 to 1.0000.
temporalFactorAugust	doubleMin0	*	Factor applied to activity for operations during August. Valid values: 0.0000 to 1.0000.
temporalFactorSeptember	doubleMin0	*	Factor applied to activity for operations during September. Valid values: 0.0000 to 1.0000.
temporalFactorOctober	doubleMin0	*	Factor applied to activity for operations during October. Valid values: 0.0000 to 1.0000.
temporalFactorNovember	doubleMin0	*	Factor applied to activity for operations during November. Valid values: 0.0000 to 1.0000.
temporalFactorDecember	doubleMin0	*	Factor applied to activity for operations during December. Valid values: 0.0000 to 1.0000.

Attributes

None.

6.52 monthlyProfileSet



Supports the definition and use of MONTHLY_PROFILES for the monthly variation of operations.

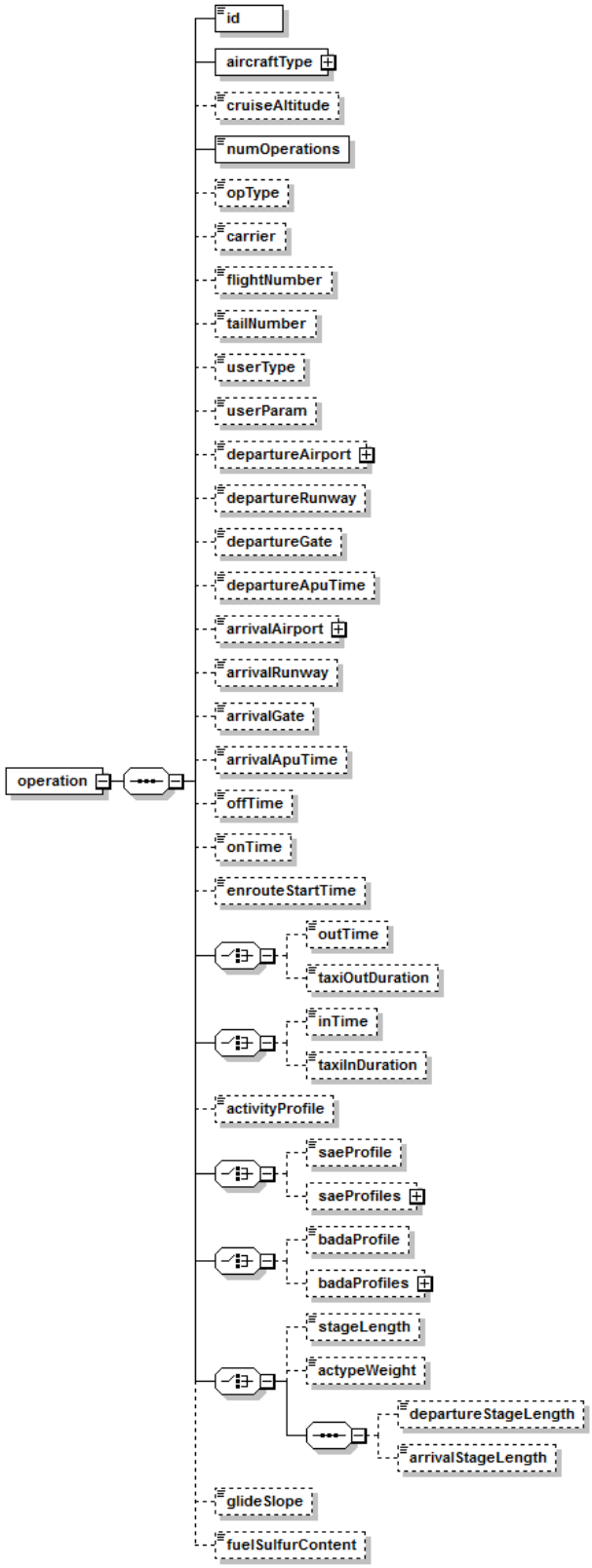
Structure

See Notation for information about reading this table.

XML Tag	Type	Num	Description
monthlyProfile	-	*	Supports legacy EDMS studies relating to content contained in the MONTHLY_PROFILES. This element supports the definition of temporal factors on a monthly operational basis. See monthlyProfile.

Attributes
None.

6.53 operation



Describes an aircraft flight operation.

Structure

See Notation for information about reading this table.

XML Tag	Type	Num	Choice	Description
id	string16	1		User specified identifier for the operation. One purpose served by this field is to allow the user to tie the AEDT AirOperations back to some original data source by setting the id field to an identifying identifier from the original data source. Another purpose is to set each ID to a project-specific value for each AirOperation. The ID field is used in several AEDT lists and reports that print out the AirOperations. In addition, the Impact Evaluation dialog uses the ID as its main method of distinguishing AirOperations when allowing the user to pick and choose operations to be moved to alternative flight tracks. If, however, the user has no outside data sources that need to be tied to the AEDT AirOperations, or if each AirOperation is identical in the sense that no specific AirOperation is more valuable than another or that there will be no intent to distinguish one AirOperation over another, then the suggested approach is to just set the UserID field to unique number or set of characters. This will allow the user to distinguish the AirOperations if the need ever arises. Nevertheless, one can leave all the id fields empty or non-unique set of ids; however, in doing so, the user will be forced to use other identifying fields of the AirOperation if they should ever want to distinguish between AirOperations.
aircraftType	aircraftType	1		Type of aircraft in the flight. See aircraftType.
cruiseAltitude	xs:double	*		Override aircraft cruise altitude for this operation. (ft)
numOperations	xs:double	1		Number of operations comprising this operation.
opType	opType	*		Type of operation.
carrier	string4	*		Carrier flying the flight. Not fully supported in AEDT2b.

XML Tag	Type	Num	Choice	Description
flightNumber	string16	*		Flight number. Not fully supported in AEDT2b.
tailNumber	string8	*		Flight's tail number. Not fully supported in AEDT2b.
userType	string12	*		User-defined aircraft type. Cannot be an aircraftType. Not fully supported in AEDT2b.
userParam	string16	*		User-defined parameter associated with the operation. Not fully supported in AEDT2b.
departureAirport	airportCode	*		Departure airport's ICAO code. Required if the operation is used with a <flight> or <operation> element. Also required if used with a <trackOpSet> modeling departures, circuits, runups, or touch-and-goes. See airportCode.
departureRunway	string8	*		Airport's departure runway ID. Required if the operation is used with a <flight> or a <trackOpSet> modeling departures, circuits, runups, or touch-and-goes.
departureGate	string40	*		Airport's departure gate. Not fully supported in AEDT2b.
departureApuTime	xs:double	*		Number of minutes the auxiliary power unit is attached to a departing aircraft. (min)
arrivalAirport	airportCode	*		Arrival airport's ICAO code. Required if the operation is used with a <flight> or <operation> element. Also required if used with a <trackOpSet> modeling arrivals, circuits, runups, or touch-and-goes. See airportCode.
arrivalRunway	string8	*		Airport's arrival runway ID. Required if the operation is used with a <flight> or a <trackOpSet> modeling arrivals, circuits, runups, or touch-and-goes.
arrivalGate	string40	*		Airport's arrival gate. Not fully supported in AEDT2b.
arrivalApuTime	xs:double	*		Number of minutes the auxiliary power unit is attached to an arrival aircraft. (min)
offTime	xs:dateTime	*		Wheels-off time. Required for any departure or runup, circuit, runup, or touch-and-go operation.
onTime	xs:dateTime	*		Wheels on time. Required for any arrival operation.

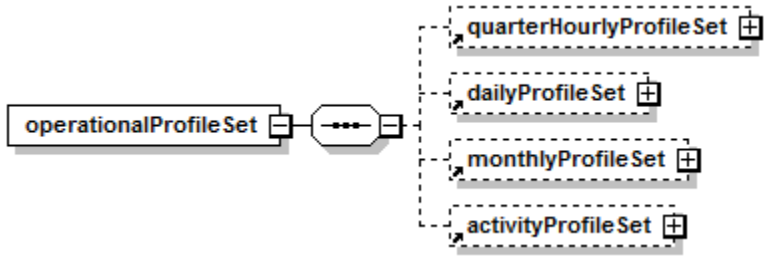
XML Tag	Type	Num	Choice	Description
enrouteStartTime	xs:dateTime	*		Time aircraft reaches the first en route node. Required for en route or overflight flights. Not fully supported in AEDT2b
outTime	xs:dateTime	*	a	Time aircraft pushed back from the gate for a departure. When present, taxiOutDuration = (offTime − outTime). Not fully supported in AEDT2b.
taxiOutDuration	xs:double	*	a	Number of seconds during taxi-out. Required for emissions modeling, optional for noise modeling. Not fully supported in AEDT2b. (s)
inTime	xs:dateTime	*	b	Time aircraft arrives at arrival gate. When present, taxiInDuration = (onTime – inTime).
taxiInDuration	xs:double	*	b	Number of seconds during taxi-in. Required for emissions modeling, optional for noise modeling. (s)
activityProfile	string100	*		References an existing hourly, daily, or monthly profile.
saeProfile	profileType	*	c	Overrides default profile assignment for a flight's arrival and departure phases using characteristics specified by SAE International. Applicable when the override is unambiguously arrival or departure.
saeProfiles	profiles	*	c	Overrides default profile assignment for a flight's arrival and departure phases using characteristics specified by SAE International. Applicable when it is necessary to specify both the arrival and departure profiles. See profiles.
badaProfile	profileType	*	d	Overrides default profile assignment for a flight's arrival and departure phases using characteristics specified by BADA. Applicable when the override is unambiguously arrival or departure.
badaProfiles	profiles	*	d	Overrides default profile assignment for a flight's arrival and departure phases using characteristics specified by BADA. Applicable when it is necessary to specify both the arrival and departure profiles. See profiles.
stageLength	string1	*	e	Overrides default departure and arrival stage length values. Applicable when the override is unambiguously arrival or

XML Tag	Type	Num	Choice	Description
				departure. If operation type is Arrival, then AEDT will always use 1 for stage length.
actypeWeight	xs:double	*	e	Aircraft's weight. (lb)
departureStageLength	string1	*	e	Overrides default departure stage length. Applicable if the phase is a departure phase.
arrivalStageLength	string1	*		Overrides default arrival stage length. Applicable if the phase is an arrival phase. If operation type is Arrival, then AEDT will always use 1 for stage length.
glideSlope	xs:double	*		Glide slope angle for this operation. (degrees)
fuelSulfurContent	xs:double	*		Sulfur content of the fuel used in this operation. (%)

Attributes

None.

6.54 operationalProfileSet



Definitions for temporal activity profiles that are subsequently used to weight individual operations for any given hour of the year.

Structure

See Notation for information about reading this table.

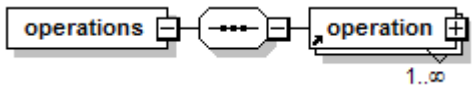
XML Tag	Type	Num	Description
quarterHourlyProfileSet	-	*	Supports the definition and use of QUARTER_HOURLY_PROFILES for the quarter hourly variation of operations. See quarterHourlyProfileSet.
dailyProfileSet	-	*	Supports the definition and use of DAILY_PROFILES for the daily variation of operations. See dailyProfileSet.

XML Tag	Type	Num	Description
monthlyProfileSet	-	*	Supports the definition and use of MONTHLY_PROFILES for the monthly variation of operations. See monthlyProfileSet.
activityProfileSet	-	*	Supports the definition and use of QUARTER_HOURLY_PROFILES, DAILY_PROFILES, and MONTHLY_PROFILES variation of operations. See activityProfileSet.

Attributes

None.

6.55 operations



Contains a list of aircraft flight operations.

Structure

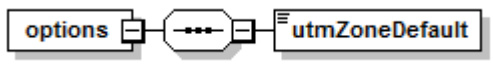
See Notation for information about reading this table.

XML Tag	Type	Num	Description
operation	-	*	Describes an aircraft flight operation. See operation.

Attributes

None.

6.56 options



Contains default option values applied to the study.

Structure

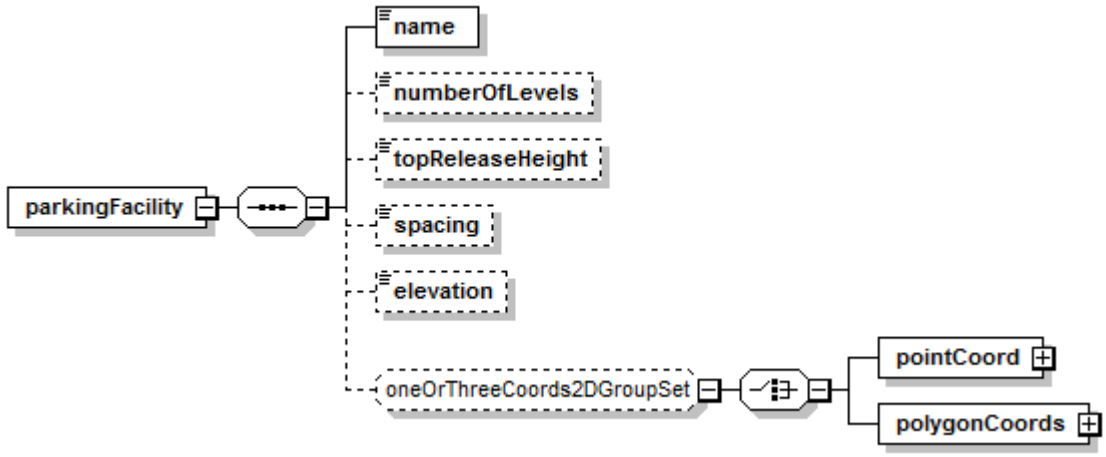
See Notation for information about reading this table.

XML Tag	Type	Num	Description
utmZoneDefault	xs:int	1	Default UTM zone number. Default: -1.

Attributes

None.

6.57 parkingFacility



Supports legacy EDMS studies relating to content contained in the PARKING table. This element supports the definition of parking lot and parking garage geometries for scenario layouts.

Structure

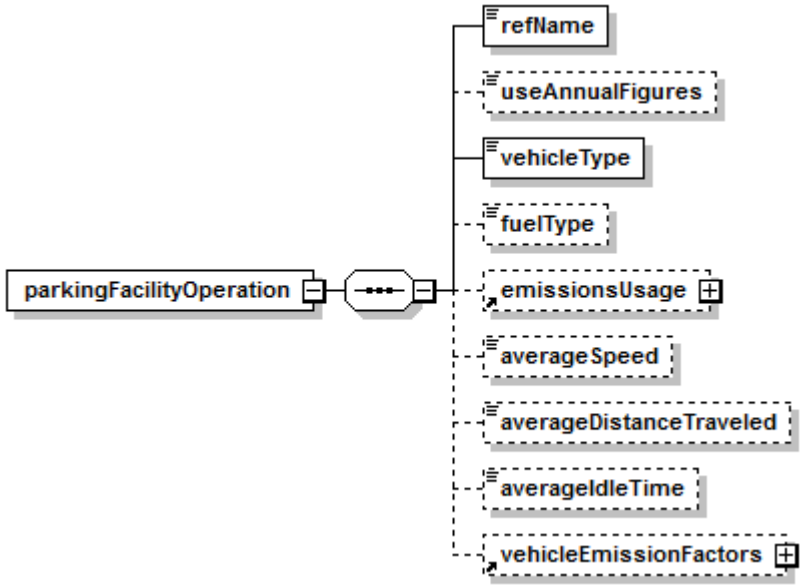
See Notation for information about reading this table.

XML Tag	Type	Num	Description
name	string40	1	Identifying name of parking facility.
numberOfLevels	xs:int	*	Number of levels in the parking facility. Valid values: 1 to 20. Default: 1.
topReleaseHeight	xs:double	*	Height AGL at which emissions are released into the atmosphere. Valid values 0 to 100 (m)
spacing	xs:double	*	Distance between two parking spaces. (m)
elevation	xs:double	*	Elevation of parking facility in MSL. Valid values: range of 0 - 328, airport specific.(m) Default: 0.
oneOrThreeCoords2DGroupSet	-	*	Type of coordinate specifying the area. See oneOrThreeCoords2DGroupSet.

Attributes

None.

6.58 parkingFacilityOperation



Supports legacy EDMS studies relating to content contained in the PARKING table. This element supports the definition of parking lot and parking garage activities for scenario layouts.

Structure

See Notation for information about reading this table.

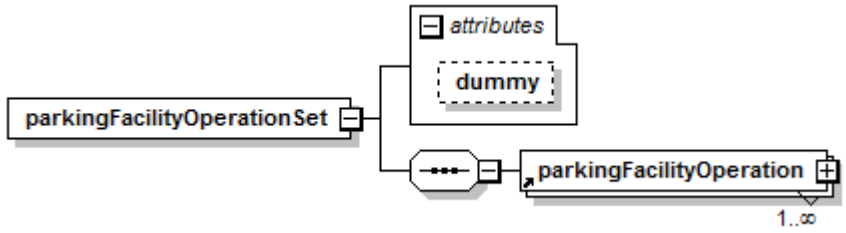
XML Tag	Type	Num	Description
refName	string40	1	Identifying name of parking facility.
useAnnualFigures	xs:boolean	*	Indicates if the quantities in the element are annualized. Default: false.
vehicleType	groundVehicleType	1	Type of vehicle involved in the operation. Valid values: 0 = Default Fleet Mix, 1 = Passenger Cars, 2 = Light Trucks 1, 3 = Light Trucks 2, 4 = Light Trucks 3, 5 = Light Trucks 4, 6 = Class 2b Heavy Trucks, 7 = Class 3 Heavy Trucks, 8 = Class 4 Heavy Trucks, 9 = Class 5 Heavy Trucks, 10 = Class 6 Heavy Trucks, 11 = Class 7 Heavy Trucks, 12 = Class 8a Heavy Trucks, 13 = Class 8b Heavy Trucks, 14 = School Buses, 15 = Transit and Urban Buses, 16 = Motorcycle.
fuelType	fuelType	*	Type of fuel involved in the operation. Default: G.

XML Tag	Type	Num	Description
emissionsUsage	-	*	Describes the amount of emissions for a given activity profile. See emissionsUsage.
averageSpeed	xs:double	*	Average speed during the operation. Valid values: 2.5 to 40. (mph) Default: 10.
averageDistanceTraveled	xs:double	*	Average distance traveled during the operation. Valid values: 0 to 32808. (m) Default: 0.
averageIdleTime	xs:double	*	Average time vehicle is idle while conducting the operation. Valid values: 0 to 30. (min) Default: 0.
vehicleEmissionFactors	-	*	Supports legacy EDMS studies relating to content contained in the ROADWAYS/PARKING table. This element supports the definition of custom emission factor specifications for roadways and parking. See vehicleEmissionFactors.

Attributes

None.

6.59 parkingFacilityOperationSet



Supports legacy EDMS studies relating to content contained in the PARKING table. This element supports the definition of parking lot and parking garage activities for scenario layouts.

Structure

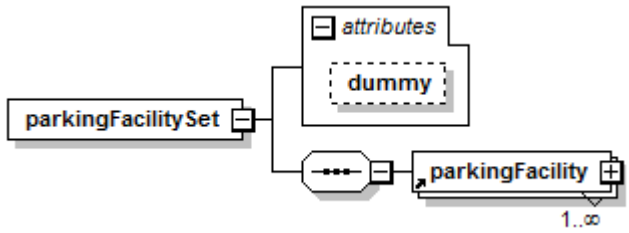
See Notation for information about reading this table.

XML Tag	Type	Num	Description
parkingFacilityOperation	-	*	Supports legacy EDMS studies relating to content contained in the PARKING table. This element supports the definition of parking lot and parking garage activities for scenario layouts. See parkingFacilityOperation.

Attributes

None.

6.60 parkingFacilitySet



Supports legacy EDMS studies relating to content contained in the PARKING table. This element supports the definition of parking lot and parking garage activities for scenario layouts.

Structure

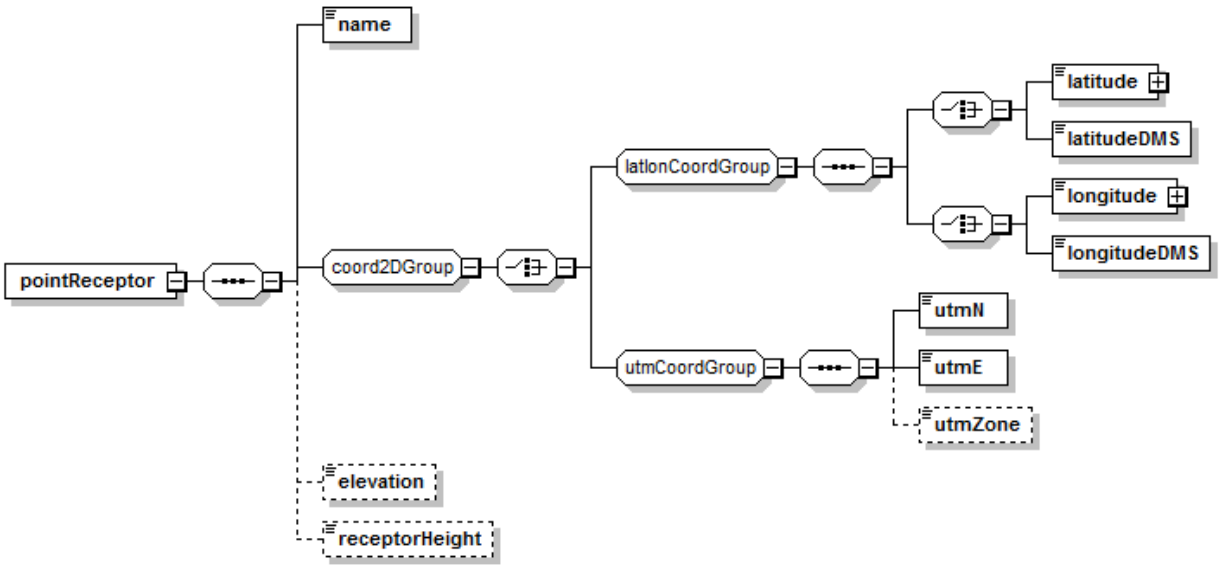
See Notation for information about reading this table.

XML Tag	Type	Num	Description
parkingFacility	-	*	Supports legacy EDMS studies relating to content contained in the PARKING table. This element supports the definition of parking lot and parking garage geometries for scenario layouts. See parkingFacility.

Attributes

None.

6.61 pointReceptor



Element specification for a point receptor.

Structure

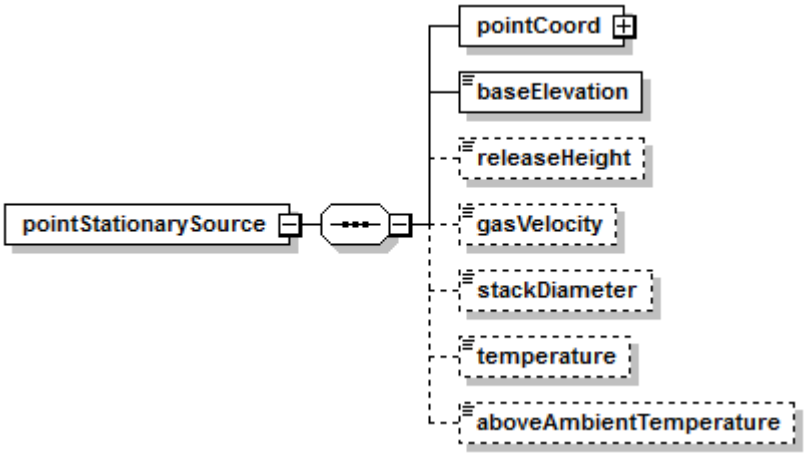
See Notation for information about reading this table.

XML Tag	Type	Num	Description
name	string255	1	A string up to 255 characters long.
coord2DGroup	-	1	Indicates how a two-dimensional group is specified. See coord2DGroup.
elevation	xs:double	*	Elevation of the receptor above MSL. (ft.)
receptorHeight	xs:double	*	Height of the receptor above ground (ft.)

Attributes

None.

6.62 pointStationarySource



Specifies the point in space occupied by a stationary source of emissions.

Structure

See Notation for information about reading this table.

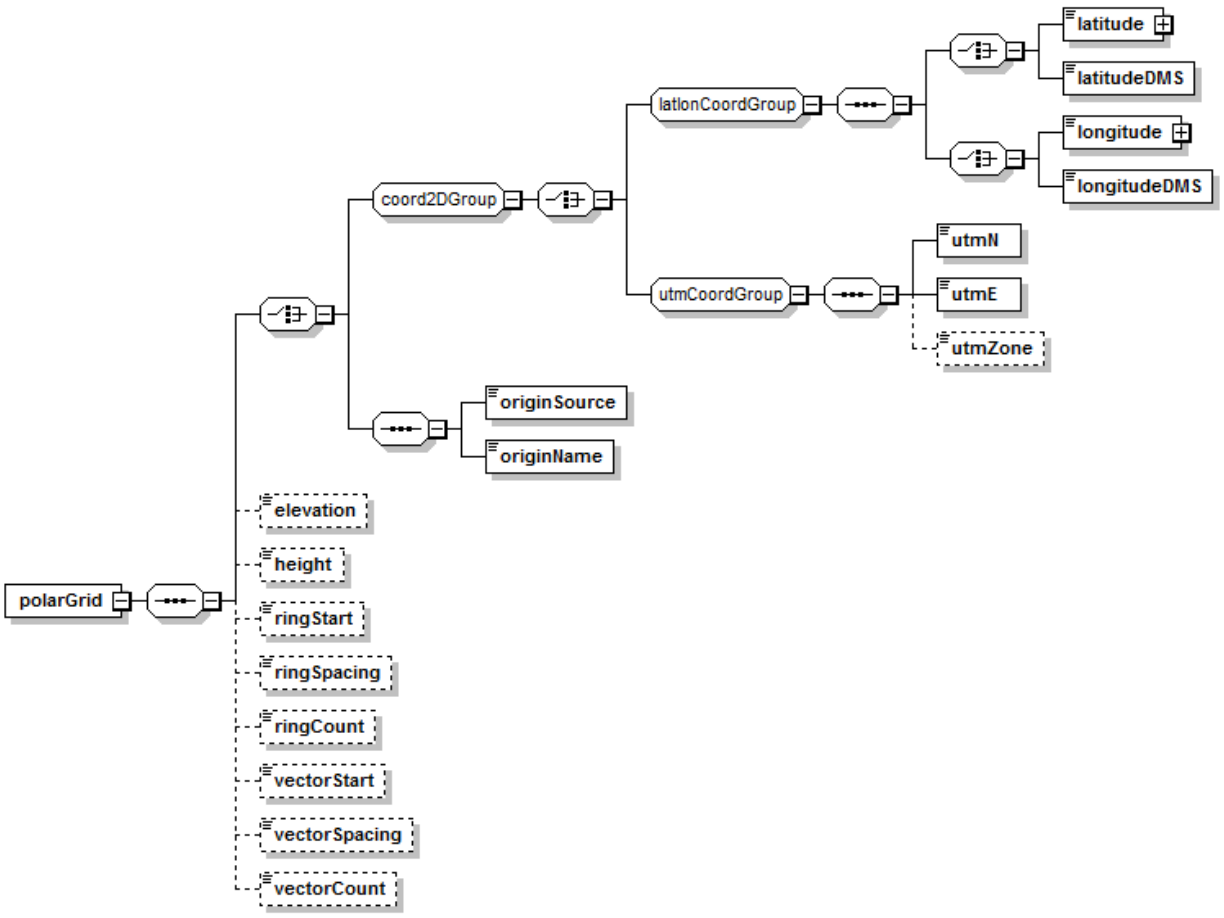
XML Tag	Type	Num	Description
pointCoord	coord2DType	1	Type of 2-D coordinates specifying the point. See coord2DType.
baseElevation	xs:double	1	Elevation of point. Valid values: -500 to 5000. (m)
releaseHeight	doubleInclusive100	*	Height above ground level at which emissions are released into the atmosphere. Valid values 0 to 100 (m) Default: 0.
gasVelocity	doubleInclusiveRange1to30	*	Velocity at which gas escapes from the source. Valid values: 1 to 30. (m/s) Default: 1.
stackDiameter	doubleExclusive0Inclusive10	*	Diameter of stack where gas escapes from the source. Valid values: 0.1 to 50 (m) Default: 0.1.
temperature	doubleInclusiveRange0to600	*	Temperature at point. Valid values: 0 to 600. (°F) Default: 32.
aboveAmbientTemperature	xs:boolean	*	Indicates if temperature is absolute (False) or if temperature is relative to

XML Tag	Type	Num	Description
			current ambient temperature (True). Default: false.

Attributes

None.

6.63 polarGrid



Supports legacy EDMS studies relating to the NETWORK_POLAR_RECEPTORS table. Two-Dimensional grid of individual receptors over an annular sector (polar) of the airport or study area. Not currently supported in AEDT 2b.

Structure

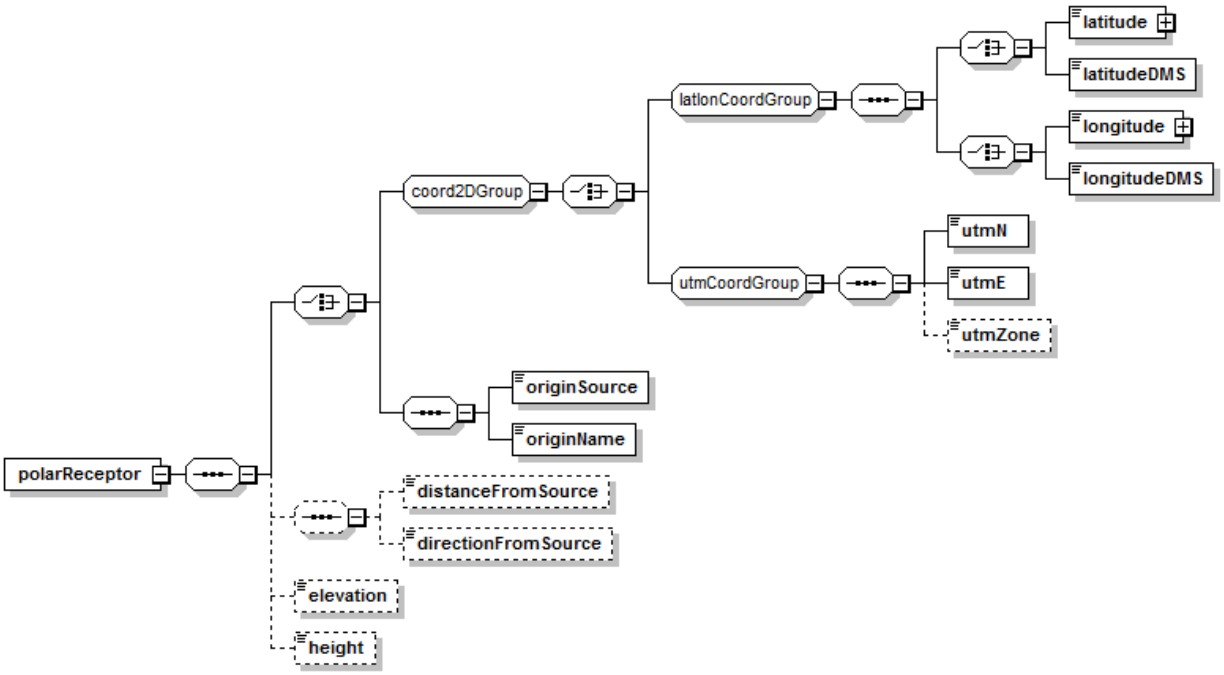
See Notation for information about reading this table.

XML Tag	Type	Num	Choice	Description
coord2DGroup	-	1	a	Indicates how a two-dimensional group is specified. See coord2DGroup.
originSource	originSourceType	1	a	Origin source name for the polar grid (must match a unique name of a specific source reference).
originName	string40	1		Refers to an existing gate, parking facility, roadway, runway, stationary source, taxiway, or training fire.
elevation	xs:double	*		Altitude of point (meters).
height	xs:double	*		Height of point (meters). Default: 0.
ringStart	xs:double	*		Initial radius of first ring from center point. Default: 1.
ringSpacing	xs:double	*		Spacing between rings starting from the first ring. Valid values: 0 to 1000. Default: 1.
ringCount	xs:int	*		Total number of rings, including first ring. Valid values: 0 to 100. Default: 1.
vectorStart	xs:double	*		Angle of point along a ring. 0 = north. Valid values: 0 to 360. (degrees) Default: 0.
vectorSpacing	xs:double	*		Number of degrees between receptors. Valid values: 1 to 90. (degrees) Default: 1.
vectorCount	xs:int	*		Number of receptors along the ring. Valid values: 1 to 36. Default: 1.

Attributes

None.

6.64 polarReceptor



Supports legacy EDMS studies relating to the NETWORK_POLAR_RECEPTORS and DISCRETE_POLAR_RECEPTORS table. Defines receptor points within a polar grid.

Structure

See Notation for information about reading this table.

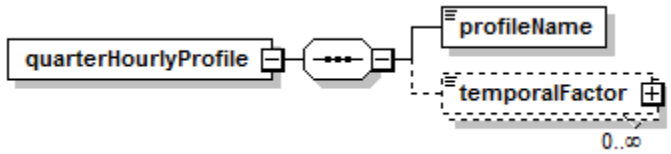
XML Tag	Type	Num	Choice	Description
coord2DGroup	-	1	a	Indicates how a two-dimensional group is specified. See coord2DGroup.
originSource	originSourceType	1	a	Supports the polarReceptor source type. Original source type can be either gate, parking facility, roadway, runway, stationary source, taxiway, and training fire.
originName	string40	1		Refers to an existing gate, parking facility, roadway, runway, stationary source, taxiway, or training fire.
distanceFromSource	xs:double	*		Distance of point from polar origin. Valid values: 0 through 999999.999999. (ft)
directionFromSource	xs:double	*		Direction of point from polar origin. Valid values: 0 through 360. (degrees)
elevation	xs:double	*		Altitude of point. (meters). Default: 0.

XML Tag	Type	Num	Choice	Description
height	xs:double	*		Height of point. (meters). Default: 0.

Attributes

None.

6.65 quarterHourlyProfile



Supports legacy EDMS studies relating to content contained in the QUARTER_HOURLY_PROFILES. This element supports the definition of temporal factors on a quarter-hourly operational basis.

Structure

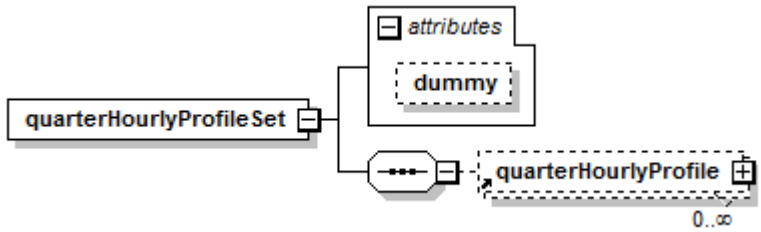
See Notation for information about reading this table.

XML Tag	Type	Num	Description
profileName	string100	1	Name of profile.
temporalFactor	-	*	Factor applied to activity for operations during the indicated quarter hour. Valid values: 0.0000 to 1.0000.

Attributes

None.

6.66 quarterHourlyProfileSet



Supports the definition and use of QUARTER_HOURLY_PROFILES for the quarter hourly variation of operations.

Structure

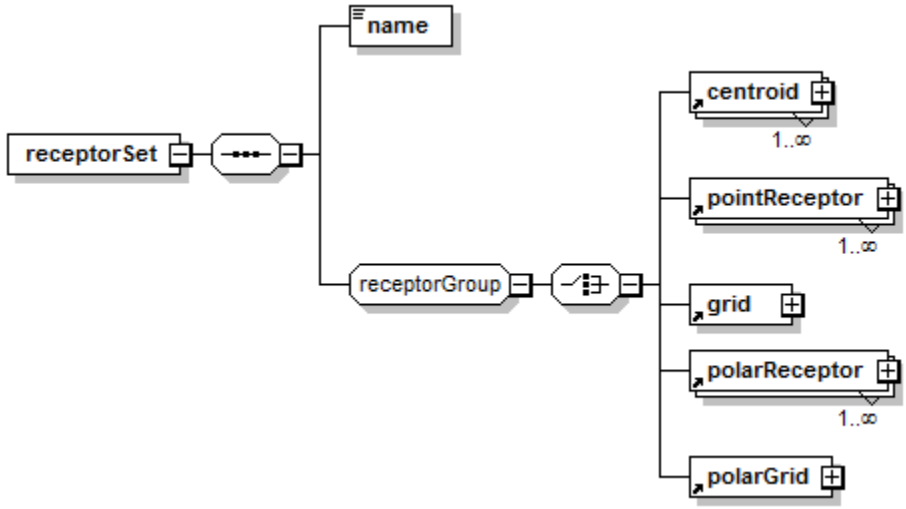
See Notation for information about reading this table.

XML Tag	Type	Num	Description
quarterHourlyProfile	-	*	Supports legacy EDMS studies relating to content contained in the QUARTER_HOURLY_PROFILES. This element supports the definition of temporal factors on a quarter-hourly operational basis. See quarterHourlyProfile.

Attributes

None.

6.67 receptorSet



Contains one or more receptor sets at various locations.

Structure

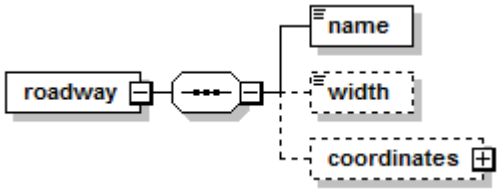
See Notation for information about reading this table.

XML Tag	Type	Num	Description
name	string255	1	Descriptive name of the receptor set.
receptorGroup	-	1	Description of a receptor group. See receptorGroup.

Attributes

None.

6.68 roadway



Supports legacy EDMS studies relating to content contained in the ROADWAYS table. This element supports the definition of vehicle geometry on roadways for scenario layouts.

Structure

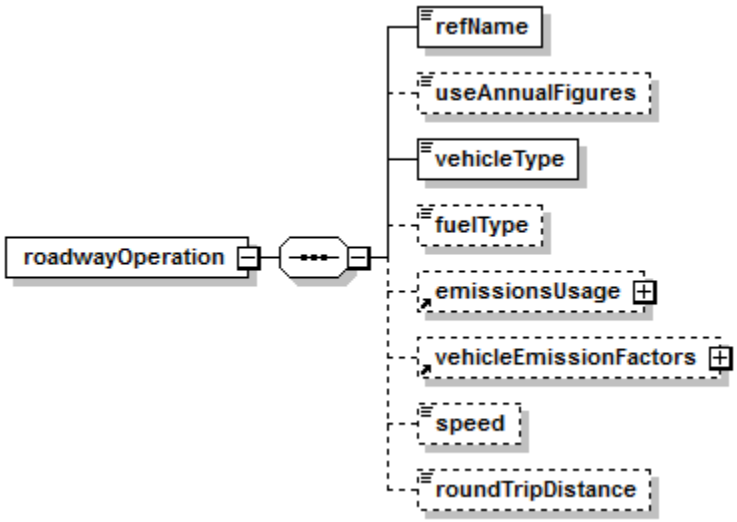
See Notation for information about reading this table.

XML Tag	Type	Num	Description
name	string40	1	Identifying name for the roadway.
width	xs:double	*	Roadway's width. Valid values: 1 to 99. (m) Default: 0.
coordinates	-	*	Set of three-dimensional coordinates describing the roadway.

Attributes

None.

6.69 roadwayOperation



Supports legacy EDMS studies relating to content contained in the ROADWAYS table. This element supports the definition of vehicle activity on roadways for scenario layouts.

Structure

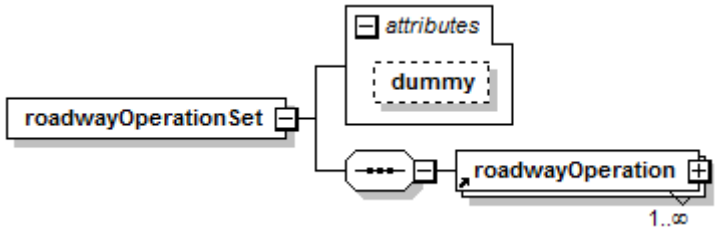
See Notation for information about reading this table.

XML Tag	Type	Num	Description
refName	string40	1	Identifying name of roadway operation.
useAnnualFigures	xs:boolean	*	Indicates if the quantities in the element are annualized. Default: false.
vehicleType	groundVehicleType	1	Type of vehicle involved in the operation. Valid values (the numeral corresponds to the text value; either are valid): 0 = Default Fleet Mix, 1 = Passenger Cars, 2 = Light Trucks 1, 3 = Light Trucks 2, 4 = Light Trucks 3, 5 = Light Trucks 4, 6 = Class 2b Heavy Trucks, 7 = Class 3 Heavy Trucks, 8 = Class 4 Heavy Trucks, 9 = Class 5 Heavy Trucks, 10 = Class 6 Heavy Trucks, 11 = Class 7 Heavy Trucks, 12 = Class 8a Heavy Trucks, 13 = Class 8b Heavy Trucks, 14 = School Busses, 15 = Transit and Urban Busses, 16 = Motorcycle.
fuelType	fuelType	*	Type of fuel involved in the operation. Valid values: G = gasoline, D = diesel. Default: G.
emissionsUsage	-	*	Describes the amount of emissions for a given activity profile. See emissionsUsage.
vehicleEmissionFactors	-	*	Supports legacy EDMS studies relating to content contained in the ROADWAYS/PARKING table. This element supports the definition of custom emission factor specifications for roadways and parking. See vehicleEmissionFactors.
speed	int5to65	*	Speed during the operation. Valid values: 5 to 65. (mph) Default: 35.
roundTripDistance	doubleInclusive4000	*	Round trip vehicle distance. (mi)

Attributes

None.

6.70 roadwayOperationSet



Supports legacy EDMS studies relating to content contained in the ROADWAYS table. This element supports the definition of vehicle activity on roadways for scenario layouts.

Structure

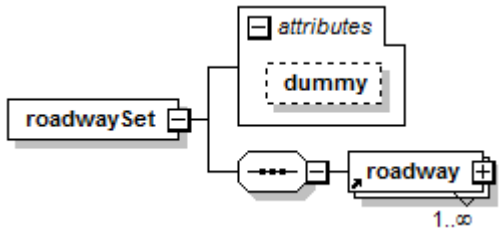
See Notation for information about reading this table.

XML Tag	Type	Num	Description
roadwayOperation	-	*	Supports legacy EDMS studies relating to content contained in the ROADWAYS table. This element supports the definition of vehicle activity on roadways for scenario layouts. See roadwayOperation.

Attributes

None.

6.71 roadwaySet



Supports legacy EDMS studies relating to content contained in the ROADWAYS table. This element supports the definition of vehicle activity on roadways for scenario layouts.

Structure

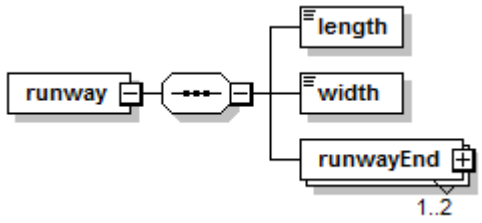
See Notation for information about reading this table.

XML Tag	Type	Num	Description
roadway	-	*	Supports legacy EDMS studies relating to content contained in the ROADWAYS table. This element supports the definition of vehicle geometry on roadways for scenario layouts. See roadway.

Attributes

None.

6.72 runway



Describes dimensions of a runway.

Structure

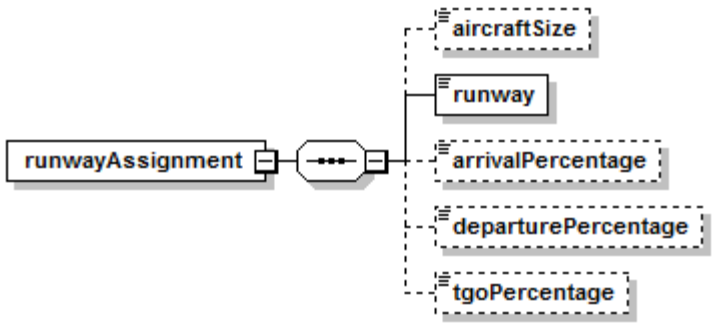
See Notation for information about reading this table.

XML Tag	Type	Num	Description
length	xs:short	1	Length of runway. Valid values: nonnegative. (ft)
width	xs:short	1	Width of runway. Valid values: nonnegative. (ft)
runwayEnd	runwayEnd	1–2	Characterizes the runway's endpoint. See runwayEnd.

Attributes

None.

6.73 runwayAssignment



Defines a assignment of operations to runways, by aircraft size.

Structure

See Notation for information about reading this table.

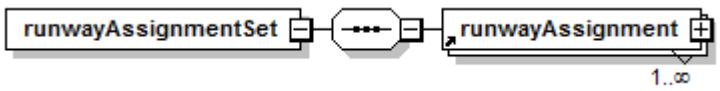
Size of the aircraft. Valid values: Small, Large, Heavy.

XML Tag	Type	Num	Description
aircraftSize	AircraftSizeType	*	Aircraft size.
runway	string8	1	Name of the runway.
arrivalPercentage	doubleInclusive100	*	Percentage of arrivals of the given aircraft size using this runway. Valid values: 0 to 100.(%)
departurePercentage	doubleInclusive100	*	Percentage of departures of the given aircraft size using this runway. Valid values: 0 to 100. (%)
tgoPercentage	doubleInclusive100	*	Percentage of touch and gos of the given aircraft size using this runway. Valid values: 0 to 100. (%)

Attributes

None.

6.74 runwayAssignmentSet



Contains a set of runway assignments.

Structure

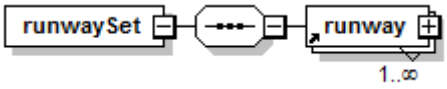
See Notation for information about reading this table.

XML Tag	Type	Num	Description
runwayAssignment	-	+	Defines a assignment of operations to runways, by aircraft size. See runwayAssignment.

Attributes

None.

6.75 runwaySet



Container for runways.

Structure

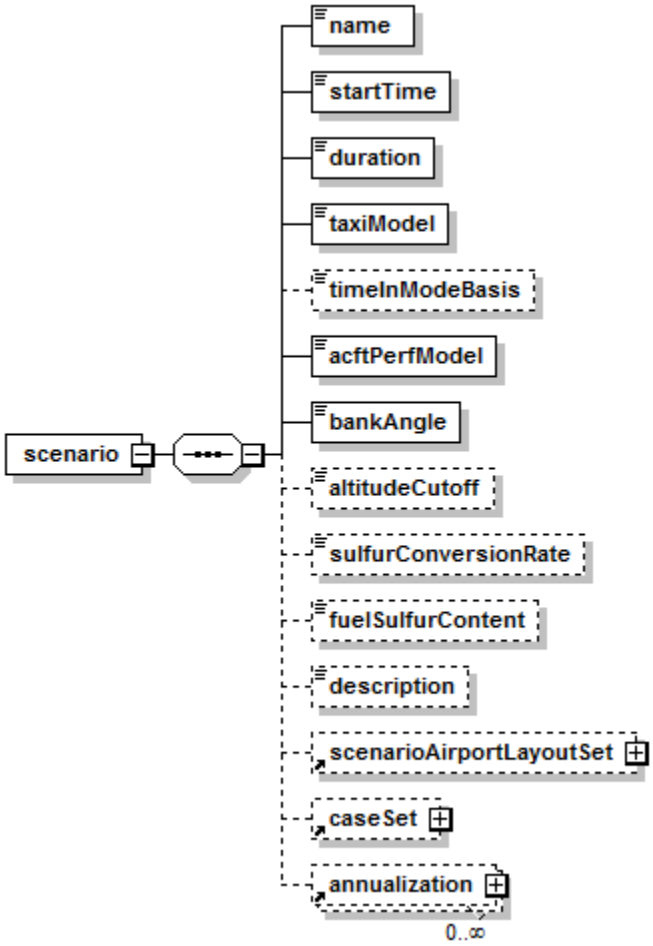
See Notation for information about reading this table.

XML Tag	Type	Num	Description
runway	-	*	Describes dimensions of a runway. See runway.

Attributes

None.

6.76 scenario



Encapsulates a scenario - such as Baseline or Alternative

Structure

See Notation for information about reading this table.

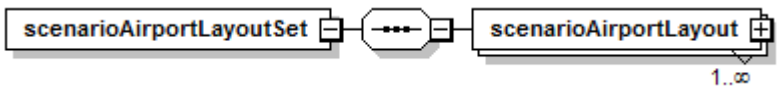
XML Tag	Type	Num	Description
name	string255	1	Description of scenario.
startTime	xs:dateTime	1	Start time of scenario. Accepts dateTime string.
duration	xs:int	1	Scenario's duration (hr).
taxiModel	taxiModelType	1	Taxi model for scenario.
timeInModeBasis	timeInModeBasisType	*	Time in mode can either be based on ICAO or performance. Default: ICAO.

XML Tag	Type	Num	Description
acftPerfModel	aircraftPerformanceModelType	1	Aircraft performance model.
bankAngle	xs:boolean	1	Indicates if bank angle calculations should be included in calculations. NOTE: AEDT2B ignores this value and treats all scenarios as if their bank angle value was set to true.
altitudeCutoff	xs:double	*	Altitude in MSL to cutoff trajectory modeling for this scenario. The scenario altitude cutoff only affects noise impact calculation in AEDT2b. Fuel burn and emissions will be calculated until a flight reaches the study boundary. (ft) Default: 18000.
sulfurConversionRate	xs:double	*	Portion of sulfur in the fuel that, when combusted, becomes sulfuric acid used for emissions calculations. (%)
fuelSulfurContent	xs:double	*	Percentage, by weight, of sulfur in the fuel used for emissions calculations. Default Values: 0.0006 (0.06%) (%)
description	string255	*	A description of the scenario.
scenarioAirportLayoutSet	-	*	Contains a set of airport layout types. See scenarioAirportLayoutSet.
caseSet	-	*	Placeholder for one or more cases. See caseSet.
annualization	-	*	Contains annualizations for ASIF partial import into an existing study. See annualization.

Attributes

None.

6.77 scenarioAirportLayoutSet



Contains a set of airport layout types.

Structure

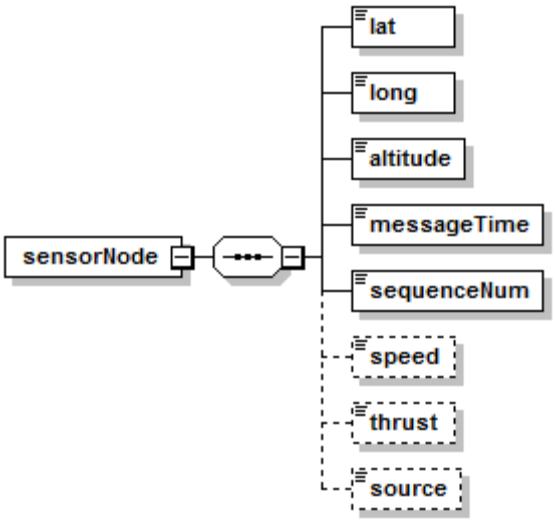
See Notation for information about reading this table.

XML Tag	Type	Num	Description
scenarioAirportLayout	scenarioAirportLayoutType	*	Airport layout type. See scenarioAirportLayoutType.

Attributes

None.

6.78 sensorNode



Describes a single node of a radar flight path.

Structure

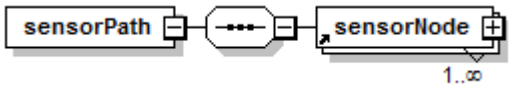
See Notation for information about reading this table.

XML Tag	Type	Num	Description
lat	xs:double	1	Latitude for this location (decimal degrees).
long	xs:double	1	Longitude for this location (decimal degrees).
altitude	xs:double	1	Altitude at this location (ft)
messageTime	xs:dateTime	1	Time aircraft reaches this location. NOTE: Not used in AEDT2b.
sequenceNum	xs:int	1	Order of this location in node list.
speed	xs:double	*	Ground speed of aircraft at this location (kts).
thrust	xs:double	*	Thrust of aircraft at this location. NOTE: Not used in AEDT2b. (lb)
source	string255	*	Source of the data for this node. NOTE: Not used in AEDT2b.

Attributes

None.

6.79 sensorPath



Describes a flight path based on radar data.

Structure

See Notation for information about reading this table.

XML Tag	Type	Num	Description
sensorNode	-	+	Describes a single node of a radar flight path. See sensorNode.

Attributes

None.

6.80 stationarySource

Specifies a stationary source.

Structure

See Notation for information about reading this table.

XML Tag	Type	Num	Choice	Description
name	string40	1		Identifying name of the stationary source.
pointStationarySource	-	1	a	Specifies the point in space occupied by a stationary source of emissions. See pointStationarySource.

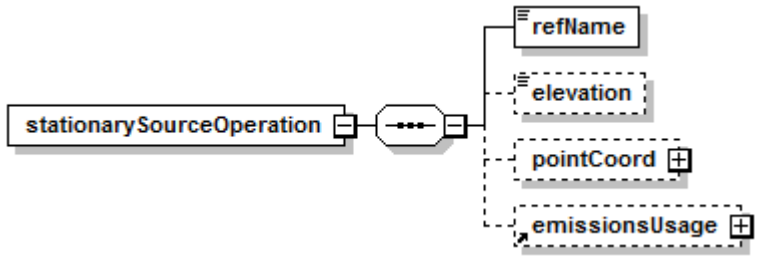
XML Tag	Type	Num	Choice	Description
areaStationarySource	-	1	a	Specifies the area in space occupied by a stationary source of emissions. See areaStationarySource.
volumeStationarySource	-	1	a	Specifies the volume in space occupied by a stationary source of emissions. See volumeStationarySource.
categoryRecordCode	-	1	b	An integer value for a category to use as the basis of a new stationary source operation. This value comes from the CATEGORY_REC_ID column in the STN_CATEGORY table in the AEDT FLEET database. See categoryRecordCode.
categoryBoilerHeater	-	1	b	Describes the operational characteristics of a source in the boiler/heater category. See categoryBoilerHeater.
categoryGenerator	-	1	b	Describes the operational characteristics of a source in the generator category. See categoryGenerator.
categoryIncinerator	-	1	b	Describes the operational characteristics of a source in the incinerator category. See categoryIncinerator.
categoryAircraftEngine	-	1	b	Describes a category for the time an aircraft engine is at various power levels. See categoryAircraftEngine.
categoryFuelTank	-	1	b	Describes the operational characteristics of a source in the fuel tank category. See categoryFuelTank.
categorySurfaceCoatingPainting	-	1	b	Describes the operational characteristics of a source in the surface coating or painting category. See categorySurfaceCoatingPainting.
categoryDeicingArea	-	1	b	Describes the operational characteristics of a source in the deicing area category. See categoryDeicingArea.
categorySolventDegreaser	-	1	b	Describes the operational characteristics of a source in the solvent degreaser category. See categorySolventDegreaser.

XML Tag	Type	Num	Choice	Description
categorySandSaltPile	-	1	b	Describes the emissions characteristics of a source in the sand or salt pile category. See categorySandSaltPile.
categoryTrainingFire	-	1	b	Supports legacy EDMS studies relating to content contained in the TRAINING_FIRES table. This element supports the definition of training fires for scenario layouts. Training fire data are used in both emissions and dispersion analyses. See categoryTrainingFire.
categoryOther	-	1	b	Describes the operational characteristics of a source in the "other" category. See categoryOther.

Attributes

None.

6.81 stationarySourceOperation



Defines an operation at a stationary source that generates emissions.

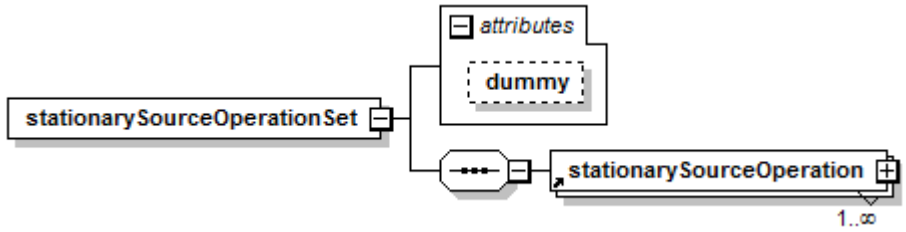
Structure

See Notation for information about reading this table.

XML Tag	Type	Num	Description
refName	string40	1	Identifier of the operation.
elevation	xs:double	*	Elevation of the operation, in feet above MSL.
pointCoord	coord2DType	*	A 2D point coordinate. See coord2DType.
emissionsUsage	-	*	Describes the amount of emissions for a given activity profile. See emissionsUsage.

Attributes
None.

6.82 stationarySourceOperationSet



Container of operations conducted at a stationary source contributing emissions.

Structure

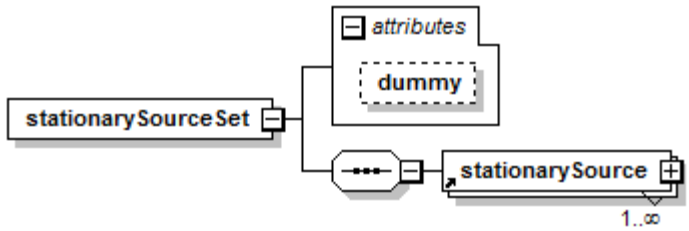
See Notation for information about reading this table.

XML Tag	Type	Num	Description
stationarySourceOperation	-	*	Defines an operation at a stationary source that generates emissions. See stationarySourceOperation.

Attributes

None.

6.83 stationarySourceSet



Container of stationary sources contributing emissions.

Structure

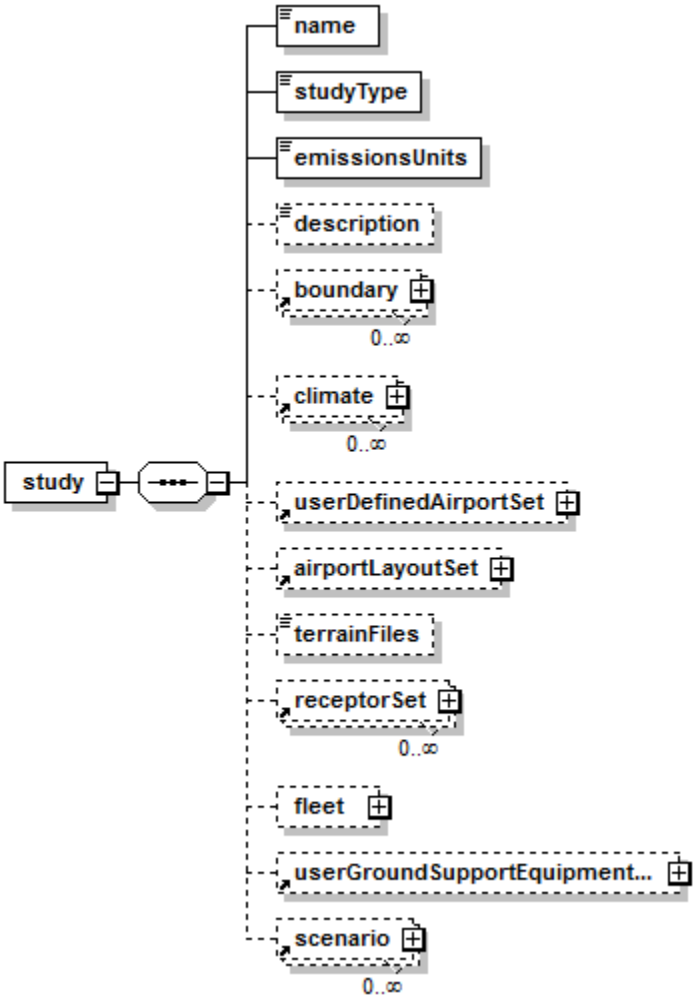
See Notation for information about reading this table.

XML Tag	Type	Num	Description
stationarySource	-	*	Specifies a stationary source. See stationarySource.

Attributes

None.

6.84 study



Contains specific information about a study.

Structure

See Notation for information about reading this table.

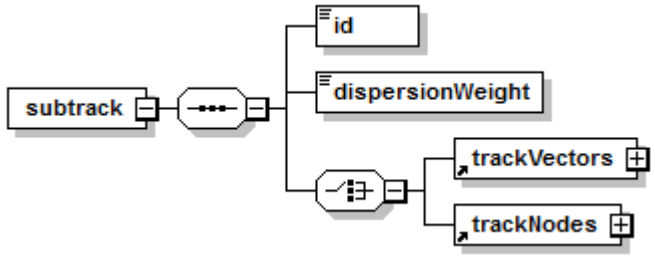
XML Tag	Type	Num	Description
name	string255	1	Name of the study.
studyType	studyType	1	Type of study. NOTE: AEDT2B only supports the Noise and Emissions value.
emissionsUnits	emissionsUnitsType	1	Unit of measure for a given emission.

XML Tag	Type	Num	Description
description	string255	*	Optional description of the study.
boundary	-	*	Specifies the boundaries of a study or other element contained within a study. When a study boundary is specified, all flight paths resulting from departure, arrival, and overflight operations are calculated to and/or from the study boundary. See boundary.
climate	-	*	Characterizes the climate during the study. See climate.
userDefinedAirportSet	-	?	Contains user-defined airports. See userDefinedAirportSet.
airportLayoutSet	-	*	Contains layouts for ASIF partial import into an existing study. See airportLayoutSet.
terrainFiles	string255	*	List of files containing descriptions of terrain.
receptorSet	-	*	Contains one or more receptor sets at various locations. See receptorSet.
fleet	fleet	?	Defines aircraft fleet participating in the study. See fleet.
userGroundSupportEquipmentSet	-	*	Supports legacy EDMS studies relating to content contained in the USER_CREATED_GSE table. This element supports the definition of user defined ground support equipment. See userGroundSupportEquipmentSet.
scenario	-	*	Encapsulates a scenario - such as Baseline or Alternative See scenario.

Attributes

None.

6.85 subtrack



Intended to represent a dispersed child track of a parent track.

Structure

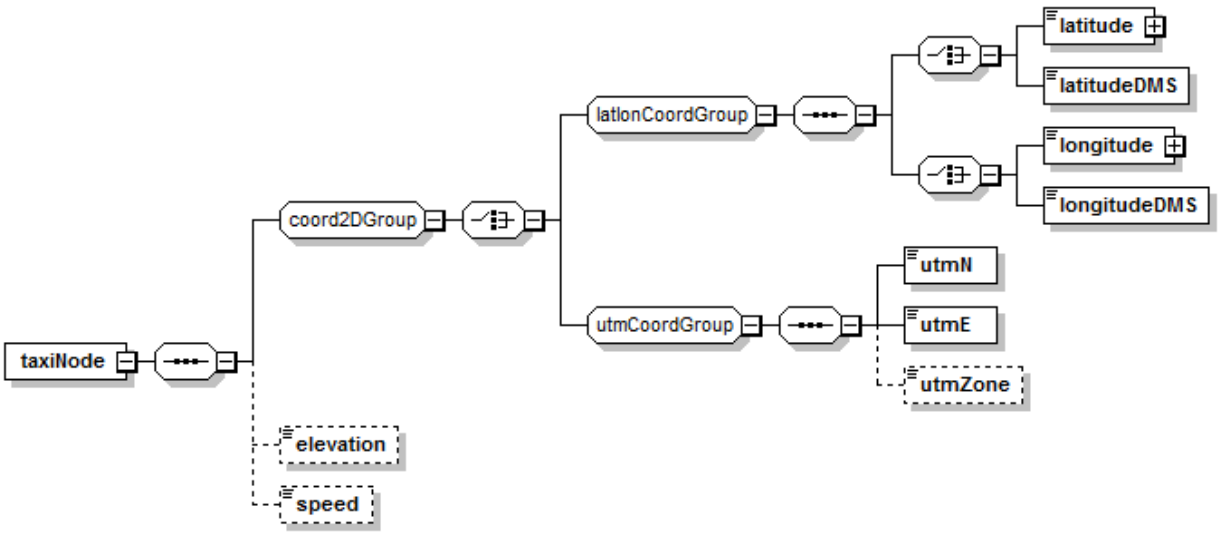
See Notation for information about reading this table.

XML Tag	Type	Num	Choice	Description
id	xs:int	1		ID for a subtrack.
dispersionWeight	xs:double	1		dispersion weight value; must be greater than one and less than or equal to 1.
trackVectors	-	1	a	A list of flight track vectors. See trackVectors.
trackNodes	-	1	a	A set of flight track nodes See trackNodes.

Attributes

None.

6.86 taxiNode



Supports legacy EDMS studies relating to the TAXIWAYS table. Taxi nodes define the points for a given taxiway.

Structure

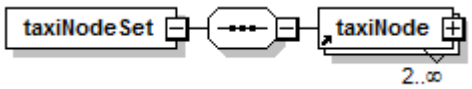
See Notation for information about reading this table.

XML Tag	Type	Num	Description
coord2DGroup	-	1	Indicates how a two-dimensional group is specified. See coord2DGroup.
elevation	xs:double	*	Taxi node's elevation above MSL. Valid values: -500 to 5000. (m) Default: 0.
speed	xs:double	*	Speed of aircraft at node. Valid values: 1.00 to 60.00. (mph) Default: 0.

Attributes

None.

6.87 taxiNodeSet



Supports legacy EDMS studies relating to the TAXIWAYS table. Taxi nodes define the points for a given taxiway.

Structure

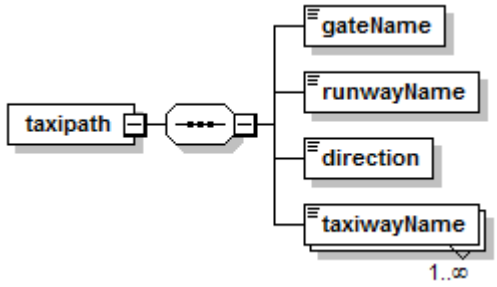
See Notation for information about reading this table.

XML Tag	Type	Num	Description
taxiNode	-	2+	Supports legacy EDMS studies relating to the TAXIWAYS table. Taxi nodes define the points for a given taxiway. See taxiNode.

Attributes

None.

6.88 taxipath



Supports legacy EDMS studies relating to the TAXIPATHS table. A taxipath is a sequence of taxiways, possibly just one, that connects a gate to a runway or vice versa. Taxipaths are used to do the modeling of aircraft ground movement. They are needed for sequence modeling, which includes all dispersion analyses. Gates, taxiways and runways must be defined before taxipaths can be specified.

Structure

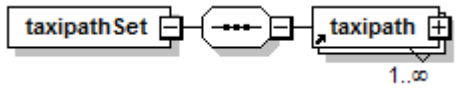
See Notation for information about reading this table.

XML Tag	Type	Num	Description
gateName	string40	1	References an existing gate.
runwayName	string8	1	References an existing runway.
direction	directionType	1	Direction of the taxipath. Valid values: Inbound or Outbound.
taxiwayName	string20	+	References an existing taxiway.

Attributes

None.

6.89 taxipathSet



Supports legacy EDMS studies relating to the TAXIPATHS table. A taxipath is a sequence of taxiways, possibly just one, that connects a gate to a runway or vice versa. Taxipaths are used to do the modeling of aircraft ground movement. They are needed for sequence modeling, which includes all dispersion analyses. Gates, taxiways and runways must be defined before taxipaths can be specified.

Structure

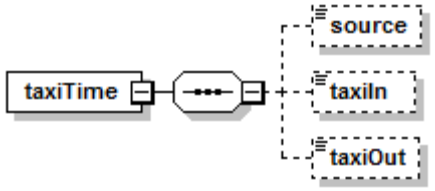
See Notation for information about reading this table.

XML Tag	Type	Num	Description
taxipath	-	*	Supports legacy EDMS studies relating to the TAXIPATHS table. A taxipath is a sequence of taxiways, possibly just one, that connects a gate to a runway or vice versa. Taxipaths are used to do the modeling of aircraft ground movement. They are needed for sequence modeling, which includes all dispersion analyses. Gates, taxiways and runways must be defined before taxipaths can be specified. See taxipath.

Attributes

None.

6.90 taxiTime



Contains taxi start and end time data.

Structure

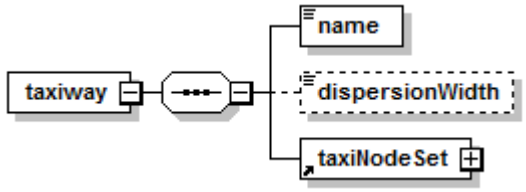
See Notation for information about reading this table.

XML Tag	Type	Num	Description
source	string6	*	Source for taxi time data.
taxiIn	xs:int	*	Taxi In Time UNITS: seconds
taxiOut	xs:int	*	Taxi Out Time UNITS: seconds.

Attributes

None.

6.91 taxiway



Supports legacy EDMS studies relating to the TAXIWAYS table. Taxiways determine the ground segments where the aircraft operates.

Structure

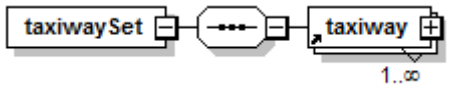
See Notation for information about reading this table.

XML Tag	Type	Num	Description
name	string20	1	Identifying name for taxiway.
dispersionWidth	doubleExclusive100	*	Width of emission dispersion around taxiway. Valid values: 0 to 100. (ft) Default: 1.
taxiNodeSet	-	1	Supports legacy EDMS studies relating to the TAXIWAYS table. Taxi nodes define the points for a given taxiway. See taxiNodeSet.

Attributes

None.

6.92 taxiwaySet



Supports legacy EDMS studies relating to the TAXIWAYS table. Taxiways determine the ground segments where the aircraft operates.

Structure

See Notation for information about reading this table.

XML Tag	Type	Num	Description
taxiway	-	*	Supports legacy EDMS studies relating to the TAXIWAYS table. Taxiways determine the ground segments where the aircraft operates. See taxiway.

Attributes

None.

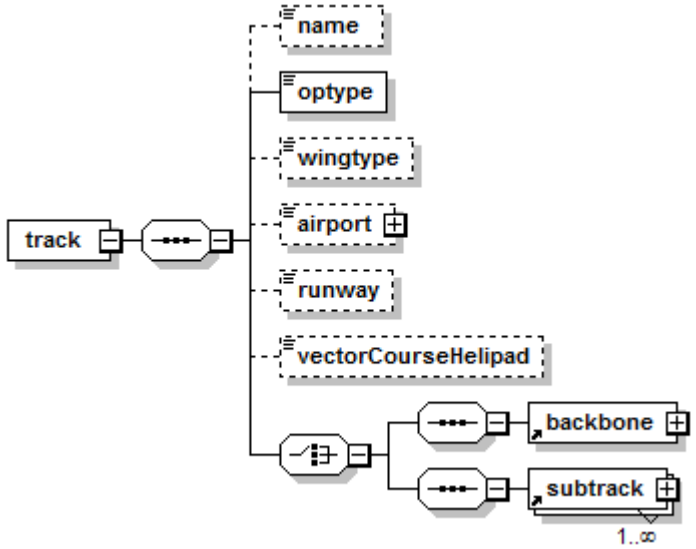
6.93 temporalFactor

Factor applied to activity for operations during the indicated quarter hour. Valid values: 0.0000 to 1.0000.

Attributes

XML Tag	Type	Use	Description
startHour	int0to23	required	An integer in the range [0,23].
startMinutes	quarterHourMinutes	required	Either 0, 15, 30, or 45.

6.94 track



A flight track that can be used for flight operations.

Structure

See Notation for information about reading this table.

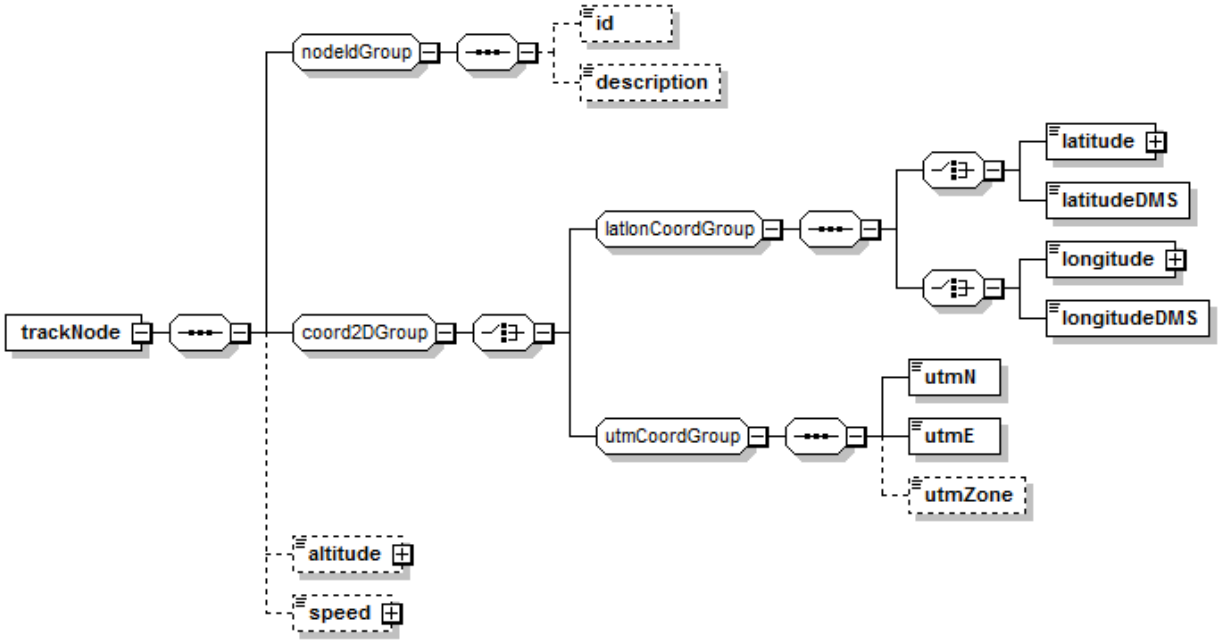
XML Tag	Type	Num	Choice	Description
name	string64	*		The name of the track.
optype	opType	1		Type of operation. (A = arrival, D = departure)
wingtype	wingType	*		Type of wing. (F = fixed wing, R = rotary wing)
airport	airportCode	*		The IATA airport code. See airportCode.

XML Tag	Type	Num	Choice	Description
runway	string8	*		The name of the runway.
vectorCourseHelipad	xs:double	*		Direction for helicopter operations of vector type (angle from North).
backbone	-	1	a	Represents the centerline of a set of dispersed tracks. See backbone.
subtrack	-	*	a	Intended to represent a dispersed child track of a parent track. See subtrack.

Attributes

None.

6.95 trackNode



A flight track node.

Structure

See Notation for information about reading this table.

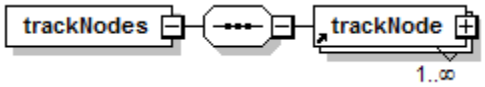
XML Tag	Type	Num	Description
nodeIdGroup	-	1	A group of nodes. See nodeIdGroup.
coord2DGroup	-	1	Indicates how a two-dimensional group is specified. See coord2DGroup.

XML Tag	Type	Num	Description
altitude	-	*	Node's altitude above or below MSL. Includes attribute node. Valid values: -1500 to 15000. (ft)
speed	-	*	Speed of aircraft at node. Includes attribute node. Valid values: nonnegative. (kts)

Attributes

None.

6.96 trackNodes



A set of flight track nodes

Structure

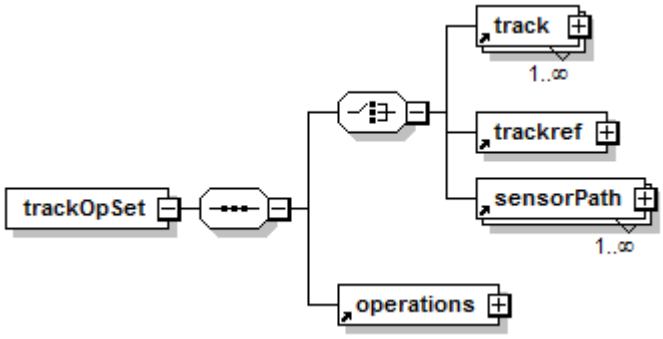
See Notation for information about reading this table.

XML Tag	Type	Num	Description
trackNode	-	*	A flight track node. See trackNode.

Attributes

None.

6.97 trackOpSet



Lists tracks and associated operations.

Structure

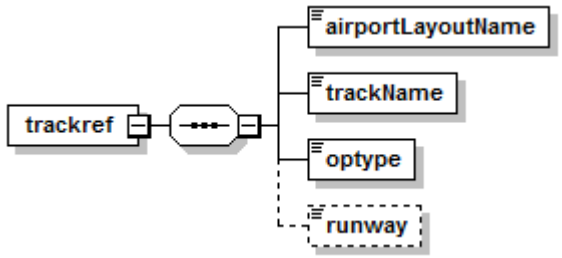
See Notation for information about reading this table.

XML Tag	Type	Num	Choice	Description
track	-	*	a	A flight track that can be used for flight operations. See track.
trackref	-	1	a	Reference to a flight track. See trackref.
sensorPath	-	*	a	Describes a flight path based on radar data. See sensorPath.
operations	-	1		Contains a list of aircraft flight operations. See operations.

Attributes

None.

6.98 trackref



Reference to a flight track.

Structure

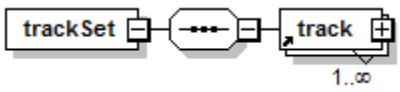
See Notation for information about reading this table.

XML Tag	Type	Num	Description
airportLayoutName	string255	1	Airport layout associated with this track.
trackName	string64	1	Name of flight track.
optype	opType	1	Type of operation.
runway	string8	*	Name of runway on the flight track.

Attributes

None.

6.99 trackSet



A set of flight tracks.

Structure

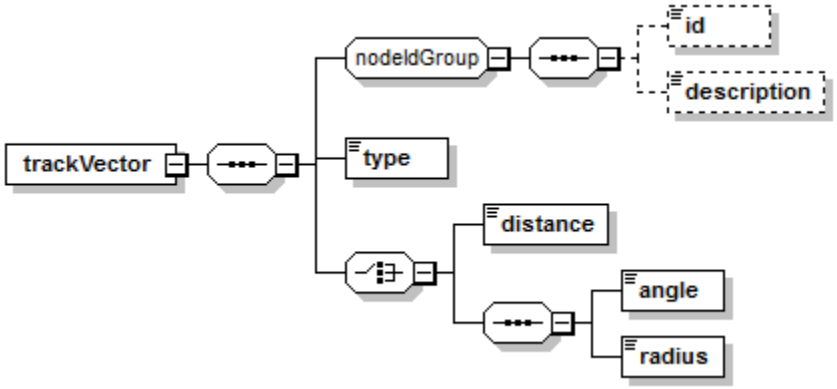
See Notation for information about reading this table.

XML Tag	Type	Num	Description
track	-	*	A flight track that can be used for flight operations. See track.

Attributes

None.

6.100 trackVector



A flight track vector.

Structure

See Notation for information about reading this table.

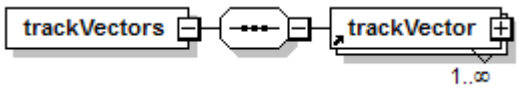
XML Tag	Type	Num	Choice	Description
nodeIdGroup	-	1		A group of nodes. See nodeIdGroup.
type	vectorTrackType	1		Type of vector. Valid values: S = Straight, L = LeftTurn, R = RightTurn.
distance	xs:double	1	a	Distance flown along this vector. Valid values: nonnegative. (nmi)

XML Tag	Type	Num	Choice	Description
angle	xs:double	1	a	Angle of the vector. (degrees)
radius	xs:double	1		Radius of the vector. Valid values: nonnegative. (nmi)

Attributes

None.

6.101 trackVectors



A list of flight track vectors.

Structure

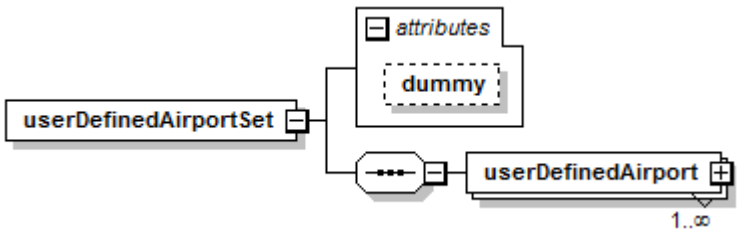
See Notation for information about reading this table.

XML Tag	Type	Num	Description
trackVector	-	*	A flight track vector. See trackVector.

Attributes

None.

6.102 userDefinedAirportSet



Contains user-defined airports.

Structure

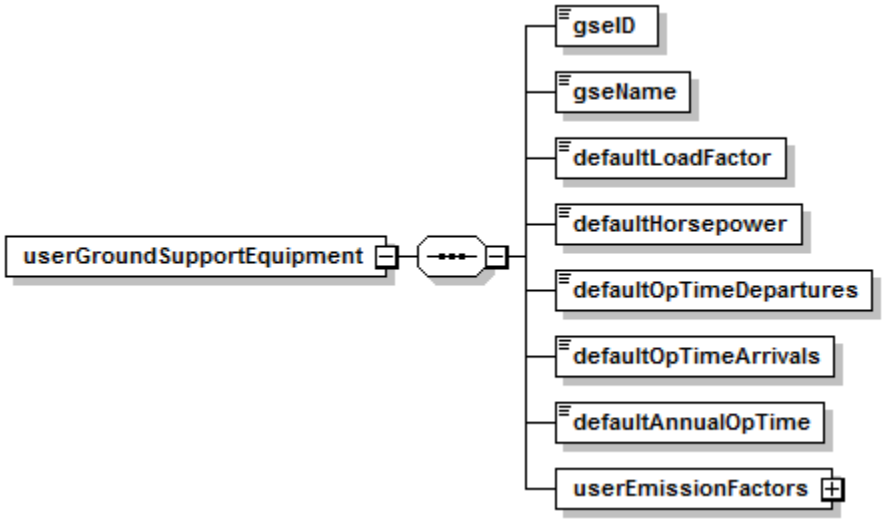
See Notation for information about reading this table.

XML Tag	Type	Num	Description
userDefinedAirport	airport	*	Contains information for each user-defined airport. APT_CODE must not duplicate an existing system airport. See airport.

Attributes

None.

6.103 userGroundSupportEquipment



Supports legacy EDMS studies relating to content contained in the USER_CREATED_GSE table. This element supports the definition of user defined ground support equipment.

Structure

See Notation for information about reading this table.

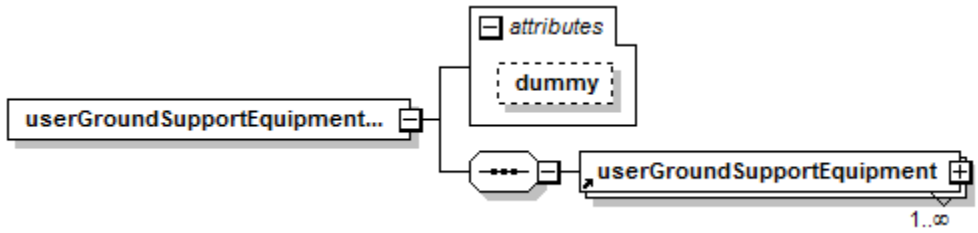
XML Tag	Type	Num	Description
gseID	xs:int	1	User GSE ID (used as identifier (System GSE ID) in AIRCRAFT_GSE_ASSIGNMENTS, GSE_POPULATION, GSE_POPULATION_GATE_ASSIGNMENTS).
gseName	string40	1	Custom GSE name.

XML Tag	Type	Num	Description
defaultLoadFactor	doubleInclusive1	1	GSE default load factor. Valid values: 0 to 100. (%)
defaultHorsepower	xs:double	1	GSE default horsepower. Valid values: 0 to 10000. (hp)
defaultOpTimeDepartures	xs:double	1	GSE default operation time departures. Valid values: 0 to 1000. (min/LTO)
defaultOpTimeArrivals	xs:double	1	GSE default operation time arrivals. Valid values: 0 to 1000. (min/LTO)
defaultAnnualOpTime	xs:double	1	GSE default operation time annual. Valid values: 0 to 8784. (min/LTO)
userEmissionFactors	-	1	Describes user-defined fuel emission factors.

Attributes

None.

6.104 userGroundSupportEquipmentSet



Supports legacy EDMS studies relating to content contained in the USER_CREATED_GSE table. This element supports the definition of user defined ground support equipment.

Structure

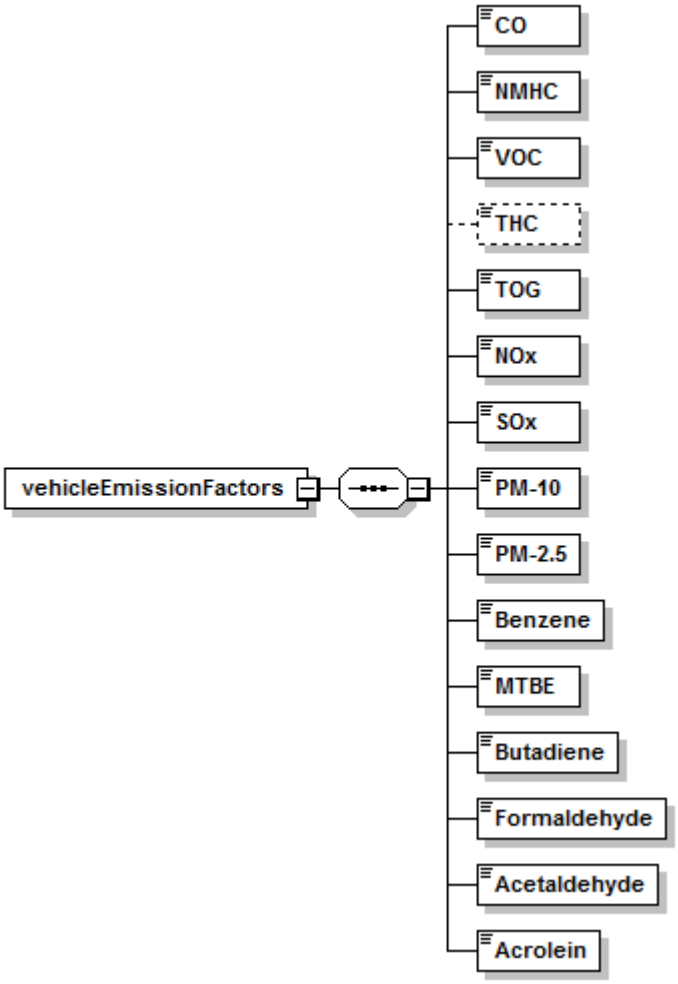
See Notation for information about reading this table.

XML Tag	Type	Num	Description
userGroundSupportEquipment	-	*	Supports legacy EDMS studies relating to content contained in the USER_CREATED_GSE table. This element supports the definition of user defined ground support equipment. See userGroundSupportEquipment.

Attributes

None.

6.105 vehicleEmissionFactors



Supports legacy EDMS studies relating to content contained in the ROADWAYS/PARKING table. This element supports the definition of custom emission factor specifications for roadways and parking.

Structure

See Notation for information about reading this table.

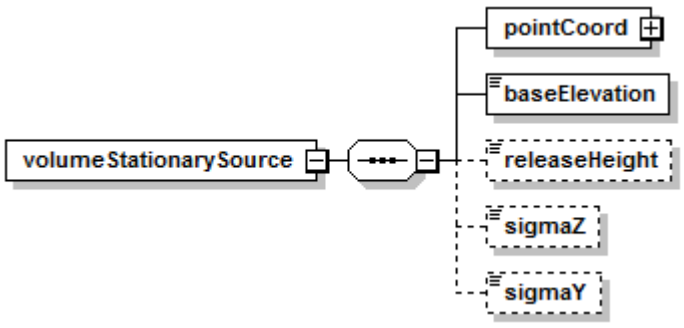
XML Tag	Type	Num	Description
CO	xs:double	1	Amount of carbon monoxide emitted. Valid Values: 0 to 20000. (grams/vehicle-mile)
NMHC	xs:double	1	Amount of non-methane hydrocarbons emitted. Valid Values: 0 to 20000. (grams/vehicle-mile)
VOC	xs:double	1	Amount of volatile organic compounds emitted. Valid Values: 0 to 20000. (grams/vehicle-mile)

XML Tag	Type	Num	Description
THC	xs:double	*	Amount of total hydrocarbons emitted. Valid Values: 0 to 20000. (grams/vehicle-mile)
TOG	xs:double	1	Amount of total organic gasses emitted. Valid Values: 0 to 20000. (grams/vehicle-mile)
NOx	xs:double	1	Amount of nitrous oxides emitted. Valid Values: 0 to 20000. (grams/vehicle-mile)
SOx	xs:double	1	Amount of sulfur oxides emitted. Valid Values: 0 to 20000. (grams/vehicle-mile)
PM-10	xs:double	1	Amount of 10-micron particulate matter emitted. (grams/vehicle-mile)
PM-2.5	xs:double	1	Amount of 2.5-micron particulate matter emitted. Valid Values: 0 to 20000. (grams/vehicle-mile)
Benzene	xs:double	1	Amount of benzene emitted. (grams/vehicle-mile)
MTBE	xs:double	1	Amount of methyl tertiary butyl ether emitted. (grams/vehicle-mile)
Butadiene	xs:double	1	Amount of butadiene emitted. (grams/vehicle-mile)
Formaldehyde	xs:double	1	Amount of formaldehyde emitted. (grams/vehicle-mile)
Acetaldehyde	xs:double	1	Amount of acetaldehyde emitted. (grams/vehicle-mile)
Acrolein	xs:double	1	Amount of acrolein emitted. (grams/vehicle-mile)

Attributes

None.

6.106 volumeStationarySource



Specifies the volume in space occupied by a stationary source of emissions.

Structure

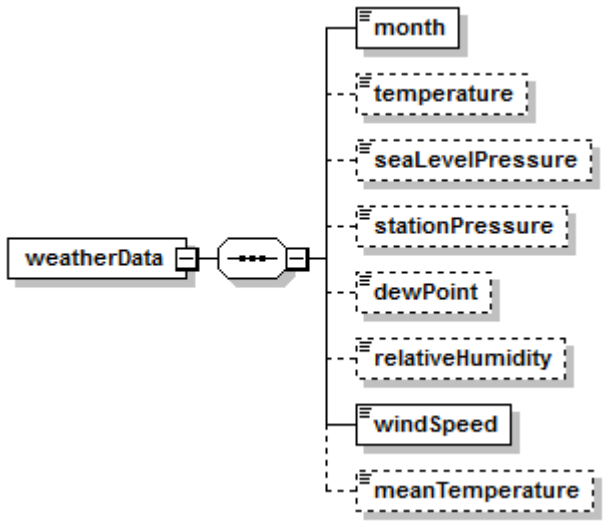
See Notation for information about reading this table.

XML Tag	Type	Num	Description
pointCoord	coord2DType	1	Type of 2D coordinates specifying the volume. See coord2DType.
baseElevation	xs:double	1	Height of volume. (m)
releaseHeight	doubleInclusive100	*	Height at which emissions are released into the atmosphere. Valid values 0 to 100 (m) Default: 0.
sigmaZ	xs:double	*	Vertical dispersion parameter. For additional information, see the EDMS Application Manual. Valid values: 0.1 to 100.0. (m) Default: 0.
sigmaY	xs:double	*	Horizontal dispersion parameter. For additional information, see the EDMS Application Manual. Valid values: 0.1 to 100.0. (m) Default: 0.

Attributes

None.

6.107 weatherData



Contains information about weather data elements.

Structure

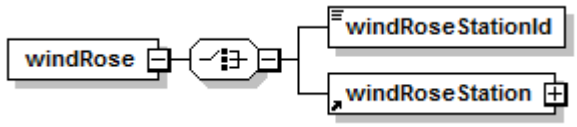
See Notation for information about reading this table.

XML Tag	Type	Num	Description
month	string3	1	Month the current row of data corresponds to (ALL for a yearly average).
temperature	xs:decimal	*	Mean temperature for the month indicated in the MONTH field UNITS: Degrees Fahrenheit.
seaLevelPressure	xs:decimal	*	Mean sea level pressure for the month indicated in the MONTH field UNITS: Millibars.
stationPressure	xs:decimal	*	Mean station pressure for the month indicated in the MONTH field UNITS: Millibars
dewPoint	xs:decimal	*	Mean dew point for the month indicated in the MONTH field UNITS: Degrees Fahrenheit.
relativeHumidity	xs:double	*	Mean relative humidity for the month indicated in the MONTH field UNITS: Percentage.
windSpeed	xs:decimal	1	Mean wind speed for the month indicated in the MONTH field UNITS: Knots.
meanTemperature	xs:decimal	*	Mean temperature for the month indicated in the MONTH field UNITS: Degrees Fahrenheit.

Attributes

None.

6.108 windRose



Wind rose station.

Structure

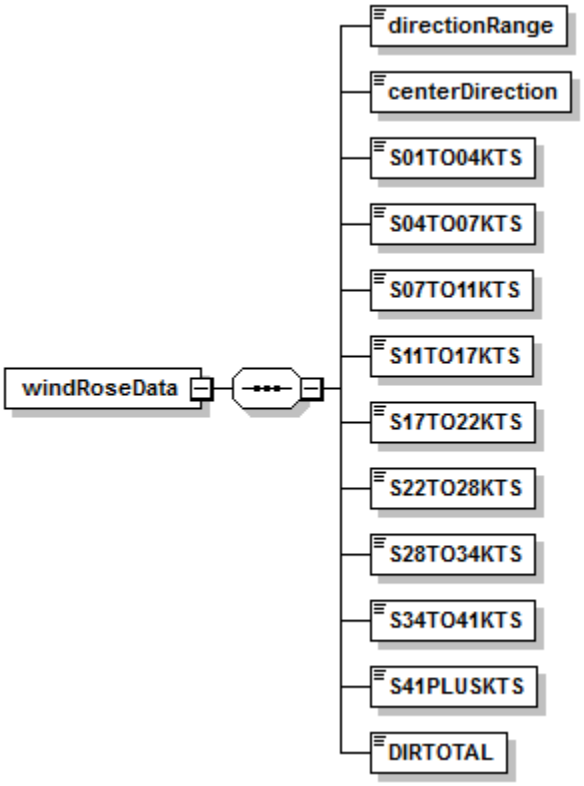
See Notation for information about reading this table.

XML Tag	Type	Num	Choice	Description
windRoseStationId	string5	1	a	Rose station identifier.
windRoseStation	-	1	a	User-defined wind rose station. See windRoseStation.

Attributes

None.

6.109 windRoseData



Contains range and speed readings from the wind rose station.

Structure

See Notation for information about reading this table.

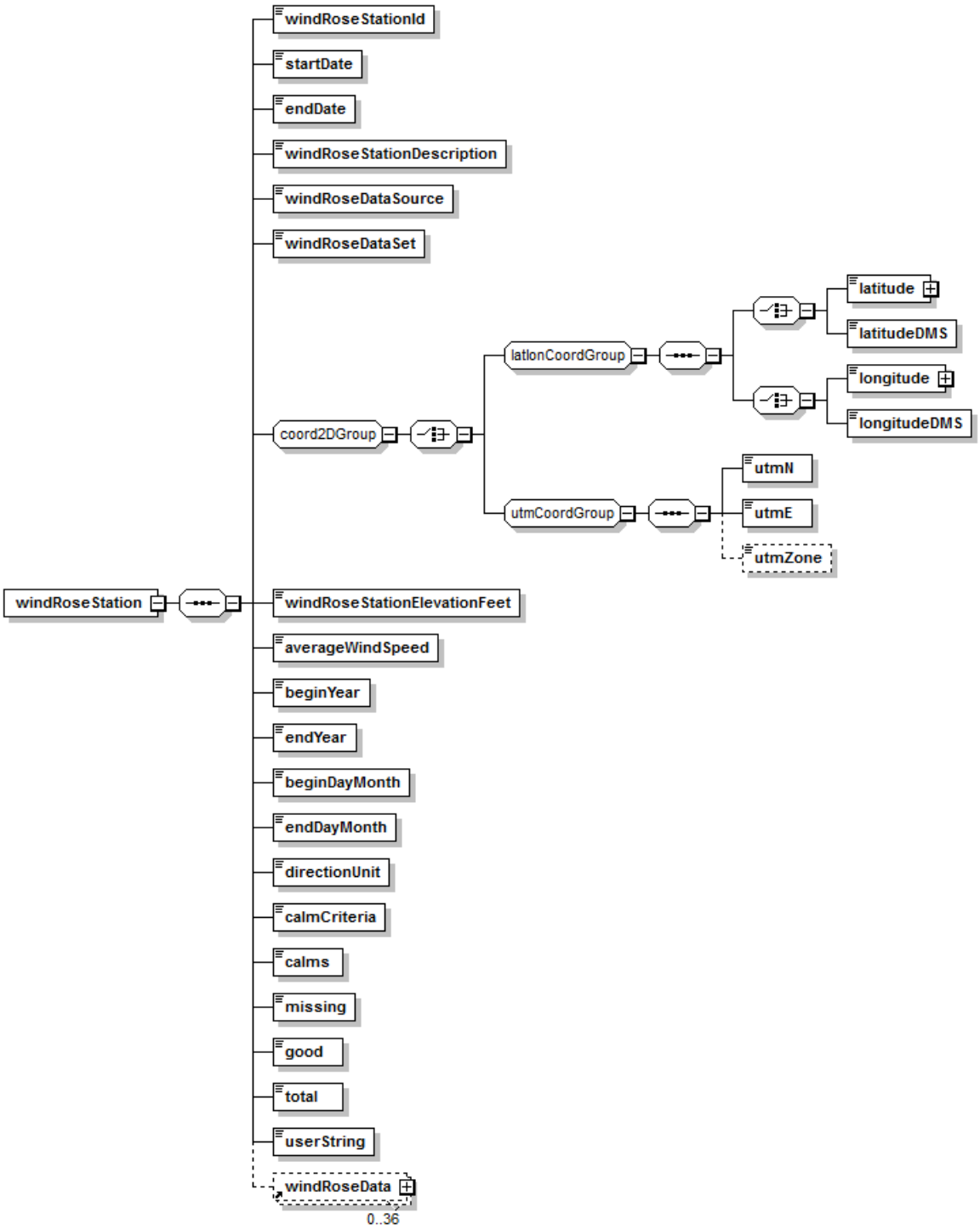
XML Tag	Type	Num	Description
directionRange	string14	1	Range of directions in current direction bin.
centerDirection	xs:int	1	Center direction of current bin.
S01TO04KTS	xs:int	1	Number of valid readings between these speeds (inclusive) in current direction bin.
S04TO07KTS	xs:int	1	Number of valid readings between these speeds (inclusive) in current direction bin.
S07TO11KTS	xs:int	1	Number of valid readings between these speeds (inclusive) in current direction bin.
S11TO17KTS	xs:int	1	Number of valid readings between these speeds (inclusive) in current direction bin.
S17TO22KTS	xs:int	1	Number of valid readings between these speeds (inclusive) in current direction bin.

XML Tag	Type	Num	Description
S22TO28KTS	xs:int	1	Number of valid readings between these speeds (inclusive) in current direction bin.
S28TO34KTS	xs:int	1	Number of valid readings between these speeds (inclusive) in current direction bin.
S34TO41KTS	xs:int	1	Number of valid readings between these speeds (inclusive) in current direction bin.
S41PLUSKTS	xs:int	1	Number of valid readings between these speeds (inclusive) in current direction bin.
DIRTOTAL	xs:int	1	Total number of valid readings in current direction bin.

Attributes

None.

6.110 windRoseStation



User-defined wind rose station.

Structure

See Notation for information about reading this table.

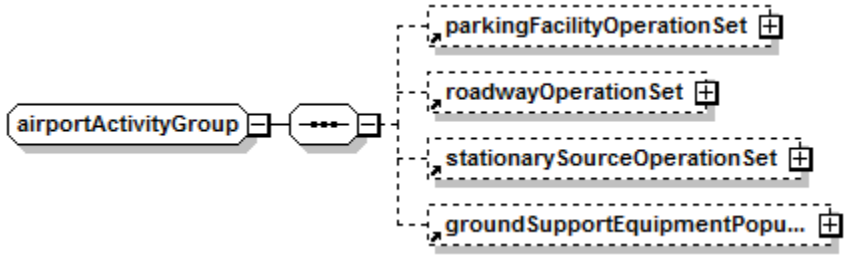
XML Tag	Type	Num	Description
windRoseStationId	string5	1	Source agency's ID number for wind station.
startDate	xs:date	1	Effective start date for the information in the current record.
endDate	xs:date	1	End date for the information in the current record.
windRoseStationDescription	string42	1	Source agency's description of wind station location.
windRoseDataSource	string32	1	Source agency for data.
windRoseDataSet	string66	1	Source agency's name for data set.
coord2DGroup	-	1	Indicates how a two-dimensional group is specified. See coord2DGroup.
windRoseStationElevationFeet	xs:int	1	Elevation of wind station UNITS: Feet above MSL.
averageWindSpeed	xs:double	1	Average wind speed throughout date range UNITS: Knots.
beginYear	xs:int	1	First year of date range included in wind rose counts UNITS: YYYY.
endYear	xs:int	1	Last year of date range included in wind rose counts UNITS: YYYY.
beginDayMonth	string12	1	Month and day of first reading in date range UNITS: DDMon.
endDayMonth	string11	1	Month and day of last reading included in date range UNITS: DDMon.
directionUnit	string9	1	Units for direction measurements.
calmCriteria	string11	1	Criterion for a "calm" reading.
calms	xs:int	1	Number of calm readings in date range.
missing	xs:int	1	Number of missing, incomplete, or invalid readings in date range.
good	xs:int	1	Number of valid non-calm readings in date range.
total	xs:int	1	Total number of readings in date range.
userString	string11	1	Restrictions on data use.
windRoseData	-	*	Contains range and speed readings from the wind rose station. See windRoseData.

Attributes

None.

7 Group Descriptions

7.1 airportActivityGroup



Contains a set of activities conducted at an airport.

Structure

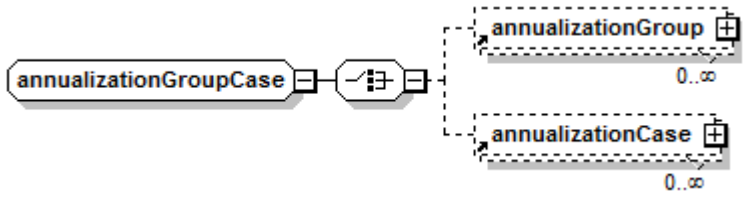
See Notation for information about reading this table.

XML Tag	Type	Num	Description
parkingFacilityOperationSet	-	*	Supports legacy EDMS studies relating to content contained in the PARKING table. This element supports the definition of parking lot and parking garage activities for scenario layouts. See parkingFacilityOperationSet.
roadwayOperationSet	-	*	Supports legacy EDMS studies relating to content contained in the ROADWAYS table. This element supports the definition of vehicle activity on roadways for scenario layouts. See roadwayOperationSet.
stationarySourceOperationSet	-	*	Container of operations conducted at a stationary source contributing emissions. See stationarySourceOperationSet.
groundSupportEquipmentPopulationOperationSet	-	*	Supports legacy EDMS studies relating to content contained in the GSE_POPULATION table. This element supports the definition of user defined ground support equipment in operational usage. See groundSupportEquipmentPopulationOperationSet.

Attributes

None.

7.2 annualizationGroupCase



Allows for grouping cases into groups, and groups into parent groups.

Structure

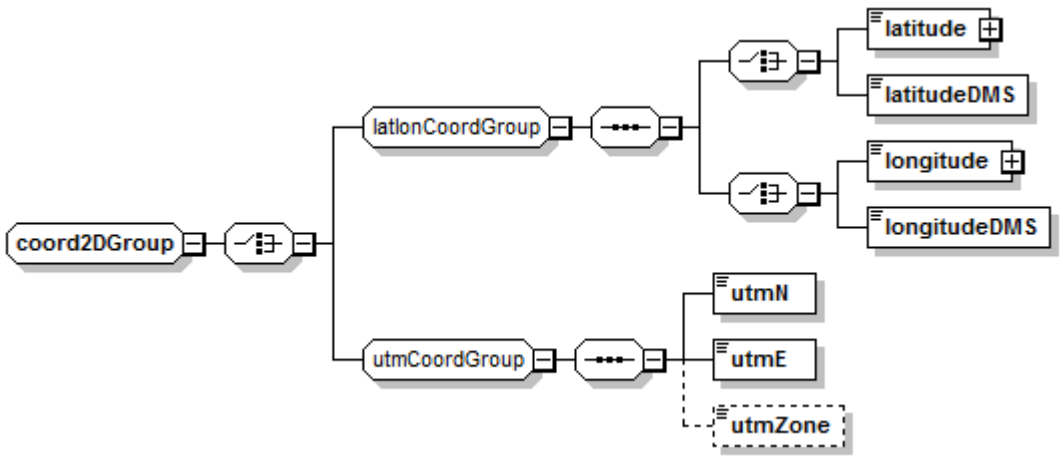
See Notation for information about reading this table.

XML Tag	Type	Num	Choice	Description
annualizationGroup	-	*	a	Contains one or more weighted annualization group cases. See annualizationGroup.
annualizationCase	-	*	a	Collection of study cases whose results are weighted in the scenario annualization rollup. See annualizationCase.

Attributes

None.

7.3 coord2DGroup



Indicates how a two-dimensional group is specified.

Structure

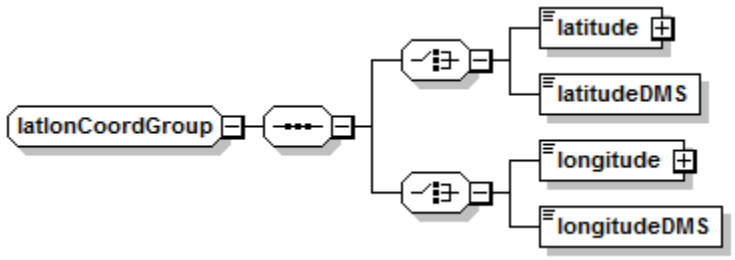
See Notation for information about reading this table.

XML Tag	Type	Num	Choice	Description
latlonCoordGroup	-	1	a	Specifies a coordinate using latitude and longitude. See latlonCoordGroup.
utmCoordGroup	-	1	a	Specifies a point using Universal Transverse Mercator coordinates. See utmCoordGroup.

Attributes

None.

7.4 latlonCoordGroup



Specifies a coordinate using latitude and longitude.

Structure

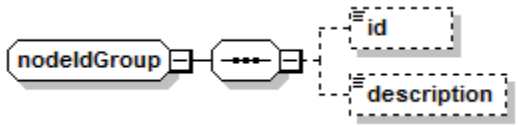
See Notation for information about reading this table.

XML Tag	Type	Num	Choice	Description
latitude	latitudeDecimalType	1	a	Latitude specified as degrees in decimal format. Can include optional attribute positive. See latitudeDecimalType.
latitudeDMS	latitudeDMSType	1	a	Latitude expressed as dd"mm'sss with optional indicator N, n, S, s.
longitude	longitudeDecimalType	1	b	Longitude specified as degrees in decimal format. Can include optional attribute positive. See longitudeDecimalType.
longitudeDMS	longitudeDMSType	1	b	Longitude expressed as dd"mm'sss with optional indicator N, n, S, s.

Attributes

None.

7.5 nodeIdGroup



A group of nodes.

Structure

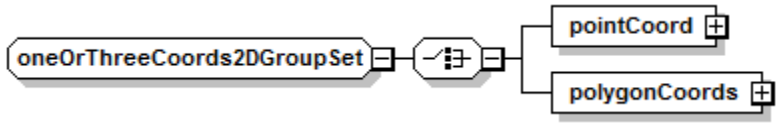
See Notation for information about reading this table.

XML Tag	Type	Num	Description
id	string16	*	String identifier for the grouping of nodes.
description	string16	*	An optional description for the grouping of nodes.

Attributes

None.

7.6 oneOrThreeCoords2DGroupSet



Type of coordinate specifying the area.

Structure

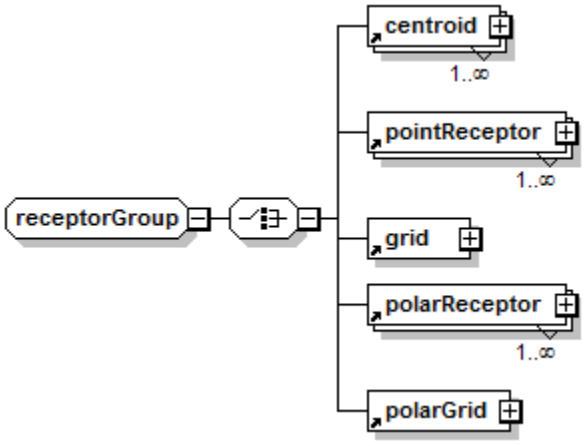
See Notation for information about reading this table.

XML Tag	Type	Num	Choice	Description
pointCoord	coord2DType	1	a	Choice of a single point coordinate. See coord2DType.
polygonCoords	polygon2DType	1	a	Choice of a 2D polygon. See polygon2DType.

Attributes

None.

7.7 receptorGroup



Description of a receptor group.

Structure

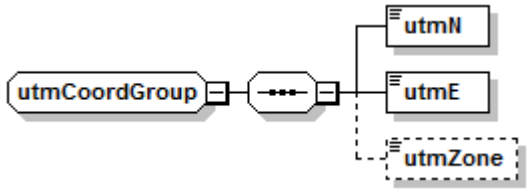
See Notation for information about reading this table.

XML Tag	Type	Num	Choice	Description
centroid	-	*	a	Describes the geometric center of a polygon. See centroid.
pointReceptor	-	*	a	Element specification for a point receptor. See pointReceptor.
grid	-	1	a	Describes a grid of points. See grid.
polarReceptor	-	*	a	Supports legacy EDMS studies relating to the NETWORK_POLAR_RECEPTORS and DISCRETE_POLAR_RECEPTORS table. Defines receptor points within a polar grid. See polarReceptor.
polarGrid	-	1	a	Supports legacy EDMS studies relating to the NETWORK_POLAR_RECEPTORS table. Two-Dimensional grid of individual receptors over an annular sector (polar) of the airport or study area. See polarGrid.

Attributes

None.

7.8 utmCoordGroup



Specifies a point using Universal Transverse Mercator coordinates.

Structure

See Notation for information about reading this table.

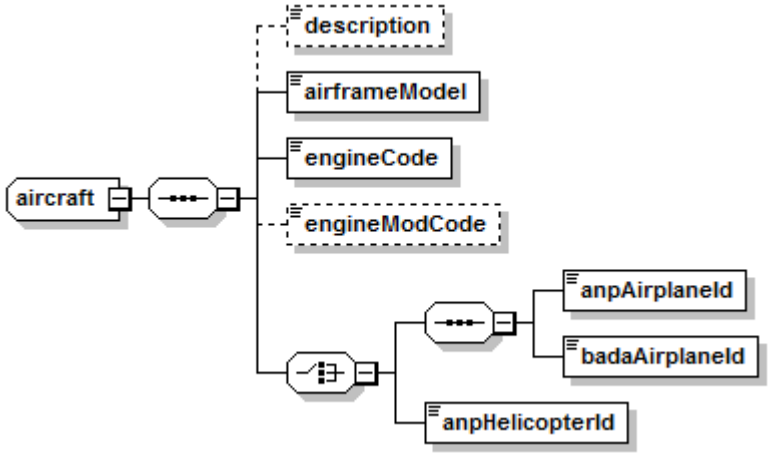
XML Tag	Type	Num	Description
utmN	xs:double	1	UTM Northing of the point in decimal meters north of the equator.
utmE	xs:double	1	UTM Easting of the point in decimal meters east from a central meridian.
utmZone	xs:int	?	UTM Zone of the point. A default zone can be set in the <options> tag. Default: -1.

Attributes

None.

8 Complex Type Descriptions

8.1 aircraft



Main block for creating new user defined AEDT aircraft.

Structure

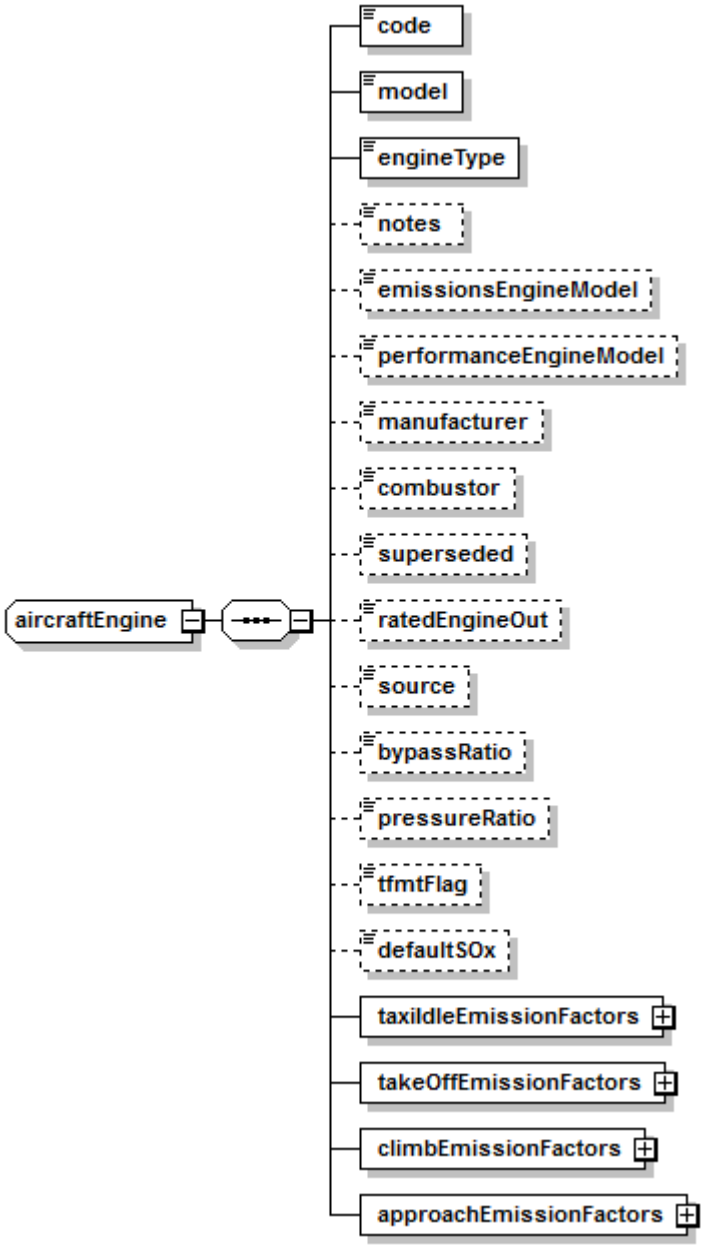
See Notation for information about reading this table.

XML Tag	Type	Num	Choice	Description
description	string255	*		The description for this user defined aircraft.
airframeModel	airframeModel	1		The airframe model used for this user defined aircraft.
engineCode	engineCode	1		The engine code used for this user defined aircraft.
engineModCode	engineModCode	*		The engine modification code used for this user defined aircraft. Default: NONE.
anpAirplaneId	anpAirplaneId	1	a	The ANP airplane linked to this user defined aircraft.
badaAirplaneId	badaAirplaneId	1		The BADA airplane linked to this user defined aircraft.
anpHelicopterId	anpHeloId	1	a	The ANP helicopter linked to this user defined helicopter.

Attributes

None.

8.2 aircraftEngine



User defined engine information containing custom parameters that reflect an aircraft engine. This engine definition can that be used within a user defined aircraft.

Structure

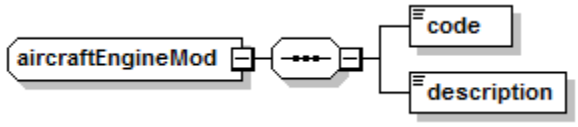
See Notation for information about reading this table.

XML Tag	Type	Num	Description
code	engineCode	1	Unique ICAO UID.
model	engineModel	1	Engine model.
engineType	engineType	1	Engine type. Valid values: J (jet), T (turboprop), P (piston).
notes	string200	*	Free-text notes for the engine.
emissionsEngineModel	string25	*	ICAO emissions model for the engine.
performanceEngineModel	string25	*	ICAO performance model for the engine.
manufacturer	string100	*	Engine manufacturer.
combustor	string50	*	Combustor used on engine.
superseded	string10	*	ICAO UID of engine that supersedes the given engine.
ratedEngineOut	xs:double	*	Rated engine output (in kN). Valid values: Nonnegative.
source	string100	*	Source of engine data.
bypassRatio	xs:double	*	Engine's bypass ratio. Valid values: Nonnegative.
pressureRatio	xs:double	*	Engine's pressure ratio. Valid values: Nonnegative.
tfmtFlag	string50	*	Turbo-fan or Mixed turn-fan flag. Valid values: TF (turbofan) or MTF (mixed turbofan).
defaultSOx	xs:double	*	Sulfur oxides emitted (grams per kilogram of fuel). Valid values: Nonnegative.
taxiIdleEmissionFactors	engineModeEmissions	1	Emission factor when aircraft is idling. See engineModeEmissions.
takeOffEmissionFactors	engineModeEmissions	1	Emission factor when aircraft is taking off. See engineModeEmissions.
climbEmissionFactors	engineModeEmissions	1	Emission factor when aircraft is climbing. See engineModeEmissions.
approachEmissionFactors	engineModeEmissions	1	Emission factor when aircraft is on approach. See engineModeEmissions.

Attributes

None.

8.3 aircraftEngineMod



User defined engine modification information containing custom parameters that reflect an aircraft engine modification. This engine modification definition can that be used within a user defined aircraft.

Structure

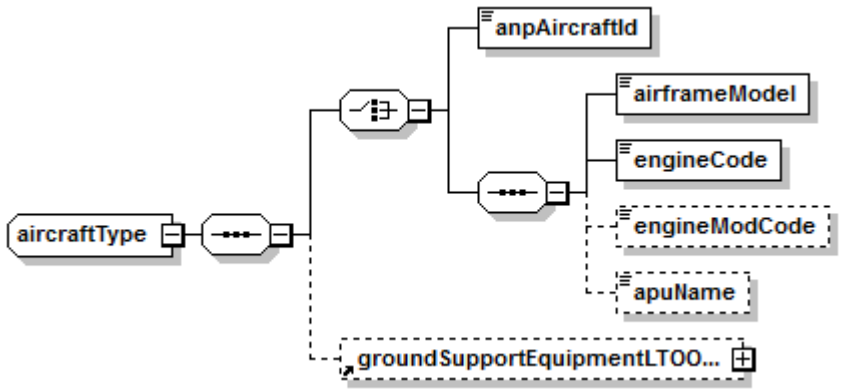
See Notation for information about reading this table.

XML Tag	Type	Num	Description
code	engineModCode	1	Unique ICAO UID.
description	string255	1	Description of engine modifications.

Attributes

None.

8.4 aircraftType



Characterizes an aircraft.

Structure

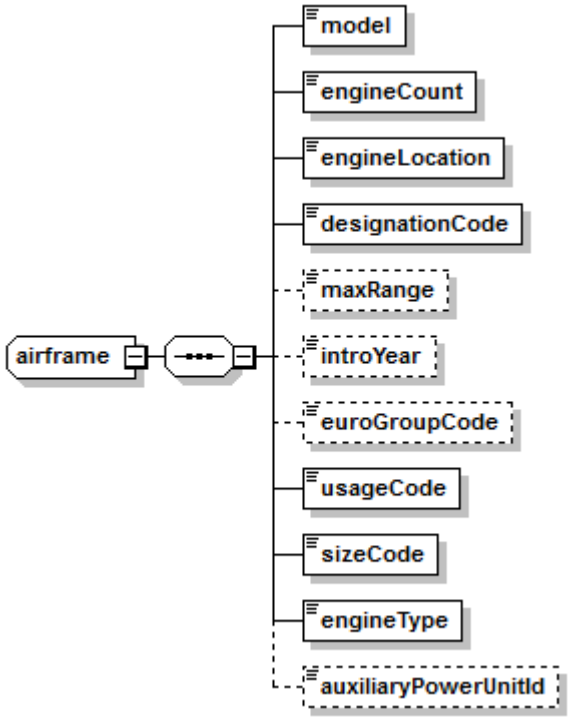
See Notation for information about reading this table.

XML Tag	Type	Num	Choice	Description
anpAircraftId	anpAirplaneId	1	a	ID of ANP airplane. Must be a new, unique value.
airframeModel	string50	1		Air frame model.
engineCode	string25	1		Engine code. Valid values: E (Electric), J (Jet), P (Piston), T (Turboprop).
engineModCode	engineModCode	*	a	Engine modification code. (AEDT database reference table FLEET.FLT_ENGINE_MODS column ENGINE_MOD_CODE.) Default: NONE.
apuName	xs:string	*		Name of auxiliary power unit used by this type of aircraft.
groundSupportEquipmentLTOOperationSet	-	*		Supports legacy EDMS studies relating to content contained in the GSE_POPULATION table. This element supports the definition of user defined ground support equipment in operational usage. See groundSupportEquipmentLTOOperationSet.

Attributes

None.

8.5 airframe



This element supports the definition of custom airframes.

Structure

See Notation for information about reading this table.

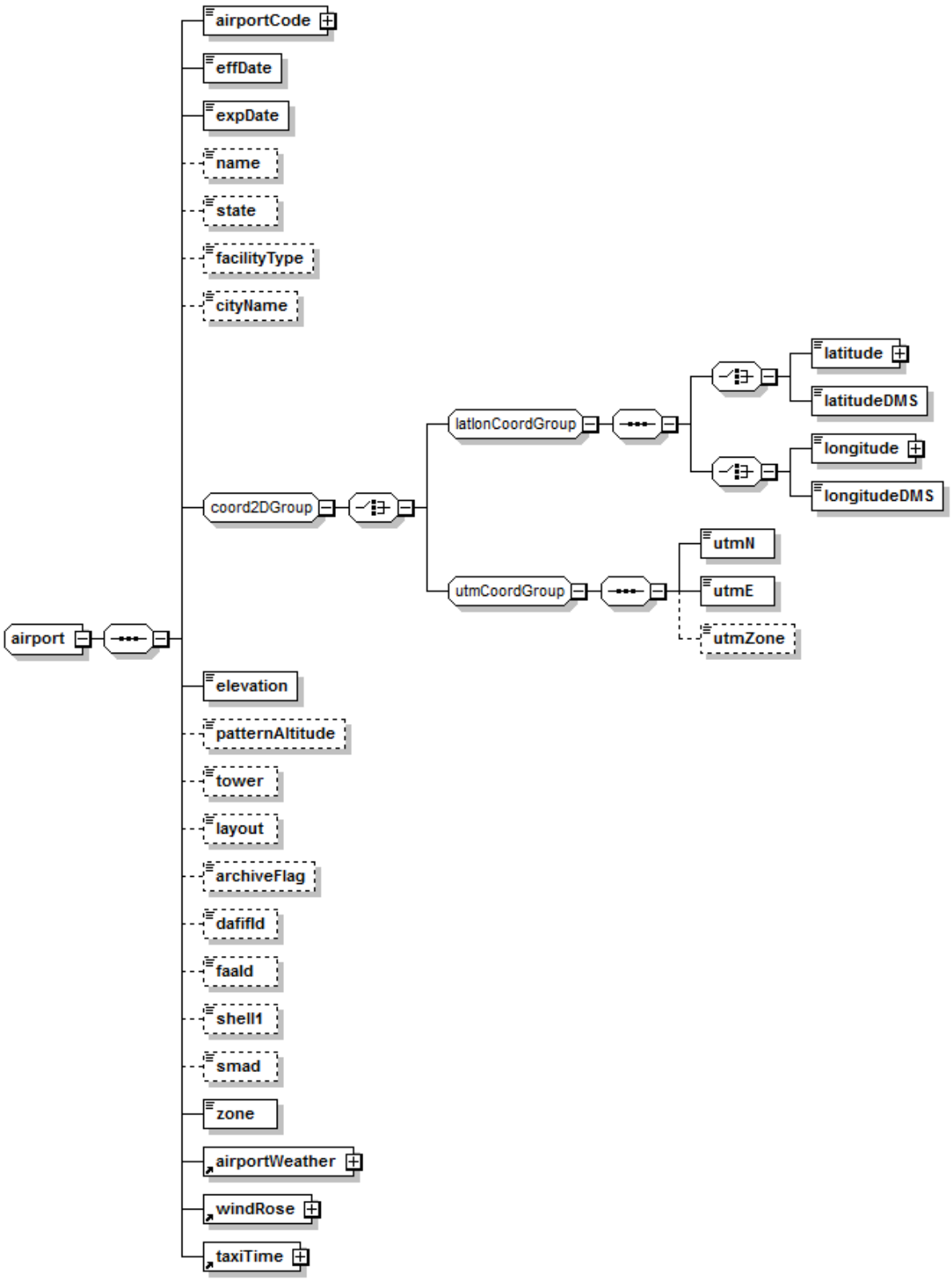
XML Tag	Type	Num	Description
model	airframeModel	1	Unique description of airframe.
engineCount	xs:int	1	Number of engines on airframe.
engineLocation	string1	1	Position of engine on airframe. Valid values: F (Fuselage/Tail), W (Wing).
designationCode	string1	1	Type of aviation. Valid values: C (Civil), G (General Aviation), M (Military).
maxRange	xs:int	*	Number of miles airframe can fly fully fueled. Valid values: Nonnegative.
introYear	xs:int	*	Year airframe was introduced. Valid values: Nonnegative.
euroGroupCode	string2	*	European group code for this airframe. Valid values: H1 (Helicopter Light), H2 (Helicopter Heavy), JB (Jet Business), JL (Jet Large), JM (Jet

XML Tag	Type	Num	Description
			Medium), JR (Jet Regional), JS (Jet Small), PP (Propeller), SS (Supersonic), TP (Turboprop).
usageCode	string1	1	Usage code for this airframe. Valid values: H (Heavy), L (Large), M (Medium), S (Small), T (Light), V (Very Light).
sizeCode	string1	1	Size code for this airframe. Valid values: H (Heavy), L (Large), M (Medium), S (Small), T (Light), V (Very Light).
engineType	string1	1	Type of engine on this airframe. Valid values: E (Electric), J (Jet), P (Piston), T (Turboprop).
auxiliaryPowerUnitId	apuName	*	Identifier of an auxiliary power unit.

Attributes

None.

8.6 airport


airport
airportCode
effDate
expDate
name
state
facilityType
cityName
coord2DGroup
latlonCoordGroup
latitude
latitudeDMS
longitude
longitudeDMS
utmCoordGroup
utmN
utmE
utmZone
elevation
patternAltitude
tower
layout
archiveFlag
dafifId
faaId
shell1
smad
zone
airportWeather
windRose
taxiTime

Contains core airport information such as airport name, latitude/longitude, elevation, etc.

Structure

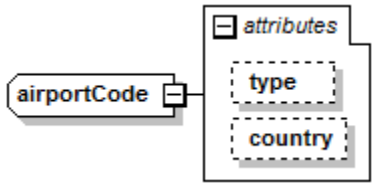
See Notation for information about reading this table.

XML Tag	Type	Num	Description
airportCode	airportCode	1	An airport code. See airportCode.
effDate	xs:date	1	Effective date for the airport.
expDate	xs:date	1	The expiration date for the airport.
name	string100	*	The name of airport.
state	string50	*	The airport state / territory name.
facilityType	string25	*	The facility type, i.e. airport, heliport, seaport
cityName	string50	*	The name of city closest to the airport.
coord2DGroup	-	1	Indicates how a two-dimensional group is specified. See coord2DGroup.
elevation	xs:double	1	Airport elevation above mean sea level. UNITS: Feet above MSL
patternAltitude	xs:int	*	Pattern altitude (where provided) above ground level. UNITS: Feet AGL
tower	xs:boolean	*	Flag to indicate if the airport has a tower.
layout	xs:boolean	*	Flag to indicate detailed layout information exists. Default: false.
archiveFlag	xs:boolean	*	Flag set to 1 if track, sub-track, segment, and group percentage data can be distributed. Default: false.
dafifId	string7	*	DAFIF Airport ID.
faaId	string15	*	FAA Airport ID.
shell1	xs:boolean	*	Indicates if this airport is a shell 1 airport. Default: false.
smad	xs:boolean	*	Indicates if airport is a JPDO Systems Modeling and Analysis Division analysis airport. Default: false.
zone	string100	1	Zone info data for airport.
airportWeather	-	1	NOAA weather station closest to the airport where meteorological data existed for each month. See airportWeather.
windRose	-	1	Wind rose station. See windRose.
taxiTime	-	1	Contains taxi start and end time data. See taxiTime.

Attributes

None.

8.7 airportCode

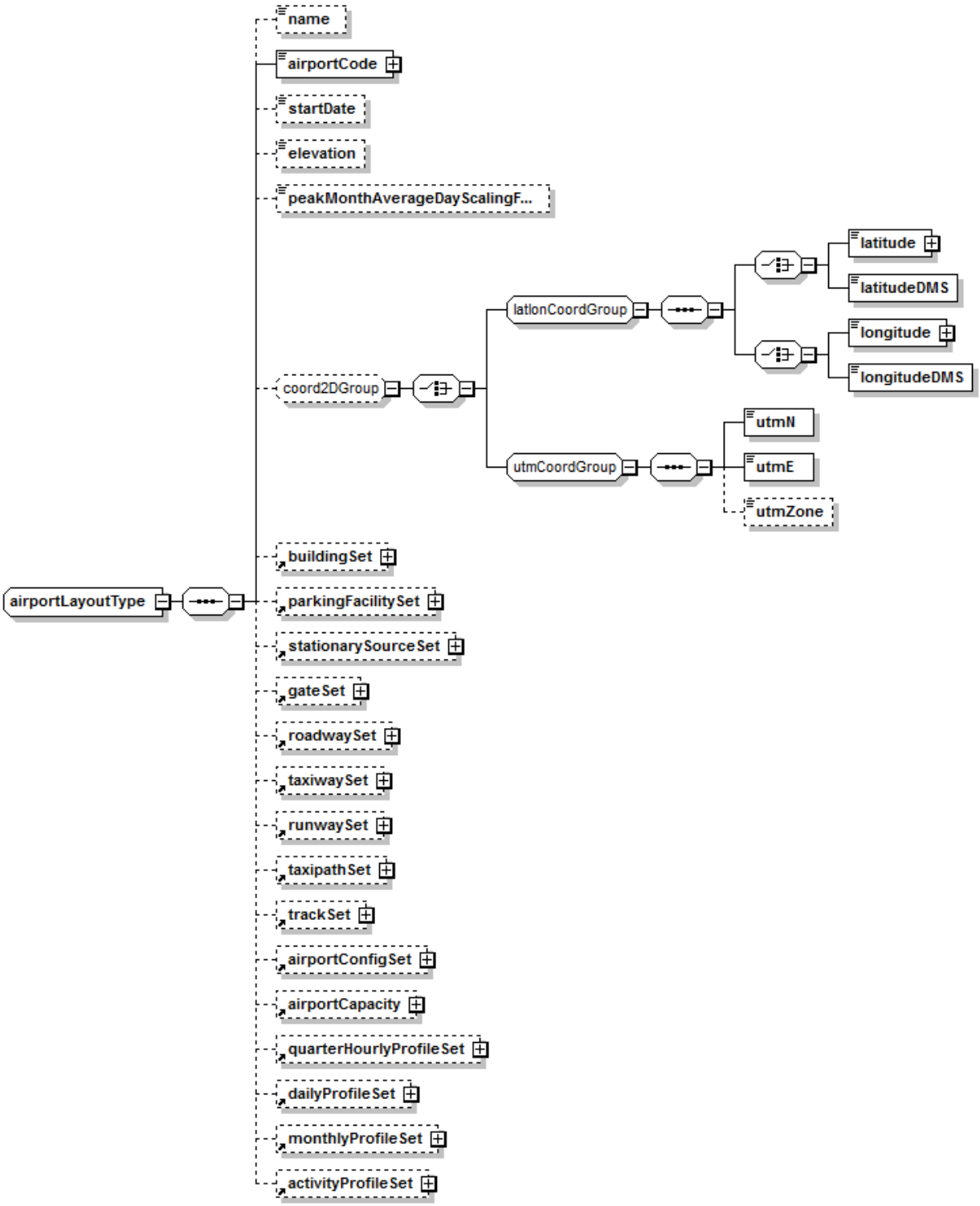


An airport code.

Attributes

XML Tag	Type	Use	Description
type	airportCodeType	optional	The type of an airport code.
country	string3	optional	A string up to three characters long.

8.8 airportLayoutType



Fields defining an airport and its layout.

Structure

See Notation for information about reading this table.

XML Tag	Type	Num	Description
name	string255	*	ID of the layout. Must be unique.
airportCode	airportCode	1	ICAO code of airport in the layout. See airportCode.
startDate	xs:date	*	Date airport is included in the study.
elevation	xs:double	*	The elevation above MSL (ft). This element is deprecated, and is here for legacy support only. Elevation should be represented under the user-defined airport tag.
peakMonthAverageDayScalingFactor	xs:double	*	Converts Average Annual Day operations to Peak Month Average Day operations. This is to comply with regulatory reporting requirements for the Peak Month Average Day emissions and fuel burn totals at individual airports. Default: 1.0.
coord2DGroup	-	*	Indicates how a two-dimensional group is specified. This element is deprecated, and is here for legacy support only. Airport coordinates should be represented under the user-defined airport tag. See coord2DGroup.
buildingSet	-	*	Supports legacy EDMS studies relating to content contained in the BUILDINGS table. This element supports the definition of airport buildings. These building sources affect the emitted point source plumes by essentially serving as obstacles to those sources, and therefore have a significant impact on concentrations resulting from stationary source emissions. Buildings have no effect on the concentrations estimated from volume and area sources such as

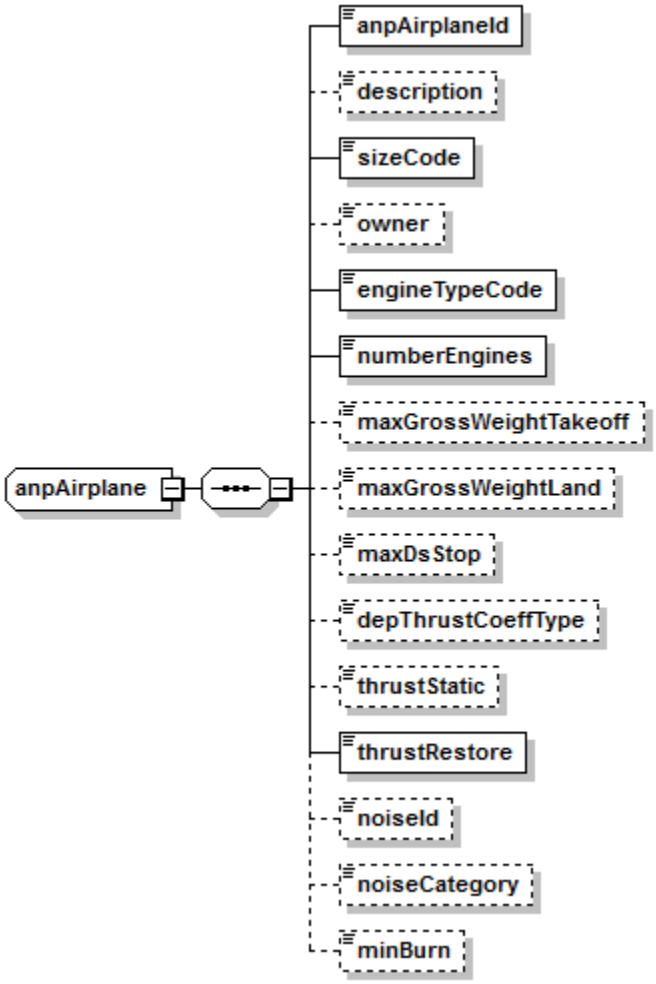
XML Tag	Type	Num	Description
			aircraft, APU, GSE, roadways, and parking facilities. See buildingSet.
parkingFacilitySet	-	*	Supports legacy EDMS studies relating to content contained in the PARKING table. This element supports the definition of parking lot and parking garage activities for scenario layouts. See parkingFacilitySet.
stationarySourceSet	-	*	Container of stationary sources contributing emissions. See stationarySourceSet.
gateSet	-	*	Supports legacy EDMS studies relating to content contained in the GATES table. This element supports the definition of gates within an airport layout. In dispersion analyses, GSE, AGE, and APU emissions originate from the gate locations. Gates are needed for sequence modeling, which includes all dispersion analyses. See gateSet.
roadwaySet	-	*	Supports legacy EDMS studies relating to content contained in the ROADWAYS table. This element supports the definition of vehicle activity on roadways for scenario layouts. See roadwaySet.
taxiwaySet	-	*	Supports legacy EDMS studies relating to the TAXIWAYS table. Taxiways determine the ground segments where the aircraft operates. See taxiwaySet.
runwaySet	-	*	Container for runways. See runwaySet.
taxipathSet	-	*	Supports legacy EDMS studies relating to the TAXIPATHS table. A taxipath is a sequence of taxiways, possibly just one, that connects a gate to a runway or vice versa. Taxipaths are used to do the modeling of aircraft ground movement. They are needed for sequence modeling, which includes all dispersion analyses. Gates,

XML Tag	Type	Num	Description
			taxiways and runways must be defined before taxipaths can be specified. See taxipathSet.
trackSet	-	*	A set of flight tracks. See trackSet.
airportConfigSet	-	?	Contains one or more airportConfig elements. See airportConfigSet.
airportCapacity	-	*	Supports legacy EDMS studies relating to content contained in the RUNWAY_CONFIGURATIONS table. This element supports the definition of airport capacities based on various points within an airport. See airportCapacity.
quarterHourlyProfileSet	-	*	Supports the definition and use of QUARTER_HOURLY_PROFILES for the quarter hourly variation of operations. See quarterHourlyProfileSet.
dailyProfileSet	-	*	Supports the definition and use of DAILY_PROFILES for the daily variation of operations. See dailyProfileSet.
monthlyProfileSet	-	*	Supports the definition and use of MONTHLY_PROFILES for the monthly variation of operations. See monthlyProfileSet.
activityProfileSet	-	*	Supports the definition and use of QUARTER_HOURLY_PROFILES, DAILY_PROFILES, and MONTHLY_PROFILES variation of operations. See activityProfileSet.

Attributes

None.

8.9 anpAirplane



Creates a new ANP airplane.

Structure

See Notation for information about reading this table.

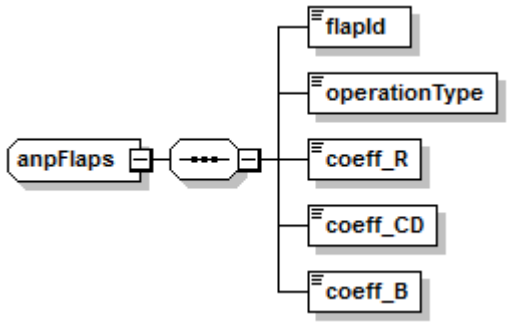
XML Tag	Type	Num	Description
anpAirplaneId	anpAirplaneId	1	ID of ANP airplane. Must be a new, unique value.
description	string255	*	Description of ANP airplane.
sizeCode	anpSizeCode	1	Size code for this airframe. Valid values: H (Heavy), L (Large), M (Medium), S (Small), T (Light), V (Very Light).
owner	anpOwnerType	*	The owner category: commercial, general aviation, military.

XML Tag	Type	Num	Description
engineTypeCode	engineType	1	The engine type code: prop, jet, turbo.
numberEngines	xs:int	1	Number of engines on this airplane. Valid values: 1 through 8.
maxGrossWeightTakeoff	xs:int	*	Maximum gross weight on takeoff (min = 0, max = 999999, lbs).
maxGrossWeightLand	xs:int	*	Maximum gross weight on landing (min = 0, max = 999999, lbs).
maxDsStop	xs:int	*	FAR landing field length at maximum landing weight (min =0, max = 20000, feet).
depThrustCoeffType	anpCoeffType	*	Type of thrust coefficients: J=jet, P=prop.
thrustStatic	xs:int	*	Static rated thrust or 100% thrust (lb, min =0, max = 200000).
thrustRestore	yesNoType	1	Flag indicating aircraft has automated thrust restoration system. Default: N.
noiseId	anpNoiseId	*	ID of a Noise Group.
noiseCategory	xs:int	*	The noise category stage number.
minBurn	xs:double	*	Minimum fuel burn rate. (kg/sec)

Attributes

None.

8.10 anpFlaps



Flaps data element.

Structure

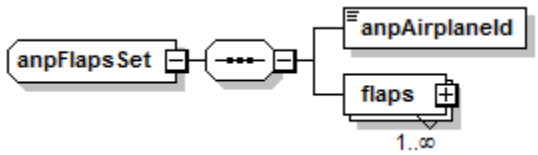
See Notation for information about reading this table.

XML Tag	Type	Num	Description
flapId	anpFlapId	1	Flap-setting identifier.It is recommended to use the following naming conventions: • Include a number in the flaps identifier to indicate the number of degrees that the flaps are extended. • For approach identifiers, use the prefix “U”, to indicate that the gear is up during descent and the prefix “D” to indicate that the gear is down. • Use “ZERO” to indicate that flaps are retracted. ZERO is often used in both departure and approach procedures, even though it is categorized as a departure identifier.
operationType	string1	1	Operation associated with this profile. Valid values: A (Approach), D (Depart), T (Touch&Go), F (CircuitFlt), V (OverFlt)
coeff_R	xs:double	1	The drag-over-lift ratio. Valid values: 0.0 to 1.34.
coeff_CD	xs:double	1	The takeoff and landing calibrated airspeed coefficient. Valid values: 0.0 to 1.34. (KNOTS/LB^1/2)
coeff_B	xs:double	1	The takeoff distance coefficient. Valid values: 0.0 to 1.34. (FEET/LB)

Attributes

None.

8.11 anpFlapsSet



Flap settings set for an ANP aircraft type.

Structure

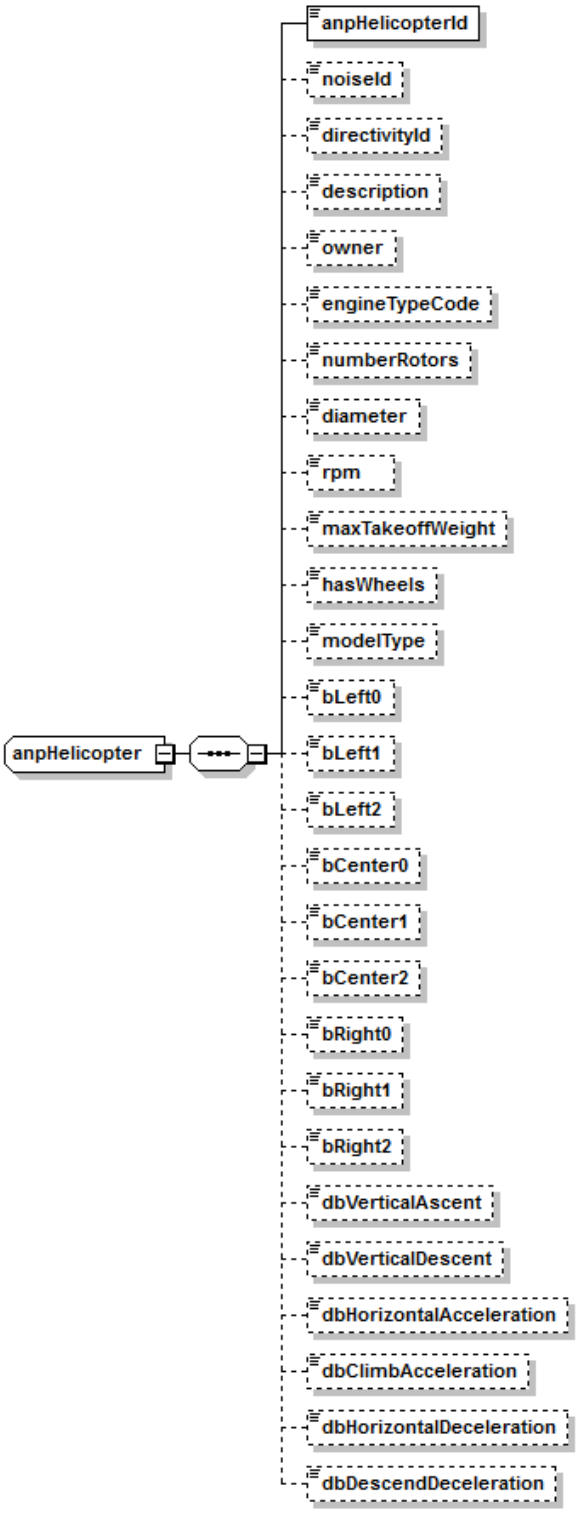
See Notation for information about reading this table.

XML Tag	Type	Num	Description
anpAirplaneId	anpAirplaneId	1	Airplane's ANP ID.
flaps	anpFlaps	*	Flaps data element. See anpFlaps.

Attributes

None.

8.12 anpHelicopter



Structure

See Notation for information about reading this table.

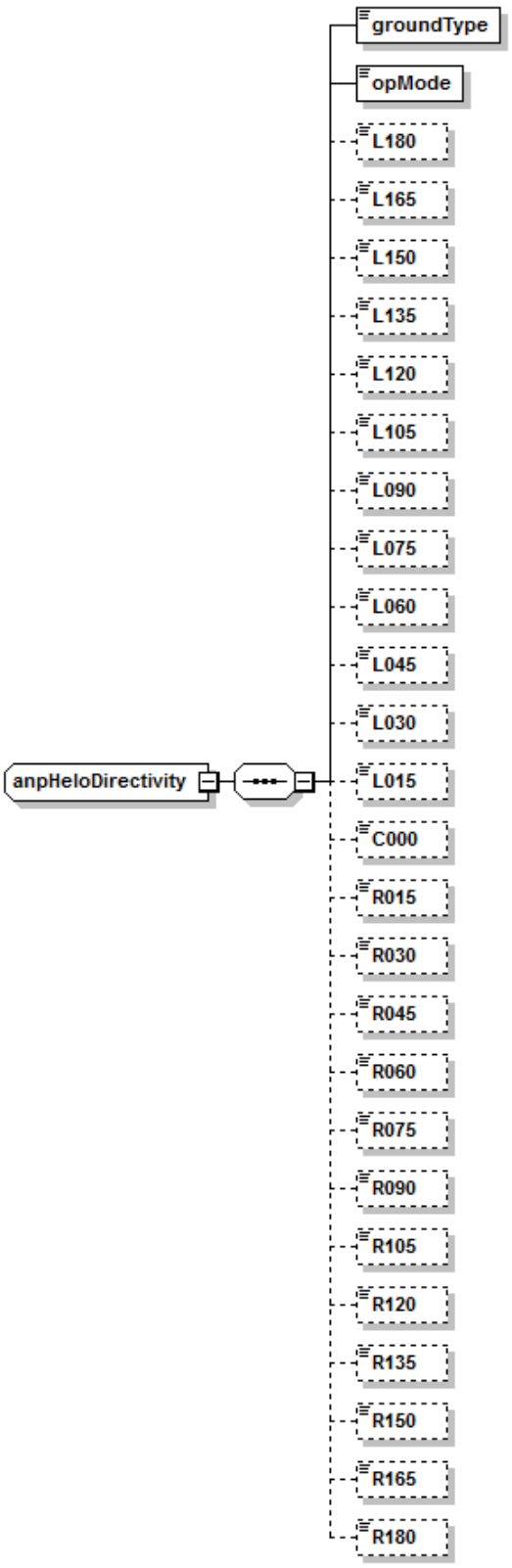
XML Tag	Type	Num	Description
anpHelicopterId	anpHeloId	1	Unique ID number of ANP Helicopter.
noiseId	anpHeloNoiseId	*	ID of a Noise Group.
directivityId	anpHeloDirectivityId	*	Noise directivity ID for ANP helicopter.
description	string255	*	Description of ANP Helicopter.
owner	anpOwnerType	*	The owner category. Valid values: C (commercial), G (general aviation), M (military).
engineTypeCode	engineType	*	The engine type code. Valid values: P (piston), J (jet), T (turboprop).
numberRotors	xs:int	*	The number of rotors. Valid values: 1 to 9.
diameter	xs:double	*	The helicopter diameter (feet). Valid values: 0 to 1000.
rpm	xs:double	*	The helicopter rotor speed (revolutions per minute). Valid values: 0 to 1000.
maxTakeoffWeight	xs:int	*	The max gross takeoff weight (pounds). Valid values: 0 to 50000.
hasWheels	yesNoType	*	Flag indicating if the helicopter has wheels. Valid values: Y (yes), N (no).
modelType	string1	*	The helicopter model type. Valid values: I (INM), N (NoiseMap).
bLeft0	xs:double	*	Adjust flyover noise as a function of speed, left. Valid values: Min = -999.99 Max = 999.99.
bLeft1	xs:double	*	Adjust flyover noise as a function of speed, left. Valid values: Min = -999.99 Max = 999.99.
bLeft2	xs:double	*	Adjust flyover noise as a function of speed, left. Valid values: Min = -999.99 Max = 999.99.
bCenter0	xs:double	*	Adjust flyover noise as a function of speed, center. Valid values: Min = -999.99 Max = 999.99.
bCenter1	xs:double	*	Adjust flyover noise as a function of speed, center. Valid values: Min = -999.99 Max = 999.99.

XML Tag	Type	Num	Description
bCenter2	xs:double	*	Adjust flyover noise as a function of speed, center. Valid values: Min = -999.99 Max = 999.99.
bRight0	xs:double	*	Adjust flyover noise as a function of speed, right. Valid values: Min = -999.99 Max = 999.99.
bRight1	xs:double	*	Adjust flyover noise as a function of speed, right. Valid values: Min = -999.99 Max = 999.99.
bRight2	xs:double	*	Adjust flyover noise as a function of speed, right. Valid values: Min = -999.99 Max = 999.99.
dbVerticalAscent	xs:double	*	Decibel offset added to NPD levels, vertical ascent (dB). Valid values: Min = -50 Max = 50.
dbVerticalDescent	xs:double	*	Decibel offset added to NPD levels, vertical descent (dB). Valid values: Min = -50 Max = 50.
dbHorizontalAcceleration	xs:double	*	Decibel offset added to NPD levels, depart horizontal acceleration (dB). Valid values: Min = -50 Max = 50.
dbClimbAcceleration	xs:double	*	Decibel offset added to NPD levels, depart with climbing acceleration (dB). Valid values: Min = -50 Max = 50.
dbHorizontalDeceleration	xs:double	*	Decibel offset added to NPD levels, approach with horizontal deceleration (dB). Valid values: Min = -50 Max = 50.
dbDescendDeceleration	xs:double	*	Decibel offset added to NPD levels, approach with descending deceleration (dB). Valid values: Min = -50 Max = 50.

Attributes

None.

8.13 anpHeloDirectivity



Structure

See Notation for information about reading this table.

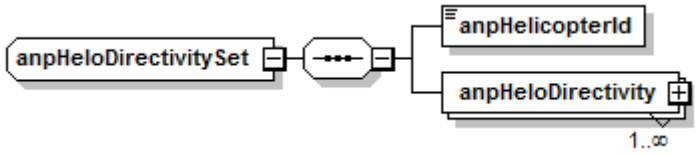
XML Tag	Type	Num	Description
groundType	anpHeloGroundType	1	Type of ground resistivity. Valid values: H (hard), S (soft), F (file), N (none).
opMode	string1	1	Operational Mode. Valid values: A (approach), D (departure).
L180	xs:double	*	Decibel adjustment at 180 degrees left of the nose (dB). Valid values: Min = -99.9 Max = 999.9.
L165	xs:double	*	Decibel adjustment at 165 degrees left of the nose (dB). Valid values: Min = -99.9 Max = 999.9.
L150	xs:double	*	Decibel adjustment at 150 degrees left of the nose (dB). Valid values: Min = -99.9 Max = 999.9.
L135	xs:double	*	Decibel adjustment at 135 degrees left of the nose (dB). Valid values: Min = -99.9 Max = 999.9.
L120	xs:double	*	Decibel adjustment at 120 degrees left of the nose (dB). Valid values: Min = -99.9 Max = 999.9.
L105	xs:double	*	Decibel adjustment at 105 degrees left of the nose (dB). Valid values: Min = -99.9 Max = 999.9.
L090	xs:double	*	Decibel adjustment at 90 degrees left of the nose (dB). Valid values: Min = -99.9 Max = 999.9.
L075	xs:double	*	Decibel adjustment at 75 degrees left of the nose (dB). Valid values: Min = -99.9 Max = 999.9.
L060	xs:double	*	Decibel adjustment at 60 degrees left of the nose (dB). Valid values: Min = -99.9 Max = 999.9.
L045	xs:double	*	Decibel adjustment at 45 degrees left of the nose (dB). Valid values: Min = -99.9 Max = 999.9.
L030	xs:double	*	Decibel adjustment at 30 degrees left of the nose (dB). Valid values: Min = -99.9 Max = 999.9.
L015	xs:double	*	Decibel adjustment at 0 degrees along the nose (dB). Valid values: Min = -99.9 Max = 999.9.
C000	xs:double	*	Decibel adjustment at 180 degrees left of the nose (dB). Valid values: Min = -99.9 Max = 999.9.
R015	xs:double	*	Decibel adjustment at 15 degrees right of the nose (dB). Valid values: Min = -99.9 Max = 999.9.
R030	xs:double	*	Decibel adjustment at 30 degrees right of the nose (dB). Valid values: Min = -99.9 Max = 999.9.
R045	xs:double	*	Decibel adjustment at 45 degrees right of the nose (dB). Valid values: Min = -99.9 Max = 999.9.

XML Tag	Type	Num	Description
R060	xs:double	*	Decibel adjustment at 60 degrees right of the nose (dB). Valid values: Min = -99.9 Max = 999.9.
R075	xs:double	*	Decibel adjustment at 75 degrees right of the nose (dB). Valid values: Min = -99.9 Max = 999.9.
R090	xs:double	*	Decibel adjustment at 90 degrees right of the nose (dB). Valid values: Min = -99.9 Max = 999.9.
R105	xs:double	*	Decibel adjustment at 105 degrees right of the nose (dB). Valid values: Min = -99.9 Max = 999.9.
R120	xs:double	*	Decibel adjustment at 120 degrees right of the nose (dB). Valid values: Min = -99.9 Max = 999.9.
R135	xs:double	*	Decibel adjustment at 135 degrees right of the nose (dB). Valid values: Min = -99.9 Max = 999.9.
R150	xs:double	*	Decibel adjustment at 150 degrees right of the nose (dB). Valid values: Min = -99.9 Max = 999.9.
R165	xs:double	*	Decibel adjustment at 165 degrees right of the nose (dB). Valid values: Min = -99.9 Max = 999.9.
R180	xs:double	*	Decibel adjustment at 180 degrees right of the nose (dB). Valid values: Min = -99.9 Max = 999.9.

Attributes

None.

8.14 anpHeloDirectivitySet



A set of helicopter directivities.

Structure

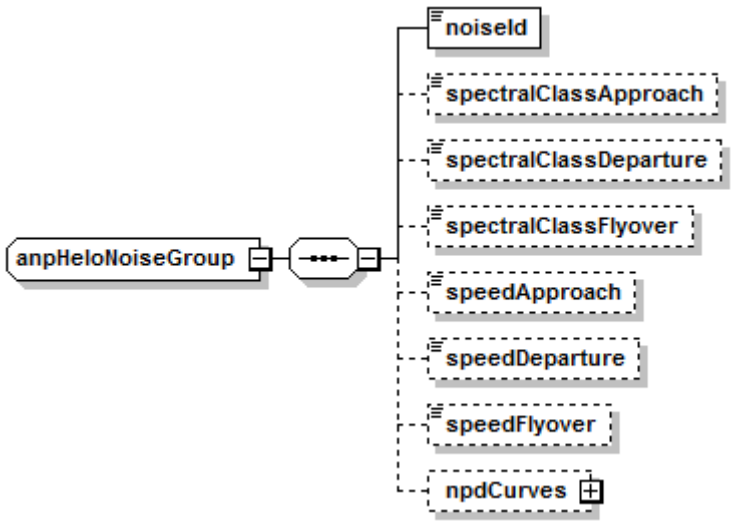
See Notation for information about reading this table.

XML Tag	Type	Num	Description
anpHelicopterId	anpHeloDirectId	1	Unique ID for ANP helicopters.
anpHeloDirectivity	anpHeloDirectivity	*	ANP Helicopter directivity.

Attributes

None.

8.15 anpHeloNoiseGroup



This element contains the three spectral class references for a given aircraft Noise group with the corresponding thrust setting type and model type.

Structure

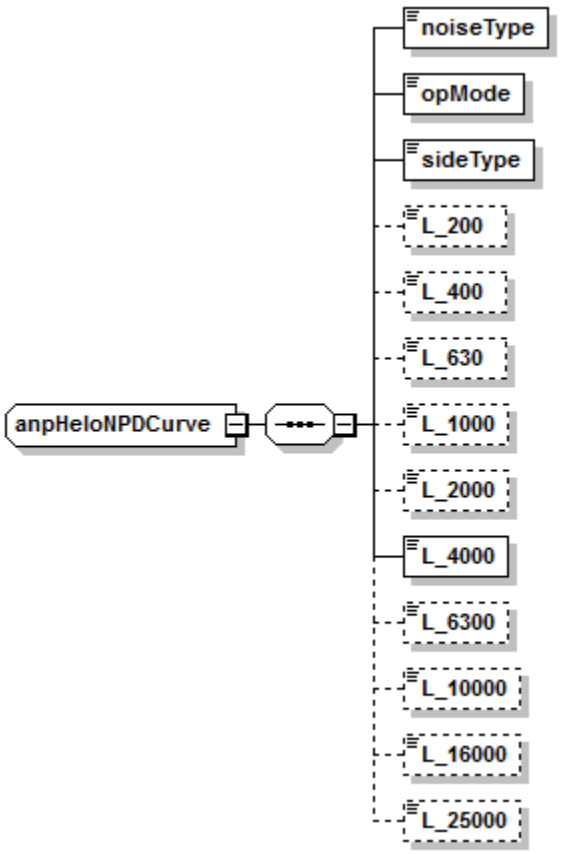
See Notation for information about reading this table.

XML Tag	Type	Num	Description
noiseId	anpHeloNoiseId	1	The noise group id.
spectralClassApproach	xs:short	*	The approach spectral class number. Valid values: 0 to 999.
spectralClassDeparture	xs:short	*	The departure spectral class number. Valid values: 0 to 999.
spectralClassFlyover	xs:short	*	The flyover spectral class number. Valid values: 0 to 999.
speedApproach	xs:double	*	N 6.1 Approach reference speed (knots). Valid values: Min = 0.0 Max = 250.0.
speedDeparture	xs:double	*	N 6.1 Depart reference speed (knots). Valid values: Min = 0.0 Max = 250.0..
speedFlyover	xs:double	*	N 6.1 Flyover reference speed (knots). Valid values: Min = 0.0 Max = 250.0.
npdCurves	anpHeloNPDCurves	*	The set of noise curves for this group. See anpHeloNPDCurves.

Attributes

None.

8.16 anpHeloNPDCurve



The Noise Power Distance curve table for a specified noise ID, noise type, operation mode, and thrust setting.

Structure

See Notation for information about reading this table.

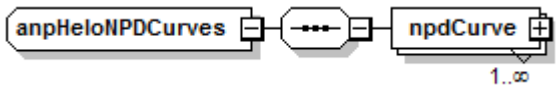
XML Tag	Type	Num	Description
noiseType	anpNpdNoiseType	1	Type of noise described by this curve. Valid values: S (SEL), M (LAMAX), E (EPNL), P (PNLTM).
opMode	anpNpdOpMode	1	Engine operation mode.
sideType	anpHeloSideType	1	Operation side type. Valid values: L (left), C (center), R (right), S (static)
L_200	xs:double	*	Decibel level at 200 feet AGL. Valid values: Min = -50.0 Max = 999.9.

XML Tag	Type	Num	Description
L_400	xs:double	*	Decibel level at 400 feet AGL. Valid values: Min = -50.0 Max = 999.9.
L_630	xs:double	*	Decibel level at 630 feet AGL. Valid values: Min = -50.0 Max = 999.9.
L_1000	xs:double	*	Decibel level at 1000 feet AGL. Valid values: Min = -50.0 Max = 999.9.
L_2000	xs:double	*	Decibel level at 2000 feet AGL. Valid values: Min = -50.0 Max = 999.9.
L_4000	xs:double	1	Decibel level at 4000 feet AGL. Valid values: Min = -50.0 Max = 999.9.
L_6300	xs:double	*	Decibel level at 6300 feet AGL. Valid values: Min = -50.0 Max = 999.9.
L_10000	xs:double	*	Decibel level at 10000 feet AGL. Valid values: Min = -50.0 Max = 999.9.
L_16000	xs:double	*	Decibel level at 16000 feet AGL. Valid values: Min = -50.0 Max = 999.9.
L_25000	xs:double	*	Decibel level at 25000 feet AGL. Valid values: Min = -50.0 Max = 999.9.

Attributes

None.

8.17 anpHeloNPDCurves



The set of noise curves.

Structure

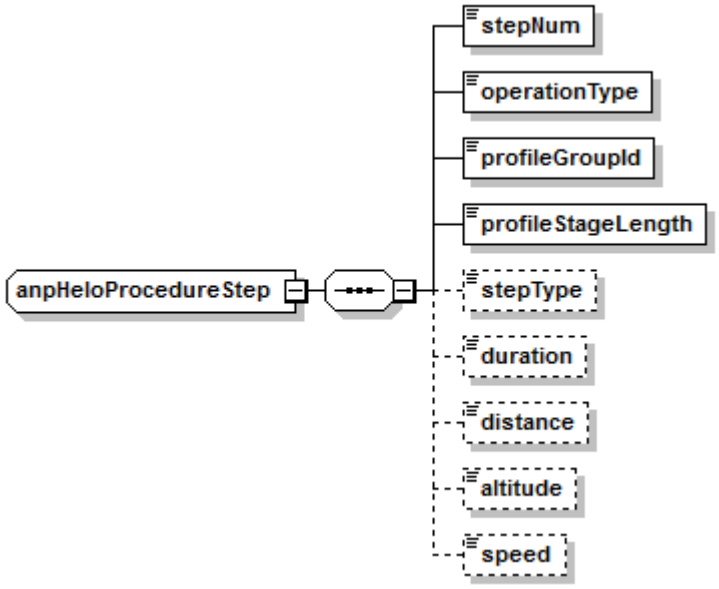
See Notation for information about reading this table.

XML Tag	Type	Num	Description
npdCurve	anpHeloNPDCurve	*	Base noise data interpolated/extrapolated upon according to slant range distance and thrust setting for aircraft. See anpHeloNPDCurve.

Attributes

None.

8.18 anpHeloProcedureStep



Procedure data element.

Structure

See Notation for information about reading this table.

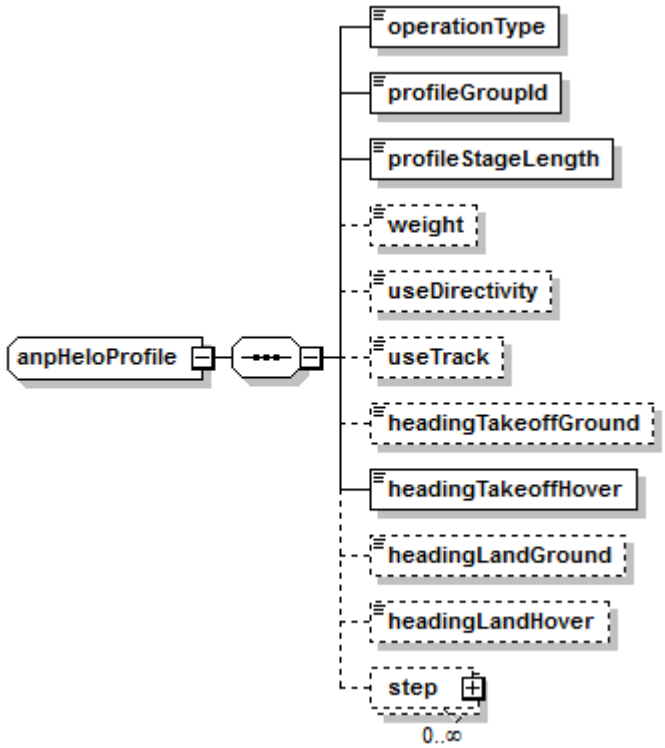
XML Tag	Type	Num	Description
stepNum	xs:int	1	Step number of the procedure. Must be unique in a sequence.
operationType	string1	1	Operation associated with this profile. Valid values: A (Approach), D (Depart), T (Touch&Go), F (CircuitFlt), V (OverFlt)
profileGroupId	string8	1	Profile group identifier. Valid values: STANDARD, NOISEMAP (INM standard data).
profileStageLength	string1	1	Profile stage number (min = 1, max = 9). Approach stage numbers are not related to trip distance. There is only one standard approach profile for most standard aircraft and its stage number is set to 1. Approach stage numbers are used to distinguish members of a group. For example, approach stage can mean different kinds of approaches (e.g. 1 = 3 degree approach, 2 = 5 degree approach).
stepType	string1	*	Type of step.
duration	xs:double	*	Procedure's duration (hours).
distance	xs:double	*	Distance along the ground relative to start (min = ?9999999.9, max = 9999999.9, feet).

XML Tag	Type	Num	Description
altitude	xs:double	*	Altitude of aircraft (min = -9999, max = 60000, feet).
speed	xs:double	*	Ground speed at this point (min = 0, max = 600, knots).

Attributes

None.

8.19 anpHeloProfile



Profile data element.

Structure

See Notation for information about reading this table.

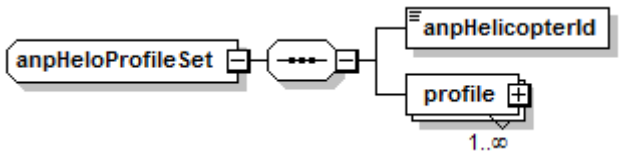
XML Tag	Type	Num	Description
operationType	string1	1	Operation associated with this profile. Valid values: A (Approach), D (Depart), T (Touch&Go), F (CircuitFlt), V (OverFlt)
profileGroupId	string8	1	Profile group identifier. Valid values: STANDARD, NOISEMAP (INM standard data).

XML Tag	Type	Num	Description
profileStageLength	string1	1	Profile stage number (min = 1, max = 9). Approach stage numbers are not related to trip distance. There is only one standard approach profile for most standard aircraft and its stage number is set to 1. Approach stage numbers are used to distinguish members of a group. For example, approach stage can mean different kinds of approaches (e.g. 1 = 3 degree approach, 2 = 5 degree approach).
weight	xs:int	*	Aircraft weight during this operation type. Valid values: 0 through 999999. (lb)
useDirectivity	yesNoType	*	Use directivity? Y=Yes N=No.
useTrack	yesNoType	*	Use track (static heading is relative to track)? Y=Yes N=No.
headingTakeoffGround	xs:double	*	Takeoff ground heading. Valid values: -180 through 360. (degrees)
headingTakeoffHover	xs:double	1	Takeoff hover heading. Valid values: -180 through 360. (degrees)
headingLandGround	xs:double	*	Landing ground heading. Valid values: -180 through 360. (degrees)
headingLandHover	xs:double	*	Landing hover heading. Valid values: -180 through 360. (degrees)
step	anpHeloProcedureStep	*	The procedure steps. See anpHeloProcedureStep.

Attributes

None.

8.20 anpHeloProfileSet



A profile set for an ANP helicopter.

Structure

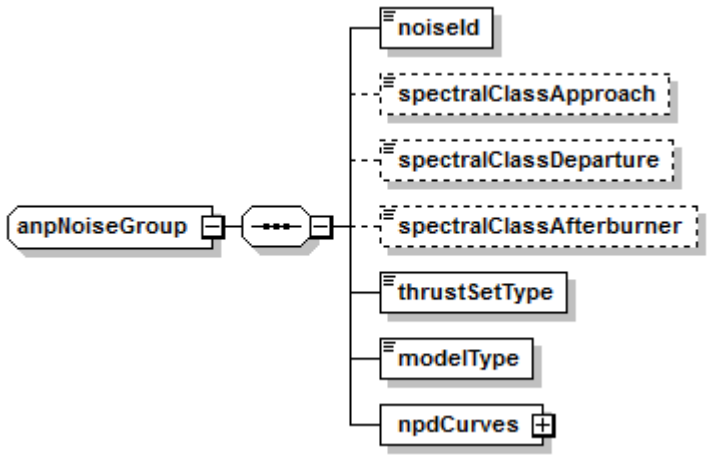
See Notation for information about reading this table.

XML Tag	Type	Num	Description
anpHelicopterId	anpHeloId	1	The anp helicopter id.
profile	anpHeloProfile	*	One or more ANP profiles. See anpHeloProfile.

Attributes

None.

8.21 anpNoiseGroup



This element contains the three spectral class references for a given aircraft Noise group with the corresponding thrust setting type and model type.

Structure

See Notation for information about reading this table.

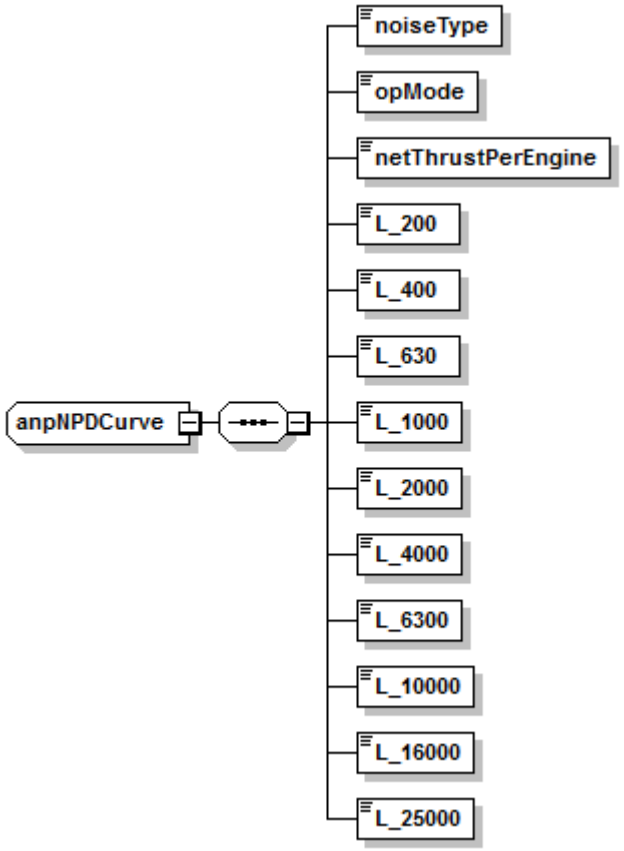
XML Tag	Type	Num	Description
noiseId	anpNoiseId	1	Noise group's ID.
spectralClassApproach	xs:short	*	Spectral class number for approach (min = 0, max = 999).
spectralClassDeparture	xs:short	*	Spectral class number for departure (min = 0, max = 999).
spectralClassAfterburner	xs:short	*	Spectral class number for afterburner (min = 0, max = 999).
thrustSetType	string1	1	Type of thrust setting. Valid values: L (pounds), P (percent), X (other).

XML Tag	Type	Num	Description
modelType	string1	1	Type of distance-duration model. Valid values: I (INM), N (NoiseMap).
npdCurves	anpNPDCurves	1	The set of noise curves for ANP aircraft. See anpNPDCurves.

Attributes

None.

8.22 anpNPDCurve



The Noise Power Distance curve table for a specified noise ID, noise type, operation mode, and thrust setting.

Structure

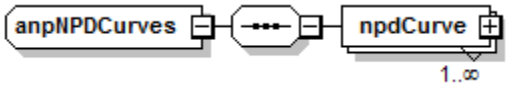
See Notation for information about reading this table.

XML Tag	Type	Num	Description
noiseType	anpNpdNoiseType	1	Type of noise described by this curve. Valid values: S (SEL), M (LAMAX), E (EPNL), P (PNLTM).
opMode	anpNpdOpMode	1	Engine operation mode. Valid values: A (Approach), D (Depart), X (Afterburner)
netThrustPerEngine	xs:double	1	Net thrust per engine (min = 0.10, max = 99999.00, lbs. or percentage depending on parent noise group THRUST_SET_TYPE value).
L_200	xs:double	1	Decibel level at 200 feet AGL. Valid values: Min = -50.0 Max = 999.9.
L_400	xs:double	1	Decibel level at 400 feet AGL. Valid values: Min = -50.0 Max = 999.9.
L_630	xs:double	1	Decibel level at 630 feet AGL. Valid values: Min = -50.0 Max = 999.9.
L_1000	xs:double	1	Decibel level at 1000 feet AGL. Valid values: Min = -50.0 Max = 999.9.
L_2000	xs:double	1	Decibel level at 2000 feet AGL. Valid values: Min = -50.0 Max = 999.9.
L_4000	xs:double	1	Decibel level at 4000 feet AGL. Valid values: Min = -50.0 Max = 999.9.
L_6300	xs:double	1	Decibel level at 6300 feet AGL. Valid values: Min = -50.0 Max = 999.9.
L_10000	xs:double	1	Decibel level at 10000 feet AGL. Valid values: Min = -50.0 Max = 999.9.
L_16000	xs:double	1	Decibel level at 16000 feet AGL. Valid values: Min = -50.0 Max = 999.9.
L_25000	xs:double	1	Decibel level at 25000 feet AGL. Valid values: Min = -50.0 Max = 999.9.

Attributes

None.

8.23 anpNPDCurves



The set of defined noise curves.

Structure

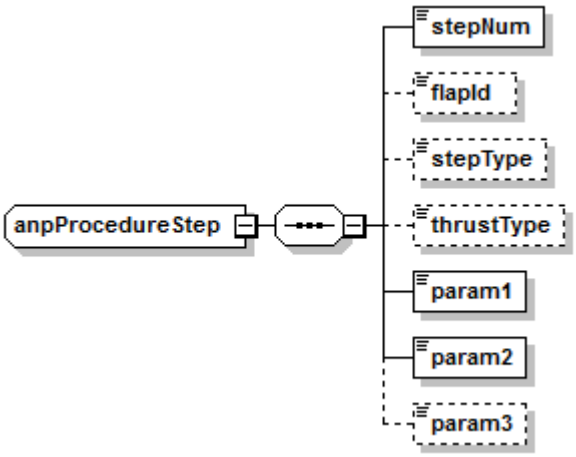
See Notation for information about reading this table.

XML Tag	Type	Num	Description
npdCurve	anpNPDCurve	*	Base noise data interpolated/extrapolated upon according to slant range distance and thrust setting for aircraft. See anpNPDCurve.

Attributes

None.

8.24 anpProcedureStep



A single procedure step datum for the profile.

Structure

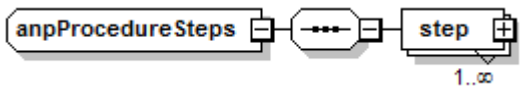
See Notation for information about reading this table.

XML Tag	Type	Num	Description
stepNum	xs:int	1	Step number of the procedure. Must be unique in a sequence.
flapId	anpFlapId	*	Flap-setting identifier.
stepType	string1	*	Type of step.
thrustType	string1	*	Type of thrust.
param1	xs:double	1	Parameter particular for this step type (min = 9999.0, max = 60000.0).
param2	xs:double	1	Parameter particular for this step type (min = 0, max = 600.0).
param3	xs:double	*	Parameter particular for this step type (min = 0.0, max = 9999999.9).

Attributes

None.

8.25 anpProcedureSteps



A set of procedure steps for the profile.

Structure

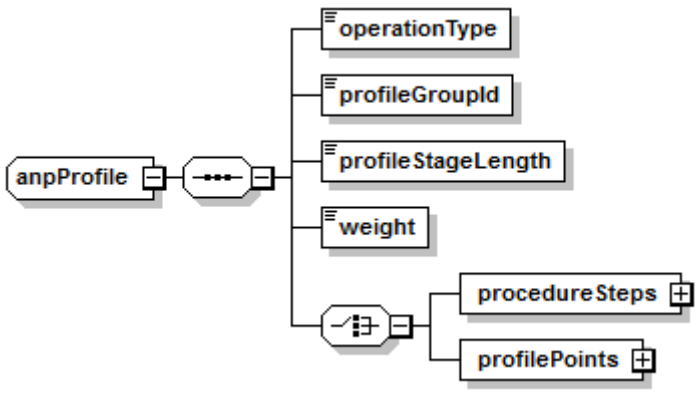
See Notation for information about reading this table.

XML Tag	Type	Num	Description
step	anpProcedureStep	*	An ANP procedure step. See anpProcedureStep.

Attributes

None.

8.26 anpProfile



Profile data element.

Structure

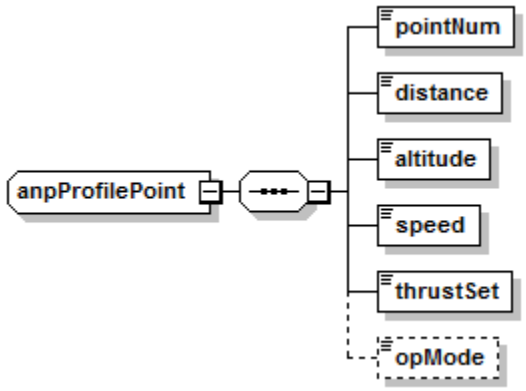
See Notation for information about reading this table.

XML Tag	Type	Num	Choice	Description
operationType	string1	1		Operation associated with this profile. Valid values: A (Approach), D (Depart), T (Touch&Go), F (CircuitFlt), V (OverFlt)
profileGroupId	string8	1		Profile group identifier. Valid values: STANDARD, NOISEMAP (INM standard data).
profileStageLength	string1	1		Profile stage number (min = 1, max = 9). Approach stage numbers are not related to trip distance. There is only one standard approach profile for most standard aircraft and its stage number is set to 1. Approach stage numbers are used to distinguish members of a group. For example, approach stage can mean different kinds of approaches (e.g. 1 = 3 degree approach, 2 = 5 degree approach).
weight	xs:int	1		Aircraft weight during this operation type (min = 0, max = 999999, lbs).
procedureSteps	anpProcedureSteps	1	a	Set of procedure steps associated with this profile. See anpProcedureSteps.
profilePoints	anpProfilePoints	1	a	Set of points associated with this profile. See anpProfilePoints.

Attributes

None.

8.27 anpProfilePoint



A single profile point data element.

Structure

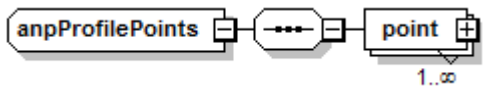
See Notation for information about reading this table.

XML Tag	Type	Num	Description
pointNum	xs:short	1	Point index number. Must be sequential and unique, starting at 1.
distance	xs:double	1	Distance along the ground relative to start (min = ?9999999.9, max = 9999999.9, feet).
altitude	xs:double	1	Altitude of aircraft (min = -9999, max = 60000, feet).
speed	xs:double	1	Ground speed at this point (min = 0, max = 600, knots).
thrustSet	xs:double	1	Corrected net thrust per engine at this point (min = 0.1, max = 99999, klbs or % max thrust).
opMode	string1	*	Operational mode. Valid values: A (Approach), D (Departure), X (Overflight).

Attributes

None.

8.28 anpProfilePoints



A set of point profile data.

Structure

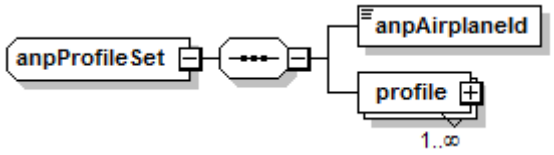
See Notation for information about reading this table.

XML Tag	Type	Num	Description
point	anpProfilePoint	*	A single profile point data element. See anpProfilePoint.

Attributes

None.

8.29 anpProfileSet



A profile set for an ANP airplane.

Structure

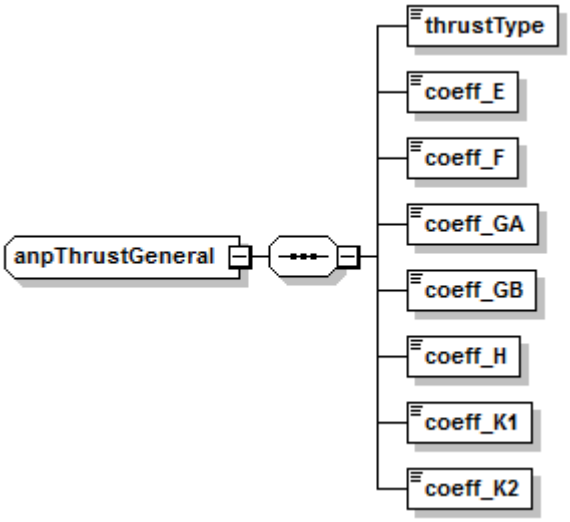
See Notation for information about reading this table.

XML Tag	Type	Num	Description
anpAirplaneId	anpAirplaneId	1	Airplane's ANP ID.
profile	anpProfile	*	One or more ANP profiles. See anpProfile.

Attributes

None.

8.30 anpThrustGeneral



General thrust data for an ANP aircraft.

Structure

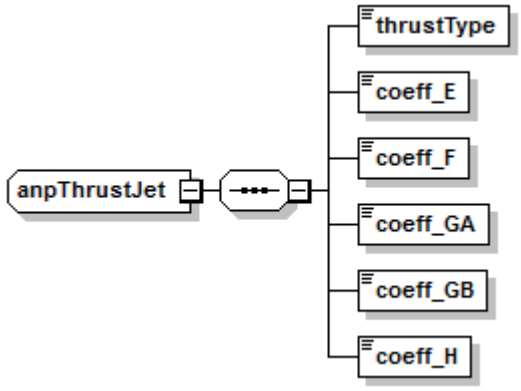
See Notation for information about reading this table.

XML Tag	Type	Num	Description
thrustType	string1	1	The type of generalized thrust-setting.
coeff_E	xs:double	1	Corrected net thrust per engine coefficient. Valid values: -199999.9 through 99999.9. (lb).
coeff_F	xs:double	1	Speed (TAS) adjustment coefficient. Valid values: -200.00000 through 1000.00000. (lb/knot TAS at sea level and 59°F)
coeff_GA	xs:double	1	Altitude adjustment coefficient at MSL. (lb/ft)
coeff_GB	xs:double	1	Altitude-squared adjustment coefficient at MSL. (lb/ft^2)
coeff_H	xs:double	1	Temperature adjustment coefficient. (lb/°C)
coeff_K1	xs:double	1	EPR or N1/sqrt(theta) adjustment coefficient. (lb/EPR)
coeff_K2	xs:double	1	EPR- or N1/sqrt(theta)-squared adjustment coefficient. (lb/EPR2)

Attributes

None.

8.31 anpThrustJet



Jet thrust data for an ANP aircraft.

Structure

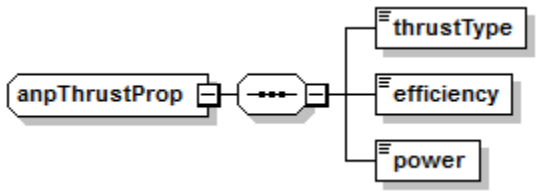
See Notation for information about reading this table.

XML Tag	Type	Num	Description
thrustType	string1	1	Type of thrust. Primary key UNITS: T = Max Takeoff, S = High Temp Takeoff, C = Max Climb, B = High Temp Climb, N = Max Continuous, M = High Temp Continuous
coeff_E	xs:double	1	Corrected net thrust per engine coefficient. Valid values: 0.0 through 500000.0. (lb)
coeff_F	xs:double	1	Speed (TAS) adjustment coefficient. Valid values: -200.00000 through 1000.00000. (lb/knot TAS at sea level and 59°F)
coeff_GA	xs:double	1	Altitude adjustment coefficient at MSL. (lb/ft)
coeff_GB	xs:double	1	Altitude-squared adjustment coefficient at MSL. (lb/ft^2)
coeff_H	xs:double	1	Temperature adjustment coefficient. (lb/°C)

Attributes

None.

8.32 anpThrustProp



Prop thrust data for an ANP aircraft.

Structure

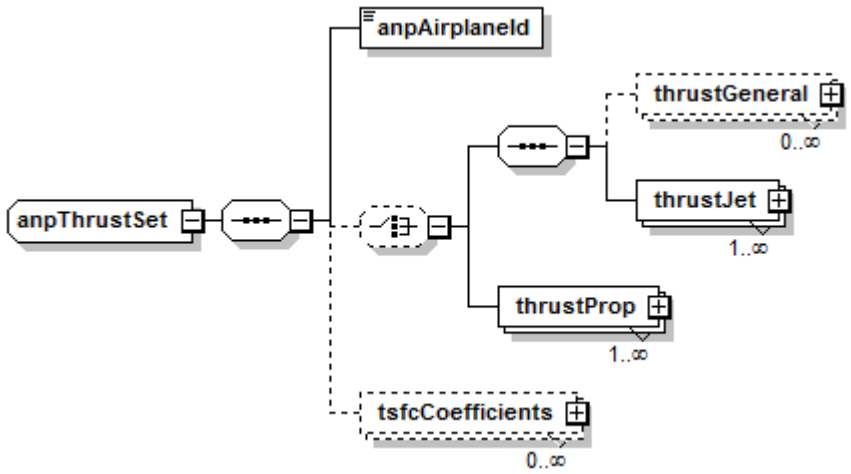
See Notation for information about reading this table.

XML Tag	Type	Num	Description
thrustType	string1	1	Type of thrust.
efficiency	xs:double	1	The propeller efficiency ratio. Valid values: 0.50 to 1.00.
power	xs:double	1	Net propulsive power per engine (HP). Valid values: 0 to 9999.9.

Attributes

None.

8.33 anpThrustSet



Specifies a set of thrust records for an ANP airplane.

Structure

See Notation for information about reading this table.

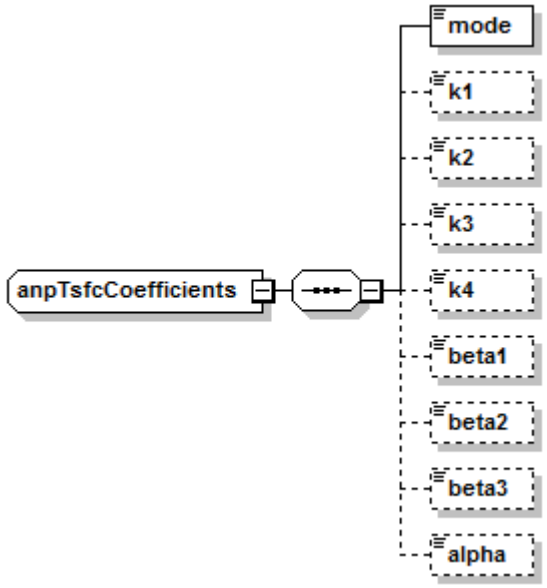
XML Tag	Type	Num	Choice	Description
anpAirplaneId	anpAirplaneId	1		Airplane's ANP ID.
thrustGeneral	anpThrustGeneral	*	a	General thrust data for an ANP aircraft. See anpThrustGeneral.
thrustJet	anpThrustJet	*		Jet thrust data for an ANP aircraft. See anpThrustJet.

XML Tag	Type	Num	Choice	Description
thrustProp	anpThrustProp	*	a	Prop thrust data for an ANP aircraft. See anpThrustProp.
tsfcCoefficients	anpTsfcCoefficients	*		TSFC coefficient data for an ANP aircraft. See anpTsfcCoefficients.

Attributes

None.

8.34 anpTsfcCoefficients



TSFC coefficient data for an ANP aircraft.

Structure

See Notation for information about reading this table.

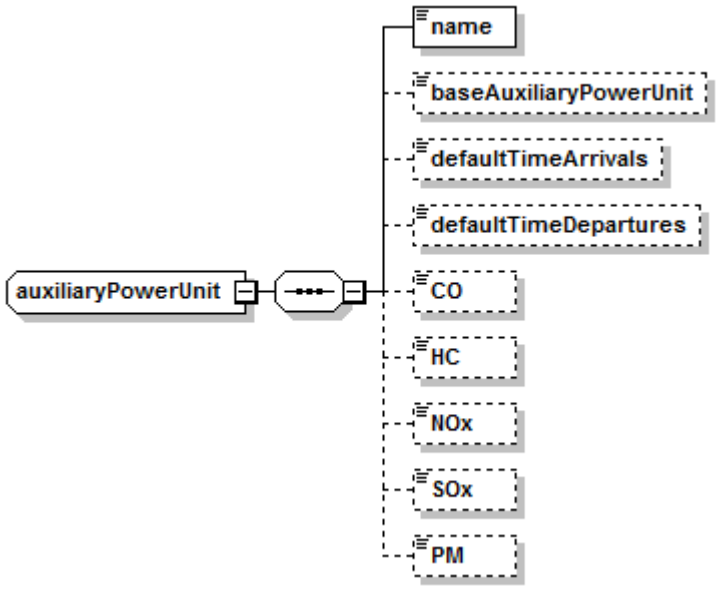
XML Tag	Type	Num	Description
mode	string1	1	Arrival or departure mode.
k1	xs:double	*	Departure thrust specific fuel consumption constant coefficient.
k2	xs:double	*	Departure thrust specific fuel consumption Mach number coefficient.
k3	xs:double	*	Departure thrust specific fuel consumption altitude coefficient.
k4	xs:double	*	Departure thrust specific fuel consumption thrust coefficient.
beta1	xs:double	*	Arrival thrust specific fuel consumption Mach number coefficient.
beta2	xs:double	*	Arrival thrust specific fuel consumption altitude coefficient.

XML Tag	Type	Num	Description
beta3	xs:double	*	Arrival thrust specific fuel consumption thrust coefficient.
alpha	xs:double	*	Arrival thrust specific fuel consumption constant coefficient.

Attributes

None.

8.35 auxiliaryPowerUnit



This element supports the definition of custom auxiliary power units. These are most often on-board generators that provide electrical power to the aircraft while its engines are shut down.

Structure

See Notation for information about reading this table.

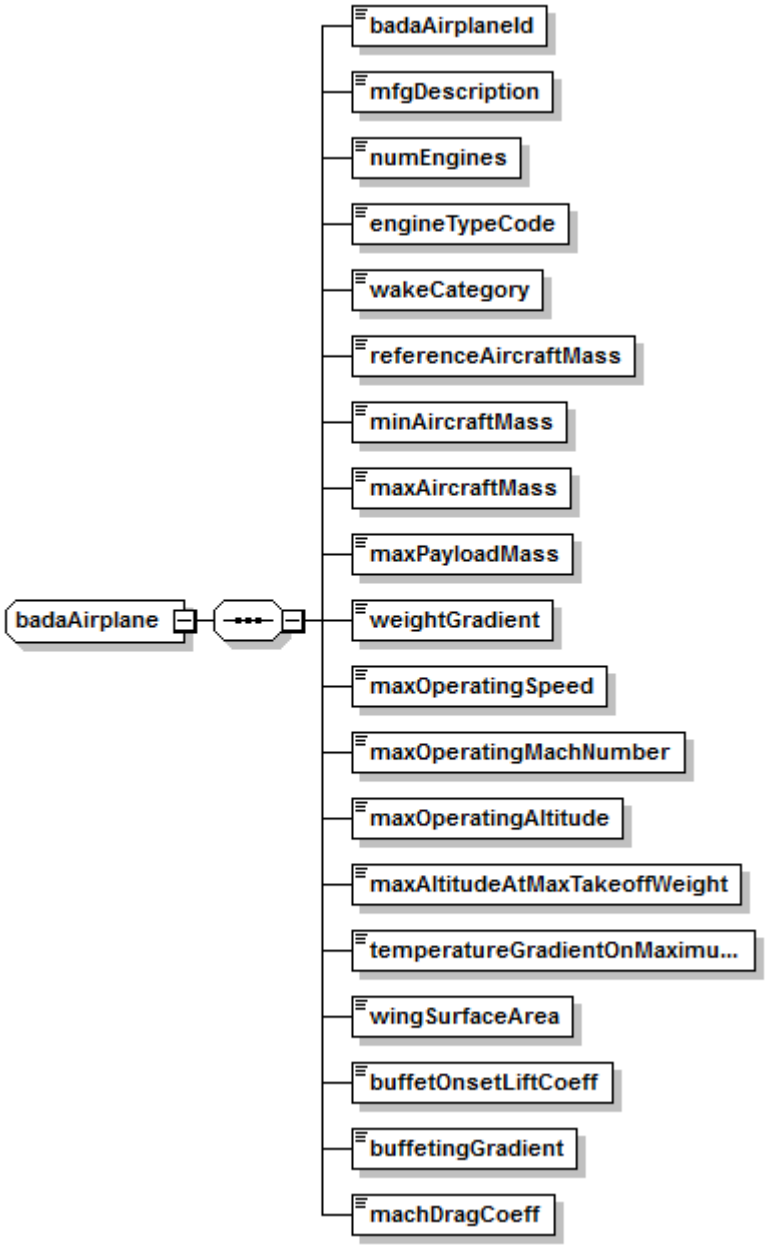
XML Tag	Type	Num	Description
name	apuName	1	Identifying name of APU.
baseAuxiliaryPowerUnit	apuName	*	Base reference name, typically a system name.
defaultTimeArrivals	xs:double	*	Default length of time APU used for powering arrival aircraft (minutes). Valid values: Nonnegative. Default: 0.
defaultTimeDepartures	xs:double	*	Default length of time APU used for powering departure aircraft (minutes). Valid values: Nonnegative. Default: 0.

XML Tag	Type	Num	Description
CO	xs:double	*	Amount of carbon monoxide emitted (kg/hour). Valid values [0…1,000].
HC	xs:double	*	Amount of hydrocarbons emitted (kg/hour). Valid values [0…1,000].
NOx	xs:double	*	Amount of nitrous noxide emitted (kg/hour). Valid values [0…1,000].
SOx	xs:double	*	Amount of sulfur oxide emitted (kg/hour). Valid values [0…1,000].
PM	xs:double	*	Amount of particulate matter emitted (kg/hour). Valid values [0…1,000].

Attributes

None.

8.36 badaAirplane



Block used to create a user defined BADA airplane.

Structure

See Notation for information about reading this table.

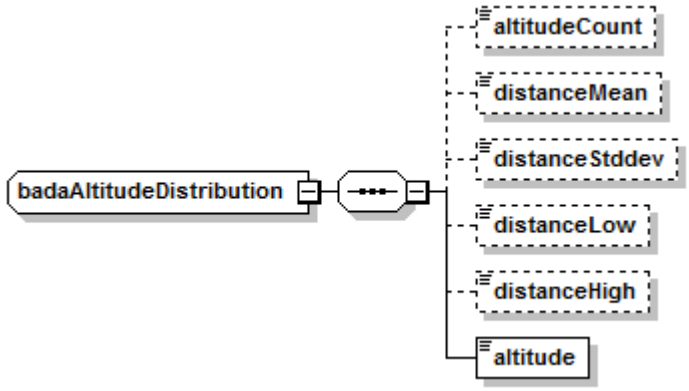
XML Tag	Type	Num	Description
badaAirplaneId	badaAirplaneId	1	ID of a BADA airplane model. Must be unique.
mfgDescription	string255	1	Manufacturer description.
numEngines	xs:int	1	The number of engines.
engineTypeCode	engineType	1	The engine type code: J/T/P.
wakeCategory	badaWakeType	1	The wake category.
referenceAircraftMass	xs:double	1	Minimum aircraft mass (min = 0.0, max = 455.0, metric ton).
minAircraftMass	xs:double	1	Minimum aircraft mass (min = 0.0, max = 455.0, metric ton).
maxAircraftMass	xs:double	1	Maximum aircraft mass (min = 0.0, max = 455.0, metric ton).
maxPayloadMass	xs:double	1	Maximum payload mass (min = 0.0, max = 455.0, (metric ton).
weightGradient	xs:double	1	Weight gradient on maximum altitude (min = 0.0, max = 10.0, feet/kg).
maxOperatingSpeed	xs:double	1	Maximum operating speed (min = 0.0, max = 600.0, knots cas).
maxOperatingMachNumber	xs:double	1	Maximum operating Mach number (min = 0.0, max = 10.0, mach).
maxOperatingAltitude	xs:double	1	Maximum operating altitude (min = ?9999.0, max = 60000.0, feel MSL).
maxAltitudeAtMaxTakeoffWeight	xs:double	1	Maximum altitude at maximum takeoff weight and ISA (min = ?9999.0, max = 60000.0, feel MSL).
temperatureGradientOnMaximumAltitude	xs:double	1	Temperature gradient on maximum altitude.
wingSurfaceArea	xs:double	1	Wing surface area (min = 0.0, max = 1000.0, square meters).
buffetOnsetLiftCoeff	xs:double	1	Buffet onset lift coefficient (jet only) (min = 0.0, max = 10.0).
buffetingGradient	xs:double	1	Buffeting gradient (jet only).

XML Tag	Type	Num	Description
machDragCoeff	xs:double	1	Mach drag coefficient (min = 0.0, max = 10.0).

Attributes

None.

8.37 badaAltitudeDistribution



BADA altitude distribution data.

Structure

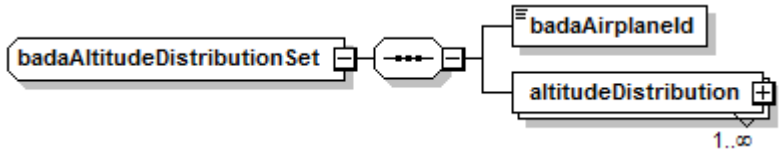
See Notation for information about reading this table.

XML Tag	Type	Num	Description
altitudeCount	xs:int	*	Flight counts for a selected altitude.
distanceMean	xs:double	*	Mean distance for a selected altitude. (nMi).
distanceStddev	xs:double	*	Standard deviation for the distance of a selected altitude. (nMi).
distanceLow	xs:double	*	Min distance for a selected altitude. (nMi).
distanceHigh	xs:double	*	Maximum distance for a selected altitude. (nMi).
altitude	xs:int	1	The selected cruise altitude. (ft)

Attributes

None.

8.38 badaAltitudeDistributionSet



A block for defining a BADA altitude distribution set.

Structure

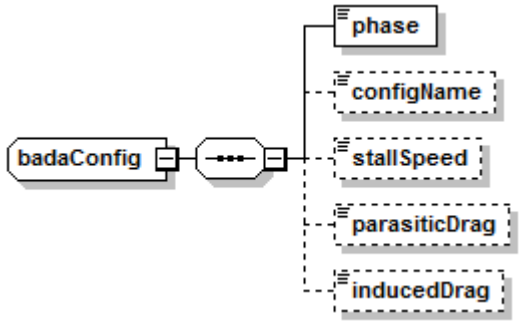
See Notation for information about reading this table.

XML Tag	Type	Num	Description
badaAirplaneId	badaAirplaneId	1	Airplane's BADA ID.
altitudeDistribution	badaAltitudeDistribution	*	BADA altitude distribution data. See badaAltitudeDistribution.

Attributes

None.

8.39 badaConfig



BADA Configuration Coefficient data.

Structure

See Notation for information about reading this table.

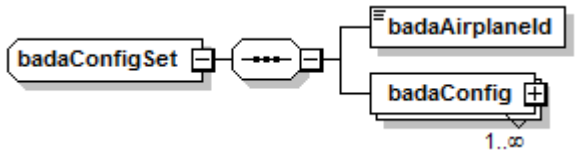
XML Tag	Type	Num	Description
phase	badaPhaseType	1	.The phase of flight (IC=initial climb, TO=take-off, AP=approach, LD=landing).
configName	string10	*	The configuration identifier.

XML Tag	Type	Num	Description
stallSpeed	xs:double	*	Stall speed, CAS. Valid values: 0.0 through 600.0. (kts)
parasiticDrag	xs:double	*	The parasitic drag coefficient. Valid values: 0.0 through 10.0.
inducedDrag	xs:double	*	The induced drag coefficient. Valid values: 0.0 through 10.0.

Attributes

None.

8.40 badaConfigSet



A block for a custom BADA airplane configuration coefficient set.

Structure

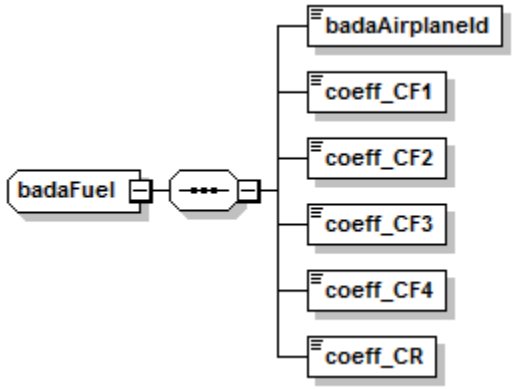
See Notation for information about reading this table.

XML Tag	Type	Num	Description
badaAirplaneId	badaAirplaneId	1	The BADA airplane ID for the profile set.
badaConfig	badaConfig	*	The BADA configuration coefficient data. See badaConfig.

Attributes

None.

8.41 badaFuel



A BADA Fuel data record.

Structure

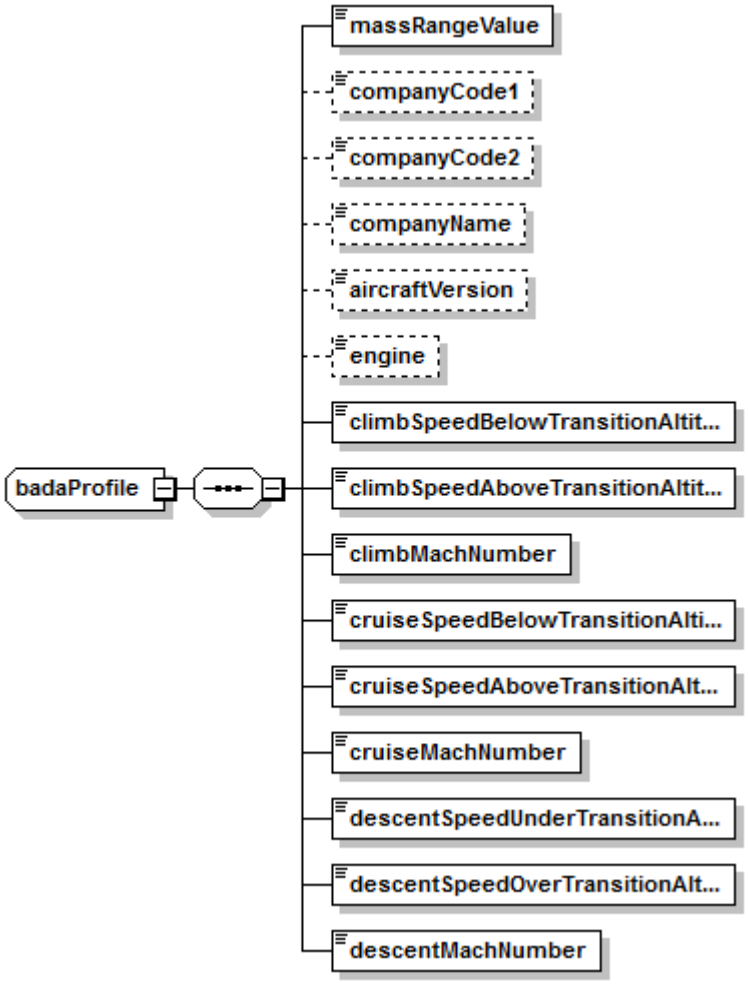
See Notation for information about reading this table.

XML Tag	Type	Num	Description
badaAirplaneId	badaAirplaneId	1	The BADA aircraft ID
coeff_CF1	xs:double	1	1st thrust specific fuel consumption coefficient. Valid values: 0.0 through 10.0. Variable units. (kg/(min•kN) (jet); kg/(min•kN•knot); (turboprop); kg/min (piston))
coeff_CF2	xs:double	1	2nd thrust specific fuel consumption coefficient. Valid values: 0.0 through 1. (kts)
coeff_CF3	xs:double	1	1st descent fuel flow coefficient. Min= Valid values: 0.0 through 100.0.(kg/min)
coeff_CF4	xs:double	1	2nd descent fuel flow coefficient. Valid values: 0.0 through 1. (ft)
coeff_CR	xs:double	1	Cruise fuel flow correction coefficient. Valid values: 0.0 through 10.0.

Attributes

None.

8.42 badaProfile



A BADA profile APF (airline procedures file) record.

Structure

See Notation for information about reading this table.

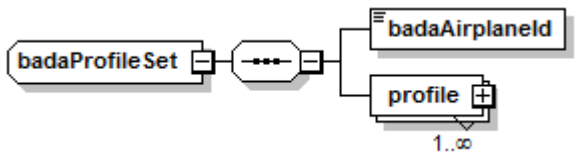
XML Tag	Type	Num	Description
massRangeValue	string2	1	Mass range. Valid values: LO (low range), AV (average range), HI (high range).
companyCode1	string3	*	Three-letter company code.
companyCode2	string2	*	Two-letter company code.
companyName	string15	*	Name of airline that uses this procedure.

XML Tag	Type	Num	Description
aircraftVersion	string12	*	Aircraft version to which this procedure applies.
engine	string12	*	Engine identifier.
climbSpeedBelowTransitionAltitude	xs:short	1	Standard climb speed (CAS) between 1,500/6,000 and 10,000 feet. Valid values: 0.0, through 600.0. (kts).
climbSpeedAboveTransitionAltitude	xs:short	1	Standard climb speed (CAS) between 10,000 feet and Mach transition altitude. Valid values: 0.0 through 600.0. (kts)
climbMachNumber	xs:double	1	Standard climb Mach number above Mach transition altitude. Valid values: 0.0 through 10.0.
cruiseSpeedBelowTransitionAltitude	xs:short	1	Standard cruise speed (CAS) between 3,000 and 10,000 feet. Valid values: 0.0 through 600.0. (kts).
cruiseSpeedAboveTransitionAltitude	xs:short	1	Standard cruise speed (CAS) above 10,000 feet until Mach transition altitude. Valid values: 0.0 through 600.0. (kts).
cruiseMachNumber	xs:double	1	Standard cruise Mach number above transition altitude. Valid values: 0.0 through 10.0.
descentSpeedUnderTransitionAltitude	xs:short	1	Standard descent speed (CAS) between 3,000/6,000 and 10,000 feet. Valid values: 0.0 through 600.0. (kts)
descentSpeedOverTransitionAltitude	xs:short	1	Standard descent speed (CAS) above 10,000 feet until Mach transition Valid values: 0.0 through 600.0. (kts).
descentMachNumber	xs:double	1	Standard descent Mach number above transition altitude. Valid values: 0.0 through 10.0.

Attributes

None.

8.43 badaProfileSet



A block used to define a custom BADA profile set.

Structure

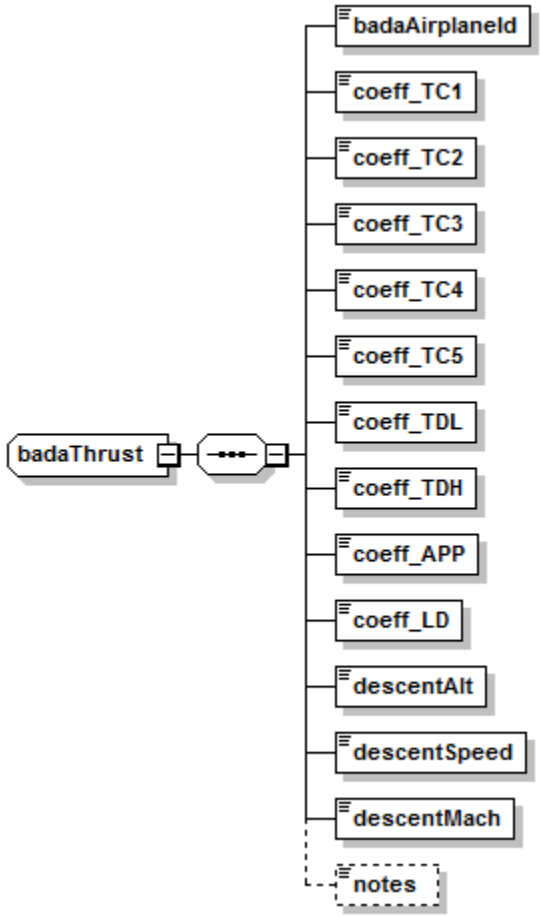
See Notation for information about reading this table.

XML Tag	Type	Num	Description
badaAirplaneId	badaAirplaneId	1	The BADA airplane ID for the profile set.
profile	badaProfile	*	The profile set data. See badaProfile.

Attributes

None.

8.44 badaThrust



A custom BADA thrust data record.

Structure

See Notation for information about reading this table.

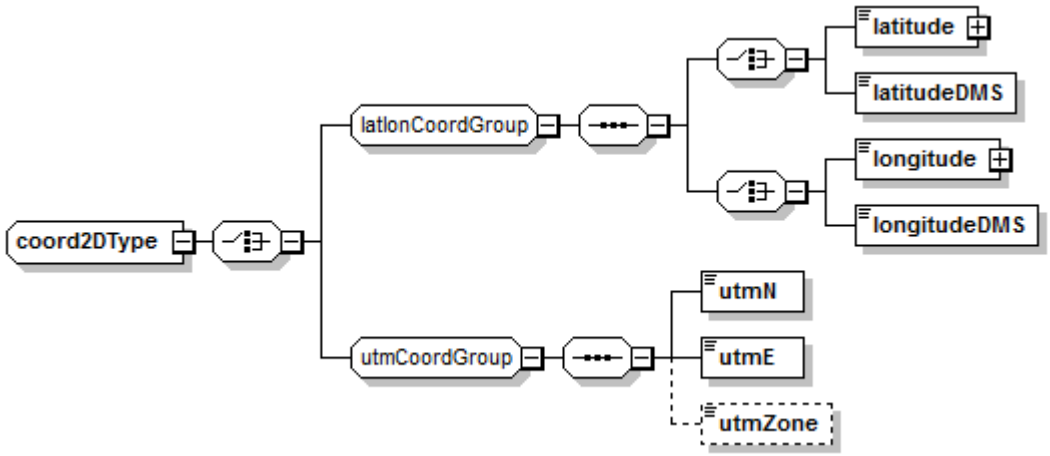
XML Tag	Type	Num	Description
badaAirplaneId	badaAirplaneId	1	The BADA airplane ID.
coeff_TC1	xs:double	1	1st max climb thrust coefficient. Valid values: 0.0 through 1.
coeff_TC2	xs:double	1	2nd max climb thrust coefficient. Valid values: 0.0 through 1e9. (ft)
coeff_TC3	xs:double	1	3rd max climb thrust coefficient. Valid values: 0.0 through 1e9. Variable units. (1/feet^2 (jet); Newton (turboprop); knot-Newton (piston))

XML Tag	Type	Num	Description
coeff_TC4	xs:double	1	1st thrust temperature coefficient. Valid values: -45 through 50. (K)
coeff_TC5	xs:double	1	2nd thrust temperature coefficient. Valid values: 0.0 through 10.0. (1/K)
coeff_TDL	xs:double	1	Low altitude descent thrust coefficient. Valid values: 0.0 through 10.0
coeff_TDH	xs:double	1	High altitude descent thrust coefficient. Valid values: 0.0 through 10.0
coeff_APP	xs:double	1	Approach thrust coefficient. Valid values: 0.0 through 10.0.
coeff_LD	xs:double	1	Landing thrust coefficient. Valid values: 0.0 through 10.0.
descentAlt	xs:double	1	Transition altitude above MSL for calculation of descent thrust. Valid values: -9999.0 through 60000.0. (ft)
descentSpeed	xs:double	1	Reference descent speed. Valid values: 0.0 through 600.0. (kts)
descentMach	xs:float	1	Reference descent Mach number. Valid values: 0.0 through 10.0.
notes	string255	*	User notes.

Attributes

None.

8.45 coord2DType



A 2D point coordinate.

Structure

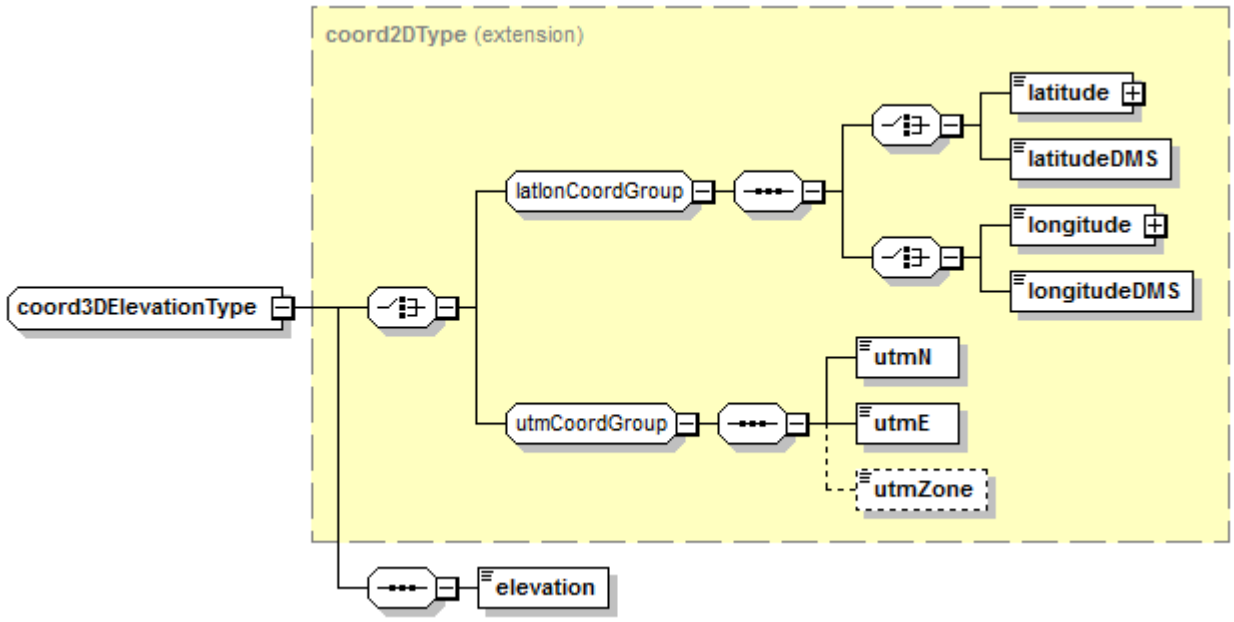
See Notation for information about reading this table.

XML Tag	Type	Num	Choice	Description
latlonCoordGroup	-	1	a	Specifies a coordinate using latitude and longitude. See latlonCoordGroup.
utmCoordGroup	-	1	a	Specifies a point using Universal Transverse Mercator coordinates. See utmCoordGroup.

Attributes

None.

8.46 coord3DElevationType



Type of coordinates used to specify a point in three-dimensional space. The type is actually the type of the point in two-dimensional space along with an elevation.

Structure

See Notation for information about reading this table.

XML Tag	Type	Num	Description
elevation	xs:float	1	Elevation or Z value for a coordinate.

Attributes

None.

8.47 dispersionWeight1Type

Abstract type used to specify the dispersion weight for the backbone subtrack. This type is intended only to be a base class and will not be used in ASIF files directly.

Structure

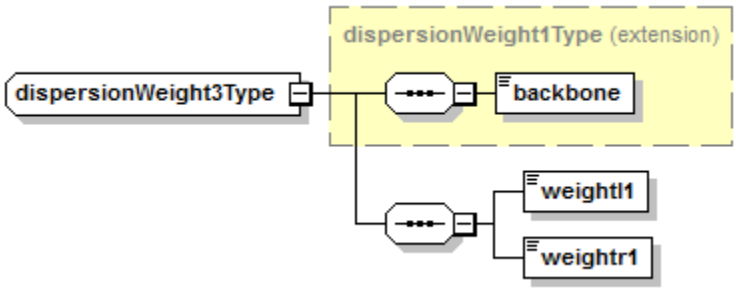
See Notation for information about reading this table.

XML Tag	Type	Num	Description
backbone	xs:double	1	Represents the centerline of a set of dispersed tracks.

Attributes

None.

8.48 dispersionWeight3Type



Specify the dispersion weight for a backbone with 2 subtracks..

Structure

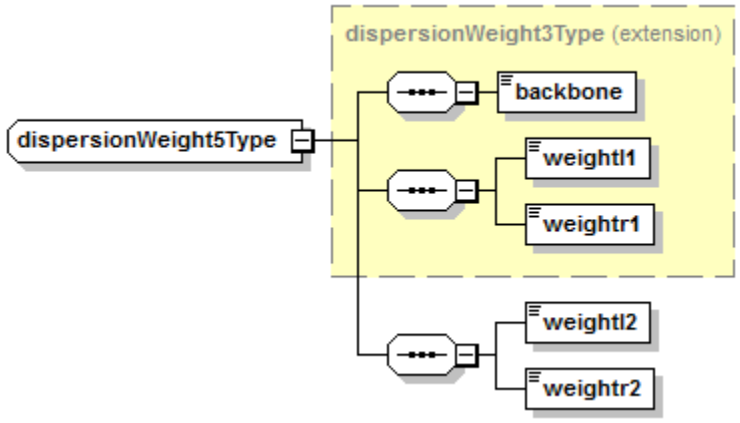
See Notation for information about reading this table.

XML Tag	Type	Num	Description
weightl1	xs:double	1	Specify the dispersion weight for the first left subtrack.
weightr1	xs:double	1	Specify the dispersion weight for the first right subtrack.

Attributes

None.

8.49 dispersionWeight5Type



Specify the dispersion weight for a backbone with 4 subtracks.

Structure

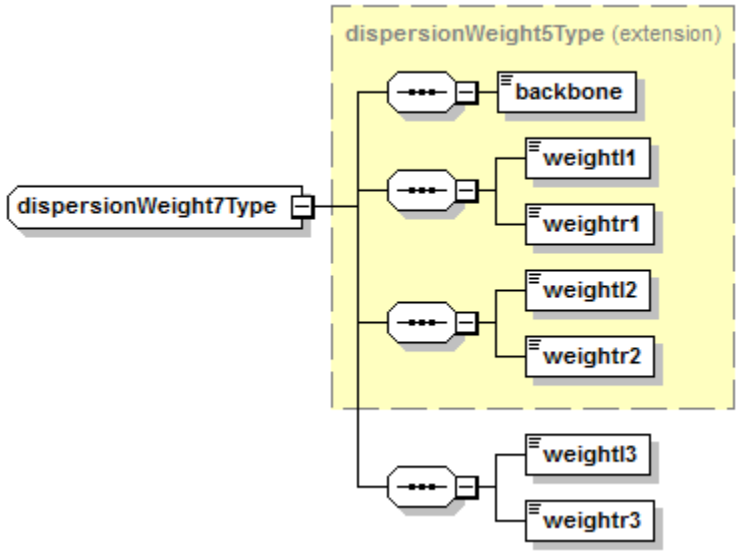
See Notation for information about reading this table.

XML Tag	Type	Num	Description
weightl2	xs:double	1	Specify the dispersion weight for the second left subtrack.
weightr2	xs:double	1	Specify the dispersion weight for the second right subtrack.

Attributes

None.

8.50 dispersionWeight7Type



Specify the dispersion weight for a backbone with 6 subtracks.

Structure

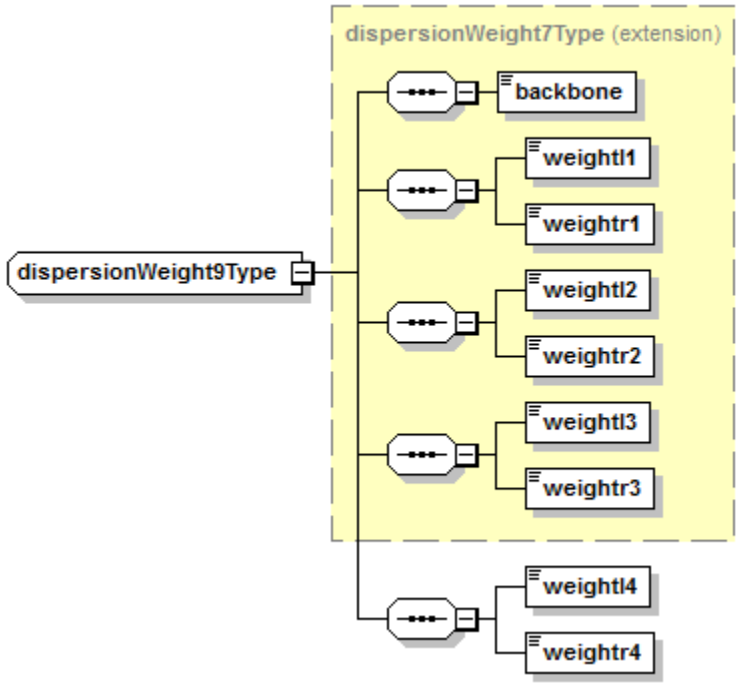
See Notation for information about reading this table.

XML Tag	Type	Num	Description
weightl3	xs:double	1	Specify the dispersion weight for the third left subtrack.
weightr3	xs:double	1	Specify the dispersion weight for the third right subtrack.

Attributes

None.

8.51 dispersionWeight9Type



Specify the dispersion weight for a backbone with 8 subtracks.

Structure

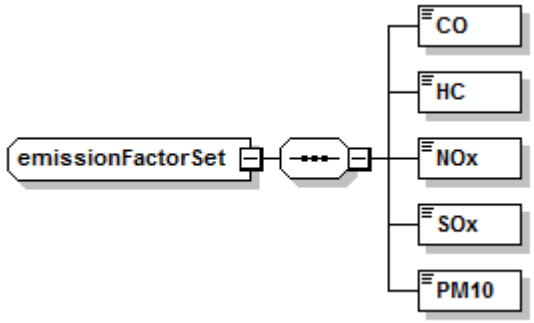
See Notation for information about reading this table.

XML Tag	Type	Num	Description
weightl4	xs:double	1	Specify the dispersion weight for the fourth left subtrack.
weightr4	xs:double	1	Specify the dispersion weight for the fourth right subtrack.

Attributes

None.

8.52 emissionFactorSet



Supports legacy EDMS studies relating to content that contains emission factor definitions. This element supports the definition of various emèssion factors defined under GSE and training fires.

Structure

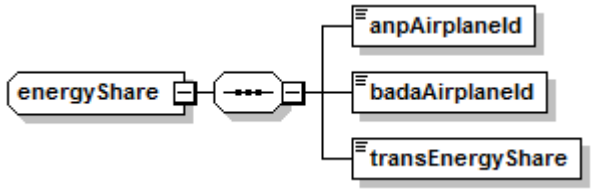
See Notation for information about reading this table.

XML Tag	Type	Num	Description
CO	xs:double	1	Amount of carbon monoxide emitted. Valid values: 0 to 3000. (kg/unit)
HC	xs:double	1	Amount of hydrocarbons emitted. Valid values: 0 to 100. (kg/unit)
NOx	xs:double	1	Amount of nitrous oxides emitted. Valid values: 0 to 100. (kg/unit)
SOx	xs:double	1	Amount of sulfur oxides emitted. Valid values: 0 to 10. (kg/unit)
PM10	xs:double	1	Amount of 10-micron particulate matter emitted. Valid values: 0 to 1000. (kg/unit)

Attributes

None.

8.53 energyShare



A custom BADA energy share.

Structure

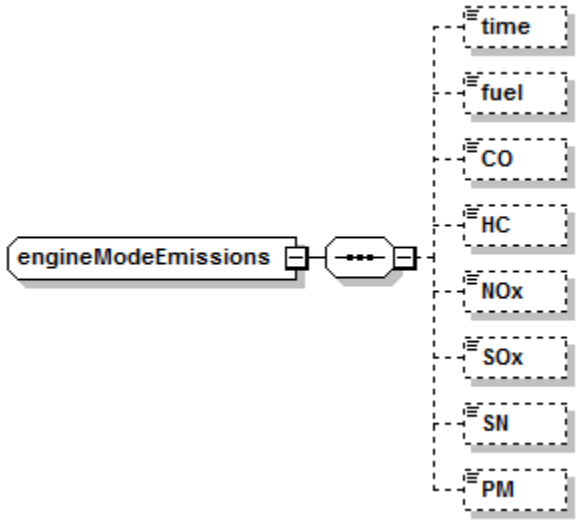
See Notation for information about reading this table.

XML Tag	Type	Num	Description
anpAirplaneId	anpAirplaneId	1	The ANP airplane ID.
badaAirplaneId	badaAirplaneId	1	The BADA airplane ID.
transEnergyShare	xs:double	1	The proportion of available energy used for acceleration compared to altitude change in the ANP to BADA transition region.

Attributes

None.

8.54 engineModeEmissions



Describes custom emission factors user-defined aircraft engines.

Structure

See Notation for information about reading this table.

XML Tag	Type	Num	Description
time	xs:double	*	Time engine operates in a given mode (minutes). Valid values: Nonnegative. Default: 0.

XML Tag	Type	Num	Description
fuel	xs:double	*	Fuel emission factor (g/kg). Valid values: Nonnegative. Default: 0.
CO	xs:double	*	Amount of carbon monoxide emitted (g/kg). Valid values: Nonnegative. Default: 0.
HC	xs:double	*	Amount of hydrocarbons emitted (g/kg). Valid values: Nonnegative. Default: 0.
NOx	xs:double	*	Amount of nitrous oxide emitted (g/kg). Valid values: Nonnegative. Default: 0.
SOx	xs:double	*	Amount of sulfur oxide emitted (g/kg). Valid values: Nonnegative. Default: 0.
SN	xs:double	*	Smoke number for the engine mode (g/kg).Valid values: Nonnegative.
PM	xs:double	*	Amount of particulate matter emitted (g/kg). Valid values: Nonnegative.

Attributes

None.

8.55 fleet


fleet
auxiliaryPowerUnit
0..∞
airframe
0..∞
engine
0..∞
engineMod
0..∞
anpNoiseGroup
0..∞
anpAirplane
0..∞
anpFlapsSet
0..∞
anpThrustSet
0..∞
anpProfileSet
0..∞
anpHeloNoiseGroup
0..∞
anpHelicopter
0..∞
anpHeloDirectivitySet
0..∞
anpHeloProfileSet
0..∞
badaAirplane
0..∞
badaAltitudeDistributionSet
0..∞
badaDefaultAltitudeDistribution...
0..∞
badaProfileSet
0..∞
badaConfigSet
0..∞
badaFuel
0..∞
badaThrust
0..∞
aircraft
0..∞
energyShare
0..∞

Main block for creating user defined fleet/aircraft data.

Structure

See Notation for information about reading this table.

XML Tag	Type	Num	Description
auxiliaryPowerUnit	auxiliaryPowerUnit	*	Describes a custom auxiliary power unit (APU). These are typically on-board generators providing power to a parked aircraft. See auxiliaryPowerUnit.
airframe	airframe	*	Supports the definition of custom airframes. See airframe.
engine	aircraftEngine	*	User defined engine information containing custom parameters that reflect an aircraft engine. This engine definition can then be used within a user-defined aircraft. See aircraftEngine.
engineMod	aircraftEngineMod	*	User defined engine modification information containing custom parameters that reflect an aircraft engine modification. This engine modification definition can that be used within a user defined aircraft. See aircraftEngineMod.
anpNoiseGroup	anpNoiseGroup	*	This element contains the three spectral class references for a given aircraft noise group with the corresponding thrust setting type and model type. See anpNoiseGroup.
anpAirplane	anpAirplane	*	Creates a new ANP aircraft. See anpAirplane.

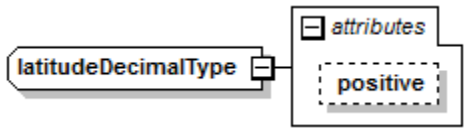
XML Tag	Type	Num	Description
anpFlapsSet	anpFlapsSet	*	Flap settings for an ANP aircraft type. See anpFlapsSet.
anpThrustSet	anpThrustSet	*	Specifies a set of thrust records for an ANP aircraft. See anpThrustSet.
anpProfileSet	anpProfileSet	*	The profile set for an ANP aircraft. See anpProfileSet.
anpHeloNoiseGroup	anpHeloNoiseGroup	*	This element contains the three spectral class references for a given helicopter noise group with the corresponding thrust setting type and model type. See anpHeloNoiseGroup.
anpHelicopter	anpHelicopter	*	Creates a new ANP helicopter.
anpHeloDirectivitySet	anpHeloDirectivitySet	*	A set of helicopter directivities. See anpHeloDirectivitySet.
anpHeloProfileSet	anpHeloProfileSet	*	A profile set for an ANP helicopter. See anpHeloProfileSet.
badaAirplane	badaAirplane	*	Describes a new user-defined BADA airplane. See badaAirplane.
badaAltitudeDistributionSet	badaAltitudeDistributionSet	*	A block for defining a BADA altitude distribution set. See badaAltitudeDistributionSet.
badaDefaultAltitudeDistributionSet	badaAltitudeDistributionSet	*	A block for defining the BADA default altitude distribution set. See badaAltitudeDistributionSet.
badaProfileSet	badaProfileSet	*	A block used to define a custom BADA profile set. See badaProfileSet.
badaConfigSet	badaConfigSet	*	A block for a custom BADA airplane

XML Tag	Type	Num	Description
			configuration coefficient set. See badaConfigSet.
badaFuel	badaFuel	*	A BADA fuel data record. See badaFuel.
badaThrust	badaThrust	*	Custom BADA airplane thrust data sets. See badaThrust.
aircraft	aircraft	*	A block used to create new user defined AEDT aircraft. See aircraft.
energyShare	energyShare	*	A custom BADA aircraft energy share set. See energyShare.

Attributes

None.

8.56 latitudeDecimalType

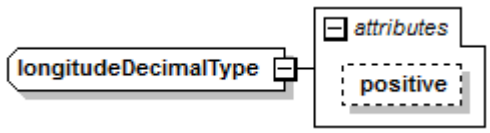


Latitude specified as degrees in decimal format. Can include optional attribute positive. (decimal degrees)

Attributes

XML Tag	Type	Use	Description
positive	xs:string	optional	Valid values: N, n, S, s.

8.57 longitudeDecimalType

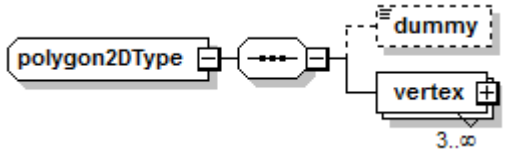


Longitude specified as degrees in decimal format. Can include optional attribute positive. (decimal degrees)

Attributes

XML Tag	Type	Use	Description
positive	xs:string	optional	Valid values: E, e, W, w.

8.58 polygon2DType



Describes a two dimenstional polygon.

Structure

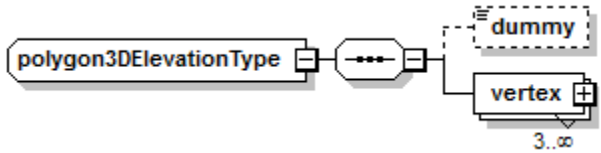
See Notation for information about reading this table.

XML Tag	Type	Num	Description
vertex	coord2DType	3+	A list of vertices defining the polygon. See coord2DType.

Attributes

None.

8.59 polygon3DElevationType



The elevation or Z value for a polygon.

Structure

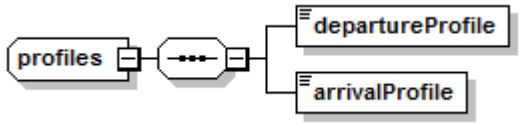
See Notation for information about reading this table.

XML Tag	Type	Num	Description
vertex	coord3DElevationType	3+	A list of vertices defining the polygon. See coord3DElevationType.

Attributes

None.

8.60 profiles



Contains an arrival and departure profile.

Structure

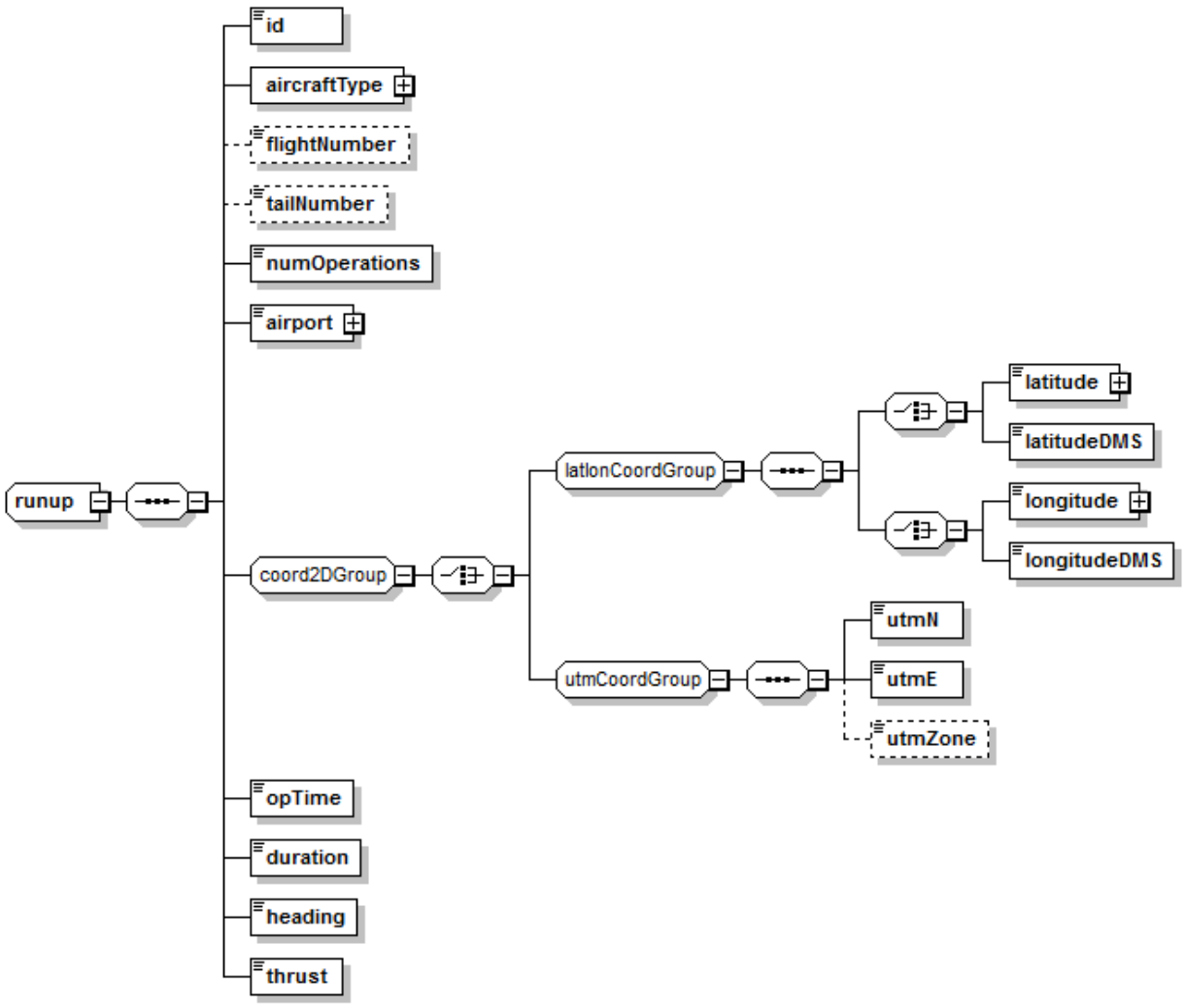
See Notation for information about reading this table.

XML Tag	Type	Num	Description
departureProfile	profileType	1	A flight's departure profile.
arrivalProfile	profileType	1	A flight's arrival profile.

Attributes

None.

8.61 runup



Structure

See Notation for information about reading this table.

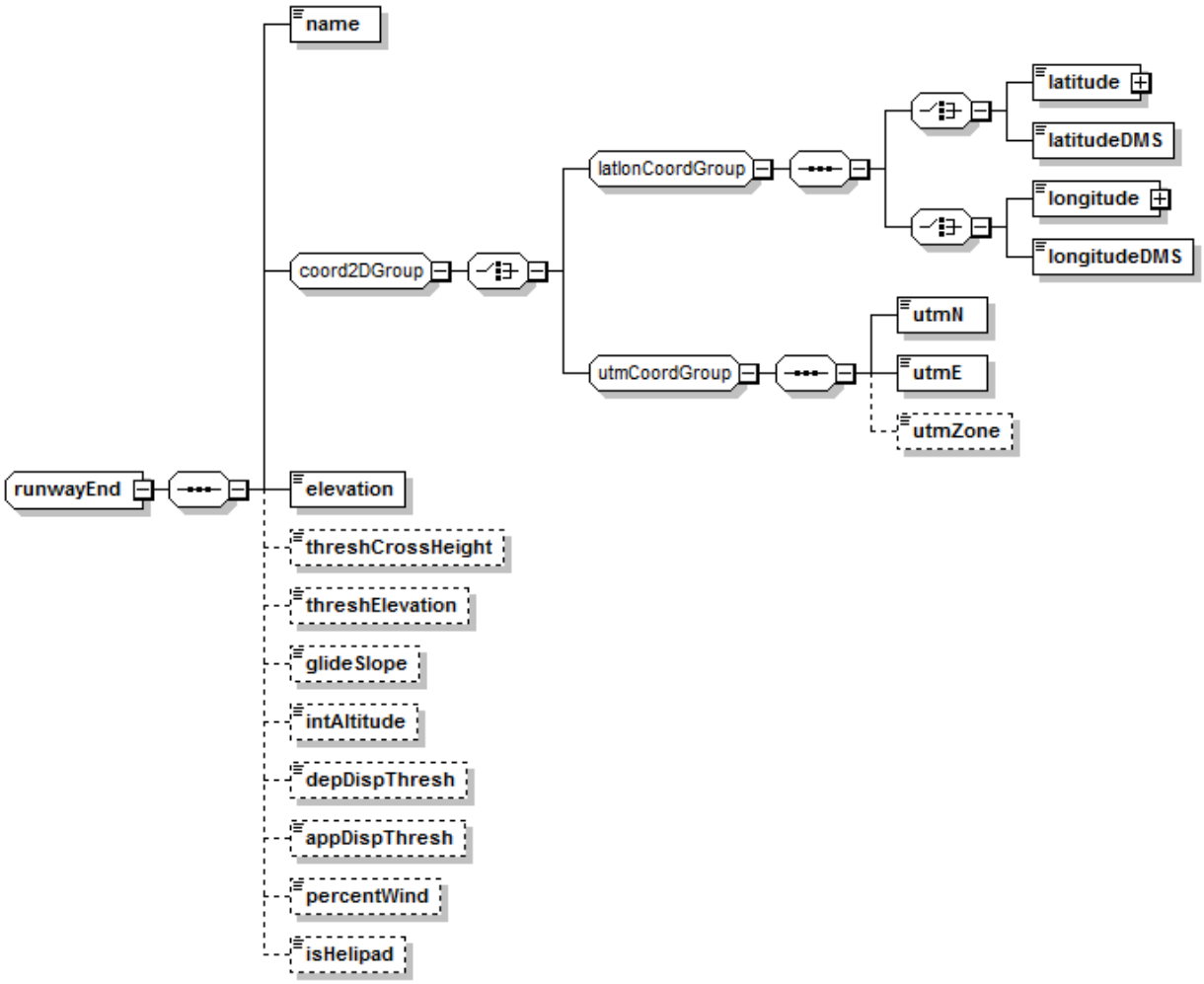
XML Tag	Type	Num	Description
id	string16	1	User-provided runup identifier.
aircraftType	aircraftType	1	Aircraft type employed in this runup operation. See aircraftType.
flightNumber	string16	*	Optional flight number.
tailNumber	string8	*	Optional tail number.
numOperations	xs:double	1	The number of occurences of this operation.
airport	airportCode	1	The airport code at which this operation occurs. See airportCode.

XML Tag	Type	Num	Description
coord2DGroup	-	1	Indicates how a two-dimensional group is specified. See coord2DGroup.
opTime	xs:dateTime	1	The runup operation time.
duration	xs:double	1	The duration of the runup.
heading	xs:double	1	The orientation of the aircraft.
thrust	xs:double	1	The thrust employed for this runup operation.

Attributes

None.

8.62 runwayEnd



Characterizes the runway's endpoint.

Structure

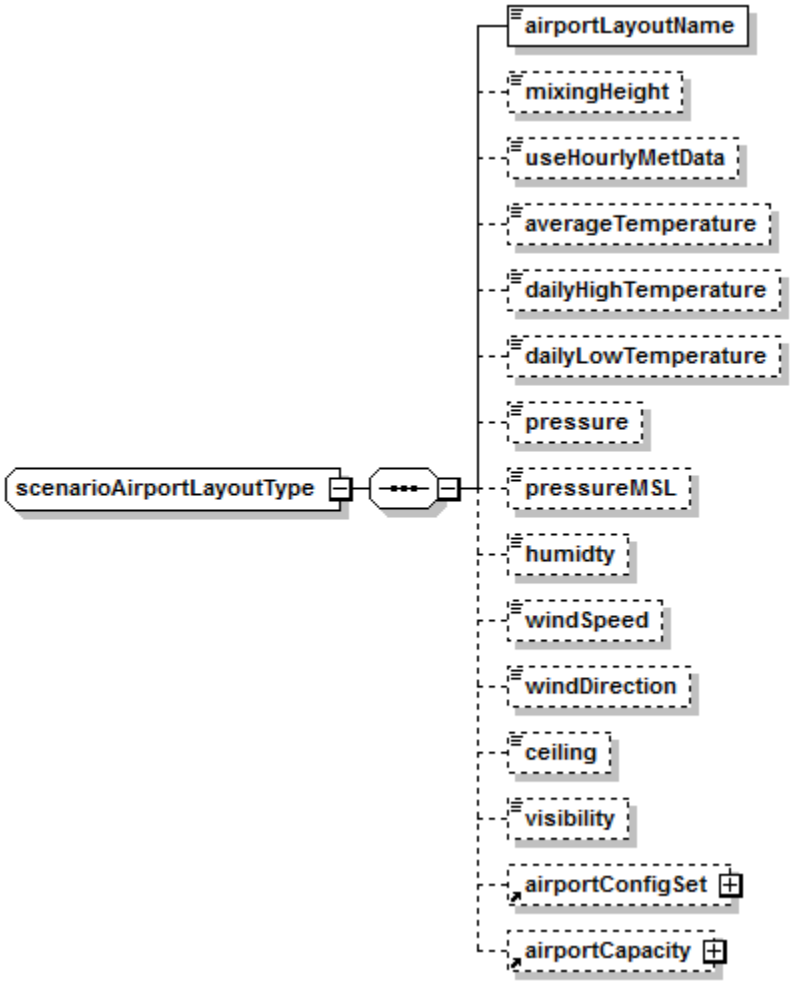
See Notation for information about reading this table.

XML Tag	Type	Num	Description
name	string8	1	ID of the runway's endpoint.
coord2DGroup	-	1	Indicates how a two-dimensional group is specified. See coord2DGroup.
elevation	xs:double	1	Runway endpoint's elevation above MSL in feet. (ft)
threshCrossHeight	xs:double	*	Approach threshold crossing height AGL (ft)
threshElevation	xs:double	*	Elevation of runway's endpoint above or below MSL (ft)
glideSlope	xs:double	*	Glide slope for runway's endpoint. Valid values: 2 to 6 (degrees)
intAltitude	xs:double	*	Altitude at which glide slope should be intercepted above ground level. (ft)
depDispThresh	xs:double	*	Displaced threshold length at departure end of runway. (ft)
appDispThresh	xs:double	*	Displaced threshold length at arrival end of runway. (ft)
percentWind	xs:double	*	Percent change in airport average headwind. (%)
isHelipad	xs:string	*	Indicates if this end of the runway is also a helipad. Valid values: Y = yes, N = no.

Attributes

None.

8.63 scenarioAirportLayoutType



Describes weather conditions.

Structure

See Notation for information about reading this table.

XML Tag	Type	Num	Description
airportLayoutName	string255	1	Airport layout name.
mixingHeight	xs:double	*	Height at the top layer of atmosphere where relatively vigorous mixing of pollutants and other gases takes place for the airport in a given month. Varies diurnally and seasonally. (ft) Default: 0.
useHourlyMetData	xs:boolean	*	If true, use user-defined hourly meteorological data to compute emissions. If false, use default annual

XML Tag	Type	Num	Description
			averages to compute emissions. (true or false) Default: false.
averageTemperature	xs:double	*	Average temperature (°F). Default: 0.
dailyHighTemperature	xs:double	*	Average daily high temperature (°F). Default: 0.
dailyLowTemperature	xs:double	*	Average daily low temperature (°F). Default: 0.
pressure	xs:double	*	Average barometric pressure. (in Hg) Default: 0.
pressureMSL	xs:double	*	Average barometric pressure at mean sea level. Default: 0.
humidty	xs:double	*	Relative humidity (%). Default: 0.
windSpeed	xs:double	*	Wind speed at airport surface (mph). Default: 0.
windDirection	int0to360	*	Wind direction. Valid values: 0-360. (degrees) Default: 1.
ceiling	xs:double	*	Ceiling (ft). Default: 0.
visibility	xs:double	*	Visibility (mi). Default: 0.
airportConfigSet	-	?	Contains one or more airportConfig elements. See airportConfigSet.
airportCapacity	-	*	Supports legacy EDMS studies relating to content contained in the RUNWAY_CONFIGURATIONS table. This element supports the definition of airport capacities based on various points within an airport. See airportCapacity.

Attributes

None.

9 Simple Type Descriptions

9.1 aircraftPerformanceModelType

Type of aircraft performance model. Valid values: ICAO, SAE1845.

Valid values: ICAO, SAE1845.

Attributes

None.

9.2 AircraftSizeType

Aircraft size.

Valid values: S, L, H.

Attributes

None.

9.3 airframeModel

Refers to an existing airframe model.

Attributes

None.

9.4 airportCodeType

The type of an airport code.

Valid values: ICAO, IATA, FAA, OTHER, ANY.

Attributes

None.

9.5 anpAirplaneId

ID of ANP airplane. Must be a new, unique value.

Attributes

None.

9.6 anpCoeffType

Valid values: Jet, J, Prop, P.

Attributes

None.

9.7 anpFlapId

Attributes

None.

9.8 anpHeloDirectId

Attributes

None.

9.9 anpHeloDirectivityId

Attributes

None.

9.10 anpHeloGroundType

Valid values: Hard, H, Software, S, File, F, None, N.

Attributes

None.

9.11 anpHeloId

ID of the helicopter.

Attributes

None.

9.12 anpHeloNoiseId

Attributes

None.

9.13 anpHeloSideType

Valid values: Left, L, Center, C, Right, R, Static, S.

Attributes

None.

9.14 anpNoiseId

Attributes

None.

9.15 anpNpdNoiseType

Valid values: S, M, E, P.

Attributes

None.

9.16 anpNpdOpMode

Valid values: A, D, L, G, H, I, J, V, W, Y, Z, B, C, E, F, X, S.

Attributes

None.

9.17 anpOwnerType

Valid values: Commercial, C, Military, M, General, G.

Attributes

None.

9.18 anpSizeCode

Valid values: Heavy, H, Large, L, Small, S.

Attributes

None.

9.19 apuName

Name of the auxiliary power unit.

Attributes

None.

9.20 badaAirplaneId

ID of a BADA airplane model. Must be unique.

Attributes

None.

9.21 badaPhaseType

Valid values: InitialClimb, IC, Takeoff, TO, Approach, AP, Landing, LD, Cruise, CR.

Attributes

None.

9.22 badaWakeType

Valid values: Heavy, H, Light, L, Medium, M, SuperHeavy, J.

Attributes

None.

9.23 directionType

Supports the direction type of a taxi path. Direction type can be either arrival, departure, inbound, or outbound.

Valid values: A, Arrival, D, Departure, I, Inbound, O, Outbound.

Attributes

None.

9.24 doubleExclusive0Inclusive10

A double value in the range (0,10).

Attributes

None.

9.25 doubleExclusive10

A double value in the range [0,10).

Attributes

None.

9.26 doubleExclusive100

A double value in the range [0,100).

Attributes

None.

9.27 doubleExclusive1000

A double value in the range [0,1000).

Attributes

None.

9.28 doubleExclusive10000

A double value in the range [0,10000).

Attributes

None.

9.29 doubleExclusive2000

A double value in the range [0,2000).

Attributes

None.

9.30 doubleExclusiveRange100

A double value in the range (0,100).

Attributes

None.

9.31 doubleInclusive1

A double value in the range [0,1].

Attributes

None.

9.32 doubleInclusive100

A double value in the range [0,100].

Attributes

None.

9.33 doubleInclusive1000

A double value in the range [0,1000].

Attributes

None.

9.34 doubleInclusive10000

A double value in the range [0,10000].

Attributes

None.

9.35 doubleInclusive2000

A double value in the range [0,2000].

Attributes

None.

9.36 doubleInclusive24

A double value in the range [0,24].

Attributes

None.

9.37 doubleInclusive4000

A double value in the range [0,4000].

Attributes

None.

9.38 doubleInclusiveRange0to600

A double value in the range [0,600].

Attributes

None.

9.39 doubleInclusiveRange1to30

A double value in the range [1,30].

Attributes

None.

9.40 doubleMin0

A double value with a lower inclusive bound of 0.

Attributes

None.

9.41 emissionsSourceType

Source of emissions.

Valid values: Container, Aircraft, GSE Population, Parking Facilities, Roadways, Stationary Sources.

Attributes

None.

9.42 emissionsUnitsType

Unit of measure for a given emission.

Valid values: MetricTonnes, Kilograms, Grams, ImperialTons, Pounds.

Attributes

None.

9.43 engineCode

Code for an airframe's engine.

Attributes

None.

9.44 engineModCode

Airplane's engine modification code.

Attributes

None.

9.45 engineModel

Attributes

None.

9.46 engineType

Type of engine on this airframe. Valid values: E (Electric), J (Jet), P (Piston), T (Turboprop).

Valid values: Jet, J, Turbo, Turboprop, T, Prop, Piston, P.

Attributes

None.

9.47 floatExclusive0Inclusive10

A real number in the range (0,10].

Attributes

None.

9.48 floatExclusive10

A real number in the range [0,10).

Attributes

None.

9.49 floatExclusive100

A real number in the range [0,100).

Attributes

None.

9.50 floatExclusive1000

A real number in the range [0,1,000).

Attributes

None.

9.51 floatExclusive10000

A real number in the range [0,10,000).

Attributes

None.

9.52 floatExclusive2000

A real number in the range [0,2,000).

Attributes

None.

9.53 floatExclusiveRange100

A real number in the range (0,100).

Attributes

None.

9.54 floatInclusive1

A real number in the range [0,1].

Attributes

None.

9.55 floatInclusive100

A real number in the range [0,100].

Attributes

None.

9.56 floatInclusive1000

A real number in the range [0,1,000].

Attributes

None.

9.57 floatInclusive10000

A real number in the range [0,10,000].

Attributes

None.

9.58 floatInclusive2000

A real number in the range [0,2,000].

Attributes

None.

9.59 floatInclusive24

A real number in the range [0,24].

Attributes

None.

9.60 floatInclusive4000

A real number in the range [0,4,000].

Attributes

None.

9.61 floatInclusiveRange1to30

A real number in the range [1,30].

Attributes

None.

9.62 floatInclusiveRange32to600

A real number in the range [32,600].

Attributes

None.

9.63 fuelType

Supports legacy EDMS studies relating to content that contains different types of fuel use. Fuel types can be based on either gasoline, diesel, compressed natural gas, liquid propane gas, or electric based.

Valid values: G, Gasoline, D, Diesel, C, Compressed Natural Gas, L, Liquefied Petroleum Gas, E, Electric.

Attributes

None.

9.64 groundVehicleType

Supports legacy EDMS studies relating to the use of ground vehicles.Ground vehicle types can range from fleet mixes, passanger cars, and various light or heavy trucks.

Valid values: 0, Default Fleet Mix, 1, Passenger Cars, 2, Light Trucks 1, 3, Light Trucks 2, 4, Light Trucks 3, 5, Light Trucks 4, 6, Class 2b Heavy Trucks, 7, Class 3 Heavy Trucks, 8, Class 4 Heavy Trucks, 9, Class 5 Heavy Trucks, 10, Class 6 Heavy Trucks, 11, Class 7 Heavy Trucks, 12, Class 8a Heavy Trucks, 13, Class 8b Heavy Trucks, 14, School Busses, 15, Transit and Urban Busses, 16, Motorcycle.

Attributes

None.

9.65 int0to23

An integer in the range [0,23].

Attributes

None.

9.66 int0to360

An integer in the range [0,360].

Attributes

None.

9.67 int0to5

An integer in the range [0,5].

Attributes

None.

9.68 int0to87

An integer in the range [0,87].

Attributes

None.

9.69 int1to13

An integer in the range [1,13].

Attributes

None.

9.70 int1to15

An integer in the range [1,15].

Attributes

None.

9.71 int1to2

An integer in the range [1,2].

Attributes

None.

9.72 int1to25

An integer in the range [1,25].

Attributes

None.

9.73 int1to4

An integer in the range [1,4].

Attributes

None.

9.74 int1to5

An integer in the range [1,5].

Attributes

None.

9.75 int1to8

An integer in the range [1,8].

Attributes

None.

9.76 int1to93

An integer in the range [1,93].

Attributes

None.

9.77 int5to65

An integer in the range [5,65].

Attributes

None.

9.78 int6to13

An integer in the range [6,13].

Attributes

None.

9.79 int89to148

An integer in the range [89,148].

Attributes

None.

9.80 latitudeDMSType

Latitude expressed as dd"mm'sss with optional indicator N, n, S, s. (degrees)

Valid values: [0-9]{2}[\-, :, '][0-9]{2}[\-, :, '][0-9]{2}(.[0-9]{3})?[N, n, S, s].

Attributes

None.

9.81 longitudeDMSType

Longitude expressed as dd"mm'sss with optional indicator N, n, S, s. (degrees)

Valid values: [0-9]?[0-9]{2}[\-, :, '][0-9]{2}[\-, :, '][0-9]{2}(.[0-9]{3})?[E, e, W, w].

Attributes

None.

9.82 nodeControlType

Type of altitude clearance at this point.

Valid values: 0, None, 1, AtOrBelow, 2, Match, 3, AtOrAbove.

Attributes

None.

9.83 opType

Type of operation.

Valid values: A, Arrival, D, Departure, V, Overflight, F, Circuit, T, TouchAndGo, R, Runup, W, RunwayToRunway, L, LTO, LandingTakoff, X, Taxi.

Attributes

None.

9.84 originSourceType

Supports the polarReceptor source type. Original source type can be either gate, parking facility, roadway, runway, stationary source, taxiway, and training fire.

Valid values: Gate, Parking Facility, Roadway, Runway, Stionary Source, Taxiway, Training Fire.

Attributes

None.

9.85 profileType

An aircraft's flight profile.

Attributes

None.

9.86 quarterHourMinutes

Either 0, 15, 30, or 45.

Valid values: 0, 15, 30, 45.

Attributes

None.

9.87 string1

A string up to one character long.

Attributes

None.

9.88 string10

A string up to 10 characters long.

Attributes

None.

9.89 string100

A string up to 100 characters long.

Attributes

None.

9.90 string11

Attributes

None.

9.91 string12

A string up to 12 characters long.

Attributes

None.

9.92 string14

Attributes

None.

9.93 string15

A string up to 15 characters long.

Attributes

None.

9.94 string16

A string up to 16 characters long.

Attributes

None.

9.95 string2

A string up to two characters long.

Attributes

None.

9.96 string20

A string up to 20 characters long.

Attributes

None.

9.97 string200

A string up to 200 characters long.

Attributes

None.

9.98 string25

A string up to 25 characters long.

Attributes

None.

9.99 string255

A string up to 255 characters long.

Attributes

None.

9.100 string3

A string up to three characters long.

Attributes

None.

9.101 string30

A string up to 30 characters long.

Attributes

None.

9.102 string32

Attributes

None.

9.103 string4

A string up to four characters long.

Attributes

None.

9.104 string40

A string up to 40 characters long.

Attributes

None.

9.105 string42

Attributes

None.

9.106 string5

Attributes

None.

9.107 string50

A string up to 50 characters long.

Attributes

None.

9.108 string6

A string up to six characters long.

Attributes

None.

9.109 string64

A string up to 64 characters long.

Attributes

None.

9.110 string66

Attributes

None.

9.111 string7

Attributes

None.

9.112 string8

A string up to eight characters long.

Attributes

None.

9.113 string9

Attributes

None.

9.114 studyType

Type of study. NOTE: AEDT2B only supports the Noise and Emissions value.

Valid values: Emissions, Dispersion, Noise and Emissions, Noise and Dispersion.

Attributes

None.

9.115 taxiModelType

Type of taxi modeling.

Valid values: UserSpecified, Delayed, Sequencing.

Attributes

None.

9.116 timeInModeBasisType

Time in mode can either be based on ICAO or performance.

Valid values: Performance, ICAO.

Attributes

None.

9.117 trainingFireFuelType

Supports legacy EDMS studies relating to training fire content. Training fire fuel types can be either JP-4, JP-5, JP-8, propane, or tekflame.

Valid values: JP-4, JP-5, JP-8, Propane, Tekflame.

Attributes

None.

9.118 vectorTrackType

Type of vector.

Valid values: S, Straight, L, LeftTurn, R, RightTurn.

Attributes

None.

9.119 wingType

Type of wing. If not specified, AEDT attempts to determine the wing type based on the optype.

Valid values: F, FixedWing, R, RotaryWing.

Attributes

None.

9.120 yesNoType

Simple element allowing for either a choice of "yes" or "no".

Valid values: Yes, Y, No, N.

Attributes

None.

10 Procedural Profiles

This section describes procedural profiles for civil aircraft and helicopters. Military aircraft utilize fixed point profiles. For more information on how to set up an ANP profile in the ASIF, see section 8.26.

10.1 Civil Airplane Procedures

The following sections describe civil aircraft procedure steps and how they are combined into procedural profiles. Flap identifiers referred to in this section are created in section 8.10 and are used in the sections below. The recommended naming conventions for flap identifiers is as follows:

- Include a number in the flaps identifier to indicate the number of degrees that the flaps are extended.
- For approach identifiers, use the prefix “U”, to indicate that the gear is up during descent and the prefix “D” to indicate that the gear is down.
- Use “ZERO” to indicate that flaps are retracted. ZERO is often used in both departure and approach procedures, even though it is categorized as a departure identifier.

10.1.1 Aircraft Profile Operation Types

There are five types of flight operations for aircraft. The valid ASIF identifier is listed in the Operation Type column.

Operation Type	Full Name
A	Approach
D	Departure
T	Touch and go
F	Circuit flight
V	Overflight

10.1.2 Aircraft Procedure Step Types

The procedure step types available in AEDT are listed in the table below. The valid ASIF identifier is listed in the Step Type column.

Step Type	Full Name	Description
T	Takeoff	Start-roll to takeoff rotation, or touch-and-go power-on point to takeoff rotation
C	Climb	Departure climb to final altitude at constant calibrated airspeed
M	Cruise-Climb	Climb at constant angle to final altitude and speed
A	Accelerate	Departure climb and accelerate to final speed

Step Type	Full Name	Description
P	Accel-Percent	Departure climb and accelerate using a constant energy split between acceleration and climbing
V	Level	Maintain altitude and speed
U	Level-Decel	Maintain altitude and reduce speed
W	Level-Idle	Maintain altitude over a given distance with engines at idle
S	Level-Stretch	Special step used to designate where to stretch a circuit flight profile to fit a touch-and-go track
D	Descend	Descend at constant angle to final altitude
E	Descend- Decel	Descend while reducing airspeed
F	Decend-Idle	Descend at a constant angle with engines at idle
L	Land	Land and roll a given distance
B	Decelerate	Used on approach after touchdown, brake with starting thrust for a given distance

10.1.2.1 *Takeoff Step*

For a takeoff step, input a flaps identifier and a thrust type. The flaps identifier should not have a U or D prefix because these coefficients are appropriate for descending flight paths.

MaxTakeoff thrust is typically used for takeoff, but other thrust types are available:

- MaxClimb thrust means that an airplane takes off using reduced thrust, thus requiring a longer runway.

- UserValue thrust means that the user supplies the takeoff thrust value. The thrust value is the corrected net thrust per engine in pounds or in percent of static thrust. AEDT uses the input value at both the start-roll point and at the rotation point.

For MaxTakeoff and MaxClimb thrust, AEDT uses jet or prop coefficients and SAE-AIR-1845 equations to compute thrust values. For jets, the start-roll thrust is computed at 0 knots, and the rotation thrust is computed using the takeoff speed, which comes from another SAE equation. For jets, the thrust is larger at start-roll than at rotation. For props, the thrust is the same at both points and equal to the thrust computed at the rotation point.

10.1.2.2 *Climb Step*

For a Climb step, enter a flaps identifier, thrust type, and input the final altitude (the "climb-to" altitude). The final altitude must be higher than the initial altitude. The calibrated air speed on a climb segment is constant, and it is equal to the final speed used on the previous step.

AEDT computes the climb angle and the ground distance based on the airplane weight and average thrust that can be generated for the given conditions. If the computed climb gradient is too small (1%), AEDT processing will stop and log it in the log file.

Typically, MaxTakeoff thrust is used for initial climb segments and MaxClimb thrust for later climb segments, but other thrust types are available:

- UserValue thrust can be assigned to the final climb-to point. AEDT does not adjust this input value for airport elevation, temperature, and pressure.

- UserCutback thrust can be assigned to the whole segment. The difference between UserValue and UserCutback is that AEDT applies the user-value-thrust to a point, whereas user-cutback-thrust is applied to a segment. For the cutback case, AEDT reduces the thrust over a 1000-foot segment, keeps it constant at the user-cutback value over the climb distance (less 1000 feet), and then returns it to normal thrust over a second 1000-foot segment. The input thrust is corrected net thrust per engine. AEDT does not correct for airport conditions.

10.1.2.3 *Accelerate Step*

For an Accelerate step, input a flaps identifier, thrust type, climb rate, and final speed (the "accelerate-to" speed). The final speed must be larger than the initial speed.

AEDT uses these input parameters and the SAE-AIR-1845 equations to compute the change in altitude and the distance flown.

The climb rate should be consistent with a sea-level standard-day profile. If necessary, AEDT adjusts the climb rate to account for the actual airport elevation, temperature, and pressure.

Zero climb rate is a valid input. AEDT computes a zero change in altitude, and the thrust is used to accelerate the airplane more quickly.

The five climb thrust types discussed above for the Climb step are also available for an acceleration segment.

10.1.2.4 *Accel-Percent Step*

For an Accel-Percent step, input a flaps identifier, thrust type, energy-share percentage, and final airspeed.

Energy-share comes from the notion that all available thrust is divided between acceleration and climbing. Unlike steps that maintain a constant airspeed while climbing, this step holds the energy-share constant for a given amount of thrust. For the energy-share percentage, enter the percent thrust dedicated to acceleration. An input of 70, for example, would result in 70% of thrust going to acceleration and the remaining 30% of thrust going to climbing.

10.1.2.5 *Cruise-Climb Step*

For a Cruise-Climb step, input a flaps identifier (usually ZERO), final altitude, climb speed, and the climb angle for the segment.

AEDT calculates the distance flown based on the change in altitude and the climb angle. AEDT calculates the corrected net thrust per engine by using the SAE-AIR- 1845 descent equation with a positive angle, rather than a negative angle.

The difference between Climb and Cruise-Climb is that thrust for Climb is user-defined, whereas AEDT calculates thrust for Cruise-Climb based on the input climb angle. Climb thrust is larger than Cruise-Climb thrust. Climb steps are used after takeoff when near-maximum thrust is applied. During cruise, less thrust is used in climbing from one altitude to another.

10.1.2.6 *Level-Stretch Step*

For a Level-Stretch step, input a flaps identifier. A Level-Stretch step is used to create circuit flight profiles. Its purpose is to define where to put a variable length segment so that a CIR profile fits on top of a TGO track.

- There can be only one Level-Stretch step in a CIR profile.
- A Level-Stretch step must have a Level step before it and after it. This pair of Level steps should have the same altitude and speed values.

10.1.2.7 *Level Step*

For a Level step, input a flaps identifier, altitude, speed, and distance flown along the segment. The flaps identifier should be ZERO, or perhaps one with a U prefix (indicating that the landing gear is up).

Input the altitude and speed parameters logically:

- A previous Climb final altitude must equal the Level altitude.
- Also, the Level altitude must equal the next Descend start altitude.
- AEDT computes the amount of thrust needed to maintain level flight at constant speed for the given flaps configuration.

The difference between a Level step and a zero-climb Accelerate step is that the Level step uses a constant speed on the segment, and it uses a smaller value of thrust (and thus, lower noise level) than the Accelerate step. If speed changes during level flight, use a zero-climb Accelerate step.

10.1.2.8 *Level-Decel Step*

For a Level-Decel step, input a flaps identifier, altitude, initial airspeed, and distance flown along the segment. Unlike the Level step, airspeed is not held constant but allowed to decrease over the segment. AEDT computes the amount of thrust needed to maintain level flight while decelerating.

The Level-Decel step is subject to the same airspeed and altitude considerations as the Level step, e.g. a preceding climb segment has to end at the same altitude as the Level-Decel step.

10.1.2.9 *Level-Idle Step*

For a Level-Idle step, input the altitude, initial airspeed, and distance flown along the segment. Airspeed is allowed to decrease over the segment. Unlike Level and Level-Decel steps, thrust is calculated using idle thrust coefficients rather than a force balance.

The Level-Idle step is subject to the same airspeed and altitude considerations as the Level step, e.g. a preceding climb segment has to end at the same altitude as the Level-Idle step.

10.1.2.10 *Descend Step*

For a Descend step, input a flaps identifier, the starting altitude, starting speed, and the descent angle for the segment.

If a Level or Descend step follows the Descend step, it must have a lower altitude. The following step can have the same or a different speed.

10.1.2.11 *Descend-Decel Step*

For a Descend-Decel step, input a flaps identifier, the starting altitude, starting speed, and the descent angle for the segment. The Descend-Decel step differs from the Descend step in that it more explicitly accounts for deceleration effects during thrust calculations.

If a Level or Descend step follows the Descend-Decel step, it must have a lower altitude. The following step can have the same or a different speed.

10.1.2.12 *Descend-Idle Step*

For a Descend-Idle step, input the initial airspeed, initial altitude, and descent angle. The Descend-Idle step does not require that a flap setting be specified. The other Descend steps that require flap settings utilize a force balance equation to calculate thrust, but this step calculates the aircraft idle thrust directly from engine idle thrust coefficients.

10.1.2.13 *Land Step*

For the Land step, select a flaps identifier and input the touchdown rolling distance, which is the distance that the airplane moves before reversing thrust and/or braking.

The last Descend step and the Land step must both use a flaps identifier that has a D prefix (meaning that the landing gear is down).

AEDT computes the touchdown speed by using a SAE-AIR-1845 equation.

10.1.2.14 *Decelerate Step*

For a Decelerate step, input the segment distance, the starting speed, and the percent of static thrust at the start of the segment. When applicable, the percent of static thrust at the start of the segment represents the level of reverse thrust.

AEDT uses the percent value and the airplane static thrust to compute a thrust setting value for accessing the NPD curves. For those airplanes that use percent type noise, the percent value is used to access the NPD curves.

10.1.3 Aircraft Thrust Types and Parameters

The thrust types available in AEDT are listed in the table below. The valid ASIF identifier is listed in the Thrust Type column.

Thrust Type	Full Name
T	MaxTakeoff
C	MaxClimb
N	MaxContinuous
H	ReduceTakeoff
Q	ReduceClimb
S	MaxTakeoffHiTemp
B	MaxClimbHiTemp
M	MaxContinuousHiTemp
G	ReduceClimbHiTemp
P	ReduceClimbHiTemp
I	IdleApproach
J	IdleApproachHiTemp
R	MinimumThrust
K	UserCutback
U	UserValue

The following table shows the remaining parameters needed to create a procedural profile. These fields are called PARAM1, PARAM2, and PARAM3. They take on a different meaning for each combination of operation type, procedure type, and thrust type, see the two tables below.

PARAM	Full Name
THR	Thrust (lbs)
ALT	Altitude (ft AFE)
SPD	Speed (kts)
DIST	Distance (ft)
ANG	Angle (deg)
PCT	Percent
CLM	Climb Rate (ft/min)

Op Type	Step Type	Flap ID	Thrust Type	PARAM1	PARAM2	PARAM3
A,D,T,F,V	V	ID		ALT	SPD	DIST
A,T,F,V	D	ID		ALT	SPD	ANG
A,T,F,	L	ID	T,C,H,Q	DIST	0	0
A,F	B		U	DIST	SPD	PCT
D,F	T	ID	T,C,H,Q	0	0	0
D,F	T	ID	U	0	0	THR
T	T	ID	T,C,H,Q,R	0	SPD	0
T	T	ID	K,U	0	SPD	THR
D,T,F	C	ID	T,C,H,Q,R	ALT	0	0
D,T,F	C	ID	K,U	ALT	0	THR
D,T,F	A	ID		CLM	SPD	0
D,T,F	A	ID		CLM	SPD	THR
A,D,F,V	M	ID		ALT	SPD	ANG
F	S	ID		0	0	0
A	U	ID		ALT	SPD	DIST
A	W			ALT	SPD	DIST
A	E	ID		ALT	SPD	ANG
A	F			ALT	SPD	ANG
D,T,F	P		T,C,H,Q,R	PCT	SPD	0
D,T,F	P		K,U	PCT	SPD	THR

10.1.4 How to Build an Approach Profile

Standard approach procedures generally have four Descend steps, a Land step, and two Decelerate steps, as follows:

- The four Descend steps start at 6000, 3000, 1500, and 1000 feet AFE. They bring an airplane from zero-flaps configuration, terminal-area entrance speed, down to landing-gear/flaps configuration, final-approach speed.

- For most AEDT airplanes, a 3-degree descent angle is used to model IFR approaches. For single-engine piston airplanes and for BEC58P, a 5- degree descent angle is used to model VFR approaches.

- For the Land step, the touchdown-roll distance is 10% of the total rollout distance. For those airplanes using 3-degree approaches, the relationship between the total roll-out distance and the max landing distance is:

(Roll-out distance) = 0.9 (Max landing distance) - 954

- For those airplanes using 5-degree approaches, the 954-foot value is replaced with 572 feet (the angle is steeper, so the in-air portion of the flight path after crossing the end of the runway is shorter).

- The first Decelerate distance is 90% of the total roll-out distance. The starting speed is less than the touchdown speed. The starting percentage thrust is 40% for narrow-body jets, 10% for wide-body jets, and 40% for props. The first deceleration segment represents reverse thrust action.

- The second Decelerate distance is zero, indicating the end of the profile. The starting speed is 30 knots, representing taxi speed. The starting percentage thrust is 10% of static thrust, representing taxi thrust.

10.1.5 How to Build a Departure Profile

AEDT standard departure procedures for civil jet airplanes tend to follow a pattern (but there are exceptions). A typical civil jet departure profile consists of the following procedure steps:

1. Takeoff using MaxTakeoff thrust and extended flaps.
2. Climb to 1000 feet using MaxTakeoff thrust and takeoff flaps.
3. Accelerate 10-20 knots using MaxTakeoff thrust, takeoff flaps, and 2/3 of the initial climb rate.
4. Accelerate 15-30 knots using MaxTakeoff thrust, reduced flaps, and ½ of the initial climb rate.
5. Accelerate to Vzf (zero-flaps minimum safe maneuvering speed) using MaxClimb thrust, minimal flaps, and 1000-fpm climb rate.
6. Climb to 3000 feet using MaxClimb thrust and zero flaps.
7. Accelerate to 250 knots using MaxClimb thrust, zero flaps, and 1000-fpm climb rate.
8. Climb to 5500 feet using MaxClimb thrust and zero flaps.
9. Climb to 7500 feet using MaxClimb thrust and zero flaps.
10. Climb to 10000 feet using MaxClimb thrust and zero flaps.

A standard departure profile for propeller-driven civil airplanes also tends to follow a pattern of procedure steps:

1. Takeoff using MaxTakeoff thrust and takeoff flaps.
2. Accelerate 10-15 knots using MaxTakeoff thrust, takeoff flaps, and a standard rate of climb.
3. Climb to 1000 feet using MaxTakeoff thrust and takeoff flaps.
4. Accelerate to Vzf using MaxTakeoff thrust, takeoff flaps, and a standard climb rate.

5. Climb to 3000 feet using MaxClimb thrust and zero flaps.

6. Climb to 5500 feet using MaxClimb thrust and zero flaps.

7. Climb to 7500 feet using MaxClimb thrust and zero flaps.

8. Climb to 10000 feet using MaxClimb thrust and zero flaps.

An AEDT standard airplane usually has more than one departure profile. AEDT profiles are distinguished by profile stage numbers from 1 to 9. Departure procedure steps are almost the same for all profile stages. Usually, the change is in the Accelerate step where the final speed value increases for heavier airplanes and the climb rate decreases for heavier airplanes.

10.1.6 How to Build an Overflight Profile

An overflight profile can be built with one procedure step. For example: Level using ZERO flaps, at 5000-foot altitude, at 250 knots, for a distance of 300,000 feet (about 50 nmi).

10.1.7 How to Build a Touch and Go Profile

A user-defined touch-and-go profile consists of the following steps:

1. Start in level flight at airport pattern altitude.

2. Descend.

3. Touch down on the runway.

4. Roll out.

5. Take off.

6. Climb.

7. End after leveling off at pattern altitude.

After associating a touch-and-go profile with a touch-and-go track, but before calculating flight path points, AEDT reorders and modifies the set of profile points so that the profile starts and ends at the touchdown point. While reordering the points, AEDT inserts an extra level segment in the downwind portion of the profile (between the last departure point and first approach point), so that the profile distance is the same as the track distance. Also, a final touchdown point is added at the end. When finished, the new profile starts at touchdown, ends at touchdown, and has horizontal coordinate distance equal to the touch-and-go ground track distance.

10.1.8 How to Build a Circuit Profile

A user-defined circuit profile consists of the following steps:

1. Start on the runway as a standard departure.

2. Take off.

3. Climb to pattern altitude.

4. Level out.

5. Descend from pattern altitude.

6. Land.

7. Decelerate to taxi speed.

After associating a circuit profile with a touch-and-go track (there are no circuit tracks in AEDT), AEDT inserts an extra level segment in the downwind portion of the profile, so that the profile distance is the same as the track distance. The place where the extra segment is inserted is determined by the "Level-Stretch" procedure step, which is provided by the user. After modifying a touch-and-go or circuit profile, AEDT merges the new profile points and the ground track points to compute a three-dimensional flight path.

10.1.9 Airplane Procedure Step Transitions

Procedure steps are combined in prescribed sequences. Certain sequences are not allowed. For example, a climb step may not be followed by a descend step. Procedures must comply with the step transition diagrams provided here.

The step transition diagrams use a simple convention to represent procedures:

- Ellipses represent procedure steps.
- Arrows represent a valid transition from one step to another.
- Arrows point in the direction of the allowed transition – e.g. Land to Decelerate is accepted, but Decelerate to Land is not.
- A double sided arrow means that the transition is valid in both directions.
- An arrow looping back to a step indicates that the step can be repeated.
- A box surrounding two or more steps is used to simplify the diagram.
- Arrows connected to the box apply to each step within.
- Each step within the box can transition to any other within the box.

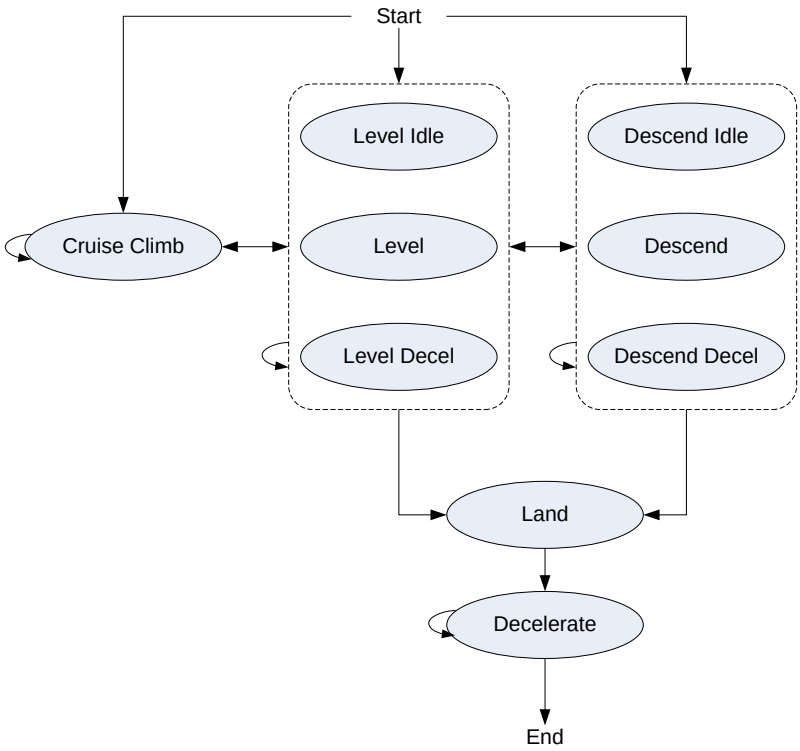


Figure 1: Airplane Approach Step Transition Diagram

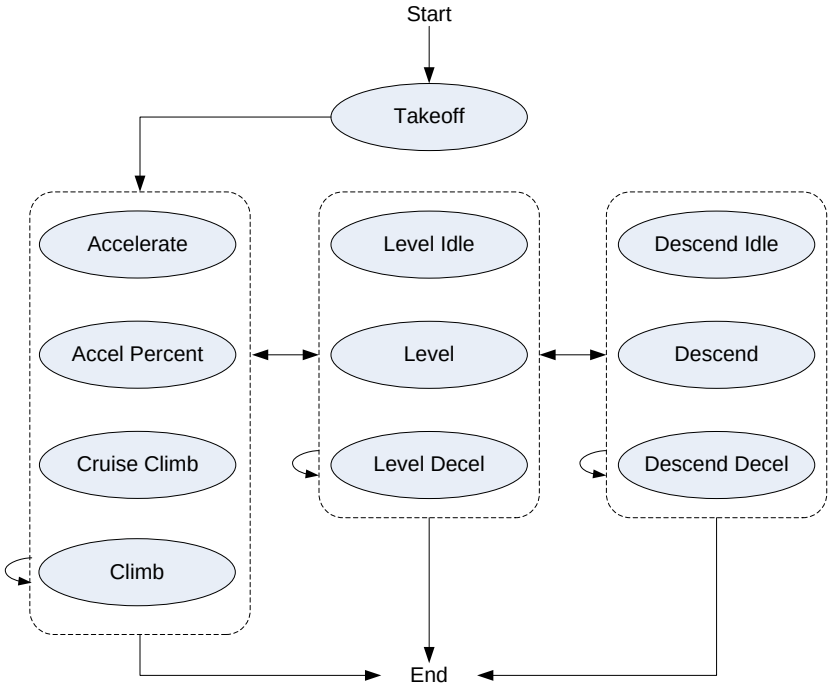


Figure 2: Airplane Departure Step Transition Diagram

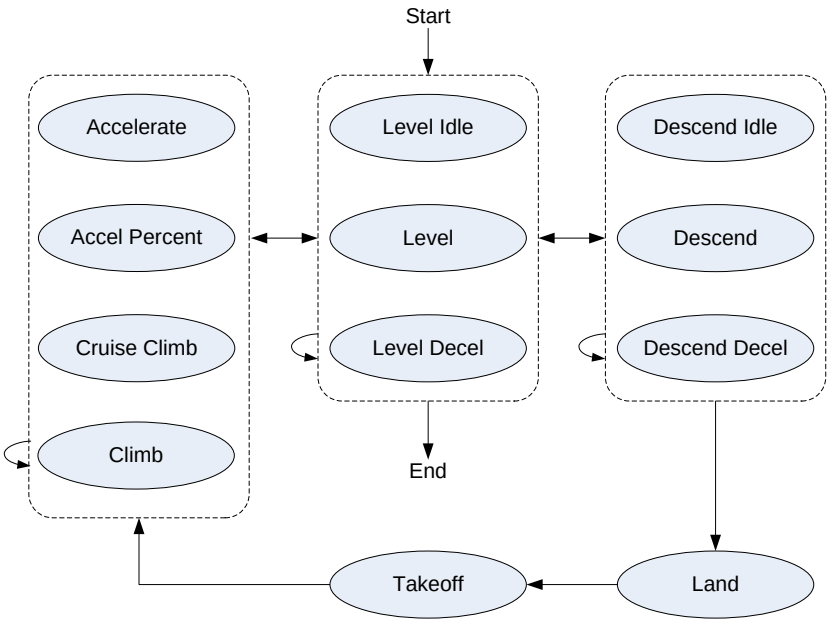


Figure 3: Airplane Touch and Go Step Transition Diagram

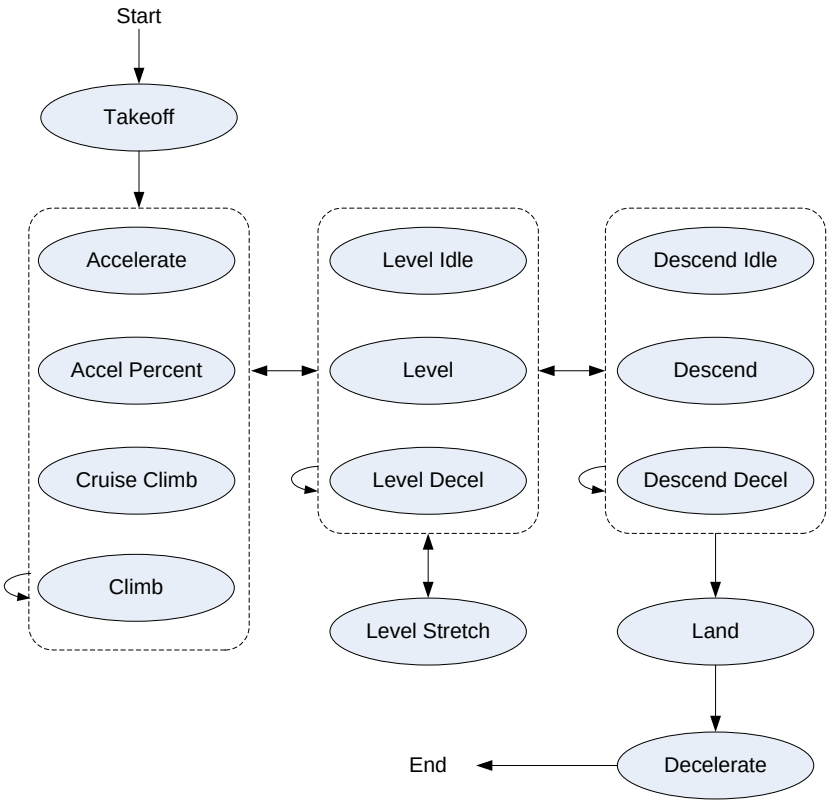


Figure 4: Airplane Circuit Step Transition Diagram

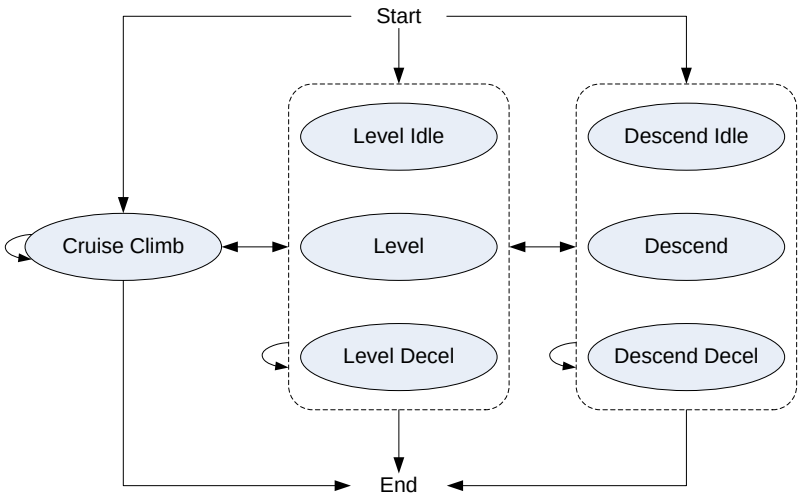


Figure 5: Airplane Overflight Step Transition Diagram

10.2 Helicopter Procedures

The following sections describe helicopter procedure steps and how they are combined into procedural profiles.

10.2.1 Helicopter Profile Operation Types

There are four types of flight operations for helicopters:

Abbreviation	Single-Letter Identifier	Description	Begin	End
APP	A	Approach	In Air	Helipad
DEP	D	Departure	Helipad	In Air
TAX	T	Taxi	Helipad	Helipad
OVF	V	Overflight	In Air	In Air

10.2.2 Helicopter Procedure Step Types

The following table describes the procedure steps that are used to define helicopter profiles. The first seven types are the primary NPD operating modes. The next nine are secondary NPD operating modes which can be derived from the primary modes or defined as separate curves. The last step (start altitude) facilitates profile creating as is not associated with an NPD operating mode.

Step Type	Description	State	Parameters
A	Approach at constant speed	Move	Dist Alt
D	Depart at constant speed	Move	Dist Alt
X	Level flyover at constant speed	Move	Dist
G	Ground idle	Static	Dur
H	Flight idle	Static	Dur
I	Hover in ground effect	Static	Dur
J	Hover out of ground effect	Static	Dur
V	Vertical ascent in ground effect	Static	Dur Alt
W	Vertical ascent out of ground effect	Static	Dur Alt
Y	Vertical descent in ground effect	Static	Dur Alt
Z	Vertical descent out of ground effect	Static	Dur Alt
B	Approach with horizontal deceleration	Move	Dist Spd
C	Approach with descending deceleration	Move	Dist Alt Spd
E	Depart with horizontal acceleration	Move	Dist Spd
F	Depart with climbing acceleration	Move	Dist Alt Spd
T	Taxi at constant speed	Move	Spd
S	Start altitude at constant speed	--	Alt spd

Parameter values are defined as below:

PARAM	Full Name
Dist	Distance (ft)
Dur	Duration (s)
Alt	Altitude (ft AFE)
Spd	Airspeed (kts)

10.2.2.1 *Additional Helicopter Step Type Information*

Step Type	Description
Start Altitude	This step is used to start a profile at a given altitude and speed. Input the starting altitude and speed.
Level Fly	This step is used to maintain altitude and speed for a given distance. Input the track distance covered by the step. Altitude and speed are defined by the previous step.
App Const Speed	This step is used to descend at constant speed to a given altitude over a given distance. Input the track distance covered by the step and the final altitude. The initial altitude and speed are defined by the previous step.
App Desc Decel	This step is used to descend and decelerate to a final altitude and speed over a given distance. Input the track distance covered by the step, the final altitude, and the final speed. The initial altitude and speed are defined by the previous step.
App Horiz Decel	This step is used to decelerate to a final speed at constant altitude over a given distance. Input the track distance covered by the step and the final speed. The altitude and initial speed are defined by the previous step.
App Vertical	This step is used to maintain horizontal position while descending to a final altitude over a given duration. Input the duration of the step and the final altitude. The horizontal position of the step is calculated from the previous step and the horizontal speed is zero.
Hover	This step is used to maintain altitude and horizontal position for a given duration. Input the duration of the step. The altitude is defined by the previous step, the horizontal position of the step is calculated from the previous step, and the horizontal speed is zero.
Ground Idle	This step is used to maintain ground idle for a given duration. Input the duration of the step. The altitude is zero, the horizontal position of the step is calculated from the previous step, and the horizontal speed is zero.
Flight Idle	This step is used to maintain flight idle for a given duration. Input the duration of the step. The altitude is zero, the horizontal position of the step is calculated from the previous step, and the horizontal speed is zero.
Dep Vertical	This step is used to maintain horizontal position while ascending to a final altitude over a given duration. Input the duration of the step and the final altitude. The horizontal position of the step is calculated from the previous step and the horizontal speed is zero.
Dep Horiz Accel	This step is used to accelerate to a final speed over a given distance. Input the track distance covered by the step and the final speed. The altitude and initial speed are defined by the previous step.
Dep Climb Accel	This step is used to climb and accelerate to a final altitude and speed over a given distance. Input the track distance covered by the step, the final altitude, and the final speed. The initial altitude and speed are defined by the previous step.

Step Type	Description
Dep Const Speed	This step is used to climb at constant speed to a given altitude over a given distance. Input the track distance covered by the step and the final altitude. The initial altitude and speed are defined by the previous step.
Taxi	This step is used to taxi at a given speed. Input the speed. The track distance is calculated based on the assigned taxi ground track, and the altitude is defined by the previous step. Helicopters defined as not having wheels must taxi at an altitude greater than zero.

Helicopter procedure steps explicitly define a helicopter's flight path. There are no thrust calculations for helicopter flight paths as there are for fixed-wing aircraft. Rather, each procedure step correlates with a helicopter flight operational mode and each mode has its own set of NPD data.

Some helicopter procedure steps correlate with different helicopter flight operational modes (and therefore different NPD and directivity data) depending on their altitude. When constructing flight paths with the Hover, DepVertical, and App Vertical procedure steps, AEDT calculates a ground effect altitude as follows:

Ground Effect Altitude = 1.5 x Main Rotor Diameter

If the procedure step stays below the ground effect altitude, the procedure step correlates with the corresponding In Ground Effect flight operational mode. If the step stays at or above the ground effect altitude the procedure correlates with the corresponding Out of Ground Effect flight operational mode. If a given Dep Vertical or App Vertical procedure step crosses the ground effect altitude, AEDT automatically divides the step into two at the ground effect altitude and assigns flight operational modes to the two steps as appropriate.

10.2.3 How to Build a Helicopter Approach Profile

Helicopter approach profiles can be much more dynamic than fixed-wing airplane approach profiles. There are many more ways to operate a helicopter than there are to operate an airplane. AEDT provides a standard approach profile for each helicopter in the database, however these standard profiles may not be appropriate for all helicopter modeling. Additionally, general guidelines are not as appropriate for helicopter approach operations as they are for fixed-wing airplanes. It is strongly recommended to evaluate the helicopter flight operations being modeled to determine if using the standard AEDT helicopter procedures is appropriate. In most cases consulting with helicopter operators to design helicopter profiles that are appropriate for your study is needed. All helicopter approach profiles must start with a Start Altitude step.

For reference, AEDT standard helicopter approach procedures consist of the following procedure steps:

1. Start Altitude, with altitude set to 1000 feet AFE and speed set equal to the helicopter's level reference speed.

2. Level Fly, with distance set to 87250.0 ft (approximately 14 nautical miles).

3. App Horiz Decel, maintaining an altitude of 1000 ft while decelerating to the helicopter's approach reference speed over a distance of 5000 ft.

4. App Const Speed, maintaining the helicopter's approach reference speed while descending to an altitude of 500 feet AFE over a track distance of 4800 feet.

5. App Desc Decel, descending to an altitude of 15 feet AFE while decelerating to a speed of 0 knots over a distance of 2850 feet.

6. App Vertical, maintaining horizontal position while descending to 0 feet AFE over a duration of 3 seconds.

7. Flight Idle for a duration of 30 seconds.

8. Ground Idle for a duration of 30 seconds.

10.2.4 How to Build a Helicopter Departure Profile

Helicopter approach profiles can be much more dynamic than fixed-wing airplane approach profiles. There are many more ways to operate a helicopter than there are to operate an airplane. AEDT provides a standard approach profile for each helicopter in the database, however these standard profiles may not be appropriate for all helicopter modeling. Additionally, general guidelines are not as appropriate for helicopter approach operations as they are for fixed-wing airplanes. It is strongly recommended to evaluate the helicopter flight operations being modeled to determine if using the standard AEDT helicopter procedures is appropriate. In most cases consulting with helicopter operators to design helicopter profiles that are appropriate for your study is needed.

For reference, AEDT standard helicopter departure procedures consist of the following procedure steps:

1. Ground Idle for a duration of 30 seconds.

2. Flight Idle for a duration of 30 seconds.

3. Dep Vertical, maintaining horizontal position while ascending to an altitude of 15 ft AFE over a duration of 3 seconds.

4. Dep Horiz Accel, maintaining altitude while accelerating to a speed of 30 knots over a distance of 100 feet.

5. Dep Climb Accel, climbing to an altitude of 30 feet AFE while accelerating to the helicopter's depart reference speed over a distance of 500 feet.

6. Dep Const Speed, maintaining speed while climbing to an altitude of 1000 feet AFE over a track distance of 3500 feet.

7. Dep Horizontal Accel, maintaining altitude while accelerating to the helicopter's level reference speed over a track distance of 2800 feet.

8. Level Fly, with distance set to 93100 feet (approximately 15 nautical miles).

10.2.5 How to Build a Helicopter Overflight Profile

A typical helicopter overflight profile begins in the air at the start of an overflight track, follows the track, and ends in the air. Overflight profiles may include any of the steps defined in section 10.2.2 except for the Taxi step, and it must start with a Start Altitude step.

10.2.6 How to Build a Helicopter Taxi Profile

A typical helicopter taxi profile consists of the following steps:

1. Start with Ground Idle
2. Flight Idle
3. Departure Vertical
4. Taxi
5. Approach Vertical
6. Flight Idle
7. Ground Idle

10.2.7 Helicopter Procedure Step Transitions

Procedure steps are combined in prescribed sequences. However, certain sequences are not allowed. For example, an approach profile cannot use an ascent step. Procedures must comply with the step transition diagrams provided here.

The step transition diagrams use a simple convention to represent procedures:

- Ellipses represent procedure steps.
- Arrows represent a valid transition from one step to another.
- Arrows point in the direction of the allowed transition – e.g. you can go from Flight, Idle to Ground, Idle on an approach, but not back.
- A double sided arrow means that the transition is valid in both directions.
- An arrow looping back to a step indicates that the step can be repeated.
- A box surrounding two or more steps is used to simplify the diagram.
- Arrows connected to the box apply to each step within.
- Each step within the box can transition to any other within the box. However, speeds and altitudes must be compatible. For example, on an approach a transition from an App.Horiz.Decel step to a Hover step is valid only when the App.Horiz.Decel step has a speed of 0 knots.

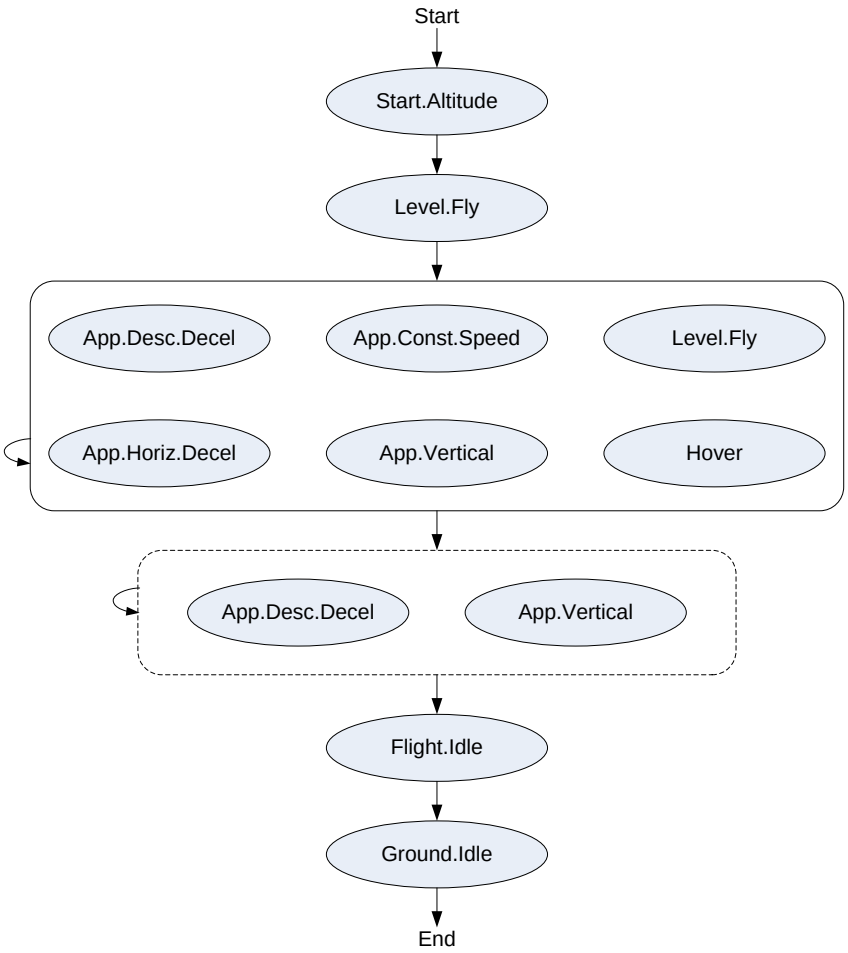


Figure 6: Helicopter Approach Step Transition Diagram

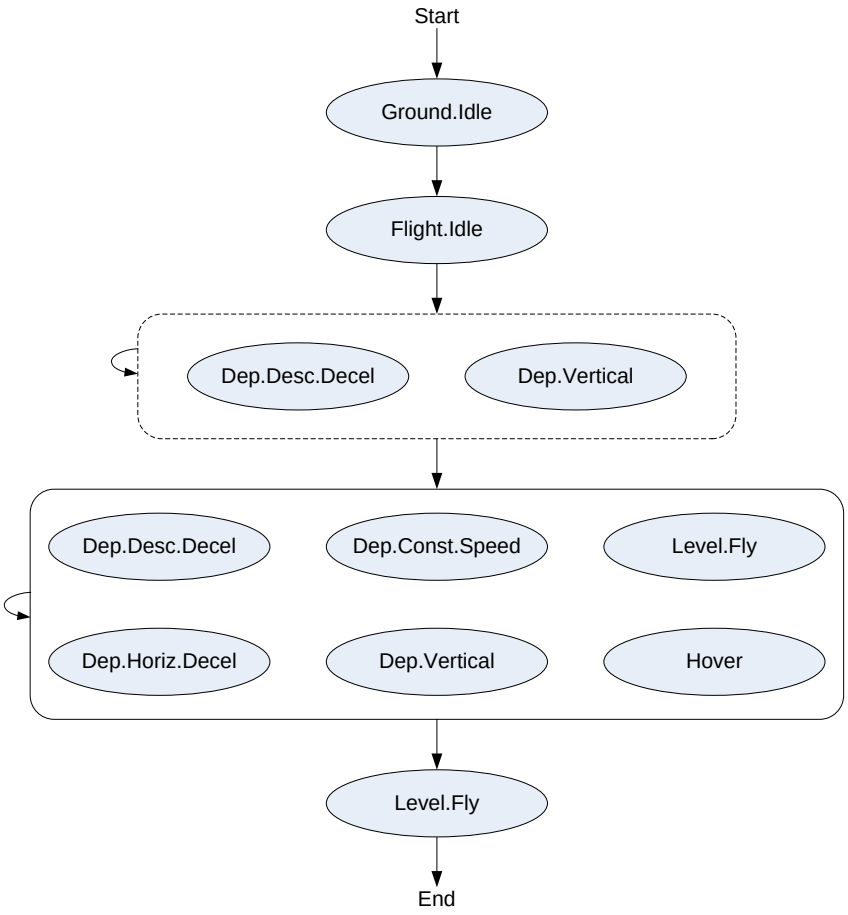


Figure 7: Helicopter Departure Step Transition Diagram

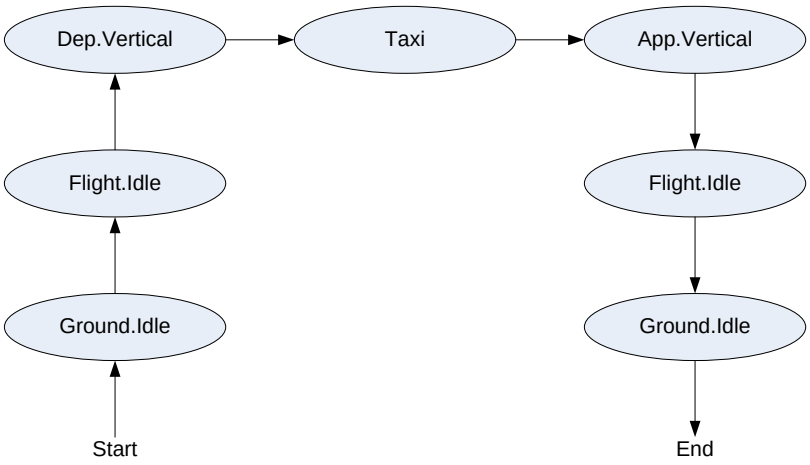


Figure 8: Helicopter Taxi Transition Diagram

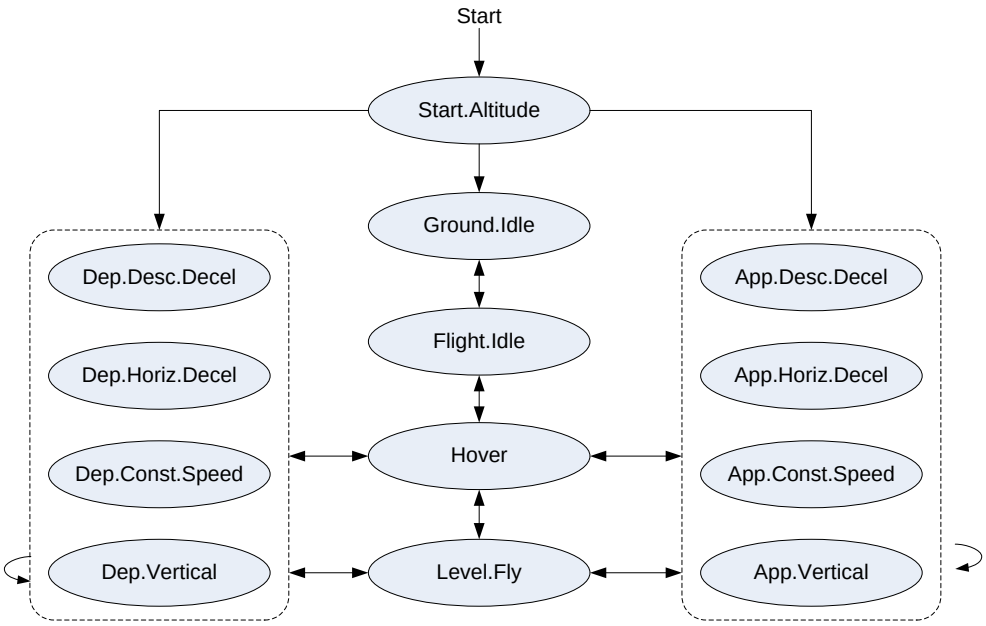


Figure 9: Helicopter Overflight Step Transition Diagram