

EDMS Frequently Asked Questions

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General Questions

1. What is the most recent (current) version of EDMS?

4.11 and it requires Windows 95/98/NT4/2000/XP.

2. What are the minimum hardware requirements?

- Intel Pentium processor or compatible operating at 233 MHz or greater
- 64 Mbytes RAM (128 Mbytes recommended)
- 20 Mbytes disk storage (for emissions inventories only)
- 800 Mbytes disk storage (for dispersion analyses)
- CD-ROM drive
- Mouse or equivalent pointing device

3. I just installed EDMS. When I tried to run the program, I received an error message. What's wrong?

The EDMS installation program assumes that you do not have any other programs running during the installation process. The integrity of the system tables is verified at runtime. One of the checks made is that the system database (.DBF) files and the corresponding index (.MDX) files have matching time stamps. If the installation is disrupted and these time stamps do not match, you will receive an error when trying to run EDMS. To solve this problem, uninstall EDMS, reboot your machine and reinstall EDMS with no other programs running. Another cause for receiving an error message is user-modification of a system database file (e.g., using Excel). Although the system database files are readable outside of EDMS, they become unusable within the model if they are modified outside of EDMS. A list of error codes is provided below. The affected files are not relevant to every version of EDMS.

Error Code	Meaning	Affected Files
100	Airports system table invalid	airports.dbf airports.mdx
200	Airports system table invalid	aircraft.dbf aircraft.mdx

Error Code	Meaning	Affected Files
300	Engine system table invalid	eng_def.dbf eng_def.mdx aircombo.dbf aircombo.mdx
400	Engine emission factor/index system table invalid	eng_ef.dbf eng_ef.mdx eng_ei.dbf eng_ef.mdx
500	Ground support equipment or Auxiliary Power Unit system table invalid	gse_def.dbf gse_def.mdx apu_def.dbf apu_def.mdx
600	Ground support equipment emission factors table invalid	gsef.dbf gsef.mdx apu_ef.dbf apu_ef.mdx
700	Roadway vehicle emission factors table invalid	mobile5a.dbf mobile5a.mdx
800	Training fire fuel emission factors table invalid	fuel.dbf fuel.mdx
900	Stationary sources emission factors table invalid	stn_ef.dbf stn_ef.mdx
1000	Arrival profiles system table invalid	arrivals.dbf arrivals.mdx
1100	Departure profiles system table invalid	departrs.dbf departrs.mdx
1200	EPA Default TIM system table invalid	air_cat.dbf air_cat.mdx
1300	GSE Type system table invalid	gsetypes.dbf gsetypes.mdx
1400	GSE emission factors system table invalid	gse_ef.dbf gse_ef.mdx

4. I am running Windows, but some of the screens don't look right. Is this normal?

EDMS's internal libraries might not be 100% compatible with those in every version of Windows. Please report any incompatibility you find to edms_help@cssiinc.com. We are probably not aware of it. Moreover, please check that your display properties are not set to anything unusual. For example, Dell laptops come preset with "Large Fonts". This setting causes all dialog boxes and windows to be drawn much wider than normal to accommodate the large fonts. To change your display to the standard "Small Fonts" setting, go to the display control panel, select the settings tab, and then press the "Advanced..." button. A drop-down menu will appear where the system font size can be specified.

5. Does EDMS have a website where I can obtain more information about the model?

Yes. Go to <http://www.aee.faa.gov>. Then choose "**EDMS**" from the *Links at AEE* list on the left side of the page. The EDMS website contains ordering information, the latest software updates and other useful information for users. In addition, users who have provided their e-mail address will also receive notification of any software changes.

Database Questions

6. I seem to be able to open the data files from my study in Microsoft Excel. Can I add new aircraft, runways, taxiways, etc. by modifying the appropriate tables outside of EDMS?

No. Although, the data files are readable outside of EDMS, they will become unusable within the model if they are modified. However, you can import data in EDMS 4.1 using the import utility, which allows data for all sources to be entered in a comma separated value (.csv) or text file that can be constructed using Excel.

7. Some aircraft engines seem to have an HC emission rate of 0. Is this an error?

Probably not, the emission rates included in EDMS reflect what is published in the ICAO databank --or what the engine manufacturer provided. The source of the data can be viewed if you select the "view system tables" menu option, and then query on "aircraft engine emissions".

8. Why do some aircraft have a default engine assigned to them, and others do not?

When market share information is available for a specific aircraft type, the most widely used engine is given as the default engine. When the information is not available, EDMS makes no attempt to guess which engine is most commonly in use.

9. What is the default engine used for aircraft xyz?

In EDMS 4.1, the default engine appears in bold type in the aircraft dialog box. For previous versions, see the provided documentation.

10. I didn't see an aircraft type that operates at my airport in the available list to choose from in EDMS. What aircraft type should I use as a substitute?

An aircraft that uses the same engines and that is approximately the same size as the desired aircraft will make the best substitution. Information about specific aircraft types is available from a variety of sources including Jane's All the World's Aircraft and the International Directory of Civil Aircraft.

11. I didn't see the specific engine for my aircraft type included in EDMS. How should I get the engine information I need for my study?

For aircraft jet engines, publicly available data on HC, CO, and NOx emission factors is included in the International Civil Aviation Organization (ICAO) databank. The databank, which is a comprehensive database of aircraft jet engine emissions certification data that has been developed during the course of the work carried out by ICAO, can be downloaded for free at:

<http://www.qinetiq.com/aviation-emissions-databank/>.

EDMS is updated annually to account for revisions to the ICAO databank. For smaller, general aviation aircraft engines, the limited data that is available is included in EDMS. For either jet engines or smaller engines, if additional emission factor data or substitute engine information is needed for an engine, the aircraft or engine manufacturer or operating airline may be able to provide assistance.

MOBILE Questions

12. How does EDMS handle the percentage of cold starts, hot starts, and stabilized starts?

EDMS uses the default percentages for these factors as specified by the EPA. For users who require modeling parking lots at this level of fidelity it is recommended that either a model more specific to parking lots be used, or EPA's MOBILE model be used to generate more applicable emission factors for input by the user into EDMS. To override the default emission factors for parking lots and roadways in versions 4.0 and earlier, press the Edit Emissions button on those screens and enter your own values. In version 4.1, simply edit the displayed values to override the default system values.

13. What version of MOBILE was used to develop the EDMS vehicle emission factors?

Version 5A was used, however, users are able to override the system values with output from other sources, if desired.

Emissions Inventory Questions

14. I do not want to use the performance data in EDMS for my emissions inventory. How do I enter my own times in mode for an aircraft?

Create a user-created aircraft with the times in mode appropriate for your analysis. These times will only be used for the emissions inventory. Dispersion calculations, however, always use the aircraft performance data (the flight profile). If you want to use EPA default times in mode, assign the desired category to your user-created aircraft, and select the "EPA Defaults for Category" times in mode data source radio button.

15. When I changed my taxiway assignments, the emissions inventory did not seem to change. Does EDMS use the taxi and queue times defined on the Taxiways and Runways screens to calculate the emissions inventory?

No. The emissions inventory uses the Annual Average Taxi and Queue time value entered on the Aircraft Operations and Assignments screen.

16. I noticed that the times in mode that appear in the Aircraft Operations and Assignments Window do not match the EPA times in mode for an aircraft in that category. Is this an error?

No. Beginning with EDMS version 4.0, aircraft times in mode were based on performance data from SAE AIR 1845. This data is similar to what is used by the Integrated Noise Model (INM). In versions prior to 4.0, the default times in mode should agree with the EPA defaults.

Dispersion Questions

17. What coordinate system is EDMS using for placing sources?

For EDMS 4.1, the coordinates are based on a Cartesian grid with a user-defined center at (0,0), a northeastern boundary at (999,999.99, 999,999.99) and a southwestern boundary at (-999,999.99, -999,999.99). Each unit represents 1 meter, effectively creating a maximum domain that is a square with a side length of 2,000 kilometers.

18. Can I use UTM's?

Universal Transverse Mercator coordinates may be used in EDMS by selecting meters for the airport layout units (on the Study Setup screen under the File menu) and dropping the first 2 digits from the coordinates. As an example, for the location 10 S 0559741mE 4282182mN you would enter x=59741 and y=82182. Your coordinates must be within the range +/- 999,999.99 meters.

19. How does EDMS model gates with AERMOD?

This depends on the number of points chosen from the drop-down list used to represent the gate. You may choose “1” or “3” to “20” points inclusive. If “1” is chosen, the gate will be modeled as a volume source centered on the one specified point. If “3” to “20” points is chosen, the gate will be modeled as an area source that is a polygon with the specified points as vertices.

20. Is dispersion calculated once the aircraft leaves the ground after takeoff and on approach?

In versions 4.0 and 4.1, yes. Dispersion is calculated for airplanes on takeoff, during their climb at takeoff power up to 1000’ above the surface, during approach from 1000’ above the surface and during the landing roll. Dispersion for helicopters is only modeled for a hover taxi. In versions prior to 4.0, no aircraft dispersion is modeled after takeoff and on approach.

21. What is the Approach Angle and why is it always 3 (and sometimes 5) degrees?

The approach angle is the glide slope, the angle of decline in the proper path of descent for an aircraft preparing to land. It has nothing to do with headings or angular deviations from a runway’s direction. Usually only smaller, GA, aircraft are allowed to also use a 5 degree approach angle. EDMS only has descent paths in its database that correspond to angles of 3 and 5 degrees. It is not possible to assign a descent path with an angle other than 3 or 5 degrees in EDMS 4.0 and 4.1.

22. Is the Annual Average Taxi and Queue Time that I entered on the Aircraft Operations and Assignments screen used for dispersion?

No. That value is an average value that is used to for emissions inventory purposes. The more detailed taxi and queue times used for dispersion are based on the assigned taxiways and queues defined on the Taxiways and Runways screens.

23. When I assign an aircraft to taxiways, do aircraft travel the same taxiways on the way from the gate to the runway as they do after landing when returning to the gate?

Aircraft in EDMS are assumed to travel on a selected taxiway only once per LTO as if they are making a loop. Therefore, the complete taxi path from the gate to the runway and back again must be specified. If the same taxiway is to be used in both directions, the user must enter its coordinates twice and provide it with a unique label (such as A-Inbound and A-Outbound).

24. I have adjusted my operational profiles and now my peak concentrations have gone up. Why did this happen?

The total number of operations has not changed. Therefore, if during certain hours you are not allowing many operations, then during the peak hours more operations must be conducted to obtain the same total number of operations. Since there are more operations taking place during a peak hour the concentrations during those hours will increase.

25. Which operational profile weights are in effect for any given hour in my study?

The weights selected for a given hour depend on the meteorological file. If the weather hour being applied to the model is hour 13 of Sunday, November 19, 2000, then the weights corresponding to hour 13, Sunday and November are used. In versions prior to 4.0, January 1st is always assumed to be a Monday regardless of the year being modeled or the weather being used.

26. How many sources can I add to my study?

Version 99351 of AERMOD, which is provided with EDMS 4.01 and beyond, limits the total number of sources in a study to 10,000. Each EDMS source, however, requires multiple AERMOD sources (e.g. a roadway is made up of multiple area sources). Advanced users can recompile AERMOD to allow for additional sources. The AERMOD source code is available from the [EPA SCRAM website](#). The table below lists the approximate number of AERMOD sources required for each EDMS source type.

EDMS Source Type	Number of AERMOD Sources Required
Roadways	Length of the roadway divided by 200 m.
Queues	Length of the queue divided by 200 m.
Taxiways	Length of the taxiway divided by 200 m.
Runways	200 – 400 depending on aircraft fleet mix used.
Stationary sources	1 for each stationary source
Training fires	1 for each training fire
Parking lots	1 for each parking lot
Gates	1 for each gate

27. How many receptors can I add to my study?

EDMS does not limit the number of receptors in a study. However, AERMOD version 99351 (provided with EDMS 4.01 and beyond) limits the number of receptors in a study to 10,000. Advanced users can recompile AERMOD to allow for additional receptors. The AERMOD source code is available from the EPA SCRAM website. However, as the number of receptors in a study increases, so does the amount of time required to model concentrations. Therefore, it is not recommended that users create a dense grid of receptors for the entire study area; but instead only place large numbers of receptors in locations they wish to model in greater detail. AERMOD runtime is approximately proportional to the number of receptors.

28. How can I tell if my AERMOD run was successful?

If AERMOD was run from within EDMS (by choosing the Run AERMOD menu option), then a message box will appear to inform the user of the success of the run and the total run time. In addition, AERMOD will create an output file (with the .out extension) in your study directory. This file not only includes the dispersion results, but also information about whether the run was successful.

29. AERMOD finished successfully, but with many warnings about the Source Parameter May Be Out-Of-Range For Parameter HS. Have I entered something incorrectly?

No, this is not an error. AERMOD was originally designed to model ground-based sources. Since, EDMS uses AERMOD area sources to model aircraft during climb out and approach, the warning is generated because the source is located above the ground. These warnings should be ignored.

30. Looking at my dispersion results, some of the multiple-hour averages have the letter b, c, or m after them. What does that mean?

These letters are important notes about the weather data used during the averaging period: m indicates that the wind data was missing for 1 or more of the hours in the averaging period, c indicates that there was at least 1 calm wind hour in the averaging period and b indicates that both calm and missing weather occurred during the period.

31. I would like to have access to a raw dump of the concentrations generated by AERMOD instead of the formatted report. What happened to the all_conc.dbf file?

The all_conc.dbf file is no longer used, since the concentrations are generated by AERMOD. EDMS 4.1 allows the user to select “Tabulation...” as an Output Reporting option, which provides output that is very similar to the output previously contained in the all_conc.dbf file.

32. My dispersion run seems to take forever. What can I do to speed it up?

Dispersion runtime is directly proportional to the number of receptors in the study and the number of weather hours being considered. Reducing either of these elements will have a significant impact on runtime. It is

recommended that users employ a combination of Cartesian and polar networks to place receptors only where they are truly necessary for the analysis.

33. Why is the .hrc file so large? Can't you make it smaller?

The .hrc file contains the emissions for each source for every hour of the analysis. The file is a necessary input to AERMOD and the only way to reduce its size is to reduce the number of sources in your study. Once you have generated your dispersion results, the file can be deleted to free additional disk space.

Meteorological Questions

34. What types of weather data are required for dispersion and where can I obtain them?

EDMS uses AERMET to process weather, which currently supports the following surface data formats: TD-3280, TD-3505, CD-144, HUSWO, SCRAM and SAMSON. The upper-air data formats are: TD-6201 and Radiosonde Data of North America. It is very complicated to create your own weather data; therefore, it is best to use real weather data. Information regarding EDMS weather data can be found on the EDMS website. To access the website, go to <http://www.aee.faa.gov>. Choose "EDMS" from the Links at AEE list on the left side of the page. Then select "**EDMS Weather Data Information.**"

35. Am I able to model concentrations for airports outside of the United States?

AERMOD requires an early morning upper-air sounding to calculate the mixing height. Typically, upper air data are available for 00Z and 12Z worldwide, which would mean that an early morning reading would not be available for many parts of the globe. This is the only AERMOD limitation that is location dependent. Users with early morning upper air data are able to model concentrations. In addition, the surface and upper air data may not be available in one of the supported formats. The user must ensure that the data has been converted into one of the formats listed above in order to be used with EDMS. A link to a description of those data formats is provided on the EDMS Weather Information page.

For formats not listed there, go to <http://www4.ncdc.noaa.gov/ol/documentlibrary/datasets.html>.

36. How can I tell if my AERMET Wizard run was successful?

AERMET generates report files for each step in your study directory. The table below lists the files that you will find and the information that they contain.

File Name	Contents
SFREPORT.TXT	Report from AERMET about the surface weather data that were extracted. Information includes statistics on missing data that can provide insight about whether the data were extracted successfully or not.
SFMESSAG.TXT	Output messages from AERMET about the surface data that were extracted. This contains more verbose output than the report file described above.
UAREPORT.TXT	The same as SFREPORT.TXT for the upper air data.
UAMESSAG.TXT	The same as SFMESSAG.TXT for the upper air data.
MERGERPT.TXT	Report from AERMET about the merged surface and upper air data files. The number of observations merged should correspond to the values in SFREPORT.TXT and UAREPORT.TXT.
MERGEMSG.TXT	Verbose list of messages reported from AERMET about the merged data.
STAG3RPT.TXT	Report about the final AERMET options specified for the data that will be used as input to AERMOD.
STAG3MSG.TXT	Verbose messages from AERMET about the final processing of the weather data as input to AERMOD.

37. I have entered a 5-digit station ID for my weather data in the AERMET Wizard, but AERMET does not run successfully. What might have caused this?

Your surface weather file may have been recorded with an 8-digit identifier. Try padding 3 zeros to the front of the station identifier. As an example, if you were modeling New Orleans (ID 12916), you would enter the ID as 00012916.

38. The weather files that I received from NCDC do not have a .dat or .ua extension. Can I still use the file with EDMS?

Yes. Although the surface weather data generally are named .dat and the upper air data generally have a .ua extension, the files may have shipped with different extensions. Simply select the *All Files (*.*)* option on the file selection box to choose your weather data.

39. When defining configurations what is the reference point for the wind angle?

The winds are based on the direction the winds are blowing **from**. That is, winds blowing west to east would be given a direction of 270. All directions are based on true north to be consistent with the surface weather data.

40. What are the formats of the metrological files that AERMOD requires?

The AERMET and AERMOD User's Guides should be consulted regarding the format required. For users going outside of the AERMET Wizard for their met data, they will need to generate a surface (.sfc) file and upper air (.pfl) file that conforms with the format described on page C-12 of the AERMET User's Guide (also found in appendix D of the AERMOD User's Guide). However, EPA has not updated their documentation to be consistent with the version of AERMET that EDMS currently uses. The difference is that the surface file should also contain 2 additional fields at the end of each record that are not currently used by AERMOD. They will eventually contain precipitation data to be used by a future deposition component in AERMOD, but for now they should be set to '999' and '0.', respectively with 4 spaces in between them. Two spaces should separate the '999' from the preceding field. A properly formatted surface file will have 22 fields total. Finally, the header of the surface file should indicate that it was created using version 02081 of AERMET. The AERMET/AERMOD user manuals are available at:
<http://www.epa.gov/scram001/tt26.htm#aermod>

41. What happened to the screening weather in EDMS 3?

EDMS version 4.0 marked the introduction of AERMOD for modeling concentrations. This state of the art dispersion model developed by EPA has significantly more weather data requirements than the dispersion algorithms used in previous versions of EDMS. As a result, developing screening weather for AERMOD is not nearly as simple. The FAA and EPA realize that the ability to model a screening scenario in EDMS would benefit many users. EPA, who has the regulatory authority over AERMOD, is developing a screening module. Once this module is available, it will be included with EDMS.

Airport Graphics Questions

42. I didn't find a bitmap for my airport on the EDMS web site. Can I use another file instead?

Yes. EDMS can use any file that is in the Windows uncompressed bitmap format (.bmp). When a valid file is selected, a preview of it appears in the preview box.

43. When do I setup the bitmap for my airport wallpaper?

Scaling and placing of the wallpaper bitmap should be done **prior to** the layout of all sources and receptors to be based off of it. Once the bitmap scale and origin parameters have been set, you are advised to not make any further adjustments! Doing so may force you to reposition all of your previously laid out sources and receptors.

44. How do I scale the bitmap once I have loaded it?

The scaling of the selected bitmap's pixels into real-world coordinates requires knowledge of a real-world distance between two points represented on the bitmap. On maps of U.S. airports, runways typically have their lengths (in feet) noted along side them. The user should select **feet** for the layout units from the study setup screen if this is the case. Entering a known runway length is perfect for scaling. The known real-world length should be entered in the "Distance" box. To capture the length between two pixels in the bitmap, click the "Capture" button next to the "Length" box. Proceed by clicking and dragging with the mouse on the preview of the bitmap. The values in the "Length" and "Scale" boxes will automatically update. The locations of the selected endpoints will appear as crosshairs on two separate zoomed-in views in the scaling box. Using the little arrow controls, you can make fine adjustments to the captured length. Once this has been set, you are advised to not make any further adjustments! Doing so may force you to reposition all of your previously laid out sources and receptors.

45. How do I position the bitmap once I have loaded it?

The origin is the bitmap pixel to be placed at the user-defined real-world coordinates of (0,0). It can be captured with the mouse, or simply typed into the appropriate boxes. To use the mouse, click "Capture" and then click on the desired point within the bitmap preview box. Using the little arrow controls, you can make fine adjustments to the captured point. Once this has been set, you are advised to not make any further adjustments! Doing so may force you to reposition all of your previously laid out sources and receptors.

Importing Questions

46. Why did records get skipped when I tried to import them?

The import utility only appends records from the import file to the data tables. Therefore, if any record to be imported has an identification that is not unique or previously exists in the study data tables, it cannot be imported and will be skipped. The import utility was designed to import data into a blank study, and hence works best with blank studies. Records will also be skipped if they contain fields with invalid values.

47. I tried to import my GSE and APU assignments, but only my GSE assignments were imported. How can I import the APU assignments?

You must start over. If there were no GSE or APU assignments previously in the study, manually delete or remove the gse_asgn.dbf and gse_asgn.mdx files from the study directory. This destroys all GSE and APU assignments. Repeat the import process, and both the APU and GSE assignments should be imported. If there were previously existing assignments in your study, export the original assignments first and merge the records to be kept with those to be imported into a new import file. Repeat the process described above.

Older Questions (Applicable only to Versions Prior to 4.1)

48. I've been looking through the system files and it appears that many aircraft in the Aircraft.dbf file have all of their emission factors set to zero. Is this an error?

No. The Aircraft.dbf file is intended to only include engine emission factors for aircraft that have a default engine specified. The zeros have meaning for the software, which will find the emission factors for non-default engines in another location (Eng_ef.dbf). When a user creates a study and selects aircraft and engine combinations, the Aircraft.dbf file will be combined with applicable emission factor data and used to perform the necessary emission calculations.

49. How can I avoid the "Weather path names may not exceed 40 characters" error when selecting weather files from the Generate AERMOD Input Files menu option?

Move your weather files to a higher-level directory. AERMET limits the entire path name to 40 characters.

50. AERMOD finished unsuccessfully with the following errors:

```
RE E218    546 REPOLR: Number of (X,Y) Points Not Match With Number Of    ELEV
RE E218    546 REPOLR: Number of (X,Y) Points Not Match With Number Of    ZHILL
RE E218    546 REPOLR: Number of (X,Y) Points Not Match With Number Of    FLAG
```

What does this mean?

AERMOD limits the maximum length of any input line to 132 characters. When a network of polar receptors includes more than 20 rings, this limit will be exceeded. By dividing the network of receptors into two networks with fewer rings, the error should be eliminated.

Unanswered Questions

51. I didn't see my question in this list. How can I obtain technical support?

CSSI, Inc. provides EDMS technical support for a fee on a per-call basis. The hourly rate for technical support is \$150.00 with a ½ hour minimum charge. They can be contacted via e-mail at edms_help@cssiinc.com or by phone at (202) 484-3354. A Visa, Mastercard, Eurocard, Discover, or American Express credit card number must be provided. No other payment methods are accepted for technical support. For other user questions regarding EDMS model development, air quality policy and analysis, and the EDMS website, contact the EDMS Program Manager, Julie Draper. Ms. Draper can be contacted via e-mail at julie.draper@faa.gov or by phone at (202) 267-3494.