



# What's New in ADMS-Airport 4.1?

February 2017

ADMS-Airport 4.1 is the latest general release of CERC's state of the art model for the dispersion of pollutants in urban areas. ADMS-Airport 4.1 contains a number of major new features and options, most notably:

- the ability to save project files in the ADMS Mapper, allowing background maps, contour plots, layer symbols and settings, and more to be saved and reopened with your model input files;
- a new facility for creating terrain files from OS terrain 50 and SRTM data formats;
- enhanced usability functions throughout the ADMS Mapper and interface; and
- includes the latest UK emissions factors from EFT 7.0.

This document contains details of the new features, scientific improvements and model corrections implemented since the previous version of ADMS-Airport (version 4.0, December 2015). Also contained in this document are instructions for installing ADMS-Airport 4.1 and upgrading from previous model versions.

## In this release

This version of ADMS-Airport 4.1 includes an updated user interface, model and User Guide. The ADMS-Airport User Guide and guides to using the GIS links can be found in the '*Documents*' sub-directory of the ADMS-Airport 4.1 install directory.

# Installation

## Before installing ADMS-Airport 4.1

Log on to your computer as Administrator, and uninstall any previous version of ADMS-Airport by selecting **Programs and features** from the Windows Control Panel.

## Installing ADMS-Airport 4.1

If you have not already done so, log on to your computer as Administrator.

ADMS-Airport will either have been supplied by download link or on DVD. Follow the appropriate instructions:

- **Download:** Extract the downloaded *.zip* file to a local directory. In Explorer, browse to this directory and double-click on the file '*setup.exe*'.
- **DVD:** Insert the ADMS-Airport installation DVD and the install program should start automatically. If it does not, browse to locate the DVD in Explorer and double-click on the file '*setup.exe*'.

Follow the instructions on the screen. Further details are given in Section 2.2 of the ADMS-Urban User Guide, a copy of which can be found in the ADMS-Airport installation files or on the [CERC website](#) in *.pdf* format.

The GIS links you require (ArcGIS &/or MapInfo) can be installed by following the instructions in the ADMS-Urban User Guide.

# New Features and Major changes

## ADMS Mapper

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*Full details on using the ADMS Mapper can be found in the new ADMS Mapper User Guide.*

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1. Project files can now be saved from the ADMS Mapper. The project file contains details regarding external files loaded, symbology of ADMS layers and view settings like zoom and extent. The project file can be associated with a *.upl* file so that it is always opened with that *.upl* file.
2. It is now possible to pan and zoom the map view while editing sources. The **Shift** key is used to enable panning and the **Ctrl** key to enable zoom. The cursor changes to indicate the current map view mode.
3. Road geometry simplification is now possible from a new pop-up menu when editing a source. This uses a Douglas-Peucker vertex removal algorithm, which reduces the number of vertices in line or polygon shapes while striving to retain, within tolerance, the geometric integrity.
4. External files can now be loaded into the ADMS Mapper simply by dragging them from an explorer window and dropping them onto the legend.
5. The import wizard for delimited files (e.g. comma-separated files) now has an option for creating a contour plot using one of the columns of data in the input file. For example, drag a terrain (*.ter*) file onto the ADMS Mapper legend, grid it using the height column and then visualise the terrain as a DEM layer in the 3D Mapper view.
6. A new facility is available in the ADMS Mapper to extract data from image files. For example, this can be used to create terrain data in ADMS format from SRTM or OS Terrain 50 files. It can also be used with other types of file, for instance to extract land use data for creating a roughness file.
7. Source pollutant information will now show NO<sub>2</sub> even if the source is defining it by percentage NO<sub>x</sub> (when chemistry is on).

## Interface

8. Traffic speeds on the **Emissions** screen can now be typed directly into the cells rather than using a drop-down list. These can be any value and if non-integer or outside the range of the dataset, the table will display in red your entered value and the value that will be used. This simple approach is faster for data entry and quickly shows you potential typing errors.
9. It is now possible to open a *.upl* file simply by dragging the file from an Explorer window and dropping onto the title bar of the ADMS-Airport interface. Similarly external files, for instance a *.met* file, can be specified by dragging the file from an Explorer window and dropping it onto the appropriate file path text box. The complete list of supported drag-drop files is:

	Extension & description	Drop location
a.	<i>.upl</i> ADMS-Airport data file	title bar main interface
b.	<i>.spl</i> Import/Export file	title bar main interface
c.	<i>.spl</i> Import/Export file	textbox (import wizard)
d.	<i>.ptt</i> Import/Export pollutants	textbox (import wizard)
e.	<i>.bpt</i> Import/Export buildings	textbox (import wizard)
f.	<i>.gpt</i> Import/Export groups	textbox (import wizard)
g.	<i>.met</i> Meteorology file	textbox (met. screen)
h.	<i>.prf</i> Vertical met. profile file	textbox (met. screen)
i.	<i>.bgd</i> Background data file	textbox (background screen)
j.	<i>.uai</i> Additional input file	textbox (setup screen)
k.	<i>.asp</i> Additional specified points	textbox (grids screen)
l.	<i>.ter</i> Terrain file	textbox (complex terrain form)
m.	<i>.ruf</i> Roughness file	textbox (complex terrain form)
n.	<i>.fac</i> Factors file	textbox (time-varying emissions form)
o.	<i>.hfc</i> Hourly factors file	textbox (time-varying emissions form)

10. The **Delete** key can now be used to delete sources, buildings, specified points and output points directly from their respective tables. It can also be used to remove sources (ticks) from group membership in the group table.
11. New **Delete all** buttons are available on the **Building** and **Output** screens.
12. You can now export the specified points from the ADMS-Airport interface to an *.asp* file.
13. The **Email CERC** option under the **Help** menu will now auto-add more model and licence details to your helpdesk email for you. This information includes product name, model and interface versions, installation directory, licence summary and licence file location. We recommend you use this when contacting helpdesk via email as it reduces the amount of information you need to type.

## Road source modelling

14. The emission factor datasets contained within version 7.0 of the EFT can now be used to calculate emissions from traffic flows specified in the ADMS-Airport interface by the user. These emission factors are the same as those made available in ADMS-Airport 4.0 SP1.

## Utilities

15. When launched from the **Wind rose** button on the **Meteorology** screen the **Wind rose viewer** will now take into account the wind sector size and any meteorological subset extents entered on the **Meteorology** screen. The **Wind rose viewer** also now displays a count of the number of used and unused lines of meteorological data from the file.
16. The **Additional Input file editor** has some enhanced usability functions: the list of folders on the left hand side of the window can be resized; there is a list of recently used files under the **File** menu heading; and there are buttons to allow viewing or editing of referenced files such as the noise barrier data file.

## Model calculations

17. Run times will decrease for model runs containing road, line area or volume sources and many output points. Run times can decrease by up to 5% for flat terrain runs and by up to 25% for runs with either complex terrain or the urban canopy option.
18. There have been several changes to the buildings option to improve the consistency of results between modelling regimes. Concentrations will typically change by up to 5% as a result of these changes.

## Minor Changes

19. The group creation limit has been relaxed, so now almost any number of groups can be created on the **Groups** screen. The group-per-source button can generate groups for every source in the interface automatically, and to help you be more selective there is a new intermediate form that allows you to choose which source types will be used for the group creation. There is also a group and group-in-run count to help you monitor what you create. The number of groups included in a run is unchanged, at 20.
20. The **Copy** pop-up menus for sources and buildings now include the object name to make it easier to confirm what you are about to copy. The copied item is displayed more conveniently in the table than previously.
21. The Chinese air quality standards have been updated to GB3095-2012.
22. The SPT import/export is now compatible with non-UK regional settings.
23. Roads in the noise barrier (*.nbr*) file which are not in the *.upl* file will now be ignored rather than cause the model to stop. This allows noise barriers to be used more easily with the spatial truncation option.
24. A correction has been made to the way noise barriers are dealt with if the source location has a large number of digits in either direction; previously the location of the noise barrier may have been incorrectly assigned.