

AIROBS

Airfield Obstructions Tracking, Analysis, and Management System

Operations Manual

Version 1.2

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AIROBS™

Application and Demonstration Data Set

Installation Guide for use of AIROBS with the Demonstration Data Set

What hardware must I have in order to use AIROBS?

You must have a standard PC running Microsoft Windows with a minimum RAM of 512MB and available disk space of 1GB.

What software needs to be on my computer before I try to use AIROBS?

You must have Microsoft Windows NT (Service Pack 6), Windows 2000, or Windows XP operating system. You must have ESRI ArcGIS 8.2 or 8.3 (either ArcView or ArcInfo). ESRI 3-D Analyst is necessary to use the 3-D analysis functions of AIROBS, although the other functions of AIROBS will operate without 3-D Analyst installed. You must have Microsoft Access 2000 and Excel 2000.

What do I need to do to my computer before installing AIROBS?

Create folders to store your AIROBS installation files and the demonstration database. The following folder structure is recommended.

```
C:\AIROBS\  
C:\AIROBS\Install\  
C:\AIROBS\ Demo_Data\  

```

If you prefer, you can create the \AIROBS folder and its subfolders on a drive other than the C:\ drive, or on a networked server, which can be accessed by your computer through mapped drives or UNC connections. However, using the recommended folder structure above will save you several steps during the AIROBS setup process. To save you time, it is strongly recommended that you use the folder structure shown above for trying out AIROBS.

How do I obtain the AIROBS installation and data files? Where do I place them on my computer?

Download the required AIROBS files from the CADD/GIS Technology Center website: <https://tsc.wes.army.mil>. Place the installation zip file (AIROBS_Rev1.2_Install.zip) in the folder ... \AIROBS\Install\ and place the demonstration data set file (AIROBS_demo_data.zip) in the folder ... \AIROBS\ Demo_Data\.

Once I've downloaded the files, how do I install AIROBS and the demonstration data set?

1. Close all active applications that are running on the computer.

2. If you have already installed AIROBS and need to re-install it, first uninstall AIROBS according to the instructions provided under the next question.
3. In Windows Explorer, navigate to the folder ...\\AIROBS\\Install.
4. Double-click on the file **setup.exe** and follow the instructions. This will install the application to C:\\Program Files\\AIROBS and also files related to the application, such as the user manual, references, templates, and pictures.
5. In Windows Explorer, navigate to the folder ...\\AIROBS\\Data\\.
6. Unzip the file AIROBS_demo_data.zip by double-clicking it. When Winzip opens, click the Extract button. Extract the files to the folder ..\\AIROBS\\Demo_Data\\.
5. If you obtained the demonstration data set from CD, you must remove the read-only property from the files. To do this, in Windows Explorer right-click on the Demo_data folder, select Properties, un-check the "Read-only" box listed under the Attributes section, click the Apply button, check "Apply changes to this folder, subfolders and files", and click OK.

How do I remove the application?

Removal of the application in Windows 2000 is done through the Add/Remove Programs function. To activate this function, navigate to Start > Settings > Control Panel

> Add/Remove Programs, select the AIROBS program, and click the Change/Remove button.

How do I start AIROBS?

Once the application is installed, you can run AIROBS the same way you run many other applications. Click the Windows Start button and navigate to Programs > AIROBS. If for any reason the application does not appear at this location, it can also be launched by navigation to the folder C:\\Program Files\\AIROBS and double-clicking on AIROBS.exe.

How do I set up AIROBS to access the demonstration data?

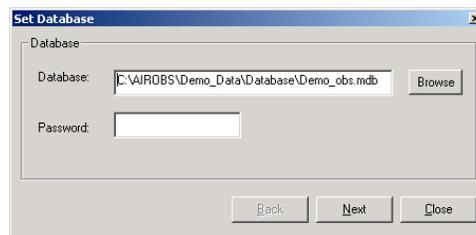
Standard Method (C:\\AIROBS folder used)

When AIROBS is started for the first time on your computer, it needs to know the name and location of the demonstration data set. If you placed the demonstration data in the C:\\AIROBS\\Demo_data\\ folder, as recommended, this is done in two steps, as follows.

When AIROBS is started, you will see the AIROBS home screen.



Click the [Setup](#) tab to show the Setup screen, then click [Set Database](#). At the next screen, in the Database entry box, browse to the location of the obstructions database, C:\AIROBS\Demo_Data\Database\Demo_obs.mdb. Leave the Password entry blank. Click the Next button.



Click the [Home](#) tab and set the Airbase to Demo_AFB and the Criterion to Demo_Airspace.

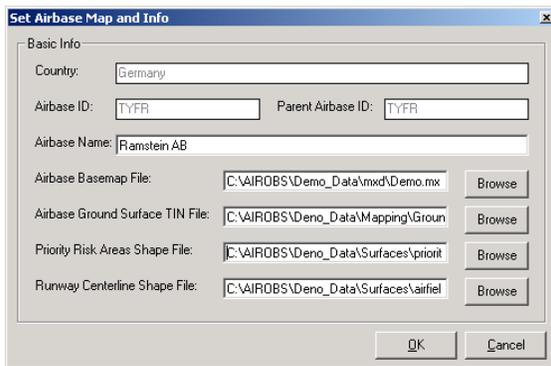


You have completed the installation and are now ready to use AIROBS as described in the User Manual.

Non-Standard Method (folder structure other than C:\AIROBS\ was used)

If you chose to place the demonstration data in a folder other than C:\AIROBS\Demo_data\ folder, complete the above step, plus the following steps.

Click the [Setup](#) tab and choose [Set Airbase Map and Info](#). You need to direct AIROBS where to find the various map layers that it uses.



For each entry, browse to the location shown below, then Click OK.

Airbase Basemap File:

: ... \AIROBS\Demo_Data\mxd\Demo.mxd

Airbase Ground Surface TIN File:

... \AIROBS\Demo_Data\Mapping\Ground_TIN

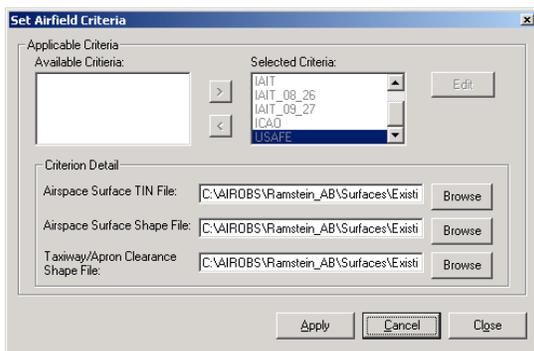
Priority Risk Area Shape File:

... \AIROBS\Demo_Data\Surfaces\priority_airfield_buffer_zone_area.shp

Runway Centerline Shapefile:

... \AIROBS\Demo_Data\Surfaces\airfield_surface_centerline.shp

Under the [Setup](#) tab, choose [Set Airfield Criteria](#). You need to direct AIROBS where to find the various map layers related to the regulatory airspace surface.



From the list of Available Criteria, select Demo_Airspace (move it into the Selected Criteria box using the right arrow), and click Edit.

For each entry under Criterion Detail, browse to the location shown below. When complete, click Apply.

Airspace Surface TIN File:

...\\AIROBS\\Demo_Data\\Surfaces\\Airspace_TIN

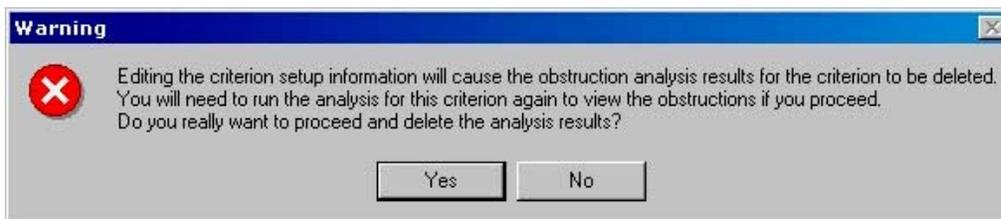
Airspace Surface Shape File:

...\\AIROBS\\Demo_Data\\ Surfaces\\ airfield_imag_surface_area.shp

Taxiway/Apron Clearance Shape File

...\\AIROBS\\Demo_Data\\Surfaces\\
Apron_Taxi_airfield_buffer_zone_area.shp

Modifying the setup of airspace criteria will result in related obstruction violations being deleted from the database. This is done to maintain data integrity. The following warning box will appear upon applying the modifications:



Click the Yes button. You will need to reanalyze the obstructions later to add the violations information back into the database.

MXD Modification AIROBS uses the ArcGIS project file demo.mxd to control what map layers are displayed and how they are symbolized in AIROBS. Demo.mxd is already set up for you. However, it references map layers that are expected to reside in the C:\\AIROBS\\Demo_data\\mapping\\ path. Since you have chosen to place the map data in a different location, you must reset the source paths for those layers within the mxd. Exit AIROBS by clicking [Exit](#). Open demo.mxd in ArcMap. Reset the source path for each layer by right-clicking the layer name, choose Properties, choose the Source tab, and browse to the location in which the layer was placed. After each layer's source is reset, save the mxd file and exit ArcMap.

You can now restart AIROBS, and the map layers should be properly referenced.

Obstructions Analysis Since you reset the location paths of the files related to the airspace surface, you must perform a reanalysis of the obstructions. Follow the instructions for performing this analysis in the User Manual, pages 12 and 33.

Quick Start Guide

For Implementation of AIROBS at USAFE Bases

What do I need to do to my computer before installing AIROBS?

The AIROBS application and the obstruction data and related files are provided on CD-ROM. To prepare for the installation, the following modifications are required on the computer:

1. Create a folder on the hard drive called C:\AIROBS.
2. Under the C:\AIROBS folder, create another folder for the base data. This folder should be the name of the installation without spaces in the name, e.g. C:\AIROBS\Ramstein_AB, C:\AIROBS\Spangdahlem_AB, or C:\AIROBS\Aviano_AB. This folder will store all the data for the operation of AIROBS.
3. Before installing the application, any previous installations of the application should be removed. This is done by navigating to Windows Start > Setting > Control Panel > Add/Remove Programs > AIROBS.
4. If the user has stored any other files in the program location (C:\Program Files\AIROBS), using file management software, these files and all related folders should be removed.

How do I install the application?

The application is provided on a CD-ROM. If the application has previously been installed, it is recommended that you uninstall the application before installing the application.

1. Close all active applications that are running on the computer.
2. Insert the CD-ROM in the drive and navigate to the drive.
3. Click on the file setup.exe and follow the instructions. This will install the application to C:\Program Files\AIROBS and also files related to the application such as the user manual, references, templates, and pictures.

How do I remove the application?

Removal of the application in Windows 2000 is done through the Add/Remove Programs function. To activate this navigate to Start > Settings > Control Panel > Add/Remove Programs and select the AIROBS program and click the Change/Remove button.

How do I load the AIROBS data?

When the application is provided, three CD's are included for the complete installation. One of these CD's is the AIROBS Data CD. This contains the airfield obstruction database,

airspace TIN and shape files, taxiway/apron clearance buffer shape files, priority area shape file, and the runway/taxiway centerline shape file. The files are stored on the CD in the appropriate folders for use with AIROBS on the hard drive. To use these files, they need to be copied to the hard drive to folder a called C:\AIROBS\[Installation Name] that is created by the user. After the folders have been copied from the CD to the hard drive, the folders on the hard drive will retain the read-only properties from the CD location. In order to use the database and associated files, the read-only properties need to be removed. This is done in Windows Explorer by right clicking on each of the folders, clicking on "Properties", and un-checking the "Read-only" box listed under the Attributes section.

How do I load the map files?

When the application is provided, three CD's are included for the complete installation. One of these CD's is the Mapping (or Common Installation Picture) data CD. This contains the current map layers for the installation and the required MXD file for use with AIROBS. The files are stored on the CD in the appropriate folders for use with AIROBS on the hard drive. To use these files, they need to be copied to the hard drive to folder a called C:\AIROBS\[Installation Name] that is created by the user. After the folders have been copied from the CD to the hard drive, the folders on the hard drive will retain the read-only properties from the CD location. In order to use the database and associated files, the read-only properties need to be removed. This is done in Windows Explorer by right clicking on each of the folders, clicking on "Properties", and un-checking the "Read-only" box listed under the Attributes section.

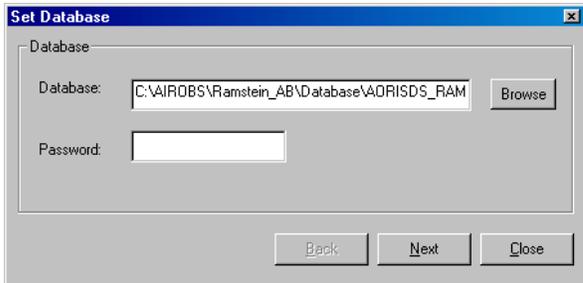
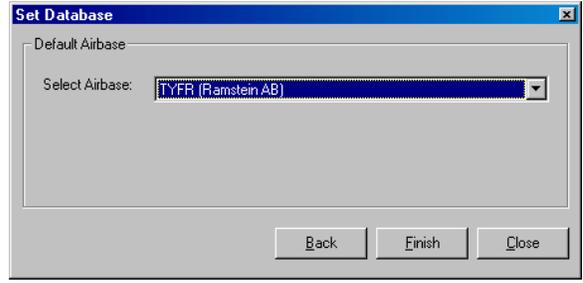
How do I start the application?

Once the application is loaded, the application will appear under the listed programs on the computer. To start the application navigate to the Windows Start button > Programs > AIROBS. If for any reason the application does not appear in this location, the program can also be launched by navigation to the folder C:\Program Files\AIROBS and clicking on AIROBS.exe.

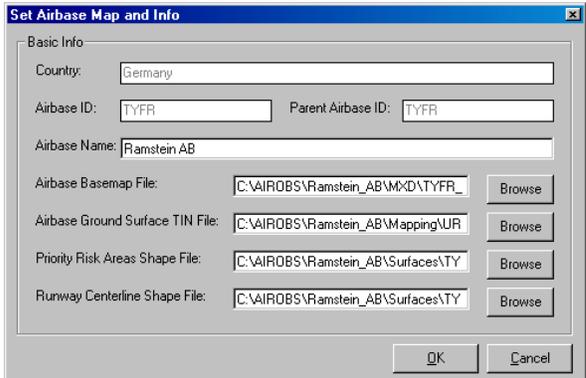
How do I setup a new airfield?

On the initial use of the application, the user needs to specify the airfield location. Data has been provided for the specified airfield that provides the existing airfield obstructions, base mapping, airfield obstruction surface criteria files, and related files. Listed below are the steps to setup the airfield obstruction database and base mapping files for use with any criteria.

Database Installation

<p>1. Open Home Screen</p>	
<p>2. Select Setup</p>	
<p>3. Select Set Database and navigate to the database provided for the installation by hitting the Browse button. The default location for the database is C:\AIROBS\[Installation Name]\Database. If the database is secured with a password, enter the password in the provided field. The database does not have a password at initial installation. When done, hit the Next button.</p>	
<p>4. From the drop down list, select the installation and click the Finish button to complete the database installation. When this button is clicked, there will be some delay as the database is configured for operation with AIROBS. If the database has not been previously analyzed this message will appear, "There are no obstructions in the database for the selected criterion. No layer was created." This is expected and will be corrected as soon as the data is analyzed against airspace criteria.</p>	

Airbase Map and Info Installation

<p>1. Open Home Screen</p>	
<p>2. Select Setup</p>	
<p>3. Select Set Airbase Map and Info. The following fields will then need to be populated by the user:</p> <ul style="list-style-type: none"> • Airbase Name: Enter the name of the installation. • Airbase Basemap File: Browse to select the MXD file to be used to display obstruction data in AIROBS. The MXD provided at installation is located at C:\AIROBS\[Installation Name]\MXD. Note that other MXD files may be used, however the E-tab creation function will not operate correctly if the incorrect MXT file is included. • Airbase Ground Surface TIN File: When available this file is located at C:\AIROBS\[Installation name]\Mapping. • Priority Risk Shape File: The default location for this file is C:\AIROBS\[Installation Name]\Surfaces. • Runway Centerline Shape File: The default location for this file is C:\AIROBS\[Installation Name]\Surfaces. This file also includes required information for the calculation 	

of distances to taxiway centerlines.

When all available files have been selected, click OK to load the files. This process may take a few minutes depending on the size of the MXD and ground surface TIN files.

How do I setup the airfield obstruction surface criteria?

The airfield obstruction surface criteria for the installation is provided on the AIROBS Data CD. To setup this data for operation in AIROBS, the following steps are required.

1. Open Home Screen

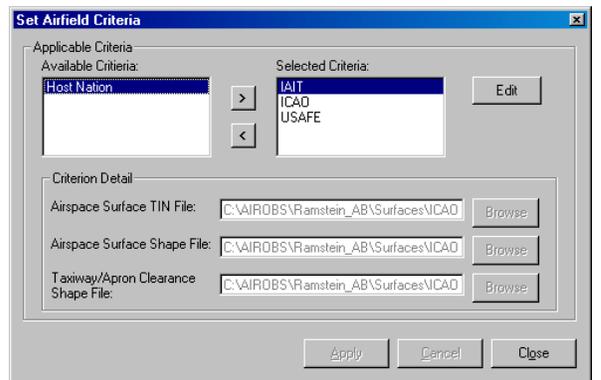


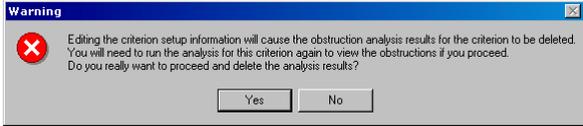
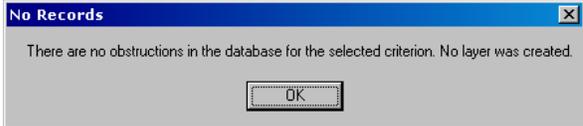
2. Select Setup.



3. Select Set Airfield Criteria. A list of typical airfield criteria is shown on the left. Select from the Available Criteria list, those criteria that have been provided for the installation by using the > button. When the criteria are selected, for each criterion in the Selected Criteria box, click the Edit box and populate all fields in the Criterion Detail area:

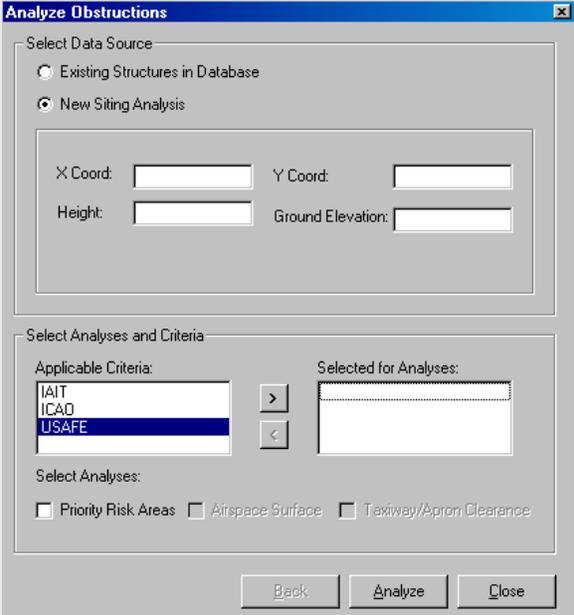
- **Airspace Surface TIN File:** Click the browse button and navigate to the location of this file. The file is located at C:\AIROBS\[Installation Name]\Surface\[Criterion] when initially installed.
- **Airspace Surface Shape File:** This file is located in this same location as the Airspace Surface TIN File when initially



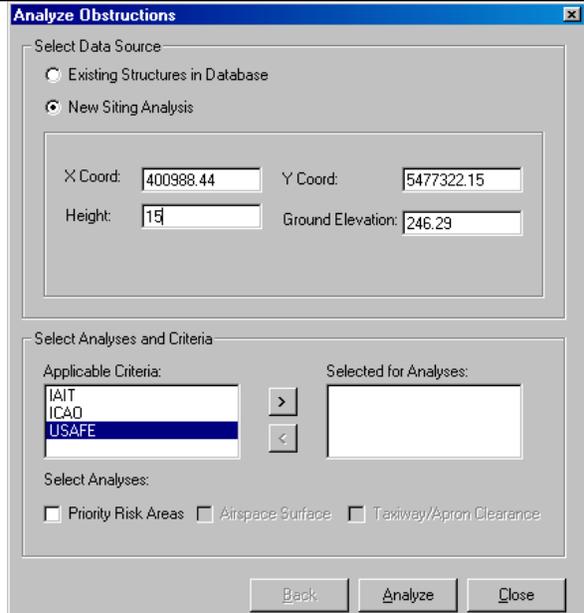
<p>installed.</p> <ul style="list-style-type: none"> • Taxiway/Apron Clearance Shape File: Located at C:\AIROBS\[Installation Name]\Surface\[Criterion] when initially installed. 	
<p>4. Once all entries are complete for a selected criterion, click the Apply button. At this point the message shown to the right will appear. This is a warning to the user that changes to the criterion files will remove obstruction analysis results currently stored in the database. If the user wants to reanalyze obstruction using the selected criterion, click on the Yes button. At initial installation of the application, this message will appear for each criterion.</p>	 <p>A warning dialog box with a red 'X' icon. The text reads: "Warning: Editing the criterion setup information will cause the obstruction analysis results for the criterion to be deleted. You will need to run the analysis for this criterion again to view the obstructions if you proceed. Do you really want to proceed and delete the analysis results?" There are "Yes" and "No" buttons at the bottom.</p>
<p>5. When all required criteria are setup, click the close button to return to the main application to perform obstruction management functions. If the criterion files have been modified or this is a new criterion, this message will appear.</p>	 <p>A dialog box titled "No Records" with a close button. The text reads: "There are no obstructions in the database for the selected criterion. No layer was created." There is an "OK" button at the bottom.</p>

How do I enter a new obstruction?

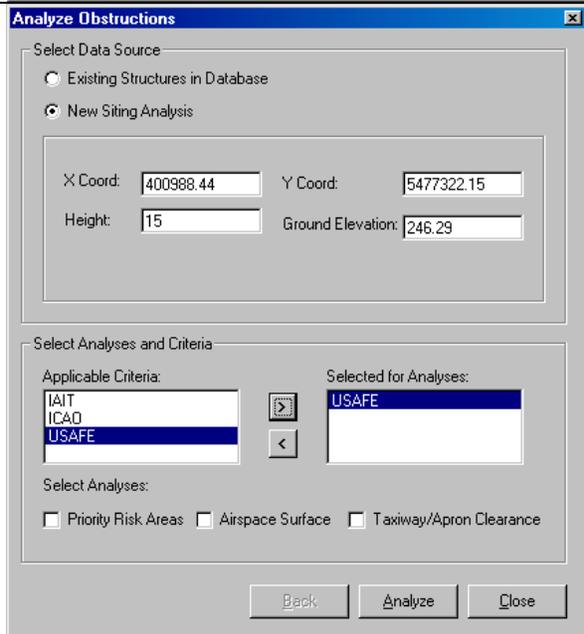
In a typical installation, known obstructions are provided with the initial installation of the application. However, the application is intended for management of obstructions allowing the user to add, modify, or delete obstructions as conditions change on the airfield. To add a new obstruction, the following steps are required.

<p>1. The process begins with the analysis of the obstruction. This will determine if the object is indeed an obstruction because it violates a given a given criterion. On the Home Screen click on Tools > Analyze Obstructions or on the ArcMap view, click on the N button to activate this screen.</p>	 <p>The "Analyze Obstructions" dialog box. It has a title bar with "Analyze Obstructions" and a close button. Under "Select Data Source", there are two radio buttons: "Existing Structures in Database" (unselected) and "New Siting Analysis" (selected). Below this are four input fields: "X Coord:", "Y Coord:", "Height:", and "Ground Elevation:". Under "Select Analyses and Criteria", there are two lists: "Applicable Criteria" (containing IAIT, ICAO, and USAFE) and "Selected for Analyses" (empty). Between the lists are right and left arrow buttons. Below the lists are three checkboxes: "Priority Risk Areas", "Airspace Surface", and "Taxiway/Apron Clearance". At the bottom are "Back", "Analyze", and "Close" buttons.</p>
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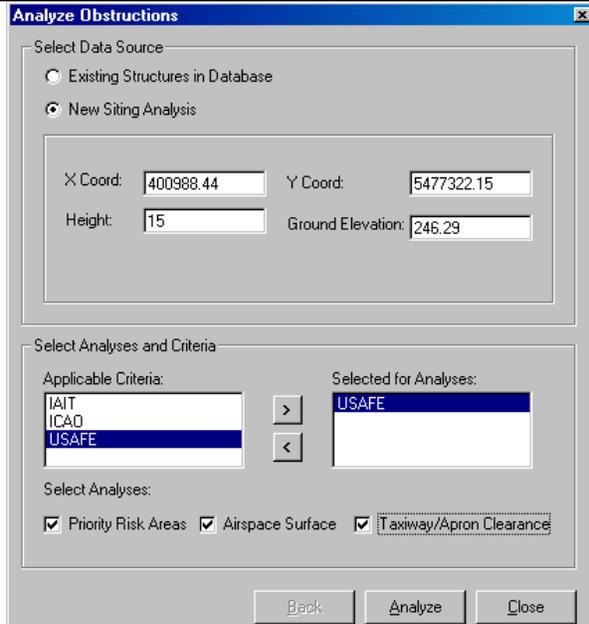
2. Now click on the New Siting Analysis to place the object and either enter the coordinates of the object in X Coord and Y Coord fields or click on the map at the location. If a ground TIN file has been loaded and the location of the object is within the boundaries of the TIN file, the Ground Elevation will be populated when clicking on the map. The height of the object must be entered to perform the analysis. The height is measured from existing ground elevation and must be in the same unit of measurement as the ground mapping.



3. Select the criteria to be analyzed. This is done by selecting from the Applicable Criteria on the left and using the > button.

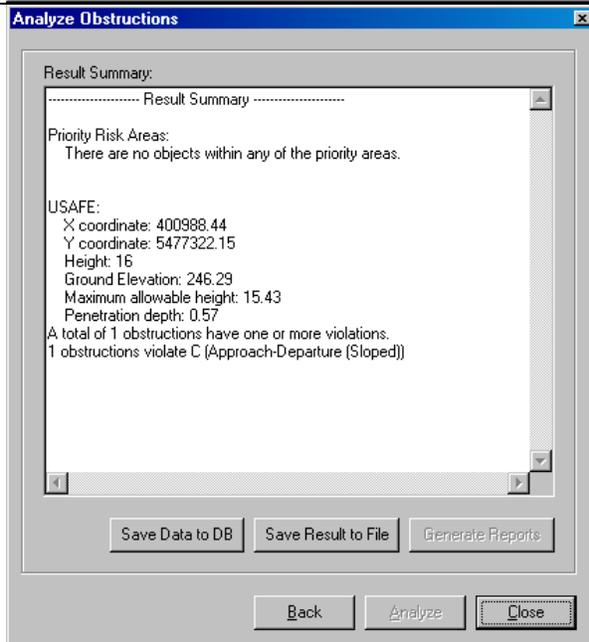


4. Select the type of analyses to be completed by checking the boxes and clicking the analyze button to perform the analysis.



5. The analysis results are displayed in the results box.

Note: That it is possible to get a negative maximum allowable height value. See discussion on this at the end of this section.



6. To save this obstruction to the database, click on the Save Data to DB button and the Add New Structure box will appear. To add the obstruction to the database, the following fields must be populated by the user at this stage:

- **Obstruction Number:** This is the unique identification number for this obstruction. For USAFE, a numbering system has been determined and is provided in the Reference materials. The user is not permitted to enter an obstruction number that has already been used. To obtain the last number in a sequence, export the obstruction data and sort by obstruction number.
- **Obstruction Classification:** Select this from the drop down list. For guidance on Permissible Deviations, click the Help button.
- **Waiver Status and Date:** These fields must be populated if the obstruction classification is Temporary or Permanent Waiver. The date is entered as month/date/year (mm/mm/yyyy).
- **Construction Type:** Select either Temporary (e.g. tents, construction cranes, etc.) or Permanent.
- **Frangible:** In the Survey Information area, select the frangibility of the object. The Obstruction Frangible under Basic Info is populated from this area.

Other fields may be populated if the information is available, however the bullet listing above is the minimum that must be entered. For assistance with all other fields, see the Edit Obstruction information in the Software Documentation.

When the required fields are populated, click OK to save the obstruction. Note

Add New Structure

Basic Info

Obstruction Number:

Obstruction Classification: Help

Waiver Status: Date:

Waiver Reference:

Installation Date:

Construction Type:

Obstruction Description and Comments:

Violations: Priority Area:

Obstruction Frangible:

Survey Information

No Points Saved

Name: Survey Date:

X Coord: 400988.44 Height: 16

Y Coord: 5477322.15 Ground Elevation: 246.29

Frangible: Top Elevation:

Coord. Grid: Note: Calculated fields are red

Description:

Distance Measurements

Runway/Taxiway Name	To Centerline	To Threshold

No image available

Corrective Action Information

Project/Work Order Number:

Estimated/Programmed Cost:

FIM Rating:

OPM Ranking:

Estimated Removal Date: FY

Add
Delete
Edit

OK Save Cancel

that the obstruction will not be immediately displayed. To refresh the obstructions displayed on this screen, use the View/Refresh Obstructions button:



Negative Allowable Height

AIROBS works by determining if the top elevation of a given obstruction is above or below the airspace/imaginary surface as defined by a TIN file. The TIN file represents the imaginary surface for the airspace and is composed of 7 or 8 facets. The coordinates of the ends of the runway (thresholds) set the bottom elevation of this TIN file. The bottom facet of this surface is the Primary Surface and is 1,500 ft to 3,000 ft wide. In section the primary surface extends horizontally from the centerline for the entire width. If the ground elevation within the primary surface is higher than the primary surface, AIROBS will return an available height that is negative. This is actually a true result and one that airfield managers should investigate as it may indicate areas that are not correctly graded.

How do I modify the information about an obstruction?

To modify the information about an obstruction the user must access the Edit Obstruction screen. This is done from the Home Screen > Tools > Edit Obstructions and scrolling to and selecting the obstruction to be modified. Alternatively, clicking on the obstruction in the ArcMap environment with the Identify Obstruction tool will bring up the same form. For information on data entry fields on this form see the Software Document section on Edit Obstructions.

How do I group survey points into an obstruction?

Certain objects that violate airfield obstruction criteria should be grouped into a single obstruction. Examples of these obstructions are tree areas, aircraft arresting systems, fences, and similar objects that are of the same function or nature and are located in close proximity to each other. To group obstructions in AIROBS, these are the steps:

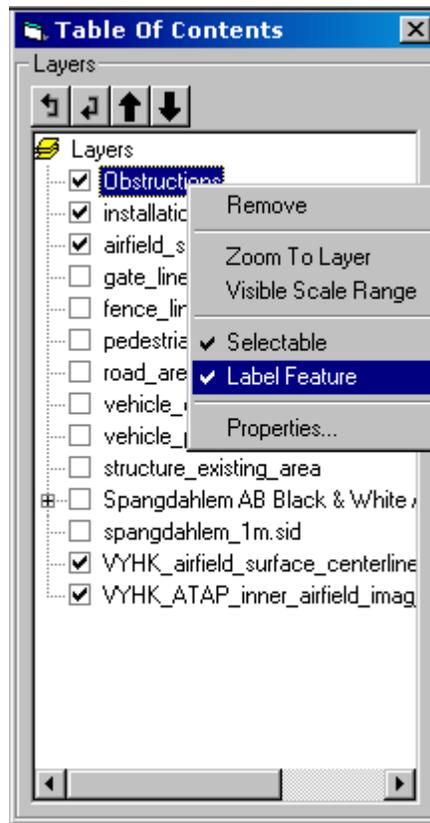
1. Create a new obstruction for one of the objects in the group. This is done the same way as all obstructions (see "How do I enter a new obstruction?" section). Once the obstruction is saved, return to the obstruction and open the Edit Obstruction form.
2. To add another survey point to the obstruction, click the Add button in the Survey Information section. In order to add the point, the X Coord, Y Coord, Frangible, and any two of the Height, Ground Elevation, and Top Elevation fields are required to be populated. Coordinates are entered directly into the fields and can not be selected from the ArcMap view.
3. After entering the data for each survey point, click the Apply button to save the data to the database.
4. When all the survey points have been entered click the OK button to save the obstruction information.

5. To display all the survey points on the map, an analysis of the entire database is required in order to determine the violations of each survey point.

How do I label an obstruction?

To label the obstructions as displayed in the ArcMap, follow these steps:

1. Click on Data Layers > Table of Contents or the View Table of Contents button: 
2. Right click on the Obstructions layer and check the Label Feature.

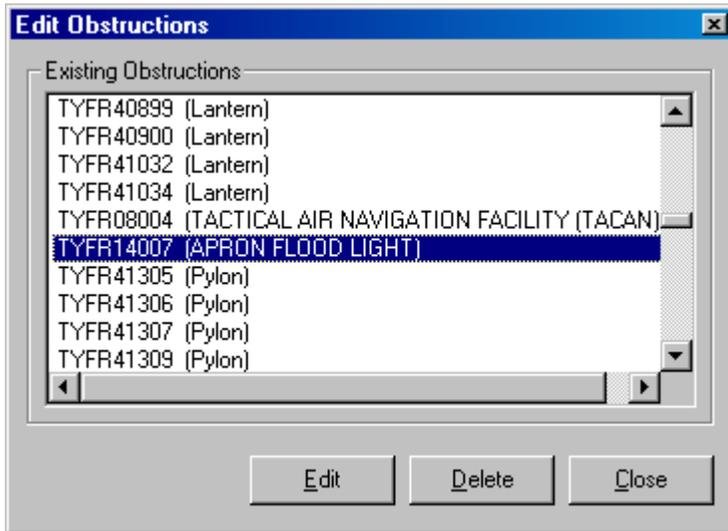


3. Close the Table of Contents window.

Obstructions will be labeled with the obstruction number by default. To change the label, select Properties of the Obstructin layer and select the Labels tab.

How do I delete an obstruction?

To delete an obstruction from AIROBS, click the Edit Obstructions form to open this box.



Scroll to the obstruction to be deleted and click Delete.

Note: This action does not permanently delete the record from the database, it simply removes it from further consideration by AIROBS. The database retains the record, but flags it as having been deleted. If the record needs to be retrieved, contact the Program Contacts for assistance with the modifications required in Microsoft Access.

How do I perform a new siting analysis?

The steps for the siting analysis are the same as described in the “How do I enter a new obstruction?” section. This is done from Home Screen > Tools > Analyze Obstructions or by clicking the “N” button on the to access the Analyze Obstructions modules. The results of a siting analysis do not need to be saved each time allowing for siting alternative investigation.

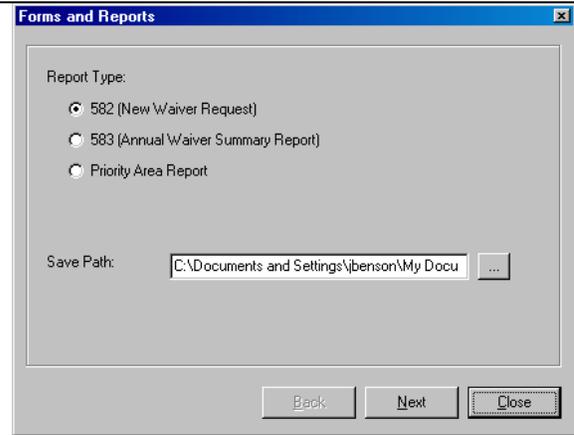
How can I create a Form 582?

Users can produce Form 582 reports for all unapproved obstructions only. Obstructions that have been approved previously or do not require a Form 582 approval, e.g. Permissible Deviations, are not available for producing a Form 582. These are the steps to be taken to produce this form:

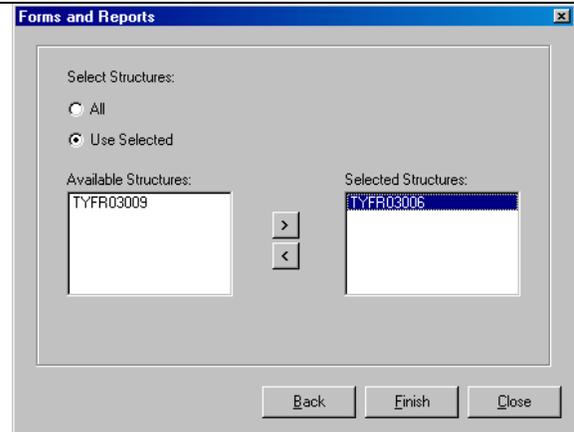
1. From the Home Screen select Tools > Forms and Reports



2. Select 582 (New Waiver Request) and click Next. To modify the location where the Form 582 will be saved, click the ... button and browse to the desired location. The default setting for is the Windows My Documents folder.



3. Select the structures for which the Form 582 is required from the Available Structures box on the left using the > button and click Finish.



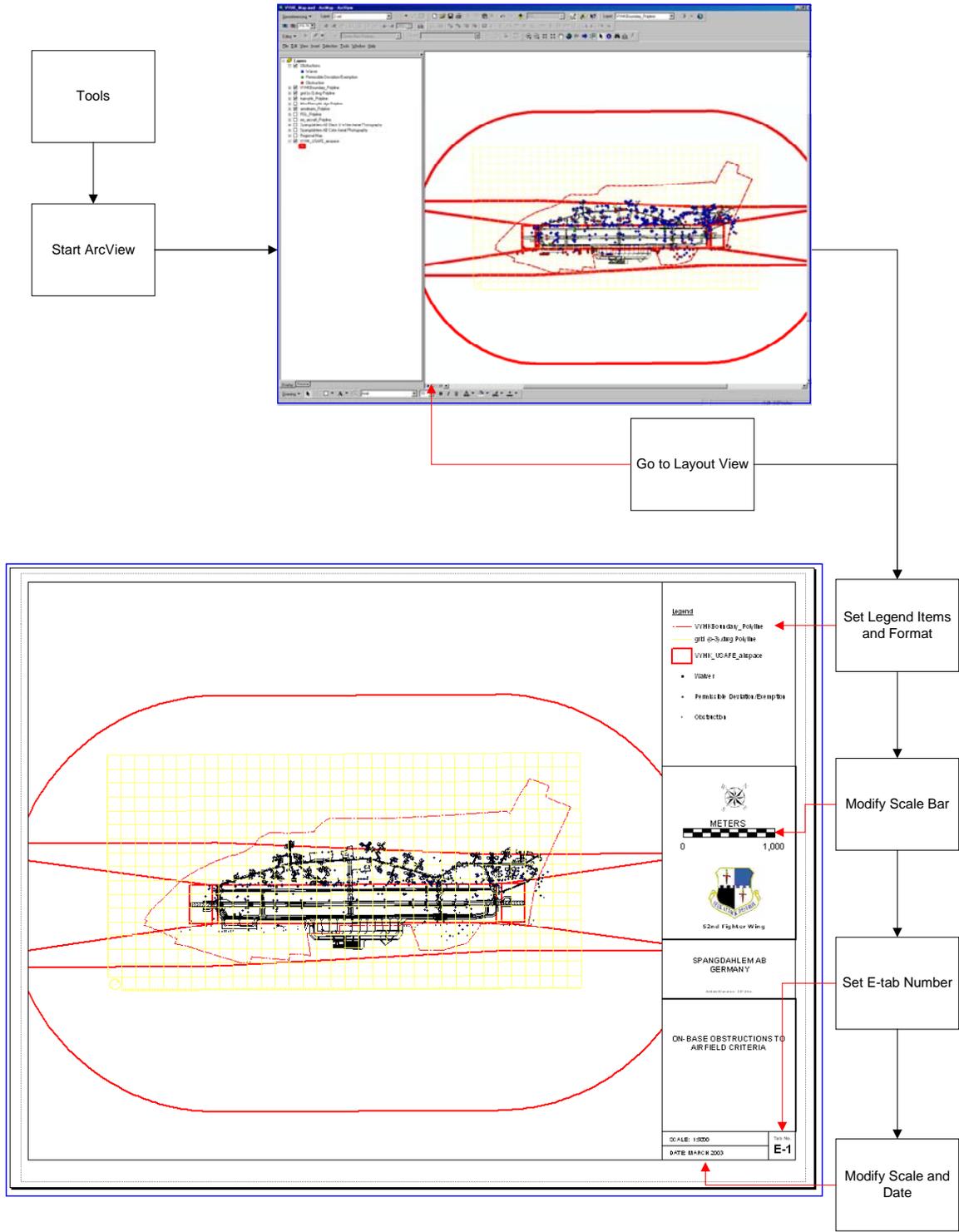
The form is created and stored at the specified location with a file name of [Obstruction Number]_582.xls. The form will need to be adjusted in accordance with the user's printer configuration or for export to other formats.

How can I create a Form 583?

The Form 583 is required for Permanent and Temporary Waivers only. The creation procedures are the same as the Form 582 apart. The difference is that obstructions can not be individually selected as the report is intended for reporting all obstructions that are Temporary Waivers. The report is saved as specified by the user and is named 583.xls. While the report is being created the status of is displayed in the lower left corner of the screen. The final Excel file includes three worksheets: Permanent Waivers, Temporary Waivers, and Permissible Deviations. The latter form is intended for base use during ATSEP reviews and is not to be submitted to the MAJCOM.

How can I print an E-Tab map?

The workflow on the next page provides the means by which the E-tab map template is accessed. The user is referred to ArcGIS reference and help functions for assistance with formatting the final E-tab layout to meet base requirements.



Introduction

USAFE Program Contacts

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Program Overview

Program History

The Airfield Obstructions Tracking, Analysis, and Management System (AIROBS) software application was created by CH2M HILL for the United States Air Forces in Europe (USAFE). This application is a response to the US Air Force's Airfield Obstruction Reduction Initiative (AORI) to assist USAFE with the analysis and management of obstruction waivers. For the waiver process, USAFE must create and submit an annual report that tabulates the status of obstructions that exist at each of its bases. USAFE required tools that determined and managed obstructions to air navigation and on the airfield at the Main Operating Bases in Europe. AIROBS was developed to perform three-dimensional analyses to determine surface violations, display data visually, create waivers for new obstructions, and produce summary reports and maps of identified obstructions. AIROBS interacts with existing base

map data, three-dimensional surfaces (based on user-specified airspace criteria, commonly UFC criteria), and survey data to determine objects that are obstructions to navigation and to report these findings. The application is owned by the United States Air Force.

AIROBS uses various data/inputs to run analyses and create reports. A flow chart detailing the elements AIROBS uses is shown as Figure 1.

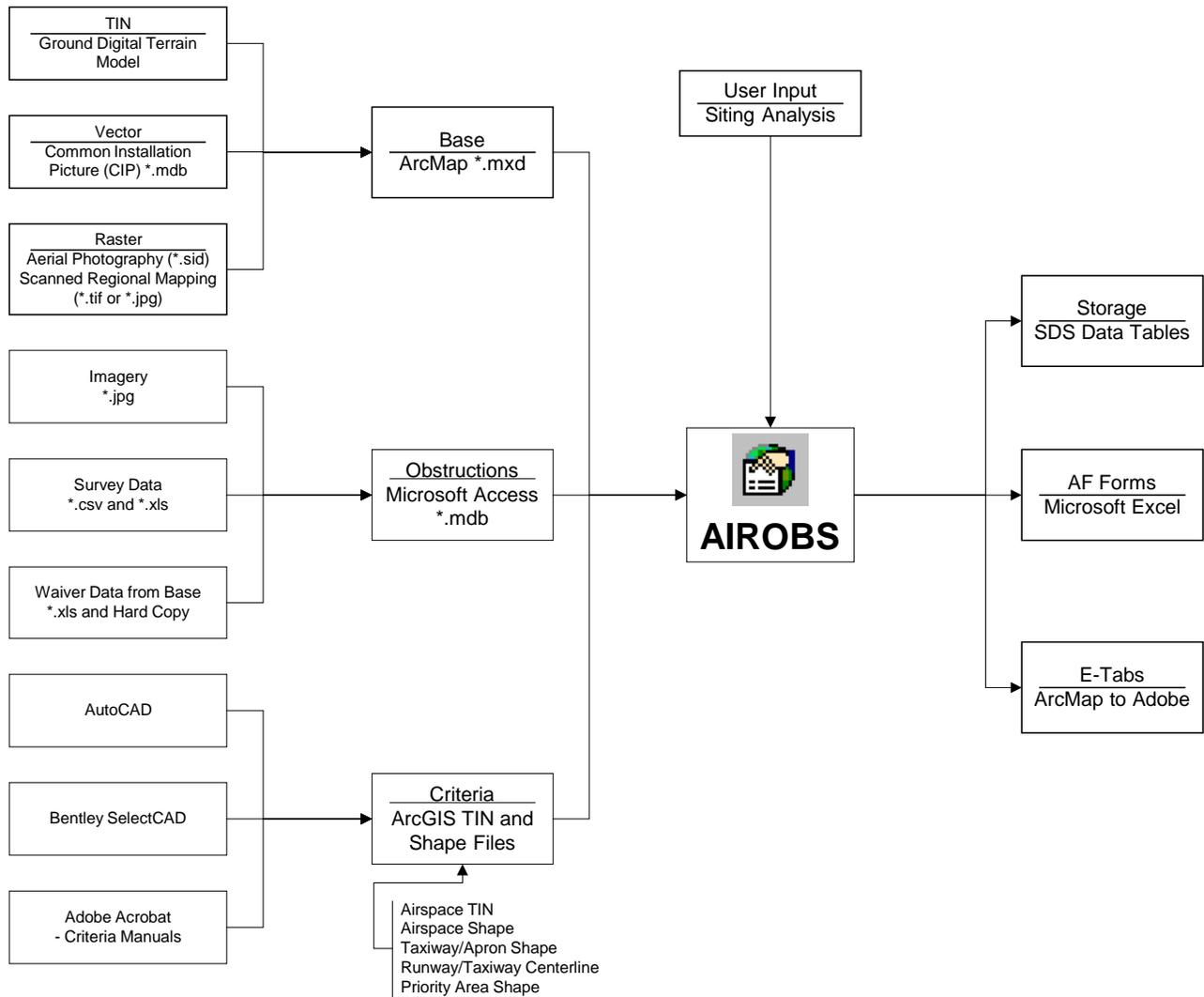


Figure 1 – AIROBS Data Sources and Workflow

Installation

System Requirements

Hardware

The application is designed to operate on a standard PC running Microsoft Windows NT/2000/XP without the need for a LAN connection. The necessary ODBC drivers and printer drivers should be installed on each target computer before installation of AIROBS

- Minimum Hard Drive Space: Variable based on the size of the dataset, estimated to be approximately 200 MB
- Minimum RAM = Variable, estimated to be approximately 500 MB.
- Best screen resolution = 1024 x 768 pixels.

Software

The following software is the minimum required to run AIROBS:

- ESRI ArcView 8.2
- ESRI ArcGIS 3D Analyst Extension
- Windows NT Service Pack 6 or Windows 2000 or Windows XP
- Microsoft Access 2000
- Microsoft Excel 2000
- Adobe Reader

Required Settings

It is required that for all files and folders that the full path be displayed in the title bar. If this has not already been done, these are the steps to change this setting (for Windows 2000 other operating systems will vary slightly for these steps):

1. Hit the Windows Start button.
2. Open the Settings section.
3. Open the Control Panel.
4. Open the Folder Options section.
5. Click the View tab.
6. Check the box next to "Display the full path in title bar".

The settings for the Folder View tab should then appear as shown below:

- Files and Folders
 - Display compressed files and folders with alternate color
 - Display the full path in the address bar
 - Display the full path in title bar
 - Hidden files and folders
 - Do not show hidden files and folders
 - Show hidden files and folders
 - Hide file extensions for known file types
 - Hide protected operating system files (Recommended)
 - Launch folder windows in a separate process
 - Managing pairs of Web pages and folders
 - Show and manage the pair as a single file
 - Show both parts and manage them individually
 - Show both parts but manage as a single file
 - Remember each folder's view settings
 - Show My Documents on the Desktop
 - Show pop-up description for folder and desktop items

Licensing Requirements

CH2M HILL holds the copyright for the AIROBS application, however the application is freely distributed to all Department of Defense agencies. Private parties wishing to acquire the software are to contact CH2M HILL program contacts as provided above.

Disclaimer

An application disclaimer has been included with the software. This will appear on initially opening the application:

Ownership

The application is owned by the United States Air Force.

Copyright: CH2M HILL, Inc. 2002

Data and Analysis

The airspace obstruction data contained in this Airfield Obstruction Tracking, Analysis, and Management System (AIROBS) database is a collection of:

- Photogrammetric and ground survey data acquired by CH2M HILL and other USAFE Contractors,
- Imaginary airspace surfaces, runway clear zones, and taxiway/apron clearance zones created by CH2M HILL, and
- Supplemental airfield obstruction waiver, obstruction, and mapping data provided by HQ USAFE/CEPP and responsible air base staff.

The AIROBS database is for planning and programming purposes, not for the purposes of establishing aircraft flight procedures. In addition, the AIROBS database does not identify all possible obstructions to air navigation in or around the air base.

Data Accuracy

Any obstructions identified are only valid, given the accuracy for which the data was acquired, and are only accurate for that date on which the data was acquired. The obstructions should be considered preliminary and for planning purposes only until verified by responsible air base staff.

The accuracy for the CH2M HILL photogrammetrically generated obstruction data and ground surface terrain model data is nominally plus or minus 1-meter horizontally and plus or minus 1-meter vertically.

The disclaimer can be turned off after initial viewing by unselecting the "Show at startup" button.

Licensing

Specific licensing requirements exist for ArcView, 3D Analyst, Microsoft Excel, and Microsoft Access software platforms. The user is referred to the specific language included with each of these software packages for more detailed licensing information.

User Training

Typical training requirements depend largely on user familiarity with GIS and database management. There are two typical installations for this application.

GIS Analyst

This installation is for the primary user at each airbase. This is the individual designated to analyze airfield obstruction data, prepare waiver applications, and manage the associated mapping and data required for the application. Typically, this is an experienced GIS analyst familiar with ESRI software and management of the associated databases. Training for the GIS Analyst will typically require approximately 1 - 2 hours of classroom and individual instruction.

Data Viewer

For most other users, the application is only used to view obstruction data as analyzed by the GIS Analyst. For these users, knowledge of all the AIROBS functions is not required. However, it is assumed that these users are not proficient in GIS functionality and will require training that includes minimal GIS functions in addition to the AIROBS functions. Training for the data viewers will vary widely, but is estimated to require approximately 2 - 4 hours of classroom or individual instruction.

Directory Structure

Listed below are the locations of the application and associated data files for the application. Actual installation drives may vary, for instance the data files may be located on the D: drive instead of the C: drive as indicated. However, the directory structure must be maintained regardless of the actual drive location. Installation of the application and related data on a network server is discouraged in order to maintain data security and maintain application-processing speed. Relocation of the application files may cause the application to malfunction.

Program Location

The application is installed at

C:\Program Files\AIROBS\AIROBS.exe

Users Manual

This document is loaded with the application and is stored at

C:\Program Files\AIROBS\UserManual\UserManual.pdf

Reference Material

Reference material, such as UFC Criteria and other manuals that may be required to complete the analysis, may be loaded by the user and directly opened from within the application (Reference Material button). As a minimum for application installation at a military airfield, Attachment 14, "DEVIATIONS FROM CRITERIA FOR AIR FORCE AIRFIELD SUPPORT FACILITIES" from the Unified Facilities Criteria is loaded. These files are provided in Portable Document Format (PDF), but this is not a requirement and files of any format can be stored in this location. These files must be stored in this directory to be accessed directly from the application:

C:\Program Files\AIROBS\References

Reports

AIROBS produces output in a number of ways, from summary views of the obstructions to detailed reports. The following reports can be generated in Microsoft Excel format using AIROBS:

- Form 582: New Waiver Request Form
- Form 583: Annual Waiver Summary Report, and
- Priority Risk Area Report.

The templates for these forms use Microsoft Excel and are located at:

C:\Program Files\AIROBS\Templates

Data Sources

Running the AIROBS application requires several data source files.

Airfield Obstruction Data Base

This is a SDS-Compliant Access 2000 database (*.mdb file) that contains the surveyed objects and stores the analyzed obstructions. The file has a specific format and can not be altered by the user. The database is supplied with the installation of the application. The database may be stored at any location designated by the user. At installation this file will be loaded in to a directory called:

C:\AIROBS\[Installation Name]\Database

Airfield Obstruction Photographs

When available, digital images of surveyed objects can be viewed within the AIROBS application. The images can be of any digital format and are stored at:

C:\AIROBS\[Installation Name]\Photos

If the images are stored at a different location, the location will need to be mapped to the image from within the AIROBS application. This is done in the Edit Obstruction data form using either the Add or Edit commands in the add photo dialogue box to set the location.

Aerial Photographs

Ortho-rectified aerial photographs, can be used as part of the *.mxd file in AIROBS. These files are typically MrSID imagery or TIFF files and are stored at:

C:\AIROBS\[Installation Name]\Aerials

The most recent aerial imagery for the installation will be included in the MXD file at installation. To update the aerial imagery for the installation, the MXD file must be modified to include the new imagery using ArcMap. Aerial imagery should be obtained from the installation GeoIntegration Office (GIO) or from HQ USAFE GIO.

Airspace TIN Files

These files will be provided at installation of the application. This file is specific to GIS and represents a three-dimensional model of the airspace. A TIN file is a Triangulated Irregular Network file, a means of representing facets of a three-dimensional surface by means of interconnected triangles formed from known lines or points in space. Several interconnected files in GIS represent a TIN file. For typical USAFE installations three airspace TIN files are provided for the USAFE, ICAO, and ICAO Inner Approach/Inner Transitional criteria. These files are stored in one location. At installation the files are loaded into the following directory:

C:\AIROBS\[Installation Name]\Surfaces

These files will not be updated unless there are major modifications to the runway(s). Users should contact HQ USAFE CEPP to obtain new Airspace TIN files in the event of major modifications to the runway(s).

Ground Surface TIN Files

When available, a three-dimensional model of the ground surface will be provided. This is similar to the Airspace TIN file, but represents a model of ground based on previous survey information obtained from ground or aerial survey methods. This file is located at:

C:\AIROBS\[Installation Name]\Mapping

The ground TIN files provided at installation are from the most recent survey of the installation. As the installation maps are updated, the ground TIN file will be updated. Users should contact the base-level or HQ USAFE GIO to obtain updates to the ground TIN file.

GIS Shape Files

A Shape file is a vector data storage format for storing the location, shape, and attributes of geographic features. A shape file is stored in a set of related files and contains one feature class. This is the characteristic appearance or visible form of a geographic object. Geographic objects can be represented on a map using one of three basic shapes: points, lines, or polygons. In this application three distinct shape files are required:

Airspace Shape File

This file is composed of polygons representing the "shadow" of the three-dimensional air space on the ground. The polygons are the different facets of the airspace such as the primary surface, inner horizontal, and approach/departure surfaces that in combination make up the entire airspace surface. In addition, the runway Clear Zone (B-surface) is included in this file. An airspace shape file is provided for each airspace criteria. For

typical USAFE installations, there are three primary air space criteria: USAFE, ICAO, and the ICAO Inner Approach/Inner Transitional surface. Other surfaces are provided as required by the base mission. The files are located at:

C:\AIROBS\[Installation Name]\Surfaces\[Criteria]

Taxiway/Apron Clearance Zone Shape File

For a given airfield criteria, specified clearance zones are required from the taxiways and aircraft parking aprons. These zones are represented in GIS as polygons associated with each base feature and combined in a shape file. For a typical USAFE installation taxiway/apron clearance shape files are provided for USAFE and ICAO criteria. This file is stored in the same directory as the specified criteria:

C:\AIROBS\[Installation Name]\Surfaces\[Criteria]

Priority Risk Area Shape File

Based on the Airfield Obstruction Reduction Initiative, the USAF has established three priority areas for the removal of obstructions. These are sequential buffers from the runway and the clear zone and are represented in GIS as polygons combined in a single shape file.

Each of the shape files is stored in:

C:\AIROBS\[Installation Name]\Surfaces

Runway/Taxiway Centerline Shape File

This is a polyline shape file providing data on the runway and taxiway centerlines at each installation. There is a single file for each installation. It is used to calculate the perpendicular distance to runway centerlines and the distance to the closest runway threshold located within 2,000 ft of the runway centerline. In addition, it is used to calculate the perpendicular distance to taxiway centerlines located within 200 ft of the taxiway centerline.

This shape file is stored in:

C:\AIROBS\[Installation Name]\Surfaces

To update all files located in the Surfaces folder, users should contact HQ USAFE CEPP. Updates to these files may be required if there are major modifications to the airfield (see discussion on Airspace TIN files) or apron/taxiway modifications that may require this shape file to be changed.

Base Mapping

All forms of geo-referenced digital base mapping can be used to display the obstruction data in AIROBS. The base mapping is used only for the display of the obstructions and is not required for the analysis. The mapping will typically consist of ESRI personal geodatabase files (for USAFE this will be the Common Installation Picture (CIP) database), and any available GIS data layers as provided by the base. The base mapping is then combined in ArcGIS into an ArcMap document file (*.mxd file) for use in the AIROBS application. These files are stored at:

C:\AIROBS\[Installation Name]\Mapping

The mapping provided at installation is from the most recent CIP obtained from HQ USAFE GIO and base-level GIO. Users are encouraged to contact either office on a regular basis to

obtain the most recent CIP. Listed below are the typical CIP datasets to be referenced in the MXD file:

- Buildings
- Cadastre
- Improvement_general
- Improvement_recreation
- Transportation_air
- Transportation_pedestrian
- Transportation_vehicle

MXD File

The *.mxd file is stored at:

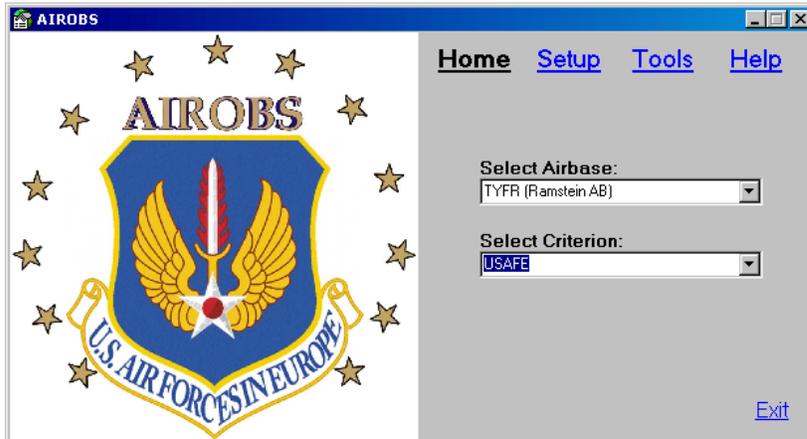
C:\AIROBS\[Installation Name]\MXD

In creation of the ArcMap file for use in the application, the data sources should be associated using complete path names and not relative path names. While other templates can be used in the AIROBS application, the MXD file provided at installation includes the E-tab template (MXT) for use with the application.

Software Documentation

Opening Screen

Home

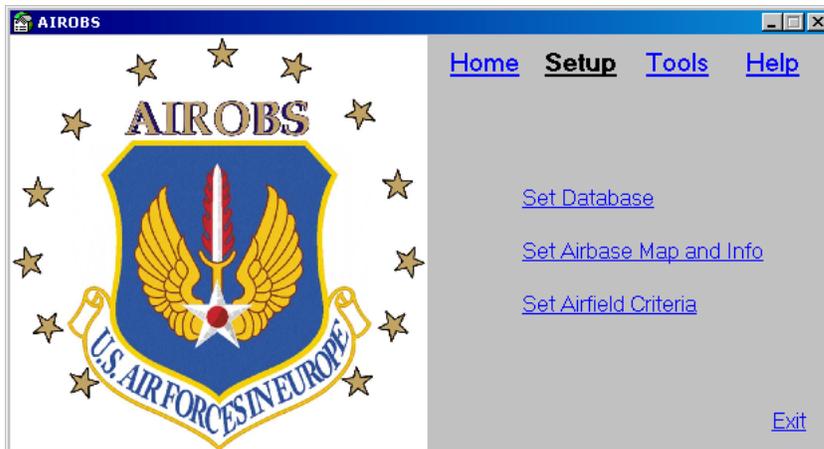


In this dialog box, the user selects the air base to be analyzed (Select Airbase) and the criterion to be used to analyze obstructions (Select Criterion).

Each of the titles is a hyperlink to the subsequent screens.

Activating the "Exit" hyperlink will close the application entirely. To close this dialog box, use the  box in the upper right corner.

Setup



Set Database

Activates the Setup dialog box that allows the user to set the file location for the database and the default airbase. The default airbase is the airbase that will be selected in the Select Airbase drop down menu on the Home dialog box. See Setup dialog box discussed below for more information.

Set Airbase Map and Info

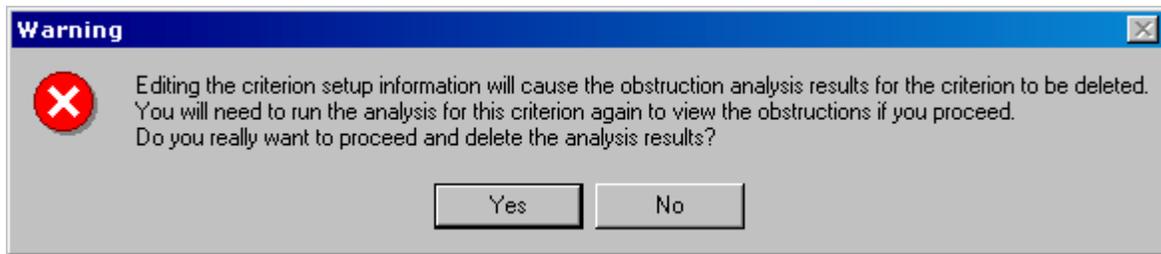
Opens the Edit Airbase Info dialog box. The user can edit the airbase name and select map files; TIN files, and shape files to be associated with the airbase by using this dialog box. Additional information on the Edit Airbase Info dialog box can be found below.

Set Airspace Criteria

Opens the Set Criteria dialog box. The user can add new airspace criteria, e.g. UFC, FAA, etc, and link the associated TIN and Shape files that represent the specified criteria. See Set Criteria dialog box discussed below for more information.

Modifications to Airspace Criteria

If criteria files have previously been setup, modifications to the setup for each criterion will result in the related obstruction violations being deleted from the database. This is done to maintain data integrity. The following warning box will appear upon applying the modifications:



Tools



Edit Obstructions

Opens the Obstructions dialog box. From the Obstructions dialog box the user can select a structure to edit or delete from the obstruction database. See Obstructions dialog box discussed below for more information.

Query Obstructions

Activates the Query Obstructions dialog box allowing the user to perform data queries on the obstructions in the database. Options are provided to determine the obstructions that violate user selected airspaces and clearance zones. Alternatively, users can analyze the

violations attributed to a single obstruction. See Query Obstructions dialog box discussed below for more information.

Analyze Obstructions

Activates the Obstruction Analyses dialog boxes. This tool allows the user to perform Priority Risk Areas, Airspace Surface, and Clearance Zones analyses according to selected criteria on new or existing structures. See Obstruction Analyses dialog box discussed below for more information.

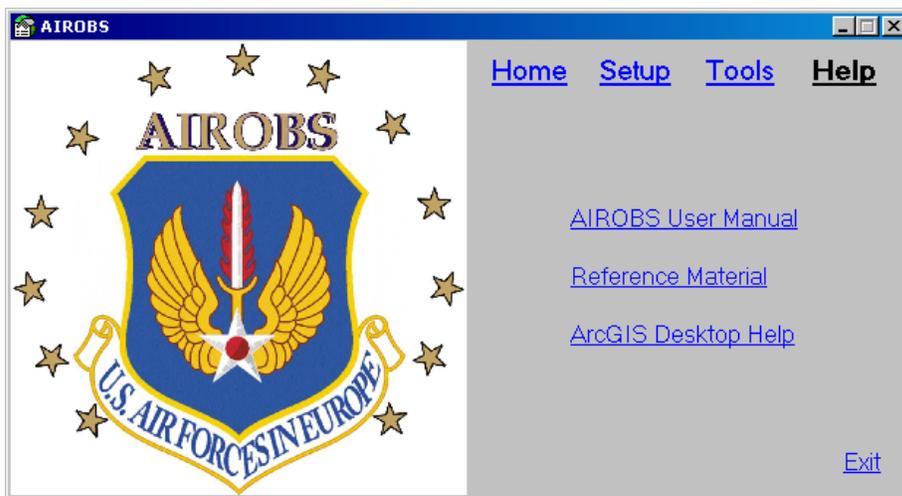
Forms and Reports

Opens the Reports dialog box. This dialog box allows the user to generate USAFE Form 582, USAFE Form 583, and Priority Area Reports. See Reports dialog box discussed below for more information.

Export Obstruction Data

Activates the Export Obstruction Data dialog box. This function extracts the geospatial information and obstruction identifier for all waivers and permissible deviations reported on the USAFE Form 583. The data is extracted to a tab-delimited file for importing into CAD platforms used to publish the E-1 maps. See Export Obstruction Data dialog box discussed below for more information.

Help



AIROBS User Manual

This button opens the AIROBS User's Manual (this document) from within the application. This is the primary source of all information related to AIROBS functions and operation.

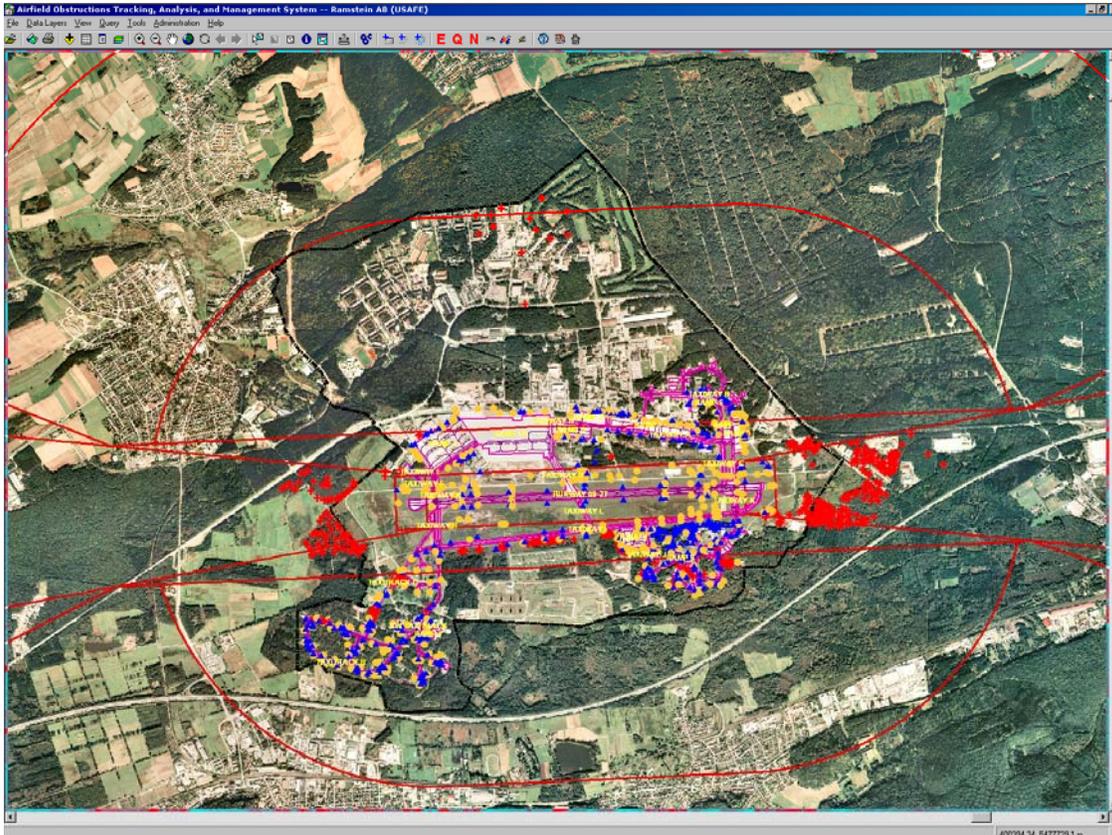
Reference Material

This allows the user to access the reference material related to the selected airspace criteria or other material that may be required for managing the airfield obstructions. This function activates the Select a Reference to View dialog box. For more information see Select a Reference to View dialog box discussed below.

ArcGIS Desktop Help

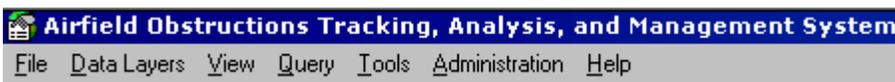
This provides access to the ArcGIS Desktop Help functions provided by ArcView 8.2. Information provided in this area is related to ArcView functions and operation and does not provide any AIROBS-specific assistance.

ArcMap Environment



The primary graphic user interface for the AIROBS application is ArcMap. This environment allows the same AIROBS functionality contained in the Open Screen and adds the ArcMap functionality. This section will not elaborate on the ArcMap functionality and the user should refer to the ArcView help function provided with the application and ArcGIS manuals for help on these functions.

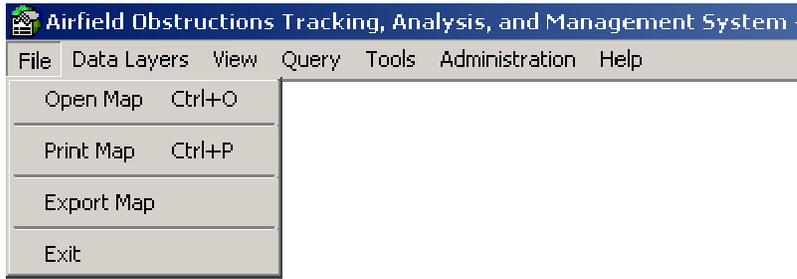
Main Menu



The main menu bar appears when the main window of AIROBS is activated. It consists of the menu options shown above. Each menu is discussed below.

File Menu

This menu is used to manage the map file options within AIROBS. When the user selects File from the Main Menu Bar, the options shown below are provided. These options are discussed below.



Open Map

This menu option shows the Open Map dialog box, which allows the user to open a previously created map file (*.mxd). Refer to ArcGIS documentation for more information.

Print Map

This menu option shows the Print dialog box, which allows the user to print the screen currently in view in the main AIROBS ArcMap window. Refer to ArcGIS documentation for more information.

Export Map

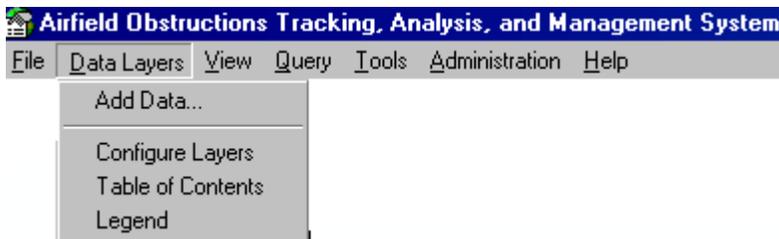
This menu option shows the Export File dialog box. This option allows the user to export the screen currently in view in the main AIROBS ArcMap window as a jpeg (*.jpg) image file. Refer to ArcGIS documentation for more information.

Exit

This menu option closes the AIROBS program.

Data Layers Menu

This menu is used to manage the data layers within each map in AIROBS. When the user selects Data Layers from the Main Menu Bar, the options shown below are provided. These options are discussed below.



Add Data

This menu options activates the Select Data dialog box. It allows the users to add a data layer to the current map. The data can come from any feature dataset and feature class files. Refer to ArcGIS documentation for more information.

Configure Layers

This menu option activates the Layer Control dialog box. From this option the user can make the layers visible, selectable, and add labels to each layer. In addition, the layer levels can be rearranged as desired. The features of the Layer Control dialog box are comparable to those of the Legend dialog box accessed through the Legend menu option or the View Legend Button. The Layer Control dialog box is discussed below.

Table of Contents

Opens the Table of Contents dialog box. The user can arrange the order of the layers, turn layers on and off, removing layers from the map, zooming to the layer, setting the visible range, adjusting layer properties, adding labels to the features, and allowing the layer features to be selectable. The features of the Table of Contents dialog box are comparable to those of the Layer Control dialog box accessed through the Configure Layers menu option or the Configure Layers Button. The Table of Contents dialog box is discussed below.

Legend

This menu option opens the Legend for airfield waiver data as displayed on the screen.



Temporary Waiver

These are for obstructions that are correctable. These are not the same as the current definition of a Temporary Waiver that relates to a waiver that is needed for the construction or installation of a temporary facility. A Temporary Waiver, as defined, is the only waiver that requires the MAJCOM Vice Commander approval. In addition, a Temporary Waiver is the only status of waiver that needs to be reported to the MAJCOM on the Form 583.

Permanent Waiver

These are for all obstructions that can not be reasonably corrected and pose little or no threat to flying operations. Permanent waivers do not require an annual submittal; i.e. they are not included on the Form 583, and rather are reviewed bi-annually during the Air Traffic System Evaluation Program (ATSEP) inspection process.

Permissible Deviation

These obstructions are determined by evaluation of the obstruction in comparison to UFC 3-260-1, Attachment 14, "Deviations from Criteria for Air Force Airfield Support Facilities". Obstructions that meet the criteria for Permissible Deviations do not require MAJCOM review, but are subject to the bi-annual ATSEP inspection process.

Exemption

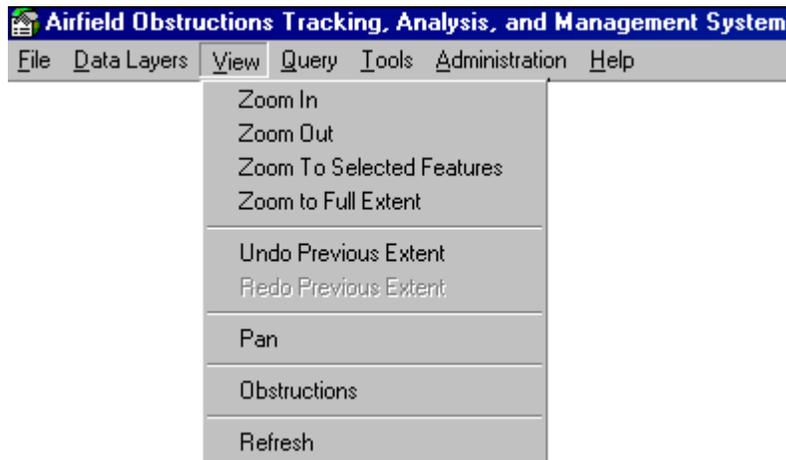
Obstructions classified as Exemptions are for facilities that were sited correctly under previous criteria, but violate existing criteria. For instance, if a hangar was previously sited at 75' setback from the parking apron based on the criteria of the time, it may now be a violation because the setback requirements have expanded to 125'. These obstructions do not require reporting to the MAJCOM, but are subject to ATSEP review similar to a Permissible Deviation and Permanent Waiver. The installation date of these obstructions is important to record as it is required that on the expiration of the useful life of that facility, that the facility be sited correctly.

Unapproved

Obstructions in this category have not been classified or awaiting approval from MAJCOM for classification as Temporary Waivers.

View Menu

This menu is used to manage the display view of the current map file open in AIROBS. When the user selects View from the Main Menu Bar, the options shown below are provided. These options are discussed below.



Zoom In

This menu option activates the Zoom In cursor option tool. When the user clicks on this menu option the cursor becomes activated as the tool to enlarge the current view. To zoom in the user clicks and holds the mouse button to drag a box around the portion of the map for which the enlargement is desired. The cursor will remain activated as the Zoom In cursor option tool until another cursor option is selected.

Zoom Out

This menu option activates the Zoom Out cursor option tool. When the user clicks on this menu option the cursor becomes activated as the tool to zoom out from the current view. To zoom out the user clicks and holds the mouse button to drag a box around a portion of the map for which zooming out from is desired. The cursor will remain activated as the Zoom Out cursor option tool until another cursor option is selected. This function is can be confusing to new ArcView users. To zoom out minimally, hold the cursor and make a large box. To zoom to a larger extent, hold the cursor and make a small box.

Zoom to Selected Features

When objects have been selected in ArcMap or with the AIROBS query functions, this function allows the user to zoom the view pane to the extent of the selected objects or obstructions. This function will not activate when a single obstruction is selected.

Zoom to Full Extent

This menu option causes the map currently in use to increase or decrease its view to include all the features on the map.

Undo Previous Extent

This menu option allows the user to display the view previously shown before the last view change. This option can be chosen to re-display the map view history from when the file was opened to the present view.

Redo Previous Extent

This menu option allows the user to display the view previously shown before the Undo Previous Extent option was chosen. This option becomes activated only after the Undo Previous Extent option has been chosen and will become deactivated if the user makes any changes to the view window by using the Zoom In, Zoom Out, Zoom to Full Extent, or Pan tools.

Pan

This menu option activates the Pan cursor option tool. When the user clicks on this menu option the cursor becomes activated as the tool to change the current display without changing the magnification of the map, known as panning. To pan the view the user clicks and holds the mouse button to drag the map until the desired display is shown. The cursor will remain activated as the Pan tool until another cursor option is selected.

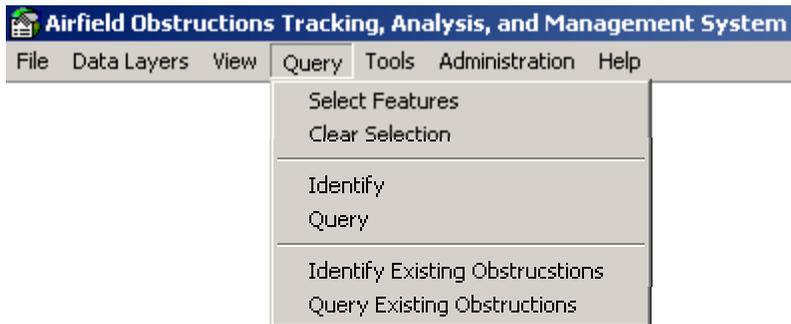
Obstructions

This menu option displays the obstruction data points associated with the map file currently opened. When the user clicks on this option the data points associated with each obstruction are shown on the map. A different type of symbol is used to represent each type of obstruction. The obstructions will remain displayed until turned off or removed by the user, see the Table of Contents option. When editing obstruction records, for instance when changing an obstruction's classification, this function should be activated to refresh the obstructions to display the correct symbology.

Refresh

This menu option will refresh the view in the main AIROBS window. When this option is chosen the map window is redrawn to show the most current updates to the map file.

Query Menu



Select Features

This menu option activates the Select Features cursor option tool. When the user clicks on this menu option the cursor becomes activated as a tool to select data points on the map file. To select a point the user clicks on the point that is desired. To select more than one point the user clicks and holds the mouse button while dragging a box around the data to be selected. The cursor will remain activated as the Select Features cursor option tool until another cursor option is selected.

Clear Selection

This menu option will deselect any points selected while using the Select Features cursor option tool from the Query menu or the Select Features button located on the Button Bar.

Identify

This menu option will activate the Identify cursor option tool. When the user clicks on this menu option the cursor becomes activated as a tool to select and identify attributes of map data. Clicking on the map will open the Identify Results dialog box where the user can view the data attributes for the identified data feature. For more information see Identify Results dialog box below.

Query

This menu option opens the Query Features dialog box. This tool allows the user to query and select data by class, attribute, and spatial constraints. For more information see Query Features dialog box discussed below.

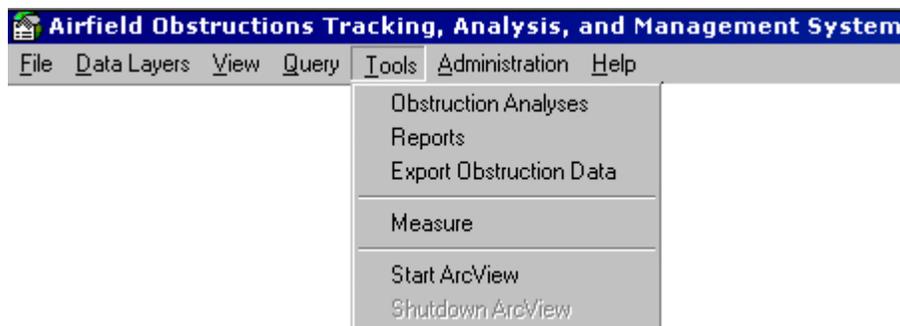
Identify Existing Obstructions

This menu options activates the Identify Obstructions cursor option tool. When the user clicks on this menu option the cursor becomes activated as a tool to view the obstruction attributes for each obstruction data point. When the user clicks on an obstruction data point on the map the Edit Obstruction dialog box appears. This allows the user to view and modify obstruction information. See Edit Structure dialog box for more information.

Query Existing Obstructions

This menu option activates the Query Obstructions dialog box. This tool allows the user to find multiple obstructions that meet user defined criteria or to find a single obstruction identified by the user. For more information see Query Obstructions dialog box below.

Tools Menu



Obstruction Analyses

This menu option activates the Obstruction Analyses dialog box. This tool can be used for priority risk area, airspace surface, and clearance zone analyses using selected criteria for existing structures or a new structure which is user defined. See Obstruction Analyses dialog box below for more information.

Reports

This menu option opens the Reports dialog box. This dialog box allows the user to generate 582, 583, and Priority Area Reports. See Reports dialog box discussed below for more information.

Export Obstruction Data

This function allows for the export of obstruction data to tab delimited text files. These can be imported into Microsoft Excel and sorted for obstruction classification. This is a powerful tool for examining obstructions in a list format.

Measure

This menu option activates the Measure cursor option tool. The Measure tool allows the user to measure a distance on the map by clicking at one end point of the distance to be measured and holding the mouse button until the second end of the distance to be measured is reached. The distance is displayed while the mouse button is held down, but disappears when it is not held. The cursor will remain activated at the Measure Cursor option tool until another cursor option is selected.

Start ArcView

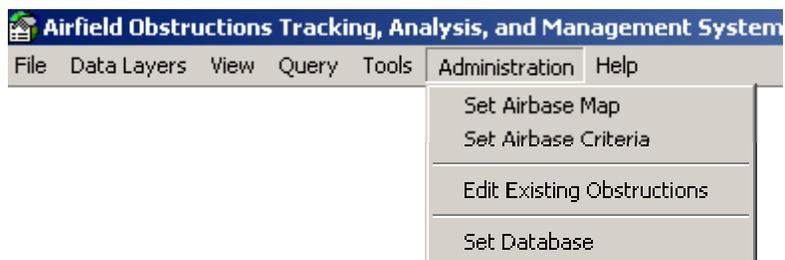
This menu option opens the ArcView program installed on the user's computer. This menu option allows the users to make changes to the map file that can be updated in AIROBS. This function is also used to create the E-tab maps as described in the appendices.

Shutdown ArcView

This menu option closes the ArcView window opened by using the Start ArcView menu option described above. If necessary, the user may need to save the file in ArcView before the program will close.

Administration Menu

This menu is used to manage the airbase/structures and program options for AIROBS. When the user selects Administration Menu from the Main Menu Bar, the options shown below are provided. These functions are also replicated on the Home and Setup dialog boxes described above.



Set Airbase Map

This button opens the Edit Airbase Info dialog box. The user can edit the airbase name and select map files; TIN files, and shape files to be associated with the airbase by using this dialog box. Additional information on the Edit Airbase Info dialog box can be found below.

Set Airbase Criteria

This permits the user to add or edit the airspace criteria used in the analysis of the airfield obstructions by means of the Set Criteria dialog box.

Edit Existing Obstructions

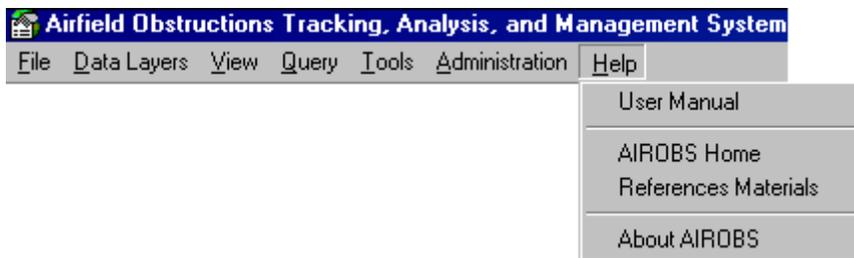
This menu option opens the Obstructions dialog box. From the Obstructions dialog box the user can select an obstruction to edit or delete from the obstruction database. For more information see Obstruction dialog box discussed below.

Set Database

This menu option activates the Setup dialog box that allows the user to set the file location for the database and the default airbase. The default airbase is the airbase that will be selected in the Select an Airbase drop down menu on the Quick Task List by default, as well as the map file that will be loaded by AIROBS automatically when AIROBS is opened. For more information see Setup dialog box discussed below.

Help Menu

This menu is used to direct the user to help sources for AIROBS. When the user selects Help from the Main Menu Bar, the options shown below are provided.



User Manual

This menu option activates this document.

AIROBS Home

This menu option opens the AIROBS Opening Screen. For more information see Opening Screen discussed above.

Reference Materials

This menu option activates the Select a Reference to View dialog box. This dialog box allows the user to view selected files that can be attached as references to AIROBS. See Select a Reference to View dialogue box below for more information.

About AIROBS

This menu option activates the About AIROBS dialog box. This menu option allows the user to view information about the AIROBS software as well as to view the system information for the user's computer. For more information see About AIROBS dialog box discussed below.

Button Bar



The button bar appears when the main window of AIROBS is activated. It consists of the button icons shown above. The left buttons are ArcMap functions and the right buttons are AIROBS-specific buttons. The buttons act as shortcuts to options found in the menus on the Main Menu Bar. Each button is discussed below. For the ArcMap functions, the user is referred to the ArcView manuals for additional information and assistance.

ArcMap Functions

Open Map Document



This button shows the Open Map dialog that allows the user to open a previously created map file (*.mxd). Refer to ArcGIS documentation for more information.

Export



This button shows the Export File dialog box. This option allows the user to export the screen currently in view in the main AIROBS window as a jpeg (*.jpg) image file. Refer to ArcGIS documentation for more information.

Print



This button shows the Print dialog box that allows the user to print the screen currently in view in the main AIROBS window. Refer to ArcGIS documentation for more information.

Add Data



This button activates the Select Data dialog box. It allows the user to add a data layer for viewing in the current map. The data can come from any feature dataset and feature class files. Refer to ArcGIS documentation for more information. Adding data layers in this manner will not save the data layer to the MXD file on exiting the AIROBS application. If a new layer is required to be resident permanently in the MXD file, this should be done in ArcMap.

View Legend



This button activates the waiver legend that identifies the symbology for each type of waiver, i.e. Temporary Waiver, Permanent Waiver, Permissible Deviation, Exemption, and Unapproved Obstruction.

View Table of Contents



This button opens the Table of Contents dialog box. The user can arrange the order of the map layers, turn layers on and off, remove layers from the map, zoom to a layer's extents, set the visible range, adjust the layer properties, add labels to features, and allow the layer features to be selectable. The features of the Table of Contents dialog box are comparable to those of the Layer Control dialog box accessed through the Configure Layers menu option or through the Configure Layers button. For more

information see Table of Contents dialog box discussed below.

Configure Layers



This button activates the Layer Control dialog box. From this option the user can make the layers visible, selectable, and add layers to each layer. In addition, the layer levels can be rearranged as desired. The features of the Layer Control dialog box are comparable to those of the Legend dialog box accessed through the Legend menu options or the View Legend Button. The Layer Control dialog box is discussed below.

Zoom In



This button activates the Zoom In cursor option tool. When the user clicks on this button the cursor becomes activated as the tool to enlarge the current view. To zoom in the user clicks and holds the mouse button to drag a box around the portion of the map for which the enlargement is desired. The cursor will remain activated as the Zoom In cursor option tool until another cursor option is selected.

Zoom Out



This button activates the Zoom Out cursor option tool. When the user clicks on this menu option the cursor becomes activated as the tool to zoom out from the current view. To zoom out the user clicks and holds the mouse button to drag a box around a portion of the map for which zooming out is desired. The cursor will remain activated as the Zoom Out cursor option tool until another cursor option is selected.

Pan by Grab



This button activates the Pan cursor option tool. When the user clicks this button the cursor becomes activated as the tool to change the current display without changing the current magnification of the map, known as panning. To pan the view the user clicks and holds the mouse button to drag the map until the desired display is shown. The cursor will remain activated as the pan tool until another cursor option tool is selected.

Zoom Display to Full Data Extent



This button causes the map currently in use to increase or decrease its view to include all the features on the map.

Refresh Screen



This button will refresh the view in the main AIROBS window. When this option is chosen the map window is redrawn to show the most current updates to the map file.

Draw Previous Extent



This button allows the user to display the view previously shown before the last view change. This option can be chosen to re-display the map view history form when the file was opened to the present view.

Redo Previous Extent



This button allows the user to display the previously shown view before the Undo Previous Extent menu option or the Draw Previous Extent button was chosen. This option becomes activated only after the Undo Previous Extent menu option or the Draw Previous Extent button is chosen and will become deactivated if the user makes

any changes to the current view extents by using the Zoom In, Zoom Out, Zoom to Full Extent, or Pan tools.

Select Features Button



This button activates the Select Features cursor option tool. When the user clicks on this menu option the cursor becomes activated as a tool to select data points on the map file. To select a point the user clicks on the point on the map that is desired. To select more than one point the user can click and hold the mouse button while dragging a box around the data that needs to be selected. The cursor will remain activated as the Select Features cursor option tool until another cursor option is selected.

When using this function, computers with limited graphic memory may experience a reduced refresh rate. Opening aerial imagery places high demands on the graphic memory when panning around the map and using this tool adds further demands on the available memory.

Zoom to Selected Features



This button activates the Zoom to Selected Features.

Clear Selection Button



This button will deselect any points selected while using the Select Features cursor option tool from the Query menu or the Select Features Button located on the button bar.

Identify Nearest Feature Button



This menu option will activate the Identify cursor option tool. When the user clicks on this button the cursor becomes activated as a tool to select and identify attributes of map data. Clicking on the map will open the Identify Results dialog box where the user can view data attributes for the identified data feature.

Query Dialog Button



This button opens the Query Features dialog box. This tool allows the user to query and select data by class, attribute, and spatial constraints. For more information see Query Features dialog box discussed below.

Measure Distance Button



This menu option activates the Measure cursor option tool. The Measure tool allows the user to measure a distance on the map by clicking at one end point of the distance to be measured and holding the mouse button until the second end of the distance to be measured is reached. The distance is displayed while the mouse button is held down, but disappears when it is not held. The cursor will remain activated at the Measure Cursor option tool until another cursor option is selected.

AIROBS Functions

View/Refresh Obstructions Button



This button displays the obstruction data points associated with the map file currently opened. When the user clicks on this option the data points associated with each obstruction are shown on the map. A different type of symbol is used to represent each

type of obstruction. The obstructions will remain displayed until turned off or removed by the user, see the Legend menu option or the View Legend Button.

Set Database Button



This button activates the Setup dialog box that allows the user to set the file location for the database and the default airbase. The default airbase is the airbase that will be selected in the Select an Airbase drop down menu on the opening screen by default, as well as the map file that will be loaded by AIROBS automatically when AIROBS is opened. See Setup dialog box discussed below for more information.

Set Airbase Map Button



This button opens the Edit Airbase Info dialog box. The user can edit the airbase name and select map files; TIN files, and shape files to be associated with the airbase by using this dialog box. Additional information on the Edit Airbase Info dialog box can be found below.

Set Airbase Criteria Button



This button opens the Set Criteria dialog box. The user can add new airspace criteria or edit existing criteria by links to the required data files. See Set Criteria dialog box discussed below for more information.

Edit Existing Obstructions Button



This button opens the Obstructions dialog box. From this dialog box the user can select an obstruction to edit or delete from the obstruction database. For more information see Obstruction dialog box discussed below.

Query Existing Obstructions Button



This button activates the Query Obstructions dialog box. This tool allows the user to find multiple obstructions that meet user defined criteria or to find a single obstruction identified by the user. For more information see Query Obstructions dialog box below.

New Obstruction Analyses Button



This button activates the Obstruction Analyses dialog box. This tool can be used for running priority risk areas, airspace surface, and clearance zone analyses using a selected criteria for existing structures or a new structure which is user defined. See Obstruction Analyses dialog box below for more information.

Reports (Form 582, Form 583, and Priority Areas) Button



This button opens the Reports dialog box. This dialog box allows the user to generate 582, 583, and Priority Area Reports. See Reports dialog box discussed below for more information.

Export Obstruction Data Button



This button activates the Export Obstruction data dialog box. This function extracts the geospatial information and obstruction identifier for all waivers and permissible deviations reported on the USAFE Form 583. This data is extracted to a tab-delimited file for importing into CAD platforms used to publish the E-1 maps. See Export Obstruction Data dialog box discussed below for more information.

Identify Nearest Obstruction Button



This button activates the Identify Obstructions cursor option tool. When the user clicks on this button the cursor becomes activated as a tool to view the obstruction attributes for obstruction data points. When the user clicks on an obstruction data point on the map the Edit Obstruction dialog box appears. This allows the user to view and modify obstruction information. See Edit Obstruction dialog box discussed below for more information.

User Manual Button



This button activates this document from within the AIROBS application.

Reference Materials Button



This button activates the Select a Reference to View dialogue box from which the user can view the reference materials automatically from within the AIROBS application using the native format of the reference material. See Select a Reference to View dialog box discussed below for more information.

AIROBS Home Button



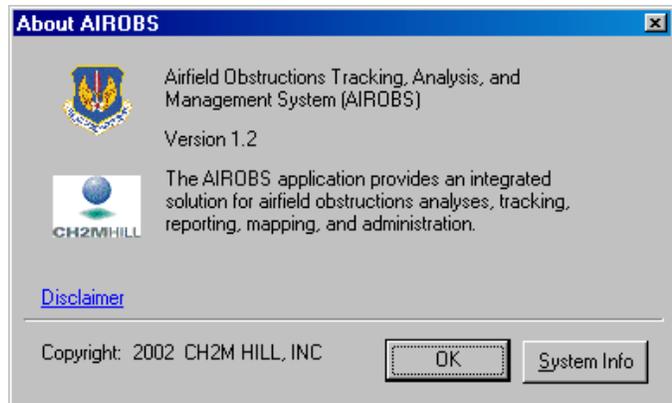
This menu option opens the Home dialog box. For more information see Opening Screen discussed above.

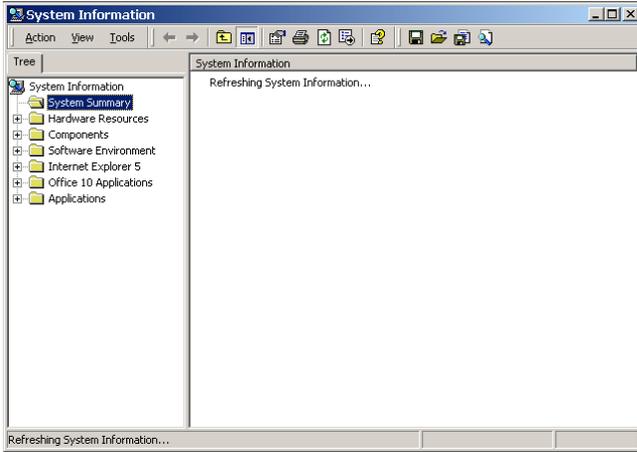
Dialog Boxes

About AIROBS

This dialog box, shown to the right, provides the user information about the version of AIROBS that they are running on their computer.

When the user clicks the Ok button the About AIROBS dialog box closes. When the user clicks the System Info button the System Information dialog box, shown below, is displayed.



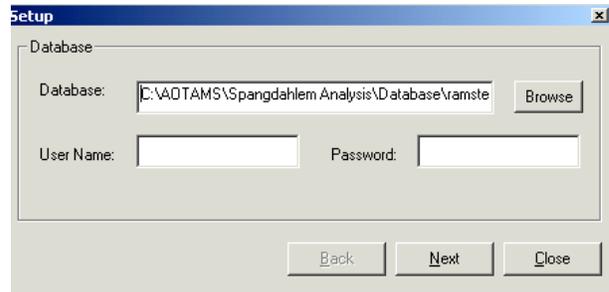


The System Information dialog box is a Windows feature, and can usually be accessed from the Start Menu > Programs > Accessories > System Tools > System Information.

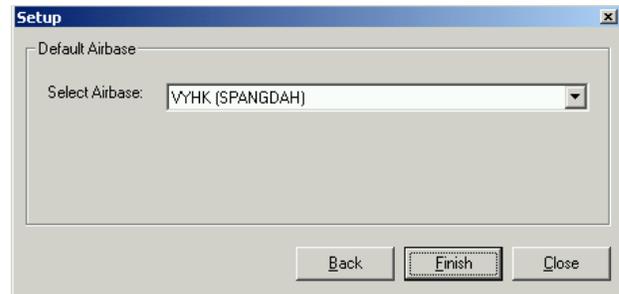
For help using the System Information dialog box features click on the Help menu option under the Action menu or the Help button (H?) located on the button bar, both located in the System Information dialog box.

Setup

This dialog box sets the location of the database containing the obstruction data and for storage of the analysis results.

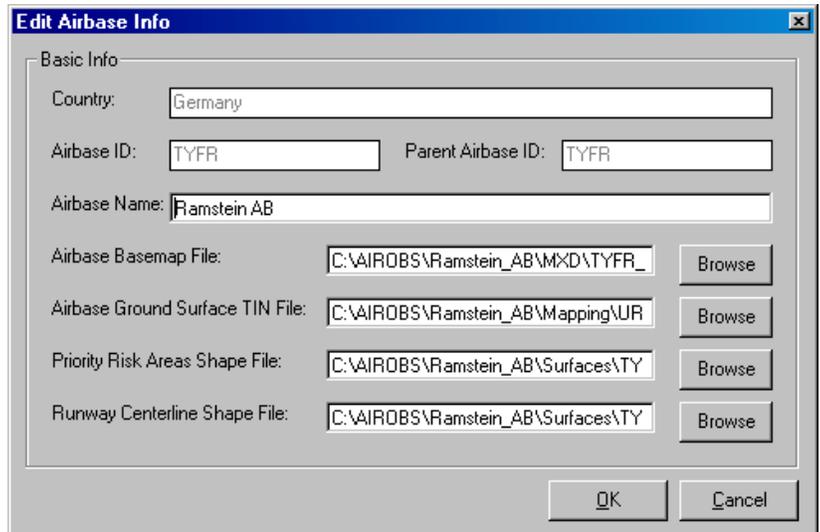


Clicking the "Next" button above results in a second dialog box for setting the airbase to which the obstruction data is related. The airbase is selected from the drop down menu.



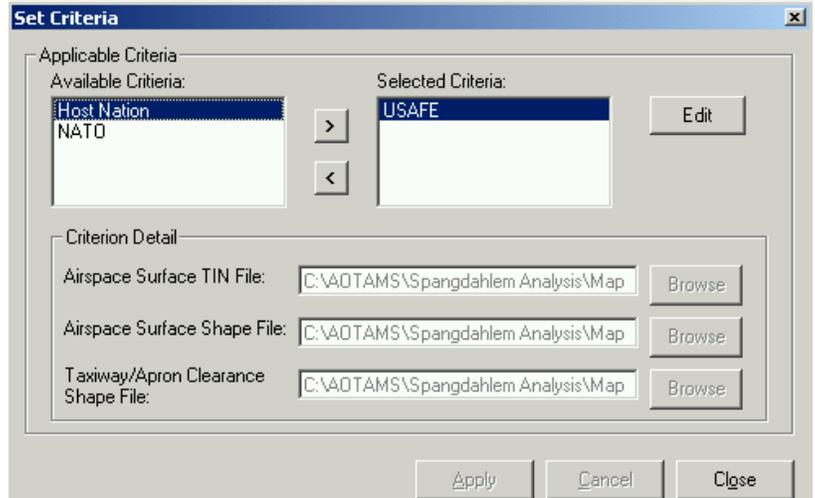
Edit Airbase Info

This dialog box is for setting the location of the *.mxd file containing the base mapping on which the obstructions are to be displayed, links to the ground TIN file, connection to the priority risk area shape file, and inclusion of the runway centerline file. This is all the data that is required that is not dependent of the selected airspace criteria.

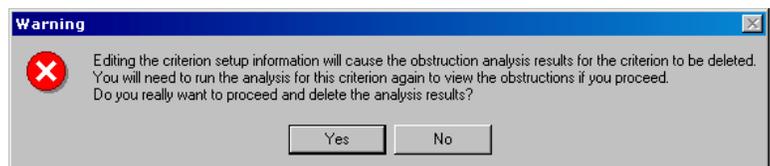


Set Criteria

This dialog box allows the user to add new airspace criteria and edit existing criteria by linking alternate airspace surface TIN files, airspace surface shape files, and taxiway/apron clearance shape files.



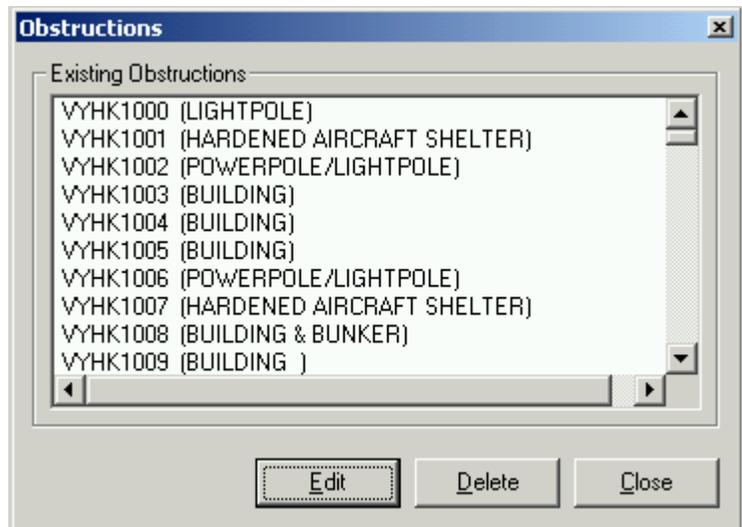
Warning: Editing or replacing criteria files will erase all obstructions for the database related to that criterion. This warning message will appear to warn the user that this will occur.



Edit Existing Obstructions

Listed in this dialog box are the obstructions that have been analyzed by AIROBS. The obstructions are listed by Obstruction Number and the description of the obstruction as stored in the database. Selecting any of the obstructions and clicking the edit button brings up the Edit Obstructions box shown below. Clicking delete will remove the obstruction from the database. Clicking close will close the dialog box.

When an obstruction is selected from this list, the obstruction is highlighted (selected) on the screen. When an obstruction is selected, users may find the zoom functions to be sluggish. This is caused by increased demands on graphic memory. Deselecting the obstruction will remove this condition.



Edit Obstruction

Basic Info

Obstruction Number:

Obstruction Classification:

Waiver Status: Date:

Waiver Reference:

Installation Date:

Construction Type:

Obstruction Description and Comments:

Violations

ICAD: H (0.34) Priority Area:

USAF: A (0.98) Obstruction Frangible:

Survey Information

Point 1 of 1

Name: Survey Date:

X Coord: Height:

Y Coord: + Ground Elevation:

Frangible: = Top Elevation:

Coord. Grid: Note: Calculated fields are red.

Description:

Distance Measurements

Runway/Taxiway Name	To Centerline	To Threshold
RUNWAY 09/27	155.26	402.05

Image 1 of 1

This dialog box is the primary user interface for managing the airfield obstructions. Data shown at opening the dialog box is populated from the Obstructions Database. The left side of this dialog base is the data related to the obstruction itself. The left side of the dialog box relates to the survey points that are included in the obstruction. Obstructions may be composed of several surveyed objects that are grouped into a single obstruction.

Basic Info

Data for this area comes both from the obstruction database and by user input. The principal purpose of this dialog area is to define the waivers and permissible deviations.

Obstruction Number

This field is to be populated by the user in accordance with MAJCOM requirements. The USAF guidelines for obstruction numbering are provided in the Reference Materials. A unique number is required for each obstruction.

Obstruction Classification

This sets whether the selected obstruction is a Temporary or Permanent Obstruction, Permissible Deviation, Exemption, or Unapproved Obstruction.

Permissible Deviation Help

This box will activate the current criteria for determination of a Permissible Deviation. In this instance it will open Attachment 14 of UFC 3-260-1.

Waiver Status

Allows for tracking and storage of Approved and Pending waivers.

Date

Posting for the date of waiver approval.

Waiver Reference

Allows for the insertion of base or MAJCOM reference information related to the waiver.

Installation Date

Specify the date of installation if known.

Construction Type

User can select if the obstruction is temporary, e.g. construction crane, or permanent in nature. This relates specifically to the construction type and not the waiver type.

Obstruction Description and Comments

The field is populated from the database, but can be modified by the user as needed to describe the obstruction.

Violations

This is not a user input area, this provides the information in the database related to criteria that the obstructions violate.

Priority Area

This lists the priority area where the object is located, PA1, PA2, or PA3. This is not a user-input box.

Obstruction Frangible

This allows the user to input the frangibility of the obstruction. For obstructions that are grouped, if all objects are frangible, the obstruction is frangible and likewise if all objects are non-frangible. For obstructions that have a mixture of frangible and non-frangible objects, e.g. aircraft arrestor systems, the obstruction must be listed as non-frangible.

Corrective Action Information

These are user-input fields related to the cost and priority of removal of the obstructions.

Project/Work Order Number

This field allows for the recording of the project or work order number under which the obstruction will be corrected or removed.

Estimated/Programmed Cost

User entered field for the cost of correction or removal for the given obstruction for management of obstruction removal programs.

FIM Rating

Allows user entry of the FIM Rating for the given obstruction. The possible selections are Degraded, Critical, and Enhancement.

ORM Ranking

Specify the Operational Risk Management risk level as Extreme, High, Medium, or Low.

Estimated Removal Date

Insert the Fiscal Year when the obstruction correction or removal will be executed.

Survey Information

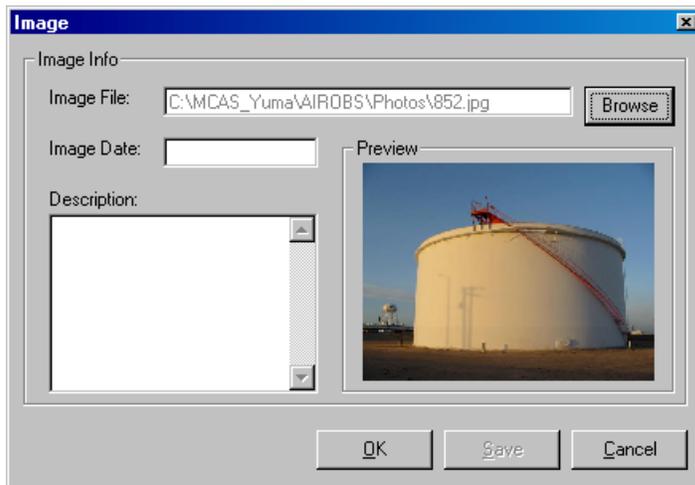
This dialog area lists the name and the coordinates of the survey points that compose the selected obstruction. Scrolling   to other survey points in this box will alter the information below. Data for populating this area comes from a combination of the obstruction database and user inputs. All fields relate to the survey point selected in the Survey Points in dialog area. The Survey Date field is entered as month/date/year (mm/dd/yyyy). To save changes made to this area, hit the apply button before exiting the dialog box.

Distance Measurements

This box is completed from the analysis of the obstruction from values stored in the database. The user can not edit the box.

Images

The obstruction database provided at installation may include digital images of the obstructions. If there is an image of the obstruction, its image will be shown. However, users may add images as well for each survey point. Selecting the Add or Edit buttons results in the dialog box shown below.



Query Obstructions

This dialog box allows the user to query the AIROBS database based on selected criteria. The results of the query are displayed in the bottom area. Queries of a single obstruction will provide the violations of that obstruction in the results area.

Note that Permissible Deviations only apply for the governing criteria for the determination and granting of waivers, that is the USAFE criteria. For all other criteria, this field is not selectable because Permissible Deviations do not apply to these criteria.

Query Obstructions

Single Obstruction: TYFR01001

All Obstructions:

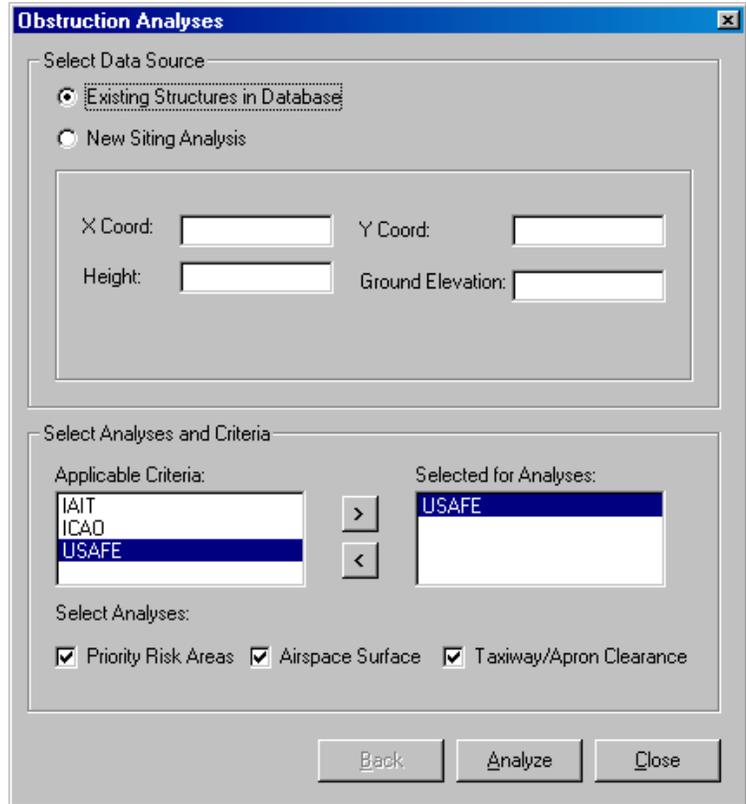
Obstruction Type: Permanent Waivers Permissible Deviations Unapproved Obstructions
 Temporary Waivers Exemptions

Priority Areas: Priority Risk Area 1 Priority Risk Area 2 Priority Risk Area 3

Surface Violated: (A) Primary (B) Clear Zone
 (C) Approach-Departure (Sloped) (D) Approach-Departure (Horizontal)
 (E) Inner Horizontal (F) Conical
 (G) Outer Horizontal (H) Transitional
 (P) Aircraft parking clear area (T) Taxiway clear area

New Obstruction Analyses

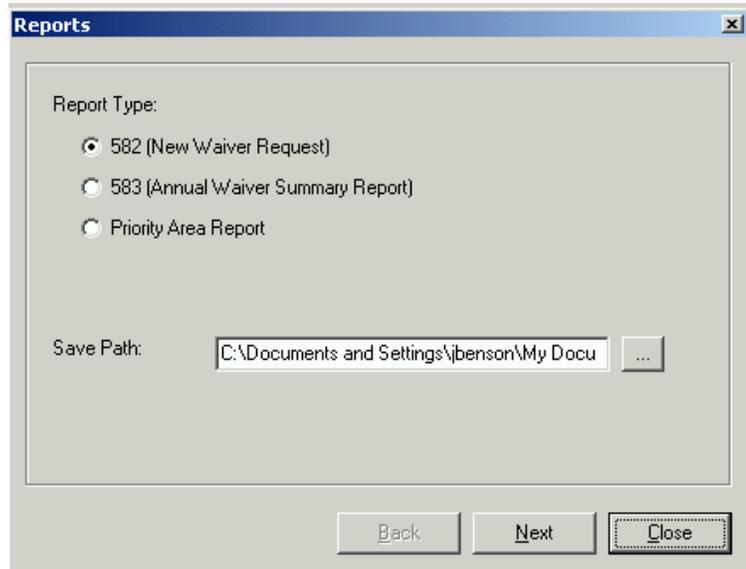
This dialog box provides for analyses of either single obstructions or obstructions that are loaded in the database. For a single obstruction analysis, the user may enter the coordinates or select the X Coord, Y Coord, and Ground Elevation (if available) by clicking on the ArcMap screen. An identifier will be shown on the screen when the Ground TIN file is available only. Users must select an airspace criterion and the required analyses before selecting the Analyze button to run the analysis.



The **Obstruction Analyses** dialog box is divided into two main sections. The top section, **Select Data Source**, has two radio buttons: **Existing Structures in Database** (selected) and **New Siting Analysis**. Below these are four text input fields: **X Coord:**, **Y Coord:**, **Height:**, and **Ground Elevation:**. The bottom section, **Select Analyses and Criteria**, features two list boxes. The **Applicable Criteria** list contains IAIT, ICAO, and USAFE, with USAFE selected. The **Selected for Analyses** list contains USAFE. Below the list boxes are three checked checkboxes: **Priority Risk Areas**, **Airspace Surface**, and **Taxiway/Apron Clearance**. At the bottom are three buttons: **Back**, **Analyze**, and **Close**.

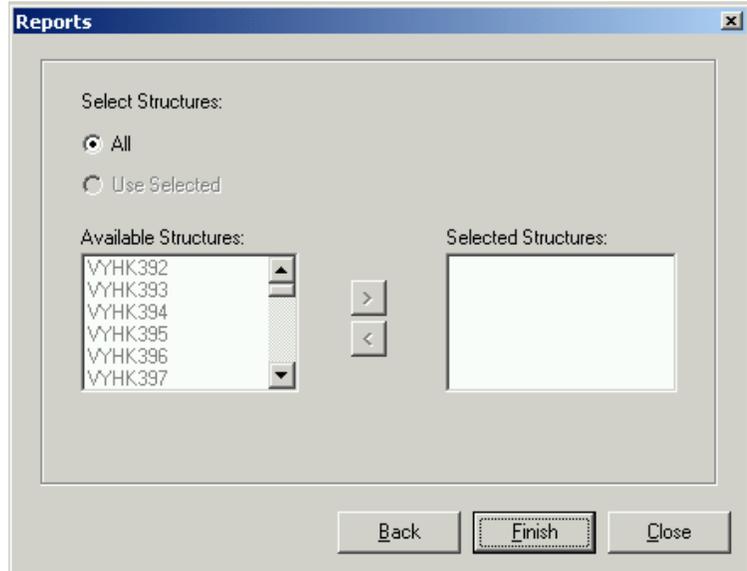
Reports

This dialog box is for the creation of the specific USAFE reports and allows the user to specify the location of the resulting report. The Next button results in the second Reports dialog box shown below allowing the user to specify which obstructions to report. The default file location is to the "My Documents" folder, but this can be changed by browsing to the desired location by hitting this button: **...**



The **Reports** dialog box has a **Report Type:** section with three radio buttons: **582 (New Waiver Request)** (selected), **583 (Annual Waiver Summary Report)**, and **Priority Area Report**. Below this is a **Save Path:** text box containing the path **C:\Documents and Settings\jbenson\My Docu** and a **...** button. At the bottom are three buttons: **Back**, **Next**, and **Close**.

For the Form 583, the only option available to users is to select all structures. For the other reports, the user may select from the available structures.

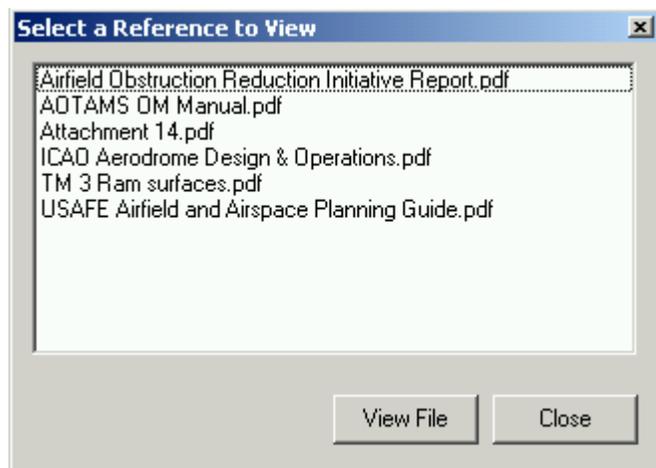


E-Tab Creation

The creation of E-Tab mapping is provided in the ArcView environment. The workflow for creating the E-Tab maps is provided in the Frequently Asked Questions section.

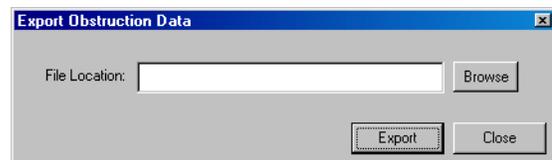
Select a Reference to View

Reference material listed as previously loaded at installation or added subsequently by the user. See file locations for assistance on adding new reference materials.



Export Obstruction Data

This function extracts the geospatial information and obstruction identifiers for all waivers and permissible deviations reported on the USAFE Form 583 into a tab-delimited file with the headings Obstruction ID, X Coordinate, Y Coordinate, Ground Elevation, and Obstruction Classification. This file can be used to import this data into other applications such as AutoCAD.



Layer Control

This feature allows the user to change the level a layer is on, make data on a given level Visible/Invisible, Selectable/Non-Selectable, and add/remove Labels. The symbology of all data features in a layer can be modified here. Right clicking on any of the layers will bring up the following options: Remove Layer, Visible, Selectable, Label, and Properties. Remove Layer will remove the layer from the map file. Visible will make the layer visible/invisible. Selectable will make the data selectable or non-selectable. Label will add or remove labels from each data point. Properties will bring up the ArcGIS properties dialog box. For more information on the Properties dialog box, refer to ArcGIS documentation.

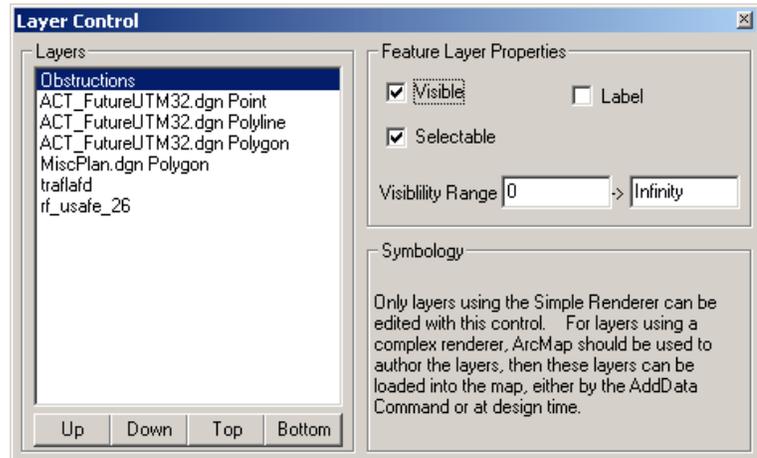


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This dialog box allows the user to adjust layer properties within the current map file. Checking/un-checking the box next to each layer will toggle the layer on/off. Right clicking on a layer will bring up the following options:

Remove

This option will remove the selected layer from the map file.

Zoom to Layer

This option will update the scale to include all data included on the selected layer.

Visible Scale Range

This option allows the user to set the minimum scale range, maximum scale range, and clear the scale range.

Selectable

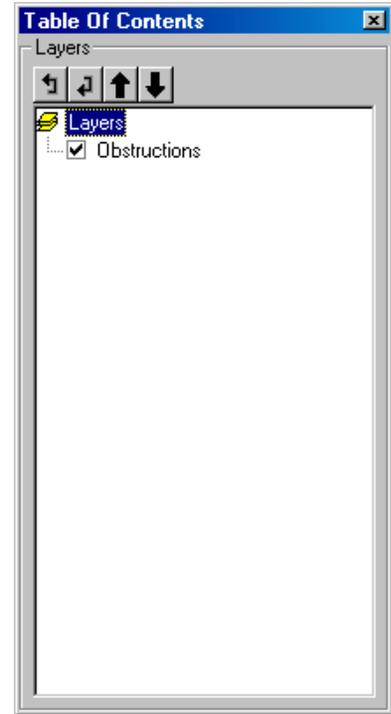
This option allows the user to make features on a layer selectable/non-selectable in AIROBS.

Label Features

This option adds a label to each feature in the selected layer.

Properties

This feature opens the ArcGIS data layer properties box. See ArcGIS documentation for more information.

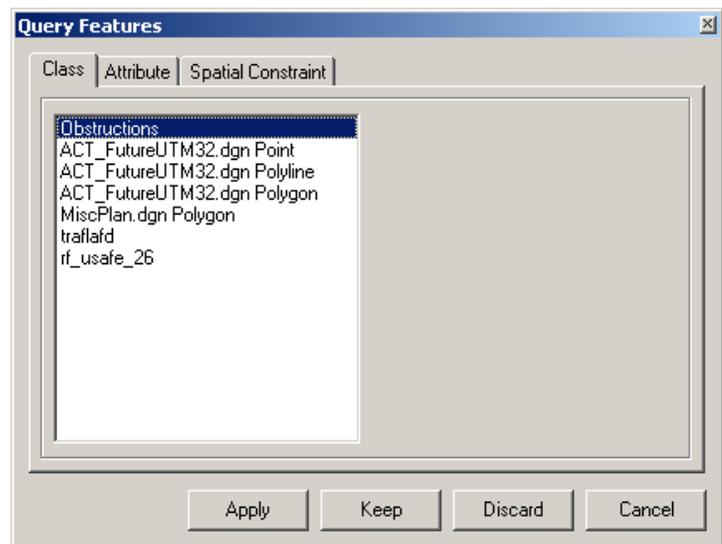


Query Features

The query features dialog box allows the user to select map features using various criteria.

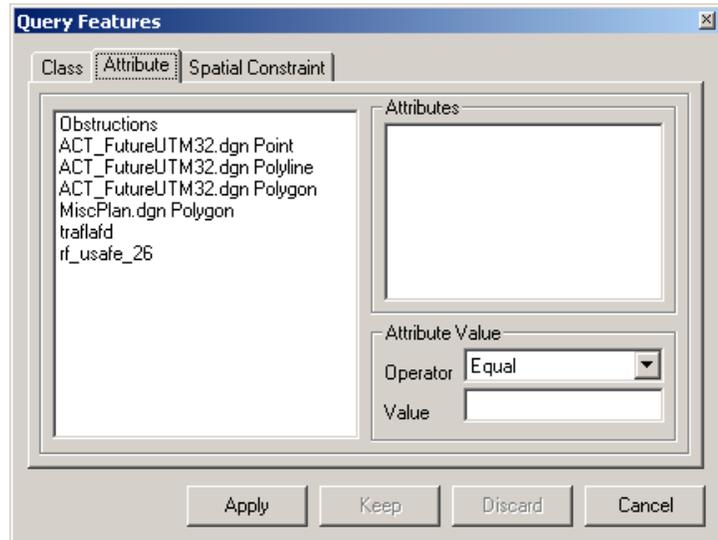
Class

The Class tab allows the data to be selected based on the layer it is associated with. All data on this layer will be selected. Select a layer and click the Apply button to select data. Click the Discard button to deselect the data. Click the Cancel button to close the dialog box.



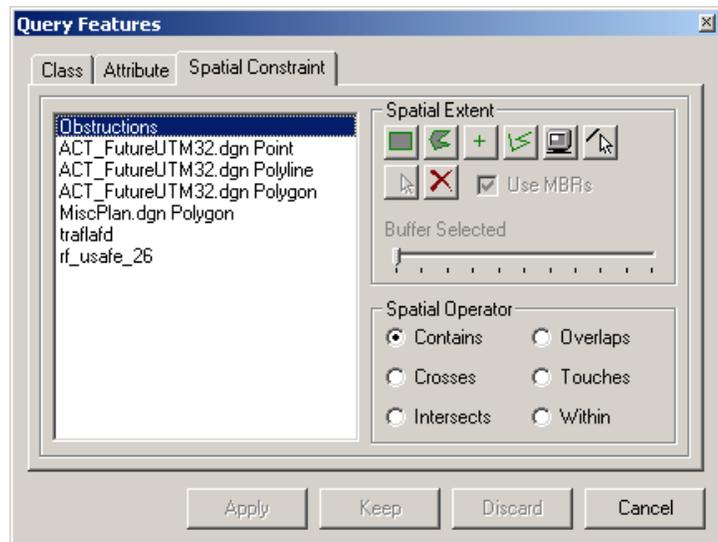
Attribute

The Attribute tab allows the user to select data based on the layer it is associated with and the attribute constraints that the user places on it. After selecting the data layer, the Attributes box shown at right, populates with available attribute data. The user then selects the desired attribute data and sets constraints for data selection in the Attribute Value boxes shown at right. Clicking apply will select the data that meets the specified criteria.



Spatial Constraint

This option allows the user to select data based on the layer it is associated with and the spatial constraints that are assigned by the user. After selecting a layer the user must choose a Spatial Extent as shown at right. After clicking a button in the spatial extent box, the dialog box will close so that a spatial area can be selected. After selecting the dialog box will re-appear. Clicking apply will select the data that meets the specified criteria.



AIROBS Messages

Listed below are messages included in the AIROBS code. This listing does not provide the possible error messages from third-party software associated with AIROBS such as ArcGIS, Adobe Reader, print drivers, and Windows operating system. Please refer to the help functions in that software for messages not listed here.

AIROBS MESSAGES

Message	Description	Module
The database is password protected. Go to the Setup->Set Database dialog and set the correct password to the database.	Displayed when access to a password protected database failed.	Startup
The AIROBS application cannot be run on this computer. You either do not have ArcMap installed on this computer or do not have the ArcView license. Click OK to exit.	Displayed when the necessary ArcMap/ArcView components are not installed on the computer.	Startup
The database has not yet been set up. Do you want to set it up now?	Displayed when the database is not yet set up.	Startup
The database has not yet been set up. Please click 'Set Up' and then 'Set Database' to set up the database.	Displayed when the database is not yet set up.	Startup
Please select a reference document from the list.	Displayed when there is no reference document selected.	Reference Materials
Please select a data file.	Displayed when there is no data input file specified.	Data Input
Please specify a file name and path to export the results to.	Displayed when path to save the report is not specified.	Reports
The network name \\babel\reports could not be found.	Displayed when the specified network directory cannot be accessed.	Reports
The folder d:\reports isn't accessible.	Displayed when the directory specified cannot be accessed.	Reports
There is no data for the selected report.	Displayed when there are no data from the database for the selected report	Reports
Report created successfully.	Displayed when the report is successfully created.	Reports
Editing the criterion setup information will cause the obstruction analysis results for the criterion to be deleted. You will need to run the analysis for this criterion again to view the obstructions if you proceed. Do you really want to proceed and delete the analysis results?	Confirm the deletion of the analysis results when setting up the criteria information.	Set Criteria
Do you want to delete the selected criterion from the airbase? All data related to criterion for the airbase will be deleted and the result cannot be reversed.	Confirm the deletion of the selected criterion.	Set Criteria
One or more entries are not valid. Please verify and try again.	Displayed when the path or password to the database is not valid.	Set Database

AIROBS MESSAGES

Message	Description	Module
An error has occurred while saving the setup information. Information is not saved.	Displayed when an error has been encountered when saving the setup information.	Set Database
Setup information has been successfully saved.	Displayed when the setup information is successfully saved.	Set Database
Are you sure you want to delete the obstruction from the database?	Confirm the deletion of an obstruction.	Edit Obstruction
The image file is not specified.	Displayed when no image file is specified.	Edit Obstruction
The image date is invalid.	Displayed when the image specified is invalid.	Edit Obstruction
A structure with the same structure name already exists in the database.	Displayed when a duplicated structure name is already in the database when saving a new structure.	Edit Obstruction
Please enter a number for the obstruction.	Displayed when the obstruction is missing.	Edit Obstruction
Please select a classification.	Displayed when the obstruction classification is missing.	Edit Obstruction
The install date is invalid.	Displayed when the date is invalid.	Edit Obstruction
The estimated removal date is invalid.	Displayed when the date is invalid.	Edit Obstruction
The remove cost is not a valid number.	Displayed when the input is invalid.	Edit Obstruction
Please enter a date for the waiver application or approval date.	Displayed when the waiver date is missing.	Edit Obstruction
The waiver status date is invalid.	Displayed when the waiver date is invalid.	Edit Obstruction
The remove by date is invalid.	Displayed when the date is invalid.	Edit Obstruction
X coordinate is required.	Displayed when the X coordinate is missing.	Edit Obstruction
The X coordinate is not a valid number.	Displayed when the X coordinate is invalid.	Edit Obstruction
Y coordinate is required.	Displayed when the Y coordinate is missing.	Edit Obstruction
The Y coordinate is not a valid number.	Displayed when the Y coordinate is invalid.	Edit Obstruction
Height is required.	Displayed when the height is missing.	Edit Obstruction
The height is not a valid number.	Displayed when the height is invalid.	Edit Obstruction
The ground elevation is not a valid number.	Displayed when the input is invalid.	Edit Obstruction
The top elevation is not a valid number.	Displayed when the input is invalid.	Edit Obstruction

AIROBS MESSAGES

Message	Description	Module
The survey date is invalid.	Displayed when the input is invalid.	Edit Obstruction
Please select frangibility.	Displayed when frangibility is missing.	Edit Obstruction
Data has been successfully saved to the database.	Displayed when the analysis results have been successfully saved to the database.	Analyses
The analysis results have not been saved to the database. Do you really want to close the dialog without saving the analysis results?	Displayed when the user is trying to close the analysis dialog without saving the analysis results.	Analyses
Please select one or more analyses.	Displayed when there is analysis is checked.	Analyses
Please enter the X coordinate of the structure.	Displayed when the X coordinate is missing.	Analyses
Please enter the Y coordinate of the structure.	Displayed when the Y coordinate is missing.	Analyses
Please enter the height of the structure.	Displayed when the height is missing.	Analyses
The X coordinate you entered contains an invalid number.	Displayed when the input is invalid.	Analyses
The Y coordinate you entered contains an invalid number.	Displayed when the input is invalid.	Analyses
The height you entered contains an invalid number.	Displayed when the input is invalid.	Analyses
The base elevation you entered contains an invalid number.	Displayed when the input is invalid.	Analyses
There are no structures in the database for the airbase.	Displayed when there are no structures in the database to be analyzed.	Analyses
The priority risk area shape file has not been set up for the airbase. Please go to Administration->Set Airbase Map to set up the shape file.	Displayed when the priority risk area shape file has not be set up.	Analyses
The airspace surface TIN file has not been set up for the airbase and selected criterion. Please go to Administration->Set Airbase Criteria to set up the TIN file.	Displayed when the airspace TIN file has not be set up.	Analyses
The airspace surface shape file has not been set up for the airbase and selected criterion. Please go to Administration->Set Airbase Criteria to set up the shape file.	Displayed when the airspace shape file has not be set up.	Analyses
The clearance zone shape file has not been set up for the airbase and the selected criterion. Please go to Administration->Set Airbase Criteria to set up the shape file.	Displayed when the clearance zone shape file has not be set up.	Analyses
There are no obstructions in the database for the selected criterion. No layer was created.	Displayed when there are no obstructions in the database.	View Obstructions

Known Application Bugs

E-Tab Symbology

When opening ArcView for preparation of an E Tab, the icon symbology for the various obstruction types is not immediately passed to ArcView. To get the right icons, the "Properties" sheet for the Obstruction Layer must be opened by right clicking on Obstructions and selecting Properties. Next, select the "Symbology" tab and press "OK." The correct icons will now appear. The development team is working with ESRI to correct this bug.

Memory Usage

The application can return error messages such as "Error Call Stack Sequence" with "Divide by Zero" when the program is heavily tasked while running other applications or when zooming in and out with multiple layers. This error is more likely to occur with less powerful computers (limited video memory, limited hard drive space, etc.) When this error message is displayed, the application will almost always recover when the "Set Airbase Map" button is pushed. When the set map dialogue opens, press "OK." This error does not affect data or the database.