



## Getting Started Manual

# rfInvestigator-FM

Version 2.5

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# Minimum and Recommended Computer System Requirements

## ***Processor Type and Speed***

- Minimum: Pentium II 300 MHz
- Recommended: Pentium IV 2 GHz or better

## ***Operating System***

Partial Support with:

Windows 98 Second Edition (Version 4.10.222)  
Windows ME (Version 4.90.3000)  
Windows NT Service Pack 4 (Version 4.0.1381)

Full Support with:

Windows 2000 (Version 5.0.2195)  
Windows XP (Version 5.1.2600)  
Windows Server 2003 (Version 5.2.2600 & up)

## ***Disk Space***

1 GB without Database Builder, 1.5GB with.

## ***RAM***

Minimum: 128 MB, 256 MB for Windows XP  
Recommended: 256 MB, 512 for XP.

## ***Video Display***

Minimum: 800 x 600 - 16-bit color  
Recommended: 1024 x 768 – 24-bit color or better.  
Multiple monitors are extremely useful.

## ***Recommendations for Better Performance***

As with most applications, additional memory and/or CPU power will result in improved performance. In particular, additional Disk Space will permit rfInvestigator to Cache a significant amount of commonly used data.

To improve performance in an existing computer we recommend:

- First: add disk space,
- Second: add memory, and
- Third: upgrade your processor.

Ask rfSoftware about designing and building a high-performance computer, with rfInvestigator preinstalled, for you.

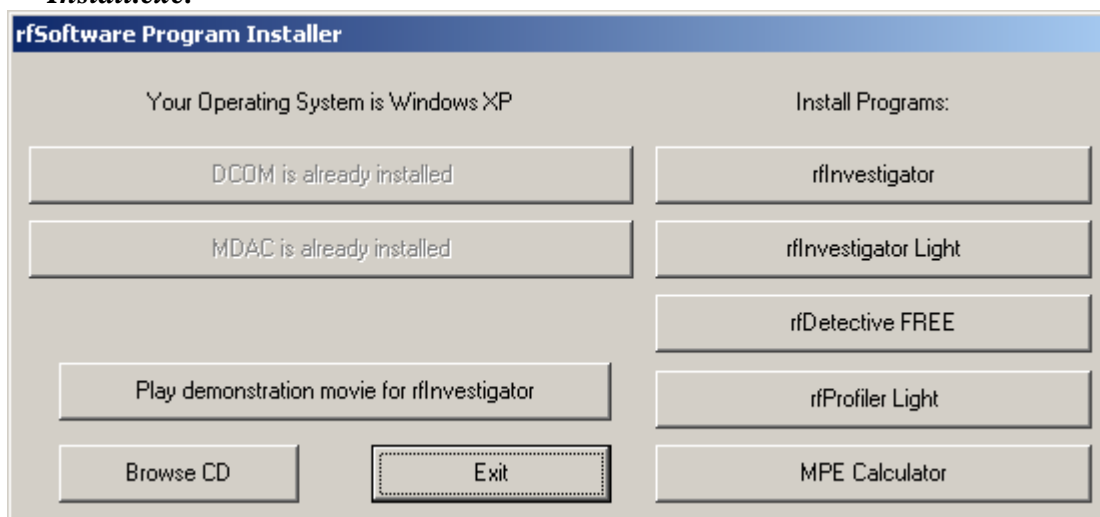
## Installation

All rfSoftware, Inc. programs have an automatic installer. Just follow the instructions in the Installer dialog. If you encounter any problems Email [support@rfsoftware.com](mailto:support@rfsoftware.com) or call 352-336-7223.

### Installing rfInvestigator

#### The Installer program

Inserting the rfInvestigator CD in your computer will auto-run the Program Installer. If the installer does not auto-run, navigate to the CD and launch the application called “*Install.exe.*”



The installer will test the system for necessary prerequisite files. More information about these files can be found below in the **MDAC and DCOM** section. Once these files are installed, you may proceed with the main program installation by pressing the **rfInvestigator** button.

**\*\*IMPORTANT NOTE:** To install software on a computer running Windows NT, Windows 2000 and some versions of Windows XP you must be logged in with Administrator privileges.  
Remember to reboot your computer after installing rfInvestigator.

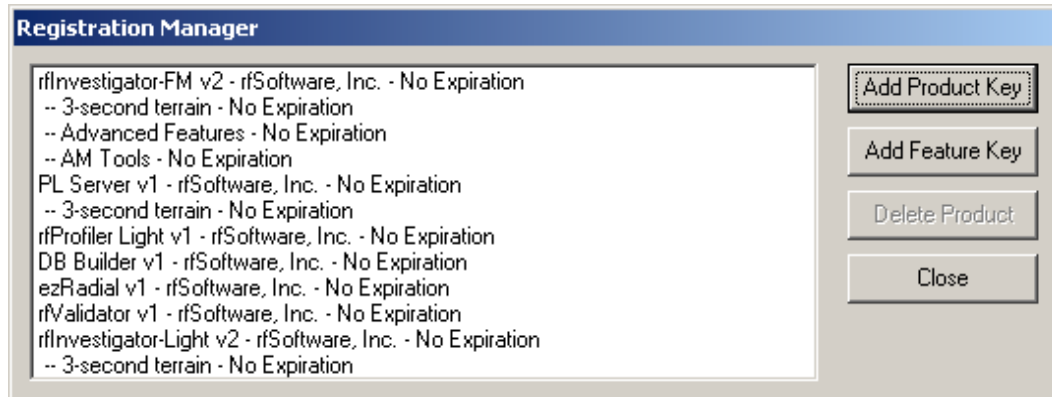
#### MDAC and DCom

The Installer Program tests your system for the presence of MDAC and DCom. These programs are Microsoft extensions to the Windows™ Operating System and are not part of rfInvestigator. They are needed to perform various database access functions. Installing MDAC and/or DCom may require a reboot of your computer before proceeding to the Investigator Install process.

If either of these buttons is not grayed out, press the button to update your operating system.

## Registering rfInvestigator

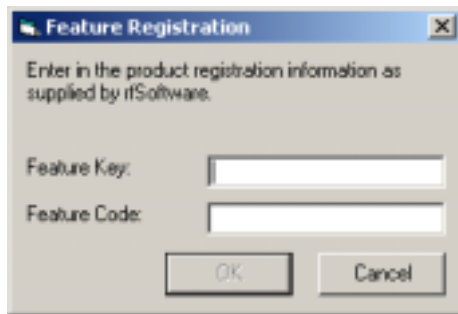
The first time Investigator runs you will be presented with the Registration Manager.



The Registration Manager displays the Program Name, Owner and Expiration date of all rfSoftware products installed and registered on your computer.

Click the **Add Product Key** button to open the Product Registration dialog.

Call 352-336-7223 to receive registration information by Email. Enter the indicated information exactly as it appears in the Registration Email. To minimize the possibility of error we recommend you cut and paste the information from the email message.



Version 2.5 requires the registration of Advanced Features using the supplied Feature Key and Feature Code information. Click the **Add Feature Key** button in the Registration Manager to open the Feature Registration dialog.

Enter the indicated Feature information exactly as it appears in your Registration Email.

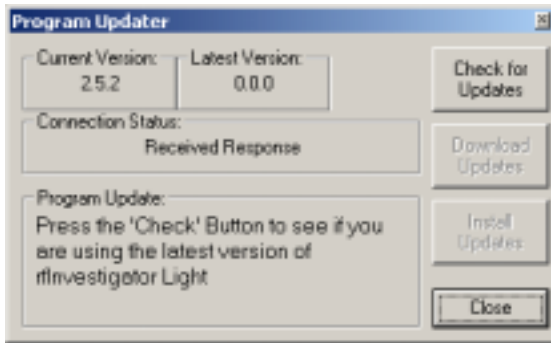
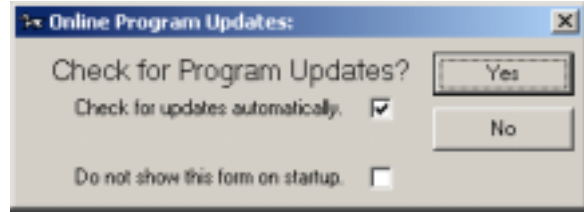
## Adding 3-second Data

The optional three arc-second terrain data may be placed on any available system disk. The default location is **C:\Program Files\rfInvestigator-FM\resources\ter3sec\** however; it may be placed on another drive, one with more free-space for example. Users have had mixed success with accessing the data across a network, or reading it directly from the CD.

Problems occur when there are excessive system delays in accessing the data. Regardless of where you place the data, be sure to point to the appropriate data folder in Options-- Folders.

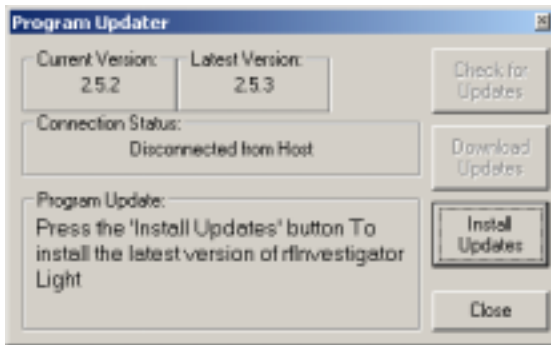
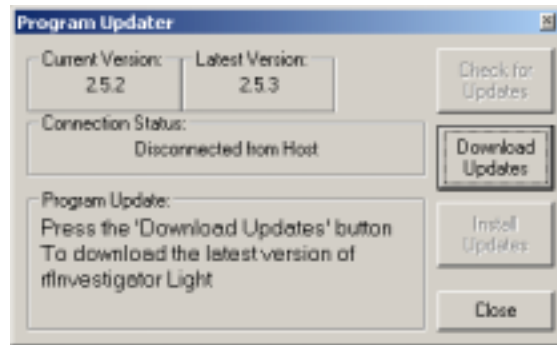
## Updating rflInvestigator

When you launch the program, the Online Program Updates dialog will appear. It is necessary to be on line in order to check for and download updates. The **first time** you launch the program *it is advised that you select Yes* to be sure you have the most recent version of the program. If you prefer not to see this dialog every time you start the program, check the “**Do not show this form on startup**” box. To check for updates at anytime simply select Help--Updates from the drop down menu.



After you have clicked *Yes*, the Program Updater dialog will appear. Press the **Check for Updates** button while on line and the program will attempt to go to our website to check your version against the latest version listed on the site.

If you do not have the latest version, click the **Download Updates** button to download the latest update. This may take a few minutes to complete depending upon your connection speed, please be patient.



Once the update has been downloaded, you will be prompted to install the updates. To do this the updater will automatically shut down your program at the correct time. *Be sure to close all other rfSoftware programs except the updater.* If this is not done, it is possible your update will not be successful.

## Uninstalling rflInvestigator

Should it become necessary to uninstall the program you should first follow the Windows uninstall process accessible via the Windows Control Panel. If you have no other rfSoftware products on your computer, remove the *C:\Program Files\rfSoftware\* folder. Finally, you should clean-up any cached Investigator files from *C:\Windows\Temp\*.

## ***Installing Database Builder***

DbBuilder is a behind-the-scenes utility program that will automatically download data from the FCC website and create a database readable by rfInvestigator. It is an independent program, so you can continue to use rfInvestigator while building a new database. As an alternative, DbBuilder can run on a second computer so it won't slow down your work.

***DbBuilder only needs to be installed if you plan on making your own databases.***

Most people choose to download preprocessed databases from the rfSoftware website. A processed database is typically less than ten megabytes whereas the raw FCC data is more than forty megabytes.

Processed rfSoftware databases are available on-line at;  
<http://www.rfsoftware.com/databases/rfInvestigator-FM/>

To use a processed database ***you do not need to install*** the DbBuilder program, but DbBuilder ***needs to be registered*** on your computer.

If you choose to install Database Builder, simply navigate to the CD and execute the program "*installdatabasebuilder.exe*".

## **Installing an Updated Master Database**

If Database Builder is registered on your computer then all you need to do is get the current database from the download site. The database will be in a ZIP file format.

**The database MUST be unzipped directly into the database folder.** See the instruction included with your zip/unzip utility for instructions on how to extract a zipped file into a specific folder.

The Master database is a collection of files. All files should be placed in your database folder

The default database folder is *C:\Program Files\rfSoftware\database*

## **Updating the Master Database if you don't have Database Builder**

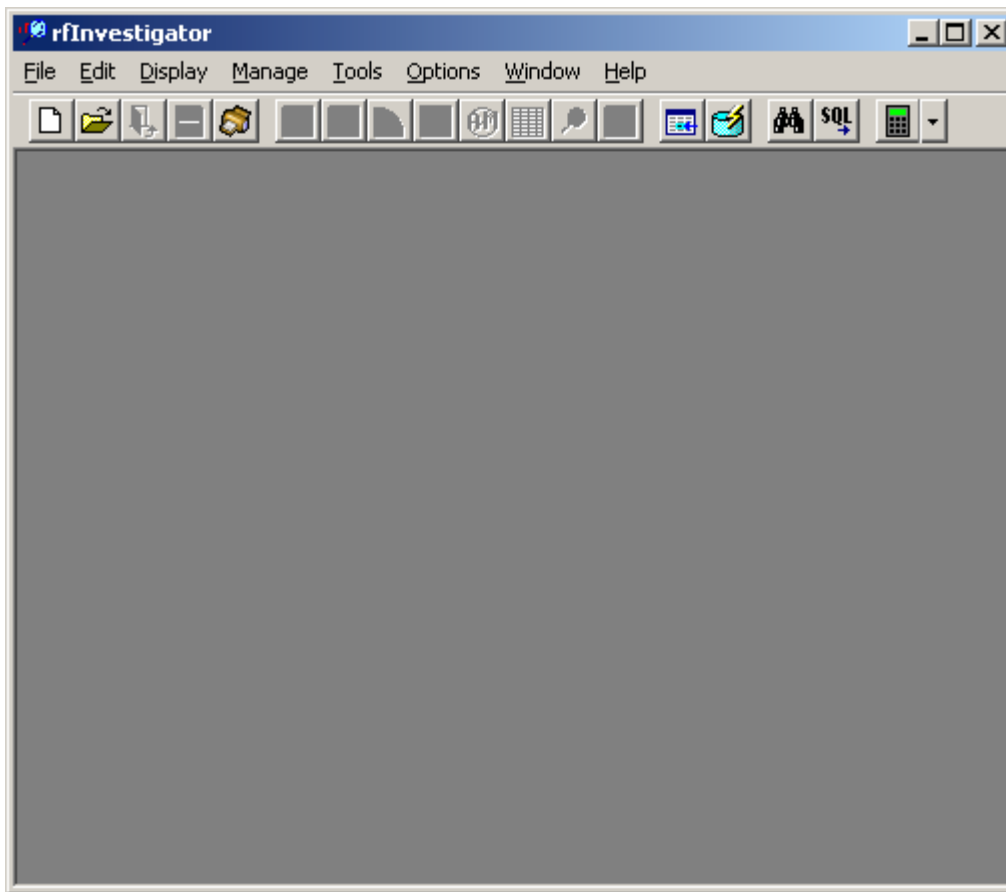
If you do not have DbBuilder registered on your computer you will need to contact rfSoftware to obtain a database branded for your serial number.

## First Look

The installation process should have placed an rfInvestigator Icon on your computer desktop. Double-clicking on this Icon will launch the program. Alternatively, you can use the **Start** button by selecting: Start--Program Files--rfSoftware--rfInvestigator.

### *rfInvestigator Main Form*

When you launch rfInvestigator the first thing you will see is the Main Form. The Main Form contains drop-down menus and a button-bar for convenient access to various program features.



Pop-up menus appear throughout the program. They are accessed by either placing the mouse pointer in a particular window, or selecting an item of interest from a list, and then clicking the right mouse-button.

See the section on **Job Map** for more information about buttons and controls.

## Job Fundamentals

A Job is a subset of the master database. When built to the default distance of 350km, jobs contain sufficient data for the study of a class C station within 60 km of Job Center (49 km if near an international border). Lower powered classes can be studied further from the Job Center.

Each Job has a *Job Center* specified by Longitude/Latitude. When rfInvestigator builds a Job, data is gathered for a user specified distance in all directions from the Job Center.

## Types of Stations

A *Proposed* station is either a new station or, an alteration to an existing station. There is only one Proposed Station in any given analysis.

*Affected* stations are all FM, AM and TV6 stations and allocations in the vicinity of, and affected by, the Proposed station.

## Purpose of a Job

The purpose of a Job is to model a hypothetical or *Proposed* station and model its interactions with the surrounding *Affected* stations. The *Job Channel* and *Job Class* represent the Proposed station's channel and class. The Job Channel and Class can be changed without rebuilding the Job.

## Building a New Job



The build-new-job process can be started by pressing the **Build New Job** button, selecting File—New Job from the drop-down menu or right-clicking on the Main Form and selecting *New Job* from the pop-up menu.

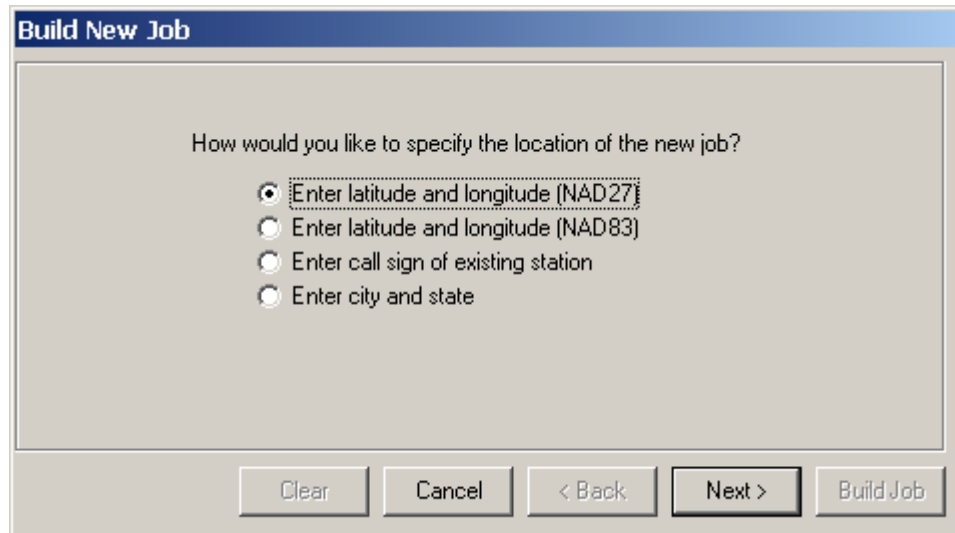
## Opening a Master Database

A Master Database is required to build a new job. If a database has not already been loaded you will be prompted to select one from the **Select FM Master Database** Dialog.



## The Build New Job Dialog

After the Master Database initializes you will be presented with the first Build New Job Dialog.



Build New Job

How would you like to specify the location of the new job?

Enter latitude and longitude (NAD27)

Enter latitude and longitude (NAD83)

Enter call sign of existing station

Enter city and state

Clear Cancel < Back Next > Build Job

A new Job requires a Channel Number, Class, Job Center (in Longitude/Latitude), and a name.

The information can be entered from scratch by selecting *Enter latitude and longitude*, or an existing station can be designated a template by entering its callsign or entering a City and State then picking a station from the list.

## Alternate Method of Building a Job

A new job can be built from search results. Perform a Basic Search, select a station from the search results, then right-click to activate the pop-up menu and select *Build This Job*.

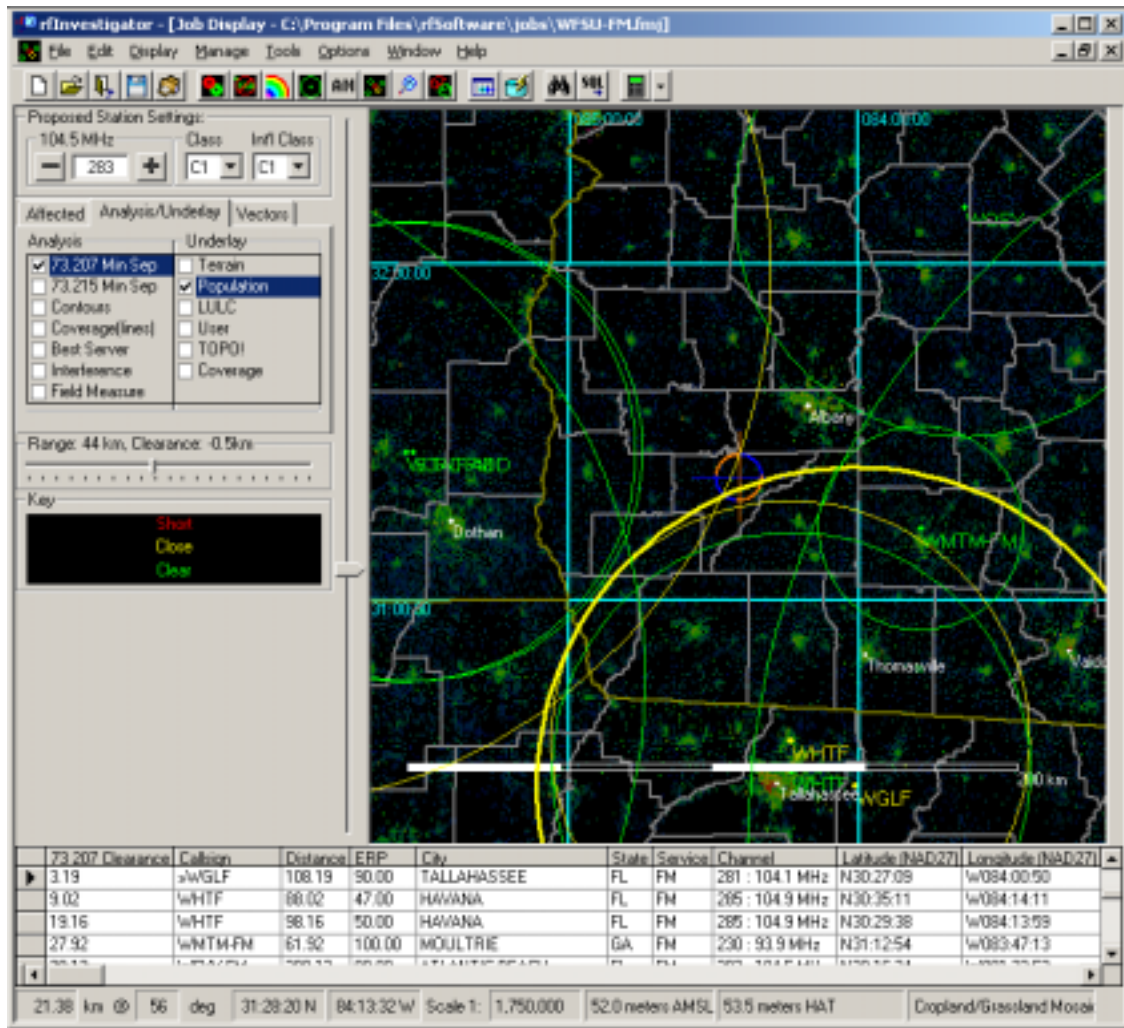
See the section on *Basic Searches* for more details.

## Opening an Existing Job



An existing Job can be opened by pressing the **Open Job** button, selecting File—Open Job from the drop-down menu, or right-clicking on the Main Form and selecting Open Job from the pop-up menu.

# The Job Map

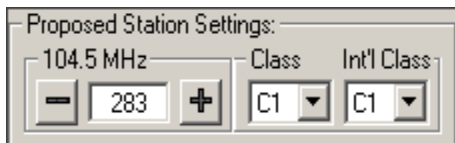


The heart of a Job is the Job Map. The Map provides a graphical view of interactions between a **Proposed** and the various **Affected** stations.

The Map also provides positional references such as Latitude/Longitude lines, State, County and City boundary lines, Markers, Roads, Railroads and Hydrology.

The Map can display *Underlays* of Population, Terrain, Land Use/Characteristics, USGS maps, or user defined images.

## Proposed Station Control



The Job Class, International Job Class, and Job Channel controls located near the upper left-hand corner of the Job Map comprise the Proposed Station Control.

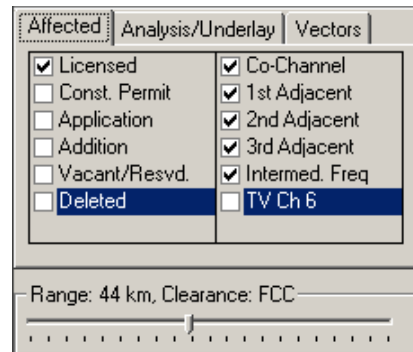
## Affected Station Control

The Affected Station Control is located immediately below the Proposed Station Control.

This control allows you to display or hide Affected stations based on their status, such as *Licensed*, *Construction Permit* or, *Application*, as well as by their frequency relationship to the Proposed Station.

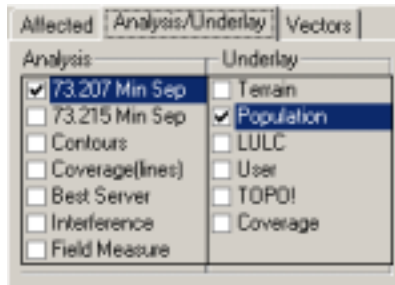
The Range Control sets the number of existing stations and allotments that are displayed beyond the Affected Stations. The range can be adjusted by sliding the control left or right or by right-clicking on the slider bar and typing a range value into a dialog box.

The Clearance label above the slider bar indicates if actual FCC values or deminimus values are being used to designate a station or allotment as Affected.



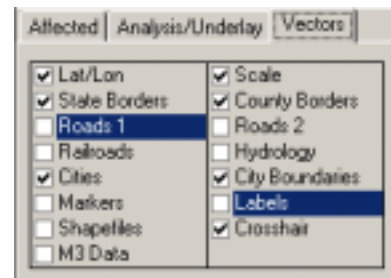
## Analysis/Underlay and Vector Controls

The Analysis/Underlay and Vector Controls are tabbed windows underneath the Affected Station Control.



The Analysis Control allows you to display FCC Minimum Separation rings, Contours, Field Measurement data or, using the optional PL-Server tool, Longley-Rice Coverage, Best-Server or Interference analyses.

The Underlay Control is used to select among various bitmaps. Only one underlay can be displayed at a time. In order to display Topographic and other USGS maps you will require the appropriate TOPO! Data. National Geographic, rfSoftware, many map and hiking stores sell this data on CDs. One set of TOPO! Maps is included with rfInvestigator.

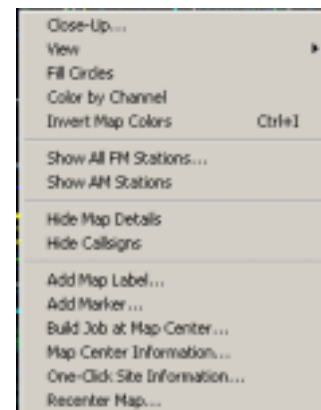


The Vector Control allows you to display or hide various map references such as roads, markers, city boundaries, etc.

## The Pop-Up Menu

- Right-clicking on the map will cause the pop-up menu to appear.

From this menu you can access many of the commonly used control screens including; The Contour Manager, Add Marker Control, What-If, Recenter Map and Close-Up Screens. The pop-up menu also duplicates some of the frequently used buttons from the tool bar.



## The Mouse Information Bar

The Mouse Information Bar is located at the bottom of the Main Screen.



The first two readings indicate the Range and Bearing to the Mouse Pointer from the Center of the Map, third, fourth and fifth are the Latitude and Longitude of the Mouse Pointer, followed by the Map Scale. The sixth indicator displays the height AMSL (Above Mean Sea-Level) at the Mouse Pointer position. The seventh and eight panes are dynamic and display different types of information depending where the mouse is located and which underlays are displayed.

## The Job Grid

Callion	Latitude	Longitude	City	State	Service	Channel	Class	Init Cl	Status	73.207 Min	73.215 Min
KBZG	N34:25:48	W111:30:16	PAYSON	AZ	FM	282: 104.3 MHz	C		CP	290	270
KBZG	N34:25:48	W111:30:16	PAYSON	AZ	FM	282: 104.3 MHz	C	C	LIC	290	270
KPBZ	N34:42:52	W112:31:33	CHINO VALLEY	AZ	FM	280: 103.9 MHz	C3	B	LIC	96	90
KZUL-FM	N34:30:06	W114:11:37	LAKE HAWASU CITY	AZ	FM	283: 104.5 MHz	C2		LIC	188	176
KZZP	N31:51:53	W112:46:30	SONDITA	SO	FM	282: 104.3 MHz	B	B		270	0
KZZP	N33:20:04	W112:03:35	MESA	AZ	FM	284: 104.7 MHz	C	C	LIC	105	99
KZZP	N35:12:27	W112:37:49	ASH FORK	AZ	FM	285: 104.9 MHz	A		ADD	95	89
KEDJ	N33:23:59	W111:26:45	GILBERT	AZ	FM	280: 103.9 MHz	C2		APP	105	96
KEDJ	N33:23:59	W111:26:45	GILBERT	AZ	FM	280: 103.9 MHz	C2		APP	105	96
KPTY	N33:14:50	W111:31:49	GILBERT	AZ	FM	280: 103.9 MHz	C2	B	LIC	105	96
KPTY	N33:14:50	W111:31:49	GILBERT	AZ	FM	280: 103.9 MHz	C2	B	LIC	105	96
K228DF	N34:29:20	W112:32:15	PRESCOTT	AZ	FM	228: 93.5 MHz	D	D	LIC	0	0
K285CW	N34:29:20	W112:32:15	PRESCOTT	AZ	FM	285: 104.9 MHz	D	D	LIC	0	0

The Job Grid provides details on the various Affected stations. Additional stations may also be listed depending on the Range setting.

## Manipulating Columns

The order of stations on the Job Grid is controlled by first clicking on a column heading and then right-clicking and selecting the desired sort order from a pop-up menu. Individual columns can be resized by placing the mouse on the right-hand edge of the column heading and click-dragging the mouse.

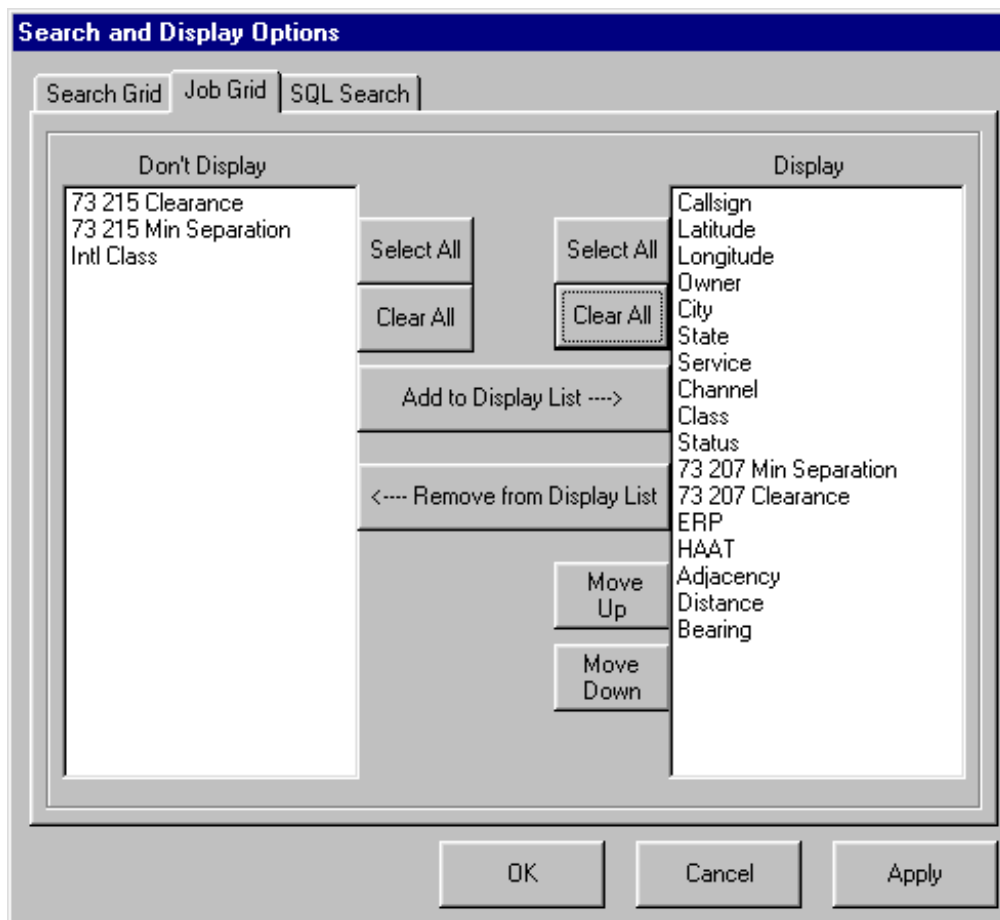
The station separation rings on the Job Map are drawn in the reverse order of stations on the Job Grid. This is important when displaying filled circles, as the last station drawn will appear on top.

## The Fields Selector



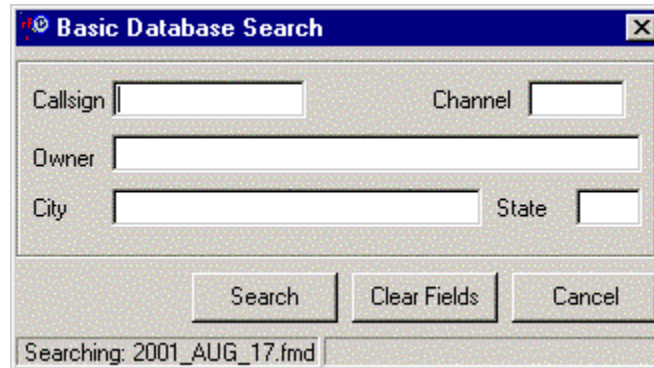
The fields displayed on the Job Grid and the order of the columns are controlled from the Search and Display Options Control. The Search and Display Options Control can be accessed by pressing the **Select Fields** button, selecting **Options--Display Fields...** from the drop-down menu or, right-clicking on the Job Grid and selecting *Change Displayed Fields* from the pop-up menu.

Select the Job Grid tab. Two windows are displayed, Don't Display and Display. Fields listed in the Display window will appear on the Data Display Screen in the order that they are listed.



Select one or more fields in the Display window and change their position in the list with the **Move Up** and **Move Down** buttons. To remove a field or fields from the Display window, select one or more fields in the Display window and click the **Remove from Display List** button. To add a field or fields to the Display window, select one or more fields in the Don't Display window and click the **Add to Display List** button.

## Basic Searches



### Starting a Basic Database Search



The search screen can be accessed in several ways. The most direct is to simply press the **Basic Database Search** button. A second method is to select **Find--Basic Database Search** from the Main Form's drop-down menu. Or, simply press **Ctrl-F7**.

### Selecting a Database

If a master database has not been loaded, Investigator will prompt you for the name of the database to be searched.



If the master database that is already loaded is not the one you wish to search you must designate another current database. To do this simply press the **Select Database** button on the tool bar or select **Tools--Select Database** from the drop-down menu.

### Searchable Fields

The Basic Database search allows you to designate up to five search fields; Callsign, Channel, Owner, and, City/State of License. Simply type some or all of the desired data in the appropriate box and press the **Search** button. The data is not case sensitive. The lower-left corner of the search screen indicates which master database is being searched.

### Searching by Multiple Fields

By placing data in more than one box the search can be narrowed. Multiple fields are automatically ANDed.

### Wildcard Searches, \*, ?, #

The Basic Search recognizes three wildcard characters. \* for zero or more characters, ? for one character and # for one number.

## The Data Display Screen

The Database Search Results screen displays the results of a search.

The screenshot shows the 'rflInvestigator-FM Standard - [Database Search Results]' window. The main area displays the following details for a search result:

- Owner: TRUSTEES OF UNION COLLEGE
- Callsign: WRUC
- Channel: 209 : 89.7 MHz
- Class: A
- Status: LIC
- Latitude: N42:49:04
- Longitude: W073:55:45
- ERP: 0.1
- Max ERP: 0
- Ant HAAT: -27
- Ant AGL: 23
- Ant AMSL: 108

Below the details is a table with 12 records. The columns are Owner, Callsign, and Channel.

Owner	Callsign	Channel
TRUSTEES OF UNION COLLEGE	WRUC	209 : 89.7 MHz
THE UNIVERSITY OF FLORIDA	WRUF-FM	279 : 103.7 MHz
CARMI BROADCASTING CO.	WRUL	247 : 97.3 MHz
WRUT INC.	DWRUT	298 : 107.5 MHz
UNIVERSITY OF ROCHESTER B/CAST CORP.	WRUR-FM	203 : 88.5 MHz
THE UNIVERSITY OF VERMONT	WRUV	211 : 90.1 MHz
CASE WESTERN RESERVE UNIVERSITY	WRUW-FM	216 : 91.1 MHz
UNIVERSITY OF PUERTO RICO	WRUO	202 : 88.3 MHz
Global Radio, Inc.	WRUT	298 : 107.5 MHz
CASE WESTERN RESERVE UNIVERSITY	WRUW-FM	216 : 91.1 MHz
CONNOR MEDIA CORPORATION	WRUUP	250 : 97.9 MHz

Searching C:\Program Files\rflInvestigator-FM\database\2002\_FEB\_19.fmd Found 12 Records

### Sorting Data

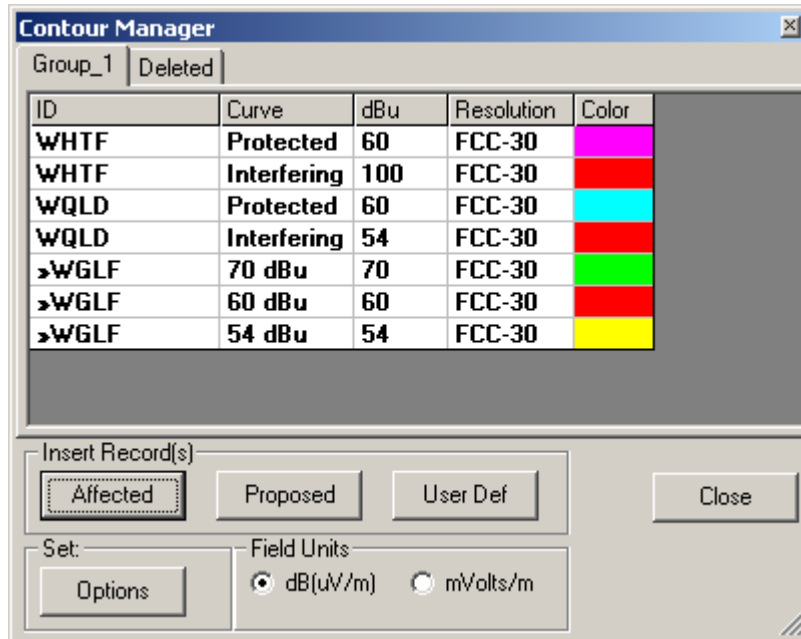
Basic search results can be sorted by selecting a column and picking the desired sort direction from the Pop-Up menu. Click on any column heading to select it then right-click to display the Pop-Up menu.

### Changing Displayed Fields and Field Order

The fields displayed on the Data Display Screen and the order of the columns can be controlled from the Search and Display Options Control.

See *Fields Selector* in the *Job Grid* Section for details.

## Contours



- The Contour Manager allows you to add, delete and edit FCC contours.
- The Contour Manager can be accessed by pressing the **Contour Manager** button on the button bar, or selecting Manage—Contours... from the drop-down menu.



## Contour Groups

Multiple Contour Groups can be created, renamed or deleted by right-clicking the mouse on the Contour Group Tabs and selecting from the pop-up menu. Use Ctrl-V, Ctrl-C or the pop-up menu to copy and paste contours between groups. This is very handy for doing multiple what-ifs for a station.

### Adding a Proposed Station at Map Center

Click the **Map Center** button to begin the process of adding a hypothetical station located at the center of the map to the list of contours.

A series of dialog screens will appear to gather the information necessary to define the proposed station.

## Adding Affected Stations

Click the *Shorts* button to begin the process of adding all the possible Affected station to the list of contours.

Call	Distance	Azimuth	Class	Adj	ERP	AMSL	HAAT	Ant	Rule
WNYU-FM	12.8	21.4	B1	Co-Ch.	8.3	106	78	13430	NCE directional.
U.N.	0.0	180.0	B	Co-Ch.	0	0	0	0	Use Class Values
WFDU	23.7	9.3	A	Co-Ch.	0.55	195	152	0	NCE omni.
WWFM	79.5	226.6	A	Co-Ch.	1.15	118	89	0	NCE omni.
NEW	154.7	268.6	A	Co-Ch.	0.085	503.5	265.5	31236	NCE directional.
WWCJ	203.4	201.8	B1	Co-Ch.	15	94	94	29410	NCE directional.
WXYU	140.9	235.6	A	Co-Ch.	0.1	162	85	14913	NCE directional.
WYBF	142.1	237.2	A	Co-Ch.	0.7	151	68	14249	NCE directional.
WNPR	173.7	60.5	B1	Co-Ch.	5.1	272	180	13484	NCE directional.
WBYH	124.5	306.2	A	Co-Ch.	0.2	578	160	0	NCE omni.
WMHT-FM	209.6	359.2	B	Co-Ch.	11	517	283	0	NCE omni.
WSFX	177.3	286.2	A	Co-Ch.	0.1	216	-116	0	NCE omni.

OK Cancel

The Contour Shorts List appears to indicate what stations rInvestigator will consider. You may delete stations from the list if you are confident that they do not require analysis. Next, a series of dialog screens will appear to gather the information necessary to define the Affected station(s).

## Adding Stations from the Grid

A station on the Job Grid can be added to the contour list as an Affected station, or in the case of a station co-channel with the Job, as a Proposed station.

- 
- Select the station to be added from the Job Grid. Right-click and select *Add to Contour List* from the pop-up menu. A series of dialog screens will follow to gather the information necessary to define the new contour.

## The Pop-Up Menu

Right-clicking on the Contour Manager will bring up a pop-up menu. The menu allows you to access the Contour Editor, Hide/Show or Delete a contour, or recenter the map.

Show/Edit Details...	
Center Here	
Hide/Show	
Highlight/Dim	
Copy Contours	Ctrl+C
Paste Contours	Ctrl+V
Delete Contours	Del

## Contour Options

The Contour Options screen can be accessed by pressing the *Options* button on the Contour Manager or, selecting Options--Contours... from the drop-down menu.

The screenshot shows the 'Contour Options' dialog box. It is divided into several sections:

- Contour Defaults:** Includes radio buttons for 'Protected/Interfering Pair (Proposed)', 'Protected/Interfering Pair (Affected)', and 'User Defined'. Under 'Proposed', there are checkboxes for 'Include Interfering for Class B', 'Include Interfering for Class B1', and 'Include Interfering for Non-B's'. Under 'User Defined', there are checkboxes for 'Ask Before Adding Contour!' and 'Show All Contours on Map.'.
- Calculation Settings:** Includes checkboxes for 'Limit Freespace to 1.61km.' and 'Use Class Height and Power for Vacancies, Reserves and Adds.'.
- Terrain Resolution:** A dropdown menu set to 'FCC 30-Sec DEM(NGDC)'.
- Radials:** A dropdown menu set to '360 (1 deg)'.
- HAAT Calculation:** A dropdown menu set to 'Slope Method'.
- Proposed Translators:** Includes radio buttons for 'Always in Zone I-A or East of the Mississippi.', 'Never in Zone.', and 'Ask for Zone before Adding Contour.'.
- Color Legend:** Five colored boxes labeled 'Service' (green), 'Protected' (red), 'Co Chan' (yellow), '1st Adj' (cyan), and '2-3 Adj' (magenta).

Contour Default settings control the state of several parameters used in contour calculations. For example, the “HAAT Calculation” allows you to select between two different methods of determining height from the DEM (Digital Elevation Model).

- The “FCC Method” uses 4 points from the DEM to perform a linear interpolation of height.
- 
- The “Slope Method” uses an array of 25 or more points from the DEM to predict height based on how the surrounding terrain changes.

The slope method is significantly faster than the FCC method and should be used for initial searches and what-ifs.

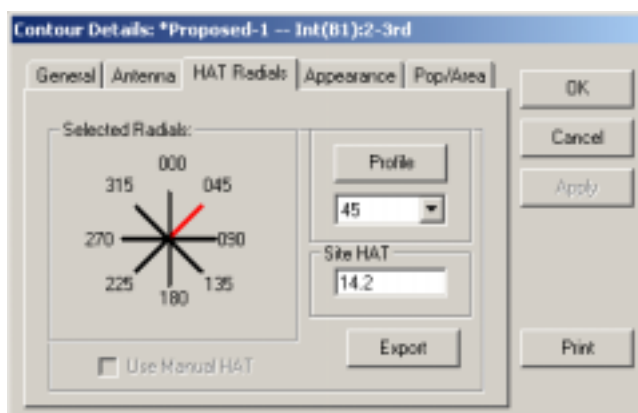
FCC Rules require that linear interpolation methods be used for computer-determined heights. Therefore, all fine-adjustments and exhibits for submittal to the FCC should use the slower FCC Method of calculation.

## Limiting Freespace to 1.61km.

FCC rules state that under certain conditions the distance-to-contour calculation should stop using the prediction tables and switch to the freespace formula. Doing this in accordance-with the rules will produce characteristic “spikes” on the contour. Limiting the freespace calculation to 1.61km (the beginning of the FCC curves) smoothes out the contour. Some engineers claim that the FCC has instructed them to set this freespace limit, in disagreement with the rules. Other engineers claim that the contour is wrong if it does not have the “Spike.” In an effort to please both camps, rfInvestigator supports both methods.

Select Limit Freespace to 1.61km to have smooth contours that do not conform to FCC rules.

Uncheck the box to have “Spiked” contours that do follow the rules.



Contour details can be displayed for each entry on the Contour Manager. Double-click on the contour-of-interest to view or manipulate its details.

## Selecting/Creating/Editing Antenna Patterns

The Antenna Pattern Editor is accessed by pressing the *Edit/Select* button on the Contour Details dialog—Antenna Page.

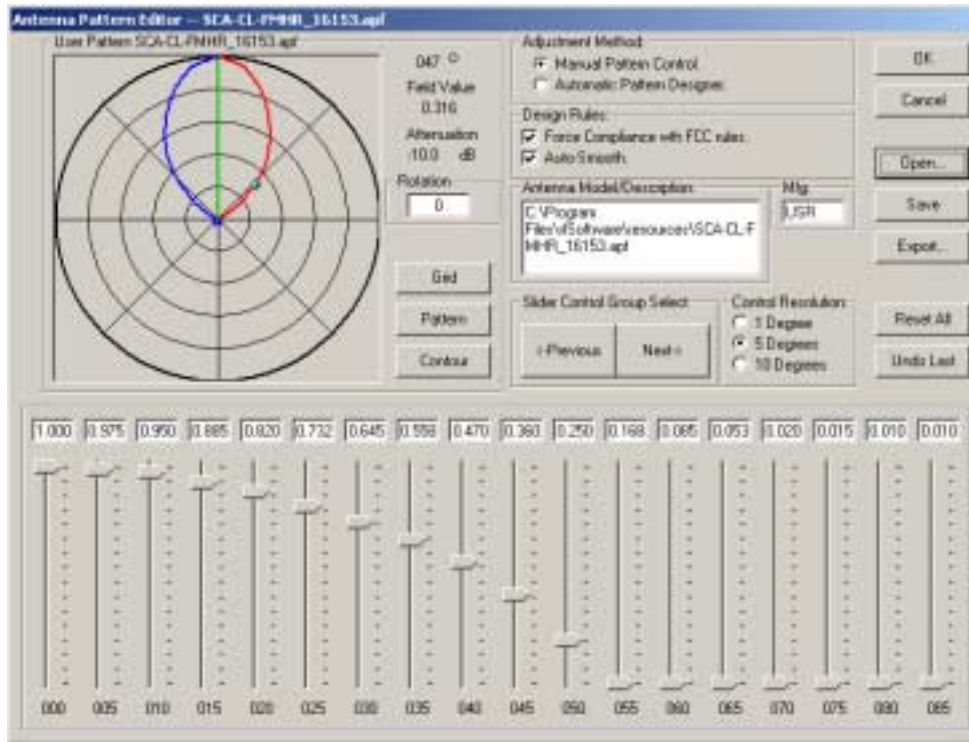
The Editor allows you to use existing FCC or User patterns, modify an existing pattern or design an entirely new pattern.

Slider controls are used to vary the antenna gain in any direction in as small as one-degree increments. Auto-smooth and Force FCC compliance controls keep the design within usable bounds.

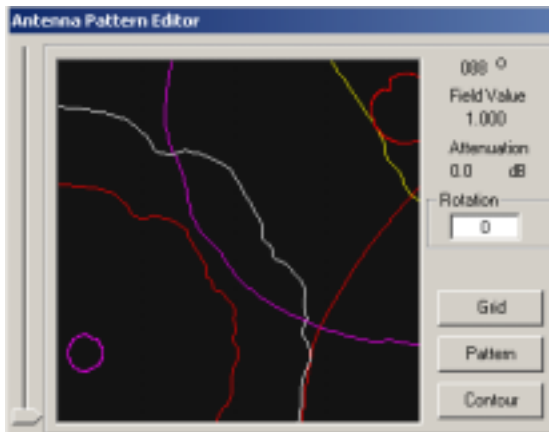
Changes made to a pattern will be applied to the current contour when the **OK** button is pressed.

The **Save** button will save your pattern in the Local Antenna Pattern Database. The **Export** button will allow you to save your pattern in a comma delimited (.csv) format or antenna pattern file (.apf) format.

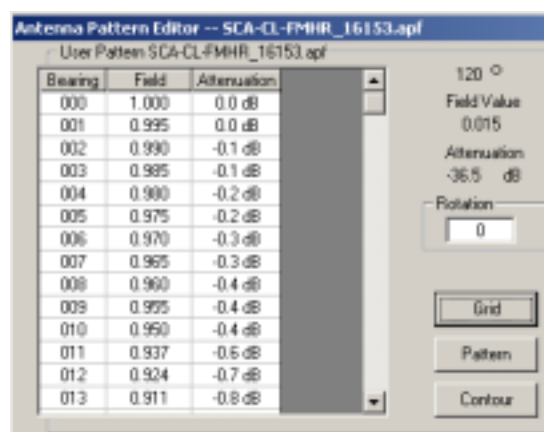
The **Open** button will read in existing patterns from the Local Database, the FCC database, text files, spreadsheet (.csv) files, ERI files or RFS (.apf) files.



Antenna Pattern Editor in the Pattern View Mode



The Contour View Mode



The Grid View Mode

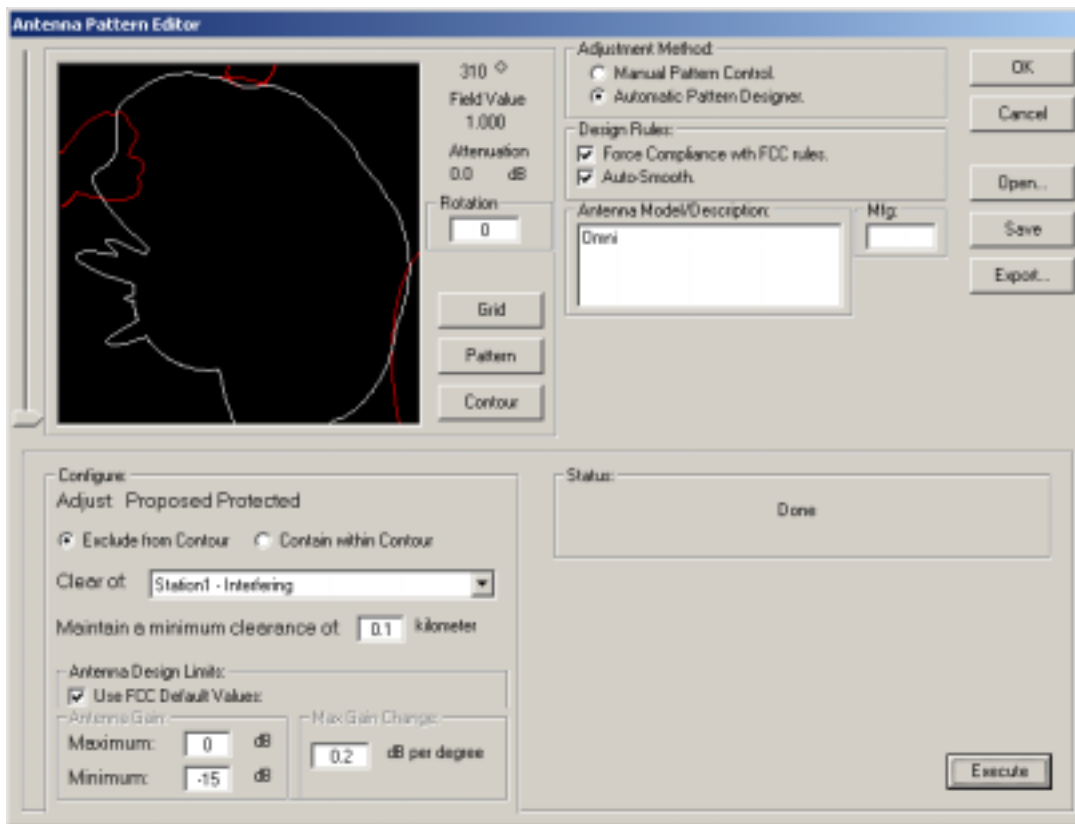
Pressing the **Contour** button allows you to instantly see the effect of a pattern change on a contour.

Pressing the **Grid** button shows the antenna pattern data in a tabular format.

## Automatic Antenna Pattern Design

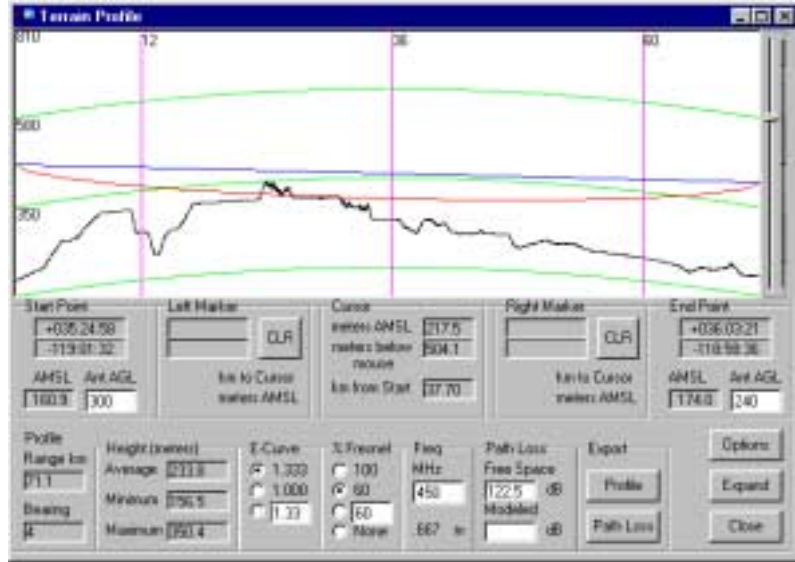
The Automatic Pattern Designer speeds DA design, simply select the contour to adjust, click the **Exclude from Contour** radio button and the contour you wish to be “**Clear Of**” then enter a minimum clearance and a range of bearings. Click the **Execute** control and the pattern is adjusted automatically.

For boosters click the **Contain within Contour** radio button and the contour you wish to remain within. Then click the **Execute** control to adjust the pattern.



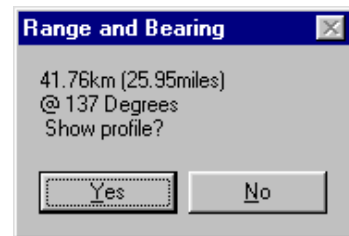
## The Terrain Profiler

The Terrain Profiler displays obstructions, caused by changes in ground height and the curve of the earth, between two points. The Profiler does not take man-made structures or trees into account when determining obstruction heights.

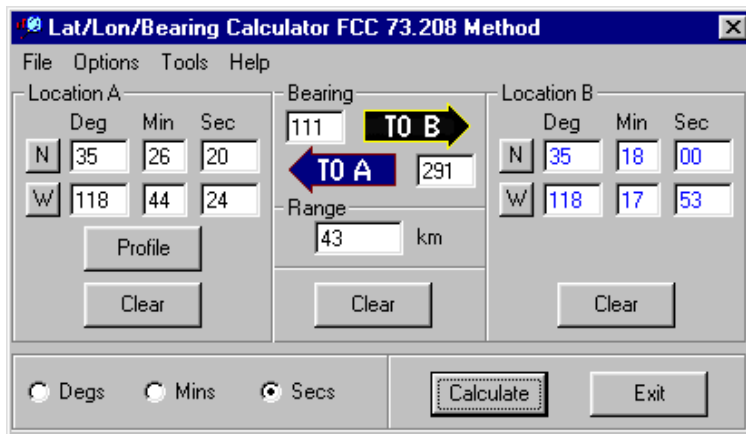


## Job Map 'Rubber-Band' Lines

Left-Click and drag the mouse across the Job Map to draw a rubber-band line from the point the mouse button was pressed to the point it was released.



## The Lat-Lon Calculator



Profiles can also be accessed from the Lat/Lon/Bearing Calculator. This tool can be accessed by pressing the *Lat/Lon Calculator* button, selecting Tools--Lat-Lon Calculator from the drop-down menu or pressing Ctrl-F9.



## Help Files

Help is available by accessing the files via the Main Menu or by pressing the F1 key. F1 will bring you the help screen appropriate to the current window.

