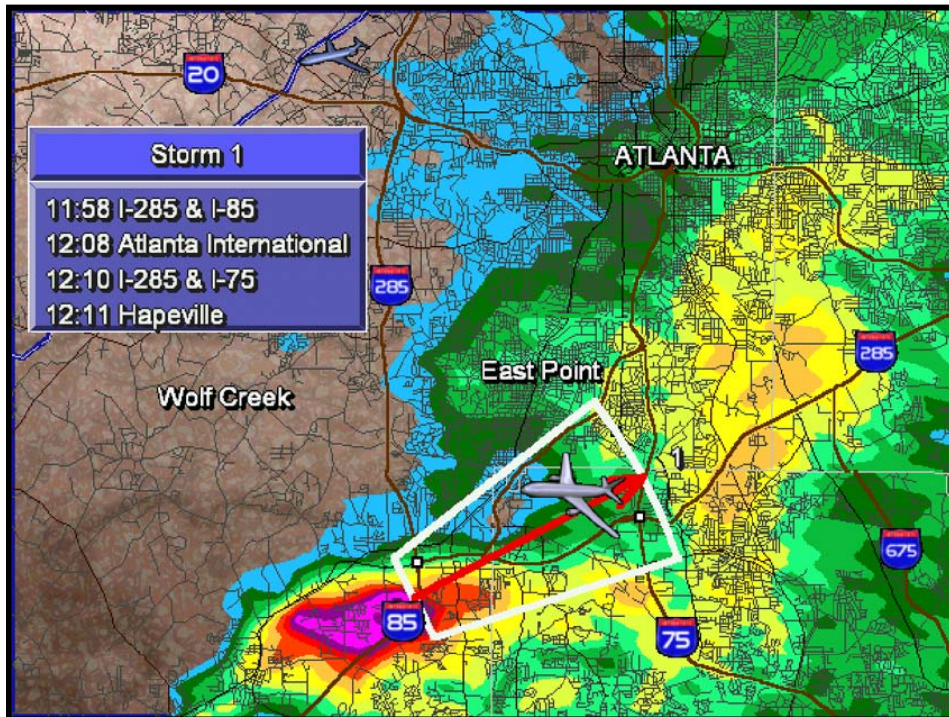


FasTrac Millennium®

User's Guide



FasTrac Millennium, FasTrac, NexTrac, VIPIR, City Streets, StormScan, Storm Spotter, Neighborhood Weather Net and Street Spotter are registered trademarks of Baron Services, Inc. FutureScan, PasTrac and Severe Weather Module are trademarks of Baron Services, Inc.

The products, systems, and/or methods described or otherwise mentioned herein are covered by one or more of the following U.S. Patents: 5,717,589; 5,940,776; 6,018,699; 6,125,328; 6,163,756; 6,188,960; 6,266,063; 6,272,433; 6,275,744; and 6,278,947.

2001 Geographic Data Technology, Inc. This document contains images with proprietary and confidential property of Geographic Data Technology, Inc. Unauthorized use, including copying for other than testing and standard backup procedures, of this product are expressly prohibited.

Microsoft® Windows® products are registered trademarks of Microsoft Corporation.

The trademarks of other companies used in this manual are the respective property of those companies. All efforts were taken to ensure the accuracy of this document. However, this information is subject to change without notice.

Copyright 1994-2003.
Baron Services, Inc.
4930 Research Drive
Huntsville, Alabama 35805-5906

Table of Contents

Table of Contents	iii
Preface	vii
1. Overview	1
1.1 Databases	1
1.2 File Structure	1
1.3 Protecting Your Data	2
1.4 NetRad®	3
1.5 Starting Your FasTrac Millennium	4
1.6 System Commands Not Meant for Client Use	7
1.7 Points to Remember	8
2. Setting Up Your System	9
2.1 Setting Up Map Layers	10
2.2 Setting Up Display Levels (for clients without .psf mapping data)	10
2.2.1 Editing Display Levels for Roads	11
2.2.2 Editing Display Levels for Bodies of Water	12
2.2.3 Setting the Enable Range for City Streets	13
2.3 Adding Water-Fill Points (for clients without .psf mapping data)	13
2.4 Fixing Floods with Anti-Fill Points (for clients without .psf mapping data)	16
2.5 Editing the Places Database	16
2.6 Adjusting the Color Palette	20
2.7 Using the Baron Chart	21
2.8 Editing Colors for 256-Color Palettes	22
2.8.1 Creating Gradients	23
2.8.2 Duplicating Palettes	23
2.9 Customizing Font Displays	24
2.10 Manipulating the Automatic Legend	25
2.11 Using Overlays	26
2.11.1 Creating new Overlays	26
2.11.2 Adding an Overlay to a View	26
2.11.3 Removing Overlays	28
2.11.4 Setting Overlays for Data Products	28
2.11.5 Setting the FutureScan Product Overlay	29
2.12 Setting Up Icons	29
2.13 Points to Remember	31

3.	<i>Adjusting Views</i>	33
3.1	Using the View Main Panel	34
3.2	Setting Map Parameters	35
3.3	Editing Topographical Data	36
3.4	Saving and Organizing Views	37
3.4.1	Saving Views	37
3.4.2	Organizing Your Views	38
3.5	Using the View Options	39
3.5.1	Adding Text to a View	39
3.5.2	Zooming In and Out From a View	39
3.5.3	Pointing to Features on a View	39
3.5.4	Panning on a View	39
3.5.5	Labeling Streets with Street Spotter	40
3.5.6	Controlling Display of Radar Data	42
3.5.7	Utilizing TeleTrac	42
3.5.8	Displaying Lightning Strikes on a View	43
3.5.9	Displaying Storm Spotter® Van data	44
3.5.10	Toggling High-Definition Data Processing	45
3.5.11	Displaying NEXRAD forecast data	45
3.5.12	Displaying Neighborhood Weather Net® Sensor Data	46
3.5.13	Zooming to a Specific City	48
3.5.14	Adding Fronts and Pressure Markers	48
3.5.15	Creating Temporary Pixel Query Points	49
3.5.16	Creating Fixed Pixel Query Points	49
3.5.17	Displaying Precipitation Type Maps	50
3.5.18	Saving the Current View as a Bitmap	51
3.5.19	Printing the Current View	51
3.5.20	Highlighting Your Spotter Network On-Air	52
3.5.21	Displaying National Weather Service Warnings	53
3.5.22	Displaying Wind Speed and Direction	54
3.6	Points to Remember	56
4.	<i>Managing Storm Tracks</i>	57
4.1	Setting Defaults for Storm Tracks	58
4.2	Creating Storm Tracks	59
4.2.1	Creating Fan Projections	59
4.2.2	Creating Circle Projections	60
4.2.3	Creating Squall Projections	61
4.2.4	Deleting Storm Tracks	63
4.3	Editing Storm Tracks	63
4.4	Editing the Storm Marquee	65
4.4.1	Selecting Communities for Your Storm Track ETA Box	65
4.4.2	Moving the Storm Track Marquee	65

4.5	Using PasTrac	66
4.5.1	Auto-Tracking Real-Time Radar Data	66
4.5.2	Auto-Tracking NEXRAD Data	66
4.6	Identifying Storms with StormScan	67
4.6.1	Setting Up StormScan	68
4.6.2	Using Storm Marquees	69
4.6.3	Using the Storm Table	70
4.7	Creating Automatic Storm Sequences	71
4.8	Points to Remember	72
5.	Using SEQUENCER	73
5.1	Starting SEQUENCER	74
5.1.1	Creating a New Sequence	74
5.1.2	Inserting New Events	75
5.1.3	Deleting Events from Sequences	75
5.1.4	Deleting Sequences	75
5.1.5	Starting and Playing a Sequence	75
5.1.6	Exiting SEQUENCER	76
5.2	Using SEQUENCER with Zooms and Pans	76
5.2.1	Creating Zooms and Pans	77
5.2.2	Previewing Your Zoom Event	77
5.3	Working with Time-Lapse Events	78
5.3.1	Creating Real-Time Radar Time-Lapses	79
5.3.2	Creating NEXRAD Time-Lapses	80
5.3.3	Previewing Your Time Lapse	81
5.3.4	Editing Time-Lapse Frames	81
5.4	Combining Time-Lapse and Zoom Events	81
5.5	Repainting to a Sequence	82
5.6	Adding a Radar Lapse to a Sequence	82
5.7	Inserting NEXRAD Data in a Sequence	82
5.8	Points to Remember	83
6.	Controlling Your Radar	85
6.1	Controlling Your Non-Baron Radar	86
6.2	Controlling Your Baron Radar	86
6.3	Manipulating NEXRAD Data	89
6.3.1	Using the NEXRAD Main Panel	89
6.3.2	Adjusting Shear Marker Settings	95
6.3.3	Using the Advanced Baron Chart	96
6.3.4	Customizing Product and Time Marquees	97

6.4	Utilizing Multiple Real-Time Radars Via Network	98
6.4.1	Using Network America	98
6.4.2	Changing the Width of the Radar Sweep Cursor	98
6.5	Comparing Base Reflectivity and Composite Reflectivity	99
6.6	Points to Remember	101
<i>Glossary</i>		<i>1</i>

Preface

This manual describes the operating procedures for Baron Services' FasTrac Millennium™ software, the industry standard for display and storm tracking. You can use these products to present critical weather data that will provide customized weather displays.

Document Organization

The information in this manual is organized as follows:

- ❑ Chapter 1 is a general overview of the system and provides the information needed to start the program.
- ❑ Chapter 2 describes the operations needed to set up your system.
- ❑ Chapter 3 describes how to manipulate your views (screen displays).
- ❑ Chapter 4 describes how to create and manage storm tracks.
- ❑ Chapter 5 describes how to use SEQUENCER
- ❑ Chapter 6 describes how to control both non-Baron radars and Baron radars.

Before using FasTrac Millennium, you should have a working knowledge of Microsoft Windows.

Support Information

The Baron Services support team is available to answer questions about technical-support issues and to assist you with operations and procedures. You can reach the support team by calling **(256) 881-8811**. You will need the following information when you call:

- ❑ Product name and version.
- ❑ Station name, your name and your job title.
- ❑ Number of a telephone close to your workstation. Do not give a fax number.
- ❑ Brief description of your problem.

You can also access troubleshooting documentation from the Baron Services Tech Support website. You will need your username and password to enter the site. The site URL is:

<http://techpage.baronservices.com>

To learn about our about Baron Services' products, the newest enhancements and additions to our product lines, and the latest in news and weather events, go to our primary website at:




<http://www.baronservices.com>

Type Faces

<i>Italic</i>	Indicates a document title, the first occurrence of a new term, a directory or file name, or a system response that explains what the system is doing. For example: Open the example <i>cities.bmp</i> file in your C:\fastrac\places directory.
Bold	Indicates an item in the graphical interface, such as the OK button or a command button.
Courier	Indicates information you type. For example, Set the signal processor parameters by typing <i>SOPRM</i> .

Symbols

The following document conventions are used throughout this manual:

	<i>Information that is not critical to system operation but describes useful procedures or information that will optimize system operation.</i>
	Very important information about a command or a procedure.
	Critical instructions that must be followed to prevent loss of data.

Keyboard Conventions

ALT	Alternate key.
CTRL	Control key.
DEL	Delete key.
ENTER	Return/enter key.
ESC	Escape key.
SHIFT	Shift key.
TAB	Tab key

Terminology

Click	To position the pointer on the screen, and then to press and quickly release the left mouse button.
Double click	To quickly press and release a mouse button twice without moving the mouse. This action is used as a shortcut for common actions, such as activating an icon, opening a file, or selecting a word or graphic element.
Click and drag	To click and hold a mouse button while moving the mouse. This action is used to identify a range of objects, to move objects, or to resize objects.
Enter	To input information by typing or by using the mouse.
Identify	To locate an element on the screen either by clicking it or by typing the name.
Click and hold	To press and hold down a mouse button to perform an action, such as resizing a window.
Scroll	To move through text or graphics.
Select	To click a button, a text box, an item in a list, or some other item on a menu or window.
Type	To key in data. To complete this action, you may also need to click OK , press ENTER, or press TAB.

What to Expect from This Document

This document describes how to start, set-up, and run FasTrac Millennium. All of the menus and procedures you will use while working with the program are fully explained in this guide. After reading this manual, you should be able to:

- ❑ Start FasTrac Millennium.
- ❑ Customize the weather displays to fit your needs.
- ❑ Use storm tracks and sequences to quickly and effectively inform viewers about pertinent weather information.
- ❑ Understand the capabilities of every feature you have on your system.

1. Overview

This manual describes the FasTrac Millennium product. FasTrac Millennium is the industry standard for providing real-time, local weather information to your users, allowing you to analyze real-time radar and to translate it into meaningful predictions of potentially harmful weather phenomena for your community. It also provides NEXRAD data, combining exceptional resolution, topography, and street-level mapping with Baron's unique, intuitive user interface. Most users use the program both for NEXRAD sites and their own, real-time radar. This chapter introduces the main system components, including the databases, the file structure and the main FasTrac Millennium display.

1.1 Databases

Two databases, known as Places and Maps, provide the mapping information underlying the functions. When Baron Services introduced these databases to the meteorological world, they were referred to as *liquid databases* because the user could smoothly change the map display and effortlessly zoom into and out from points of interest rather than using the static one or two radar displays that were then the norm.

When Baron Services installs your system, the databases are populated and ready for use. However, as discussed in Chapter 2, you can specify which communities are displayed (referred to as *prioritizing places*) and add important features, such as schools, malls, and parks, to the Places database. Thus, you easily can customize your display to fit your needs.

1.2 File Structure

All the Baron files are in the *C:\fastrac* directory or one of its subdirectories. While there are many files and subdirectories in the *\fastrac* directory, the following table lists the ones that you must have to run your system properly.

<i>File or Directory Name</i>	<i>Description</i>
<i>Basepal.bmp</i> file	The color palette bitmap that defines the colors for all data displays.
<i>Fast95.exe</i> file	An executable file that activates the main program.
<i>Lapses</i> directory	The directory that contains time-lapse files created through SEQUENCER (see Chapter 5, <i>Using SEQUENCER</i>).
<i>Logs</i> directory	The directory that contains archived radar data (in the <i>\Radar</i> subdirectory) and archived lightning strike data (in the <i>\Strikes</i> subdirectory).
<i>Maps</i> directory	The directory that contains the files for the map databases, including roads, rivers, and state lines.
<i>Nexrad</i> directory	The default directory for storing NEXRAD files.

<i>File or Directory Name</i>	<i>Description</i>
<i>Omninet.ini</i> file	The main configuration file.
<i>Overlays</i> directory	The directory that contains bitmap files that can be placed on the screen.
<i>Places</i> directory	The directory that contains the data files for all the communities in the Places database.
<i>Views.ini</i> file	The View configuration file that contains parameters for every saved view.
<i>Zooms</i> directory	The directory that contains all files for zooms created with SEQUENCER.



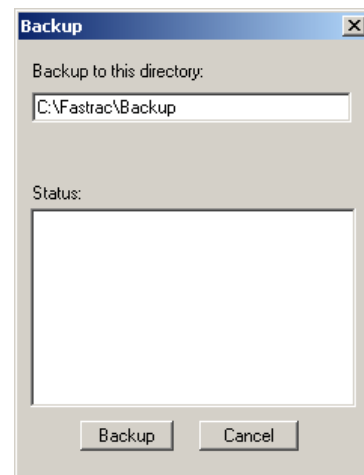
Do not adjust the .ini files or the Basepal.bmp file unless you receive directions from a Baron Services representative. We preset all settings and software in your system according to your specific needs. Tinkering with Windows or any program outside your FasTrac Millennium is potentially dangerous. If you are not sure about what you are doing, please call our Client Services Department at (256) 881-8811.

1.3 Protecting Your Data

You may back up your system by whatever normal backup procedures your business uses to protect important software. A CD R/W drive is provided with all new systems, letting you perform backup operations.

When your system is delivered, we strongly recommend that you back up your *\fastrac* directory to a CD. Alternatively, you can back up the system on your hard drive using the **Backup** command:

1. Open FasTrac Millennium.
2. Select **File > Backup** to open the **Backup** menu.
3. The menu to the right will appear, asking you to designate a directory in which to create the backup. You must have C:\FasTrac as a parent directory.
4. Click **Backup** to automatically copy system files to the designated directory. This will take several minutes.
5. When a message indicating that backup is complete appears in the text box, click **Cancel** to exit the menu.



Our system offers unique customization opportunities. You may want to back up individual files to protect your customized set-up.

If possible, **shut down Windows before restarting your computer.** Shutting down a computer before exiting Windows may create hardware complications.

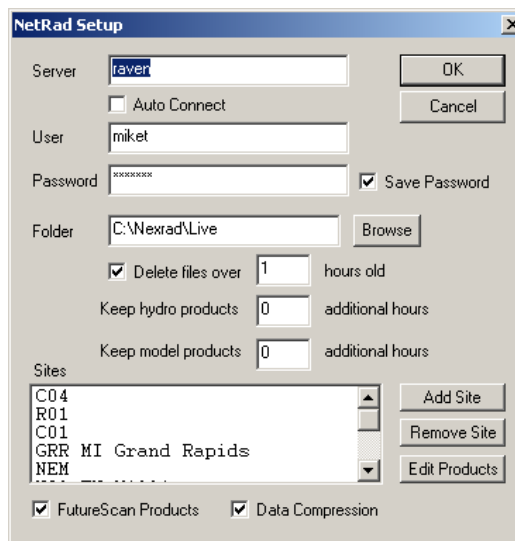
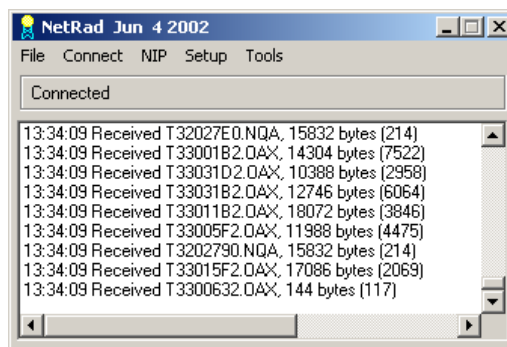
Experienced Windows operators will often have FasTrac Millennium operating simultaneously with other programs. If FasTrac Millennium is operating and you return to the desktop before

exiting the program, you **may not** return to it by clicking on the icon. You must click on the minimized icon on the task bar to return to the program. This safety feature is designed to prevent multiple copies of FasTrac Millennium from running at the same time.

1.4 NetRad®

The NetRad module lets you specify which radar sites provide NEXRAD data to your system. You must enable it before starting FasTrac Millennium, as described in this section.

1. Double-click on your NetRad desktop icon or double click on the *netrad.exe* filename to open NetRad.
2. Select **Connect > Disconnect**, and then select **Setup > Main Setup** to open the **NetRad Setup** menu.
3. Use the **Add Site** and **Remove Site** commands to select the sites you wish to display.



The **FutureScan products** option on the NetRad Setup menu is available only if you own the FutureScan module.



*Be sure that the **Data Compression** box is checked, as this reduces the load on the NetRad server.*

4. Set the **Folder** pathname to reflect the directory that will contain the NEXRAD product files, and click **OK** to return to the NetRad main menu.
5. Select **Connect > Connect** to reconnect to the NEXRAD server.

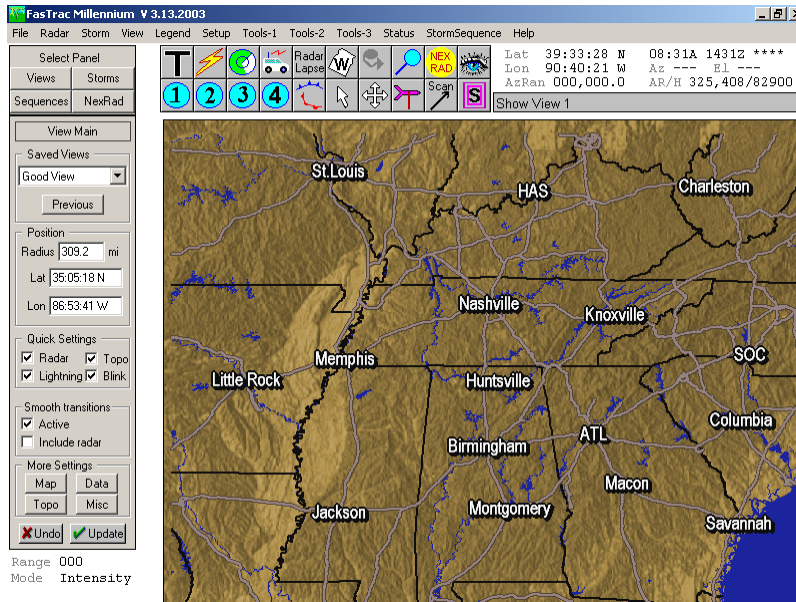


If you have modified your NEXRAD sources, go to the folder to which NetRad delivers files (the folder defined in the **Folder** field in the NetRad Setup dialog box) and delete all of the files in the folder.

You may now view NEXRAD products in FasTrac using the NEXRAD panel, as described in section 6.3.1.

1.5 Starting Your FasTrac Millennium

FasTrac Millennium automatically starts up when you boot up the computer. To manually start, double-click on the FasTrac desktop icon (shown on the right). Either method displays the following main FasTrac screen:



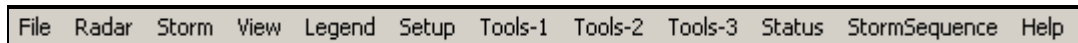
To exit the program, select **File > Exit** or click the Close (X) button in the upper-right corner of the screen. Subsequent paragraphs describe each screen component.

Program Name and Release Date



The title bar at the top-left of the FasTrac Millennium screen display is information you will need when calling in for technical support. The release date is very important in determining which version of software you are using.

Main Menu Bar


















This tool bar provides access to the main pull-down lists, referred to as *Main Menus* in this manual, which allow you to access advanced functions of your system. Clicking on a menu title at the top of the screen opens a pull-down list. To activate a particular function, hold down the mouse button, place the cursor over your choice on the menu, and release the mouse button.

Hot Buttons

Hot buttons appear just under the Main Menus. There are two rows of ten symbols each. You can use these buttons for simple, one-click execution of system functions. Left-clicking activates the main function of the button. Some buttons have dual functions, activated by right-clicking the mouse button.



-  **Temporary Text** opens the Temporary Text dialog box, which lets you key in text that displays when you click **OK** and click on the text location.
-  **Lightning** replays the lightning in the past hour. Right-click on this hot button to disable Lightning. Note that the button changes to the button shown on the right. This button blinks when the connection to the TCP/IP lightning server is down. 
-  **Sweep** displays real-time radar data. Left-click on the **Sweep** hot button to display intensity, and right-click on it to display velocity. If you are viewing NEXRAD data, left-clicking on the icon refreshes the display with the current NEXRAD product. (This icon blinks when the RDAC connection is inoperable.)
-  **Storm Spotter Van** displays the current location of your Storm Spotter Van. The button blinks when Van data is being received. See Section 3.5.8 for more information.
-  **Radar Lapse** lets you display time-lapse frames. If you have real-time radar, seven minutes of radar data displays. If you have NEXRAD data, the number of frames specified for the **Lapse** parameter on the **NEXRAD Main** panel displays.
-  **Weather Wire Data** lets you set up and edit Weather Wire warning features. This icon blinks when the National Weather Service data feed is not operational. See section 3.5.20 for more information.
-  **Telestrator** lets you do free-form drawing on your weather display. Right-click on this icon to open the Telestrator Pen Information menu, which lets you specify the width, color, and type of drawing.
-  **Zoom** closes in on the area defined by your cursor. Right-clicking on this icon zooms out to double the current range.
-  **NEXRAD** activates the NEXRAD Main Panel on the left side of the FasTrac display. This icon blinks when the NEXRAD connection is not operational.
-  **Show View** displays the saved view corresponding to the number on the hot button.
-  **Fronts/Hi/Low** lets you draw weather fronts with the cursor, as well as create high and low pressure markers. See section 3.5.13 for details.
-  **Map Pointer** activates the Map Pointer. When you select this hot button, Telestrator drawings disappear. Left-clicking on a road causes its name to appear in the Cursor Status Area. Right-click on this button to enter *Pixel Query* mode, which indicates the radar data (this works for all data products) and level at your cursor position.
-  **Map Pan** enables Pan mode, letting you set a different center point for the current view.
-  **Neighborhood Weather Net** lets you edit and manipulate live weather data that can then be displayed on map views. See Section 3.5.11 for more information.



StormScan activates the **Arrow Filter** panel on the left side of the FasTrac display. See Section 4.6, *StormScan*, for more details.



Street Spotter allows you to find and label the streets in your database. See Section 3.5.4 for details.



SpotterNet lets you display a network of eyewitnesses for weather activity. See Section 3.5.19 for details.

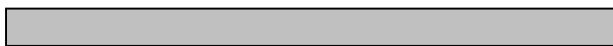
Main Status Area

Lat	37:02:37 N	03:26P	2126Z	****
Lon	87:30:33 W	Az	000	El 00.0
AzRan	000,000.0	AR/H	341,169/14200	

The *Main Status Area* is the area in white, just to the right of the hot buttons. This area displays the following:

- Latitude and longitude of the map pointer.
- Azimuth and range of the current pointer from its last selected position (reset this by right-clicking on the view).
- Current system time in local time and in Greenwich Mean Time (ZULU). We equip our systems with time keeping software to ensure that the system time remains accurate, but you may use a different time keeping program if you wish.
- Azimuth and elevation of the live radar.
- Azimuth, range, and height of the your radar's beam center at the cursor position.

Cursor Status Area



The gray bar located under the main status area is the *Cursor Status Area*. This bar is

dual-purpose. First, it displays information about your last selected command. For instance, if you place the cursor over the **Lightning** hot button, the words **replay last hour's lightning** appear. Secondly, this area displays various status messages relating to system activity.

Select Panel

Select Panel	
Views	Storms
Sequences	NexRad

The **Select Panel** options, described below, occupy the left column of your screen.

<u>Option</u>	<u>Description</u>
VIEW S	Opens the View Main panel, which displays map radius, map center, and map name. This is the default panel and displays upon system startup.
STORM S	Opens the Storm Track panel, which lets you control storm track settings.
SEQUENCE S	Opens the SEQUENCER panel.
NEXRAD	Opens the NEXRAD Main panel, which lets you display NEXRAD products.

More Settings



The More Settings area, which appears at the bottom of the left column when the View panels are active, lets you display the following panels:

<u>Option</u>	<u>Description</u>
MAP	Controls street, road, water, and county line displays for the current view.
DATA	Controls appearance of radar and lightning data on the current view. The Radar Control option lets you control the real-time radar.
TOPO	Controls the topography display, and specifies the textured background bitmap.
MISC	Controls radar cursor appearance, radar range height indicator (RHI) mode, and <i>overlays</i> .

1.6 System Commands Not Meant for Client Use

In the Setup and Misc Main Menus, there are several commands that are intended for use by Baron Services personnel for the purpose of system maintenance and troubleshooting. **You should not use any of these commands without the assistance of a Baron Services representative.**

The commands are as follows:

- **Setup > Map > Advanced > Map Window**
- **Setup > Miscellaneous**
- **Setup > Data > NexRad**
- **Status > Debug Window**
- **Status > Advanced > System Report**
- **Status > Advanced > Memory Check**
- **Status > Advanced > Toggle Debug**

1.7 Points to Remember

- ❑ When you start your system, you automatically enter the FasTrac environment. If you have exited FasTrac, you can double-click on the FasTrac icon on your desktop to manually initialize FasTrac.
- ❑ Perform back-up operations often, to protect your data and setup configurations.
- ❑ All of the operations that you may use are covered in this manual. If you find something that is not discussed, it is best not to tamper with it. Again, if you have questions, feel free to call the Client Services Department at (256) 881-8811.

This chapter merely provides an overview of FasTrac Millennium's capabilities. The other chapters describe the five primary areas of program functionality.

<u>Description</u>	<u>Chapter</u>
Setting Up Your System	Chapter 2
View Manipulation	Chapter 3
Storm Tracking	Chapter 4
Sequencing	Chapter 5
Radar Control	Chapter 6

2. *Setting Up Your System*

This chapter describes how to prepare your system for displaying crucial weather data in meaningful formats for your users. While you can readily perform most of the **Setup** commands, some operations are not so apparent.

Before you start setting up, you should back up the delivered *yfastrac* directory as explained in section 1.3, *Protecting Your Data*.

This chapter addresses the functions described in the following list:

- ❑ Setting Up Map Layers
- ❑ Setting Up Display Levels
- ❑ Editing the Places Database
- ❑ Prioritizing the Places Database
- ❑ Adjusting the Color Palette
- ❑ Using the Baron Chart
- ❑ Customizing Font Displays
- ❑ Manipulating the Automatic Legend
- ❑ Using Overlays
- ❑ Setting Up Icons

2.1 Setting Up Map Layers

The **Map layer editor** menu, which you can access with the **Setup > Map > Map Layers** command, allows you to edit the appearance and viewing range of all the water and road types in your map database, as well as county and state lines.



Clients without .psf mapping data should use the Display Levels commands detailed in Section 2.2 to adjust the appearance of roads and water.

The pull-down list lets you select which map feature type you wish to modify (for example, Lakes, Rivers, County Lines, State Lines and Roads).

Two Color specifies that two colors define the selected map feature and is available only for county lines, state lines, and various types of roads.

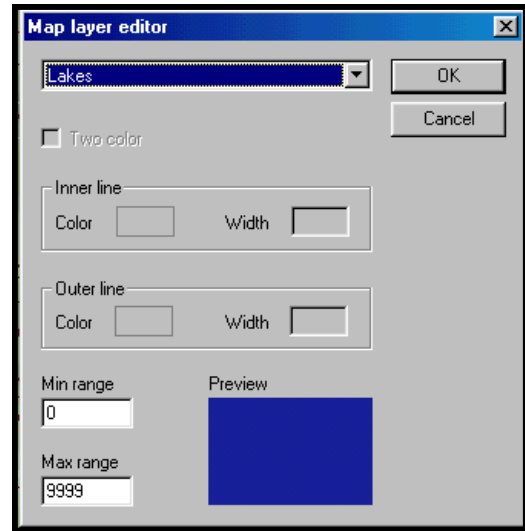
Inner Line defines the color of one-color features, and the inside color of two-color features.

Outer Line is enabled only if you select the **Two Color** option. This option defines the outside color of two-color features.

Min Range defines the minimum range at which you can see the selected feature. You will not see the feature when your view's range is less than the specified **Min Range**.

Max Range defines the maximum range at which you can see the selected feature. You will not see the feature when your view's range is greater than the specified **Max Range**.

Preview displays the selected feature type and the one or two specified colors for that feature.



2.2 Setting Up Display Levels (for clients without .psf mapping data)

For clients without .psf map data, the **Setup > Map > Advanced > Display Levels** commands control what roads and bodies of water are displayed within your map at a particular range. This system utilizes both the 1:2,000,000 database and the City Streets database. See Section 2.2.3 for information on how to set the range at which the display switches between the two databases.

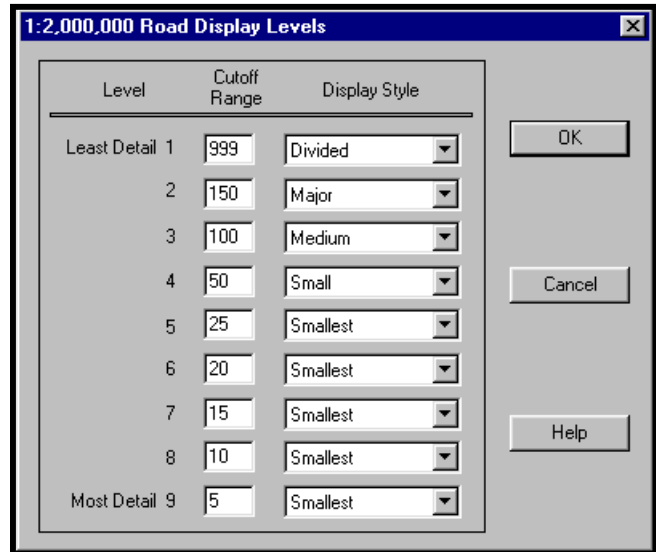


The Display Levels commands only appear for clients that do not use .psf data for mapping. Clients with .psf data should use the **Setup > Map > Map Layers** command detailed in Section 2.1 to edit the appearance of roads and water.

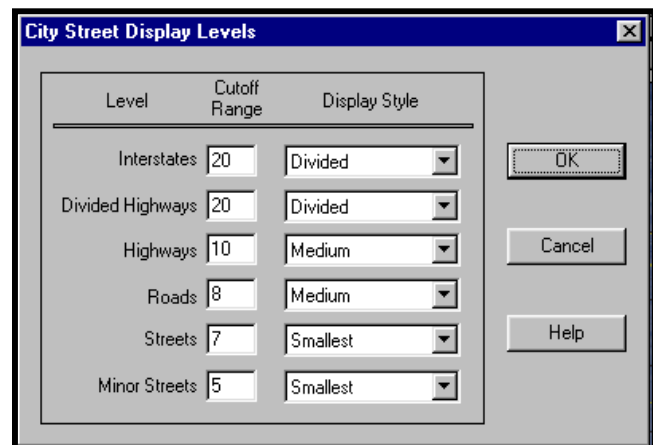
2.2.1 Editing Display Levels for Roads (for clients without .psf mapping data)

Select the **Setup > Map > Advanced > Display Levels > 1:2,000,000 Roads** command to open the 1:2,000,000 Road Display Levels menu.


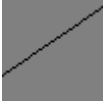



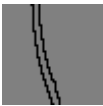
This menu has nine categories reflecting different levels, or subsets, of roads. The **Cutoff Range** area lets you activate the databases at different ranges so that an appropriate amount of detail appears, regardless of range. For example, interstates are appropriate at any range, so they receive a high value, like 999. Residential roads, on the other hand, are only appropriate when you zoom in close, so they receive a low value, like 10. This configuration results in interstates appearing on any map with a range of less than 999 miles - in effect, on every map. Residential roads only appear when your map range is less than 10 miles - a more appropriate activation range. These ranges are adjustable to suit your needs.



Select the **Setup > Map > Advanced > Display Levels > City Streets Roads** command to open the City Street Display Levels menu. Although City Streets Roads is a separate menu with six levels, levels 1 through 4 (**Interstates, Divided Highways, Highways, and Roads**) are roughly comparable to the 1:2,000,000 database. **Streets** and **Minor Streets** occupy levels 5 and 6 and use the City Streets database. This prevents the database from placing too much detail at longer ranges.



The **Display Style** area lets you adjust the graphic look of the roads in your system. There are six graphic styles:

<i>Road Style</i>	<i>Type</i>	<i>Example</i>
Smallest	Single Line	
Small	Single Line	
Medium	Double Line	
Major	Double Line	
Divided	Triple Line	
Two Color	Triple Line	

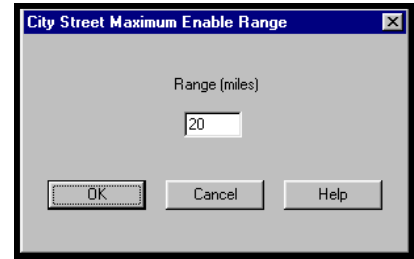
Triple-line styles are usually assigned to interstates, and divided highways and double-line styles are usually assigned to state and county highways. Single-line styles work best when assigned to the smallest roads. Use the **Setup > Colors** command to adjust the road colors.

2.2.2 Editing Display Levels for Bodies of Water (for clients without .psf mapping data)

The **Setup > Map > Advanced > Display Levels > 1:2,000,000 Water** and **Setup > Map > Advanced > Display Levels > City Streets Water** menus operate exactly the same way as their respective **Roads** menus, except that you do not need to assign different looks. Water is usually blue (unless you would like to select a different color). Again, you use this command to set ranges for the different levels where you want the water database to appear. If you want to display more water bodies at a certain range, see what the current level is and raise the cutoff range value.

2.2.3 Setting the Enable Range for City Streets (for clients without .psf mapping data)

Select the **Setup > Map > Advanced > Display Levels > City Streets Range** command to open the City Street Maximum Enable Range menu. This menu lets you set the range threshold at which the system will move between the 1:2,000,000 database and the City Streets database. If you specify 20, for example, the system will use the 1:2,000,000 database at ranges greater than 20 miles. At ranges less than 20 miles, it will use the City Streets database. Setting this value too high can result in excessive clutter and slower processing times. The City Streets database is very large and is usually too great for any computer to handle at ranges above 20 miles.



You can override the range by selecting the City Streets **Use** control and its associated **Lock** control on the **View Map Features** panel.

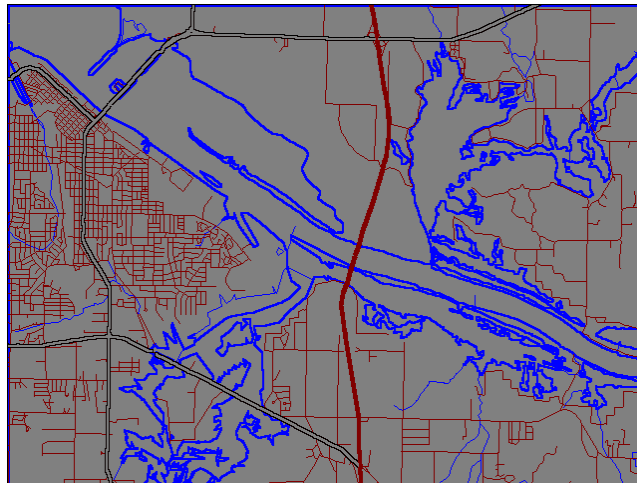
2.3 Adding Water-Fill Points (for clients without .psf mapping data)

The main water database contains only the outlines of bodies of water. While water bodies normally appear as solid, blue shapes, you may have to use the **Setup > Map > Advanced > Water Fill** command to fill in a water shape.



The **Water Fill** command only appears for clients that do not use .psf data for mapping. Clients with .psf data should use the **Setup > Map > Map Layers** command detailed in Section 2.1 to edit the appearance of water.

1. Use the **Setup > Colors** command to verify that the water color is correct. Adjust as required.
2. Use the **Zoom Out** option to display the body of water in question. Note in the following example how the river body, bounded by the dark, bolded lines, is empty.



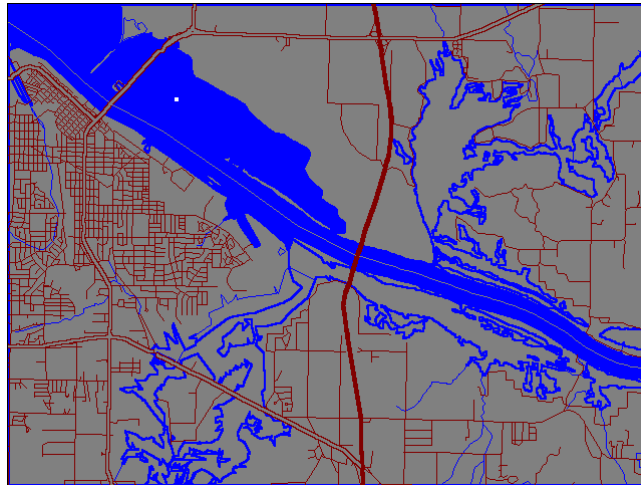
3. Select the **Setup > Map > Advanced > Water Fill** command to display the **Setup Water Fill** panel on the left side of the screen.

- **Zoom Out** automatically zooms out the map display to 50% of the current range. You can continue to issue this command until you have the appropriate view.

- **Add Line** opens the Add Water Fill Line dialog box. This dialog box lets you fix the display of two separate bodies of water. If there is a gap between such features, the water fill could extend beyond the intended boundaries (referred to as a *flood*). You can use **Add Line** to connect the two bodies for a water-fill operation. You then could select **During Fill Only** to display the line *only* during a water-fill operation.

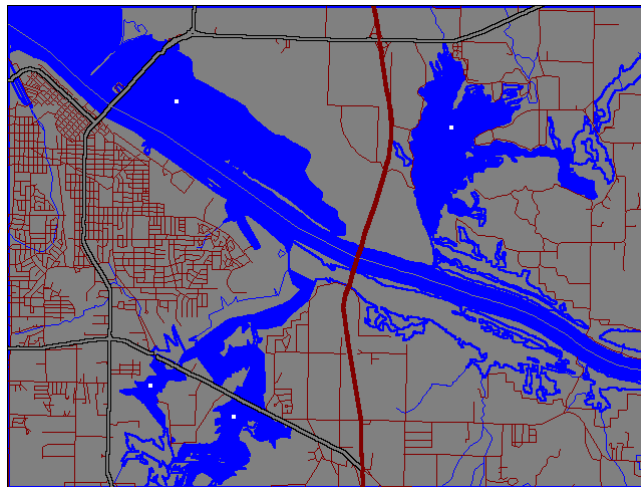
- **Refresh Map** updates the map display.
 - **Auto Refresh** automatically updates the map display when you add a line or point.
 - **City Street** displays the city streets. (This option is available only if you have the optional City Streets module.)
 - **City Street Lock** prevents the street levels that you specified with the **Setup > Display Levels > City Streets Roads** command from changing when you zoom in and out of the view. (This option is available only if you have the optional City Streets module.)
 - **Water Level +/-** lets you move to different levels on the map.
 - **Water Level Lock** prevents the water level that you specified with the **Setup > Display Levels > 1:2,000,000 Water** command from changing when you zoom in and out of the view.
 - **Map Cursor Normal** places your map cursor in pointer mode.
 - **Map Cursor Pan** places your map cursor in pan mode, letting you move around the map display.
 - **Map Cursor Zoom** places your map cursor in zoom mode, letting you get closer views of points of interest.
4. Right-click your mouse button on the body of water in question to add a water-fill point.

5. Verify that the water body is filled with the water color. The following example depicts the water fill. Note that the water-fill point appears as a small white square on the map



For best results, click near the center of the water body, away from the boundary lines.

6. Zoom out to ensure that the entire body of water is filled in correctly, as shown in the following example. Notice that multiple water-fill points have been added.



To edit an existing water fill point, click on it to open a dialog box that has places to enter the fill point's ID and to enable or disable it. There are also boxes that specify the display level, the minimum and maximum ranges, and the latitude and longitude of the point. To change the latitude and longitude, click on the map at the new location.

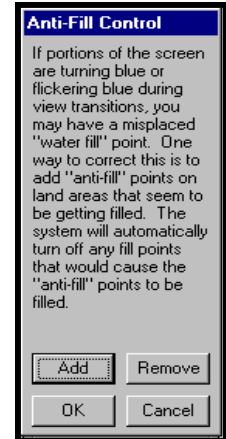


A water-fill point must be visible on the screen before it will fill water bodies with color.

2.4 Fixing Floods with Anti-Fill Points (for clients without .psf mapping data)

Sometimes when filling a large body of water with water-fill points, you may accidentally place a point that makes the land area fill with the blue color. This is referred to as a *flood*. Since it can be difficult to find the particular fill point that is causing the flood, the Baron program allows you to use **Anti-Fill** command to fix the problem.

1. Select the **Setup > Map > Advanced > Anti-Fill** command to display the Anti-Fill Control dialog box on the left side of the display.
2. Select **Add**, and click on the map somewhere in the flooded area. Notice that a small, green-filled point appears.
3. To remove a point, select **Remove** and click on the point you want to remove.
4. Click **OK**, and select the **Setup > Map > Advanced > Water Fill** command to open the Setup Water Fill panel on the left side of the screen.
5. Select **Refresh Map** to see your adjustments.



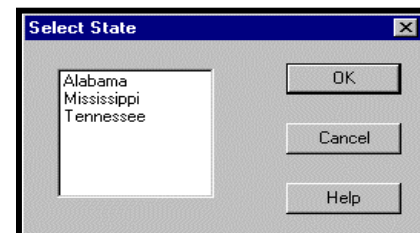
2.5 Editing the Places Database



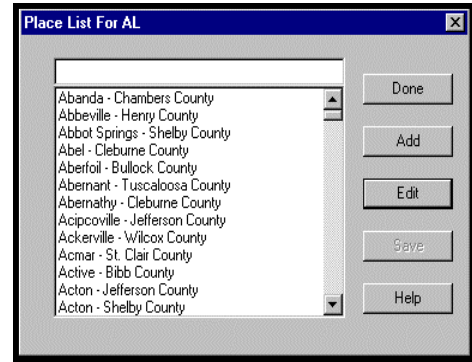
As part of your system, we include every populated community in every state. When you are tracking severe weather, you do not want to miss the small communities that could be affected the most. The **Setup > Map > Places Database** command lets you determine the priority level (in miles) of every populated community in your area. In this manner, you determine at what range various communities appear on the map and when they are listed in the Storm Track ETA Marquees, such as the one displayed on the left. You can also use the **Places Database** command to add or delete community names from the database.

The following steps describe how to customize your database:


1. Select the **Setup > Map > Places Database** command to open the Select State menu.

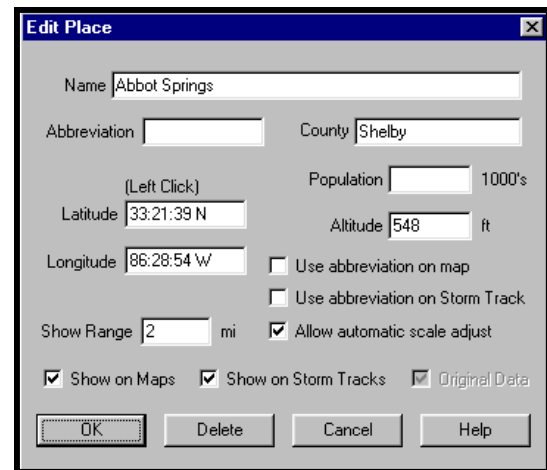


- Click on a state name, and click **OK** to open the Place List for the selected state. Note that all the populated communities in the selected state are listed alphabetically.



- Click **Add** to create a new place, or click an existing place name and click **Edit** to modify it. The **Add Place** and **Edit Place** menus have identical features, although a place you edit will already have information filled in.

 *You can also select an existing place by clicking on the community name then pressing the **ENTER** key, or double-clicking on the community name.*



- Enter the desired parameters on the Add Place or Edit Place menu. The following paragraphs describe each parameter:

- **Name** – Defines the full place name.
- **Abbreviation** – Defines an abbreviation that can be displayed instead of the full place name.
- **County** – Specifies the county in which the place is located.
- **Population** – Defines the known population, in thousands.
- **Altitude** – Defines the altitude, in feet, if known.
- **Latitude** and **Longitude** – Specifies the geographical coordinates. You can automatically assign coordinates to the place by left clicking on the desired spot in your view.
- **Use abbreviation on map** – Displays the abbreviated name, rather than the full place name, on views.
- **Use abbreviation on Storm Track** – Displays the abbreviated name on storm tracks. This is a useful tool for managing the size of storm track boxes. For example, abbreviating Mahan Center Cross Roads to *Mahan. Cen.* results in a much smaller box.
- **Allow automatic scale adjust** – Automatically adjusts the storm marquee to fit the displayed places.

- ❑ **Show Range** – Defines the range, in miles, at which the place will display. For example, a place with a Show Range parameter of 1 will not display until your view range is one mile or less.
- ❑ **Show on maps** – Displays the place name on views when it is in range.
- ❑ **Show on Storm Tracks** – Displays the place name on Storm Track ETA displays.
- ❑ **Original Data** – Reserved for future use.




When adding places, do not start them with a number (e.g., 1st Street). The system functions best with all letters in the name, rather than numbers. Spell out the number if you want to use it.

While your Places database contains thousands of place names, you need not adjust them all. The program defaults all of its communities to a **Show Range** of 1, which means that a community will never appear on a map unless your map range is one mile or less. By default, all communities appear in storm tracks, which is where community names are most powerful. The only thing you need to do in the Setup Places operation is to raise the **Show Range** value for the appropriate communities in your viewing area, as explained in the following subsection. This allows communities to appear in your maps when you are creating saved views or when you are moving around the map in a real-time situation.

Changing the Show Range Parameter

This function is one of the most powerful operations you will perform with your system. This subsection describes how to easily and efficiently prioritize the places that are already present on your system. The *Places* database includes every populated community in range of your radar, for approximately a 300-mile radius from your location. Use your discretion when you prioritize the database to meet the needs of your users.

1. Select the **Map Pan** hot button and click on the major city in your viewing area to center the map on it. 
2. Select **Views** to activate the **View Main** panel, key in 250 in the **Radius** text box, and click the **Update** button to show a 250-mile view of the city.
3. Decide which cities you want to appear at this range.
4. Select **Setup > Map > Places Database** to open the Select State menu, select the state, and click **OK** to open the Place List for the selected state.
5. Select a city, and click **Edit** to open the Edit Place menu.
6. Key in 250 in the Show Range text box, make any other relevant changes, select the **Show on Maps** and **Show on Storm Tracks** options, and click **OK**.
7. Repeat steps 5 through 7 for each city that you wish to display at the 250-mile range.
8. Click **Update** on the **View Main** panel to refresh the map, and verify that the cities you want appear. You may end up repeating this process several times.

9. Repeat steps 2 through 8 to set up map displays for 200-, 150-, 100-, 75-, 50-, 25-, 10-, 5-, and 3-mile ranges.
10. Repeat steps 1 through 9 for each important city in your viewing area.
11. Verify that you have a good coverage of the cities you want to see by zooming in and out on relevant areas of your viewing area.

Customizing the Places Database

Many of our clients have gone beyond editing to customizing their Places Database. An example of this customization process is identifying important intersections. At times, some locations should be emphasized to stress the importance and location of weather phenomenon to your users. The Baron database is completely client-customizable. You can take advantage of the opportunity by creating identifiers for local features like schools, malls, churches, parks, and stadiums. To add places for this purpose, follow these steps:

1. Select **Setup > Map > Places Database** to open the Select State menu, select the state, and click **OK** to open the Place List for the selected state.
2. Click **Add** to open the Add Place menu.
3. Click on the appropriate location on your map display to have the longitude and latitude coordinates automatically generated, or key in the longitude and latitude coordinates.
4. Key in the text (for example, enter an intersection name) in the **Name** box, type in the range at which you want the place to display in the **Show Range Text** box, select the **Show on Maps** options, and click **OK** to return to the Place List.
5. Click **Done**. You will be asked if you want to save the new name to a file. Click **OK**.
6. Go to the Views panel on the left side of the display. Verify that the view is in the range specified in step 4, and click **Update**. Make sure that the new text is displayed.

To further emphasize a customized place, you can use the Street Spotter feature to import an icon for it. See Section 3.5.5 for details.

2.6 Adjusting the Color Palette

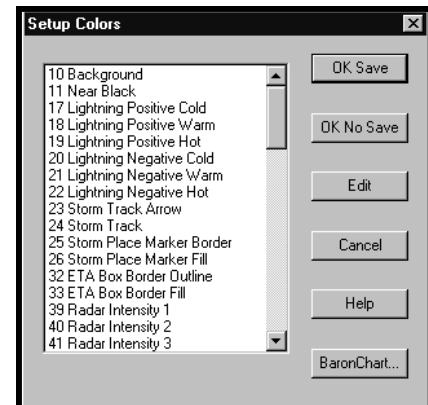
The **Setup > Colors** command lets you adjust the color palette used by FasTrac Millennium.



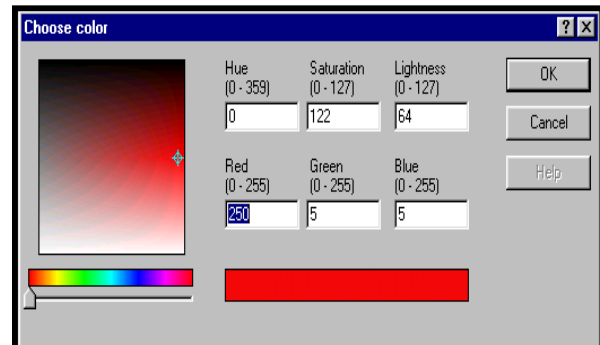
If you have access to the Advanced Baron Chart (via the **Setup > Data > Baron Chart** command, see section 6.3.3), you should use it rather than the **Setup Colors** menu to adjust radar colors. Also, you should use the **Setup > Map > Map Layers** command discussed in section 2.1 to adjust mapping colors.

The following steps describe how to use this particular function:

1. Select **Setup > Colors** to open the **Setup Colors** menu.
Note that a color value is assigned to each listed element.
2. Select an element, and click **Edit** to open the **Choose Color** menu.
3. Adjust the color, which changes as you edit the values.



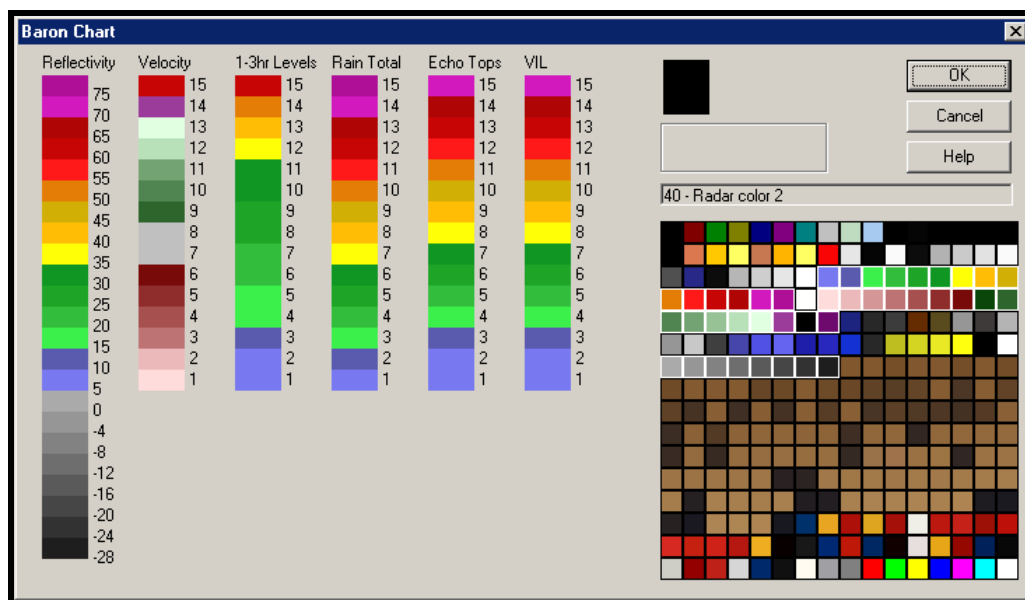
There are six options: **Hue**, **Saturation**, **Lightness**, **Red**, **Green**, and **Blue**. Enter a number from 0 through 255 in each of these spaces to specify the amount of that component to include. You can also move the sliding pointer below the rainbow colored bar to raise and lower the hue value. You can click anywhere on the large colored box to the left of the number boxes to automatically change the values of that color (this method affects every value except the hue). As you change the numbers, the rectangle below the number spaces indicates the color.



Press **ENTER** or click **OK** when you have adjusted the color to the way you want. You can exit without making any changes by pressing the escape key (**ESC**) or by clicking **Cancel**.

2.7 Using the Baron Chart

The Baron Chart lets you specify the colors used for the various NEXRAD products and your real-time radar data. All of these use the Baron Chart. To display it, select **Setup > Colors** to open the Setup Colors menu, and select **Baron Chart**.



The square on the right shows all 256 colors in the color palette. When you move the mouse cursor over these colors, the text box lists the index number of the color to which the mouse cursor is pointing and specifies the color title. If appropriate, the text box describes the red, green, and blue values that define the color and the general classification, which is described in the following list:

- ❑ **MODIFIABLE** indicates that the color is available for use in any product, and you can change its RGB components by double-clicking on it to open the Edit Color menu.
- ❑ **UNSTABLE** indicates that the color is available for use in any product, but you cannot change it from this menu. We do not recommend that you use these colors since other features use them and they are subject to change.
- ❑ **FIXED** indicates that you cannot change this color, but it is safe to use in your products since it will not change.
- ❑ **RESERVED** indicates that you cannot use or change this color.



Palette entries surrounded by white squares are the safest to use with Baron Chart, since they were originally reserved for radar.

The left portion of the Baron Chart contains colors for the different NEXRAD product types. The numbers in the **Reflectivity** column indicate dBZ values, while the other columns indicate the levels (1 - 15). As you move the mouse cursor over these, the rectangle above the palette box

displays text that identifies the colors used. The following steps describe how to change a particular level in a product:

1. Select a color for a particular level from the palette by clicking on a color on the Baron Chart.
2. Click on the level that you want to change (for example, level 7 of VIL).
3. Click **OK** to save your edit and to return to the Setup Colors menu.

You can change any MODIFIABLE color on the palette. To do so, double-click on the color to open the Color Edit menu, which is described in section 2.5, *Adjusting the Color Palette*.



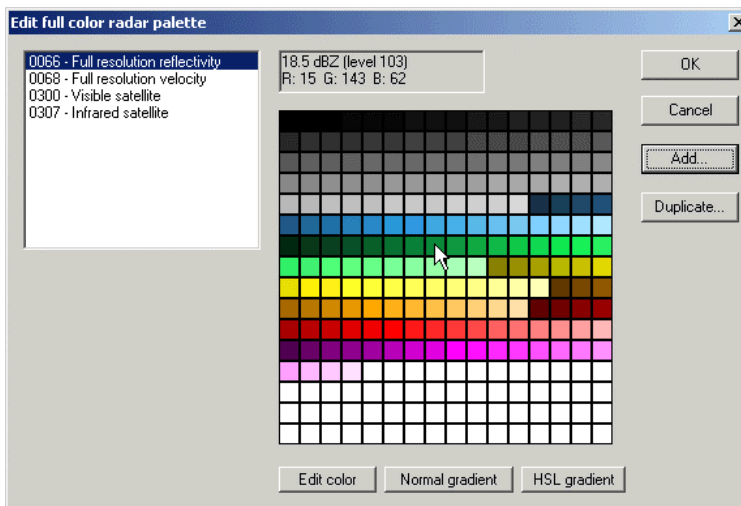
Changing a color in the palette will affect everything that uses that color.

Clicking **OK** saves any changes you have made. You must, however, select **OK Save** on the Setup Colors menu to effect the changes. For example, if you click **OK** on the Baron Chart menu and then click **Cancel** on the Setup Colors menu, you cancel the changes to the palette. The changes to the color representations of product levels stay the same. To avoid confusion, it is best either to click **OK** in both places or to click **Cancel** in both places.

2.8 Editing Colors for 256-Color Palettes

There are several new data products that utilize a 256-color palette rather than the normal 16 colors. These products can be edited with a separate menu called the **Edit full color radar palette** menu. To access this menu, select **Setup > Data > BaronChart256**.

The box in the upper left corner displays the names and product codes of the currently existing 256-color palettes. The product highlighted in this box displays its palette in the center area.



The box to the right of the box containing the product names and codes displays the level number and RGB values of the palette entry over which your cursor is currently positioned. For reflectivity palettes, the dBZ value corresponding to that level also appears.

The **Edit Color** button below the palette area allows you to edit the colors for the palette entries. See section 2.5, *Adjusting the Color Palette*, for information on using the **Choose color** menu.

The **Add** button lets you create a new 256-color palette. The palette will be black by default.

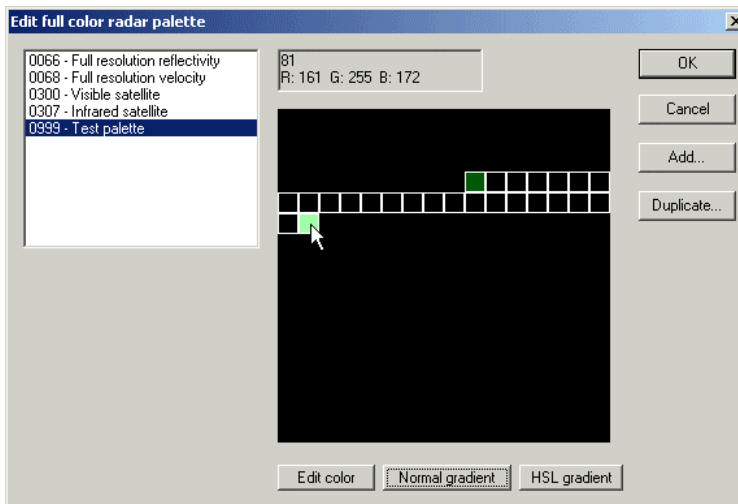


256-color palettes will not display properly if a precipitation type map is currently displaying (see section 3.5.17, *Displaying Precipitation Type Maps*).

2.8.1 Creating Gradients


The **Normal Gradient** and **HSL Gradient** buttons let you automatically create a smooth scale of colors between two entries on a palette.

1. Manually edit the colors of the palette entries that you wish to be the starting and ending points of the gradient, using the **Edit Color** button.
2. Select the range of palette entries for the gradient by left-clicking on the starting entry and dragging the mouse to the ending entry. The entries in between the two entries will be highlighted, as shown in the example to the right.
3. Click either the **Normal Gradient** or **HSL Gradient** button to create the gradient. You should experiment with both options to find which one you prefer.



2.8.2 Duplicating Palettes

You can use the **Duplicate** button to apply the color scheme of an existing weather product to the currently selected product.

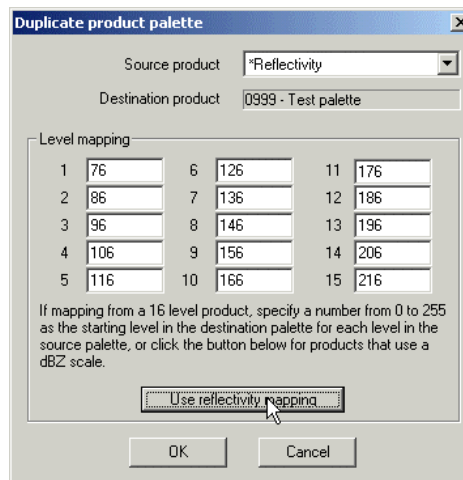


This process is intended to replace the colors of the currently selected palette with the colors of another palette, not to create a copy of a palette. If you wish to create a palette with the same color scheme as an existing palette, you should first create a blank palette with the **Add** button, then use the **Duplicate** button to copy the colors of the original palette into the blank palette.

When you click the **Duplicate** button, the **Duplicate product palette** menu appears.

The pull-down list labeled **Source product** indicates the product whose color palette you wish to duplicate. Product names with an asterisk at the beginning are 16-color palettes.

The area labeled **Destination product** indicates the product to which you are copying colors. If this is not the palette you wish to change, click **Cancel** to exit the menu.



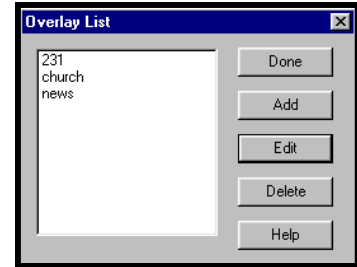
You only need to use the **Level mapping** area if the palette you are duplicating is a 16-color palette. In the text boxes, type the number in the 256-color range that you wish each of the 16-level colors to appear.

The **Use reflectivity mapping** button automatically assigns reflectivity values and colors to the target palette.

To assign the new color scheme, click **OK**. To exit without changing the palette, click **Cancel**.

2.9 Customizing Font Displays

The **Setup > Fonts** command lets you customize the font displays for Places, Storm ETA displays, Storm Marquees, Temporary Text, Street Names, NexRad products, Pixel Query Point text and Metar data. All of the menus opened by the **Setup > Fonts** command have the same components, which are described in the following list:



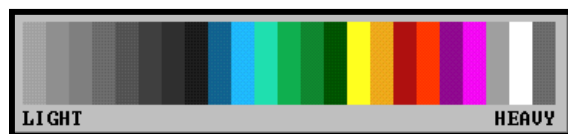
- The **Font** pull-down list lets you choose any font installed in Windows. The listed fonts are true type fonts that are available in the `\Windows\Fonts` directory. You can add new fonts or delete existing fonts in this directory. The **Font** list will then be updated.
- The **Effects** area lets you define, in pixels, the size of the letters, the extrusion or degree of shadowing, and the width of the outline. The **Bold** option doubles the width of the font. The **Italic** option angles the font forward. The **Anti-Alias** option eliminates the blocky appearance of computer fonts. The **Round Outlines** option gives anti-aliasing to the font outlines.
- The **Colors** area lets you define color values for both the font and the shadow. We suggest that black outlines have an RGB value of at least 12 - 12 - 12. True black, 0 - 0 - 0, is often the default key color. You may select any color you wish by varying the amounts of red, green, and blue.
- **Extrude Direction** specifies the direction of your drop shadow.
- **Preview** displays the changes you have made and have not yet saved. Click **OK** to save the changes you made, or click **Cancel** to discard your changes and close the menu.



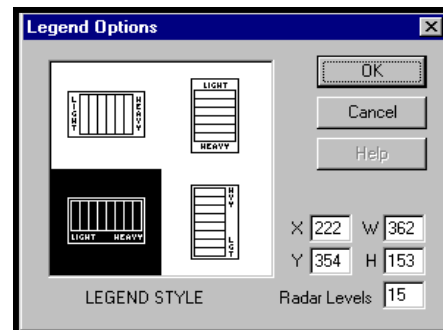
When you change fonts, they change only for that time forward. The new fonts do not affect saved views. When changing fonts for Storm Track ETA boxes, you must select **Update** at the bottom of the storm track panel to enact your changes.

2.10 Manipulating the Automatic Legend

Use the options under the **Legend** menu to control the automatic legend, shown below.



- ❑ **DISPLAY** lets you toggle the automatic legend on and off. When the legend is on, a check appears next to this option.
- ❑ **RAIN MODES** lets you display rain, snow, and mixed weather in the legend.
- ❑ **RESIZABLE BORDER** lets you adjust the size of the legend for the best fit on maps. When selected, a Windows-style resizable frame appears around the legend. Use normal Windows techniques to resize the legend.
- ❑ **OPTIONS** opens the Legend Options menu, which lets you change the configuration and location of the legend display. **Radar Levels** specifies the levels for your radar products. The legend will not display color bars for the higher levels that do not apply to your radar. It can take some trial and error to get the results you want with this setting, so it will help to test it before using it in a real-time situation. This option does not affect the NEXRAD display mode.



The colors on the legend automatically change when you display a different type of radar product. If you are in velocity mode, the legend says TOWARD on one side and AWAY on the other; for intensity modes, it says LIGHT on one side and HEAVY on the other.



*One interesting thing to note about the automatic legend is that any level with a color set to transparent in the Baron Chart does not appear in the legend. The other bars expand to fill the gap. This is possibly a more flexible technique than the **Radar Levels** command in the Legend Options menu.*

The legend is actually a separate window, and is always on top of everything else in the display. You can move the legend to any position on the screen while it is active by left-clicking and dragging it.



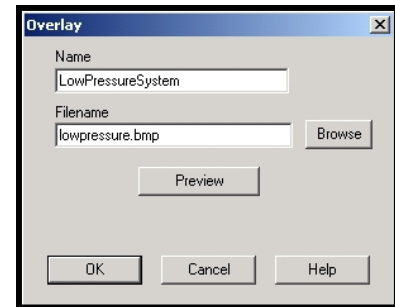
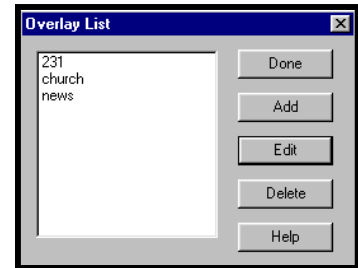
You may want to adjust the legend's size off air, and then turn off the **RESIZABLE BORDER** option before going on air. This prevents you from accidentally resizing the legend while trying to move it.

2.11 Using Overlays

The **Tools-1 > Overlay > Add Overlay** and **Tools-1 > Overlay > DragDrop Overlay** commands let you bring logos, customized legends, or other kinds of pictures into your system, and then place them on your map at a specific pixel location. Overlays retain their screen position, no matter how you switch your views.

2.11.1 Creating new Overlays

1. The **Setup > Overlays/Icons > Overlays** command lets you associate a bitmap in your */fastrac/Overlays* subdirectory with a meaningful mnemonic. Select the command to open the **Overlay List** menu.
2. Select the **Add** option to create a new overlay, or select **Edit** to modify an existing overlay. Either way, a menu labeled **Overlay** appears.
3. In the text box labeled **Name**, type the name you want to appear in the Overlay List.
4. In the **Filename** textbox, enter the filename of the picture you wish to use for your overlay (or click the **Browse** button to select it from a menu).
5. Click the **Preview** button to verify that you have selected the picture you want.
6. Press **ENTER** or click **OK** to save the overlay and return to the Overlay List.



To permanently remove an overlay name from the Overlay List, left-click on its name, then click the **Delete** button.

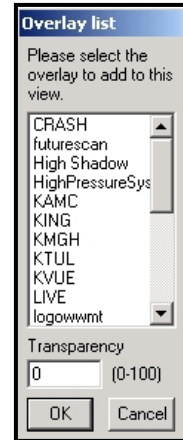
When you are finished working with overlays, click **Done**.

2.11.2 Adding an Overlay to a View

There are two methods for adding an overlay, using the commands **Tools-1 > Overlay > Add Overlay** and **Tools-1 > Overlay > DragDrop Overlay**, respectively. **Add Overlay** allows you to apply the overlay to a fixed screen position with a single click. **DragDrop Overlay** lets you add the overlay, then move it by clicking and dragging before fixing its position.

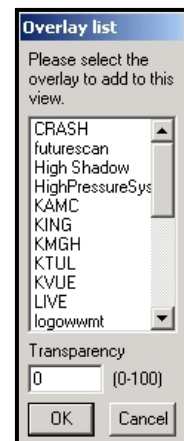
For the **Add Overlay** procedure, follow these steps:

1. Select the **Tools-1 > Overlay > Add Overlay** command to open the OVERLAY LIST.
2. Select the overlay you want to place on screen from the list by left-clicking it.
3. In the text box labeled **Transparency**, select the amount that you want the overlay to move behind other screen elements (0 is least and 100 is most).
4. Press ENTER or click **OK** to close the menu.
5. Move the cursor to the point on the view where you want the upper-left corner of the overlay to appear.
6. Left-click to add the overlay to the screen.



For the **DragDrop Overlay** procedure, follow these steps:

1. Select the **Tools-1 > Overlay > DragDrop Overlay** command to open the OVERLAY LIST.
2. Select the overlay you want to place on screen from the list by left-clicking it.
3. In the text box labeled **Transparency**, select the amount that you want the overlay to move behind other screen elements (0 is least and 100 is most).
4. Press ENTER or click **OK** to close the menu. The overlay will appear in the upper-left corner of the screen.
5. To move the overlay, left-click and drag it with the mouse.
6. When the overlay is in the position you want, right-click it to fix it in place.




Use the **View > Save As** command to permanently associate an overlay with a view.

2.11.3 Removing Overlays

When you wish to remove a fixed overlay from the screen, follow these steps:

1. Select the **Tools-1 > Overlay > Remove Overlay** command to open the **Remove Overlay** menu.
2. Left-click on the overlay you wish to remove.
3. Press **ENTER** or click **OK** to close the menu. The overlay will then disappear.

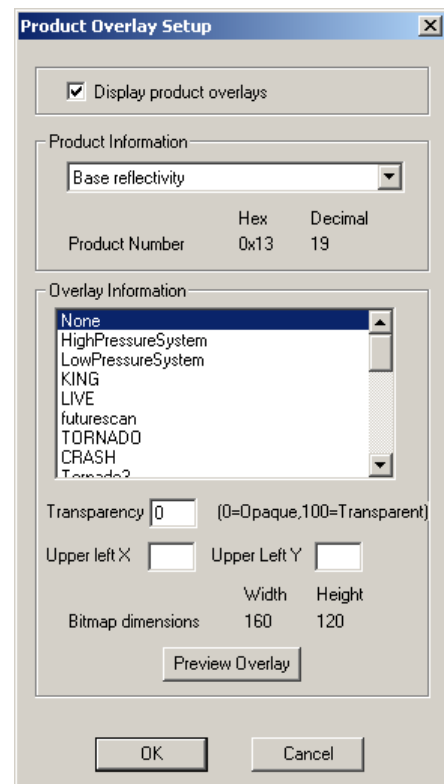


 You cannot remove an overlay that you add using the **DragDrop Overlay** command until you fix its position by right-clicking it.

2.11.4 Setting Overlays for Data Products

With the **Setup > Overlays/Icons > Product Overlays** command, you can assign an overlay to appear whenever you display a data product. Select this command to open the **Setup Product Overlay** menu.

- ❑ The **Display product overlays** checkbox toggles the display of overlays for all products.
- ❑ The pull-down list labeled **Product Information** lets you select the data product that you want to associate with an overlay. When you select a product, the **Product Number** area changes to reflect the new product.
- ❑ In the list under **Overlay Information**, select the overlay you wish to associate with the data product.
- ❑ In the text box labeled **Transparency**, select the amount that you want the overlay to move behind other screen elements (0 is least and 100 is most).
- ❑ The **Upper Left X** textbox determines how far to the right from the upper left corner (in pixels) that the overlay will appear, while the **Upper Left Y** textbox determines how far below the upper left corner (in pixels) that the overlay will appear.
- ❑ The **Preview Overlay** button allows you to look at the overlay you selected, to ensure that it is the one you want.



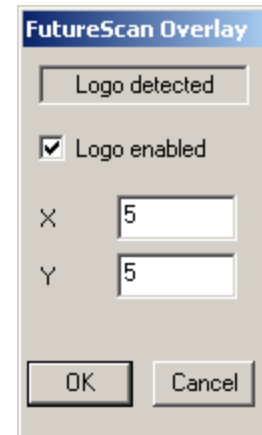
Click **OK** to save your changes and exit the menu, or **Cancel** to exit without saving changes.

2.11.5 Setting the FutureScan Product Overlay

For clients with the FutureScan module (see section 3.5.11), the FutureScan product is automatically associated with a bitmap labeled *futurescan.bmp*. You should therefore check to ensure that this bitmap is in your *fastrac/overlays* folder.

You can control the appearance of the FutureScan overlay through the **FutureScan Overlay** menu. Select **Setup > Overlays/Icons > FutureScan Overlay** to open this menu.

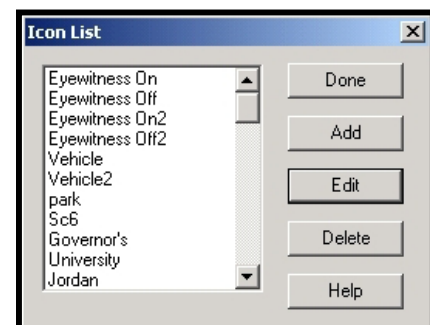
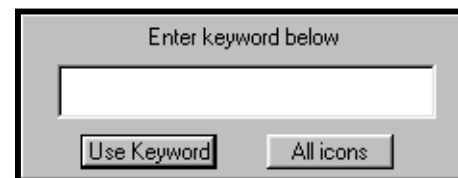
- ❑ The area at the top of the menu should display the message `Logo Detected` if the FutureScan overlay is in the proper place.
- ❑ The checkbox labeled **Logo Enabled** allows you to toggle whether the overlay appears when FutureScan is active.
- ❑ The **X** and **Y** textboxes allow you to control how far to the right and down, respectively, the overlay will appear from the upper left corner of the screen (in pixels).



2.12 Setting Up Icons

Icons are similar to overlays, with the exceptions that they are attached to specific geographical coordinates and are permanently displayed once you create them. This section discusses how to set up your icons for display.

1. Select **Setup > Overlays/Icons > Icons** to open a menu that prompts you for a keyword.
2. If you wish to find a specific icon, type in all or part of the icon's name and click the **Use Keyword** button. Otherwise, hit `ENTER` or click the **All Icons** button to display the entire **Icon List**.
3. The Icon List menu is similar to the Overlay List menu. Click the **Add** button to create a new icon, or click the **Edit** button to change an existing icon.



4. Either way, a menu labeled **Icon** appears. Enter the name you wish to associate with the icon in the **Name** text box.
5. Enter the filename for the picture you wish to use for the icon, or click the **Browse** button to select it from a menu.
6. Click the **Preview Bitmap** button to verify that you have selected the picture you wanted for the icon.
7. In the **Transparency** text box, enter the degree to which you want the icon to move behind other screen elements (0 is lowest, 100 is highest).
8. Check the box labeled **Above radar** if you wish the icon to display over radar data.
9. If you know the latitude and longitude of the location where you want to display the icon, key in the coordinates in the **Lat** and **Lon** text boxes. Alternatively, you can click on the desired map location, and then click **Map Edit**.
10. In the **Start Range** text box, type in the maximum range (in miles) at which the icon displays.
11. In the **End Range** text box, type in the minimum range (in miles) at which the icon displays.

Upon completion, select **OK** to return to the Icon List. You will need to change or refresh the view before the icons display.

To permanently remove an icon name from the Icon List, left-click on its name, then click the **Delete** button.

When you are finished working with icons, click **Done** in the Icon List menu.



If you set an icon to appear at both long and short ranges, you may run into problems due to the latitude and longitude data not always matching up at different ranges. If this happens, try adding additional screen coordinates for the icon to appear for multiple subsets of the desired total range.

2.13 Points to Remember

- ❑ Before you make any major changes, back up your *\fastrac* directory and subdirectories.
- ❑ One of the most important commands is the **Setup > Map > Map Layers** command, which controls the roads and bodies of water that appear on your map display.
- ❑ For systems without .psf mapping data, the **Display Levels**, **Water Fill**, and **Anti-Fill** commands control the appearance of roads and water.
- ❑ Use the **Setup > Map > Places Database** command to specify which locations (places) display on your map.
- ❑ Use the **Setup > Colors** command to adjust the colors on your views.
- ❑ Use the **Legend** commands to control the automatic legend.
- ❑ Use the **Setup > Fonts** command to customize the display of various font types.
- ❑ You can insert bitmap images into your system as overlays and icons, then display them on views.

3. *Adjusting Views*

This chapter describes how to control the display of your weather map displays, or *views*. Views control how your weather data is presented.

This chapter addresses such functions as:

- ❑ Using the **View Main** Panel
- ❑ Setting Map Parameters
- ❑ Editing Topographical Data
- ❑ Saving and Organizing Views
- ❑ Using the View Options

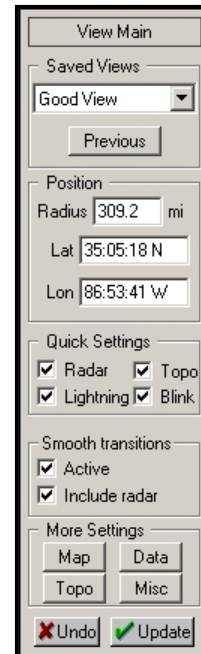
3.1 Using the View Main Panel

The **View Main** window is the first panel available upon opening the program. (The name of the current view window is always at the top of the window.) Buttons for the four other windows appear in the **More Settings** area at the bottom of the panel. If you are currently viewing another panel, the **Views** button is always available in the **Select Panel** area.



The following paragraphs describe all the controls available on the **View Main** panel:

- ❑ **Saved Views** identifies all views that you have saved. Click on the down arrow to display available views and click on a name to open that view. Note that there are two temporary views, Temporary 1 and Temporary 2, which are the last two updates you have made.
- ❑ **Previous** recalls the view that was active before you switched to the current one. This option lets you toggle back and forth between two views. You can use this option to recover from mistakes.
- ❑ **Radius** is the vertical distance, in miles, between the center of the screen and the top of the screen.
- ❑ **Lat-Lon** are the center coordinates for the map display.
- ❑ **Quick Settings** allows you to toggle the display of **Radar**, **Lightning**, and **Topography** data, as well as whether the lightning data icons **Blink**.
- ❑ **Smooth Transitions** lets you perform dynamically smooth pans and zooms when you zero in on areas of interest. Checking **Active** activates the feature, while checking **Include radar** causes radar data to smoothly transition as well.
- ❑ **More Settings** lets you activate the other panels.
- ❑ **Update** renews the map display after you have changed display parameters.
- ❑ **Undo** returns the view parameters to those existing when **Update** was last selected.



You will use the **View Main** commands often to adjust your display. For example, if you want to change the size of your viewing area, key in the new range in the **Radius** text box and click **Update**. The **Previous** command is particularly helpful in moving rapidly from one storm to the next while maintaining your bearings, as shown in the following scenario:

1. Show the base view that has all the storms of interest.
2. Give your users an overview of the current weather situation.
3. Select the **Zoom** hot button to display your area of concern.




4. Click the **Previous** button on the **Main View** panel to return to your base view, and then zoom in to the next area of interest. Once you are comfortable with using this sequence to present storm views, you will want to use it often.

Many broadcast clients use the **Previous** button as a quick map switch, as shown in the following example. Assume that you are doing a short cut-in before going on the air.

1. Zoom into the area of concern, then click the **Previous** button to return to the overview so that you are ready for your cut-in.
2. When your cut-in starts, show the overview, and then say something similar to, “Let’s zoom into the area of concern.”
3. Select **Previous** to have the system instantly zoom into that location. You can now discuss the situation and even place a storm track.


3.2 Setting Map Parameters

The **View Map Features** panel controls the map display. To activate it, click on the **Map** button in the **More Settings** area at the bottom of the panel. After you save all parameters for a view, any other manipulation of that view keeps those same parameters.

 *Topographical and texture mapping is also saved as a parameter. This lets you have specialty backgrounds for instantly displaying news graphics. Your most often used parameters should be on your default view. (You can activate Views 1 through 4 by using the hot buttons at the top of the screen.) The system will use those parameters when the view is activated.*

The following paragraphs describe each option on the panel.

- ❑ **Boundaries** lets you turn both state and county lines on or off individually.
- ❑ **Roads** lets you display roads at the specified level. **Show** controls whether any roads appear. **Lock** sets the display of roads at the specified level. (The higher the level, the more roads will be posted.)
- ❑ **Waters/Rivers** functions are similar to the **Roads** functions. **Show** lets you turn on and turn off displays of rivers and other bodies of water. **Lock** sets the display of bodies of water and rivers at the specified level. If rivers are turned off when you update the view, subsequent zoom or pan operations result in a view with no river features. **Fill** automatically fills in empty water features. When selected, **Fill** bolds the river water lines. Thus, if a river is narrow enough, it will be filled.
- ❑ **Bold Map Lines** doubles the size of all map lines. While it usually is inappropriate at large distances, this option can be quite useful at close ranges.



The screenshot shows the 'View Map Features' panel with the following settings:

- City Streets Data:** Use (unchecked), Lock (unchecked)
- Boundaries:** State (checked), County (checked)
- Roads:** Show (checked), Level (1), Lock (unchecked)
- Water/Rivers:** Show (checked), Level (1), Lock (unchecked), Fill (checked)
- Bold Map Lines:** (unchecked)
- Places:** Show (checked), Level (0), Lock (unchecked)
- More Settings:** Main, Data, Topo, Misc buttons
- Bottom:** Undo (with red X), Update (with green checkmark)

- ❑ **Places** controls the display of city names. **Show** turns on and turns off the display of community names. Normally, the system uses the default settings you established with the **Setup > Map > Places Database** command (see section 2.4, *Editing the Places Database*). To override the default settings, key in a new level in the **Level** text box, and click **Update**. Click **Lock** to set the specified priority level for future pans and zooms.
- ❑ **More** is reserved for future enhancements.
- ❑ **Undo** returns all parameters to their previous settings following the last **Update** command.



While you can select **Update** after changing each map feature, we designed the system so that you can change as many mapping parameters as you like and then click **Update** one time to effect all of your desired changes.

3.3 Editing Topographical Data

Click on the **Topo** button under the **More Settings** panel area to activate the **View Topo** panel. While all Millennium systems have actual topographical capability out to a specific distance, you can supplement displays by using texture maps. If the topographical data is inappropriate for any reason, the system reverts to a backup, generalized texture bitmap that approximates topographical features.

Background Bitmap lets you display a single background that is loaded from a graphic file. Although the display of roads and rivers changes when zooming or panning the map, the bitmap will not change in perspective. The background bitmap may also be a customized 640 x 480 pixel-sized file developed specifically for your weather presentation.

- ❑ **Enable** displays the background graphic supplied by the specified file. If you do not select **Enable**, the background is a solid gray.
- ❑ **Keep on Move** lets you keep the bitmap displayed as you zoom or pan around the map. Select this option unless you want a gray background.
- ❑ **Filename** specifies the bitmap. You can use any bitmap as a background. It must be 24-bit (full color) file. The mandatory bitmap size is 640 x 480. The bitmap displays only when the topography is out of range.

Topo Data allows you to toggle your real topographical data on and off with the **Enable** checkbox. In addition, you can set the range in miles at which the topographical data will appear with the **Min Range** and **Max Range** textboxes. When zooming in to a very close range, the real topographical data can cease to appear properly, at which point it would be a good idea to switch over to the background texture map. You should experiment at different ranges to find the appropriate range at which to set this threshold.

3.4 Saving and Organizing Views

This section describes how to save and organize your views.

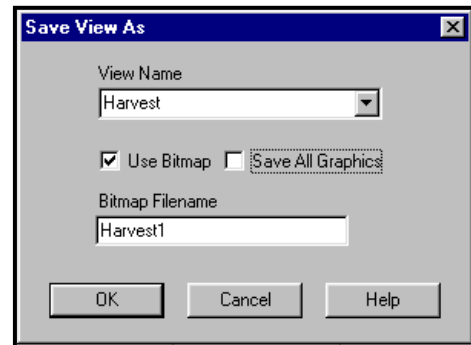
3.4.1 Saving Views

Once you have all the parameters defined for a given view, you will want to save it. When saving a view, you have the option of just saving the view or of saving the view as a bitmap file.



For most purposes, the liquid databases are such powerful tools that there is little need to save a large number of views. The first four views you create correspond to the four numbered hot buttons. Traditionally, the first view is your overview map; the other four views are those that you use the most. Therefore, you should try to only save views that you know you will use many times. You may also save views specifically for SEQUENCER use.

1. Select the **View > Save As** command to open the Save View As menu, which has a pull-down list labeled **View Name**.
2. Select a view from the pull-down list, or key in a new name. If you use an existing view name, the old view will be overwritten. Use descriptive names that will help you identify them later.
3. Click the **Use Bitmap** button to save the view to the bitmap file specified in the **Bitmap Filename** text box, as described below. The bitmap name should be eight or less letters, followed by the *.bmp* extension. If you do not add an extension, the system automatically adds the *.bmp* extension.



If you save the view as a bitmap, you save everything except the background and logos as a *.bmp* file. Your system stores views as full color images; therefore, the number of actual colors used is quite small. One advantage is that recall may be somewhat faster for bitmap views saved with this approach, depending upon your hardware configuration. In addition, you can export a view's bitmap to a paint program. You can then add features, and return the finished product to the system. The only restrictions pertain to the set of colors used by map features.

If you choose not to save the view without using a bitmap, you store the data with the saved view, but not as part of it. In other words, the system knows which background to put with a foreground but does not save both as a single view. It can also save all the mapping parameters, such as rivers and roads, as a data file. The result is that when you call up a view, the system first opens the background map and then draws all the rivers, roads, communities, radar, and lightning (if available), as required. It then displays the finished map. There are three advantages to this approach. First, it uses less room on the hard drive because it stores fewer bitmaps. Second, if you choose to change fonts or backgrounds at some point, it will use the latest choice in putting your view together. Finally, the system does not have to create a foreground bitmap.



Whenever you are saving views, it is very important to use a consistent naming convention. We recommend the name (or abbreviation) of the community closest to the center of the view and the range of the view. For example, you could save a 150-mile view that is centered over Huntsville, Alabama as **HSV 150**. This naming convention makes it easy to identify what the saved views represent.

- ❑ **Save All Graphics** saves the current view with the current data, such as radar sweep, lightning, and storm tracks. (This is particularly useful in creating a static view of a severe-weather event. Later, you could use the saved image for such events as promotions.)



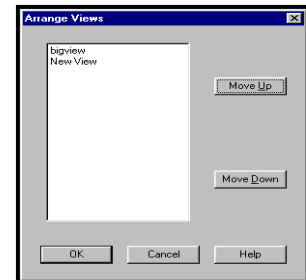
New radar data will not paint over a view saved with all graphics, and the system warns you if you select a saved view that includes graphics.

3.4.2 Organizing Your Views

Several commands are available for you to arrange your views: **Arrange View**, **Delete View**, and **Export View**.

If you are creating numerous views to cover every region, county, and city in your area, it is important to use a structure that facilitates the easy access to them. One method is to start with a view of the region. Under that region, you should place every associated county and, under each county, place every associated city. This lets you easily find important locations quickly. Some clients have arranged all of their views first alphabetically and then by range. Following this method, every view of the city appearing first alphabetically from 200 miles to 3 miles would be grouped together, from the farthest to the closest, followed by all other cities in alphabetical order.

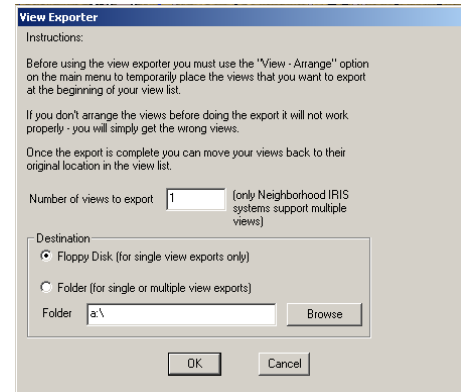
- ❑ **View > Arrange** lets you move views to the desired location in your **Recall List**. When selected, the Arrange Views menu opens, listing the saved views. To move views, scroll through the saved views until you find the view you wish. Click on the view, and press the **Move Up** or **Move Down** buttons until the view is where you want it. When you finish arranging, select **OK**. To cancel your changes, select **Cancel**.



The first four views in the Recall List correspond to the hot buttons labeled 1 through 4 across the top of the screen.

- ❑ **View > Delete** lets you remove the current view. When you select the command, a small warning appears in the left corner of the control screen, telling you which view you will delete. To delete, click **OK**.


- ❑ **View > Export** saves the current view to a floppy disk or your hard drive. You may then transfer the view to your IRIS computer and post the view on the Internet. When you select this option, the menu to the right appears, which contains instructions on preparing views for exporting. Follow these instructions, then select the number of views you wish to export and the destination folder for the view files (either a floppy disk or a specified folder on your hard drive). When these parameters are set, click **OK** to export the views.




3.5 Using the View Options

This section covers other features used in connection with views. All of these involve manipulating the current view.

3.5.1 Adding Text to a View


 The **Temporary Text** hot button lets you quickly add additional text of user-specified size and color to a view. Some example messages are "*Tornado Warning until 6:00 p.m.*," or "*Ferry Capsized Here.*" Click the **Temporary Text** hot button, key in the text on the menu that appears, and then click on the map where you want the text to appear (it will be centered around the cursor). Left-clicking on the **Temporary Text** button adds text and right-clicking on it removes text. See section 2.8, *Customizing Font Displays*, to adjust the font.

3.5.2 Zooming In and Out From a View


1. Click on the **Zoom** hot button, and then move the Zoom tool (the magnifying glass) over the area of interest. If you have any Telestrator graphics, they disappear. 
2. Click and hold on the center point of the desired new view. As you move the Zoom tool, a red rectangular box that delineates the boundaries of your zoom appears. The zoom range in miles appears in the Cursor Status Area.
3. Release the mouse button at the desired range. The system automatically redraws the view to your specifications.

Right-click on the Zoom hot button to zoom out to double the current range.

3.5.3 Pointing to Features on a View

 Use the **Map Pointer** hot button when you do not wish to make any changes to the map but want to point out a feature. You can activate Pixel Query Mode, which is described in section 3.5.15, by right clicking on this hot button.

3.5.4 Panning on a View


 The **Map Pan** hot button lets you maintain the same radius while moving your map to the right, left, up, or down. Select the **Map Pan** button, move your cursor around the map,

and click on the new center.

3.5.5 Labeling Streets with Street Spotter

The Street Spotter feature allows you to locate and label important streets and landmarks.

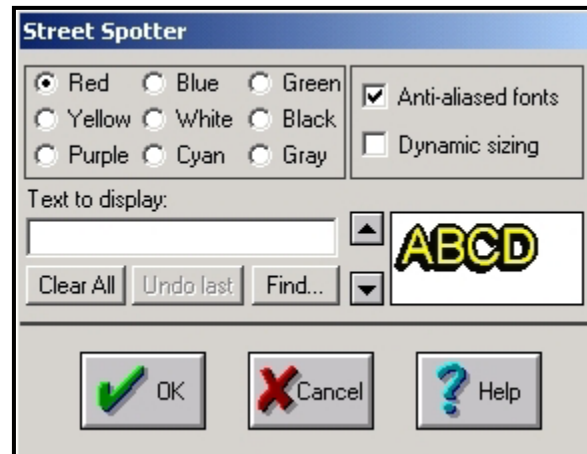
Basic Operation

1. To activate Street Spotter, click on the **Street Spotter**  hot button. The cursor icon will then change to a small arrow above a two-lane street. You will use this cursor to perform Street Spotter operations.
2. Right-click on the desired street and its name should appear in the Cursor Status Area.
3. Label the street by left-clicking on it, dragging the line in the direction that you want your text to appear, and releasing the mouse button where you want the line to end.
4. Repeat steps 2 and 3 for every street you want to label.
5. Erase all the Street Spotter labels by right clicking on the Street Spotter hot button.

Editing Street Spotter Text Displays

Select **Setup > Street Spotter** to open the Street Spotter menu, which lets you adjust the appearance of Street Spotter text.

- ❑ The options in the upper-left area control text color. These buttons have no effect if you select the Anti-Alias option; in that case, you must select the color using the **Setup > Fonts > Street Spotter** command.
- ❑ **Anti-aliased fonts** eliminate the blocky appearance of computer fonts.
- ❑ **Dynamic sizing** changes the size of Street Spotter text proportionally to the view's range when you zoom. This option works for both anti-aliased and non-anti-aliased fonts.



If you do not select Dynamic Sizing, you must select the font size to use. For anti-aliased text, you must use the **Setup > Fonts > Street Spotter** command to change the font size. For non-anti-aliased text, you can change the text size by clicking the up and down arrows just below the Dynamic Sizing checkbox, and view the result in the adjacent sample text viewer.

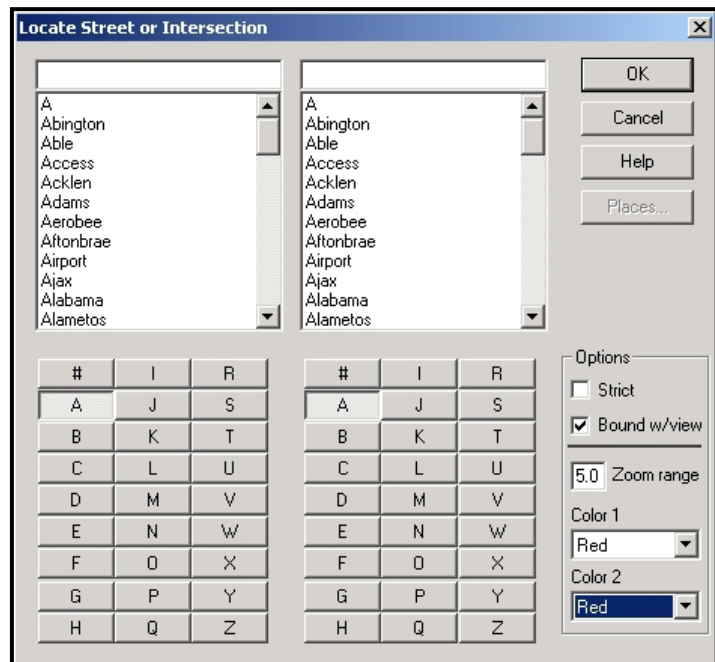
- ❑ **Text to display** lets you enter a message to display instead of a street name. If you select a street, its name will appear in this textbox when you open the Street Spotter menu.

- ❑ **Undo last** removes the most recently placed Street Spotter text. You can use this option as many times as there are blocks of text, even if you change the view after placing text.
- ❑ **Clear all** removes all Street Spotter text from the view.
- ❑ **Find** opens the **Locate Street or Intersection** menu, as explained in the next section.
- ❑ **OK** saves changes and closes the menu.
- ❑ **Cancel** closes the menu without saving changes.

Locating Streets or Intersections

The Locate Street or Intersection menu helps you find a street or intersection that appears in your database.

1. Set up your view to include the streets or intersections that you wish to find.
2. Select **Setup > Street Spotter** to open the Street Spotter menu.
3. Click **Find** to open the Locate Street or Intersection menu.
4. Select **Strict** and/or **Bound w/view** to facilitate finding the desired street(s). **Bound w/view** causes only the streets appearing in the current view to appear in the list. **Strict** causes the extensions of streets (St., Rd., etc.) to appear, making it easier to determine the right street if there are multiple streets with similar names.
5. Enter the zoom range in the **Zoom range** text box.
6. Set **Color 1** and **Color 2** to the desired color for your streets. **Color 1** is used for the street selected from the left box, and **Color 2** is used for the street selected from the right box.
7. From the list of letters below each box, click the first letter of the name of both streets (or the same letter for both boxes if you are looking for a single street) to list all the streets that begin with that letter.
8. If you are looking for an intersection, select one of the intersecting streets from the left list box and the other street from the right list box. If you are looking for a single street, select it in both boxes.



- Click **OK** when you have made your selections. After a few seconds, a new view at the specified zoom range will appear, centered either on the intersection or on some point on the street. The streets will be shown in the colors that you selected for them.

3.5.6 Controlling Display of Radar Data

There are several commands located in the **Radar** Main Menu that allow you to control the appearance of live radar data on a view, as well as replay recorded data from past weather patterns.

The **Radar > Radar Levels** command opens the Levels menu, which lets you toggle the real-time radar display levels on and off. For instance, should you decide not to show radar data for the lowest level of intensity, open the Levels menu and click the square labeled "1" to remove the selection.

- Drop specific levels** deletes the selected radar levels from your real-time radar.
- Cut off reflectivity levels below DBZ value specified** displays only levels that are above the specified dBZ value. This option is useful for dropping data from both real-time and NEXRAD radars. It also automatically removes the *dropped* colors from the on-screen legend.

The **Radar > NEXRAD Levels** command works similarly to the **Radar > Radar Levels** command except that the command controls the display levels of your NEXRAD products and is product-specific.

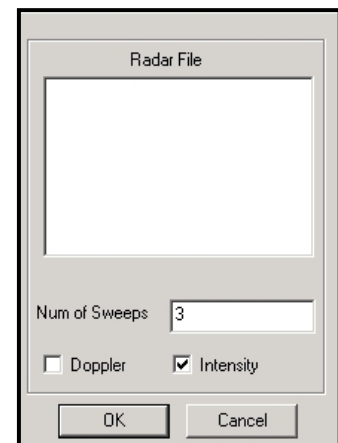
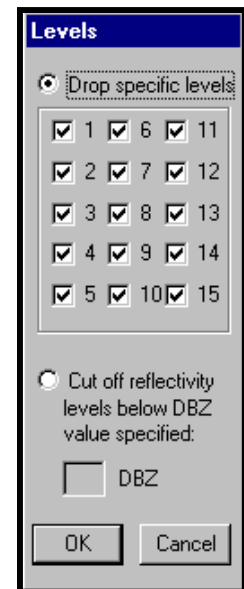
The **Radar > Log to File** command records real-time radar data to a log file in the *C:\fastrac\Logs\Radar* directory. The file then can be used to display for use in time-lapse sequences. The radar log files are purged every 24 hours. By default, this command is selected.

The **Radar > Play File** and **Radar > NEXRAD File** commands allow you to display stored real-time radar and NEXRAD radar data, respectively. These commands are mostly used for troubleshooting. For real-time data, the system will also ask you to specify the number of radar sweeps to display, as well as whether to show wind velocity and intensity data, if applicable.

3.5.7 Utilizing TeleTrac

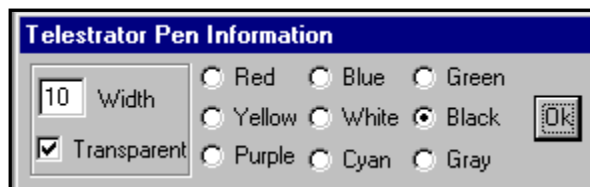
The TeleTrac feature lets you draw freehand lines on your view with a graphics tablet and pen. These lines are used mostly to emphasize data currently on the screen.

To begin drawing TeleTrac lines, left click the **TeleTrac** hot button. The cursor will change to a marker-like icon and the Cursor Status Menu will indicate with which color you are drawing. To draw a line, left click on the view where you wish to start the line,



hold down the button on the pen, and drag the cursor to where you want the line to end. To change line colors quickly, click the right mouse button. The colors appear in the order: red, blue, green, yellow, white, black, purple, cyan, and gray.

You can change additional settings with the **Telestrator Pen Information** menu, which you can open by right clicking on the **TeleTrac** hot button. You can change the **Width** of the Telestrator lines to any value from 0 to 99. If you select the **Transparent** option, the Telestrator lines you draw will change appearance so that you can see the map graphics under the line. The last option in this menu is to select the line color. The currently selected color has a dot in the center of its circle. To change colors, click on another color.

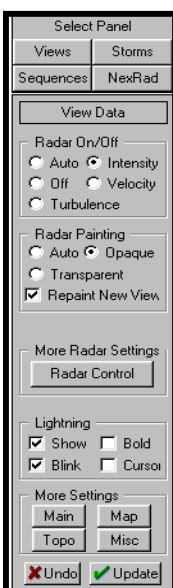



To remove Telestrator lines from the screen, click either the  **Map Pointer** or



Zoom hot button.

3.5.8 Displaying Lightning Strikes on a View



Select the **Lightning** hot button to display a lapse of the lightning strikes that have occurred over the past hour. Right-click on the button to deactivate lightning. You may also turn off lightning through the **View Main** panel, by deselecting the **Lightning** and **Blink** options under the **Quick Settings** area. 

Both Lightning displays and Lightning time-lapses can be inserted as events into a Sequence (see Chapter 5, *Using SEQUENCER*, for more information).

Editing Lightning Displays

In the **View Data** panel, you can select from several options.

- Show** turns on the lightning display.
- Blink** causes lightning strikes to flash.
- Bold** doubles the thickness of the displayed strikes.
- Cursor** causes the latest lightning bolt to appear as a larger icon, which continually jumps to the newest lightning strike.

Specifying Lightning Colors

There are six colors in the **Setup > Colors** menu associated with Lightning: **Lightning Positive (Hot, Warm and Cold)**, and **Lightning Negative (Hot, Warm, and Cold)**.

- ❑ **Positive** refers to the cloud-to-ground movement of lightning.
- ❑ **Negative** refers to the ground-to-cloud movement of lightning.
- ❑ **Hot** refers to a strike that occurred less than five minutes previously. *
- ❑ **Warm** indicates a strike that hit between five and ten minutes previously. *
- ❑ **Cold** refers to a strike that occurred between ten and fifteen minutes previously. *

*The fade times for these attributes are user-definable in the omninet.ini file.

See section 2.7, *Adjusting the Color Palette*, for instructions on editing these colors.

3.5.9 Displaying Storm Spotter® Van data

The Storm Spotter Van feature lets you track the position of, and receive data from, a Baron Storm Spotter vehicle. The connection between the Storm Spotter Van and FasTrac is made possible by a cellular telephone that is linked to FasTrac and is available in the van.

Configuring the Van Marquee



Right-click on the **Storm Spotter Van** hot button or select **Tools-3 > Vehicle Info** to open the Van Settings menu.

- **Caption** contains the words that appear at the top of the Van Marquee.
- **Show** displays the associated attribute on the marquee.
- **Lock** secures the associated parameter as the stated value. The value will not change when new data is available.
- **Latitude** and **Longitude** define the location of the van icon. Select **Lock** to keep the icon's location at the specified coordinates.

Displaying the Van Icon and Marquee

Left-click on the **Storm Spotter Van** hot button to open the Vehicle Quick Settings menu. To remove either the icon or marquee, uncheck the associated option.

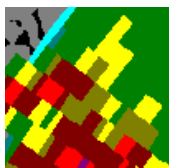


Sometimes the Storm Spotter Van icon will not appear even when if Show van icon is selected. If this occurs, try locking the latitude and longitude on the Van Settings menu.

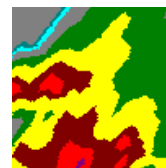
3.5.10 Toggling High-Definition Data Processing

The High Definition Data Processing (HDDP) feature creates clearer NEXRAD displays than those available with the normal pixilated display. The HDDP display is generated in real time without loss of accuracy as shown in the following comparison:

Normal, Pixilated Display



HDDP Display



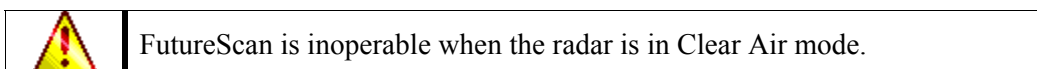
To enable high-definition processing, select **Radar > High Definition**. A check mark next to **High Definition** option means that the HDDP feature is active.

To enable dithering of high definition radar colors, select **Radar > Dither**. A check mark next to **Dither** means that the Dither feature is active.

It is best to have HDDP enabled at all times. Disable it only if you wish to look at unprocessed radar data.

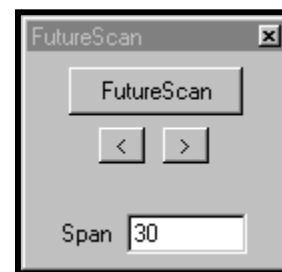
3.5.11 Displaying NEXRAD forecast data

The optional FutureScan® module forecasts and displays up to thirty minutes of projected NEXRAD radar data. Although very complicated processes and calculations are involved in producing a forecast, it is all done for you. All you must do is select a compatible site and product and then use the FutureScan menu to create your forecast.



Using FutureScan

1. Open the **NEXRAD Main** panel.
2. Select a site to display.
3. Select **Max Reflectivity**.
4. Select **Tools-2 > FutureScan** to open the FutureScan menu.
5. Specify the **Span** number. FutureScan creates one frame for each 5-minute span into the future. **Span** should be a multiple of 5 and not exceed 30.



Click the **FutureScan** button, and frames will appear on the screen. Use the forward (>) button to scroll forward through the sequence, and the back (<) button to scroll backward.

3.5.12 Displaying Neighborhood Weather Net® Sensor Data

You can use the Neighborhood Weather Net (NWN) interface to show NWN sensor data on your maps. NWN provides non-storm related data, such as temperature, humidity, wind speed, wind direction, and barometric pressure.

Setting Up Locations to Receive Data

1. Select **Setup > Data > Advanced > NWN Interface** to open the NWN Locations menu. All of the values in the upper section (except for **User Defined Text**) are updated automatically if you have a NWN system. Otherwise, you must change them manually.

- ❑ The **Pull-down list** contains all of the locations you have already set up. Select **Delete Place** to remove the displayed location from the list. Select **Add Place** to add a new location.
- ❑ **Temperature** displays the latest recorded temperature, in degrees Fahrenheit.
- ❑ **Wind** displays the wind direction and force, in miles per hour.
- ❑ **Pressure** displays the amount of barometric pressure, measured in millibars.
- ❑ **Humidity**, which is measured in percentages, displays the amount of moisture that the air contains compared to how much it could hold at a given temperature. A figure of 100% means that the air has become saturated.
- ❑ **Daily Rainfall** displays the amount of rainfall within the last 24 hours. The daily rainfall sensor is zeroed every day at midnight.
- ❑ **Solar Radiation** displays the total electromagnetic radiation emitted by the sun.
- ❑ **User Defined Text** is the user-specified text that appears at the specified latitude and longitude coordinates.
- ❑ **Sensor ID** must correspond to the number used in the NWN program.
- ❑ **Show Level** indicates the maximum range at which the sensor data appears on the map.
- ❑ **Latitude** and **Longitude** specify where the text will appear. It will always appear at these coordinates regardless of where you go on your maps.
- ❑ **Add Place** lets you create a new location.
- ❑ **Delete Place** removes the currently displayed location.

- When you have completed editing locations, click **Done**.
- Select **Setup > Fonts > Temp Text** to specify the font size, type, and color.

Setting Data Thresholds


You can set the minimum and maximum values that will display for an NWN data item with the **Sensor Thresholds** menu. Open this menu by selecting the **Setup > Data > Advanced > NWN Thresholds** command.

There are two additional data types for which you can set thresholds. Both are derived from other data:

- Temperature** and **Humidity** are used to calculate the **Heat Index**.
- Wind Chill** is calculated from an equation involving **Temperature** and **Wind Speed**.

Displaying Sensor Data

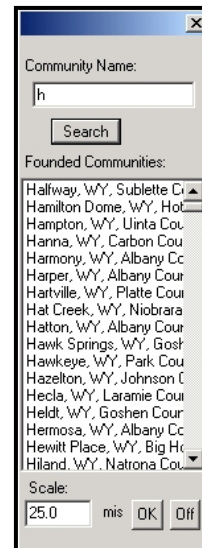
Now that your places are set up, you must either use another menu or SEQUENCER to display the data. Set the map view within the range of the location that you specified in the previous section.

- Click on the **Sensor Data**  hot button to open the **Sensor Data** menu.
- In the **Mode** area, you can select the current day's lowest or highest value. If you are manually inputting values, you can only show the current value.
- Select the desired data type **Text type** area.
- You may specify the **Y Pixel Offset** to indicate the location of the data. The data will appear the specified number of pixels below the selected geographic coordinates. This lets you prevent conflicts with places shown on the map at certain ranges.
- Select **Update** to display the appropriate data at the latitude and longitude you specified in the NWN Locations menu. You must be within the cutoff range to see the data.

3.5.13 Zooming to a Specific City

The **Find City** feature allows you to automatically zoom to any city in your database at a selected range.

1. Select **Tools-1 > Find City** to open the **Find City** menu.
2. In the text box labeled **Community Name**, type in the name of the community you wish to focus on.
3. Click **Search**, and the system will display a list of all of the communities that start with the letters you typed (capitalization is ignored for this process).
4. Select the desired community by clicking on it.
5. In the text box labeled **Scale**, enter the range, in miles, at which you wish to view the selected city.
6. Click **OK** to zoom to the selected city.



Note that the menu remains on the screen, so that you may select another city to focus on using the same process. If you do not wish to find any more cities, click **Off** to remove the menu.

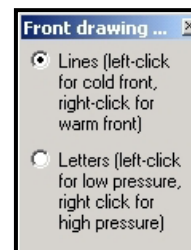
3.5.14 Adding Fronts and Pressure Markers

Using the **Fronts** Hot Button, you can add graphics that represent fronts and pressure markers to a view.



To begin drawing cold and warm fronts, left-click on the **Fronts** Hot Button. You may then draw cold fronts by clicking and dragging with the left mouse button, and draw warm fronts by clicking and dragging with the right mouse button. Clicking and dragging in a clockwise direction will cause the front “arrows” to appear on the outside of the curve. Clicking and dragging in a counterclockwise direction causes the front arrows to appear on the inside of the curve.

To begin adding low and high-pressure markers, right click on the **Fronts** Hot Button. The **Front Drawing** menu will appear, which allows you to choose between adding fronts and adding pressure markers. Click the **Letters** circle to select pressure markers, then left-click to add low-pressure markers and right-click to add high-pressure markers.



Overlays labeled “HighPressureSystem” and “LowPressureSystem” must be present in your system for pressure markers to appear.

To remove front and pressure markers from the screen, right-click on the Temporary Text hot button.

3.5.15 Creating Temporary Pixel Query Points

Using the Map Pointer hot button, you can create text messages that indicate the severity of various types of radar data such as reflectivity. These messages are known as *pixel query points*.

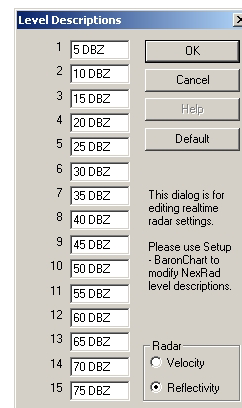
To begin the process of adding pixel query points, right-click on the Map Pointer hot button to enter pixel query mode. You will notice that when you move the cursor over radar data while in this mode, the text associated with the level of severity of the data appears in the Cursor Status Area.



To add a pixel query point, left-click on the view at the desired spot. A text message will appear indicating the weather type (for example, “5 dBZ” for reflectivity). You can remove pixel query points by refreshing or adjusting your view.

You can change the appearance of pixel query point text with the **Setup > Fonts > Pixel Query Mode** command.

To change the text used for pixel query point messages based on real-time data, open the **Level Descriptions** menu using the **Setup > Data > Descriptions** command and edit the textboxes corresponding to reflectivity or wind velocity. To edit the pixel query text for NEXRAD data types, use the Advanced Baron Chart (see section 6.3.3).



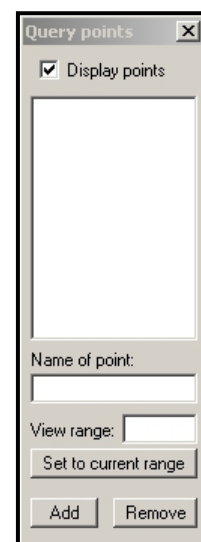
3.5.16 Creating Fixed Pixel Query Points

An added feature of FasTrac Millennium is the ability to create pixel query points that will remain where you set them regardless of how your view changes. Use the following procedure to add these points:



You must have radar data present on your view to add pixel query points.

1. Select the **Setup > Map > Pixel Query Points** command to open the **Query Points** menu.
2. Click the **Add** button to set your cursor for adding pixel query points.
3. In the text box labeled **Name of point**, enter a name for the point you wish to place.
4. Enter the maximum range at which you want the point to appear in the **View range** text box, or click the button labeled **Set to current range** to automatically enter the current view range.
5. Click on the desired spot on your view to add the point.
6. Repeat steps 3 through 5 to add more points.



You will notice that you can pan and zoom around your view without removing the pixel query points, as long as they are within the view range.

To temporarily hide your fixed pixel query points, uncheck the box at the top of the **Query Points** menu labeled **Display points**.

To permanently remove a fixed pixel query point, select it from the list in the **Query Points** menu and click **Remove**.

3.5.17 Displaying Precipitation Type Maps

Select **Tools-2 > Precip Type Map** to open the **Precip Type** panel, which allows you to download a 461 x 461 pixel (kilometer) map from Baron Services' Snow Machine server. You can then modify the grid, which is overlaid on the current view, to reflect the current situation in your area.

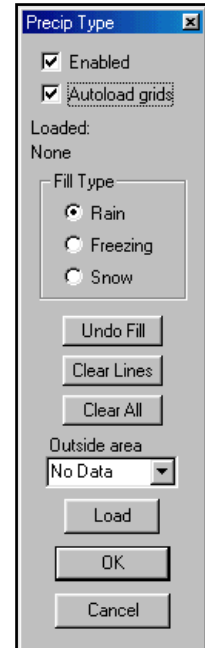
- ❑ **Enabled** forces a new grid to be downloaded each time one is created.



You must have both **Enabled** and **Autoload grids** selected to automatically download grids from Baron Services.

- ❑ **Autoload grids** downloads a new grid from the Snow Machine server every time a new one is created. The only reason to not select this option is when you want to keep the manual map for display purposes.
- ❑ **Fill Type** lets you create a **Rain**, **Freezing**, or **Snow** area. When you select this option, the mouse cursor turns into a pencil and you can then define the weather line by clicking and dragging.
- ❑ **Undo Fill** clears the last area that was manually filled.
- ❑ **Clear Lines** erases all the lines you have drawn.
- ❑ **Clear All** erases everything off the screen and returns to the display shown before you downloaded the grid.
- ❑ **Outside Area** changes the area outside of the grid to rain, freezing, or snow.
- ❑ **Load** allows you to manually load a previously downloaded grid file.

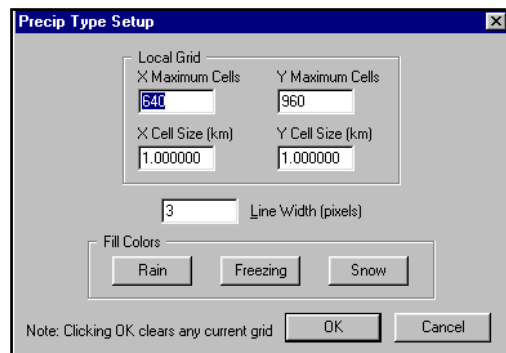
To clear the Precip Map from your viewing area and close the Precip Type menu, click **OK**.



Setting Up the Precip Type Background

While your precipitation type map is set up for you upon delivery, you may have to adjust it during troubleshooting procedures. To open the **Precip Type Setup** menu, select **Setup > Data > Precip Type Map**. The only items you should change are the **Line Width** and **Fill Colors** settings.

The **Line Width** text box lets you set the width (in pixels) of the boundary lines you draw between precipitation types.

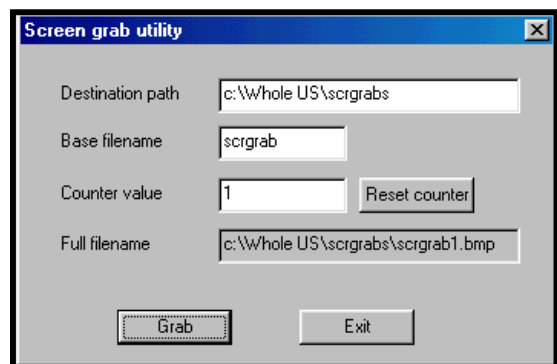


The **Fill Colors** commands open the Edit Color menu, which lets you set the fill colors for rain, freezing rain, and snow. Click **OK** to save the color setting and to return to the Precip Type Setup menu. Upon completion, click **OK** to save your changes and to close the Precip Type Setup menu.

3.5.18 Saving the Current View as a Bitmap

A fast way to save the current view along with its weather and other data as a bitmap is to use the **Screen Grab Utility**. The process for saving a bitmap in this manner is as follows:

1. Select **Tools-2 > Screen Grab Utility** to open the Screen Grab Utility menu.
2. Specify the filename path in which the screen grab will reside in the **Destination path** textbox.
3. Choose a filename for the bitmap in the **Base filename** textbox.
4. Verify that the **Counter Value** textbox contains a 1 if you are using a new filename for these bitmaps, or that it is at the desired number if you are using the same filename as you previously have used. The **Full Filename** box should now list the path you want for the bitmap.
5. Click **Grab** to save the bitmap. The counter value will increment by one.



Exit closes the screen grab utility.

3.5.19 Printing the Current View

To quickly print out the currently displayed view, select the **File > Print** command. The view will print to the designated printer for your FasTrac Millennium computer, and a message will appear indicating a successful print operation.

3.5.20 Highlighting Your Spotter Network On-Air

The SpotterNet feature, which Millennium users can access through the SpotterNet hot button, gives you the opportunity to show the positions of your storm spotters in the field to your viewers.



Setting Up Your SpotterNet Database

1. Right-click the SpotterNet hot button to open the **SpotterNet Database** menu.
2. The existing list of spotters appears in the pull-down list at the top of the menu. To add a new spotter, click **Add Spotter**.
3. Type in identification data for the spotter in the **Name**, **Location**, **Phone Number**, and **Comment** textboxes.
4. Enter the maximum range at which the spotter icon should appear in the **Show range (miles)** textbox.
5. Enter the geographic coordinates at which you want the icon to appear in the **Latitude** and **Longitude** textboxes, or click on the desired spot on the view with the map pointer and then click the **Lat/Lon Map Edit** button to automatically set coordinates.
6. Click **Show on Map** to set the spotter's icon to appear when your view is in range and SpotterNet is toggled on.

Checking **Trained Spotter** causes the system to identify the spotter as trained when you click on his or her icon.

Blink me makes the spotter's icon appear to blink on the view, making it easier to identify.

The **Delete Spotter** button lets you remove the spotter whose data currently appears on the menu.

Using SpotterNet On-Air

Once your SpotterNet database is set up, using it during a broadcast is a matter of left-clicking on the SpotterNet hot button to toggle on the icons you want to display. You can then indicate one of the icons near the weather pattern while mentioning to your viewers that you are receiving a live report from the spotter at that location. You can also left-click on the icon to open a small menu providing some of the data you entered about the spotter, to facilitate correct identification.

3.5.21 Displaying National Weather Service Warnings

Using the **Weather Wire Data** hot button, you can control the display of National Weather Service warnings for counties in your viewing area.



Left clicking the button opens the **Warnings Display** panel, which shows the current alerts that are in effect, which counties are involved and when the alerts expire.

- ❑ To view the full text of a warning, click on a line of the warning in the **Warnings Display** text box and click **View Msg**.
- ❑ To close the **Warnings Display** menu, click **Hide**.

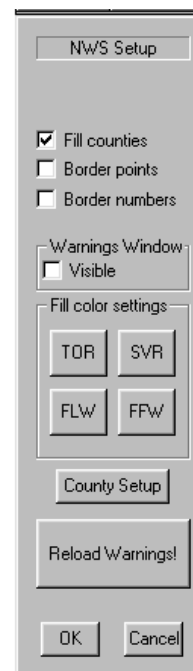
Right clicking the button opens the **NWS Setup** menu, which allows you to toggle settings for display of NWS warnings.

- ❑ **Fill counties** toggles whether counties that are under a warning are filled with the appropriate color.



The fill color will replace your topo image.


- ❑ **Border points** toggles the display of points indicating the boundary lines for a county. **This feature is intended for troubleshooting and should not be used on-air.**
- ❑ **Border numbers** toggles the display of numbers indicating the boundary lines for a county. **This feature is intended for troubleshooting and should not be used on-air.**
- ❑ The **Fill Color Settings** allow you to set the colors for Tornado (TOR), Severe Thunderstorm (SVR), Flood (FLW), and Flash Flood (FFW) warnings. See section 2.6 for information on adjusting colors.
- ❑ **County Setup** is an advanced feature used for testing purposes. **You should not use this feature without the assistance of a Baron Services representative.**
- ❑ **Reload Warnings** lets you reload warnings that the system parsed during the previous FasTrac session, in the event that you are forced to close and restart FasTrac.



To save your changes and close the menu, click **OK**. To exit without saving changes, click **Cancel**.

3.5.22 Displaying Wind Speed and Direction

The Wind Display feature allows you to quickly show the speed and direction of winds at various elevations over your broadcast area. The Rapid Update Cycle Model (RUC) provides wind data. The RUC is an operational atmospheric prediction system comprising primarily of a numerical forecast model and an analysis system to initialize that model. It serves users needing short-range weather forecasts, including those in the U.S. aviation community.


	Wind data will appear over any other data that you display and remains on screen until you uncheck the Active button, even if you close the menu. Therefore, always remember to uncheck Active before exiting the menu.
---	---

To begin using this feature, select **Tools-3 > Wind display** to open the **Wind display** menu.

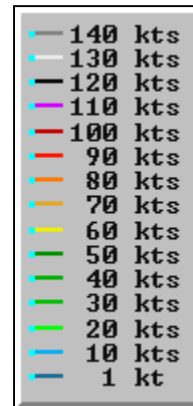
- **Active** toggles the display of wind data. Wind markers such as the one on the right appear, showing wind speed in the area they appear over, at the height selected. A triangle indicates 50 knots, a long line indicates 10 knots, and a short line indicates 5 knots. Adding up all of the lines on a marker gives the wind speed. (The marker in the example indicates 65 knots total.)



- **Show legend** toggles a legend depicting colors for different levels of wind speed. This legend is used in conjunction with the **Streamlines** option, which is described below.

	<i>You can change the colors for the legend with the Advanced Baron Chart (see section 6.3.3).</i>
---	--

- The **Thin lines** option, when checked, removes the black line from around the wind markers (or streamlines if they are activated). This makes the data update faster, but can make the markers harder to see.



Wind display

Active

Show legend

Thin lines

Streamlines

Rows

Columns

Step (knots)

Height

- 42,000 ft
- 36,000 ft
- 30,000 ft
- 24,000 ft
- 18,000 ft
- 12,000 ft
- 6,000 ft
- Surface

- **Streamlines** changes the display to show the direction of the winds as well as their speed. As shown in the example on the right, the arrows indicate the direction in which wind is traveling along the lines. The wind speed is indicated by the variations in color along the lines, with the color values appearing in the legend.
- **Rows** and **Columns** affect the number of wind markers and streamlines that appear on the screen. For example, if your Rows and Columns boxes both have 10 entered, there will be 10 rows and 10 columns of wind markers. Similarly, if Streamlines is activated with 10 entered for both Rows and Columns, there will be 100 total streamlines on the screen (10x10).



- **Step (knots)** changes the number by which the levels of wind speed increment when you are in streamlines mode. For example, if you have 10 entered in the Step box, the legend will change to increments of 10 knots each, up to 140 knots. Entering 12 will produce increments of 12 and a maximum of 168 knots.
- The **Height** area contains a slider bar that allows you to change the height at which winds are being measured. The range is from winds along the surface to a maximum of 42,000 feet, in increments of 3,000 feet. Sliding the bar up or down will cause the system to automatically display the winds for the new height.



*The **Surface** level in the Height bar measures wind speed along the land or water surface regardless of height above sea level; therefore, data will always be present. However, with the other heights data will not appear if the land surface is higher in elevation than the height selected.*

Close closes the Wind Display menu, allowing you to use other menus while viewing wind data.

3.6 *Points to Remember*

- ❑ The panels shown on the left side of the display can be used to change commands that were specified by the **Setup** commands. Changing parameters through these panels is often a faster and more efficient way to control your display.
- ❑ Use the **Radius** setting on the **Main View** panel to specify your map range.
- ❑ Use the **View Map Features** panel to control map features, such as roads and rivers.
- ❑ Use the **View Topo** panel to display a topographical background.
- ❑ Use the hot buttons to zoom in, zoom out, and re-center your map.
- ❑ Remember to save your views for later recall.

4. *Managing Storm Tracks*

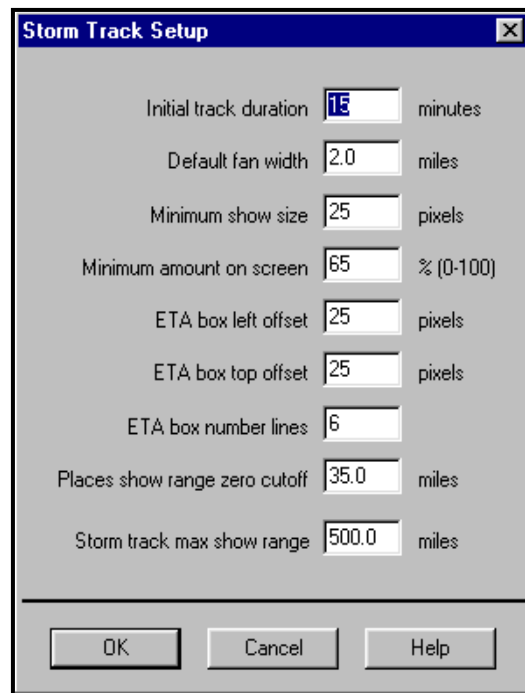
We designed the new series of FasTrac, as its name implies, to provide you with the fastest, most detailed tracking of storms. You will find storm tracking an easy, instantaneous process with some truly inventive features. This chapter describes the processes for designing your storm presentations, such as:

- ❑ Setting Defaults for Storm Tracks
- ❑ Creating Storm Tracks
- ❑ Editing Storm Tracks
- ❑ Editing the Storm Marquee
- ❑ Using PasTrac™
- ❑ Using StormScan®

4.1 Setting Defaults for Storm Tracks

The **Setup > Storm > Storm Track** command, which opens the Storm Track Setup menu, lets you establish default settings for storm tracking. In essence, you determine the original settings (defaults) for each storm track and then individually adjust parameters to meet your needs.

- ❑ **INITIAL TRACK DURATION** specifies the length, in minutes, of the tracking period. When you create your storm track, this number specifies the *amount of time* in which the storm will travel the *distance* of the red line you create. For example, if you create a 15-mile storm track with **Initial Track Duration** of 15 minutes, the computer will calculate a speed of 60 miles per hour. If you change your **Initial Track Duration** to 60 minutes, the speed then will be 15 miles per hour.
- ❑ **DEFAULT FAN WIDTH** refers to the width of the base of a fan-projection of a storm track. You can either set the default fan width value on the Storm Track Setup menu or enter a specific **Width** value on the **Storm Track** panel. Typically, the **Default Fan Width** value is between 2 and 5 miles.
- ❑ **MINIMUM SHOW SIZE** specifies, in pixels, the minimum size of the storm track. Use this variable to prevent storm tracks from appearing in long-range maps (e.g., a 150-mile map). **Minimum Show Size** specifies how large the track graphic should be before the storm track can be seen. This prevents storm tracks intended for close ranges from cluttering up long-range map displays. Thus, you can use long-range maps to show your audience where the storm is located. You can then zoom in to show a small storm track at close range.
- ❑ **MINIMUM AMOUNT ON SCREEN** specifies the smallest amount of the storm projection that appears on the map display. This lets you prevent a small portion of a large storm track from appearing on your map display. When only part of the storm-track area (the area defined by the yellow storm track box) is on screen, it can be confusing. Just as **Minimum Show Size** prevents small storm tracks from cluttering long-range maps, **Minimum Amount on Screen** prevents pieces of long-range storm tracks from appearing on close-range maps. The usual setting for **Minimum Amount on Screen** is 65. When **Minimum Amount on Screen** is set to 65, you must display 65% of the storm track area for the storm track to appear. Displaying anything less makes the storm track disappear until you select an appropriate range and center for your map display.
- ❑ **ETA BOX LEFT OFFSET** defines the number of pixels from the left of the screen at which the Storm Track ETA Box will appear. You may then drag-and-drop the Storm Track ETA box anywhere on the screen.
- ❑ **ETA BOX TOP OFFSET** defines the number of pixels from the top of the screen at which the Storm Track ETA Box will appear.



- ❑ **ETA BOX NUMBER OF LINES** specifies the size, in lines, of the ETA box graphics. For example, to display eight communities, enter 8.
- ❑ **PLACES SHOW RANGE ZERO CUTOFF** specifies at which range every community appears. For example, if you create a storm projection based on a 60-mile view and have all the communities posted, your projection would be crowded by locations. To alleviate this problem, we have created an option that tells the computer the range at which you want *each* community to show. Typically, that value is between 25 and 75 miles.

At distances greater than specified value, the system will post every community, prioritized at half the map range. For instance, if you set **Places Show Range Zero Cutoff** to 50 and you have a 60-mile radius map and do a storm projection, the system will post all communities with priorities 30 miles or above. Once the radius is within the zero cutoff zone, it will post all communities.

Clients who prioritize their *Places* database usually set a low value (between 25 and 50 miles) for the **Places Show Range Zero Cutoff** variable. The earlier prioritization of cities at different miles means that cities will appear in a storm track displayed above the specified range. Clients who have done relatively little *Places* prioritization should set **Places Show Range Zero Cutoff** to a relatively high value (between 50 and 75 miles). Of course, even after you set this parameter, you should test storm tracks a few times to verify that the desired number of cities appears in the storm track. If not, set the **Places Show Range Zero Cutoff** value higher to display more cities; set the value lower to display fewer cities.

- ❑ **STORM TRACK MAX SHOW RANGE** specifies the maximum range, in miles, at which storm track graphics (the storm track and the Storm ETA box) begin to appear.

4.2 Creating Storm Tracks

The **Storm > Add** command contains options for creating three kinds of storm projections: Fan, Circle, and Squall. The following subsections describe each type of projection.

4.2.1 Creating Fan Projections

Fan projections indicate a fan-shaped area, which depicts storm tracks that are close to the leading edge of the storm.

1. Select **Storm > Add > Fan**, and move your cursor to the location of the storm. You will see a small storm projection icon with a small crosshairs (+) above it. The crosshairs represent the center point.
2. Place the storm project icon the leading edge of the storm you wish to track, and then press and hold down the left mouse button. Note that a red elastic band forms, rooted from the point of your initial click to where your mouse is now.
3. Move the red rubber band in the direction of storm movement, and note that the status bar indicates your azimuth (direction in degrees), speed, and range. The speed is based on the **Initial Track Duration** parameter you set in the Initial Track Setup menu (see section 4.1, *Setting Defaults for Storm Tracks*).

4. When the direction and speed displayed in the status area match the known storm conditions, release the mouse button to display the storm projection. The marquee will appear at the position defined by the **ETA BOX LEFT OFFSET** and **ETA BOX TOP OFFSET** variables on the Storm Track Setup menu (see section 4.1).

4.2.2 Creating Circle Projections

Circle projections show where the cities and communities are in relation to a storm in a circle-shaped area.

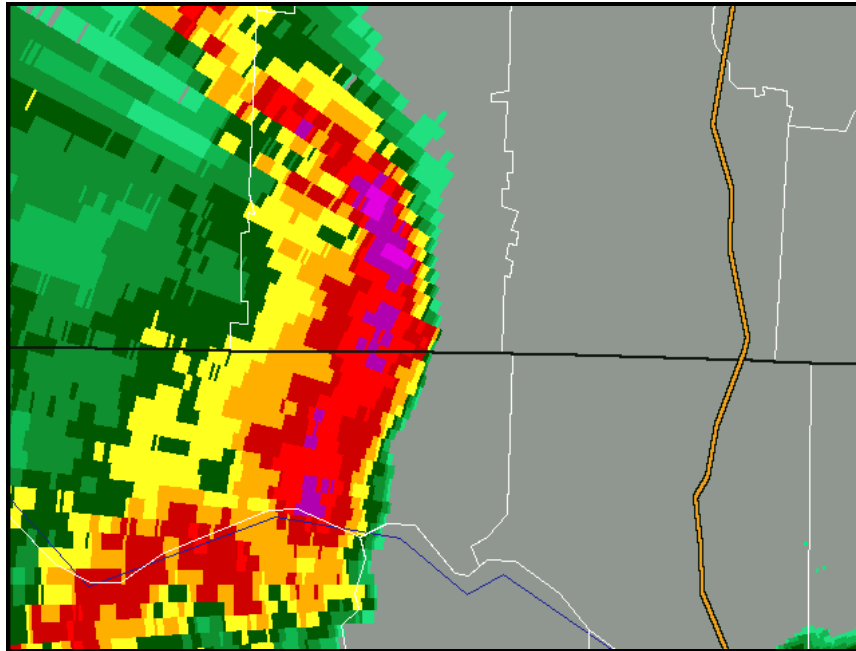
1. Select **Storm > Add > Circle**, and move your cursor to the storm location. Unlike the fan projection, you use the normal default cursor when you define a circle projection
2. Place the tip of this arrow cursor over the storm you wish to track, and then press-and-hold the left mouse button. Note that a red elastic band forms, rooted from the point of your initial left-click to where your mouse is now. Notice that the azimuth, speed, and range that are displayed in the status bar change as you move the red rubber band.
3. Release the left mouse button when range matches the distance from the center of the storm to the edge, or when the red band reaches the edge of the area affected by the storm. Note that the special circle projection marquee indicates the communities that are inside the circle projection, as well as their distance and direction with respect to the storm. This marquee appears at the position defined by the **ETA BOX LEFT OFFSET** and **ETA BOX TOP OFFSET** variables on the Storm Track Setup menu (see section 4.1).

Storm 1	
1	-ENE, Trinity
3	-NNW, Sherwood Estates
3	-SSE, Riverview
3	-WNW, Moulton Heights
3	-NW, Griffin Addition
4	-W, West Decatur

4.2.3 Creating Squall Projections

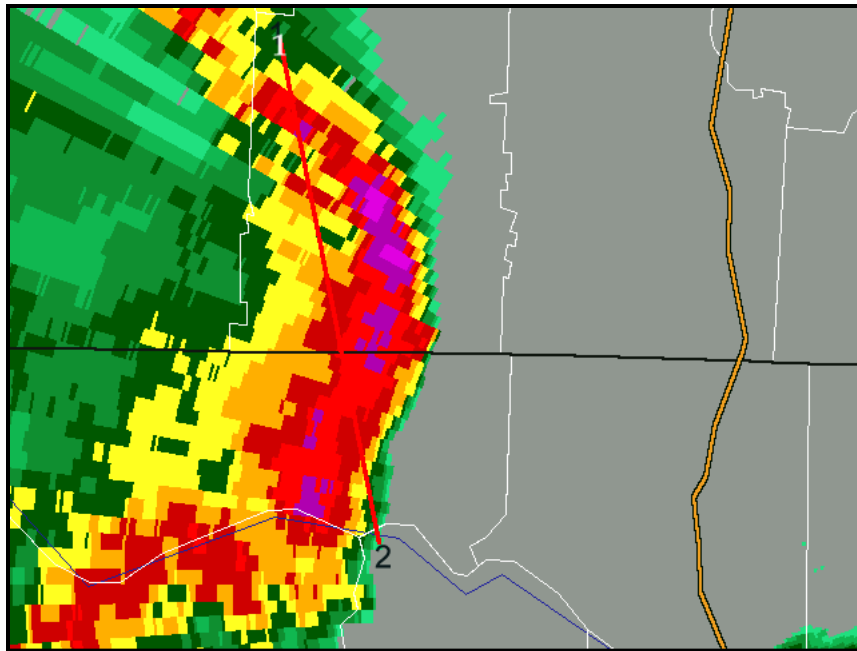
Squall projections track the progress of a line of storms.

1. Zoom in on the storm that is to be tracked, as shown in the following example:

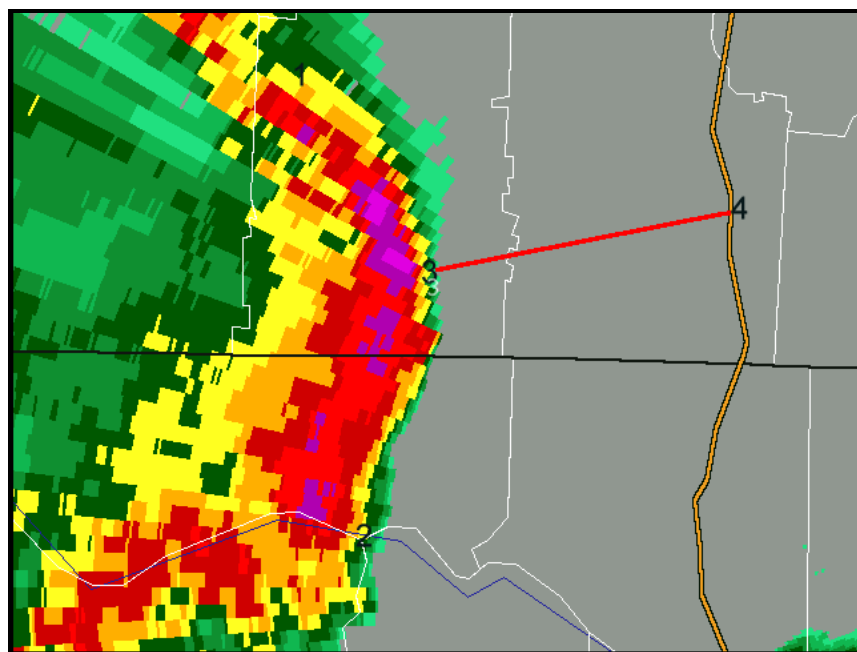


2. Select **Storm > Add > Squall** from the Storm menu to add the squall projection.

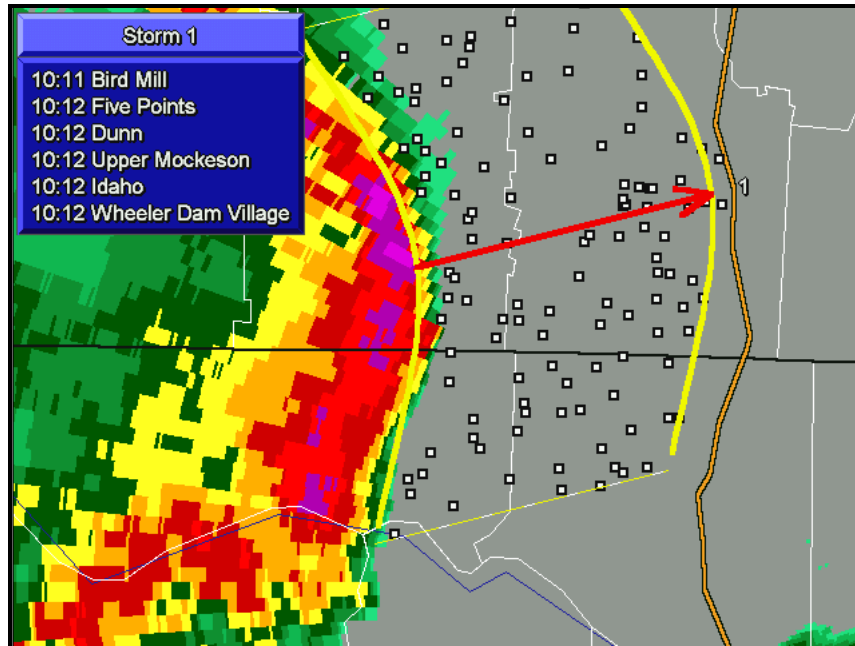
- Click and drag your mouse to define the height of the storm and the two points that define the northernmost and southernmost edges of the storm. If the storm is moving north or south, define the width of the storm and the easternmost and westernmost points. In both cases, you will define a line that is perpendicular to the storm's movement (shown in the following figure as line 1-2).



- Click and drag the mouse to define the leading edge of the storm, the squall amount, the speed, and the direction. The four points (including the two points defined in step 3 and the two points defined in this step (Line 3-4) are used to calculate the squall.



- Release the mouse to display the squall projection, as shown in the following example. If the projection is smaller than your default criteria for posting, you will see nothing, but the parameters will display in the track area box. If you choose a closer view and the storm projection is within it, the projection will be posted.



4.2.4 Deleting Storm Tracks

To remove the currently selected storm track, select **Storm > Delete**. To remove all existing storm tracks, select **Storm > Delete All**.

4.3 Editing Storm Tracks

Once you create a storm track, you can edit the storm track and the places that appear in the storm marquee box. You can do this with the **Storm Track** panel as described below, or with the **Storm Track Places** panel (described in section 4.4).

Modifying Storm Tracks

Select the **Storms** option in the upper part of the panel to display the **Storm Track** panel.

- ❑ **Storm Name** identifies the current storm track (in this example, it is Storm 1). Select a storm from the pull-down list. You can key in another storm name (for example, *Athens Storm 1* or *Possible Tornado*). In either case, click **Update** at the bottom of the window. You should retain the number identification in the heading and on the storm projection itself in case you post more than one projection.
- ❑ **Type** identifies the type of the current storm projection.

Storm Track	
Storm Name	Storm 1
Type	Fan
<input checked="" type="checkbox"/> Enable	Start Time 04:53 P
Id	1 AutoTrac
Track Area	
Width	2.0 mi
Direction	35.4 deg
Fanout	10.0 deg
Speed	14.8 mph
Duration	30.0 min
Length	7.4 mi
More Settings	
Places	Trac Edit
<input checked="" type="checkbox"/> Undo	<input checked="" type="checkbox"/> Update

- ❑ **Enable** displays the current storm projection. It is possible, and in many cases preferable, to create a storm projection but not display it. In this manner, you can track a storm that has severe weather potential. Regardless, by deselecting **Enable**, you maintain the storm track in memory without actually posting it.
- ❑ **Start Time** refers to the time you made the storm projection. Make sure the computer time is accurate. To change the time, go to the Windows desktop. Select **Start ⇒ Settings ⇒ Control Panel** to open the Control Panel menu. Double-click on the **Date/Time** option to open the Date/Time Properties menu, and make your changes.
- ❑ **ID** refers to the storm reference number noted at the time you made the projection. You may delete earlier projections at times. For example, if the current storm track is the third projection you have made, **ID** will be 3. The ID number resets when you use the **Storm > Delete All** command.
- ❑ **AutoTrac™** invokes the AutoTrac function, which creates a new projection based on your real-time radar or NEXRAD data. Wait at least five minutes after tracking a storm before selecting **AutoTrac**. This gives the system enough time to make accurate updates. Select **AutoTrac**, and click on the storm's leading edge. The system computes the storm's direction and speed since the last update and plots a new projection. AutoTrac is more accurate at closer viewing ranges because fewer pixels represent each mile on the screen. See Section 4.5, *Using PasTrac*, for more information. (PasTrac lets you track a storm's progress by comparing older radar data to the storm's current position.)
- ❑ **Track Area** parameters describe the storm. You can change any one or more of these parameters and click **Update** to renew the storm track display. Some parameters are not applicable to all storm track types. You can also click on **Trac Edit**, and then click on the new storm's leading edge to update to the new storm track.



Trac Edit maintains the same direction and speed. This helps when you are tracking multiple storms associated with a storm front. Instead of dragging for direction and speed for each storm, click **Trac Edit** and you can move from storm to storm, all the way down a line of storms. This lets you focus on each storm and clearly identify which communities will be affected by that storm instead of displaying multiple storm tracks on the same screen.

4.4 Editing the Storm Marquee

While the **Storm Track** panel is displayed, select the **Places** button to display the **Storm Track Places** panel.

- ❑ **Place Box Visible** lets you keep a storm projection but not post the storm marquee. Deselect **Place Box Visible**, and then click **Update** to hide the marquee.
- ❑ **Max # of Lines** lets you change the number of communities listed in the Storm ETA box, overriding the default number of lines defined by the **ETA Box Number Lines** variable in your **Storm Track Setup** menu. This allows you to quickly change the Storm ETA box.
- ❑ **Show Range** lets you change the priority setting for communities posted. For example, a **Show Range** of 0 will show all communities and a value of 15 will show all communities normally displayed at a 15-mile range. You must click on **Update** to effect the change.
- ❑ **Place List** shows all communities at risk according to the given storm projection. Note that all the items in the list include the time and name. Communities that have a hyphen (-) in front of them means they are not listed (for example, the **-Cavalry Hill** listing in our example Storm Track Places illustration). Surrounding parentheses means that the item is hidden, such as **-(Chelsea)**.

4.4.1 Selecting Communities for Your Storm Track ETA Box

The **First** and **Hide** buttons on the **Storm Track Places** panel control how communities appear on the Storm Marquee.

Use the **First** button to assign a community to the first place in a track. In this example, assume that a storm has passed the first three communities in your storm track. Go to the fourth; then click **First**. Note that the communities instantly update. Repeat the procedure with any other community to have it be the first displayed. The communities that are located before the one you select as the first automatically assume a hyphen (-) sign to show that they no longer appear.

Use the **Hide** button to temporarily remove a community from the marquee. Select the community, and click **Hide**. A set of parentheses appears around the community. Repeat the procedure to hide other communities. To return a community to the display, highlight the hidden community and click **Hide**. The system automatically hides places that have ETAs that are older than the current system time.

4.4.2 Moving the Storm Track Marquee

If you would like to change the position of the storm track marquee, click on the **Marquee** option under the **More Settings** area on the **Storm Track Places** panel. Move your cursor to the map. You will see a miniature marquee on the screen. Click at whatever point you would like the upper-left corner of the marquee to be displayed. The marquee will move to its new location,

staying there through any map change until you move it again or delete it. You can also move the storm track marquee around by clicking on it, holding down the mouse button, and dragging it to the new location. The system holds in memory as many storm projections as you will ever use in one severe-weather event.

4.5 Using PasTrac

The PasTrac feature lets you easily track the progress of a storm by comparing its current position to its position in recent data. You can use PasTrac to automatically track either real-time radar data or NEXRAD data, but the process is slightly different.

4.5.1 Auto-Tracking Real-Time Radar Data

Use the **Radar > Log to File** command to log your incoming data. You need to log radar data at least five minutes before you can use PasTrac. Your radar should be in reflectivity mode five minutes in advance. (This option should be active, by default.)

1. Zoom in for a close view of the storm (less than 25 miles). This will let you accurately depict the storm.
2. Make sure you are in conventional mode (i.e., no NEXRAD product is in use).
3. Select **Storm > Add Fan** from the menu bar.
4. Display the **Storm Track** panel.
5. Click **AutoTrac**. The status panel on the upper-left portion of the display will indicate *Replaying archived data for AutoTrac*. After a short period, the status panel indicates *Finished replay*.
6. Carefully click on the storm's position (where the storm was several minutes ago). *Only click once*.
7. The status panel will indicate "*Resweeping current radar for AutoTrac*." Upon completion, carefully click *only once* on the storm's new position for an instant auto-track.

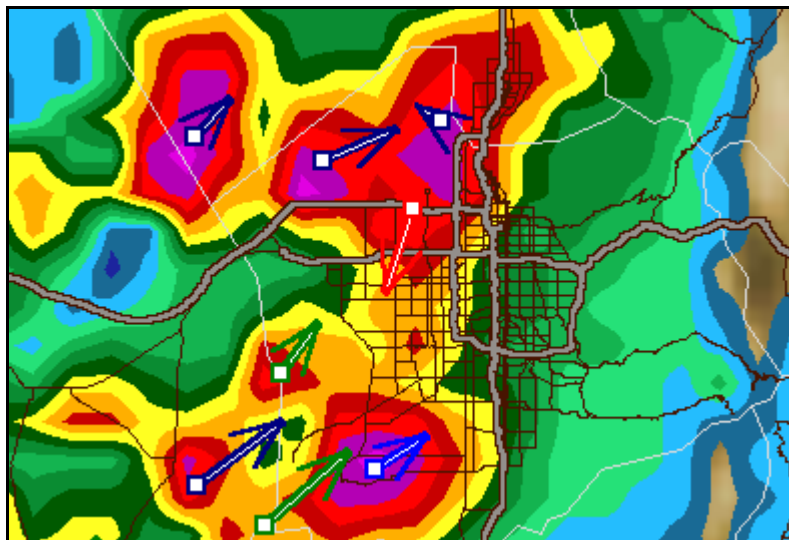
4.5.2 Auto-Tracking NEXRAD Data

1. Show the product that you want to use (with the proper site selected) by using the **NEXRAD Main** panel.
2. Zoom in to a close view of the storm (25 miles or less). This will let you accurately depict the storm.
3. Select the **Storm > Add > Fan** command.
4. Invoke the **Storm Track** panel (if it is not already on screen).

5. Select the **AutoTrac** button. The status panel will indicate, “*Replaying archived data for AutoTrac.*” After a short pause, it will read, “*Finished replay. Left-click on storm's position.*”
6. Carefully click the position of the storm during this archived sweep. *Click only once.*
7. After the system finishes the NEXRAD replay, carefully click on the new position for an instant auto-track.

4.6 Identifying Storms with StormScan

StormScan displays cell-by-cell characteristics of a storm system, letting you easily view and summarize the characteristics of a storm, including the presence of hail, hail size, storm top height, storm speed, and the direction in which the storm is traveling. You may also access tornado signatures, max dBZ, and circulation through StormScan. You can easily review current and past storm parameters by comparing two consecutive NEXRAD sweeps. In short, StormScan displays the complete attributes of the storm system, as shown in the following example:



The following tables describe the default color codes used to describe weather characteristics. The five SCITs in the first table are derived from National Weather Service data:

Description	Color	Code and RGB Value
Storms with Tornado Vortex Signature (TVS)	LIGHT RED	TVSAttributeColor=255,0,0
Storms with mesocyclonic activity	DARK RED	MesoAttributeColor=128,0,0
Storms with a chance of severe hail	DARK BLUE	SevHailAttributeColor=0,0,128
Storms with a chance of hail	LIGHT BLUE	HailAttributeColor=0,0,255
Normal thunderstorms	GREEN	StormAttributeColor=0,128,0

The SCITs in the second table are derived from data provided by Baron Services algorithms:

<u>Description</u>	<u>Color</u>	<u>Code and RGB Value</u>
Storms with heavy rain, lightning, and hail	PINK	SevStormAttributeColor=255,0,255
Storms with wind shear	ORANGE	ShearAttributeColor=255,153,0

4.6.1 Setting Up StormScan

1) Open the **NEXRAD Main** panel, select **Reflectivity** or **Composite** and select **Auto Update** on the **NEXRAD More** panel (NEXRAD page 2).

2) Select **Setup > Storm > StormScan** or click on the **Scan** hot button to open the **Arrow Filter** panel.

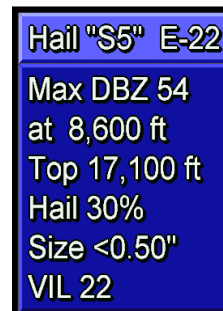
- ❑ **Show SCITs** displays storm arrows.
- ❑ **Auto Scan** uses the most recent product for storm arrows.
- ❑ **Use Alert Sound** issues an audible beep when a new product updates attribute data.
- ❑ **Use Alert Message** displays a small message box in an off-air area of the screen to notify you of attribute updates.
- ❑ **Show Storm IDs** displays the ID given to each storm by the National Weather Service on the SCIT arrow.
- ❑ **SWP in Markers** shows Severe Weather Probability on the SCIT arrow.
- ❑ **Visible SCITs** lets you toggle the display of SCIT arrows with certain types of storms. For example, if you unselect the **Thunder Storm** option, no green storm arrows will appear.
- ❑ **Site to Scan** indicates the site that is currently using its composite reflectivity products to provide storm attribute data. You cannot change this attribute from the Arrow Filter panel; the currently active NEXRAD site controls this display.
- ❑ **Reset Defaults** resets the selections to the default selections.
- ❑ **Marquee Options** opens the StormScan Marquee Setup menu (see section 4.6.2).
- ❑ **Table Options** opens the StormScan Table Setup menu (see section 4.6.3).



You can left click on the base of one these arrows to make a regular storm track that matches this storm's criteria. The header of the storm track ETA box indicates the storms' contents. Other than the header, this storm acts just like any other storm track.

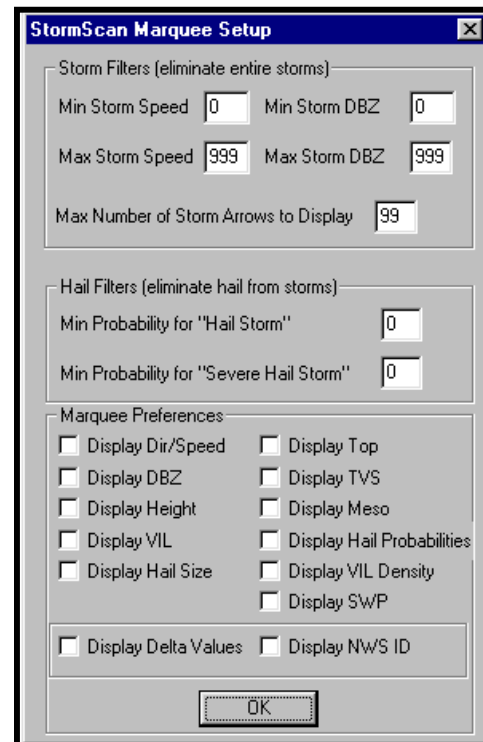
4.6.2 Using Storm Marquees

Right-clicking on the base of the storm arrow displays the marquee for the storm. The marquee is similar in style to the storm ETA box, but it gives information about the storm. This information includes storm direction, speed, max dBZ level, height, VIL level, top altitude, probability of hail, hail size, and whether it exhibits Tornado Vortex Signature (TVS) or mesocyclonic activity.



You can control which of these attributes to display by selecting **Marquee Options** in the Arrow Filter panel and opening the StormScan Marquee Setup menu. **Be careful. This menu appears in the on-air portion of the screen.** To toggle display of a particular attribute, click the option in the **Marquee Preferences** area. VIL Density and SWP displays are reserved for COBRA Storm Tracking.

The top-half of the StormScan Marquee Setup menu has two other areas. Be careful: these options can be confusing. The **Storm Filters** area lets you set the minimum values for speed and dBZ. Storm arrows will not appear for any storm whose speed or dBZ falls below the minimum specified value. The maximum attributes work differently. Storms with values higher than the specified maximums *do not filter from display*. Instead, the marquee shows the maximum speed or dBZ instead of the storm's real values, and storm arrows shorten to reflect the maximum speed rather than the storm's speed. This can be useful because the National Weather Service sometimes sends values that are excessively high. This ceiling feature prevents your viewers from seeing these anomalies.



To understand the **Max Number of Storms Arrows to Display** option, you must understand how the system decides which storms to display. You also should know the **storm priority formula**. According to the current formula, the first attribute by which the system sorts storms is the presence of a TVS. The next attribute that has priority is mesocyclonic activity, followed by severe hail, normal hail, hail size, dBZ, and storm speed. The formula sorts storms with TVS and mesocyclonic activities matched by the probability of severe hail. The process continues until it sorts all of the storms. After sorting the list, the system takes the maximum number of storms from the list.

The second part of the StormScan Marquee Setup menu is **Hail Filters**. This part *does not* filter storm arrows from display. It merely flags the system that the marquee for that storm should not display the value in question if the probability of hail or severe hail for any storm is below a certain level. For instance, you might set the **Min Probability for Severe Hail Storm** to 50%. If you then activate the marquee for a storm whose severe hail probability is less than 50%, the marquee will not have a line that indicates the storm's probability of severe hail. Furthermore, the storm will not be dark blue, which normally indicates hail presence.

Display Delta Values controls the feature that shows how much an attribute has changed for a particular storm since the previous sweep. **Display NWS ID** causes the marquee header to show the storm's designation used by the National Weather Service.

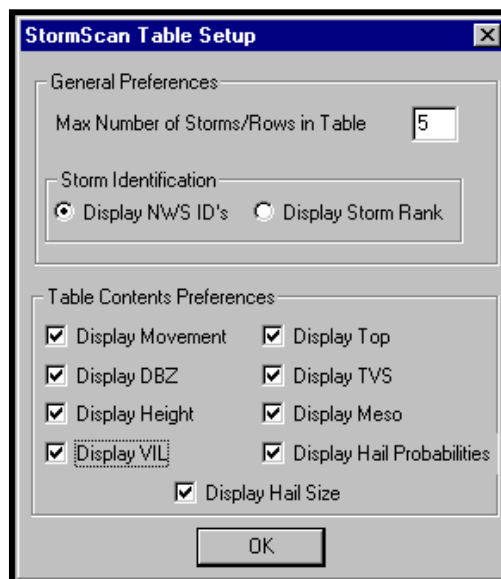
4.6.3 Using the Storm Table


Another useful feature of StormScan is the Storm Table, which is opened by right clicking on the **Scan** hot button. The Storm Table appears in the on-air portion of the screen and displays the highest priority storms. You can click on an item in this list to activate the marquee for a storm. The system will zoom in on that storm arrow, post the storm marquee, and eliminate the other storm arrows. You can then left-click on the storm arrow to display an automatic storm track based on the National Weather Service data. Right-click anywhere on the view to restore the other arrows.

ID	MVMT	DBZ	AT	TOP	TVS	MESO	HAIL	HAIL+	SIZE	VIL
F6	NE-40	59	13,800 ft	23,700 ft	NO	NO	60%	0%	< 0.50"	29
K1	E-28	59	13,600 ft	31,900 ft	NO	NO	90%	10%	0.50"	36
G1	ENE-31	58	17,200 ft	17,200 ft	NO	NO	10%	0%	< 0.50"	22
I2	ENE-25	58	10,900 ft	26,600 ft	NO	NO	20%	0%	< 0.50"	30
V9	E-23	58	16,000 ft	27,700 ft	NO	NO	80%	10%	0.50"	36

The StormScan Table Setup menu, which is opened by the Table Options command in the **Arrow Filters** panel, controls the Storm Table.

- ❑ **Max Number of Storms/Rows in Table** specifies the maximum number of storms that will display in the Storm Table. If there are more storms than the specified value, the system uses the storms with the highest priority calculated by the formula.
- ❑ **Display NWS ID's** identifies the storm according to the National Weather Service.
- ❑ **Display Storm Rank** identifies the storm according to the rank calculated by the storm priority formula.



 *Selecting **Display NWS ID** or **Display Storm Rank** does not change the order in which storms are displayed. They are sorted by rank, regardless of the selection.*

The **Table Contents Preferences** area lets you select which attributes are displayed in the Storm Table. Be careful. If you select too many of these items, the table may not fit in the on-air portion of the screen. Experiment before you present the Storm Table to your users. The font that is used is controlled by the **Setup > Fonts > Storm ETA Boxes** command.

4.7 Creating Automatic Storm Sequences

The Storm Sequence Main Menu has only one control: **Go!**. The area is restricted by the parameters you specify in the **Setup > Storm > Storm Sequence** command. When you select **Go**, the program locates the most dangerous storm within the current range, generates an ETA box that lists the communities that lie in the path of the storm and the time at which the storm is predicted to arrive at each community, generates the SCITs for the storm in question, and displays the storm track.

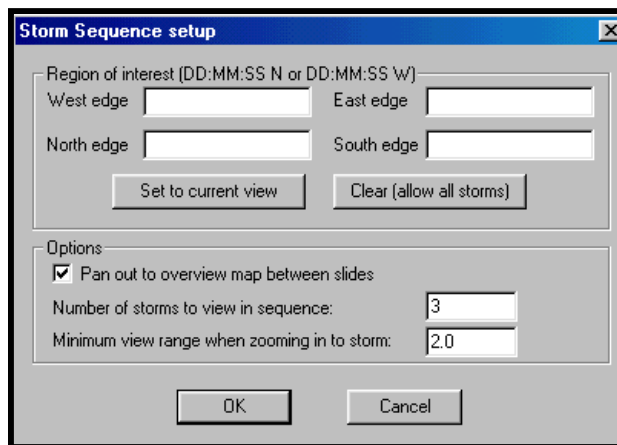
When you select **Go** again, the program repeats the same process for the next most dangerous storm. We recommend that you limit the number of storms to four.

Setting up Storm Sequences

When you select **Setup > Storm > Storm Sequence**, the Storm Sequence Setup menu opens.

- **Region of Interest** defines the boundaries of your sequence by the specified coordinates.
- **Set to current view** changes the sequence boundaries to match the currently displayed view.
- **Clear (allow all storms)** displays all storms regardless of geographical location.
- **Pan out to overview map between sides** displays the overview map between lapses in your sequence.
- **Number of storms to view in sequence** specifies the maximum number of storms you can track (we recommend 4).

Minimum view range when zoom in to storm specifies the minimum zoom range, in miles, when you zoom in on a sequence. The zoom range is based on storm speed. This prevents the system from zooming in too closely.



4.8 *Points to Remember*

- ❑ Before you begin to project storm tracks, use the **Setup > Storm Track** command to set up the default parameters.
- ❑ Determine what type of storm track will best depict the storm: fan, circle, or squall.
- ❑ Change your storm track display quickly through the **Storm Track** panel. **Always select the Update option to put your changes into effect.**
- ❑ Use the **Storm Track Places** panel to change the storm track marquee listings and the marquee's position. You can always move the storm track marquee by clicking on it and dragging it to a new location.
- ❑ Use the **AutoTrac** command to have your system use real-time radar data or NEXRAD data to create your storm track based on the actual movement of the storm over a period of time.
- ❑ Trac Edit moves storm tracks to a new position but does not change direction or speed.

5. Using *SEQUENCER*

The Storm Tracking system has a variety of functions that you may automate by using *SEQUENCER* capabilities. *SEQUENCER* lets you perform various operations, such as displaying various maps, repainting radar sweeps, zooming and panning from one map to another, and creating time lapses of radar and lightning data. When you group these functions in a sequence, they become *events*. You may permanently save sequences of zoom, pan, and time-lapse events on the system for later use.

SEQUENCER loads your events into RAM memory. This can take anywhere from a few seconds to a minute to load the first time. On subsequent playbacks, the load takes only a few seconds. It is best to preview your sequence before going on the air. This maximizes the performance of your system.

This chapter describes the steps you need to execute to create an event, as described in the following list:

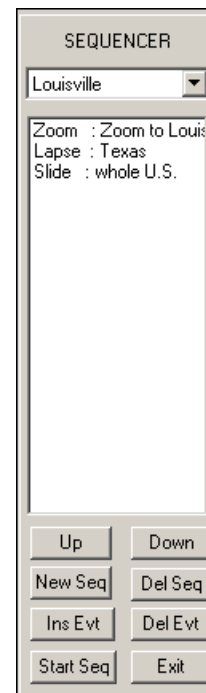
- ❑ Starting *SEQUENCER*
- ❑ Creating and Manipulating Sequences
- ❑ Creating and Using Zooms and Pans
- ❑ Working with Time-Lapse Events
- ❑ Combining Time-Lapse and Zoom Events
- ❑ Repainting a Time-Lapse Event
- ❑ Inserting NEXRAD Data in a Sequence

5.1 Starting SEQUENCER

To invoke SEQUENCER, click the **Sequences** button on the Select Panel at the left side of your display. The SEQUENCER panel then opens. While this panel is open, most non-sequence functions are inoperable. To exit the SEQUENCER panel, click **EXIT**.

The SEQUENCER text box specifies the current sequence. To choose a different sequence, open the pull-down list and select another sequence. If this section is empty, it indicates that the system currently has no sequences.

The second part of the panel lists the current sequence's events. This list appears directly beneath the name of the current sequence. Some of the events have user-defined names. For example, you may call a zoom *Zoom to Louisville* or name a time lapse *Texas*. If an event consists of a slide (view), the event name is identical to the name of the view. Other events, such as radar-sweep repaints, do not have user-defined names. To view details about a particular event, highlight the event to display a menu that describes the event in detail. For example, slide events indicate the view's name, range and mapping details (such as the level of roads and water bodies). Other events, of course, have different characteristics. The extended menu that describes zoom events indicates the starting view, the ending view, and the number of frames in the zoom. You can characterize time-lapse events by their base view, beginning time, ending time, iterations (the number of times that the full lapse repeats), and number of frames.



The third part of the Sequence Control Panel is the section of buttons at the bottom of the panel: **Up**, **Down**, **New Seq**, **Ins Evt**, **Start Seq**, **Del Seq**, **Del Evt**, and **Exit**. Use the **Up** and **Down** buttons to move events around in the sequence. The remaining buttons provide functionalities that are essential to the creation and manipulation of sequences and events. The following subsections describe the use and functionality of each of these buttons.

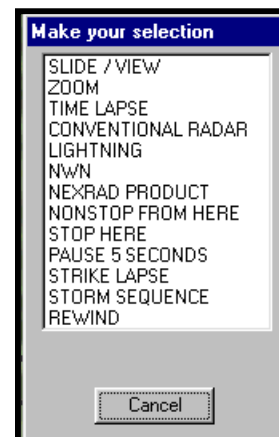
5.1.1 Creating a New Sequence

Click **New Seq** to invoke a small menu that asks you for a sequence name. Choose the name carefully because once you enter a sequence name you may never change it. You may, however, delete the sequence.

1. Key in the name of the new sequence, and press ENTER or click **OK** to create the sequence.
2. When you create a sequence, the name automatically appears in the **SEQUENCER** panel. The list of events (the second part of the **SEQUENCER** panel) is always empty when you create a sequence. To fill the sequence with events you must use the **Ins Evt** command.

5.1.2 Inserting New Events

1. If you have existing events and want to insert a new event, select the event under which you want to place the new event.
2. Click **Ins Evt** button to open a selection menu. You can use this command to create new events or to add existing events (such as zooms or time lapses created for other sequences).
3. Review the menu that appears, including such items as SLIDE, ZOOM, TIME LAPSE, RADAR, LIGHTNING, and NWN. The list of events depends on the configuration of your system. For example, NWN events are restricted to users who also have the optional Neighborhood Weather Net system and LIGHTNING events are restricted to users with integrated lightning detection. You may use the **Ins Evt** function to insert an event in a particular location (such as between two existing events in the list).
4. Double-click on the event you want to insert, and verify that the selected event displays in the sequence list.



5.1.3 Deleting Events from Sequences

1. Select the event you wish to delete.
2. Click **Del Evt**. A confirmation menu will ask you to verify the deletion.
3. Click **Yes** to remove the event.

The **Del Evt** command does not permanently delete events from your system. For example, if you delete a zoom called *Zoom to Huntsville* from a particular sequence, it may still exist as an event in other sequences. It will still be available as a choice when you select **INS EVT** and select a zoom event. To permanently delete a zoom or time-lapse from the system you actually have to use the insert event feature. When the menu offers a particular event name, you may highlight it and hit the delete button.

5.1.4 Deleting Sequences

Select **Del Seq** to delete the current sequence. The current sequence's name and events appear on the **SEQUENCER** panel. When you delete a sequence, its events are not deleted from your system. Instead, zooms or time lapses that are part of the system are still available as choices when you use the **Insert Event** option.

5.1.5 Starting and Playing a Sequence

The **Start Seq** command displays all events in the current sequence.

1. Select **Start Seq**. SEQUENCER scans the sequence for zooms and time lapses. If SEQUENCER locates such events, the *Loading Frames* message displays and you cannot select any SEQUENCER command. SEQUENCER then loads the frames of the first zoom or

time lapse to electronic memory. This allows the system to display these frames at a higher speed upon recall. This operation may take several seconds.

2. SEQUENCER displays a window that describes the first event. This window also has three command buttons: **Next**, **NonStop**, and **Abort**.




- ❑ **Next** displays the next event. During the sequence, the machine will pause before each zoom or time lapse to load the event's frames. SEQUENCER displays the *Loading Frames* message each time that this occurs.
- ❑ **NonStop** displays the ensuing events without pausing. You may select **NonStop** button at any time during the sequence execution to display the remainder of the sequence without pausing.
- ❑ **Abort** exits from the sequence review function.

5.1.6 Exiting SEQUENCER

EXIT simply exits SEQUENCER. This command removes the SEQUENCER panel and enables the functions that are not sequence related. You may use the **EXIT** command any time that it is visible. Your sequence and event data are saved. If SEQUENCER is busy, such as when creating a zoom or prompting the operator for input, **EXIT** will have no effect.

5.2 Using SEQUENCER with Zooms and Pans

Zooms and *pans* are special groups of *.bmp* picture files that you use to create a zoom or pan effect. In the case of zooms, the map's center remains the same, while the range decreases to create a zooming-in effect. (The range may increase instead of decreasing when you zoom outward.) In the case of pans, the map's range stays the same but the center point changes to create a panning effect. You may also combine the zoom and pan effects by allowing the map's center and range to change at the same time to create a simultaneous zooming and panning effect. Frequently, we refer to zooms and pans separately, but a pan is merely a zoom with a center point that changes considerably more than its range.

 You can create the same effect for non-SEQUENCER zooms and pans by using the **Smooth Transitions** feature, found on the View Main panel.

The following conditions must exist before you start this operation:

- ❑ You must have already created the view at which you want to start and the view at which you want to end. You cannot create views from inside the zoom function: you can select only from pre-saved views. See Section 3.4.1 for information on creating views.
- ❑ It is important to use a meaningful naming convention when you create your zooms, so that you can recognize and use them in the future. We highly recommend descriptive names. Assume that you might have a start with a 150-mile map centered over Huntsville, Alabama, and name it *HSV 150*. You then zoom in to a 5-mile map

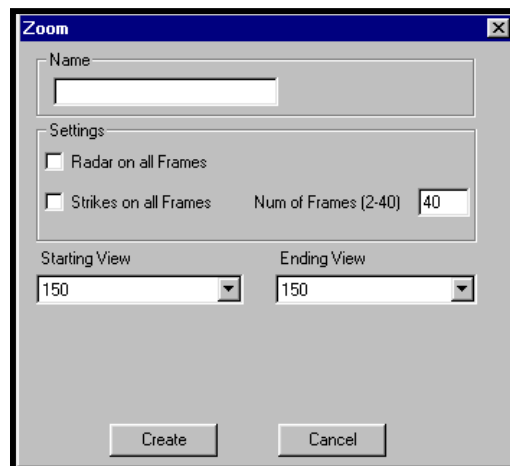
centered over Athens, Alabama, and name it *Athens 5*. One suggested name of this zoom is *HSV 150 to Athens 5*. This naming convention makes it very easy to return to SEQUENCER, identify the pans and zooms you have created, and retrieve them for immediate use.

- The system uses the starting view parameters to determine the parameters of the other views. This means, for example, that if the map lines are bold for the starting view, they will be bold for all the views in between.

5.2.1 Creating Zooms and Pans

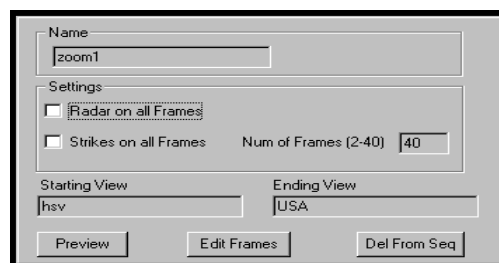
The following operation is the same used to create pan events. If the starting and ending views have the same approximate center point but have considerably different ranges, the event will be a zoom. If the views have completely different center points and equal ranges, the event will be a pan. The system does not differentiate between a zoom and a pan. It just creates the intermediate frames based on the specified starting and ending views. Zooms and pans are both in the zoom category.

1. Open SEQUENCER, and click **Ins Evt** to open the selection menu.
2. Double-click on the *ZOOM* listing to open the Event List menu. This menu lists the available zooms and includes the **Create New**, **Delete**, and **Cancel** commands. If no zooms or pans are in the system, the list of available zooms will be blank (the maximum allowed at one time is 19).
3. Click **Create New** to open the Zoom menu, which lets you to define the new zoom parameters.
4. Key in the new zoom name in the **Name** text box.
5. Specify the starting and ending views from the pull-down lists. You must create your views *before* you create a zoom event.
6. Specify the number of frames that that will be in the zoom event. (You can display 2 to 40 frames.)
7. Click **Create**. The *Creating Frames* message displays. SEQUENCER will post the starting view, the ending view, and each intermediate frame and then play the new zoom event. The intermediate frames and the zoom name are saved on the hard drive. This data will remain on your system until you choose to delete it.



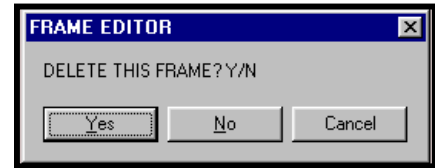
5.2.2 Previewing Your Zoom Event

After you create a zoom or pan, the event appears on the event list beneath the current sequence name. Click on the event name to open a menu that describes the zoom. This menu indicates the name of the zoom or pan, the number of frames, the starting view's name,



and the ending view's name. It also contains the **Preview**, **Edit Frames**, and **Del From Seq** commands.

1. Click **Preview**. As your system loads the zoom frames, the *Loading Frames* message appears and remains during frame loading and the preview of the zoom frames. Unless you are previewing an event, this message does not appear on the screen during sequence play.
2. Click **Edit Frames** to display the event frame-by-frame. The *Loading Frame* message appears. After loading, the first frame displays and the Frame Editor menu opens, asking if you want to delete the frame. This process continues through the frame-by-frame display until you select **CANCEL** or until the preview is complete.
3. Click **Del from Seq** to delete the zoom from the sequence. You may also use the **Del Evt** command at the bottom of the SEQUENCER panel to perform this same operation.



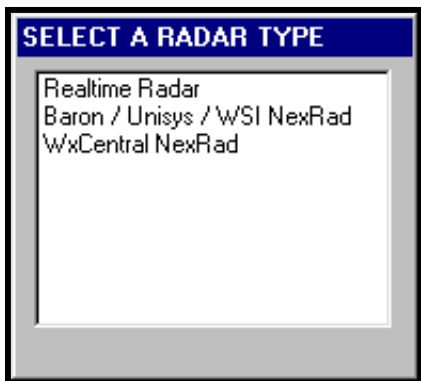
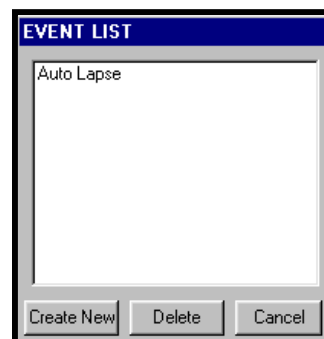
5.3 Working with Time-Lapse Events

There are several important points to remember when creating a time-lapse event:

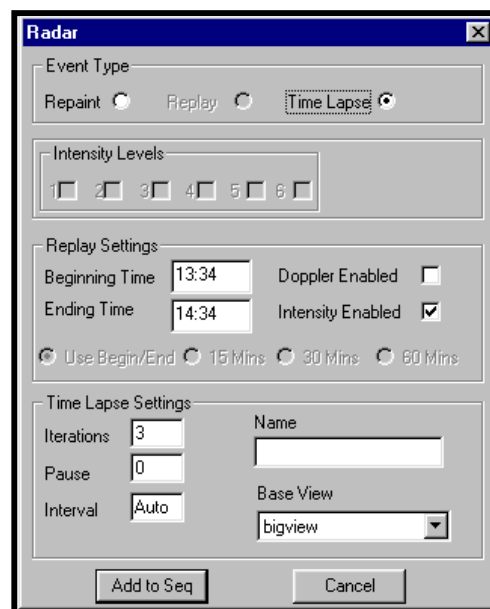
- ❑ You must create the view you wish to show before you create the time-lapse event. You cannot create views from inside the time-lapse function. You can merely pick from pre-saved views. See Section 3.4.1 for information on creating views.
- ❑ It is very important to use a meaningful naming convention when creating time lapses, so that you can recognize and use them in the future. We recommend that you use the date, time frame, and map of the time lapse. For example, *2-26 4-6pm HSV 25* could be the name for a time lapse on February 26, from 4 to 6 p.m., on a Huntsville map with a range of 25 miles. Later, when you look at this time lapse, you will be able to identify it for future use or deletion.
- ❑ Before you can create a real-time time lapse, you must use the **Radar > Log to File** command to log data during the period that the lapse will cover. (The **Log to File** command should be active, by default.)
- ❑ You can create a NEXRAD time-lapse that always displays the latest data by inserting a NEXRAD product with more than one frame. See Section 5.6 for details.

5.3.1 Creating Real-Time Radar Time-Lapses

1. Open SEQUENCER, and click **Ins Evt** to open the selection menu.
2. Double-click on the *TIME LAPSE* listing to open the Event List, which lists the available time lapses. If no time lapses are in the system, the list will be blank.



3. Click **Create New** to open the Radar Type menu.
4. Select *REALTIME RADAR* to open the Radar menu, which lets you define the radar parameters for a time lapse. In the Event Type area, click **Time Lapse**.

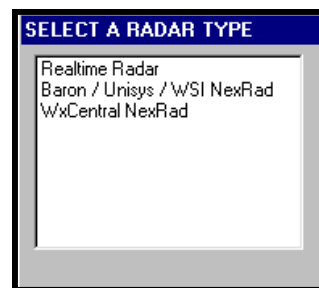


5. Key in the time-lapse name in the **Name** text box.
6. Select the base view that the time lapse will use. To keep the current view, do not change **Base View**.
7. Set the **Beginning Time** and **Ending Time** parameters to fit your needs. The default times create a lapse for the last hour according to the system clock. These times are in military time. To change them, click in the appropriate time text box and key in the new time.
8. Change the following parameters to fit your needs:
 - ❑ **Iterations** specifies the number of times that the entire time lapse will appear when viewing the lapse event.
 - ❑ **Pause** specifies the time, in milliseconds, between time-lapse frames. 1000 milliseconds=1 second.
 - ❑ **Interval** specifies the number of sweeps composed in each frame. For example, an interval of 1 (the default value) records a frame after each sweep. An interval of 2 records a frame every other sweep.
9. Click **Add to Seq**. The system will then create the time lapse and insert it into the current sequence. This data will remain on your system until you choose to delete it.

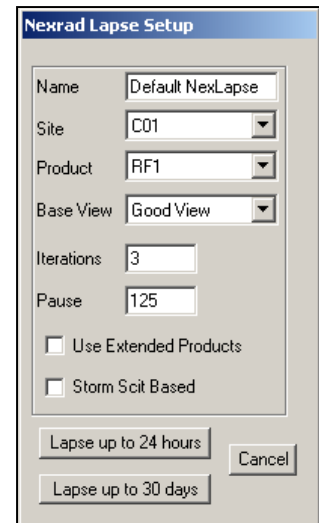
5.3.2 Creating NEXRAD Time-Lapses

1. Configure your ingestor program (such as NetRad or WSIrad) to delete NEXRAD files that are older than four hours. (This will retain the setting and only needs to be set once.) The procedure is different for different programs.
2. Open SEQUENCER, and highlight the sequence's event *after* which you want to insert the time lapse. (If no events exist in this sequence, the new time lapse will become the first event.)
3. Click **Ins Evt** to open the selection menu.
4. Double-click on the *TIME LAPSE* listing to open the Event List, which lists the available time lapses. If no lapses are in the system, the list of available lapses will be blank.
5. Click **Create New** to open the Radar Type menu.

6. Select the radar type that describes your needs:
Baron/Unisys/WSI NexRad or **WxCentral NexRad**.



7. Select the **Name** text box, and type in a unique name (the system will warn you if you pick an existing name). Select the NEXRAD site from the **Site** pull-down list. The system will only let you choose sites from which your system has products. The product pull-down list, however, lists all possible products, not just the ones available.
8. Specify the number of iterations and the pause between frames, in milliseconds. (See step 8 in section 5.3.1 for explanations of the terms.)
9. Click **Lapse up to 24 hours** to list all the available NEXRAD files for the specified site and product from the last 24 hours, or click **Lapse up to 30 days** to list all files from the past 30 days.

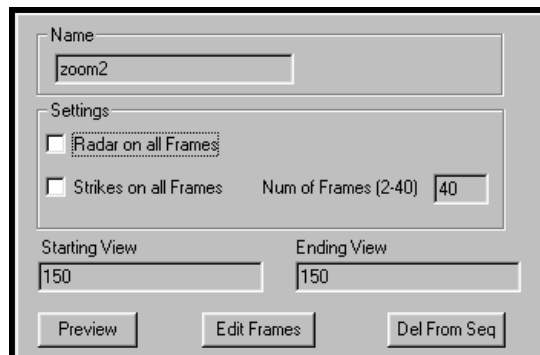


10. Select individual products to use in the time lapse by clicking on the first file you want, and then holding down the CTRL key while you select subsequent files, or select a range by clicking on the first file you want and then holding down the SHIFT key while you select the last product.
11. When you have highlighted all the products you want in the lapse, click **Create Lapse**. If you have done everything correctly, the system will use the selected products to create a time lapse. You can play back and edit this time-lapse event like any other time-lapse event.

5.3.3 Previewing Your Time Lapse

After you create a time-lapse event, SEQUENCER adds the new event to the list on the SEQUENCER panel, which you can then preview.

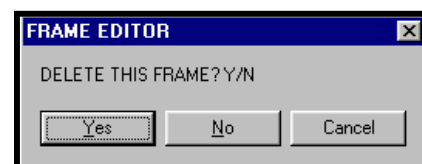
1. Open the SEQUENCER panel.
2. Click the event name to open the menu that describes the lapse. This menu indicates all of the information that you entered for the lapse.
3. Click **Preview**. As your system loads the lapse frames, a message displays *Loading Frames*. This message remains on the screen during frame loading and during the preview of the time lapse.
4. To delete the time lapse from the sequence, select **Del From Seq** or select **Del Evt** at the bottom of the SEQUENCER panel. To exit from the process without making changes, select another event from the SEQUENCER panel or select **Exit** from the bottom of the SEQUENCER panel.



5.3.4 Editing Time-Lapse Frames

If you do not like a particular frame in a time-lapse event, use the following steps to permanently delete the frame:

1. Open the SEQUENCER panel.
2. Click the event name to open the menu that describes the lapse. This menu indicates all of the information that you have entered for the time lapse.
3. Click **Edit Frames** to display the time-lapse one frame at a time. When you select **Edit Frames**, the first frame displays and you are asked if you want to delete the frame.
4. Click **Yes** to delete the frame, or click **No** to advance to the next frame.
5. Click **Cancel** to end the frame editing and to quickly display the remaining frames.



5.4 Combining Time-Lapse and Zoom Events

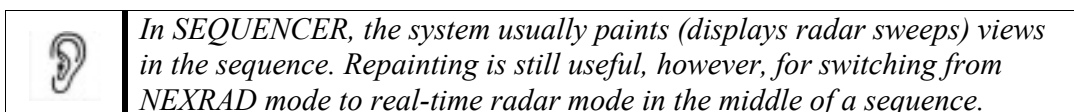
One dramatic and effective operation is to combine the time-lapse and zoom events, as described in the following steps:

1. Create a sequence with an overview slide. (A slide is just a static map view.)
2. Add a time lapse of the past several hours.

3. Zoom in to the location where the heaviest rain occurred.
4. Do another time lapse over that location. This provides both the overview and the local weather information, which makes a difference to your viewers.

5.5 Repainting to a Sequence

1. Open SEQUENCER, and click **Ins Evt** to open the event types menu.
2. Double-click CONVENTIONAL RADAR. This will open the menu that we used earlier to create a time lapse.
3. Select **Repaint**, and click **Add to Seq.**



5.6 Adding a Radar Lapse to a Sequence

This function allows you to add a real-time radar lapse into a sequence.

1. Open SEQUENCER, and click **Ins Evt** to open the event types menu.
2. Double-click CONVENTIONAL RADAR. This will open the menu that we used earlier to create a time lapse.
3. Select **Replay**, specify the lapse time and whether you want Doppler or Intensity data, and click **Add to Seq.**

5.7 Inserting NEXRAD Data in a Sequence

1. Open SEQUENCER.
2. Select **Ins Evt**, and double-click *NEXRAD PRODUCT* to open the NEXRAD Product Setup menu.
3. Click the **Lapse** radio button to activate the **Lapse Settings** area.
4. Under **Lapse Settings**, enter the number of **Iterations** (times the lapse is shown), the time in minutes for the entire lapse and the time allocated to each frame (the total time divided by the time per frame equals the number of frames that will be created).
5. Select the site and the product, and click **OK**.

You should insert this event *after* a slide/view event. The system will continue to be in NEXRAD mode until you activate a repaint event.



Specifying a number of frames greater than 1 allows you to create a NEXRAD time-lapse that is always up to date.

5.8 Points to Remember

- ❑ Use SEQUENCER to display saved mapping scenarios, such as zooming into areas with critical weather and time lapses of radar and lightning data.
- ❑ Before you create zoom and time-lapse events, you must create the starting and ending views.
- ❑ Name your events so that you easily can recognize them when you need to replay them.
- ❑ Use **Preview** to review your zoom and time-lapse events before you play them for your viewers.
- ❑ Use the **Repaint** and **Replay** options under the Conventional radar menu to add real-time radar sweeps and time-lapses, respectively.

6. *Controlling Your Radar*

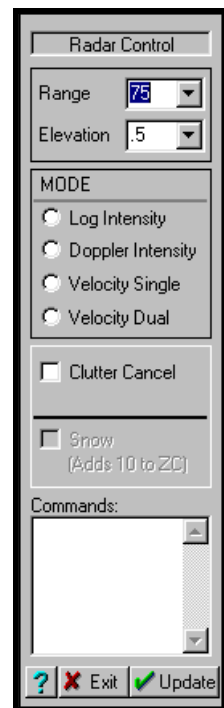
This chapter describes how to control both Baron and non-Baron radars. Non-Baron radars are controlled through the Radar Control panel and Baron radars are controlled through the Radar Data Acquisition and Control System (RDACS). The operations described in the following subsections include:

- ❑ Controlling Your Non-Baron Radar
- ❑ Controlling Your Baron Radar
- ❑ Using NEXRAD Data
- ❑ Comparing Base Reflectivity and Composite Reflectivity

6.1 Controlling Your Non-Baron Radar

If you have a Baron Radar Processor, you can use the procedures described in this section to control your radar's range and operating mode.

1. Click the **Views** button on the Select Panel, then click the **Data** button on the More Settings panel.
2. Click the **Radar Control** button to open the **Radar Control** panel.
 - ❑ **Range** specifies the radar's range. You can either enter a number or select a choice from the pull-down list.
 - ❑ **Elevation** specifies the radar's elevation. You can either enter a number or select a choice from the pull-down list.
 - ❑ **Log Intensity** selects the long-lapse log mode, which extends 300 miles.
 - ❑ **Doppler Intensity** selects the 75-mile Doppler mode.
 - ❑ **Velocity Single** selects the single-PRF mode, which extends 75 miles and has a +/- signal of 16 miles per hour.
 - ❑ **Velocity Dual** selects the dual-PRF mode, which extends 75 miles per hour and has a +/- signal of 37 miles per hour.
 - ❑ **Clutter Cancel** negates the clutter filter. There are two types of clutter filters: Mask and Doppler. The system automatically determines which one applies, based on the current mode of operation.
 - ❑ **Snow** opens the **Snow Machine** panel, which allows you to select from several products created by the Snow Machine. Refer to section 6.3.1 for product descriptions.
 - ❑ **Commands** lists the radar command that fits the requested adjustment. This area merely lists the commands, which are not sent until you select **Update**. If you select **Exit**, the commands are not sent and you exit from the Radar Control process.
3. Make the required selections, and review the **Commands** area. To remove a command, drag the mouse across the command text, and press **Delete**. To add a command, click after the last command and key in the command. If there are more commands than can be listed, use the scrollbar on the right side of the box to review them.
4. Click **Update**.



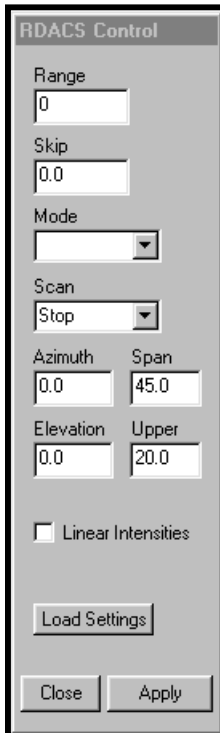
6.2 Controlling Your Baron Radar

If you have RDACS, you can use the procedures described in this section to control your radar's range and operating mode.



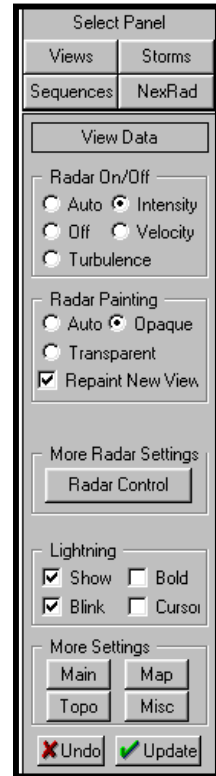
The **Status > Rdac status** command allows you to quickly ensure that your radar is connected and functioning properly.

Click the **Views** button on the Select Panel, then click the **Data** button on the More Settings panel.



Click the **Radar Control** button to open the **RDACS Control** panel.

- ❑ **Range** sets the range, in miles. In Doppler mode, the maximum range is usually 75 miles; in log mode, the range is usually 300 miles. The radar's configuration, however, may affect the maximum. For better resolution of closer targets, set the range less than the maximum range. If you apply a range greater than the maximum allowed for the radar mode, RDACS will use the maximum valid range and will display the "corrected" value.
- ❑ **Skip** specifies the range, in miles, from which acquisition begins. For example, a value of 1 means that data sampling will begin one mile from the radar. Use **Skip** to remove the display of the strong signal received just after the radar pulse. (A typical value to use for **Skip** is 0.5 to 5.0 miles.)



The **Radar Paint Skip Zone** setting in the *Omninet.ini* file controls what appears in the skip zone. A value of 1 means that no radar data appears in the skip zone. A value of 0 means that a new sweep does not clear any previously displayed data in the skip zone.

- **Mode** specifies the radar mode. While not all modes are valid for all radar types and may not appear in the pull-down list, the following list describes the possible modes:

<u>Mode</u>	<u>Description</u>
Powerdown	Radar electronics are off.
Standby	Radar electronics are on, but the transmitter is off.
Long	Long pulse, no velocity, and range up to 300 miles.
Log+Turb	Log mode plus detection and display of turbulence in return data.
Single PRF	Single-pulse Doppler mode, range 75 miles, +/- 16 m/s.
Dual PRF	Dual-pulse Doppler mode, range 75 miles, +/- 32 m/s.
VHD	Very High Definition (dual-pulse) Doppler mode, range 49 miles, +/- 48 m/s.

When you select a mode, the typical values for range and velocity appear. When you select **Powerdown**, it may take several minutes before the radar shuts down (cools off). When the radar powers up, it will take several minutes before radiation is possible. You can observe the status at the RDACS computer or view the *H250C.EXE* or *config.exe* programs.

- **Scan** specifies one of the antenna modes described in the following list. Select **PPI** for constant rotation in azimuth with a fixed elevation. Use **Sector** to scan a sector in azimuth. Use **RHI** to scan in elevation with a vertical cross-section. Use **Stop** to point the antenna to a target. The following table shows which fields work in each antenna mode:

<u>Mode</u>	<u>Azimuth</u>	<u>Span</u>	<u>Elevation</u>	<u>Upper</u>
Stop	X		X	
PPI			X	
Sector	X	X	X	
RHI	X		X	X

Azimuth sets the antenna azimuth, in degrees.

Span sets the antenna angle, in degrees, traversed in Sector mode.

Elevation sets the lower scan limit for antenna elevation, in degrees, in RHI mode.

Upper sets the upper elevation limit, in degrees, in RHI mode.

- ❑ **Linear Intensities** controls which format of reflectivity data the radar uses when it is in one of the Doppler modes. Typically, early RDACS controllers leave it off and later controllers leave it on. On the early RDACS controllers (*HDDS.EXE*), both linear and log reflectivity data are available and the log data is usually of higher quality, so leave the **Linear Intensities** option unselected. On the newer RDACS controllers (*H250S.EXE*), only linear data is available during Doppler modes, so you must select **Linear Intensities**.



The **Linear Intensities** option is set in later versions. Once activated, it will remain set, even if you exit and reload the program.

- ❑ **Load Settings** loads a saved RDACS configuration. You can create and save up to 10 configurations (labeled 0 to 9) using the RDACS control program, the *H250C.EXE* or *HDDC.EXE* file. Configuration 0 is the loaded whenever you restart RDACS. The other configurations can be whatever you desire. For example, Configuration 1 could use a different color level table to implement a clear air mode. By convention, Configurations 8 and 9 are temporary "saves" of test configuration. **Load Settings** opens up a menu that lets you select the numbered configuration to load.

6.3 Manipulating NEXRAD Data

The system's functionality allows direct manipulation of NEXRAD radar data.

6.3.1 Using the NEXRAD Main Panel

Click the **NexRad** button on the Select Panel to open the **NEXRAD Main** panel. You can use this panel to display any NEXRAD product (such as a reflectivity or velocity sweep) on any view. You may also show several products at the touch of a button to create a time-lapse effect.



The **Status > Nip status** command allows you to quickly ensure that your NEXRAD data is arriving properly.

- **Site** lists the current NEXRAD site that you are monitoring. One to four sites are available to the typical NEXRAD client.
- **Lapse** lets you view a specified number of frames when viewing products.

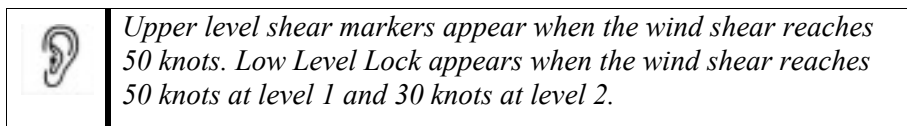


*You can create a continuous Lapse of current radar data by toggling the **Tools-3 > Nexrad Loop active** command. When this feature is checked, the system will automatically create Lapses of the specified product, with a 10-second delay between each lapse.*

You can edit the length in seconds between lapses by adding the following line into your omninet.ini file:

```
RadarLoopPeriodInSeconds=(desired #)
```

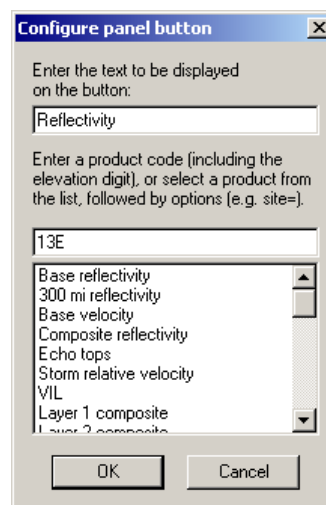
- **Shear Markers** displays two types of rings that represent the presence of significant shear. A yellow ring indicates that the shear is in level 2 or above, while a red ring indicates a *Low Level Lock* at level 1.



- **Arrows** displays NWS and Baron Services SCITs. A more detailed description of storm arrows is in section 4.6, *Storm Scan*.
- **Lvl** determines the sweep's elevation level (1, 2, 3, or 4) for a product. Any product described as using a certain number of scans uses this button to switch between levels.

The Product pull-down list lets you choose from any available NEXRAD product. The menu will always show **All Products** even after you choose a single one, but the radar image will show only the product that you selected.

You may program the buttons above the product menu to display your products in any configuration you wish. To change a button product, right click on the button to open the Configure Panel Button menu, shown to the right.



The text box at the top of the menu allows you to assign the text to display on the button.

The second text box lets you enter the product code and modifiers. The syntax for the code entry text box is as follows:

<product code> <lapse duration> <frame update> <options>

You can either type in the product code or select it from the menu below the text box.

<lapse duration> is the total lapse time in minutes, while **<frame update>** is the interval between lapse frames in minutes. For example you could enter 13E 1440 5 to have the product give a 24-hour lapse of reflectivity with a frame interval of 5 minutes (for a total of 288 frames).

There are two values you can enter in the options field:

Site=xxx overrides the site list box and specifies a single site for the button.

Lapse=n overrides the lapse checkbox and count.

Continuing the previous example, you could enter 13E 1440 5 site=C04 lapse=12 to have the button give a 24 hour lapse of reflectivity with a frame interval of 5 minutes from site C04 that repeats 12 times.

The following table lists the code for each product.

Baron Level III Data

Product Name	Code (0x)	Location
Free Text – Radar Site Information	4B	Netrad
Base Reflectivity (4 tilts)	13E	Panel Button
Corrected (De-Alaised) Mean Base Velocity (4 Tilts)	31BE	Panel Button
Mean Base Velocity (4 Tilts)	1BE	Panel Button
Echo Tops (4km)	29	Panel Button
Corrected (De-Alaised) Storm Relative Velocity (2 Tilts)	31CE	Panel Button
Storm Relative Velocity (2 Tilts)	38E	Panel Button
VIL (Vertical Integrated Liquid) (4 km)	39	Panel Button
1 hour Accumulation	4E	Panel Button
3 hour Accumulation	4F	Panel Button
Storm Total Accumulation	50	Panel Button
Base 300 mile reflectivity	14	Panel Button
Composite Reflectivity (4k)	26	Panel Button

Millennium:

Product Name	Code (0x)	Location
Baron Shear and Severe Storm Arrows (SCITS)	62	See Section 4.6
4 EMWIN Warnings (Tornado, Severe Thunderstorm, Flood, and Flash Flood)	EMWIN Server Connection	See Section 3.5.20
METAR's	883	Panel Button

Severe Weather Module:

Product Name	Code (0x)	Location
Max Reflectivity (1km)	226	Panel Button
Baron Button (1 km) [Heavy Rain/Shear Hail]	265	Panel Button
Max Composite Gate-to-Gate Shear (1 km)	25F	Panel Button
VIL Density (1 km)	160	Panel Button
Storm Relative Velocity Shear (1 km)	161E	Panel Button
Storm Relative Velocity Shear Markers	64	See Section 6.3.2
Mean Base Velocity Shear (1 km)	15FE	Panel Button
Mean Base Velocity Shear Markers	63	See Section 6.3.2

Hydro Module:

Product Name	Code (0x)	Location
Precipitation Rate	266	Panel Button
1 Hourly Total Precipitation Accumulation	270	Panel Button
3 Hourly Total Precipitation Accumulation	271	Panel Button
12 Hourly Total Precipitation Accumulation	272	Panel Button
24 Hourly Total Precipitation Accumulation	27C	Panel Button
Heavy Rain/Flood Product	290	Panel Button

Snow Machine:

Product Name	Code (0x)	Location
Snow Machine (1 km) [Precipitation Type/Rate]	268	Panel Button
4 km Precipitation Type Mask	401	Panel Button
1 Hourly Snow Accumulation	279	Panel Button
1 Hourly Mixed Accumulation	276	Panel Button
3 Hourly Snow Accumulation	27A	Panel Button
3 Hourly Mixed Accumulation	277	Panel Button
12 Hourly Snow Accumulation	27B	Panel Button
12 Hourly Mixed Accumulation	278	Panel Button
24 Hourly Snow Accumulation	27F	Panel Button
24 Hourly Mixed Accumulation	27E	Panel Button
Heavy Snow (1 km)	291	Panel Button
1 Hourly Winter Precipitation	292	Panel Button
3 Hourly Winter Precipitation	293	Panel Button
12 Hourly Winter Precipitation	294	Panel Button
Whole US Snow Machine Mask Site R01	1001	

FutureScan:

Product Name	Code (0x)	Location
FutureScan 5 minutes into future	326	See Section 3.5.11
FutureScan 10 minutes into future	326	See Section 3.5.11
FutureScan 15 minutes into future	326	See Section 3.5.11
FutureScan 20 minutes into future	326	See Section 3.5.11
FutureScan 25 minutes into future	326	See Section 3.5.11
FutureScan 30 minutes into future	326	See Section 3.5.11

National Composites

Product Name	Code (0x)	Location
Hybrid Maximum Reflectivity Composite (1km)	C04 302	Panel Button
24 Hour Precipitation Composite (1km)	C04 30D	Panel Button
VIL Density Composite (1km)	C04 310	Panel Button
Echo Tops (1km)	C04 311	Panel Button
Whole US Baron SCITS (1km)	C04 62	Panel Button

RUC Model

Product Name	Code (0x)	Location
Winds data from (Surface to 42,000 ft)	X01 49	See Section 3.5.22

FasTrac Level II Data

Product Name	Code (0x)	Location
256 Color Intensity (4 Tilts)	66	Panel Button
256 Color Velocity (4 Tilts)	68	Panel Button

The following paragraphs describe most of the possible products:

- **Base Reflectivity** displays the 150-mile reflectivity sweep of the site. This product is available only for the first four scans of the volume.
- **Composite Reflectivity** shows the greatest reflectivity at a location, regardless of height.
- **Base Velocity** displays wind speed and direction in reference to the radar beam. It is available only for the first four scans of the volume.
- **Storm Relative Velocity** displays Storm Relative Velocity (SRV), which indicates wind speed and direction relative to storm movement. SRV is available only for the first two scans of the volume.

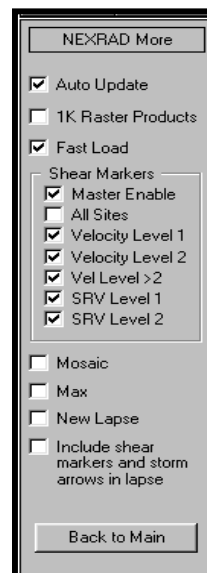
Shear products, such as **SRV Shear** (Storm Relative Velocity Shear) and **BV Shear** (Base Velocity) are the respective velocity products, showing the amount of gate-to-gate shear on adjacent radials. **SRV Shear** is available for the first two scans of the volume. **RV Shear** is available for the first four scans of the volume.

- **Composite Shear** is derived from both Storm Relative and Radial shears, showing the greatest shear, regardless of the storm's velocity or height.
- **Baron Button** enables the system to display a special product designed to provide an overall assessment of a storm in one display. It incorporates Rain Rate, VIL Density, and Composite Shear parameters into one product.
- **Vertically Integrated Liquid (VIL)** uses the water content feature to estimate the amount of water in kilograms per meter squared (kg/m^2). Its primary use is for hail detection.
- **VIL Density** uses the NEXRAD VIL and Echo Tops products to determine the amount of water in kilograms per meter cubed (kg/m^3). This gives a more accurate reflectivity reading of surface hail that meets or exceeds 18.5 dBZ.
- **Echo Tops** indicates the highest altitude that the radar senses.
- **Storm Total** graphically represents the total rain in an area after the radar mode changes from Clear Air Mode to Precipitation Mode.
- **Rate** shows the amount of rainfall, in inches per hour, for a given time period.
- **C01** indicates that no recent data has been received from the site.
- **C02** indicates that the radar is in Clear Air Mode.
- **R01** displays the precipitation type forecast grid for the eastern U.S.
- The **1 hr** and **3 hr** buttons show the estimated rain accumulations over one-hour and three-hour periods.

- **Pick** lets you select a single frame from a list of archived frames. After you select a frame, use the < and > buttons to move the radar sweep forward or back one frame. Use this option to review data that is not current.
- **R/T** switches the radar to real time to show new frames as they appear.
- **Off** puts the system back into real-time radar mode (that is, your own radar's sweeps start to display again and NEXRAD is deactivated).
- At the bottom of the panel is a row of buttons labeled **1** through **6**. The **1** button opens the NEXRAD Main panel. The **2** button opens a panel with additional settings that are described below. The **3** and **4** buttons open panels intended for Snow Machine products. The **5** and **6** buttons open panels that are identical to the NEXRAD Main panel, allowing you to configure buttons for additional products if there was not room for them on the main panel.

The **2** button opens the NEXRAD More panel, shown on the right.

- ⌘ **Auto Update** makes the system update automatically when a new product is ingested.
- ⌘ **1K Raster Products** can show a higher resolution (1 km x 1 km) of all products. The 1K Raster products are derived by using the 4-km products and the 1-km radial from NEXRAD.
- ⌘ **Fast Load** decreases the loading time when switching between products. This box should always be checked.
- ⌘ **Master Enable** controls the display of all shear markers. Uncheck this box to turn all shear markers off.
- ⌘ **All sites** turns shear markers on or off for all sites. We recommend that you leave all sites on until some display shear markers. Once markers appear, you can turn off sites you do not need.
- ⌘ **Velocity Level 1** shows shear markers from the lowest level radial velocity.
- ⌘ **Velocity Level 2** shows shear markers from the second lowest level radial velocity.
- ⌘ **Vel Level >2** shows the shear markers from the third and fourth levels of radial velocity.
- ⌘ **SRV Level 1** shows the shear markers from the lowest Storm Relative Velocity.
- ⌘ **SRV Level 2** shows the shear markers from the Level 2 SRV.
- ⌘ **Mosaic** forms product composites from multiple sites. These continue to update as new products arrive.
- ⌘ **Max** posts the highest levels from the selected Mosaic.

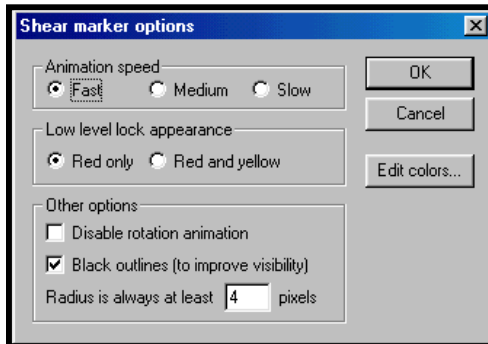


- ⌘ **New Lapse** clears the screen each time you create a time-lapse with the **Max** option on.
- ⌘ **Include in Lapse** moves the shear markers in time lapses, along with the displayed radar. Otherwise, the markers lock to the latest location.



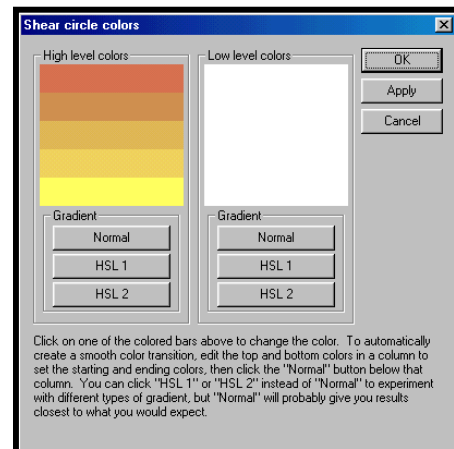
If you select **Mosaic**, **Max** and **New Lapse** simultaneously, the system displays the requested product lapse without erasing the prior frame.

6.3.2 Adjusting Shear Marker Settings



Select **Setup > Data > Shear Markers** to open the Shear Marker Options menu.

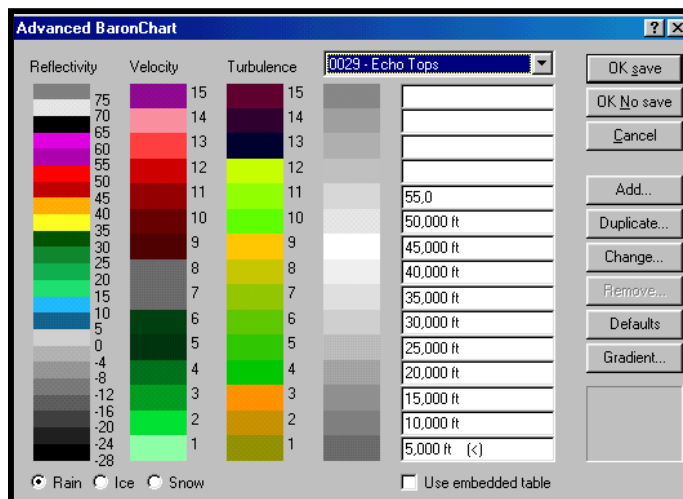
- **Animation Speed** lets you change the rotation speed of the shear markers.
- **Low Level Lock Appearance** lets you choose to make your low-level shear markers red only or red and yellow.
- **Other Options** lets you choose to disable the rotation animation, give black outlines to the shear markers, or change the minimum radius of the shear markers, as measured in pixels.
- **Edit Colors** opens the **Shear Circle Colors** menu, where you may edit the high and low level colors. As the menu explains, you only need to edit the top and bottom colors for each level.



6.3.3 Using the Advanced Baron Chart

Any Advanced BSI Data Products you may purchase include an Advanced Baron Chart for NEXRAD products. You can open the Advanced Baron Chart with the **Setup > Data > Baron Chart** command. The Advanced Baron Chart allows you to change the default colors of any NEXRAD products you have. You may also display the *Pixel Query* status messages for NEXRAD products.

The **Reflectivity**, **Velocity**, and **Turbulence** palettes are defaults. Use these options to configure the display for real-time radar data. If a product does not have its own palette, the program uses the **Reflectivity** product, by default.



Choose the NEXRAD product you want to edit from the pull-down list on top of the menu. The default level colors appear in the fourth column, along with a table describing their *Pixel Query* values.

- **OK save** saves your changes permanently.
- **OK – No save** makes temporary changes that disappear when you reboot.
- **Cancel** returns the palette to original settings.
- **Add** lets you configure a new NEXRAD product by entering a name and the four-letter or number product code.
- **Duplicate** opens the Duplicate Palette menu, which lets you copy color palettes from one product to another.
- **Change** lets you edit the cursor products name or product code.
- **Remove** lets you delete the cursor products name or, if the code is standard, the code.
- **Defaults** resets the selections to the default settings.
- **Gradient** lets you quickly use a gradient for level colors.
- **Rain**, **Ice**, and **Snow** let you select the precipitation type for the reflectivity column.
- **Use embedded table** indicates that the standard table of level descriptions are used for the selected products.

One of the important issues to remember when adding a Baron Chart entry is that the Baron Chart does not expect the elevation digit to be appended when you enter the product code. When you right-click on a button in the NEXRAD panel, the product code that appears has the elevation code appended.

For example, if you right-click on a button that is configured to display one-hour rain products, you will see something like 4e Rain 1hr as the configuration text. Users often see this and think they need to type 4e0 as the product code in the Baron Chart. In fact, the proper code is 4e since the extra 0 in the button configuration merely indicates that the product does not vary with elevation.

6.3.4 Customizing Product and Time Marquees



The **product info display** panel allows you to control the display of NEXRAD product names and generation times on your views. Open this panel by selecting **Setup > Data > NexRad Stats**.

- ❑ **Show product name** toggles the display of the product name marquee.
- ❑ The **X** and **Y** textboxes control how many pixels to the right and down, respectively, from the upper left corner that the product name marquee appears. The **W** field controls the width in pixels of the product name marquee, while the **H** field controls the height in pixels of the marquee.
- ❑ **Show product generation time** toggles the display of the product generation time marquee.
- ❑ The **X** and **Y** textboxes control how many pixels to the right and down, respectively, from the upper left corner that the product generation time marquee appears. The **W** field controls the width in pixels of the product generation time marquee, while the **H** field controls the height in pixels of the marquee.

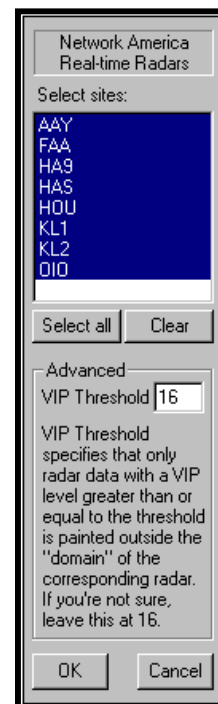
Move together when dragging lets you move the product name marquee and the product generation time marquee simultaneously. When you select this option and click **OK**, you can move both displays at one time by left-clicking in an area on or between the product name marquee and product generation time marquee (this area is defined by the corners of the marquees that are farthest apart) and dragging the cursor to the new position. Otherwise, you can reposition either display separately, by clicking and dragging.

6.4 Utilizing Multiple Real-Time Radars Via Network

The Network America™ system augments your real-time Doppler data by linking to multiple Doppler sites (including your own real-time radar), letting you monitor numerous meteorological scenarios, including severe weather, more closely.

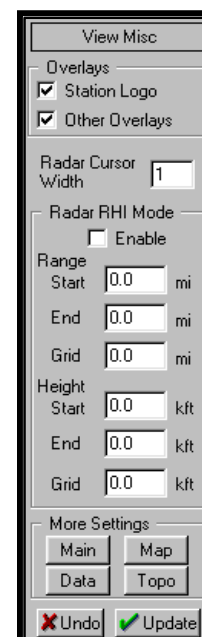
6.4.1 Using Network America

1. Open NetRad to display the NetRad interface.
2. Select **Setup > Main Setup** to open the NetRad Setup menu.
3. Click the **Add Site** button, and select up to twenty-one locations.
4. Upon completion, click **OK**.
5. Open FasTrac.
6. Select **Radar > Multisweep** to open the Multisweep menu, displayed to the right.
7. Select the desired sites by clicking on them or by pressing **Select All** to enable all the listed sites.
8. When you have selected the sites you want, click **OK**.
9. To turn off Network America, go back to the **Radar** menu and select **Stop Multisweep**.



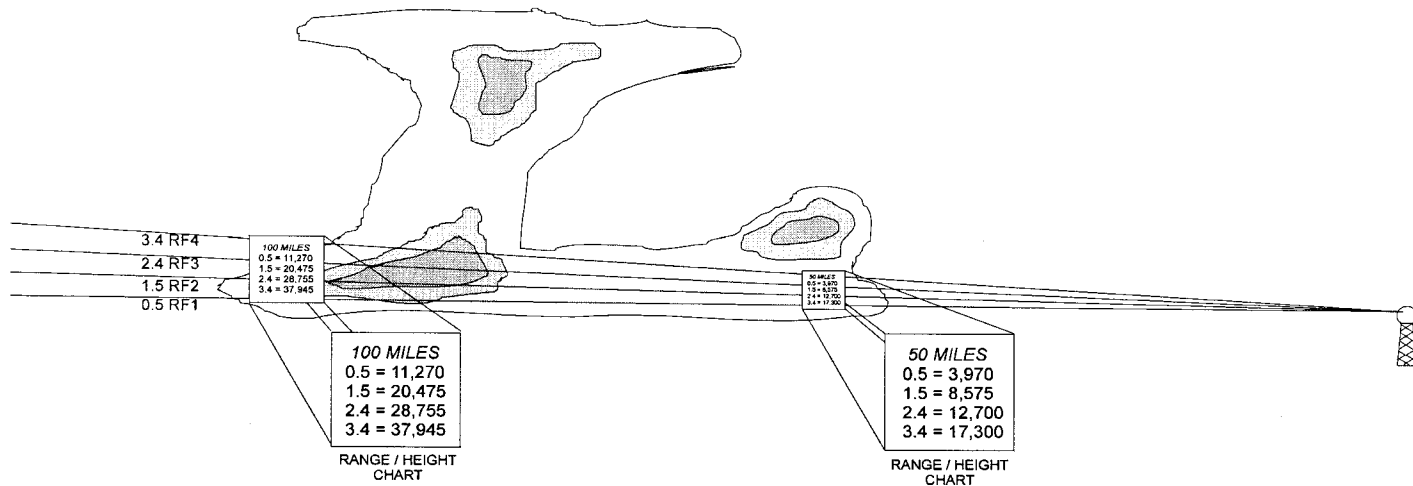
6.4.2 Changing the Width of the Radar Sweep Cursor

1. Open the View Misc panel.
2. Set the **Radar Cursor Width** parameter to **1** to display the standard width. Set the parameter to **2** to double the width, and set the value to **0** to remove the radar sweep.
3. Click **Update** at the bottom of the panel to make the changes. You can save the view with the cursor set to the selected width. This will always display the setting. If you do not save the view, it will revert to the previous setting.



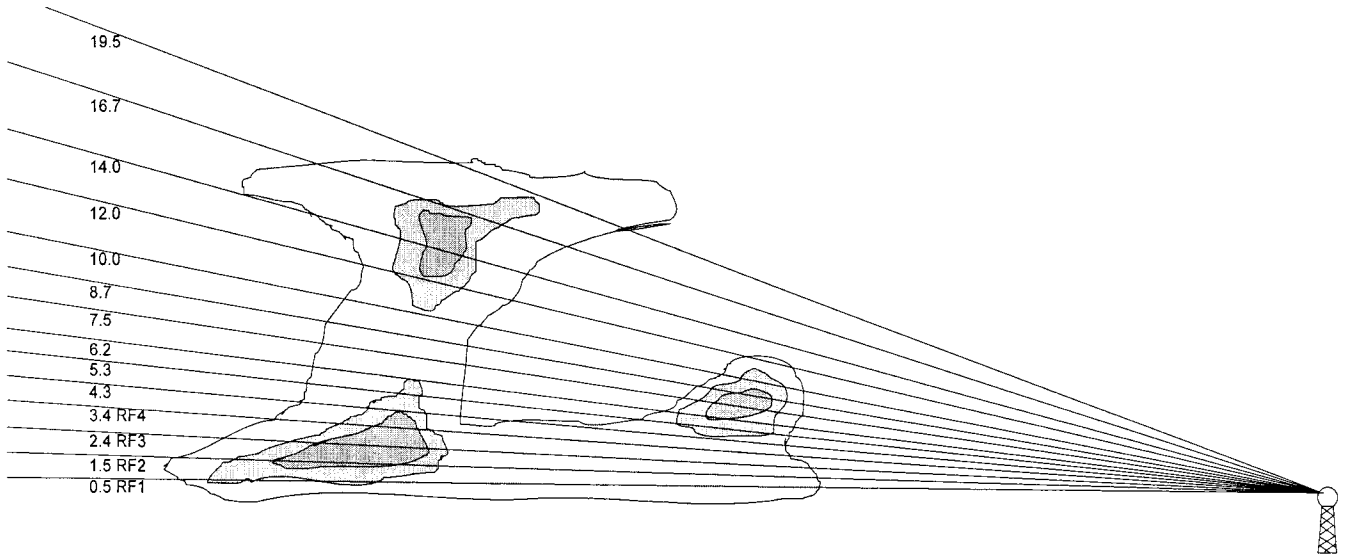
6.5 Comparing Base Reflectivity and Composite Reflectivity

Base reflectivity shows the intensities at each of the elevation angles. In the following example, base reflectivity 1-4 shows a small storm event very far off, but *undershoots* the closer storm. The elevations for the four-base reflectivity NEXRAD products are also depicted.



BASE REFLECTIVITY

Composite reflectivity shows the greatest intensity regardless of height in storms. In the following example, the greatest intensities for the storm further from the radar are shown, both aloft and closer to the ground. The composite image also reveals another storm closer to the radar.



COMPOSITE REFLECTIVITY

6.6 Points to Remember

- ❑ Use the **Radar Control** panel to control your real-time, non-Baron radar.
- ❑ Use the **RADACS Control** panel to control your Baron radar.
- ❑ Use the **NEXRAD Main** panel to control your NEXRAD radar data.
- ❑ Use the **Advanced Baron Chart** to set color schemes for NEXRAD data.
- ❑ Base reflectivity shows the intensities at each of the elevation angles and should be used to view storms that are far from the radar.
- ❑ Composite reflectivity shows the greatest intensity, regardless of height, and should be used to view storms that are relatively close.

Glossary

Anti-Alias – An option that provides a smoothing effect to the pixels used in text.

Auto Scan – An option in the StormScan setup menu that automatically updates the status of Storm Cell Information and Tracking (SCIT) indicators when new radar data is available.

azimuth – The angle of horizontal deviation, measured clockwise in degrees, from one point on a map to another.

base view – A saved view that acts as a starting point for a zoom, pan, or time-lapse operation.

bend – The curve in a squall projection that indicates the shape of the storm front.

circle projection – A type of storm projection that indicates the communities within a storm and their distance, in miles, from the storm's center.

creating a storm track – The action of clicking and dragging to create a fan, circle, or squall projection.

cut off range – A range that defines when a parameter appears on a view. Any view with a view range at or below that cut-off range shows the parameter; any view with a view range larger than the cut-off range will not show the parameter.

database – A collection of associated data.

dynamic sizing – An option available only for Street Spotter text. This option, which is available when you select **Setup ⇒ Street Spotter**, makes the system automatically select a font size that fits the length of the line when labeling a street in Street Spotter mode. It also proportionally changes the text size when you zoom in or out of a view.

extrusion – A text option that places a shadow behind each letter at a user-defined angle. This option is available when you select **Setup ⇒ Fonts** commands.

fan projection – A fan-shaped storm projection used to track a single storm cell. Select **Storm > Add > Fan** to create a fan projection.

fanout – This parameter determines the degree to which a fan-type storm track's border expands from the base to the end, to account for the possibility of the storm not moving in a straight line. The value is set on the **Storm Track** panel and has a maximum width of 40 degrees.

frames – These are extra images added automatically by SEQUENCER when creating zooms, pans, and time lapses. The extra images provide a smooth transition between the starting and ending view.

FutureScan – This is an optional module that predicts and displays the intensity and location changes of precipitation fields.

High Definition Data Processing (HDDP) – This feature smoothes out the pixelated appearance of NEXRAD radar data.

hot buttons – A set of 20 buttons, directly above the view area, that lets you execute various features with a single left click. Some hot buttons also have right-click features.

Ingestor program – A separate program that receives local or NEXRAD radar data and makes it available on your system.

intensity repaint - This is a SEQUENCER event that redisplay the radar sweep to depict the weather intensity. Use this only when you are switching from NEXRAD to real-time radar data.

lightning – An optional module that allows for the ingestion of live lightning data and the manipulation of its display.

latitude – The angular distance, measured north or south from a point on the map view to the equator. The main status area displays the latitude of the current cursor position.

Log to file – The **Radar ⇒ Log to File** command that logs your radar files so that you can recall them later. This command is essential for replaying real-time radar data and displaying time-lapses of real-time radar.

longitude – The angular distance, measured east or west from a point on the map view to the prime meridian in Greenwich, England. The main status area displays the longitude of the current cursor position.

liquid database – The system of databases that determines how map features such as roads, rivers, and places appear. It allows for smooth transition between views.

main menus – The row of pull-down lists along the top of the FasTrac window that lets you access many advanced features.

map pointer – A Windows-style mouse pointer tool that is used to point out things on the map.

module – A feature or set of features that does not come with the basic FasTrac system but can be purchased separately. Every module either adds new features or enhances existing features.

multisweep – The operation used by the Network America module to conduct a sweep of several radar sites simultaneously.

Neighborhood Weather Net – The optional module that provides non-storm related weather data, such as temperature, humidity, and air pressure.

Network America – The optional module that simultaneously displays data from up to 20 radar sites.

Omninet.ini – FasTrac's main configuration file.

pan – Changing the center point of a view.

Previous – The **View Main** panel command that lets you switch back to the preceding view.

product – Radar data that is intended to depict a certain type of weather (such as Reflectivity for rain).

radius – The distance, measured in miles, from the center point of a view to the top or bottom edge.

radar levels – Divisions in the color scheme of a radar product that indicate the severity of that product.

Radar Level Pixel Query Mode – The special mode that lets you see the level of a product at a specific location by placing the cursor at that location.

real-time radar – A privately owned radar (as opposed to a NEXRAD radar) that obtains data as it sweeps.

Replay – The option used to replay archived data as a time lapse.

RGB – The Red-Green-Blue values that compose colors. Use the **Setup ⇒ Colors** command to specify specific RGB colors to generate a new color for a feature, such as the state boundary.

Round Outlines – The **Setup ⇒ Fonts** option that gives anti-aliasing to font borders.

SCIT (Storm Cell Information and Tracking) – An arrow produced by StormScan that identifies specific types of storms.

SEQUENCER – The FasTrac feature used to group many related views together and to display them in a continuous order for various effects.

Show Range – The range at which individual communities will appear on a view. Use the **Setup ⇒ Places Database** command to set this parameter for specific communities.

site – The name of a NEXRAD radar at a specific location. Use the **NEXRAD Main** panel to select a NEXRAD site.

Snow Machine – The optional module that displays winter weather, such as ice and snow.

squall projection – The storm projection that shows the direction, speed, and shape of an entire line of storms. Use the **Storm ⇒ Add ⇒ Squall** command to create a squall projection.

storm marquee – The box that shows the cities in the path of a storm and the estimated time that the storm will hit those places. This text box is also known as the *ETA box*.

StormScan – This is used to automatically detect and track the most severe storm cells in a region.

storm track – The projection of a storm's direction and speed; normally used to calculate when a storm will hit certain places.

Storm Track Estimated Time of Arrival (ETA) – The clock time that a storm will hit a place, based on the storm's location, speed, and movement.

Street Spotter – The feature used to label important streets and landmarks.

SWP (Severe Weather Probability) – The product that provides a visual display of a set of probability values for "severe" storm cells.

TeleTrac – The module used to draw freehand lines on the screen.

time lapse – The SEQUENCER-created series of views that depict radar data on the same area over a period of time.

turbulence – A state of atmospheric flow in which random fluctuations are exhibited and cause changes in the normal flow pattern.

van marquee – The text box that shows the current data being received from the optional Storm Spotter Van.

Vehicle SpotterTrac – The optional module that utilizes a link to a mobile unit equipped with weather equipment, to establish a mobile data source.

view – The current map displaying on the screen.

VIPIR – Separate radar program that shows both NEXRAD and Baron-derived products in three-dimensional displays.

zoom – A change in the range of a view.

Product Glossary

In this Product Glossary, **B** denotes Baron-generated products, while **N** denotes non-Baron-generated products. All product numbers (for example, 4E) are in hexadecimal code. *Italicized* words are terms that are defined elsewhere in this glossary.

Base and Convective Storm Products:

1-hour accumulation (4E): Shows the NEXRAD-estimated horizontal distribution of precipitation over a one-hour time period. **N**

3-hour accumulation (4F): Shows the NEXRAD-estimated horizontal distribution of precipitation over a three-hour time period. **N**

Baron Button 1K (265): A special product that is designed to provide an overall assessment of a storm. It incorporates *VIL density*, *composite shear* and *rain rate* parameters into one product, and is displayed in 1 km by 1km pixel resolution. **B**

base (63) and relative (64) velocity shear markers: Enables the system to display two types of rings, which are representative of the location where shear is present. A yellow ring signifies that shear is present in the upper levels (2, 3 or 4) of the atmosphere, while a red ring signifies a “Low Level Lock”, or shear is present near the surface (level 1). **Note:** Once the shear reaches a threshold of 50 knots, a ring is displayed. **B**

base reflectivity (13): Displays the current 150-mile reflectivity sweep of a site. **Note:** Base reflectivity is only available for the first four elevations of the volume. **N**

base reflectivity 1K (113): This is the base reflectivity product, however, instead of the pixels being shown in Azimuth-Range (AzRan) format, they are displayed in 1km by 1km (1km²) format. **B**

base reflectivity 300 miles (14): Displays the current 300-mile reflectivity sweep of a site. **N**

composite reflectivity (26): Displays the greatest reflectivity in a vertical column regardless of height in a storm. **Note:** NEXRAD can scan up to a 19.5° elevation angle, so the greatest reflectivity within this scanning volume is reported. **N**

composite reflectivity 1K (126): The composite reflectivity converted to a 1km by 1km product. **B**

composite shear (25F): Shows the maximum value of shear located in the storm within the first four scanning level. **B**

corrected radial velocity (31B): This product displays the velocity, which is result of correcting the *radial velocity* for various errors, including second-trip echoes and range folding. This product is also known as **corrected base velocity**. **B**

corrected storm relative velocity (31C): This product displays the velocity, which is the result of correcting the *storm relative velocity* for various errors, including second-trip echoes and range folding. **B**

echo tops (29): Indicates the highest level that the radar is receiving a return of at least 18 dBZ. **N**

echo tops 1K (129): The echo tops product converted to 1 km by 1 km format. **B**

layer 1 composite (41): Displays the greatest reflectivity in a vertical column between the surface and 24,000 feet (from mean sea level). **N**

layer 2 composite (42): Displays the greatest reflectivity in a vertical column between 24,000 feet to 33,000 feet (from mean sea level). **N**

layer 3 composite (5A): Displays the greatest reflectivity in a vertical column between 33,000 feet to 60,000 feet (from mean sea level). **N**

maximum reflectivity 1K (226): Shows the greatest reflectivity measured within the first four radar scanning levels, and is converted to 1 km by 1 km resolution. **B**

maximum shear 1K (25F): Shows the maximum value of shear located in the storm within the first four scanning levels, and is converted to 1 km by 1 km resolution. **B**

radial velocity (1B): The average velocity of targets (i.e. rain droplets, etc.) moving towards or away from the radar beam. Radial velocity is displayed as either positive (moving away from the radar) or negative (moving towards the radar). Generally, the positive values are displayed in warm colors, while negative values are indicated by cool colors. **Note:** Radial velocities are only available for the first four elevation scans of the volume. This product is also known as **base velocity**. **N**

radial velocity 1K (11B): This is the radial velocity product converted to a 1km by 1km pixel format. **B**

radial velocity shear (5F): The change in radial velocity per unit distance along a radial. **Note:** Basically, shear is defined as the change or variation in velocity over a specified distance. This product is also known as **base velocity shear**. **B**

radial velocity shear 1K (15F): The radial velocity shear product converted to 1 km by 1 km resolution. **B**

rain rate (266): The rate of rainfall or rainfall intensity as estimated by NEXRAD over one hour. **N**

storm relative velocity (38): The velocity that is relative to storm movement. This product is the *base velocity* with the average movement of storms, which are defined by a storm-defining algorithm, being subtracted out. Therefore, the motion appears relative to the storms. **Note:** Storm relative velocities are only available for the first two scanning elevations of the volume. **N**

storm relative velocity 1K (138): The storm relative velocity converted to a 1 km by 1 km pixel display. **B**

storm relative velocity shear (61): The change in storm relative velocity per unit distance along a radial. This product is also known as **relative velocity shear**. **B**

storm relative velocity shear 1K (161): The storm relative velocity shear product converted to 1 km by 1 km resolution. **B**

storms (62): This product includes the National Weather Service SCITs (thunderstorm, hail, severe hail, mesocyclonic and TVS), in addition to the Baron-generated SCITs (storm and shear). Therefore, it enables a more comprehensive identification of severe weather that may affect a given location. **B**

total precipitation (storm total accumulation) (50): Displays the total precipitation amount estimated by the Doppler radar after the radar mode has changed from “clear-air” to “precipitation”. To determine the estimated amount of rain, the radar uses a Z-R relationship, which matches reflectivity values to a corresponding rain rate. **Note:** There are specific Z-R relationships for various precipitation events. **N**

VIL (39): The Vertically Integrated Liquid water content represents the amount of liquid water present in a cross-sectional area in the atmosphere, and is usually measured in units of kilograms per meter squared (kg/m^2). **B**

VIL 1K (139): This is the VIL product converted to a 1 km by 1 km format. **B**

VIL density (60): The Vertically Integrated Liquid density displays the calculated value of *VIL* divided by echo tops ($(VIL)/(echo\ tops)$). It is reported in units of kilograms per meter cubed (kg/m^3). **B**

VIL density 1K (160): The VIL density product converted to a 1 km by 1 km resolution. **B**

Snow/Hydrological Package Products

1-hourly (273), 3-hourly (274), 12-hourly (275) and 24-hourly (27D) liquid precipitation rate 1K: These products provide a 5-minute by 5-minute look at liquid accumulations in a 1 hour, 3 hour, 12 hour or 24 hour window. **B**

1-hourly (276), 3-hourly (277), 12-hourly (278) and 24-hourly (27E) mixed precipitation rate 1K: These products provide a 5-minute by 5-minute look at mixed precipitation accumulations in a 1-hour, 3-hour, 12-hour or 24-hour window. **B**

1-hourly (279), 3-hourly (27a), 12-hourly (27b) and 24-hourly (27F) snow rate

1K: These products provide a 5-minute by 5-minute look at snow precipitation accumulations in a 1-hour, 3-hour, 12-hour or 24-hour window. **B**

1-hourly (270), 3-hourly (271), 12-hourly (272) and 24-hourly (27C) total

precipitation rate 1K: These products provide a 5-minute by 5-minute look at total precipitation accumulations in a 1-hour, 3-hour, 12-hour or 24-hour window. **B**

1-hourly (292), 3-hourly (293), 12-hourly (294) and 24-hourly winter (295)

precipitation 1K: This product provides an overview of a winter weather event. In combining the 1-hourly or 3-hourly or 12-hourly or 24-hourly liquid, mixed and snow rates, it allows the user to more completely understand the intensity of the event. **B**

flood 1K (290): This product is designed to provide insight into the potential for flooding. It incorporates the 1-hour, 3-hour and 12-hour total precipitation rates into its calculations. **B**

heavy snow 1K (291): In combining the 1-hourly, 3-hourly and 12-hourly snow rates, this product provides an assessment of the intensity of a snow event. **B**

past 1-hour liquid (26D), mixed (26E) and snow accumulations (26F) 1K: These products are animation sequences of imagery that depict the accumulation of liquid, mixed or snow precipitation during the past 1 hour. **B**

past 1-hour total precipitation accumulation 1K (26C): This product is an animation sequence of imagery that depicts the growth of the total accumulated precipitation during the past 1 hour. **B**

past 24-hour liquid (28D), mixed (28E) and snow accumulations (28F) 1K: These product are animation sequences of imagery that depict the growth of liquid, mixed or snow accumulations during the past 24 hours. **B**

past 24-hour total precipitation accumulation (28C) 1K: This product is an animation sequence of imagery that depicts the growth of the total accumulated precipitation during the past 24 hours. **B**

precipitation type 1K (Snow Line) (269): This product depicts the areas of snow, mixed precipitation, and rain areas. While it does not show actual precipitation, it does show what the precipitation type would be if any were falling. Although it is not really designed for display, it can be used as a product to define where the changeover points are in advance of actual precipitation. **B**

precipitation type 4K (401): This is the precipitation type 1K product converted to a display of 4 km by 4km resolution. **N**

Snow Machine (268): This product enables the ability to display rain, mixed precipitation and snow, as well as their respective rates. The result is a radar display where the first five levels represent liquid precipitation, the next five levels indicate mixed precipitation, and the last five levels depict snow rates. In addition, this module allows the user to see the transition of precipitation type and rate as a system moves across a viewing area. **B**

Other Products

arrows: Enables the system to display storm SCITs (an identification box and an associated arrow), which visually depict various characteristics of the storm. By right clicking on the box, an information chart appears, which contains various numerical parameters pertaining to the storm.

Baron US Composite Products (3010, 3020, 3030, 3040, 3050, 3060): These products display US Radar NEXRAD status, 8 km Composite reflectivity, and 1 km quadrant composite reflectivity in the southeast, southwest, northeast and northwest, respectively.