

Users Manual

For



SatoriXP

(The PC Version of Satori)

Version 2.0

A Component of

SIGNAL

*(Simulation and Integration of
Ground, Network, and Air Links)*

Written by Duane A. Duke/AMI-800

June 1, 2006

**Department of Transportation
Federal Aviation Administration
Mike Monroney Aeronautical Center
Oklahoma City, Oklahoma**

USA

1	OVERVIEW	1
2	WEB SITE	1
3	MENUS	2
3.1	FILE SUBMENU.....	2
3.1.1	Build Database.....	2
3.1.2	Open Database.....	2
3.1.3	Save Log as.....	3
3.1.4	Print.....	3
3.1.5	Print Preview.....	3
3.1.6	Print Setup.....	3
3.1.7	Exit.....	3
3.2	REPLAY SUBMENU.....	4
3.3	DISPLAY SUBMENU.....	4
3.4	TOOLS SUBMENU.....	4
3.5	VIEW SUBMENU.....	4
3.6	HELP SUBMENU.....	5
3.6.1	About SatoriXP.....	5
3.6.2	Users Manual.....	6
4	TOOLBAR	7
4.1	3D/2D MODE.....	7
4.2	ZOOM IN/OUT.....	7
4.3	CENTER/OUT CENTER.....	7
4.4	FONT SIZE INCREASE/DECREASE.....	7
4.5	INTENSITIES CONTROL.....	7
4.6	REPLAY ICONS.....	8
4.6.1	Replay Setup.....	8
4.6.2	Time Line.....	8
4.6.3	Play.....	9
4.6.4	Pause.....	9
4.6.5	Stop.....	9
4.6.6	Mute.....	9
4.7	GLOBAL SCALER.....	10
5	MOUSE FUNCTIONS	11
5.1	LEFT MOUSE BUTTON.....	11
5.2	RIGHT MOUSE BUTTON (CONTEXT MENU).....	11

5.2.1	Uncontrolled Menu	12
5.2.2	Set Menu.....	12
5.2.3	Controlled Menu.....	13
6	DISPLAY SETUP DIALOG	14
6.1	AMIS TAB PAGE.....	15
6.2	MAPPING TAB PAGE	16
6.3	READOUT TAB PAGE.....	17
6.4	ROUTE PROCESSING TAB PAGE.....	18
6.5	SECTORIZATION TAB PAGE.....	19
6.5.1	Sector Visualization	20
6.6	SPECIAL TAB PAGE	21
7	INTENSITIES DIALOG	22
8	SET RANGE	22
9	BACKGROUND	23
10	2D MODE (DEFAULT)	24
11	3D MODE	25
12	POINTER FUNCTION	26
13	MONITOR/FIND	27
13.1	FIND FUNCTION.....	28
13.2	MONITOR FUNCTION.....	28
14	RANGE BEARING	29
14.1	RANGE BEARING MONITOR.....	30
15	SATORI DATABASE.....	31
15.1	BUILDING A SATORI DATABASE FILE.....	31
15.2	LOADING A SATORI DATABASE FILE.....	34
16	USING THE REPLAY SETUP.....	39
16.1	AIRCRAFT PAGE	39
16.2	ALTITUDE FILTER PAGE.....	40
16.3	AUDIO PAGE	40
16.4	DATABLOCK PAGE	41
16.5	SECTORS PAGE	41
16.6	SPEED PAGE	42

16.7	SUMMARY PAGE	42
16.8	WEATHER PAGE	43
17	TIME LINE DIALOG.....	44

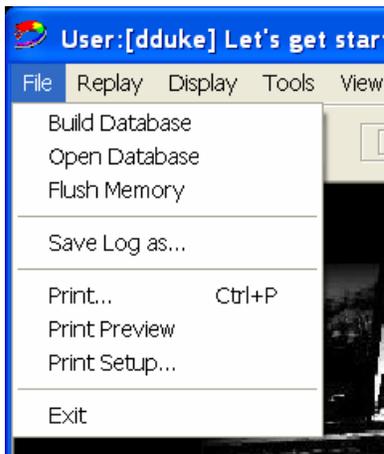
3 Menus

The menu buttons allow functions to be used. When a function is not permitted it is grayed out and does not work. The main menu is displayed across the top of the program window and above the toolbar.



3.1 File Submenu

The File Submenu allows the user to Build Databases, Open Databases, Flush Memory and Save Log files. Printing is also controlled from this menu, but is not yet functional. To Exit SatoriXP select Exit.



3.1.1 Build Database

Build Database will display the dialog that allows the user to build a Satori Database as described in the sector called "Building a Satori Database File".

3.1.2 Open Database

Open Database allows the user to Open a Satori Database File and load it into memory for use as described in the sector called "Loading a Satori Database File".

3.1.3 Save Log as...

The SatoriXP.log adds the information gathered by the Monitor and Range Bearing dialogs. This file is locked while SatoriXP is loaded. In order to allow access to this data during while SatoriXP is still running, the Save Log as... function allows the current SatoriXP.log to be sent to a file for viewing.

3.1.4 Print

The Print Submenu will allow the Screen to be captured and printed and also allow access to SatoriXP Reports.

3.1.5 Print Preview

The Print Preview Submenu will function like the Print Submenu except that instead of printing the information it will be displayed for the user to review.

3.1.6 Print Setup

The Print Setup Submenu allows the user to configure and control the printer.

3.1.7 Exit

The Exit Submenu will cause the SatoriXP program to be exited.

3.2 Replay Submenu

When RecordData has been loaded then these submenus are enabled. Audio Specs will display information about whether an Audio file was loaded or not and the characteristics of the Audio File. Setup will display the Replay Setup Dialog and is used to configure the Replay. TimeLine will display the TimeLine Dialog which will allow the users to adjust in an interactive method using a Slider Control.



3.3 Display Submenu

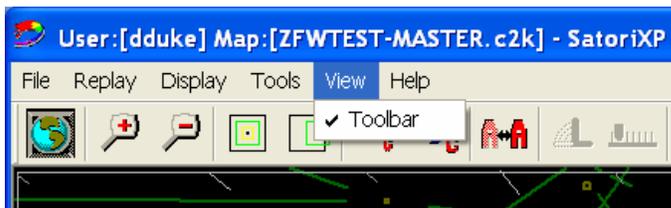
This button allows the Display Setup to be "Displayed" or "Taken Down". Please reference "Display Setup Dialog" concerning the Functionality.

3.4 Tools Submenu

Not Enabled Yet.

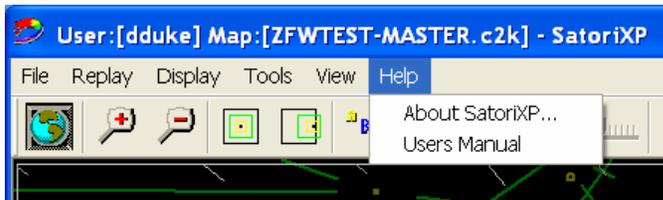
3.5 View Submenu

This allows the Toolbar to be Displayed or Not Displayed. For usability, it is not suggested that the Toolbar be taken down. The only advantage to taking the Toolbar down is the extra mapping display area that is made available.



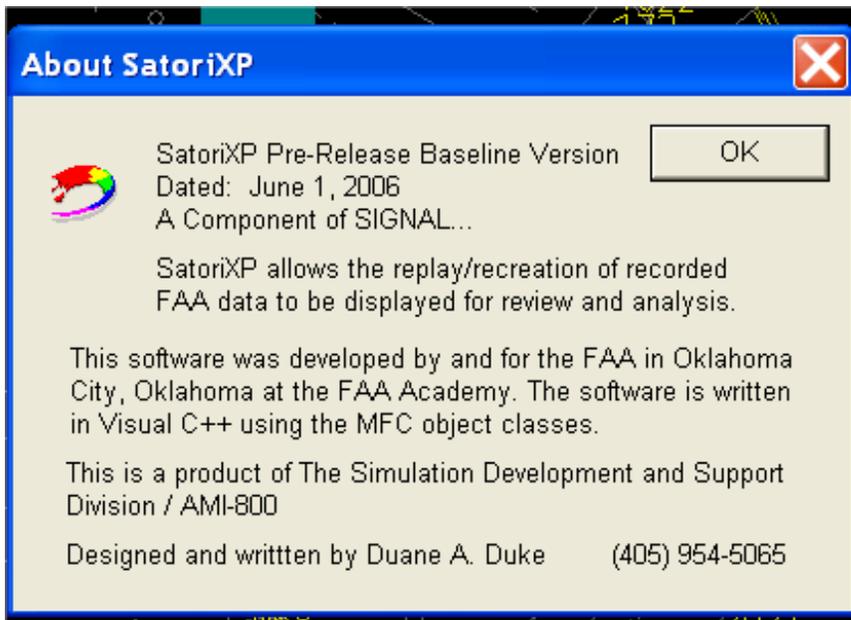
3.6 Help Submenu

The Help Button has 2 sub-functions that can be selected, the About Box and the On-Line User Manual.



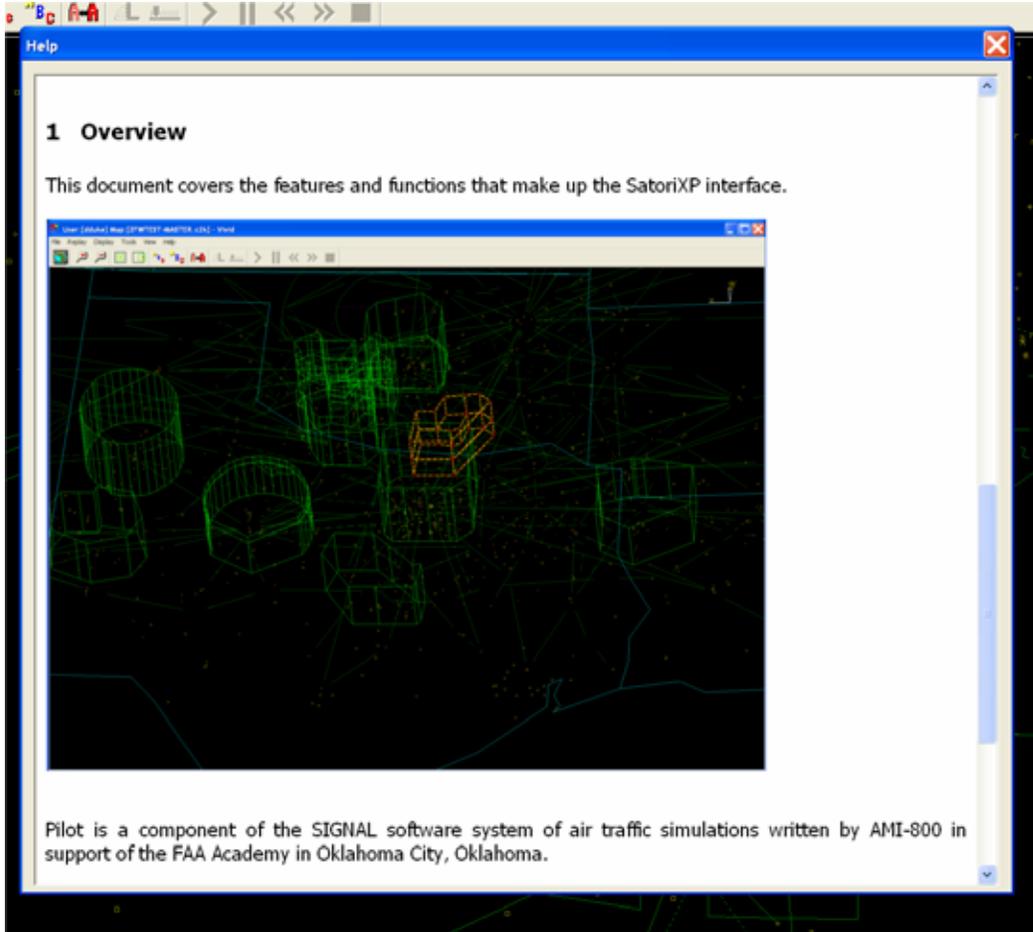
3.6.1 About SatoriXP

The About Box provides an unfamiliar user which a basic understanding of the function of SatoriXP and the version of the software.



3.6.2 Users Manual

Allow the display of this document for use on-line when running SatoriXP.



4 Toolbar

The Toolbar provides the user with access to the basic function necessary to navigate around in SatoriXP.



4.1 3D/2D Mode



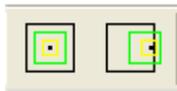
This Icon on the Toolbar allows the user to toggle between 2D and 3D mode of display.

4.2 Zoom In/Out



These Icons on the Toolbar allows the user to Zoom the map in or out as desired.

4.3 Center/Out Center



These Icons on the Toolbar allows the user to Center or Off Center the map as desired.

4.4 Font Size Increase/Decrease



These Icons on the Toolbar allows the user to Increase or Decrease the Font Size of the map labels and Data Blocks as desired.

4.5 Intensities Control



This Icon on the Toolbar displays/removes the Intensities Control Dialog.

4.6 Replay Icons

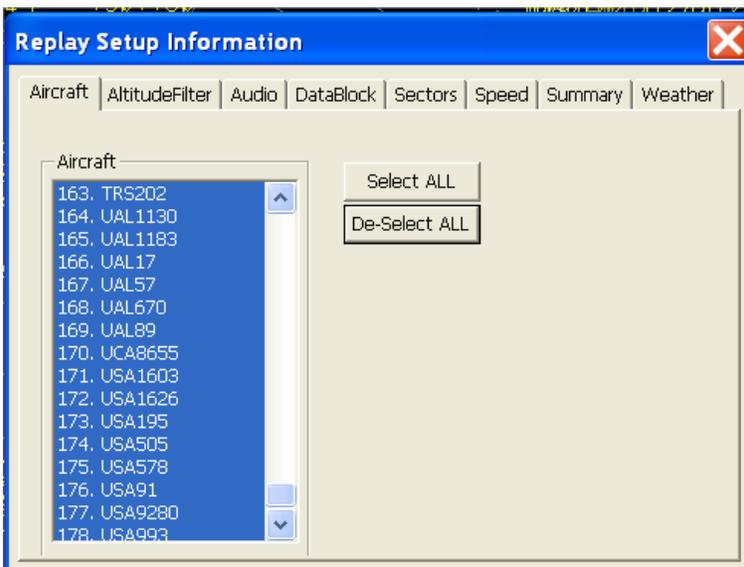
The below picture contains the Replay Icons. These Icons will appear grayed out when Record Data has not been loaded.



4.6.1 Replay Setup



Pressing this Icon will display the Replay Setup Dialog.



4.6.2 Time Line



Pressing this Icon will display the TimeLine Dialog.



4.6.3 Play



Pressing this Icon changes the Animation State to "Play".

4.6.4 Pause



Pressing this Icon changes the Animation State to "Paused".

4.6.5 Stop



Pressing this Icon changes the Animation State to "Stop" which will reset the Clock back to the Start Time and set the Animation State to "Paused".

4.6.6 Mute



Pressing this Icon toggles the Volume State between "Mute" and "Active".

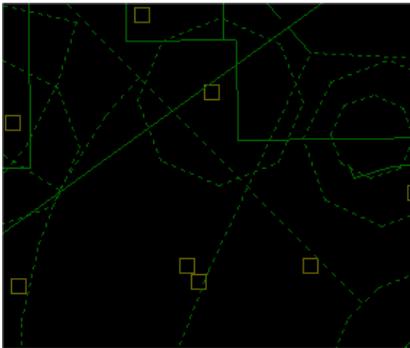
4.7 Global Scaler

The Global Scaler is used to control the proportional size of the Map Symbols and Target Symbols to the Map...

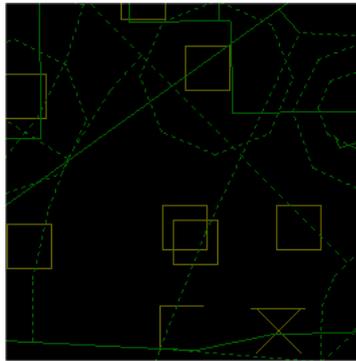


Example: The effects of the Global Scaler on the Mapping.

Small Symbols



Large Symbols



5 Mouse Functions

5.1 Left Mouse Button

The Left mouse button is used to move Full Data Blocks and Range Bearing Data Blocks. The Pointer function also works with this button.

5.2 Right Mouse Button (Context Menu)

Clicking the "Right Mouse Button" when a map has been loaded will display either the "Uncontrolled Menu" or the "Controlled Menu" as described below.

By Pressing the CNTL button, the Right Mouse Button is used to enable and display the Range Bearing Readouts as described later in the document.

5.2.1 Uncontrolled Menu



The "Uncontrolled Menu" allows the user to access the Display Setup Dialog, Global Scaler Dialog, Replay Setup Dialog, the TimeLine Dialog, the Monitor/Find Dialog and the Range Bearing Dialog. By selecting "Set..." the Set Menu is displayed.

5.2.2 Set Menu



The "Set Menu" allows the users to set the Intensity Levels, change the Logical Map (if Create2000 Master contained Logical Maps) , to be Restored to Original Center or moved to a New Center. The user can also select a point on the map that the FRD (Fixed Radial Distance) Readout Information will be based on, set the Range and the Background Color.

5.2.3 Controlled Menu



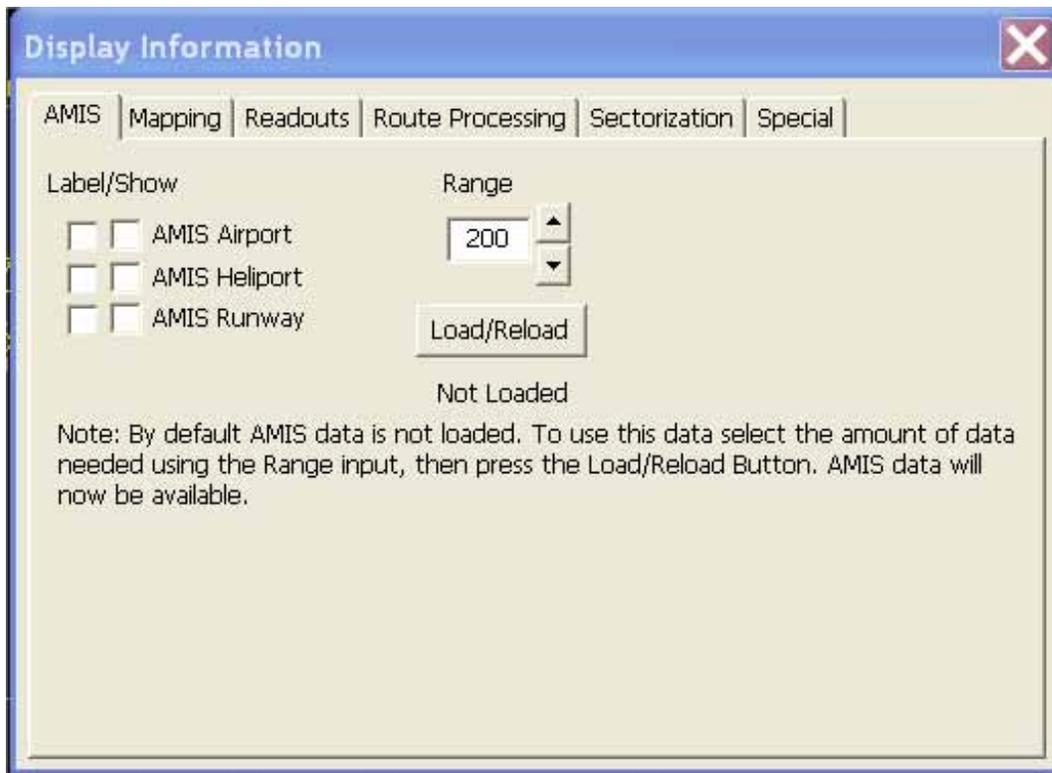
The "Controlled Menu" is displayed when the mouse is clicked on a position symbol. Information about the position symbol is displayed on the "Controlled Menu" such as the beacon code in []'s and the Aid if this information is present.

The functions of Displaying the Flight Path, Toggle the DRI, display the Monitor/Find Dialog, Force DB, Drop the Track, Restore the DB, change the Leader Length or change the Velocity Vector. The user can also select the "Uncontrolled Menu" if desired.

6 Display Setup Dialog

The Display Setup Dialog is composed of several Tab Pages. These pages are AMIS, Mapping, Readouts, Route Processing, Sectorization and Special. To select one of these Tab Pages simply use to mouse and click on the Tab with the Left Mouse Button. The selected Tab Page will then be displayed. To take this Dialog down, you may use any of the following methods.

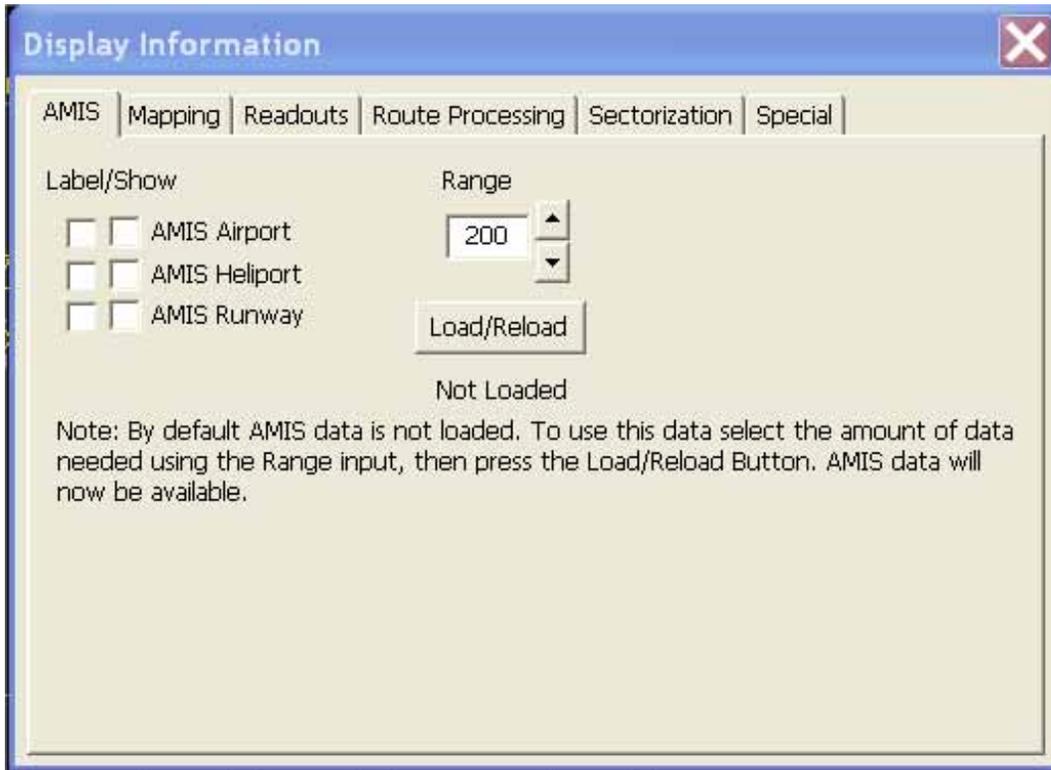
1. Press the Display Submenu Button on the Main Menu.
2. Right Click on the Map and using the Right Mouse Button Context Menu select the Display Menu Item.
3. Press the White X on the Upper Right corner of the Display Setup Dialog.



When using the Display Setup Menu and you see 2 check boxes side-by-side as shown in this picture, the Left button is for selecting whether to display a Label for the item and the Right button controls the display of the Item. If the item is not displayed then the Label button function is ignored.

6.1 AMIS Tab Page

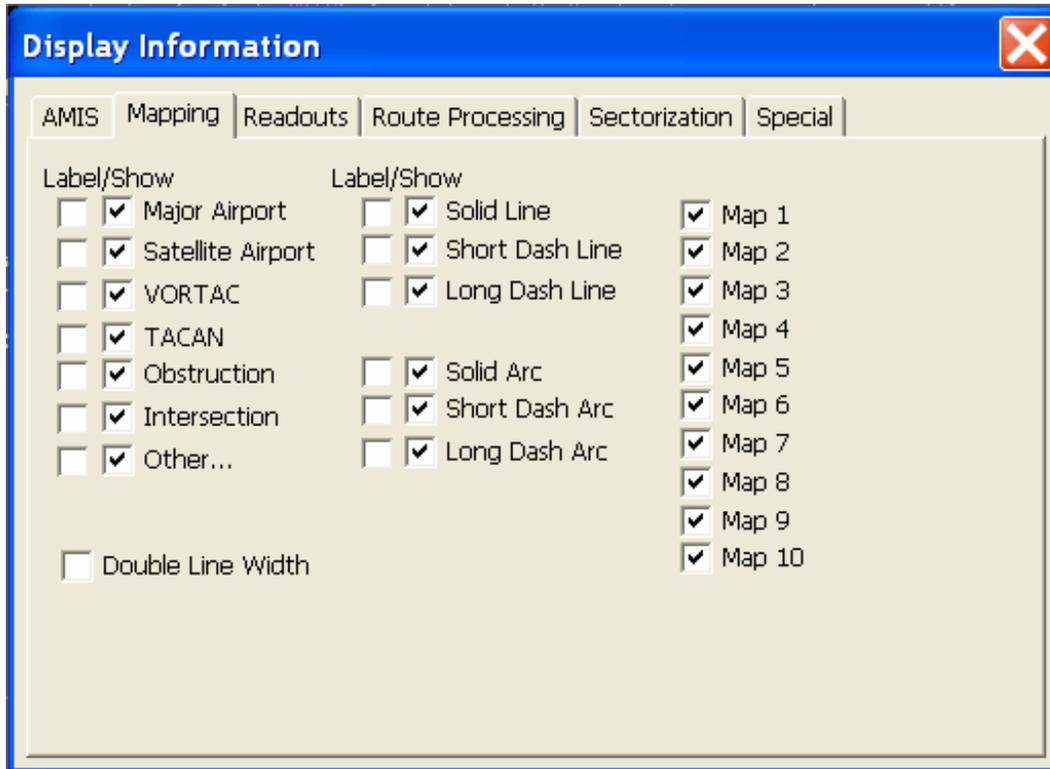
AMIS data consist of Airports, Runways and Heliports. This information can be loaded for any ARTCC and aids in familiarization with airspace. By default this data is not loaded. To load AMIS data specify a Range and press the Load/Reload Button.



When using the Amis Tab and you see 2 check boxes side-by-side as shown in this picture, the Left button is for selecting whether to display a Label for the item and the Right button controls the display of the Item. If the item is not displayed then the Label button function is ignored.

6.2 Mapping Tab Page

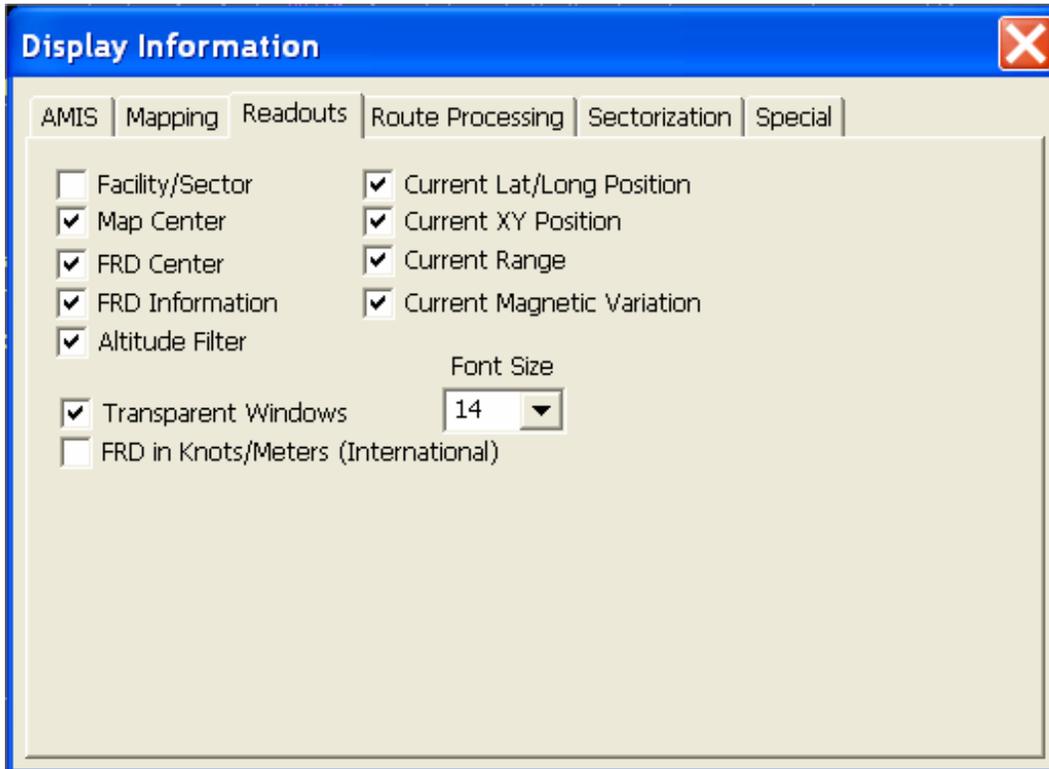
The Mapping page allows the control of the Map by selecting and de-selecting mapping elements. The Double Line Width button when selected doubles the line width of a mapping element. While 10 Maps are shown only the first 4 are used by an ARTCC Aces Adaptation. The other maps can be utilized using Create2000 to add additional information for discussion or instruction.



When using the Mapping Tab and you see 2 check boxes side-by-side as shown in this picture, the Left button is for selecting whether to display a Label for the item and the Right button controls the display of the Item. If the item is not displayed then the Label button function is ignored.

6.3 Readout Tab Page

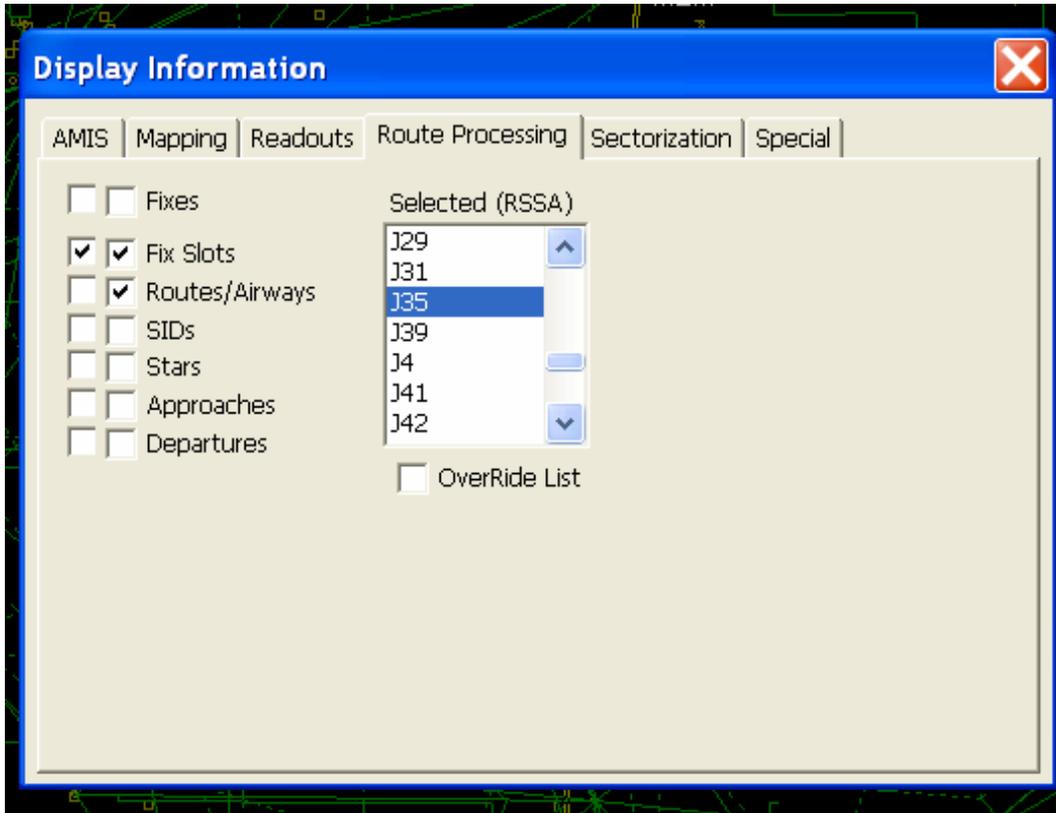
The Readout Tab provides the user with information based on the cursors location on the screen such a current XY, LatLong & FRD location...etc.



6.4 Route Processing Tab Page

The Route Processing Tab allows the user to control the display of the various components related to Route and Fixes.

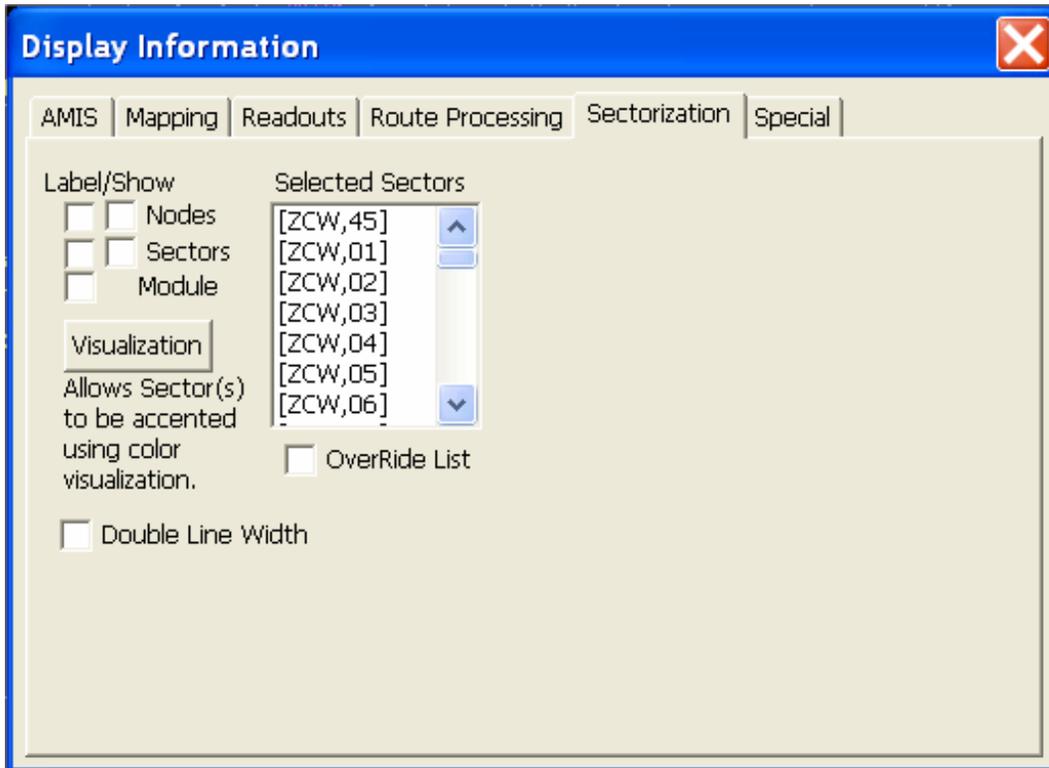
A Fix Slot can be defined as a point on a route. This point can also be found in the Fix Information. A Fix Slot when used with other SIGNAL components allows the user to embed events into the Fix Slots to control the Simulation.



The SIDs, Stars, Approaches and Departure may be added to the Create2000 Master using Create2000 but they are not part of the initial conversion from the ACES Input data that Construct uses to build the Create2000 Master Files.

6.5 Sectorization Tab Page

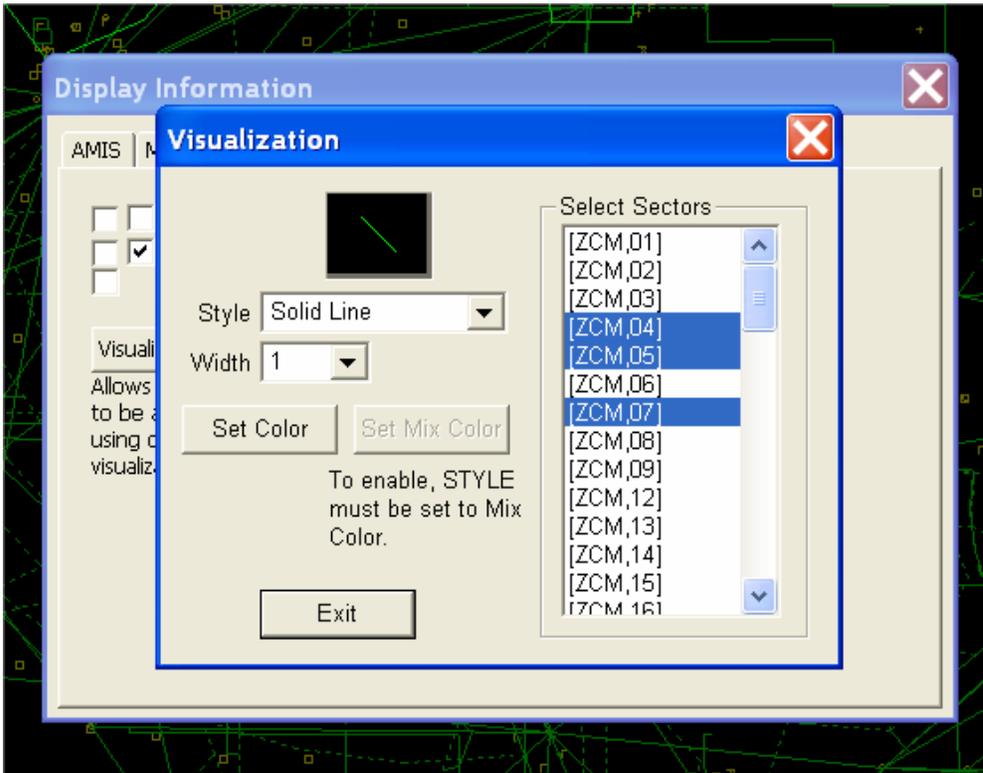
The Sectorization Tab allows the user to control the display of Sector information by selecting and de-selecting for display the various sectors. The Visualization button allow the display attributes of a sector or sectors to be changed for display emphasis. The Override Button displays all Sectors.



When using the Sectorization Tab and you see 2 check boxes side-by-side as shown in this picture, the Left button is for selecting whether to display a Label for the item and the Right button controls the display of the Item. If the item is not displayed then the Label button function is ignored.

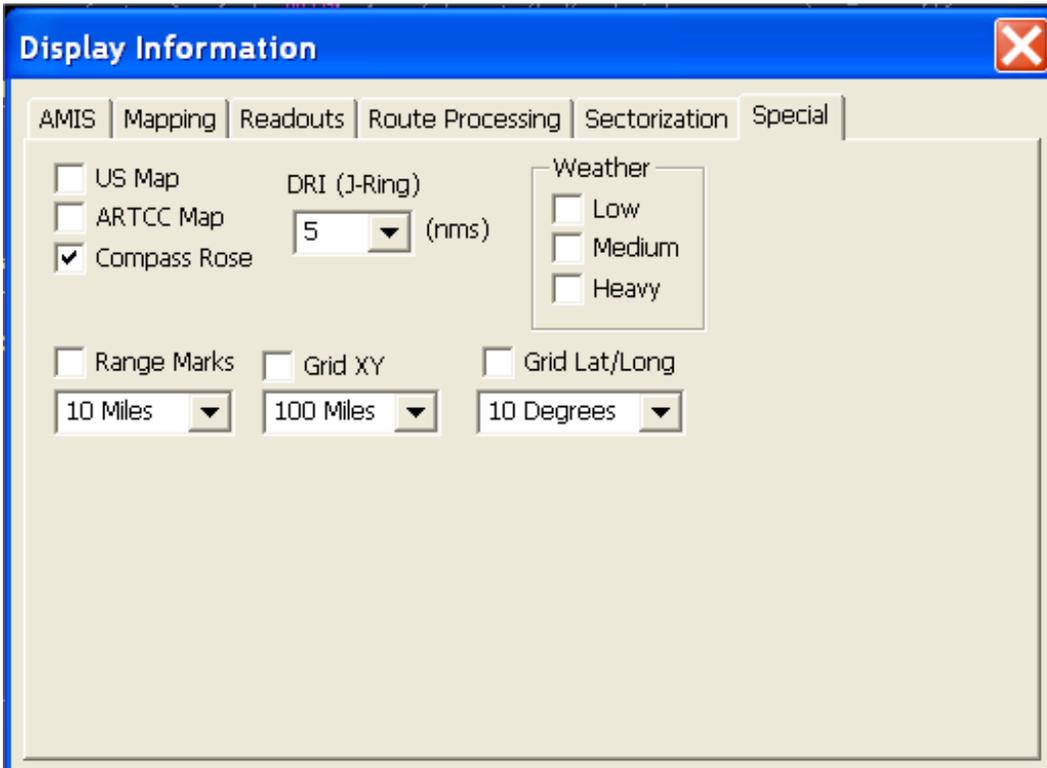
6.5.1 Sector Visualization

By using the Visualization function the user can select a sector or sectors and change the display attributes (line style, line width and color) for accenting these sector on the mapping.



6.6 Special Tab Page

The Special Tab Page provides function to aid in the map display and discussions.



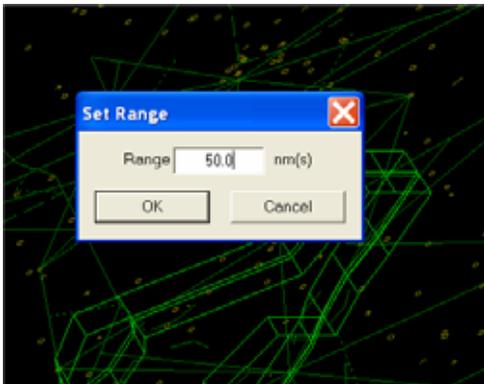
7 Intensities Dialog

This dialog allows the user to control the intensities of the Displayed Presentation.



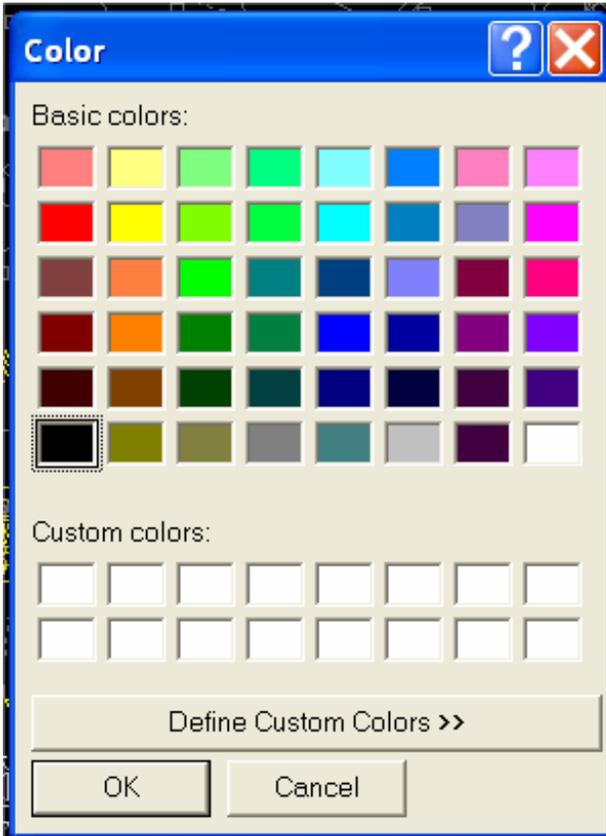
8 Set Range

This function allows the user to input a specific Range Setting for display.



9 Background

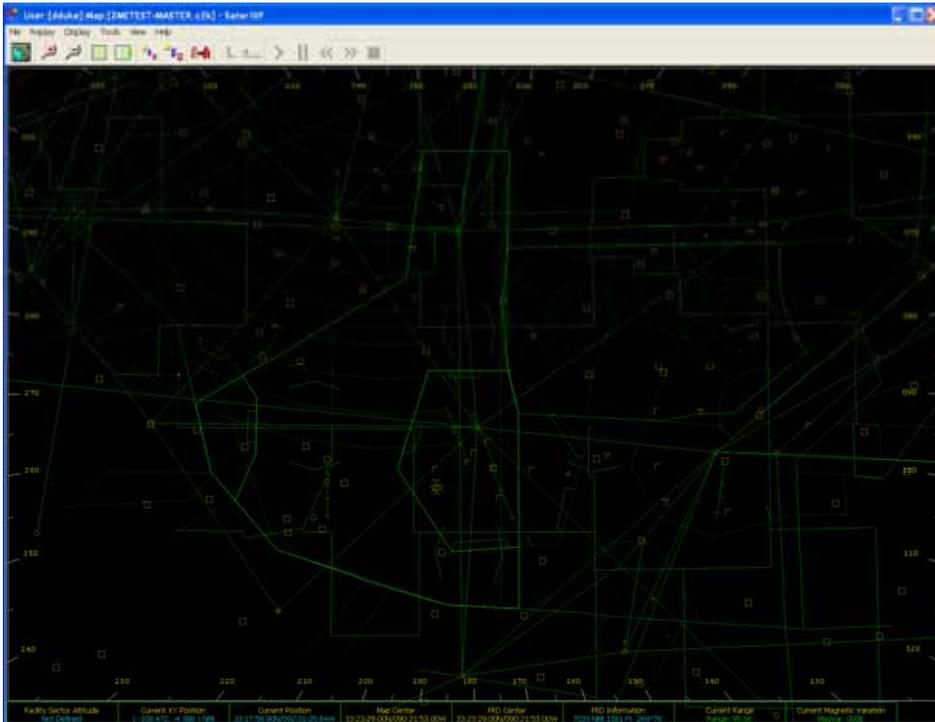
The Background of the display can be set to any desired color via the Background function found on the Set Menu Dialog.



The Intensity function can then be used to adjust the brightness of the color selected.

10 2D Mode (Default)

The 2D Mode of SatoriXP will be the normal method of viewing Mapping and Aircraft data.



The 2D Mode function is easily controlled using the following keyboard keys:

- (Minus Sign) Zooms Out
- + (Plus Sign) Zooms In

Or the user can use the Zoom In/Out icons on the Toolbar.

Moving the Center is accomplished using the Center/Off Center found on the Toolbar or on the Right Mouse context Menu under Set.

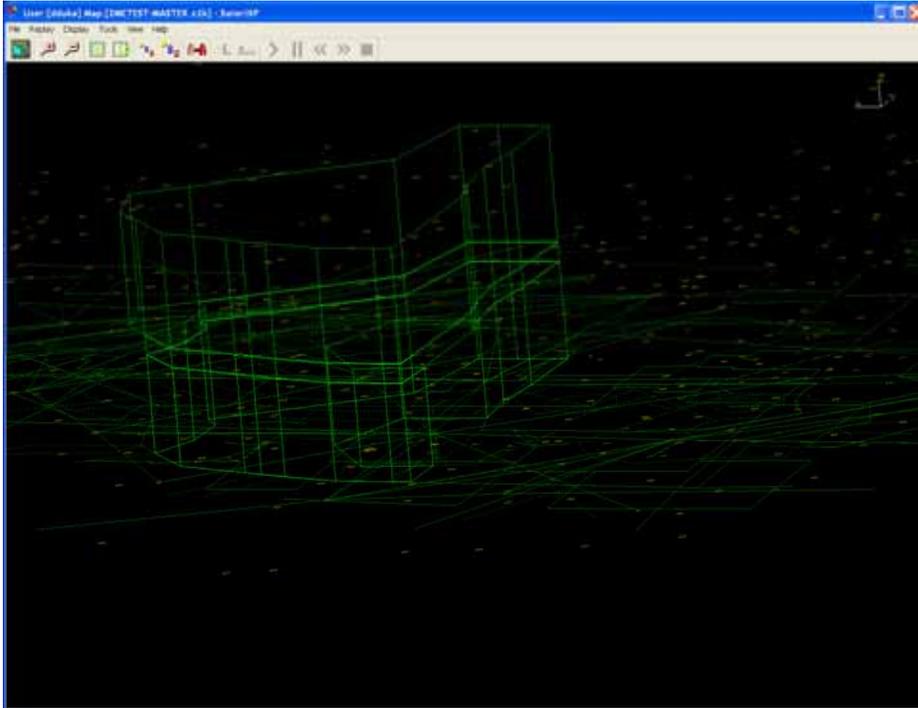
To enter/exit 2D Mode, select one of the following methods:



1. Press the ESC button.
2. Press the 3D Icon on the Toolbar.

11 3D Mode

The 3D Mode of SatoriXP can be a very affective way to aid the users in understanding the airspace and the relationship between aircraft.



The 3D Mode function is easily controlled using the following keyboard keys:

- (Minus Sign)	Zooms Out
+(Plus Sign)	Zooms In
Left Arrow	Rotates Left
Right Arrow	Rotates Right
Up Arrow	Rotates Up
Down Arrow	Rotates Down

To enter/exit 3D Mode, select one of the following methods:



1. Press the ESC button.
2. Press the 3D Icon on the Toolbar.

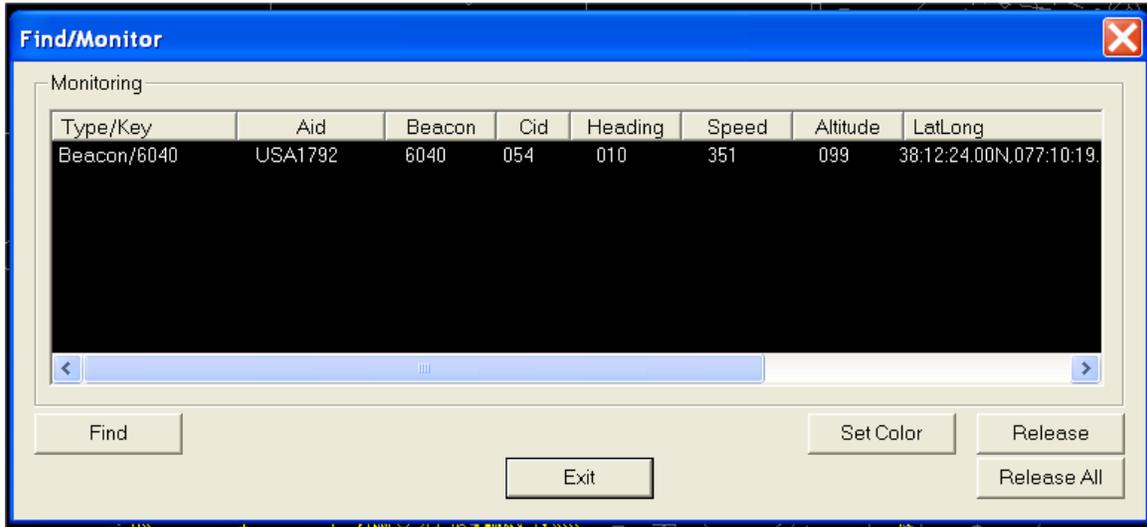
If you become disoriented in the 3D mode, which can easy to do, press the **Restore to Original** button found on the Right Mouse Context Menu under Set.

12 Pointer Function

SatoriXP has a pointer function that is enabled when SatoriXP is in the 2D Mode. This function allows the user to display mapping symbol labels by clicking with the left mouse on the map close to a map element. The label of the map element will then be displayed. This function is helpful when trying to determine relational and positional aspects of the airspace. Click on the Label to remove it.

13 Monitor/Find

The Monitor/Find Dialog can be brought up via the Uncontrolled Menu Dialog. It allows all the Data Blocks being monitored to be viewed from a central location.



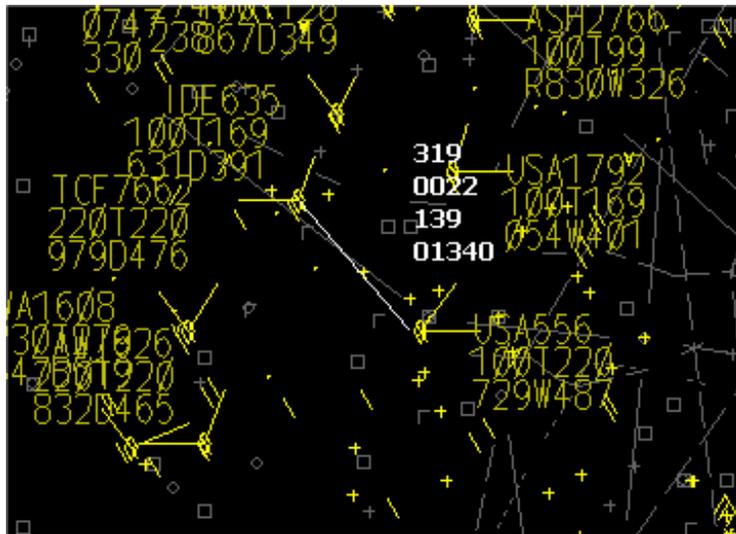
Each Monitored Data Block can be set to a unique color...



This information displayed in this window is also logged in SatoriXP.Log on the local disk drive of the PC.

14 Range Bearing

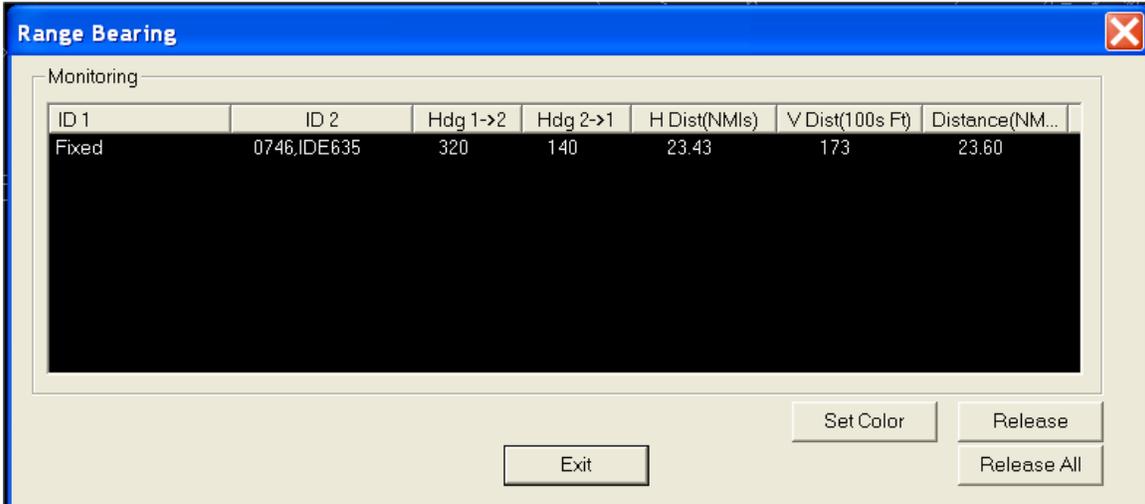
The Range Bearing function is used to display a constant readout between two objects. This can be Fix to Fix, Fix to Target, Target to Fix and Target to Target. To activate a Range Bearing Data Block hold the CTRL button down and using the Right Mouse button select the first object then hold down the Right Mouse Button down and draw the mouse to the second object and release the Right Mouse Button. A Range Bearing Readout in white will then be displayed until removed by the user. The Data Block associated with the Range Bearing Readout can be moved in the same way as a Full Data Block using the Left Mouse Button to draw the Data Block to the new desired location. The following picture shows an active Range Bearing in white.



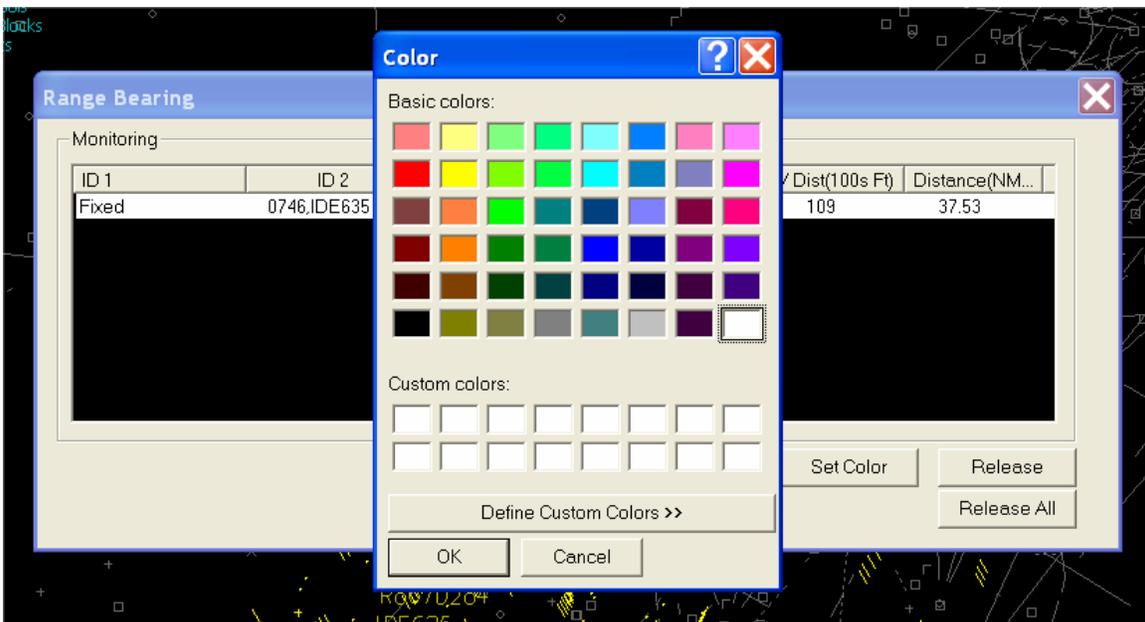
To remove a Range Bearing Readout hold the CTRL Button down and use the Right Mouse Button and Click in the center of the Range Bearing Readout Data Block and release. The Range Bearing Data Block should be dropped.

14.1 Range Bearing Monitor

The Range Bearing Monitor allows control/monitoring of the Range Bearings from a central point.



Each Range Bearing can be set to be displayed in a unique color.



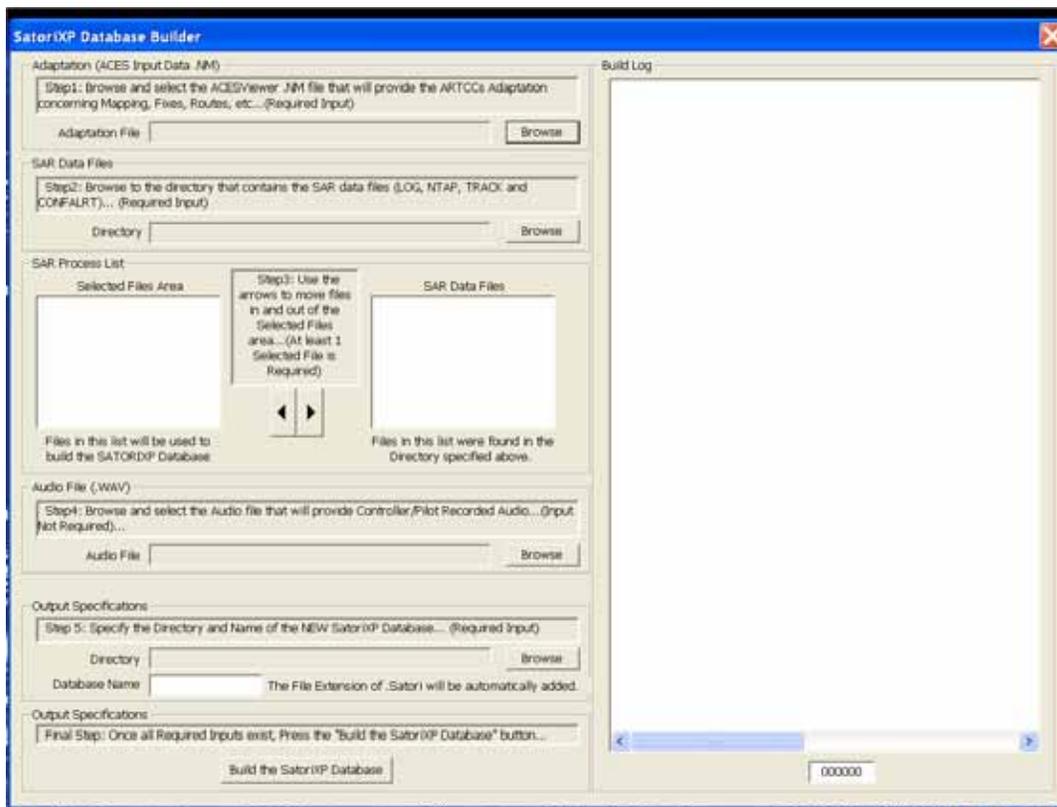
This information displayed in this window is also logged in SatriXP.Log on the local disk drive of the PC.

15 Satori Database

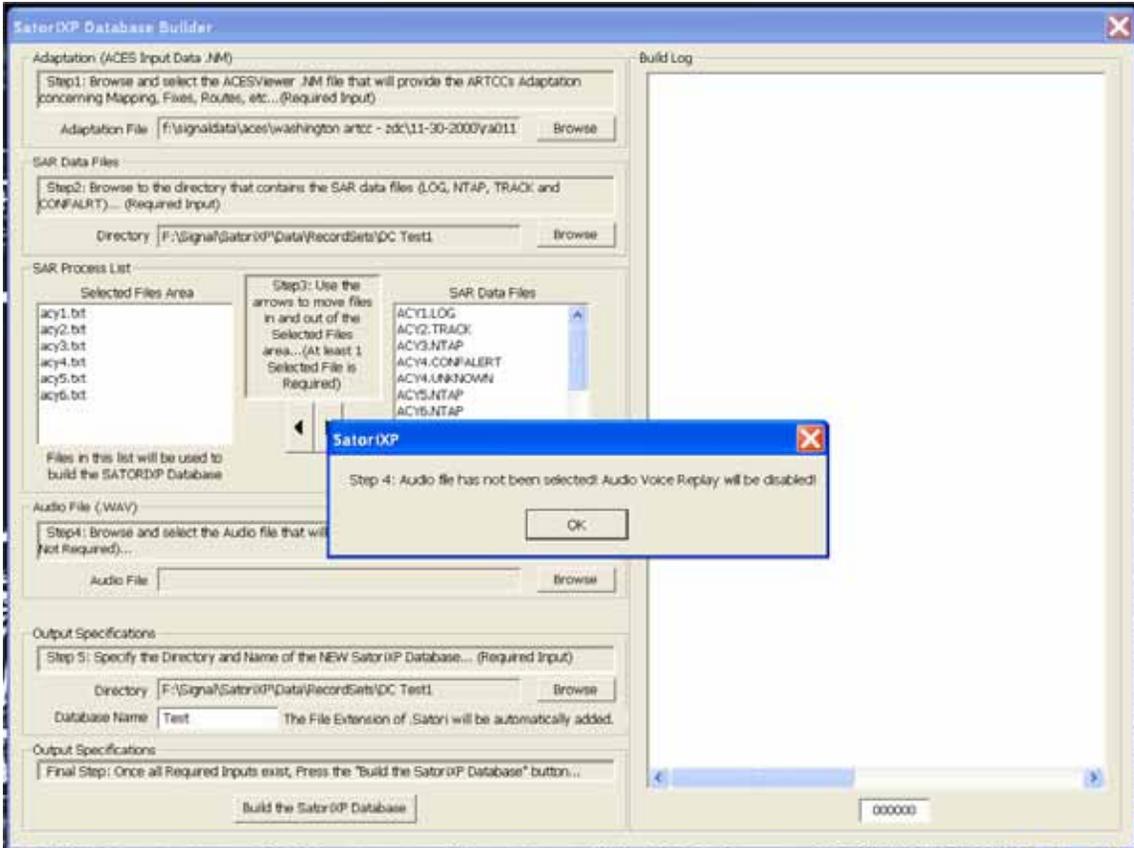
A Satori Database consist of Create2000Mapping, RecordData Files and VoiceData Files. This database format allows for better configuration management of the Satori Data files by grouping all the necessary data into one file.

15.1 Building a Satori Database file

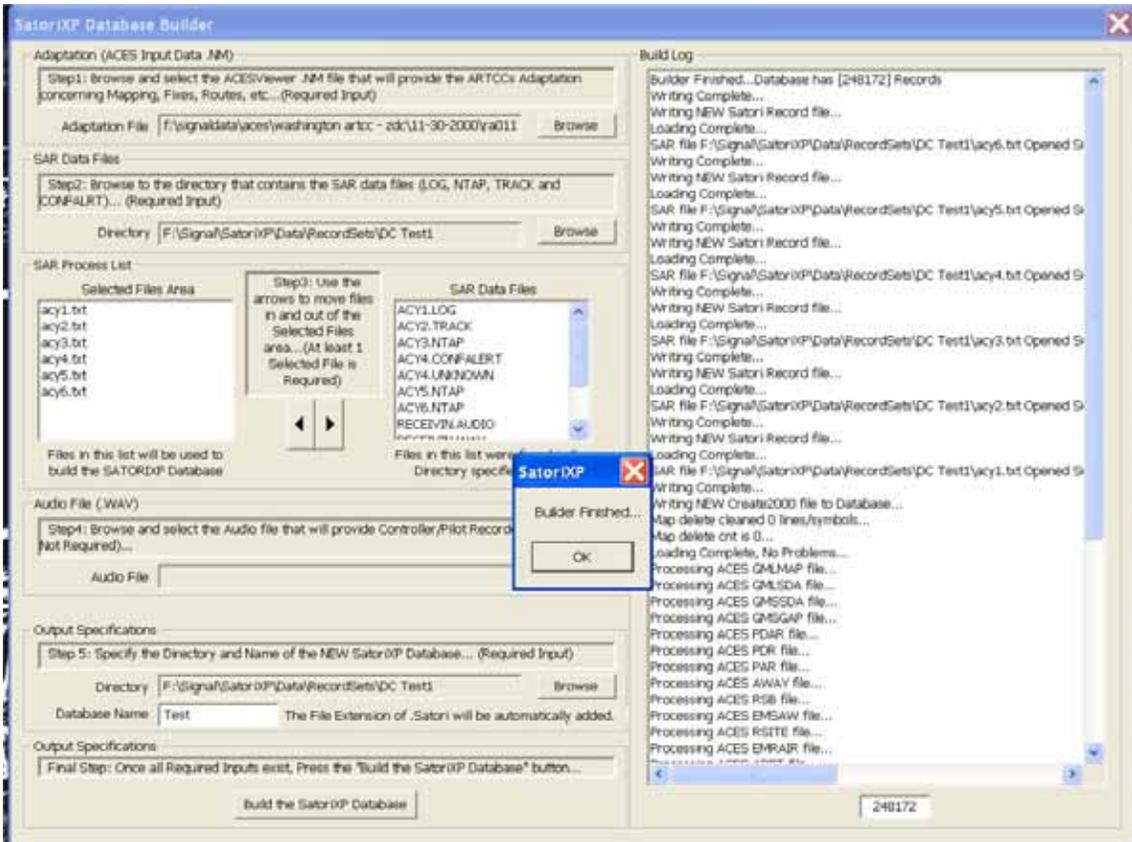
By following the 6 steps described on the dialog the user is able to Build a NEW Satori Database. Once the required fields have been set, then the Build button will start generating a Database. Errors will be displayed in the Build Log List area.



The screen below shows inputs for building a Test Database. An Audio File is not required in order to build a Database and was not input in this example. If the database will not have an Audio file, the User will be prompted to the fact that Audio Voice Replay will be disabled as a reminder.

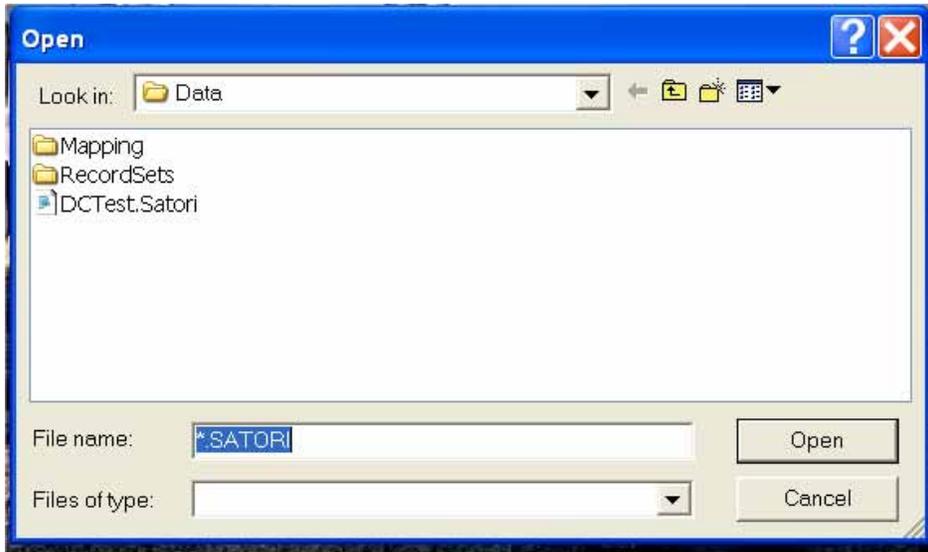


Finally, the User is prompted when the Build process has finished. Click "OK" and review the information in the Build Log. To exit the Build Process click on the red X in the upper right corner of the SatoriXP Database Builder Dialog.

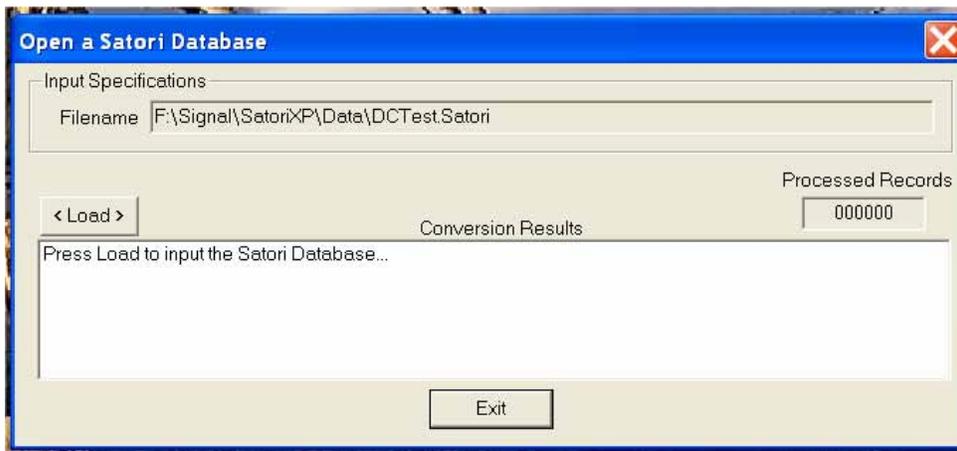


15.2 Loading a Satori Database file

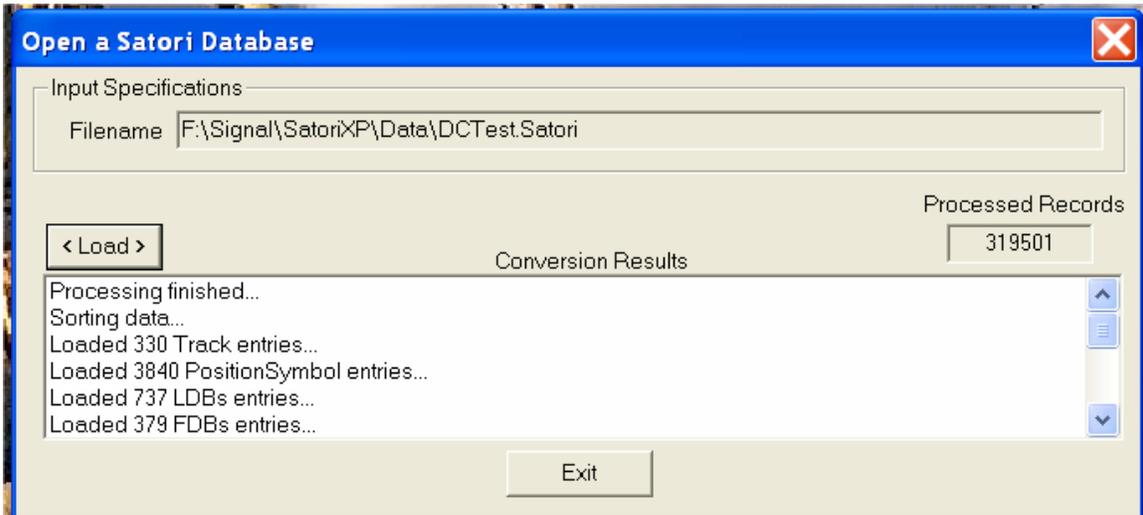
To load a Satori Database simply select File Open Satori Database and the following File Select Dialog will be selected...



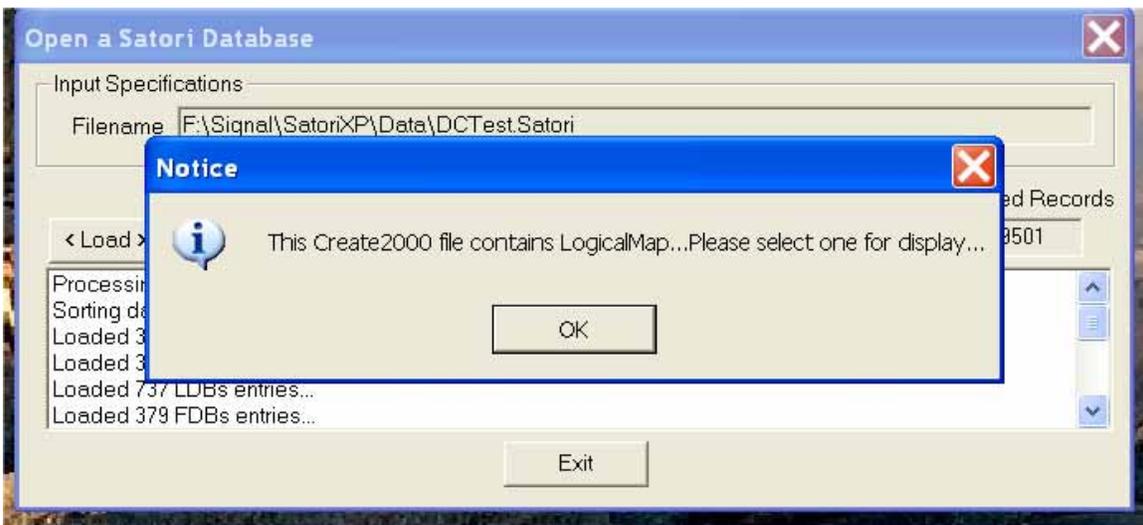
Select the desired Satori Database such as DCTest.Satori shown in the above picture. By double clicking on this file or by clicking on the Open button then the Dialog shown in the below picture is displayed.



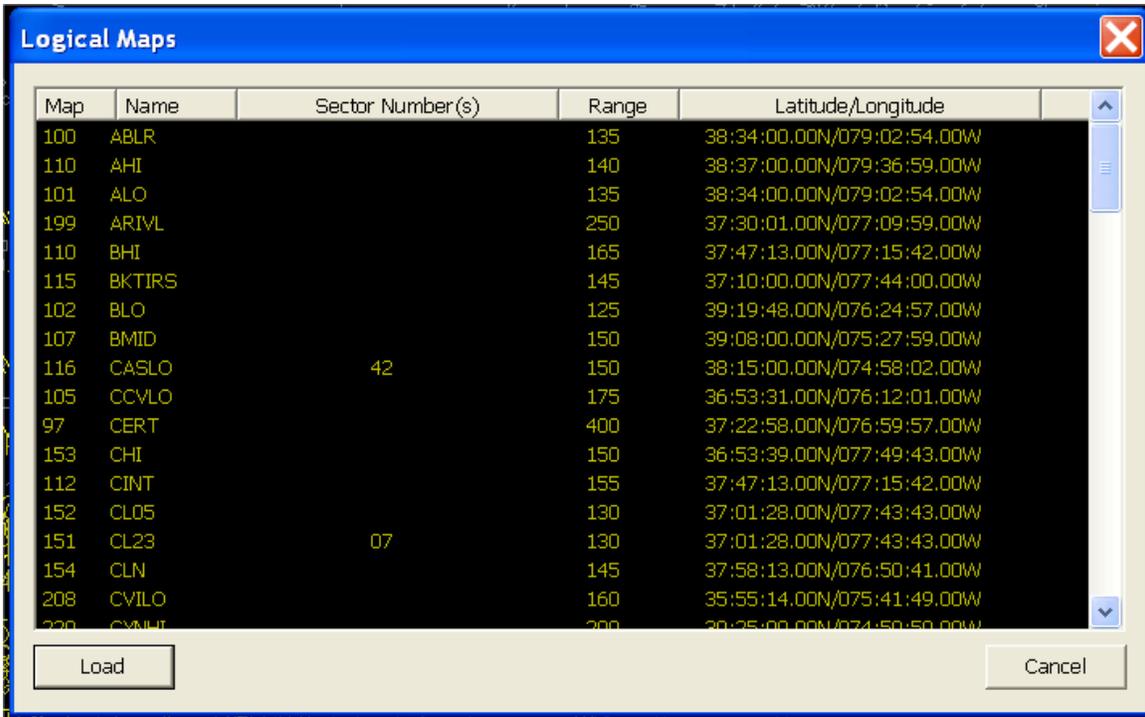
Next press the Load button to start the loading process. The picture below shows that the database has 319501 records. This can take about 30 seconds to load, so be patient. Displayed in the Conversion Results Window you can find information about the loading process. Also any problems will be shown in this window.



After the loading is finished, which can be verified in the Conversion Results Window and should be displaying the string "Processing Finished", then Press Exit to continue.



As when loading Create200Maps, when the Mapping contains Logical Maps then the software determines that additional information is needed from the user. Press OK to continue. In the Database did not include Logical Maps then this step and the one below would not be needed.



Select a Logical map and press Load...Selecting Cancel will exit also but the software will not display until a Logical Map is selected...Once the map is selected then a display containing Mapping and Record Data information will be displayed.

Above is a close in view of some sample Record Data...The Clock Time of the Replay and the State of the Replay is displayed in the Clock window in the upper left corner of the main display window as shown below.

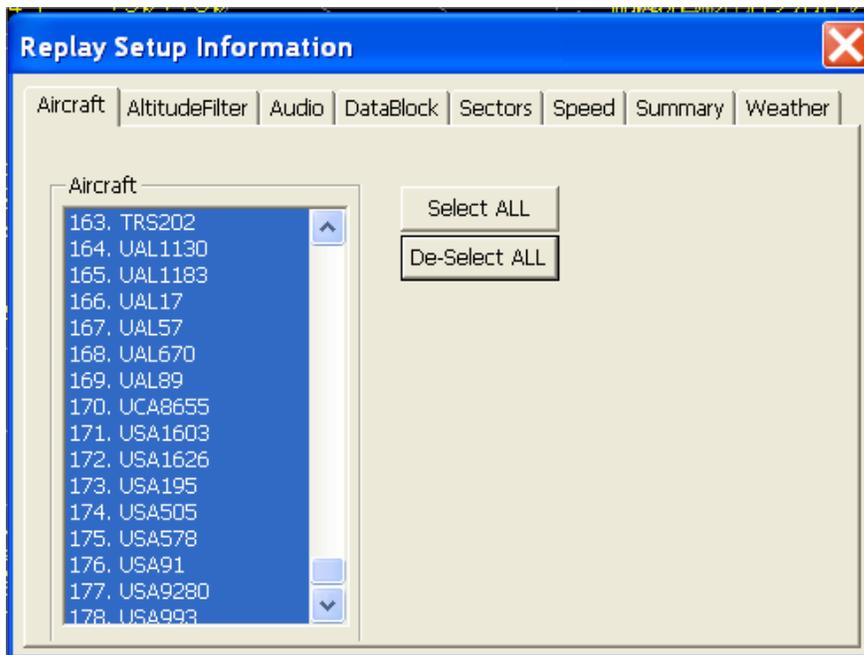


16 Using the Replay Setup

The Replay Setup Dialog is a Tabbed Dialog with the various replay information divided into pages which allow the users to configure the Replay presentation on-the-fly. These pages are Aircraft, AltitudeFilter, Audio, DataBlock, Sectors, Speed, Summary and Weather. To select a tabbed page use the mouse and click on the desired tab using the left mouse button. To take this Dialog down, you may use any of the following methods.

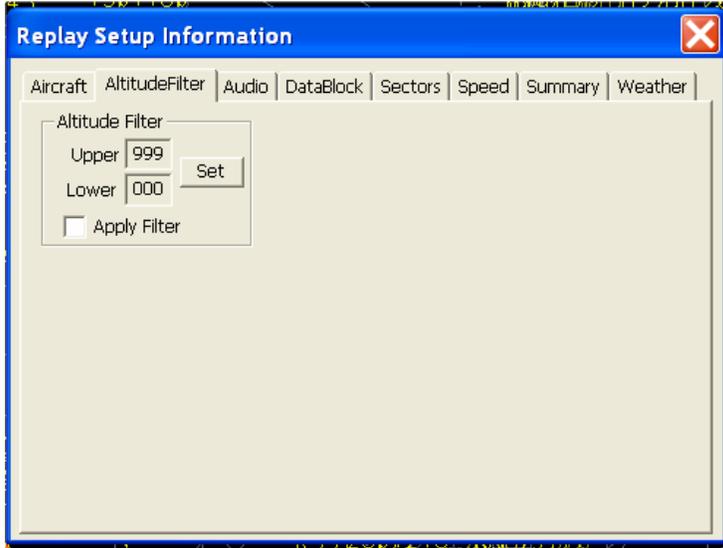
1. Press the Replay Setup Submenu Button on the Main Menu.
2. Right Click on the Map and using the Right Mouse Button Context Menu select the Replay Setup Menu Item.
3. Press the White X on the Upper Right corner of the Replay Setup Dialog.

16.1 Aircraft Page



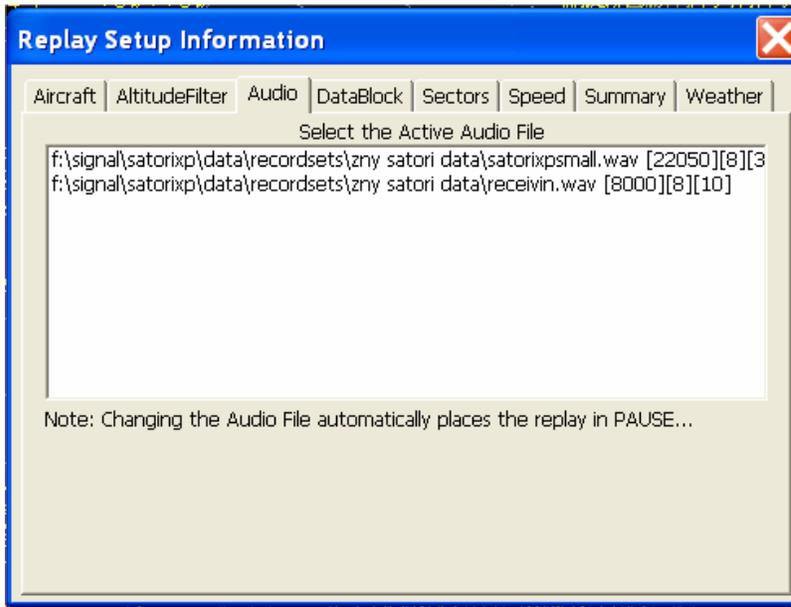
The Aircraft page allows the user to determine which aircraft will be shown in the Replay. Two buttons allow the Select All and the De-Select All functions. The list allows the user to toggle the selected aircraft. When selected in the list, these aircraft will be part of the Replay.

16.2 Altitude Filter Page



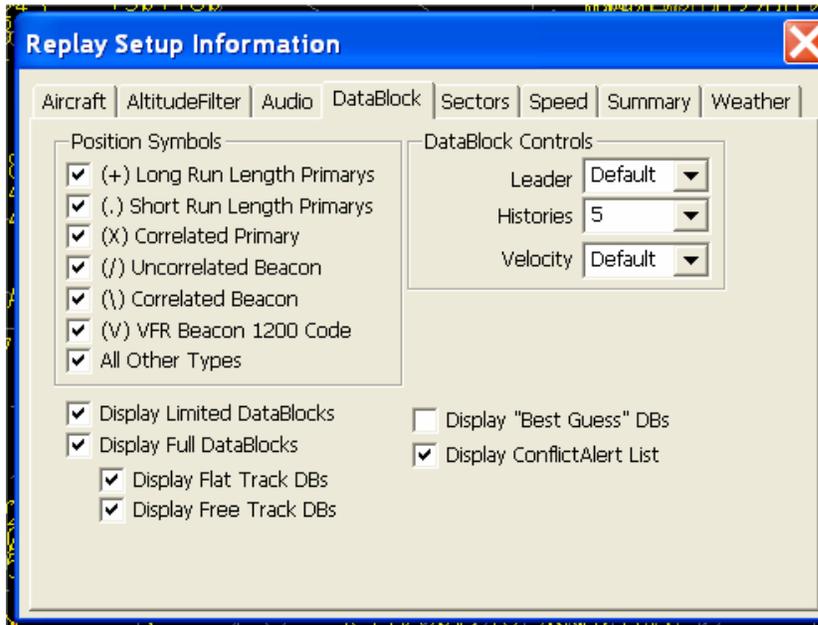
The Altitude Filter Page allows the user to set the Altitude Filter that is to be applied to the Replay. The Set Button allows the user to input the Upper and Lower Altitude for the Filter. The Apply Filter button toggles whether the filter is applied or not. When selected the Filter is applied.

16.3 Audio Page



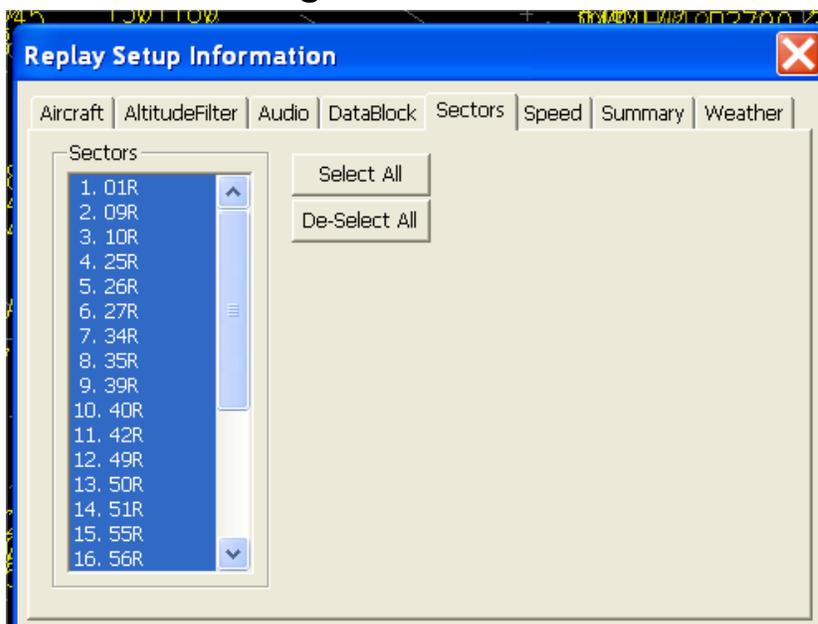
The Audio Page displays the Audio Files that were loaded from the Scenario Database. By clicking on any of the Audio files, then that Audio File will be played with the Replay. Changing the Audio File places the Replay in Pause.

16.4 DataBlock Page



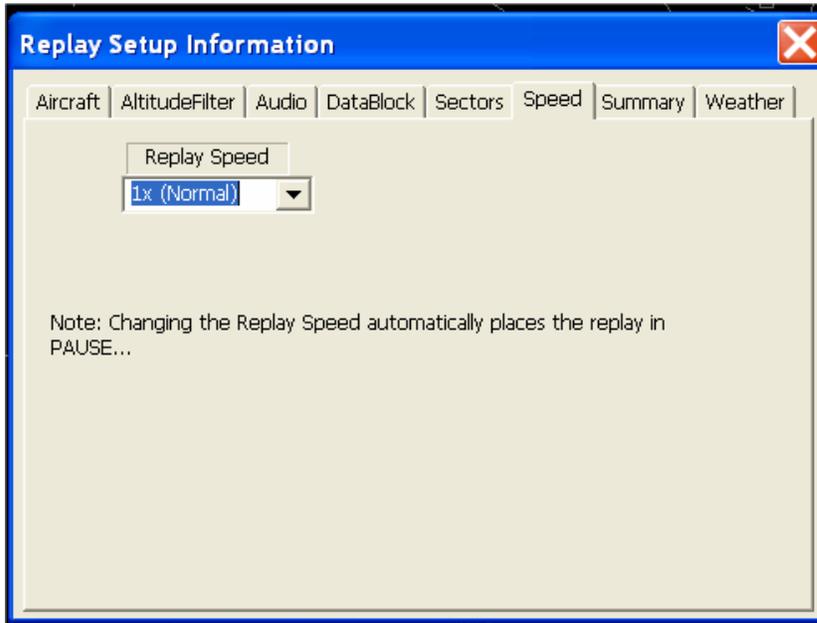
The DataBlock Page allows the user to configure how the DataBlock information should be displayed.

16.5 Sectors Page



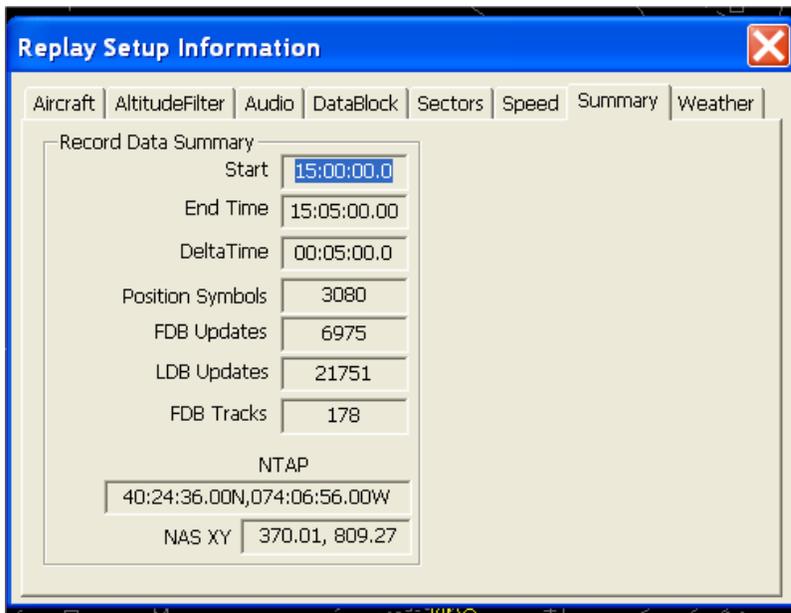
The Sectors Page list all the sectors found in the Satori Database. For the Tape-Less Process only 1 sector is extracted for each run. Displayed is an example of the Tape Process were 26 Sector were found in the Satori Database. The buttons allow the Selection and De-Selection of the various sector. The Selected Sector are used to determine which information is displayed.

16.6 Speed Page



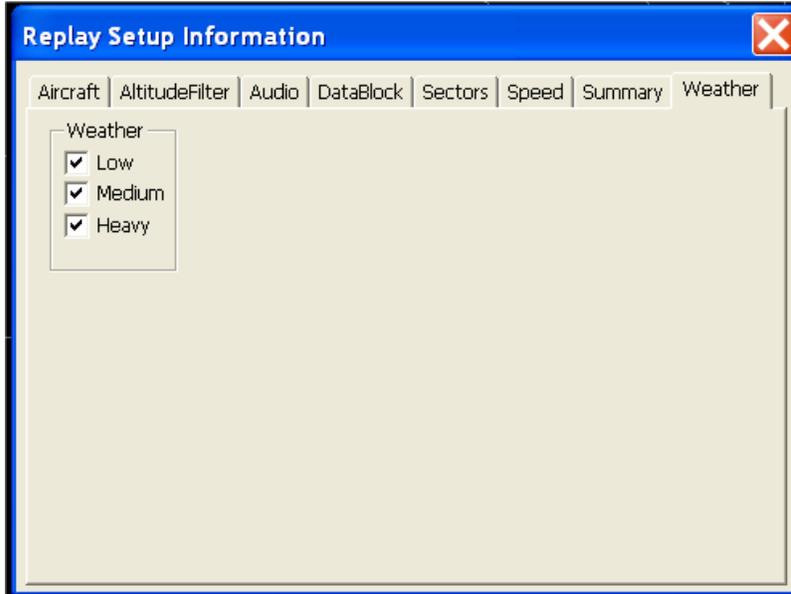
The Speed Page is used to control the Replay Speed. Please note that changing the Replay Speed automatically places the Replay in Pause. Also, Audio is only available in 1X Normal Speed.

16.7 Summary Page



The Summary Page displays information about the Satori Database that was loaded.

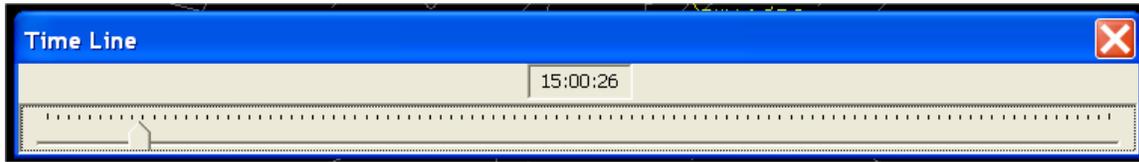
16.8 Weather Page



The Weather Page allows the user to control the displayed Weather. Currently, only the Low and Heavy are functional. Weather is based on the Radar Return Information concerning weather.

Future plans are to integrate WARP Weather information into the Replay.

17 Time Line Dialog



The Time Line Dialog allows the user to select a particular time by dragging the Time Pointer on the Dialog to the desired time. To move the Time Pointer, click on the Time Pointer using the left Mouse button and hold it down and move the mouse left or right to the desired time. The Clock readout will be updated periodically to indicate the selected time.

Note: The Replay is automatically placed in Pause anytime the Time Line Pointer is moved.