

Users Manual

For



Create2000

(Computer **R**efined **E**nRoute **A**nd **T**erminal
Enhancement Tool)

Version 4.1

A Component of

SIGNAL

(**S**imulation and **I**ntegration of
Ground, **N**etwork, and **A**ir **L**inks)

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1	General Information	1
2	Database Concept	1
3	File Names (.c2k)	2
4	Valid Location Formats	2
5	Moving Around Create2000	3
5.1	Main Menu	3
5.1.1	File Sub-Menu.....	4
5.1.2	Edit Sub-Menu	5
5.1.3	View Sub-Menu.....	39
5.1.4	Help Sub-Menu	40
5.2	Toolbar	42
5.2.1	Save	42
5.2.2	Zoom In or Zoom Out	42
5.2.3	Center and Offset Center.....	43
5.2.4	Font Size Increase and Decrease	43
5.3	Workbar	44
5.4	Readouts.....	45
6	STATE and It's Sub-menus.....	46
6.1	Pointer	47
6.2	Aircraft Characteristics.....	48
6.2.1	List of Aircraft Characteristics.....	51
6.2.2	Category Information	52
6.2.3	Speed Parameters.....	53
6.2.4	Turn Rate Parameters	55
6.2.5	Acceleration Parameters	56
6.2.6	Deceleration Parameters.....	57
6.2.7	Climb Rate Parameters.....	58
6.2.8	Descent Rate Parameters	59
6.2.9	Advanced (Tower Option Only)	60
6.2.10	Error Checking.....	61
6.3	Beacon Codes	62
6.4	Display Configurations.....	64
6.4.1	DEDEM, Interem and STARSEM	65

6.4.2	DSREM	67
6.4.3	PRM	69
6.4.4	Tower	70
6.5	Flight Plans (FFP)	71
6.5.1	Add a Flight Plan	75
6.5.2	Update/Modify a Flight Plan	85
6.5.3	Duplicate a Flight Plan	118
6.5.4	Delete a Flight Plan	118
6.5.5	Import DYSIM Scenarios	119
6.5.6	Include Flight Plans from other Scenarios	121
6.5.7	Strip Processing	122
6.6	Map Credits	123
6.7	Mapping	125
6.7.1	Add/Modify/Move a Line	126
6.7.2	Add/Modify/Move a Map Symbol	130
6.7.3	Add/Modify/Move an ARC	135
6.7.4	Add/Modify/Move an Arrow	138
6.7.5	Add/Modify/Move a Chart Symbol	141
6.7.6	Add/Modify/Move a Flag	146
6.7.7	Add/Modify/Move a Label	150
6.7.8	Add/Modify/Move a 3D Object	155
6.7.9	Map Configure	160
6.8	MSAW	161
6.9	Parameters	162
6.10	Radar	164
6.10.1	Radar Sort Box (RSB)	165
6.10.2	RSB Configure	166
6.10.3	Radar Sites	167
6.11	Regions	170
6.11.1	Add/Modify a Region	172
6.11.2	Types of Regions	177
6.12	Route Processing	180
6.12.1	Add/Modify a Fix	181
6.12.2	Add/Modify Airport Layouts	187
6.12.3	Add/Modify an Approach	197

6.12.4	Add/Modify a Departure	212
6.12.5	Add/Modify a Route	212
6.12.6	Add/Modify a SID/Transition.....	220
6.12.7	Add/Modify a STAR/Transition	229
6.13	Sectorization.....	238
6.13.1	Add/Modify a Node	239
6.13.2	Add/Modify/Delete a Module.....	242
6.13.3	Add/Modify/Delete an FPA	245
6.13.4	Add/Modify/Delete a Sector	248
6.14	Student Areas of Control	251
6.15	System Events	254
6.15.1	Alpha Numerics (Terminal Only).....	256
6.15.2	ARTS System Event (Terminal Only).....	257
6.15.3	Auto-Departure	258
6.15.4	Departure Delay.....	259
6.15.5	Facility Interface	262
6.15.6	GI Message	263
6.15.7	Radar Site	264
6.15.8	Region	265
6.15.9	Scenario Information.....	266
6.15.10	System Prompt	267
6.15.11	Tower Instruments.....	269
6.15.12	Visibility Area	270
6.15.13	Weather Cell.....	271
6.15.14	Weather Station.....	272
6.15.15	Zone	273
6.16	Tabular Data	274
6.17	Weather	275
6.17.1	Tower Instruments.....	276
6.17.2	Visibility Areas	277
6.17.3	Weather Cells	283
6.17.4	Weather Stations	289
6.17.5	Winds.....	294
6.18	Zones.....	297
6.18.1	Types of Zones	298

6.18.2	Add a Zone.....	301
6.18.3	Modify a Zone.....	302
APPENDIX A.....		303
Altitude Commands		304
Approach Commands.....		305
At Commands		306
Beacon Commands		307
Cancel Flight Commands		307
Crossing Commands		308
Departure Commands.....		308
Equipment Qualifier.....		309
Handoff Commands		309
Heading Commands.....		309
Radio		311
Reference Fix Commands		312
Report		312
Set Ownership		312
Speed Commands		312
Spin Commands.....		315

1 General Information

This document describes the features and functions that make up Create2000. It is intended to provide the user with the information necessary to build and maintain a Master or Scenario database that can be used for simulation and to build a database for use in airspace modeling.

Create2000 is the fourth generation of software that has been used at the Academy to build and maintain scenarios to train future air traffic controllers.

Create2000 is a component of SIGNAL. SIGNAL is the name of the umbrella system that contains all the applications that are used in the development and delivery of training, research and testing of all aspects of the air traffic control system. It is used to support the needs in the area of Radar and Non-Radar training of domestic and international students. It is used to train Tower, Terminal and EnRoute Air Traffic Controllers. Currently, SIGNAL is being used at the FAA Academy and at field sites both domestic and international.

2 Database Concept

There are two types of files that Create2000 is capable of loading and creating. They are a Master and a Scenario.

Master	A master database may contain all the data types found in the Data Description Dictionary. It must contain all the information that defines the airspace environment that will be simulated. It is stand-alone and can be loaded into the simulation engine (Charter).
Scenario	A scenario will only contain Flight Plans, System Events, Wind Settings and a Description of the Active Sectors. It must be associated with a master database that will provide all the information necessary to execute the simulation engine (Charter). <i>The relationship to the master is intended to be one master to many scenarios.</i> When a scenario is loaded, all of the master only functions are disabled automatically. These items will be grayed out whenever a scenario is loaded.

3 File Names (.c2k)

All Create2000 Master and Scenario files will use the file extension of ".c2k".

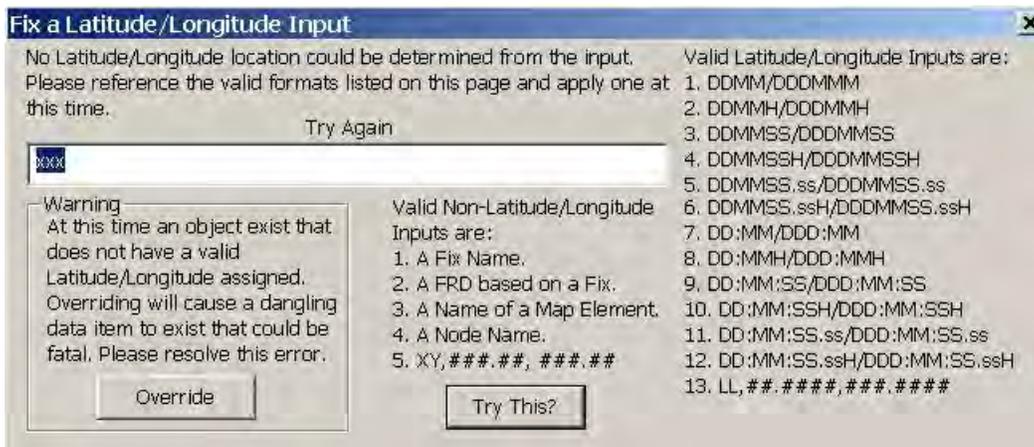
Masters All master filenames are the name of the master followed by "-Master.c2k". **Example:** A master named "test" would have the file name of Test-Master.c2k.

Scenarios All scenario file names are the name of the master database followed by a dash and then the name of the scenario with ".c2k" at the end. **Example:** A scenario named "exercise1" and references the "Test" master database would be named Test-Exercise1.c2k.

This naming convention must be followed. A scenario cannot be loaded that does not have a master file collocated in the directory.

4 Valid Location Formats

Any time a location field is available for input, the user can input any of the valid formats in that field as shown in the following picture:



UM-001

Note the 13 valid **Latitude/Longitude** formats and the 5 valid **Non-Latitude/Longitude** formats.

5 Moving Around Create2000

5.1 Main Menu

The Main Menu is located across the top of the display. It is similar to other Windows applications.



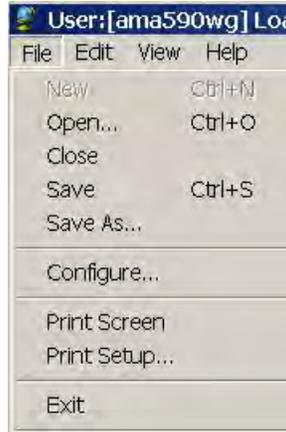
UM-002

The Main Menu has four sub-menu options: **File Edit View Help**

Selecting one of these items with the left mouse button will force a pop-down window.

5.1.1 File Sub-Menu

The File Sub-Menu is used mainly in support of file operations. Below is a brief description of each function.



UM-003

- | | |
|-----------------------|--|
| New | This button is grayed out and not available. |
| Open | This button allows an existing Master or Scenario database to be loaded. |
| Close | This closes the database that is loaded. If changes have been made, you will be asked if you want to save the changes. |
| Save | This will save the database using the current file name. |
| Save As... | This saves the loaded database and allows you to assign a different file name. |
| Configure | This allows the user to configure Create2000. Important data directory locations are set here. |
| Export Bitmap | This will force a screen capture that can be exported in bitmap (.bmp) format. |
| Print Screen | This function is used to print the map that is currently displayed on the screen. |
| Print Setup... | This allows the user to determine which printer is to be used and the configuration of that printer. |
| Exit | This exits the Create2000 program. |

5.1.2 Edit Sub-Menu

The Edit Sub-Menu allows the user to control what is displayed and how it is displayed. It allows access to all areas of the database so the user can build or modify data. It also allows the user to preview or print reports of all the information contained in the database.

NOTE: All the available functions under the Edit Sub-Menu are available on the Context menu or Popup menu. Clicking the right mouse button on the mapping area accesses this Popup menu.



UM-004

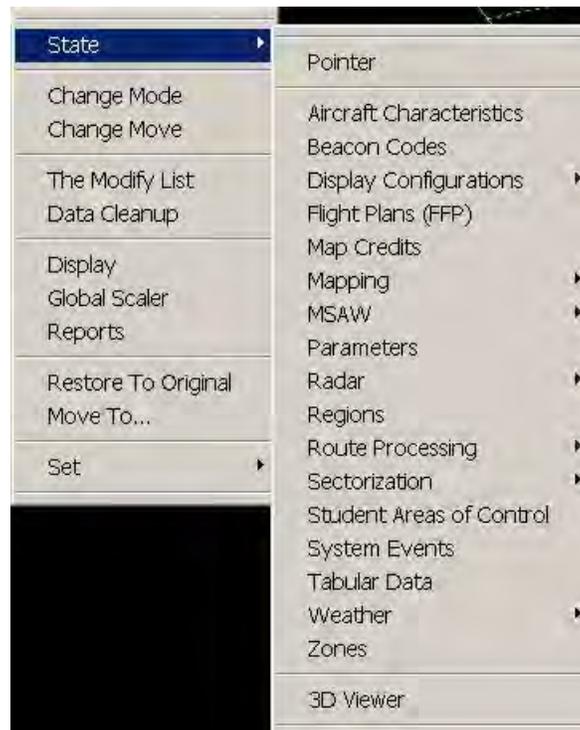


UM-049

Below is a brief description of each function. A detailed description of each function will be discussed in later sections.

5.1.2.1 State

This allows access to a sub-menu that is used to select the different configurations the software uses to build databases and scenarios. This is the most sophisticated cascading menu used by the software and will be covered in detail later in the document.



UM-005

As an item is selected from the State Sub-menu, the Toolbar across the top of the Main Window reflects the selected State:

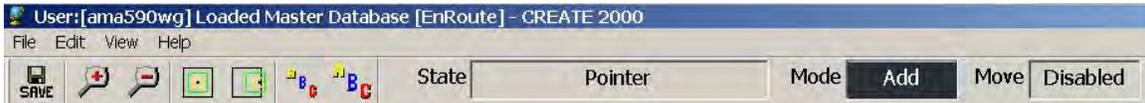


UM-156

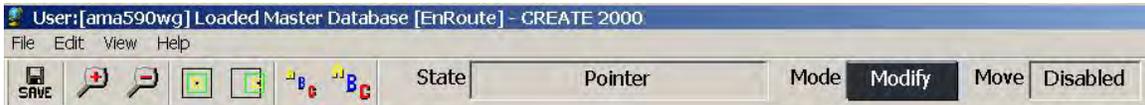
5.1.2.2 Change Mode

This toggles the **Mode** state between **Add** and **Modify**.

The current **Mode** state is displayed in the Toolbar across the top of the Main Window.



UM-006

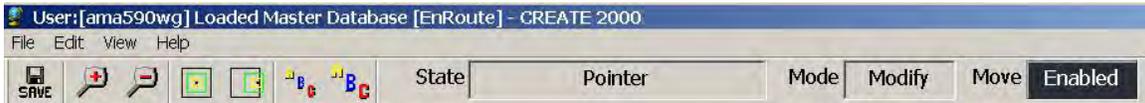


UM-007

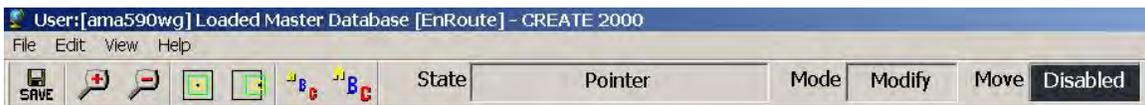
5.1.2.3 Change Move

This toggles the **Move** state between **Enabled** and **Disabled**.

The current **Move** state is displayed in the Toolbar across the top of the Main Window.



UM-008



UM-009

NOTE: The **Move** can only be **Enabled** if **Mode** is in the **Modify** state. It is used to determine if an existing item can be captured and dragged around on the screen.

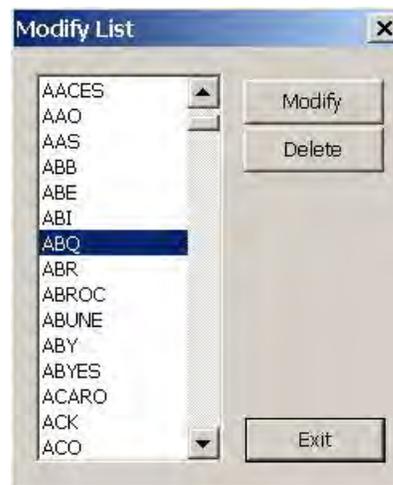
5.1.2.4 The Modify List

The Modify List can only be displayed when the **Mode** is set to **Modify** and **State** is set to one of the following:

Fixes	Nodes	Radar Sites	Weather Stations
Winds	Transition Lines	Arcs	Arrows
Chart Symbols	Flags	Labels	Lines
Map Symbols	3D Objects		



UM-010



UM-011

The **Modify List** will contain all the items for the selected **State** that exists in the database.

This window functions by selecting an item from the list and pressing the Modify button. All the Data Types that can use this window also allow the items to be selected by simply clicking the left mouse button on the item. This window was intended to allow the selection of items that are presently at a location off the display or the user does not readily know the location.

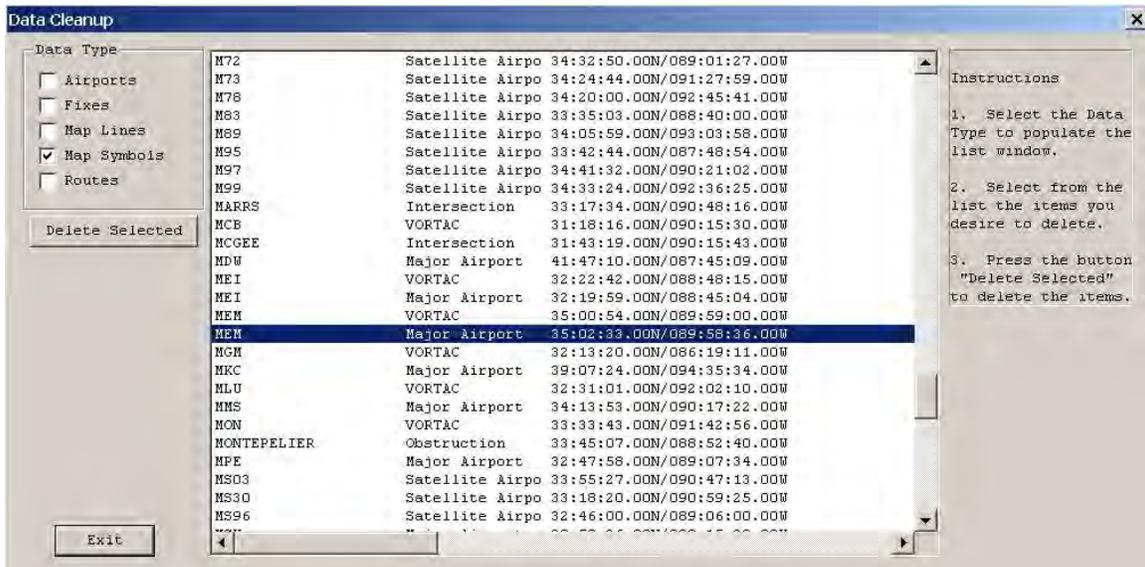
5.1.2.5 Data Cleanup

The **Data Cleanup** window can be used to quickly remove several items from the database at one time.



UM-249

You have access to all the information contained in the Airport, Fixes, Map Lines, Map Symbols and Routes files.



UM-250

Highlight the items that are to be deleted. When all items that you wish to delete have been selected, select **Delete Selected**. The confirmation window will be displayed. Answer Yes or No.

5.1.2.6 Display

The **Display Information** Window is a Property Sheet that has many Property Pages. To access a page, simply click on the tab of the desired page.



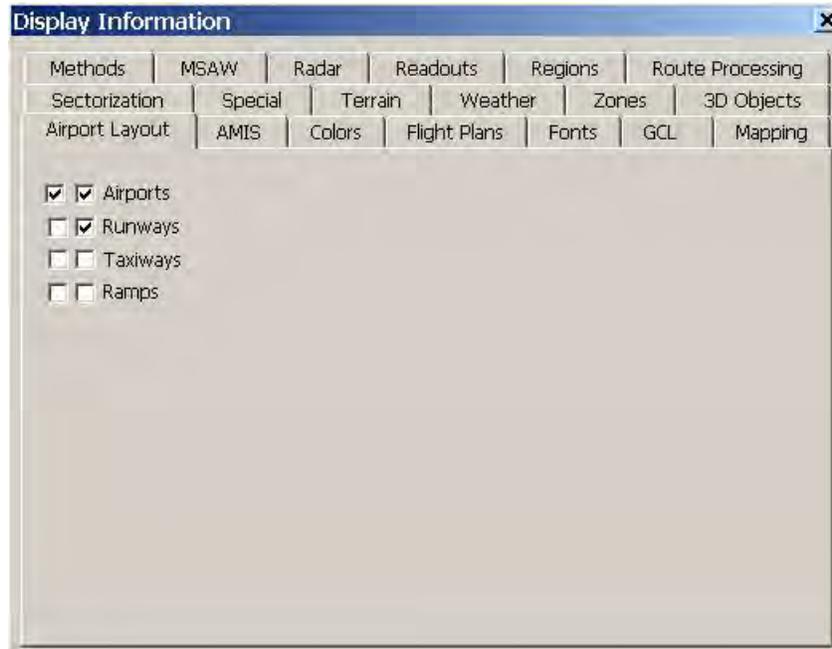
UM-012



UM-013

Selecting the various fields on each page controls what is displayed and how it is displayed.

5.1.2.6.1 Airport Layout



UM-231

This allows the user to control the display of various elements of the airport environment.

There are two columns of check boxes. The right column will display the item selected; the left column will display a label of the item selected if the right box is also selected.

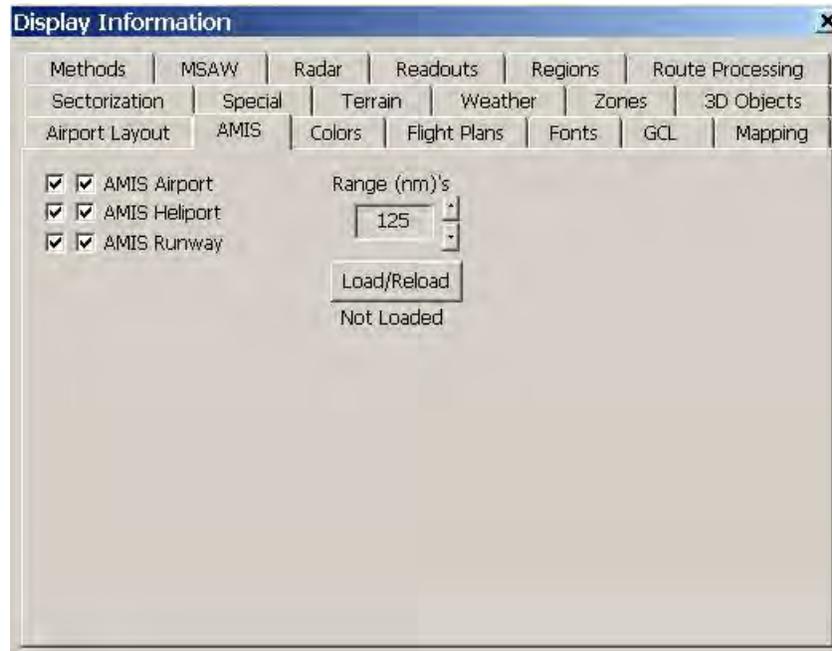
Selecting Airports only will display ALL valid Runways, Taxiways, or Ramps that are contained in the master without having to select each individual item.

Selecting Runways only will display all valid Runways that are contained in the master.

Selecting Taxiways only will display all valid Taxiways that are contained in the master. This function is only applicable for Tower databases.

Selecting Ramps only will display all valid Ramps that are contained in the master. This function is also only applicable in Tower databases.

5.1.2.6.2 AMIS (Aircraft Management Information System)



UM-050

The Aircraft Management Information System (AMIS) is a national database that provides detailed information about airports and runways within the United States.

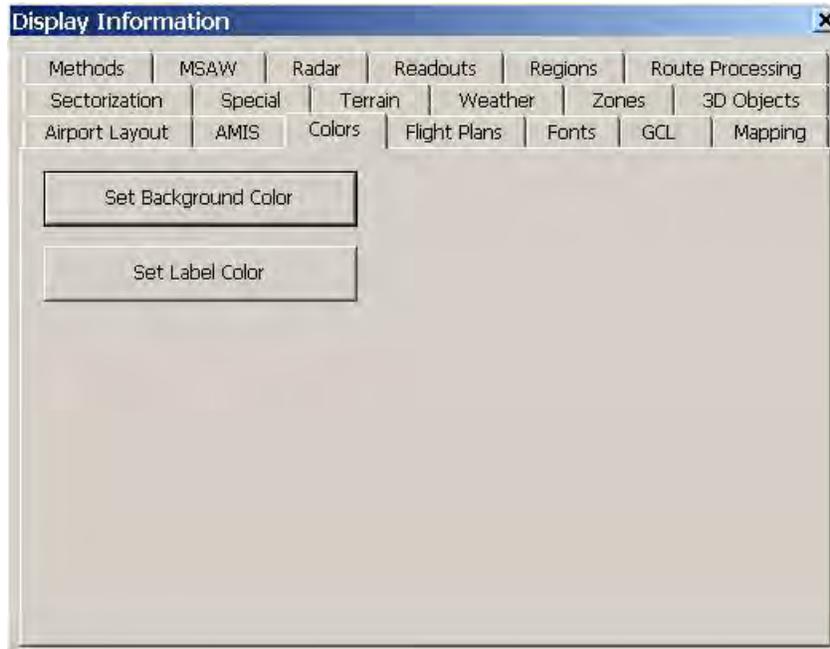
AMIS Airport data includes the airport name, the ICAO identifier, the location in Latitude/Longitude, the elevation, the magnetic variation and the number of runways for each airport.

AMIS Runway data includes the airport identifier, runway name, runway orientation, the Latitude/Longitude of each end of the runway and the runway width.

This Page allows the display of the airport ICAO name, map symbol, and runway configuration. To display this information, set the Range to indicate the area that information is requested (the Range is calculated from the Center of the Display) then press the Load/Reload button.

There are two columns of check boxes. The right column will display the item selected; the left column will display a label of the item selected if the right box is also selected.

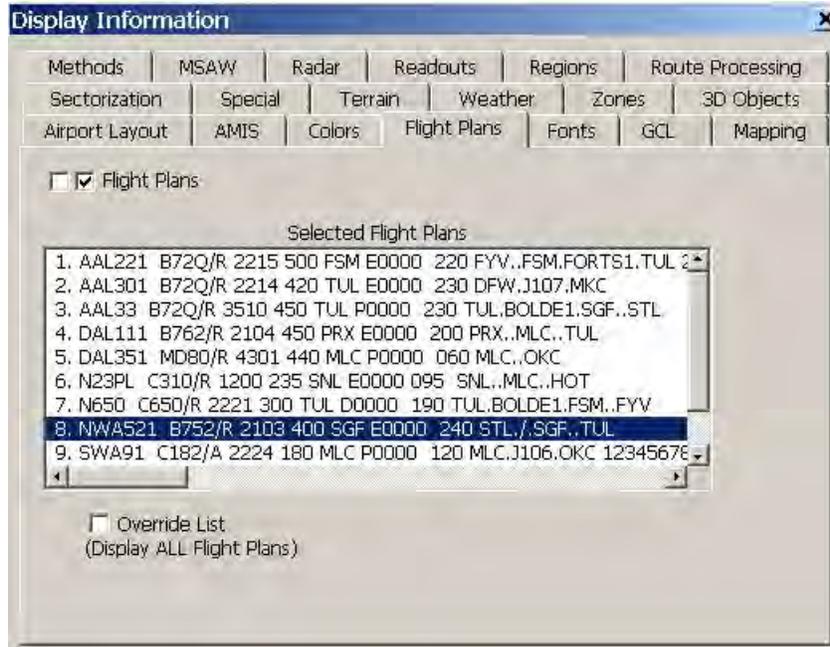
5.1.2.6.3 Colors



UM-051

This Window allows the user to change the color of the Background and the color of the Labels. This information is retained when the database is saved and will be applied when the database is reloaded in the future.

5.1.2.6.4 Flight Plans



UM-232

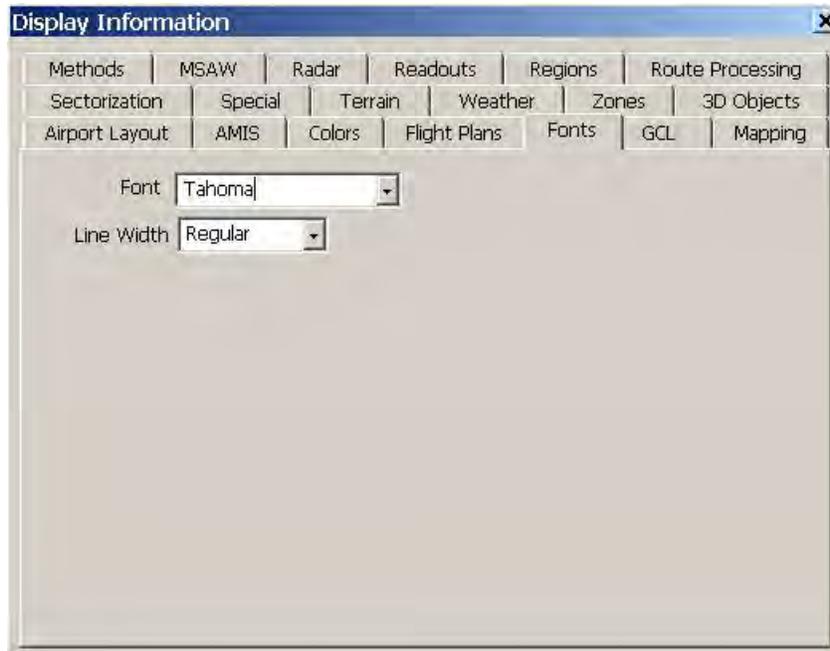
This window allows the user to display the route of flight of any or all aircraft in the scenario. A single aircraft can be selected or the **Override List** check box can be selected to display all flight plans.

The two check boxes at the top control the display of the route of flight.

The right box enables the display of the routes and fix slots along the route.

The left box displays the time the aircraft will reach each fix slot. The time will not be displayed unless the route is displayed.

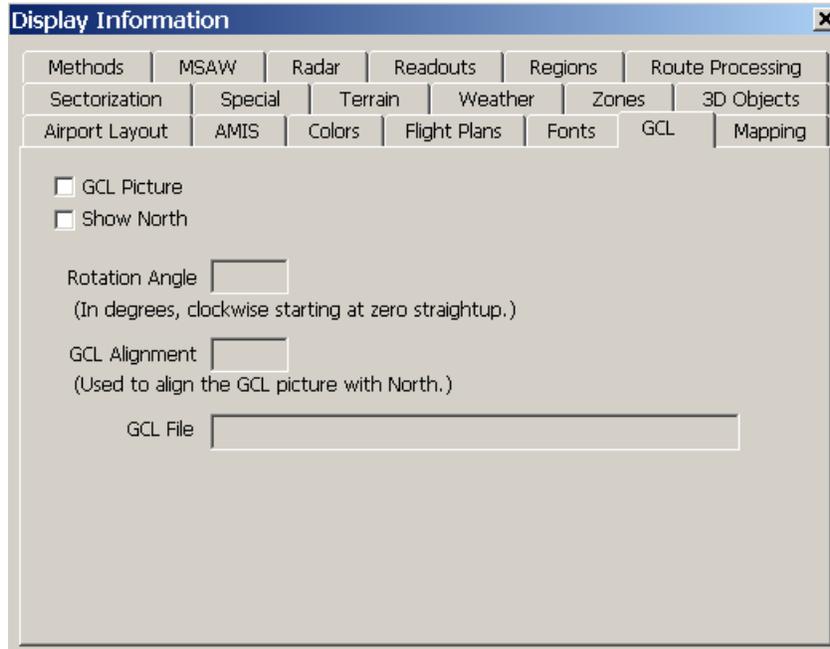
5.1.2.6.5 Fonts



UM-052

This Window allows the user to change the Font used on the display. It controls the font of all Labels and Readouts. The change is immediate to the display. This information is retained when the database is saved and will be applied when the database is reloaded in the future.

5.1.2.6.6 GCL



UM-233

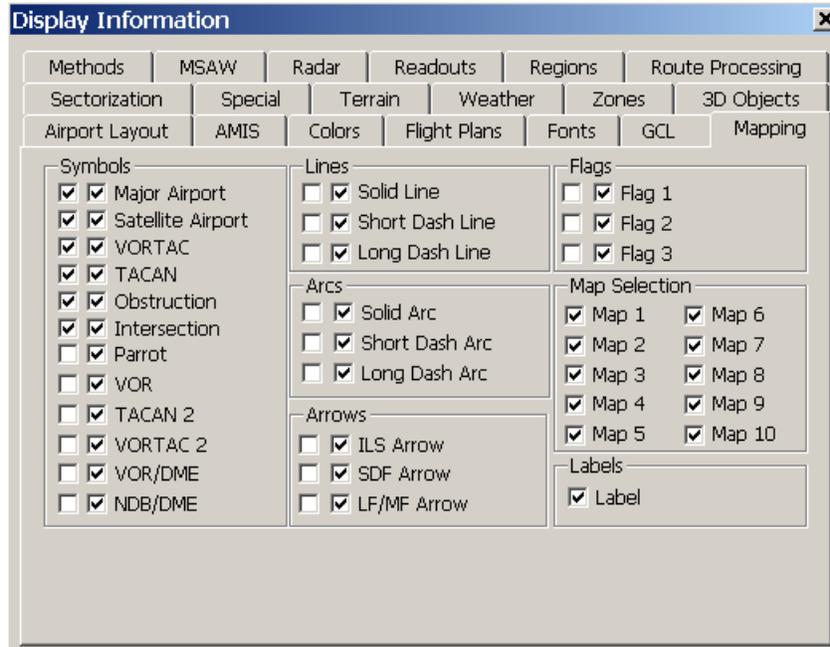
This allows you to manipulate the GCL picture for a Tower display.

GCL Picture will show the GCL map which is the background for the Tower display.

Show North will place an indicator on the map to point to true north.

Rotation Angle and **GCL Alignment** allow you to rotate the Tower display and still indicate which direction is north. (i.e. when your tower faces south, north would actually be at the bottom of the display.)

5.1.2.6.7 Mapping



UM-053

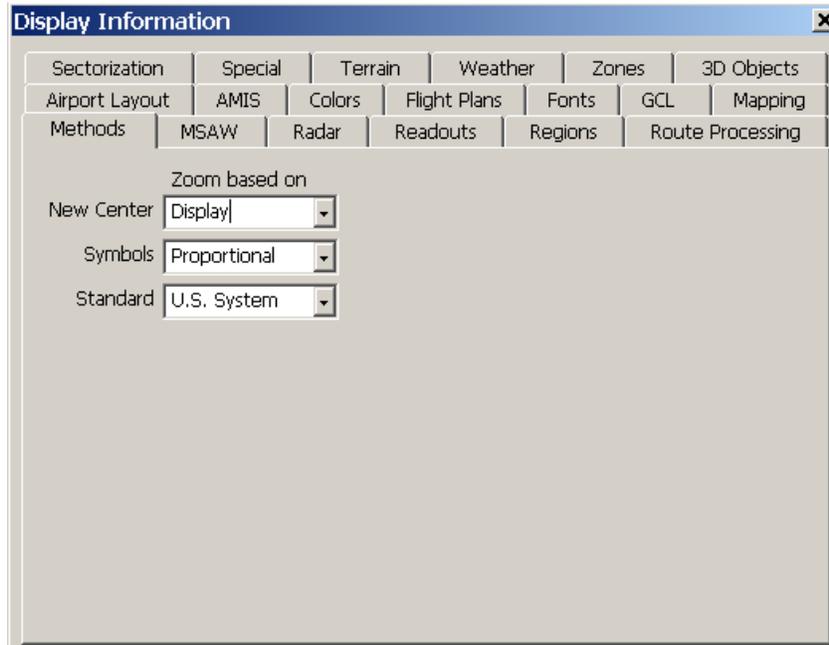
Most items on this page have two columns of check boxes. The right column will display the item selected; the left column will display a label of the item selected if the right box is also selected.

This Window allows the user to configure the Maps and Map items that are to be displayed and how they are to be displayed.

A Mapping Item is assigned to a particular map (1-10 or All) at the time it is created. The **Map Selection** area on this page controls which maps are to be displayed.

Note: Mapping items that are assigned to "All" maps will be displayed if at least one of the maps (1-10) is selected.

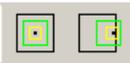
5.1.2.6.8 Methods



UM-054

This Window allows the user to change the way certain functions are displayed or calculated in Create2000.

New Center Choices are **Display** or **Map** (Default). This selection controls the functionality of two processes: Offset Center and Zoom In or Zoom Out.

Offset Center 

If **Display** is selected: Place the cursor over the desired new center and left mouse click.

If **Map** is selected: Move the map to the desired position and left mouse click.

Zoom In or Out 

If **Display** is selected: New range is calculated from the current center of the display.

If **Map** is selected: New range is calculated from the original center of display (Point of Tangency).

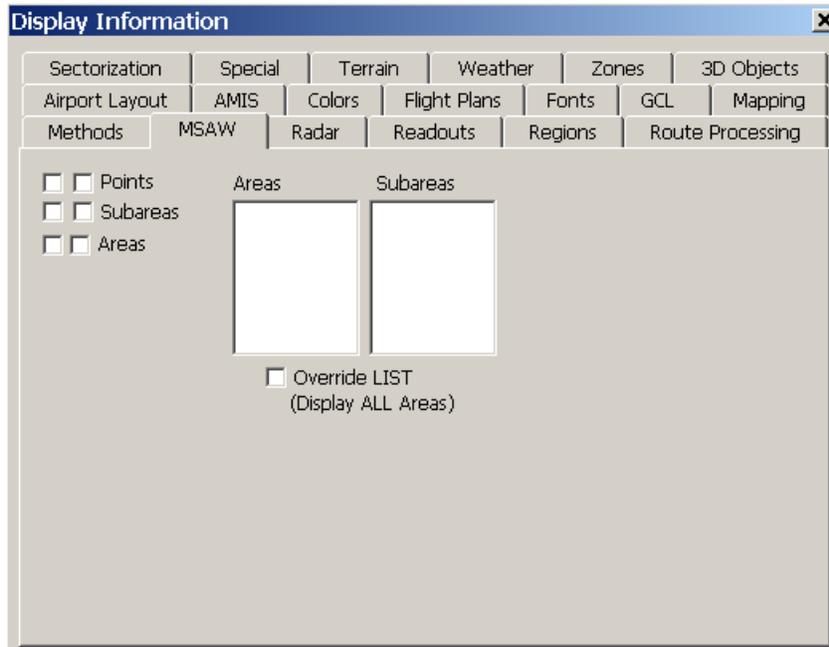
Symbols

Choices are **Proportional** (Default) or **Fixed**. This is used to determine whether the symbols scale with the map when the range is changed (**Proportional**) or stay the same size regardless of the range (**Fixed**).

Standard

Choices are **U.S.** (default) or **Metric System**. This toggles the information that is being displayed in the FRD Information Readout between miles and kilometers.

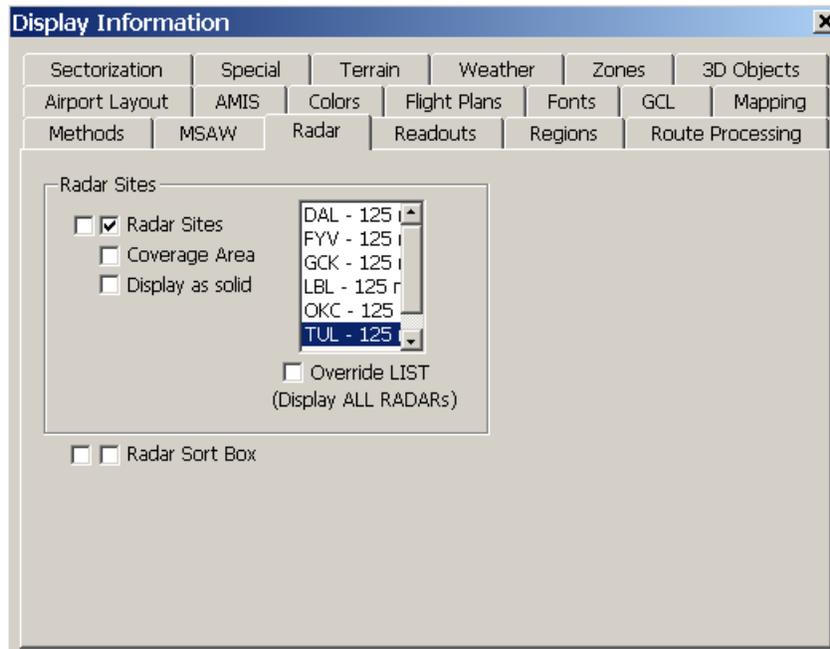
5.1.2.6.9 MSAW



UM-103

This area has not been implemented.

5.1.2.6.10 Radar



UM-055

This Window controls the display of Radar Sites and coverage areas.

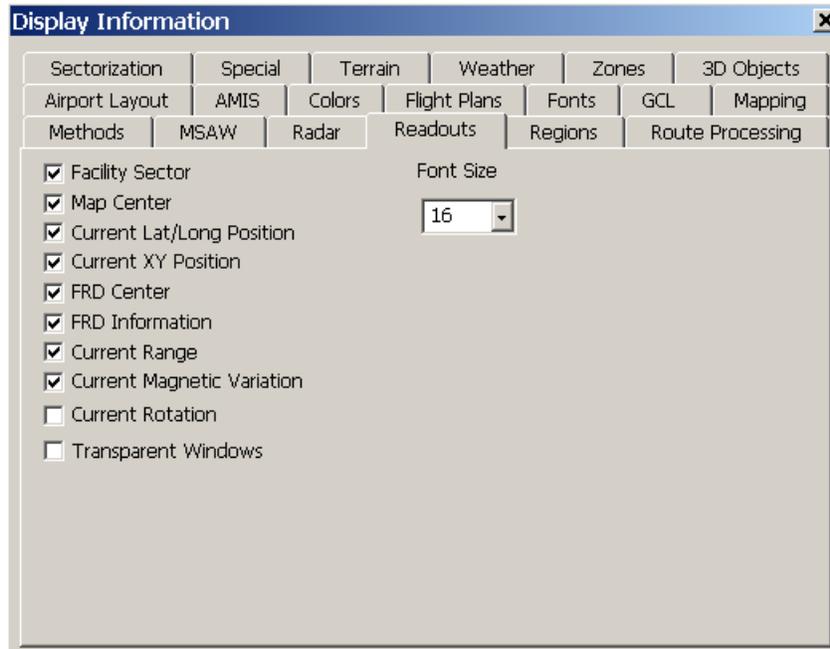
Radar Sites The right check box allows the Radar Site symbols to be displayed on the map. The left box allows the Radar Site's names to be displayed. The name is not displayed unless the right box is checked.

Coverage Area This will display the coverage area of each Radar Site and show where the coverage areas overlap.

Display as Solid If the Coverage Areas are being displayed, this fills in the display of these areas.

Radar Sort Box **This area has not been implemented.**

5.1.2.6.11 Readouts



The Readouts are displayed at the bottom of the map window. These Readouts provide information that can be used as a quick reference.

Facility Sector: This will show a continuous readout of the Facility/Sectors and altitude strata at the present mouse location.

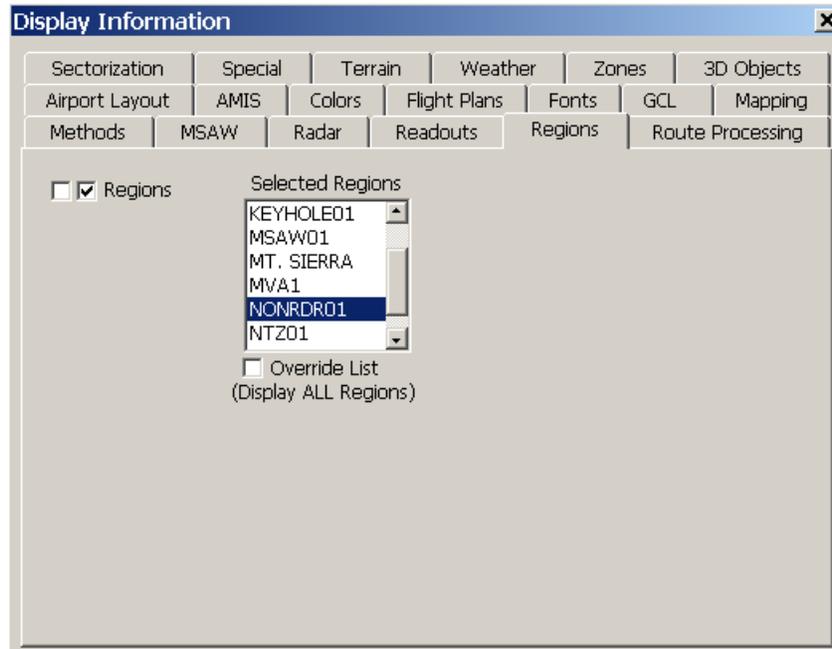
Map Center: This will display the Center of Display as defined under Parameters **Point of Tangency**.

Current Lat/Long Position: This will display a continuous readout of the present mouse location in terms of Latitude/ Longitude.

Current XY Position: This will display a continuous readout of the present mouse location in terms of XY miles.

FRD Center:	This will display the current FRD Center. Initially, this is the same as the Parameters Point of Tangency . A new FRD Center can be set under Set: FRD Reference .
FRD Information:	This will display a continuous readout of the present mouse location in terms of range and bearing from of the FRD Center.
Current Range:	This will show the current range set for the display. Initially, this is the same as the Parameters Range . A new range can be set under Set: Current Range .
Current Magnetic Variation:	This will show the Magnetic Variation that is set for the database in the Parameters Magnetic Variation . If the Parameters data is changed this window will reflect the change.
Current Rotation:	This indicates the current rotation of the display. This is only applicable for Tower databases.
Transparent Windows:	If this is selected the readout windows will be displayed as transparent. This will allow any information under the Readout windows to be visible.
Font Size:	This allows the Font Size of the Readout windows to be changed.

5.1.2.6.12 Regions



UM-057

This Window allows the user to select the Regions that are to be displayed and how they are to be displayed. There are two check boxes; the right box enables the display of the item, and the left box turns on the label for the item. The label is not displayed unless the item is also being displayed.

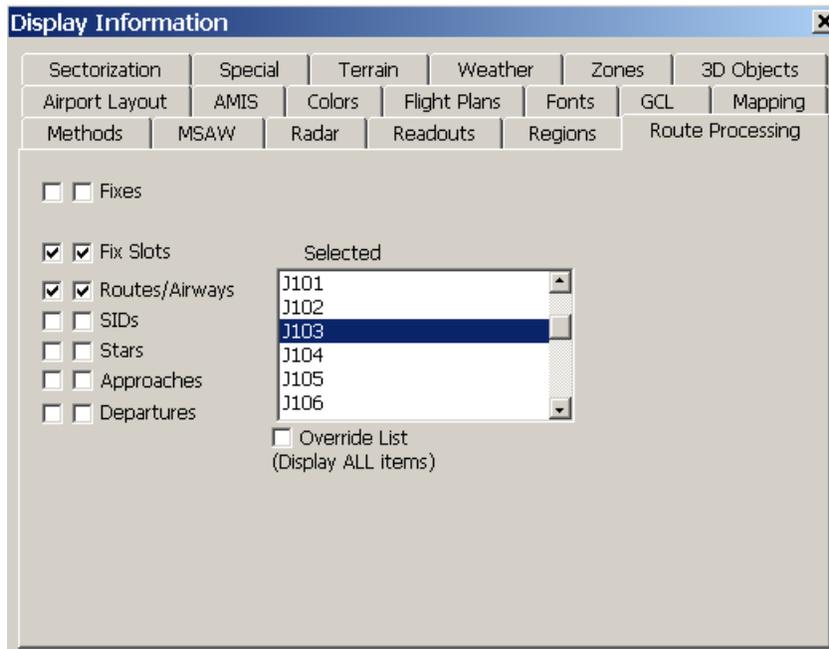
Regions must be selected in the list for display. As many regions as desired, may be selected. Selected Regions are highlighted in the list.

To Select or De-Select a list item, simply click on the item in the list. This function is a toggle.

The Override List checkbox, if selected, will display all the Regions.

All changes to this page are immediately reflected on the map display.

5.1.2.6.13 Route Processing



UM-058

This Window allows the user to configure the Route Processing Items that are to be displayed and how they are to be displayed. There are two columns of check boxes; the right box enables the display of an item, and the left box turns on the label for the item. The label is not displayed unless the item is also being displayed.

If Fixes are selected, the map display is immediately updated to display all Fixes in the database.

Fix Slots are shown when a Route/Airway, SID, STAR, Approach or Departure is selected. Fix Slots are the points that make up the item that is selected.

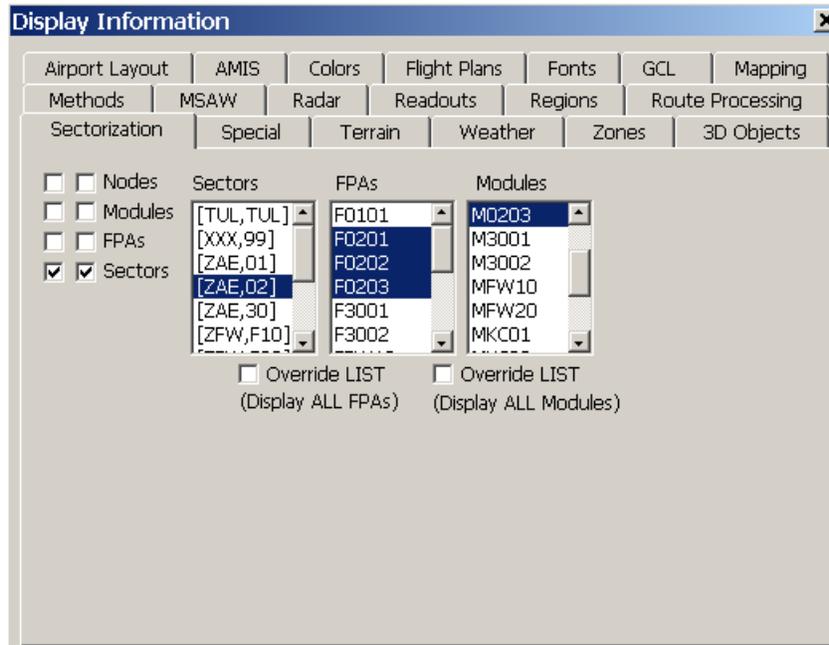
As Routes/Airways, SIDs, STARS, Approaches or Departures are Selected or De-Selected, the list window will be reconfigured to contain all the Selected types of data items. These items must then be selected in the list to be displayed. Selected items will be highlighted in the list.

To Select or De-Select a list item, simply click on the item in the list. This function is a toggle.

The Override List checkbox will display all of the Route Processing items displayed in the list.

All changes to page are immediately shown on the map window.

5.1.2.6.14 Sectorization



UM-059

This Window allows the user to identify the Sectorization Items that are to be displayed and how they are to be displayed. There are two check boxes; the right box enables the display of selected item, and the left box turns on the label for the item. The label is not displayed unless the item is also being displayed.

Nodes Displays all the Nodes in the database.

Modules This list contains all Modules in the database. A list selection must be performed in order to display a Module.

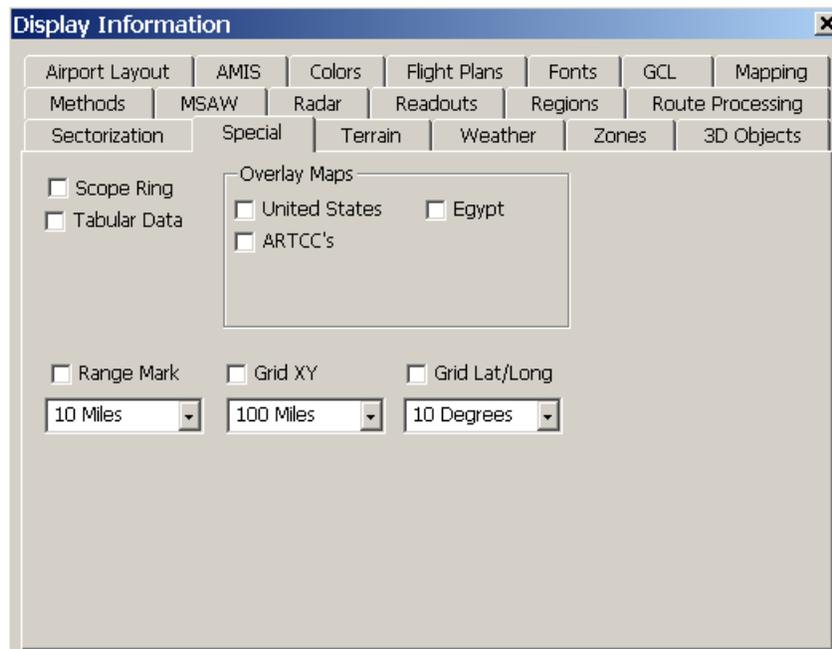
FPAs This allows FPAs to be displayed. A list selection must be performed in order to display an FPA.

Sectors This list contains all Sectors in the database. A list selection must be performed in order to display a Sector.

Items selected in the **Sectors** list automatically select the corresponding FPAs and Modules that make up that Sector. To Select or De-Select a list item, simply click on the item in the list. This function is a toggle.

Override List If selected, this displays all the items in the list.

5.1.2.6.15 Special



UM-060

This window presents a collection of special display item that provides the developer with additional useful information.

Scope Ring: This will display a Ring that depicts the location of the edge of the display for circular displays. Distance is based on the range value found in Parameters.

Tabular Data: This will display the Tab Lists that are present in this database.

Overlay Maps:

United States: This will overlay a map of the United States.

ARTCC's: This will overlay a map of the En Route Centers.

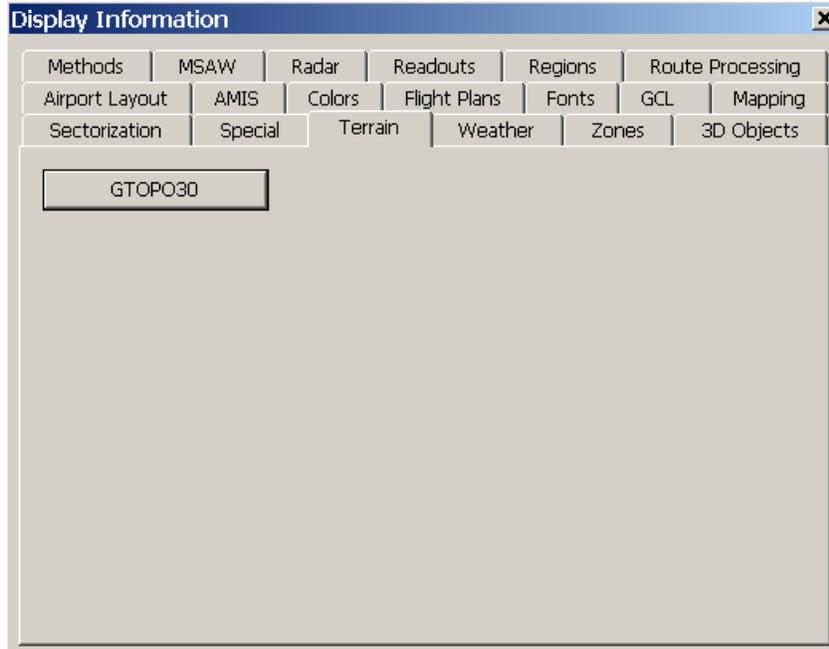
Egypt: This will overlay a map of Egypt.

Range Mark: This allows Range Marks to be displayed at the selected interval designated in the Pop-down window.

Grid XY: This allows an XY Grid to be displayed at the selected interval designated in the Pop-down window.

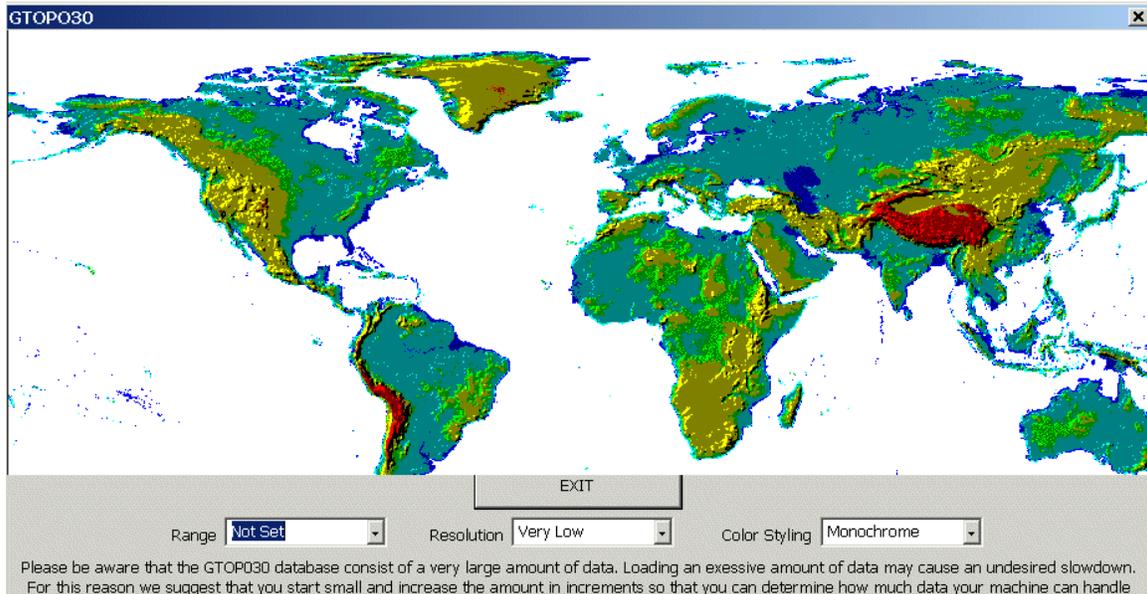
Gird Lat/Long: This allows a Latitude/ Longitude Grid to be displayed at the selected interval designated in the Pop-down window.

5.1.2.6.16 Terrain



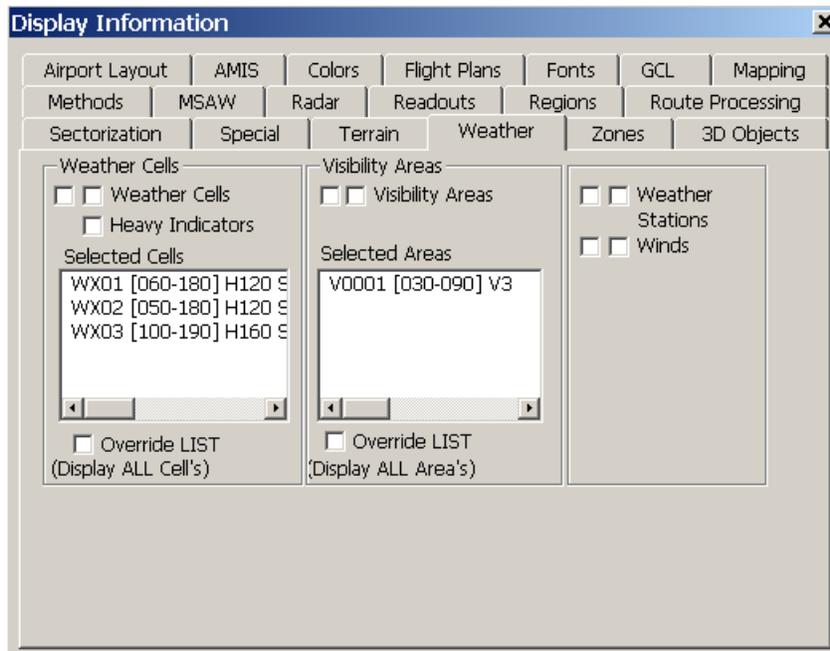
UM-104

THIS INFORMATION IS NOT AVAILABLE!!!



UM-127

5.1.2.6.17 Weather



UM-061

Weather Cells and Visibility Areas – Both have a common design and the interface is the same. Each area has two check boxes. The right box allows the display of the item that is selected; the left box controls the display of the label for the item. The label will not be displayed if the right box is not selected.

Weather Cells have an additional check box for allowing the display of the **Heavy Weather Indicators**.

The two areas each have a list to select items from. To Select or De-Select an item, simply click on the item. This is a toggle.

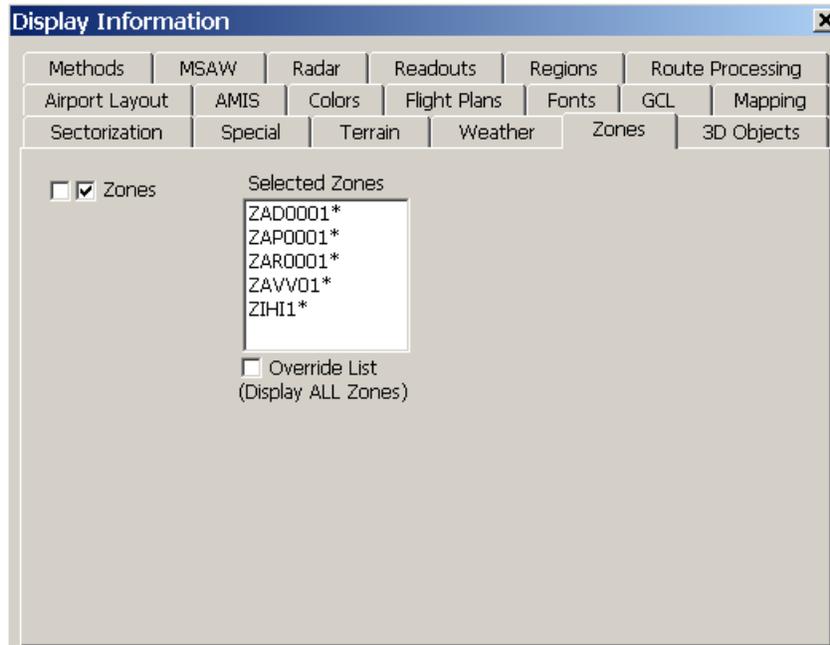
Both areas also have an Override LIST checkbox. This allows all items in the list to be displayed without being selected individually.

Weather Stations – This will display the location of the Weather Stations. The same rules of two check boxes apply.

Winds – This will force the display of a large blue “W” where an upper wind description has been created.

All changes to this page are immediately displayed on the map window.

5.1.2.6.18 Zones



UM-177

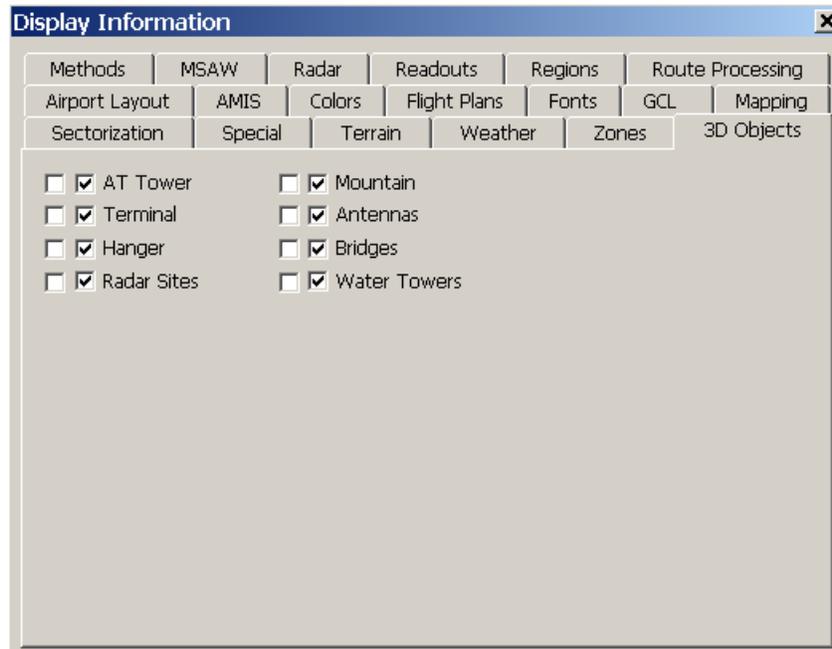
Zones were originally developed to support the simulation of the Morocco Operational system; however, other users may take advantage of this State to design airspace that requires horizontal boundaries in the shape of a circle.

This Window allows the user to select the Zones that are to be displayed. There are two check boxes; the right box enables the display of an item that has been selected, and the left box turns on the label for that item. The label is not displayed unless the item is also being displayed.

If the Override List check box is selected, all Zones will be displayed.

All changes to this page are immediately displayed on the map window.

5.1.2.6.19 3D Objects



UM-062

All items follow the rules of two check boxes. The right check box allows the display of the item and the left check box controls the display of the label for the item. The label will not be displayed if the right box is not selected.

All changes to this page are immediately displayed on the map window.

Note: The 3D Objects data is not intended for use yet. This is a new development area that could potentially evolve into a 3D modeler for the future 3D Tower project.

5.1.2.7 Global Scaler

The **Global Scaler** is a sliding bar that controls the size of symbols, fixes and fix slots that are displayed. It has no effect on the font size of the labels associated with these items.



UM-014



UM-015

NOTE: The following icons control the font size of the labels that are displayed on the mapping window. They are located on the tool bar.



UM-016

The smaller letters decrease the size and the larger letters increase the size.

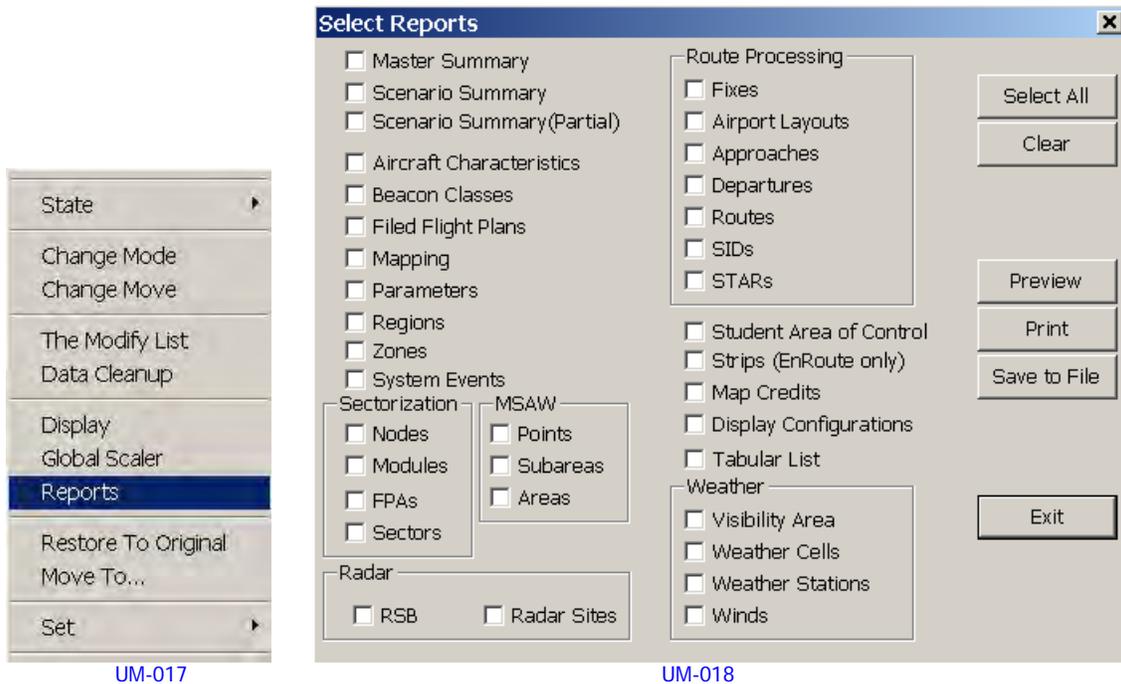
5.1.2.8 Reports

The **Select Reports** window allows the user to generate reports to **Preview** or **Print**. Select the report or reports that are desired and then select the method for viewing, Preview or Print.

The **Select All** button selects all reports.

The **Clear** button de-selects all the reports.

The **Save to File** button allows the user to save a report to a directory to print later. The saved file will be a ".txt" file.

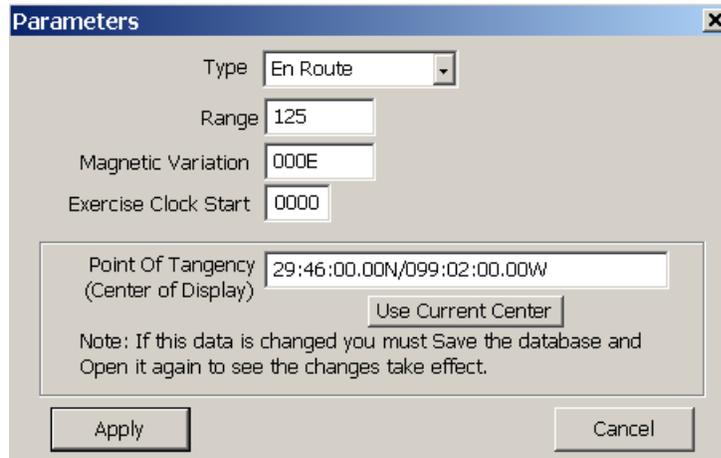


5.1.2.9 Restore to Original

Restore To Original resets the Map Center, Range and FPA Center to the original setting. The original settings are found in **Parameters** under **State**.



UM-019



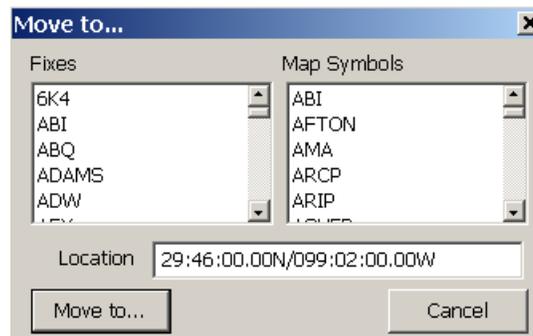
UM-020

5.1.2.10 Move To

The **Move To...** window allows the user to select a **Fix** or a **Map Symbol** from a list and then move the center of the map display to that location. Also, the Location field allows additional inputs as identified in **Paragraph 4 Valid Location Formats**.



UM-021



UM-022

5.1.2.11 Set

The **Set** menu allows the user to temporarily set the Current Center, Current Range, Current MagVar (Magnetic Variation) or Current FRD Reference point.



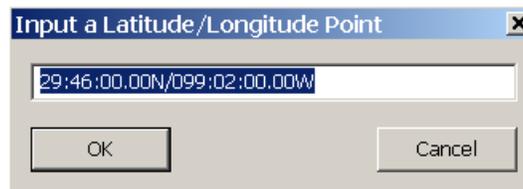
UM-023

5.1.2.11.1 Current Center

When **Set/Current Center** is selected, the user is allowed to move the center of the display using two different methods:

Using the Left mouse button sets the point of the new center and the display is redrawn.

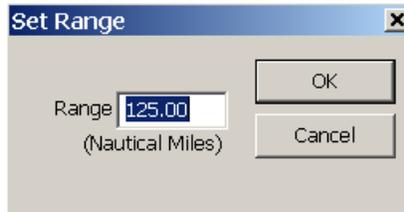
Using the Right mouse button brings up an **Input a Latitude/Longitude Point** window. Any Valid Location Format can be used.



UM-024

5.1.2.11.2 Current Range

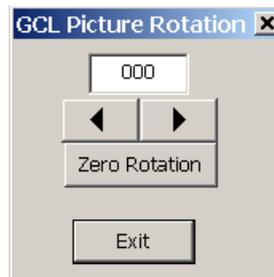
The **Set Range** menu allows the user to change the range of the display. This input is in terms of nautical miles.



UM-025

5.1.2.11.3 Current Rotation

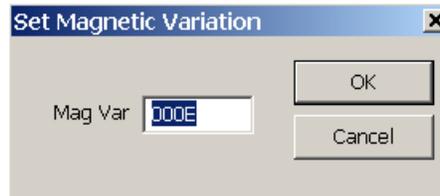
The **Current Rotation** window allows you to adjust the rotation of the display. NOTE: This is only applicable to Tower displays.



UM-249

5.1.2.11.4 Current MagVar

The Set MagVar allows the user to temporarily set magnetic variation of the database. This will have an effect on the flight of the aircraft in the scenario. The format for input is ###C where ### is a number **0-360** and C is **E** for East or **W** for West.



UM-026

5.1.2.11.5 FRD Reference

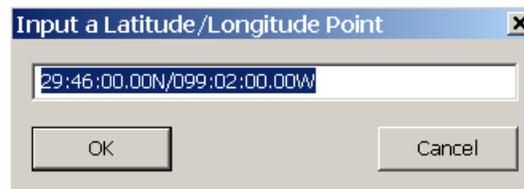
When **Set FRD Reference** is selected, the user is allowed to change the FRD center location using two different methods:

Using the **Left mouse button** sets that point as the new FRD Center. The FRD Information readout of the mouse location is then updated based on the new FRD Center location



UM-027

Using the **Right mouse button** brings up an **Input a Latitude/Longitude Point** window. Any Valid Location Format can be used.

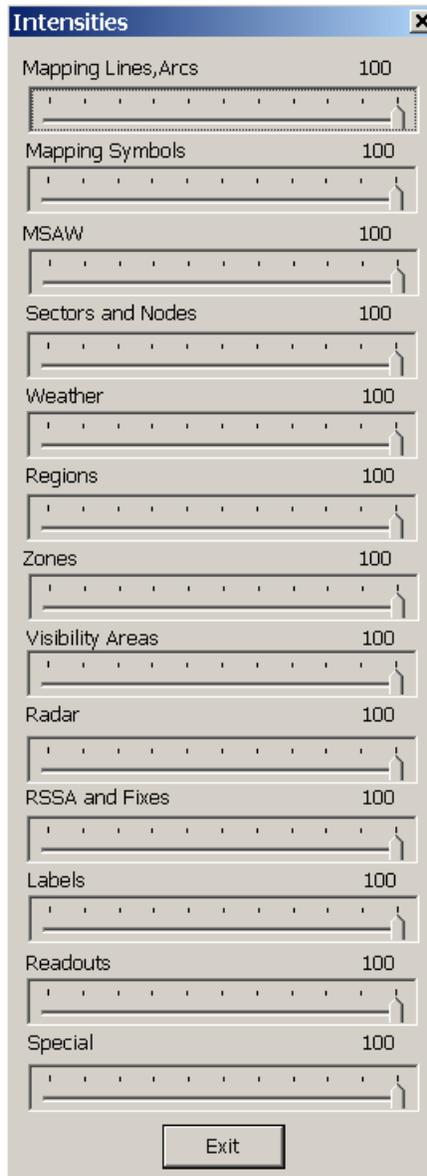


UM-024

This point will now be the new FRD Center and the FRD Information readout of the mouse location will be updated based on the new FRD Center.

5.1.2.11.6 Intensities

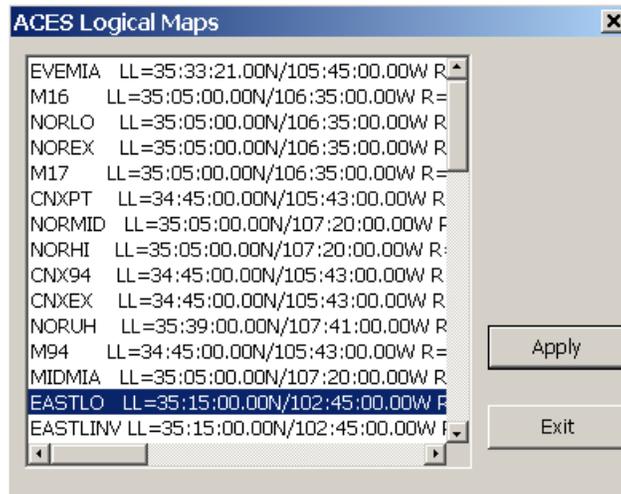
When **Intensities** is selected, the **Intensities** window is displayed. The user can adjust the Intensity of any displayable item by moving the slide bar left or right. Left decreases and Right increases Intensity.



UM-229

5.1.2.11.7 Logical Map (ACES)

This area is available Only when a Master Database has been created from a Facilities Adaptation File (ACES) using Construct software. The user can select a logical map from a list of facility unique maps. This map should be the map that the sector uses during normal operation.

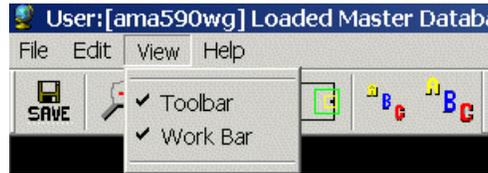


UM-230

Highlight the desired map from the list and select **Apply**. The selected Facility Map will be displayed using the adapted Center, Range and Mapping data.

5.1.3 View Sub-Menu

The **View** Pop-down window is used to control rather to display or not display the Toolbar and the Workbar. Each of these items will be discussed later.



UM-028

Toolbar



UM-029

Workbar



UM-030

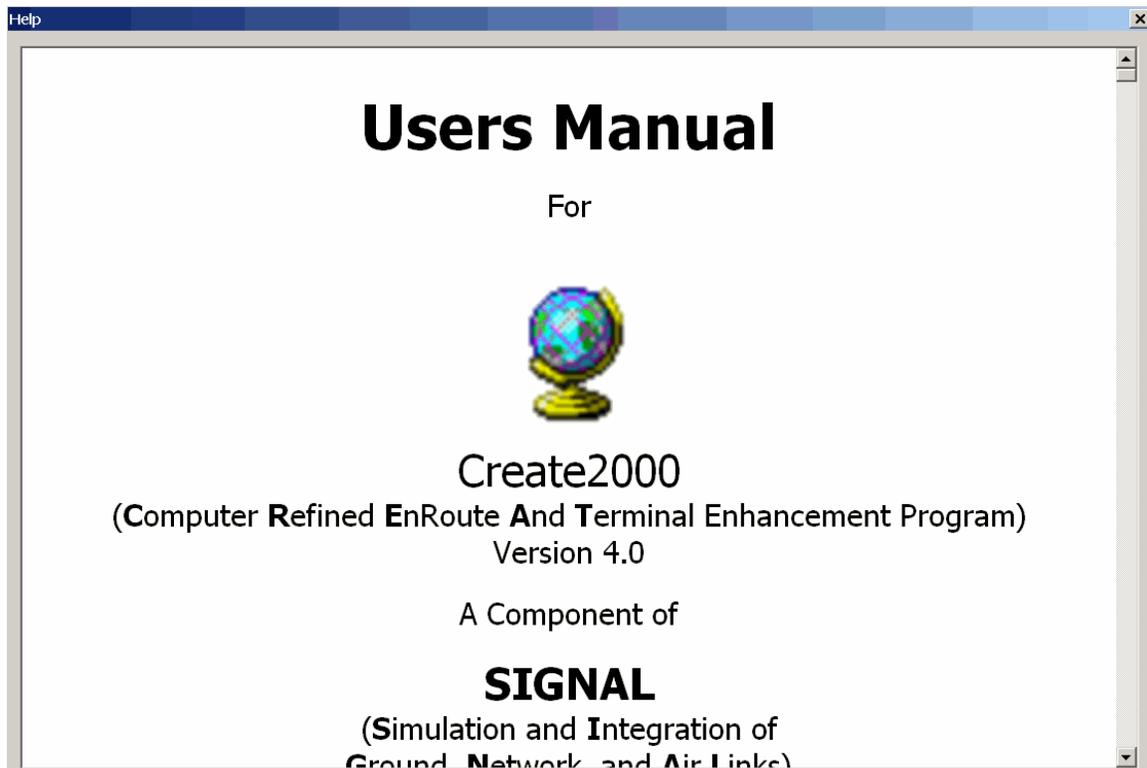
5.1.4 Help Sub-Menu

The **Help** Pop-down window allows access to the Users Manual and the About Box.



UM-031

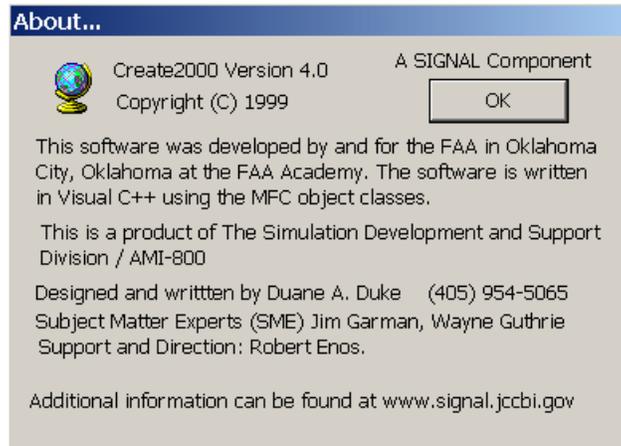
Users Manual



UM-032

This provides information about various topics that will aid you in performing tasks in Create2000.

About Box



UM-033

This is the standard Microsoft way of allowing the author to convey development information about the program to the user.

5.2 Toolbar



UM-029

This toolbar allows four basic functions: Save, Zoom In/Out, Center/Offset Display and Change Font Size. This toolbar can be taken down/up by selecting/deselecting Toolbar on the **View** Sub-menu of the Main Menu.

5.2.1 Save



UM-236

This button allows the user to quickly save changes that have been made. In order to avoid loss of work, it is recommended to periodically perform a save when numerous changes are made.

5.2.2 Zoom In or Zoom Out



UM-034

The icon that has a plus (+) is used to Zoom In.

The icon that has a minus (-) is used to Zoom Out.

5.2.3 Center and Offset Center



The icon with the boxes centered, when selected, causes the map to be centered at the location found in the **Parameters - Point of Tangency**.

If the icon with the boxes not centered is selected, the user is allowed to select a new center by clicking the mouse on the map in the location you wish to be the new center. The map is then displayed using this new center.

5.2.4 Font Size Increase and Decrease



The icon with the smaller letters allows the user to decrease the font size of the labels on the mapping window.

The icon with the larger letters increases the font size of the labels on the mapping window.

NOTE: This process does not affect The Readouts at the bottom of the mapping window. The Readout's font size is controlled in the Display Information – Readouts area.

5.3 Workbar



UM-030

This is a toolbar that is used as a quick reference for the user. It informs the user of the active **State**, whether **Mode** is set to Add or Modify and whether **Move** is Enabled or Disabled. This toolbar can be taken down/up by Selecting or De-Selecting Workbar on the **View** Sub-menu of the **Main** menu.

The Global Scaler controls the size of the map symbols.

5.4 Readouts

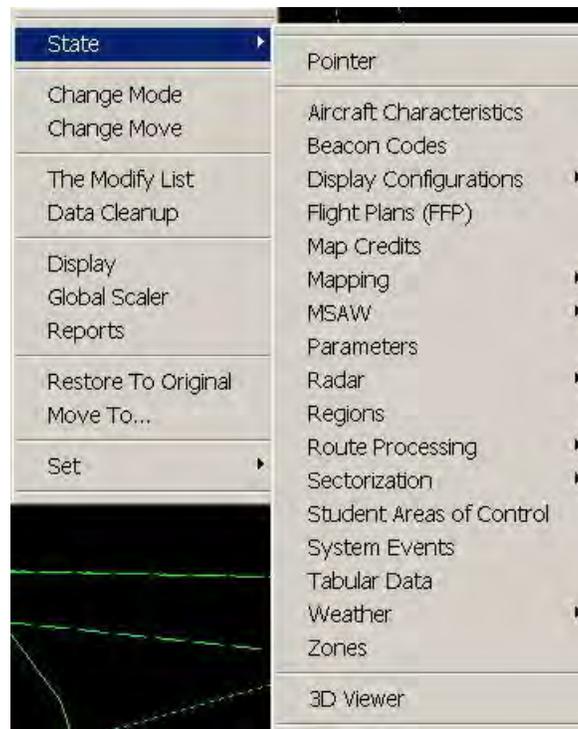
The Readouts are displayed at the bottom of the map window. These Readouts display information that the user can use as a quick reference. To control what is to be displayed, select Display from the Edit Sub-Menu then select Readouts from the tabs. Using the check boxes, you can select the Readouts that are to be displayed.

Facility Sector Altitude ZME M20 235-999 ZME M10 000-235	Map Center 36:01:00.00N/095:39:12.00W	Current Rotation 000	FRD Center 36:01:00.00N/095:39:12.00W	Current XY Position (69.869, 63.592) NMI	Current Position 37:03:56.79N/094:11:48.28W	FRD Information 0094 NMI 2887 Ft. 047°69'	Current Range Range: 125.00	Current Magnetic Variation MagVar: 000E
--	--	-------------------------	--	---	--	--	--------------------------------	--

UM-076

- Facility Sector:** This displays a continuous readout of the Facility/Sectors and altitude strata at the present mouse location.
- Current XY Position:** This will display a continuous readout of the present mouse location in terms of XY miles.
- Current Position:** This will display a continuous readout of the present mouse location in terms of Latitude/ Longitude.
- FRD Information:** This will display a continuous readout of the present mouse location in terms of range and bearing from the FRD Center.
- Current Range:** This will show the current range set for the display. Initially, this is the same as the Parameters **Range**. A new range can be set under **Set/Current Range**.
- Current Magnetic Variation:** This will show the Magnetic Variation that is set for the database in the Parameters **Magnetic Variation**. If the Parameters data is changed this window will reflect the change.
- Map Center:** This will display the Center of Display as defined under Parameters **Point of Tangency**.
- Current Rotation:** This shows the current rotation angle of the display. This is only applicable to Tower displays.
- FRD Center:** This will display the current FRD Center. Initially, this is the same as the Parameters **Point of Tangency**. A new FRD Center can be set under **Set/FRD Reference**.

6 STATE and It's Sub-menus



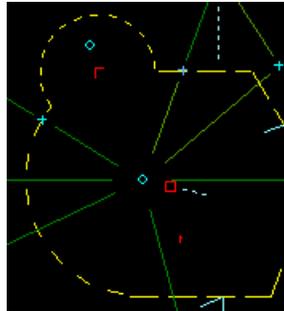
UM-063

The **State** Sub-menus allow the user to access the areas that are used to create and maintain databases and scenarios. Each section is discussed in detail in the following paragraphs. The information is presented in the order that it appears in the menu, not the order that would best be used to create a database. At the end of this document a suggested sequence is presented that could be used to build a database or scenario.

6.1 Pointer

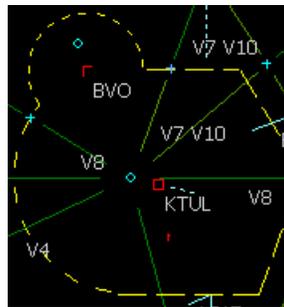
The Pointer State is the default position. When in the Pointer State the user can display the label of a map symbol or line by using the left mouse button.

Before



UM-064

After clicking on a map item with the left mouse button.



UM-065

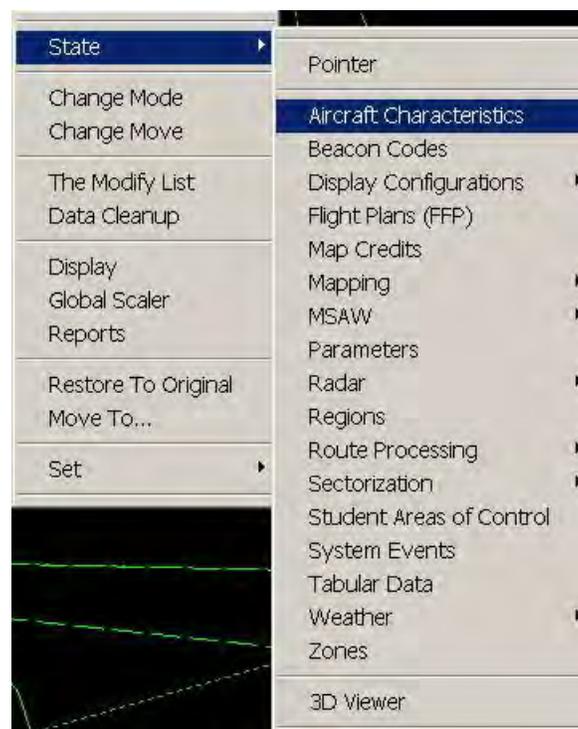
This function is very helpful when trying to determine the name of a map item and you do not want to turn "On" all the map labels. Turning on the labels sometimes leads to information overload for the user with too much data being displayed at one time. To return to the original display, hold down the Ctrl button and click the left mouse button.

6.2 Aircraft Characteristics

This is a Master only function.

This State allows the user to add, delete, duplicate or modify aircraft characteristics that are to be used in simulation.

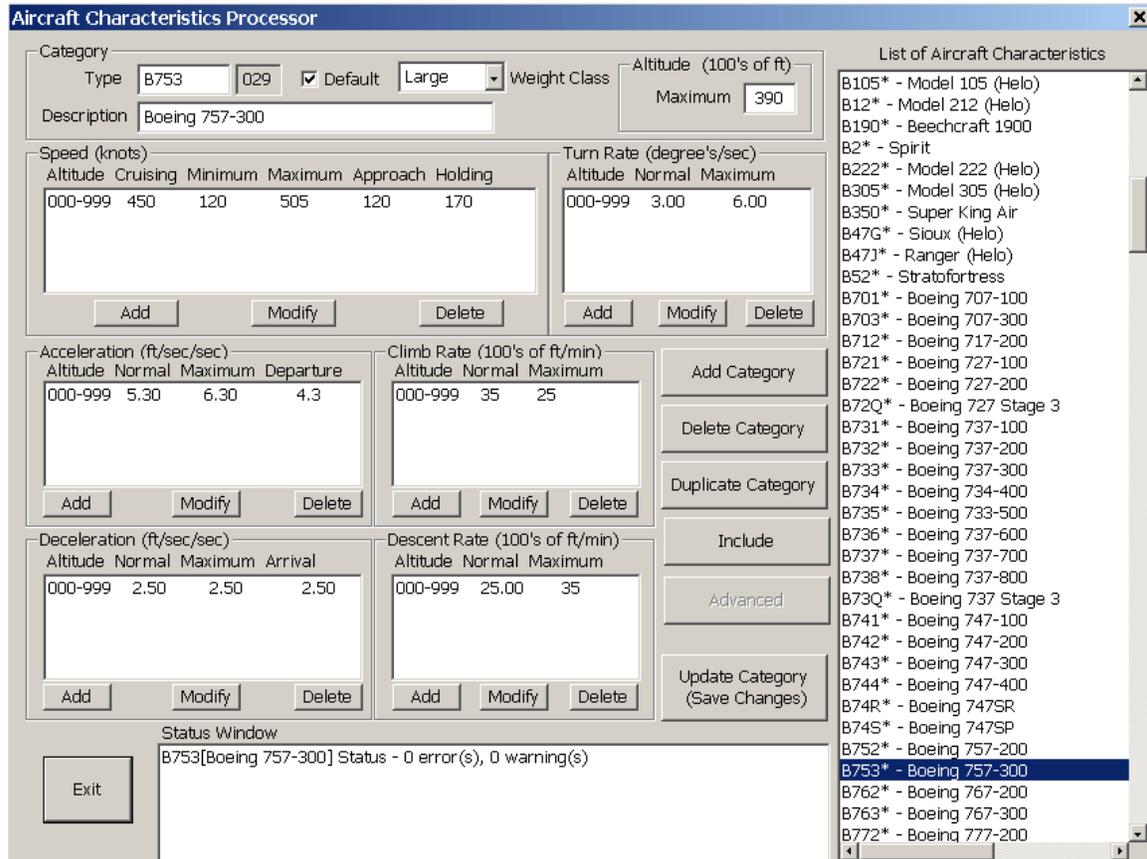
Any aircraft category can be used in a Scenario but it must be built and maintained in the Master database.



UM-081

Each aircraft type can have multiple sets of characteristics to simulate different situations (i.e. density altitude, different company policies, or different pilot personality).

Rates of Speed, Acceleration, Deceleration, Turn, Climb and Descent can be set to different performance standards at different altitude levels.



UM-066

From this window the user can **Add** a new Aircraft Category, **Delete** or **Duplicate** an existing Aircraft Category, **Include** an Aircraft Category from another database, or **Update** an Aircraft Category that has been modified.

The **Advanced** functionality is available only for Tower databases and scenarios. It is used to further define the characteristics of an aircraft in order to provide effective simulation training for the Tower option.

To view the characteristics of an existing aircraft type, highlight the aircraft in the List of Aircraft Characteristics. All pertinent information pertaining to that category will be displayed.

Add Category

This function is used to create a new Aircraft Category from scratch. When selected, a new Aircraft Characteristics Processor window will be displayed with type C0001 assigned. The Status Window will contain several Error messages that must be corrected. The user must provide information for each field in order to eliminate the error messages.

Delete Category

This function is used to delete an Aircraft Category from the database. The user must first select a Category from the List of Aircraft Characteristics and then press the **Delete Category** button. The Confirm Delete Box will be displayed and **Yes** must be selected before the Category is removed.

Duplicate Category

This function is used to duplicate an Aircraft Category that is in the database. The user must first select a Category from the list and then press the **Duplicate Category** button to make a copy of the original Category. No Error messages will be generated but the user will need to change the Description and any other parameters necessary to make it unique.

Include a Category from another Database

This function allows the user to access other Create2000 databases and import Aircraft Categories. Selecting **Include** will cause the display of a window that will let the user browse other databases and import other categories into the original database.

Update Category (Save Changes)

This function allows the user to save any changes that have been made to the characteristics. If another category is selected or an attempt to Exit is made without saving, a Notice window will prompt the user to save or discard the changes.

6.2.1 List of Aircraft Characteristics



UM-234

All aircraft that are included in the database are listed in this scrollable window. Information includes the type and user entered description. An asterisk following the type of aircraft indicates that it is the default category for that type. When a new flight plan is added to a scenario, the default category will initially be applied but can be changed if needed.

6.2.2 Category Information

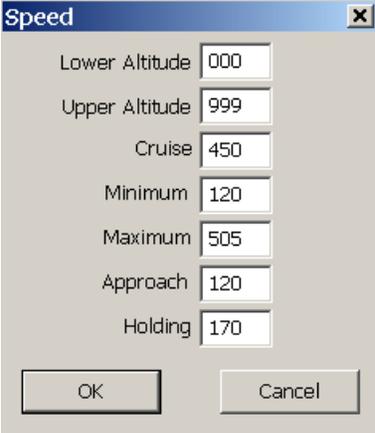
Category
Type B753 029 Default Large Weight Class Altitude (100's of ft)
Description Boeing 757-300 Maximum 390

UM-075

Type	This is the ICAO aircraft designator or the FAA's Stage 3 aircraft designator as published in the 7110.65. Disregard the number field at the right of the Type field; this is used internally with the software.
Description	This can be either the manufacturers model name or user supplied information that describes the anticipated performance of the aircraft.
Default	If this box is checked, this category will be initially assigned to this type aircraft when a flight is added to a scenario.
Weight Class	This is the designator assigned to aircraft in the 7110.65 or by some international countries.
Heavy	Aircraft over 255,000 pounds.
Large	Aircraft more than 41,000 pounds and up to 255,000 pounds.
Medium	Used by some international countries.
Small+	Aircraft between 12,500 pounds and 41,000 pounds. (Large, turbine-engine powered aircraft)
Small	Aircraft of 12,500 pounds or less maximum certificated takeoff weight.
Altitude Maximum	Altitude ceiling for this aircraft.

6.2.3 Speed Parameters

The user may Add, Modify or Delete the parameters that manage the **Speed** of each aircraft. You may add as many altitude stratum as needed to achieve acceptable aircraft performance. The altitude stratum cannot overlap and they must cover all altitudes between 000 and 999. If Add or Modify is selected, the following window will be displayed. All speed values are in Knots.



A dialog box titled "Speed" with a close button (X) in the top right corner. It contains seven input fields, each with a label and a numerical value: Lower Altitude (000), Upper Altitude (999), Cruise (450), Minimum (120), Maximum (505), Approach (120), and Holding (170). At the bottom are two buttons: "OK" and "Cancel".

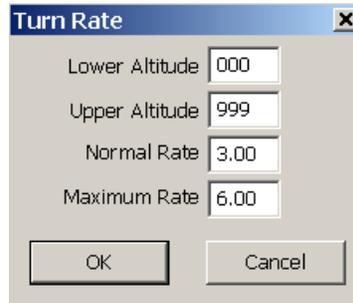
UM-067

- Lower Altitude** This is the lower level of the strata being added or modified. The value is in 100's of feet. This figure must be 000 or 1 hundred feet above previous strata's Upper Altitude.
- Upper Altitude** This is the upper level of the strata being added or modified. The value is in 100's of feet. Must be 999 or 1 hundred feet below next strata's Lower Altitude.
- Cruise** Manufacturers suggested cruising speed for this aircraft. This is the default speed that is assigned to the aircraft when the Pilot enters **Speed C** from the Pilot workstation. This value is entered in True Airspeed.

Minimum	Manufacturers suggested minimum speed before aircraft will stall. This is the default speed that is assigned to the aircraft when the Pilot enters Speed Min from the Pilot workstation. The pilot cannot enter a value lower than this figure. This value is entered in True Airspeed.
Maximum	Manufacturers suggested maximum speed of the aircraft. This is also the default speed that is assigned to the aircraft when the Pilot enters Speed Max from the Pilot workstation. The pilot cannot enter a value higher than this figure. This value is entered in True Airspeed.
Approach	This is the value that is assigned to the aircraft when it reaches the Final Approach Fix on an approach. This is also the default speed that is assigned to the aircraft when the Pilot enters Speed A from the Pilot workstation. This value is entered here in True Airspeed.
Holding	This is the value that is assigned to the aircraft when it reaches its Clearance Limit. This is also the default speed that is assigned to the aircraft when the Pilot enters Speed H from the Pilot workstation. This value is entered in True Airspeed.

6.2.4 Turn Rate Parameters

The user may Add, Modify or Delete the parameter that controls the **Turn Rate** of each aircraft. You may add as many altitude stratum as needed to achieve acceptable aircraft performance. The altitude stratum cannot overlap and they must cover all altitudes between 000 and 999. If Add or Modify is selected, the following window will be displayed:



Lower Altitude	000
Upper Altitude	999
Normal Rate	3.00
Maximum Rate	6.00

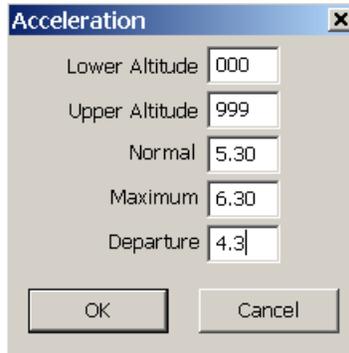
OK Cancel

UM-068

- Lower Altitude** This is the lower level of the strata being added or modified. The value is in 100's of feet. This figure must be 000 or 1 hundred feet above previous strata's Upper Altitude.
- Upper Altitude** This is the upper level of the strata being added or modified. The value is in 100's of feet. Must be 999 or 1 hundred feet below next strata's Lower Altitude.
- Normal Rate** This is the rate of turn that will be applied under normal conditions when the Pilot enters a new heading. The value is in degrees per second.
- Maximum Rate** This is the rate of turn that will be applied after the Pilot has entered a new heading for the aircraft then enters **Heading MAX**. The value is in degrees per second.

6.2.5 Acceleration Parameters

The user may Add, Modify or Delete the parameters that control the **Acceleration Rate** of each aircraft. You may add as many altitude stratum as needed to achieve acceptable aircraft performance. The altitude stratum cannot overlap and they must cover all altitudes between 000 and 999. If Add or Modify is selected, the following window will be displayed:



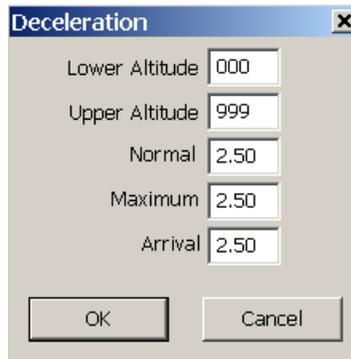
Lower Altitude	000
Upper Altitude	999
Normal	5.30
Maximum	6.30
Departure	4.3

UM--069

- Lower Altitude** This is the lower level of the strata being added or modified. The value is in 100's of feet. This figure must be 000 or 1 hundred feet above previous strata's Upper Altitude.
- Upper Altitude** This is the upper level of the strata being added or modified. The value is in 100's of feet. Must be 999 or 1 hundred feet below next strata's Lower Altitude.
- Normal** This is the rate of acceleration that will be used under normal conditions when the aircraft is increasing speed. The value is in feet per second per second.
- Maximum** This rate is applied only when the Pilot enters a command that contains a restriction and the aircraft cannot make the restriction utilizing the **Normal** rate. The **Maximum** rate is applied in an effort to comply with the restriction. The Pilot cannot otherwise execute this value from the Pilot workstation.
- Departure** This rate is applied only after the aircraft has been departed and is progressing down the runway. After liftoff, the **Normal** acceleration rate is applied.

6.2.6 Deceleration Parameters

The user may Add, Modify or Delete the parameters that control the **Deceleration Rate** of each aircraft. You may add as many altitude strata as needed to achieve acceptable aircraft performance. The altitude strata cannot overlap and they must cover all altitudes between 000 and 999. If Add or Modify is selected, the following window will be displayed:



Lower Altitude	000
Upper Altitude	999
Normal	2.50
Maximum	2.50
Arrival	2.50

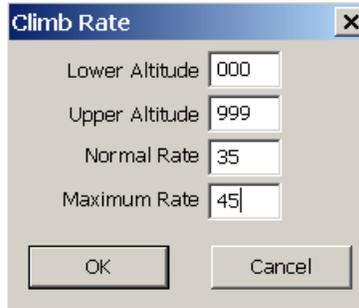
OK Cancel

UM-070

- Lower Altitude** This is the lower level of the strata being added or modified. The value is in 100's of feet. This figure must be 000 or 1 hundred feet above previous strata's Upper Altitude.
- Upper Altitude** This is the upper level of the strata being added or modified. The value is in 100's of feet. Must be 999 or 1 hundred feet below next strata's Lower Altitude.
- Normal** This is the rate of deceleration that will be used under normal conditions when the aircraft is decreasing speed. The value is in feet per second per second.
- Maximum** This rate is applied only when the Pilot enters a command that contains a restriction and the aircraft cannot make the restriction utilizing the **Normal** rate. The **Maximum** rate is applied in an effort to comply with the restriction. The Pilot cannot otherwise execute this value from the Pilot workstation.
- Arrival** This rate is applied only after the aircraft has reached the touchdown point on the runway and is progressing to the gate.

6.2.7 Climb Rate Parameters

The user may Add, Modify or Delete the parameters that control the **Climb Rate** of each aircraft. You may add as many altitude stratum as needed to achieve acceptable aircraft performance. The altitude stratum cannot overlap and they must cover all altitudes between 000 and 999. If Add or Modify is selected, the following window will be displayed:

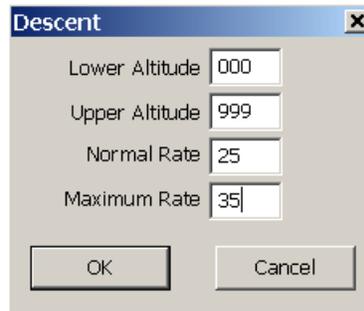
A dialog box titled "Climb Rate" with a close button (X) in the top right corner. It contains four input fields: "Lower Altitude" with the value "000", "Upper Altitude" with the value "999", "Normal Rate" with the value "35", and "Maximum Rate" with the value "45". At the bottom, there are two buttons: "OK" and "Cancel".

UM-071

- Lower Altitude** This is the lower level of the strata being added or modified. The value is in 100's of feet. This figure must be 000 or 1 hundred feet above previous strata's Upper Altitude.
- Upper Altitude** This is the upper level of the strata being added or modified. The value is in 100's of feet. Must be 999 or 1 hundred feet below next strata's Lower Altitude.
- Normal Rate** This is the rate of climb that will be applied under normal conditions when the aircraft is ascending to a new assigned altitude. The value is in hundreds of feet per minute.
- Maximum Rate** This is the rate that will be applied after the Pilot has entered a command for the aircraft to climb to a different altitude and then enters **Altitude MAX**. The value is in hundreds of feet per minute.

6.2.8 Descent Rate Parameters

The user may Add, Modify or Delete the parameters that control the **Descent Rate** of each aircraft. You may add as many altitude stratum as needed to achieve acceptable aircraft performance. The altitude stratum cannot overlap and they must cover all altitudes between 000 and 999. If Add or Modify is selected, the following window will be displayed.



The image shows a dialog box titled "Descent" with a close button (X) in the top right corner. It contains four input fields with the following values: "Lower Altitude" is 000, "Upper Altitude" is 999, "Normal Rate" is 25, and "Maximum Rate" is 35. At the bottom of the dialog are two buttons: "OK" and "Cancel".

UM-072

- Lower Altitude** This is the lower level of the strata being added or modified. The value is in 100's of feet. This figure must be 000 or 1 hundred feet above previous strata's Upper Altitude.
- Upper Altitude** This is the upper level of the strata being added or modified. The value is in 100's of feet. Must be 999 or 1 hundred feet below next strata's Lower Altitude.
- Normal Rate** This is the rate of descent that will be applied under normal conditions when the aircraft is descending to a new assigned altitude. The value is in hundreds of feet per minute.
- Maximum Rate** This is the rate that will be applied after the Pilot has entered a command for the aircraft to descend to a different altitude and then enters **Altitude MAX**. The value is in hundreds of feet per minute.

6.2.9 Advanced (Tower Option Only)

If **Advance** is selected, the following window will be displayed:

Advanced Characteristics Topics

Physical Description

Wing Span (ft)

Length (ft)

Height

Gear Down (ft)

Gear Up (ft)

Nominal Weight (lbs)

Cockpit View Angle (degs)

Center of Gravity

From Nose (ft)

From Right Wing (ft)

From Top (ft)

Moveable Wings

Fixed Landing Gear

Vehicle Type

Landing Gear

Operational Characteristics

Distances

Minimum Landing (ft)

Minimum Taxiway Width (ft)

Runway Abort (ft)

Speed

Takeoff (nm/hr)

Ground (nm/hr)

Ground Turn

Rate of Change (deg/sec)

Radius (ft)

Angle of Attack

Angle (MAX) (degs)

Rate of Change (deg/sec)

Roll Character

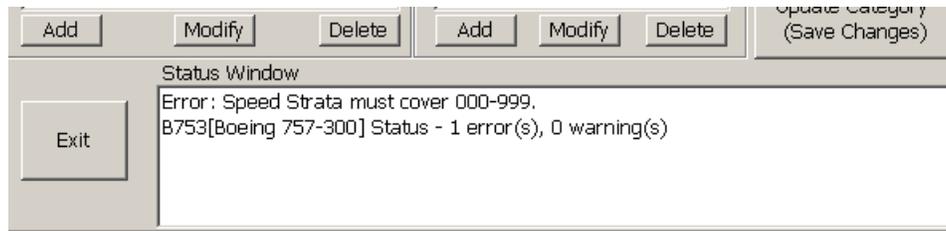
	Degrees	Rate of Change
Angle	<input type="text"/>	<input type="text"/> (deg/sec)
Angle (MAX)	<input type="text"/>	<input type="text"/> (deg/sec)
Roll to Heading Ratio 1:	<input type="text"/>	<input type="text"/> (deg/sec)

OK Cancel

UM-073

When implemented, this window will allow you to input specific information about each aircraft type. This information will be used primarily with Tower scenarios to provide precise information for operations on and near the ground. This will be implemented in the future.

6.2.10 Error Checking



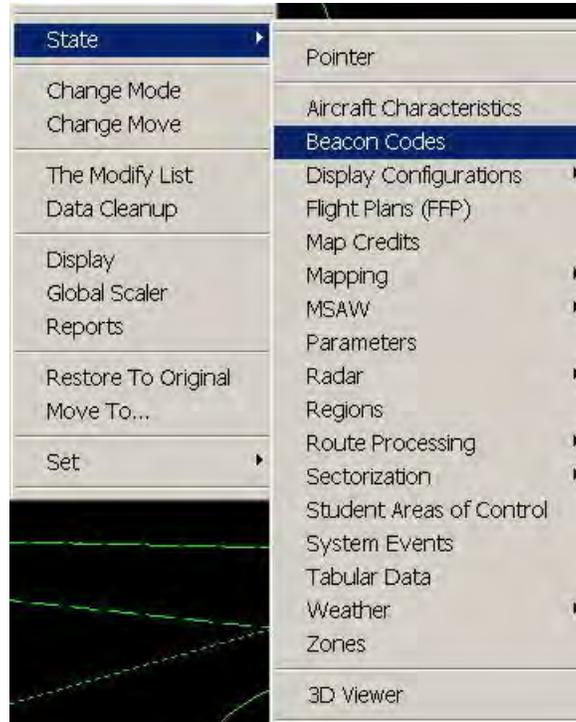
UM-074

Active Error Checking is performed and the results are displayed in the **Status Window** at the bottom of the **Aircraft Characteristics Processor** window. The information that will be displayed is the aircraft category that has the error and a brief explanation of each error.

When a Category is selected, only Errors for that Category are displayed. When no Category is selected, the Errors are displayed for all Categories.

6.3 Beacon Codes

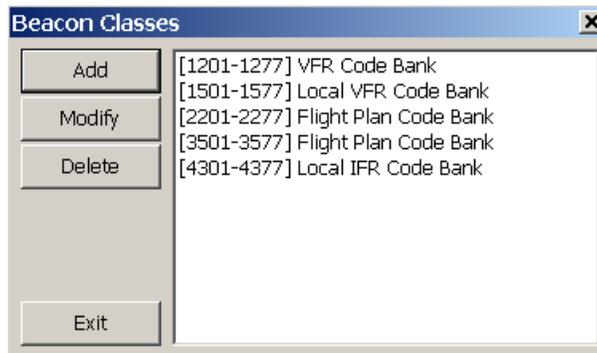
This is a Master Only function.



UM-105

In addition to locally adapted special operation code subsets, each facility has unique beacon code subsets assigned to it. This area of the software allows the user to define these beacon code subsets and make them available for assignment to flights that are to be used for training.

There are 4 types of Code Banks that can be established:



UM-077

Flight Plan Code Bank

Beacon codes in the Flight Plan Code Bank are used in two areas of SIGNAL:

Create2000 – When a flight is added to a scenario using NAS FDEP format, the developer may include a discrete beacon code or leave the code field blank. If the field is left blank, the user may edit the flight plan and select a discrete code from a list of five unique and unassigned codes. These available codes are selected randomly from the **Flight Plan Code Bank** subsets established in this area of CREATE.

Medium Fidelity Simulation – During simulation using SIGNAL as a Medium Fidelity System, if a discrete code is requested for an aircraft, the code that will be assigned is selected from the remaining codes in the **Flight Plan Code Banks**.

Local IFR Code Bank (Terminal Only)

This type of code bank is used by the terminal option to define a group of codes that can be assigned to a local IFR flight. If, during the scenario, the student requests a code for a local IFR flight (not a NAS flight plan) the assigned code will come from this bank.

Local VFR Code Bank (Terminal Only)

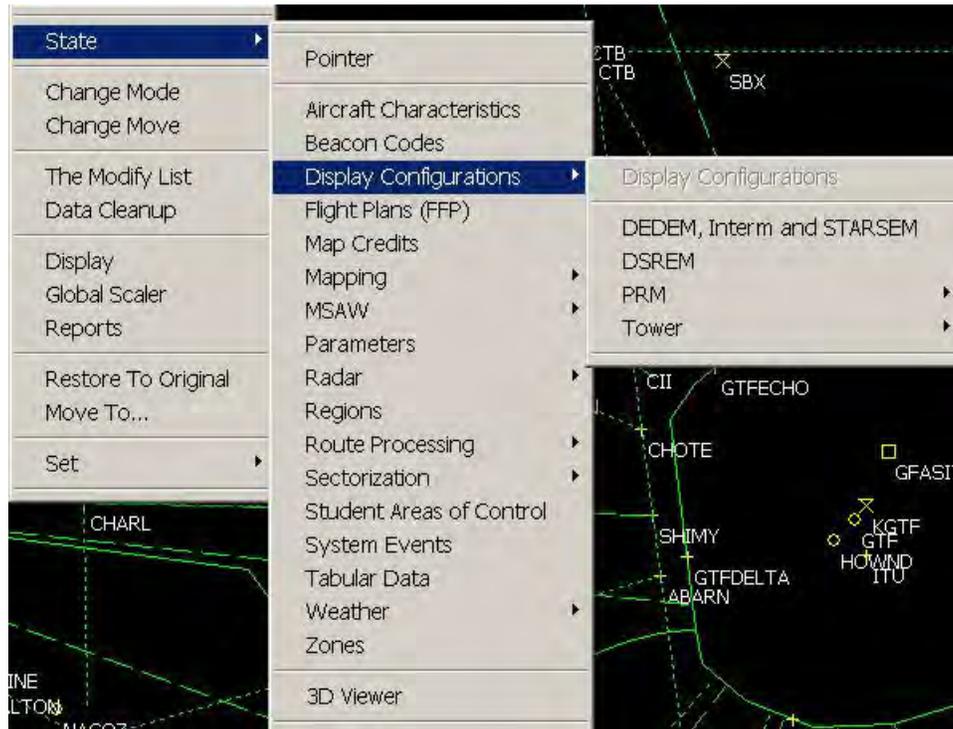
This type of code bank is used by the terminal option to define a group of codes that can be assigned to a local VFR flight. If, during the scenario, the student requests a code for a local VFR flight (not a NAS flight plan) the assigned code will come from this bank.

VFR Code Bank (Terminal Only)

This type of code bank is established for and used by the terminal option. It defines which bank of codes will be seen as untracked VFR flights during the scenario. In the United States this is usually the 1200-1277 bank of codes.

6.4 Display Configurations

This is a Scenario and Master level function.

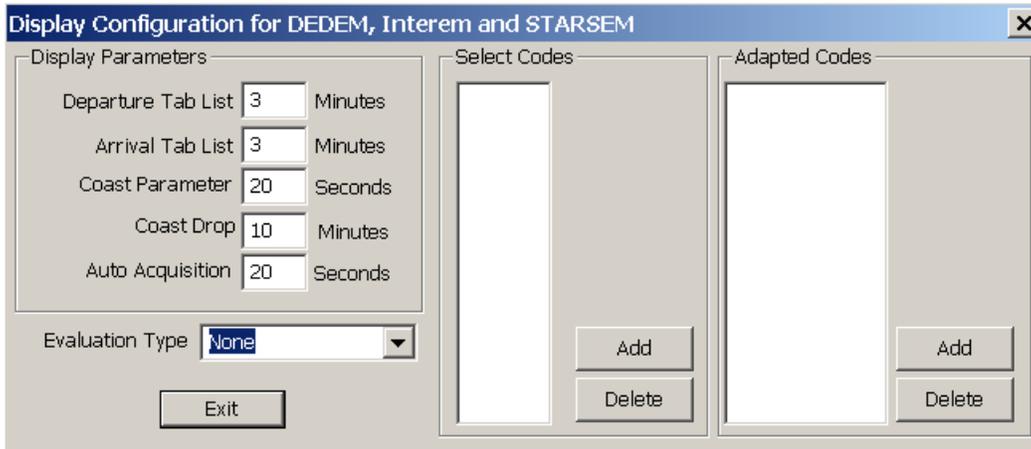


UM-078

The **Display Configurations** area is used to configure the different interfaces that are supported by SIGNAL. This allows the software to emulate the unique requirements of each application and better represent their needs.

6.4.1 DEDEM, Interem and STARSEM

This window controls the display configuration for the Terminal DEDs Emulator, the International Emulator and the STARS Emulator.



UM-079

The Display Configuration for DEDEM, Interem and STARSEM allows the setting of the following Display Parameters as well as the Selected Codes and Adapted Codes for the scenario.

Display Parameters

Departure Tab List – This defines the number of minutes prior to departure time that an aircraft will appear in the tab list.

Arrival Tab List – This defines the number of minutes prior to the time the handoff begins that the aircraft will appear in the tab list.

Coast Parameter – This defines the length of time that an aircraft's data block can remain in coast status before the data block will drop and enter the Coast/Suspend list.

Coast Drop – This defines the number of minutes that an aircraft will remain in the Coast list before dropping out.

Auto Acquisition – This defines the number of seconds after a beacon is detected that a data block will associate with that beacon.

Evaluation Type – Options are: ***NEED TERMINAL INPUT
None

Initial Qual.

Best Practices

International.

Select Codes – This forces the display of a special symbol over the target of an untracked aircraft that is squawking a code that has been designated as a Select Code.

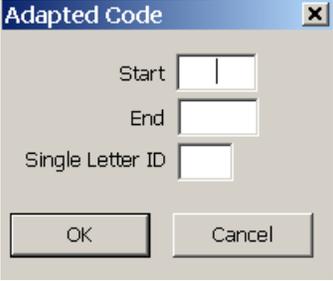


UM-151

A square will appear over the target of an aircraft with Mode C.
A triangle will appear over the target of an aircraft with no Mode C.

To assign a Select Code, only enter the first two digits of the desired block (e.g. 12 for 1200, 23 for 2300, etc.).

Adapted Codes – This allows the user to designate a specific letter to be associated with an aircraft squawking a code in a specified bank of codes.



UM-152

EXAMPLE: If you associate the letter V with the 0300-0377 code bank, any aircraft squawking one of those codes will have a V at the end of the data block.

6.4.2 DSREM

The Display Configuration for DSREM allows the user to set the Display Parameters for the DSR medium fidelity emulator. These settings can be scenario unique.



UM-080

Display Parameters

NOTE: The settings in the following fields only affect flights used for simulation in the medium fidelity system. If NAS is being used, the rules established in the adaptation tables will apply.

Drop Full Datablock – This field applies to flights after they have been handed off to another facility/sector. After the period of time that is specified in this field has passed, the Full Data Block will be dropped from the display of the sector that originally made the handoff.

Drop Track – This field also applies to flights after they have been handed off to another facility/sector. After the period of time that is specified in this field has passed, the target and data block will be dropped from the display. The flight cannot be referenced again. This applies to all aircraft in the scenario that are handed off to another sector.

Flat/Free Association – This field controls when a flat or free track position symbol is to be displayed for an aircraft. An invisible square box is built around the point that the computer calculates as the position of the aircraft. As the aircraft progresses along its route of flight, the box also moves at the filed speed of the flight. If the target deviates from the flight plan route more than the value entered in this field, the position symbol will change from flat to free track. When the track reenters the parameter of the filed route of flight, the position symbol changes back to flat track.

Altitude Conformance – This field is used to determine what is to be displayed as the B4 character in the full data block. Whenever the actual altitude of the aircraft is within the value set in this field, the aircraft is considered to be at the assigned altitude. If the aircraft deviates from the assigned altitude by more than the value set in this field, the B4 character will change to the appropriate indicator.

Auto Acquisition – This field is used to determine the delay time between when an aircraft is departed and when a full data block is associated with the target.

Route Display Duration – This field determines the length of time that a Route Display will remain on the controllers display subsequent to a QU message.

Route Display Length – This field determines the default length of route that will be displayed for a flight if no value was entered at the time of the QU request. The displayed segment will be in minutes of flying time.

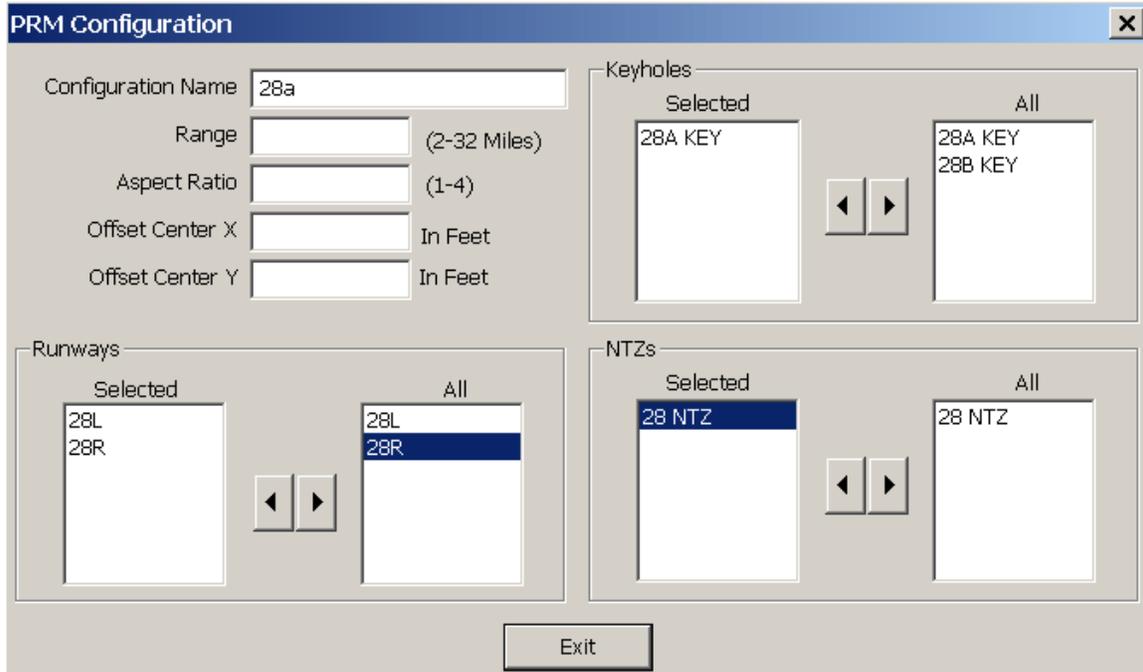
URET Enabled – This field is used for the Academy IATS training system only. If not selected, the system will operate as DSR Only and will print all strips. If selected, the URET processor will be activated and available for training.

In the medium-fidelity and ERTSS systems, the URET processing software will be available full time.

6.4.3 PRM

This area allows the user to create configurations in the Precision Runway Monitor (PRM) master and then specify which configuration is to be used in an individual scenario.

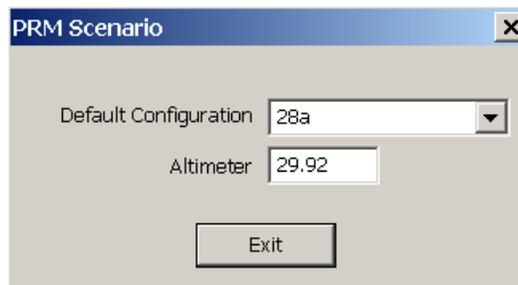
This window allows you to create/modify configurations in a Master.



UM-250

***NEED TERMINAL INPUT

This window allows you to specify which configuration to use in a scenario.



UM-251

6.4.4 Tower

This window allows you to set the rotation angles and the name of the file to be used in the background of a Tower display. This is applicable to Tower displays only and can only be accessed through a Tower master.

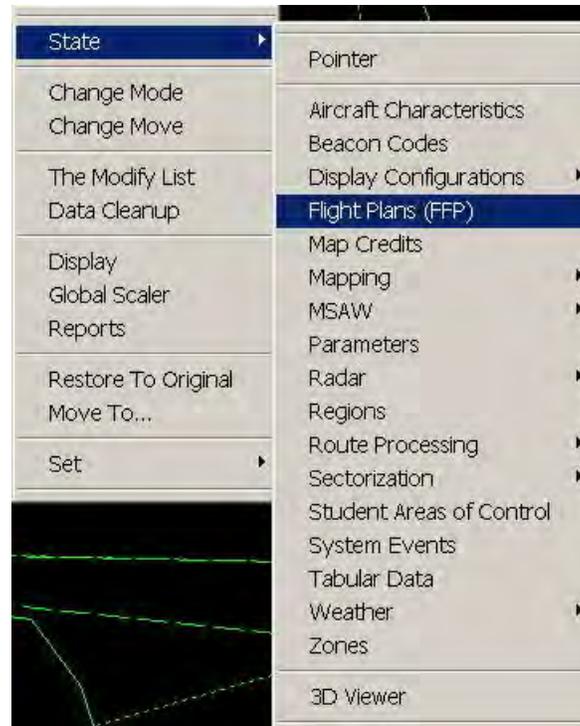


UM-252

***NEED TERMINAL INPUT

6.5 Flight Plans (FFP)

This is a Scenario and Master level function.

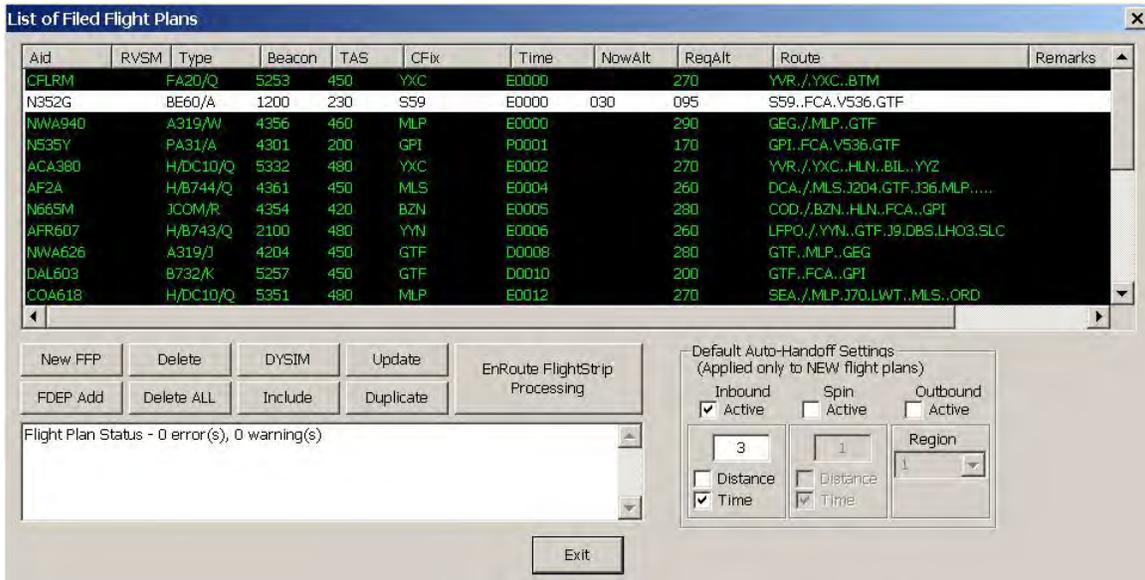


UM-082

This is the area where the user adds and maintains the flight plans that are to be included in a scenario. Flights can be added from scratch, imported from other sources or modified to achieve the desired goal of a training exercise.

Flight unique events can be added or modified to affect the aircraft without pilot intervention or events can be added that inform the pilot to perform a desired task.

By selecting **Flight Plans (FFP)** from the State window, the **List of Filed Flight Plans** window will be displayed.



UM-083

The following is a description of the items and functions contained in the **List of Filed Flight Plans** window:

List of Flight Plans

This window contains all the flights that are contained in this scenario. Using the slide bars, you will be able to view all the Flight Plans in NAS FDEP Format.

Flight Plan Status

Active Error Checking is performed on the Flight Plans and the results are displayed in this status area. If a Flight Plan is found to have an error or warning, simply double click on the error message and that flight plan will be loaded and the cursor moved to the field in question.

New FFP

This function is used to enter a new Flight Plan. When selected, a blank Filed Flight Plan Processor window will be displayed. The user can enter the new flight plan by tabbing through each field.

FDEP Add

This function is used to enter a new Flight Plan. Flight Plan information is entered in NAS FDEP format.

Delete

This function is used to delete a flight from the scenario. The user must first select a Flight Plan from the list and then press the **Delete** button to remove the Flight Plan. The Confirm Delete Box will be displayed and **Yes** must be selected before the Flight Plan is removed.

Delete ALL

This function will delete ALL Flight Plans in the scenario. **This action cannot be UNDONE.**

DYSIM

This function allows the user to access DYSIM problems and import any or all of the flights contained in a DYSIM file.

Include

This function allows the user to access other Create2000 scenarios and import some or all Flight Plans from that scenario file into a different scenario file.

Update

This function is used to access the Filed Flight Plan Processor area. Modification to the flight can be accomplished in this area. The user must first select a Flight Plan from the list and then press the **Update** button. The user can also access the Filed Flight Plan Processor area by **double clicking** on the flight from the list.

Duplicate

This function is used to duplicate a flight that is in the scenario. The user must first select a Flight Plan from the list and then press the **Duplicate** button to make a copy of the original flight plan. Error messages will appear in the Flight Plan Status Area until the **Call Sign** and **Beacon Code** are changed.

EnRoute FlightStrip Processing

This allows access to the Strip Processor. This will only be used for En Route scenarios.

Default Auto-Handoff Settings (Medium Fidelity Only)

The Default Auto-Handoff Settings at this level are applied when a NEW flight is initially added to the scenario. If the Active box is selected, a Handoff Flight Slot will automatically be created based on the Distance or Time that is entered. If the Active box is not selected, the Distance and Time information will be Grayed Out and no Handoff Flight Slot will be created.

These settings can also be modified for each individual flight at the Flight Plan level.

Inbound: Used to set a Handoff Flight Slot on a flight that is entering the active sector. This calculation is based on Distance or Time from the boundary. If **Distance** is selected then the edit box is implied to be in terms of miles from the boundary. If **Time** is selected then the edit box is implied to be in terms of minutes flying time from the boundary.

Spin: Used to set a Spin Flight Slot on a flight that will force the aircraft to execute 360 degree turns until the handoff has been accepted. Calculation of this point is based on Distance or Time from the boundary. If **Distance** is selected then the edit box is implied to be in terms of miles from the boundary. If **Time** is selected then the edit box is implied to be in terms of minutes flying time from the boundary.

Outbound: **This area is not fully developed and will not function.** Used to activate a handoff on a flight that is departing the active sector. The handoff is based on the aircraft crossing a point within the Outbound Handoff Region that has been selected.

Exit

This removes the Flight Plan List window, exits the FFP State and returns to the Pointer State.

6.5.1 Add a Flight Plan

The user can enter a new flight plan by selecting **New FFP** or **FDEP Add**.

If **New FFP** is selected, the following window will be displayed:

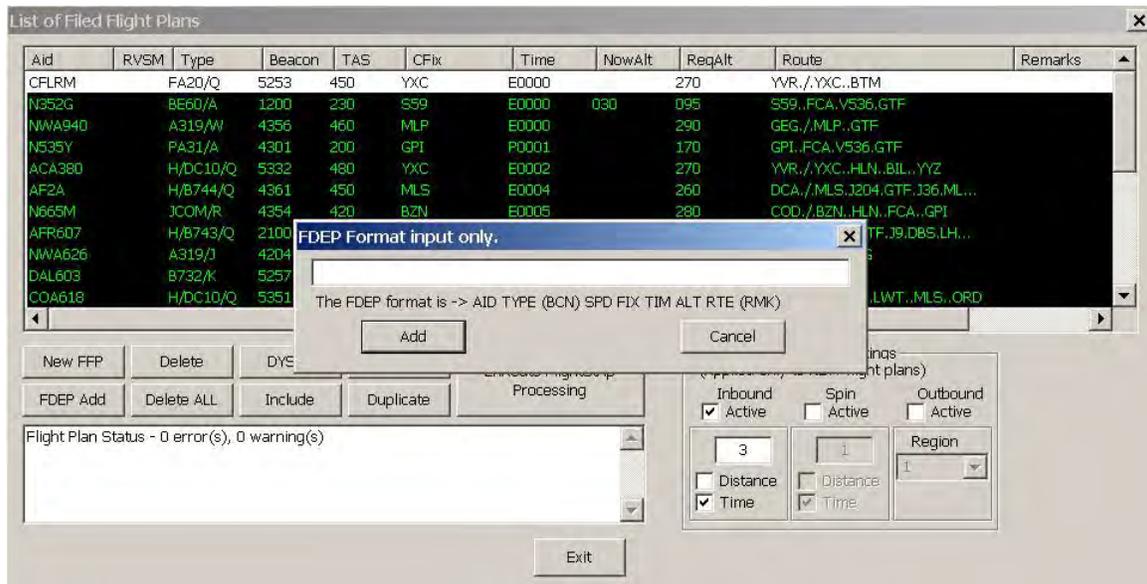
The screenshot shows the 'Filed Flight Plan Processor' window. It contains several sections:

- Input Fields:** Call Sign, State/Time/Delay, AircraftType, Category, Beacon Code, True Air Speed, Coordination Fix, Now Altitude, Req Altitude, Facility/Sector, Departure Runway, and Scratch Pad.
- Auto-Handoff Settings:** Inbound (Active), Spin (Active), Outbound (Active), Distance, and Time checkboxes, along with numerical input boxes and a Region dropdown.
- Unique Settings:** Force Missed Approach, Speed Performance Override, Boundary Point, and Fix checkboxes.
- Checkboxes:** Check In with ATIS/ASOS and Inhibit Handoff Auto Accept.
- Buttons:** Tower Extensions, Delete, Edit, Tailor, Calculate Route, Add, and Modify.
- Flight Slots, Events, and Formation:** Three large empty text areas for listing flight slots, events, and formation details.
- Compare FP and Exit:** Buttons for comparing flight plans and exiting the window.
- Error Messages:** A text area at the bottom displays error messages: 'Error: Invalid Aircraft Characteristic', 'Error: AID missing...', and 'Error: Type is Invalid...'.

UM-178

The user can add a new flight plan by tabbing through each field. If the information that is entered in a field is invalid or incorrect, an Error or Warning message will be generated in the Flight Plan Status area. The field containing the incorrect information can be accessed using the mouse and the correct information can then be entered.

If **FDEP Add** is selected, the following window will be displayed:



UM-084

The user can add new Flight Plans using the NAS FDEP format. All fields are required except Beacon Code and Remarks.

Once the Flight Plan has been entered, select **Add** to include it in the scenario.

If certain fields are omitted or not entered in the correct format, a warning message may be displayed. The user can then make the necessary corrections and continue with the add process.

After a Flight Plan has been entered and accepted, additional flights may be entered without exiting the **FDEP Format input only** window.

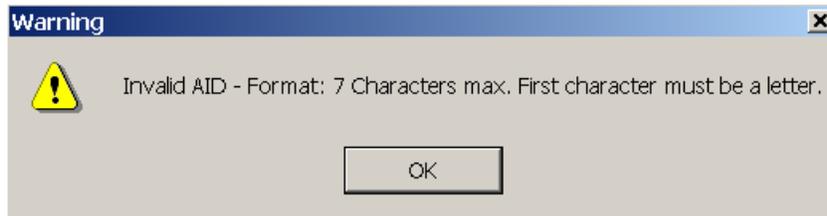
When all the flights that you intend to add at this time have been entered, select **Cancel** to exit. Additional flights can be added at any time.

Several validation checks are made during the Add a Flight Plan process. The following fields must be entered within certain parameters:

6.5.1.1 Call Sign

The aircraft identification (AID) must be 2 to 7 alphanumeric characters in length, and the first character must be a letter.

If the **Call Sign** is entered incorrectly, the following Warning will be displayed:



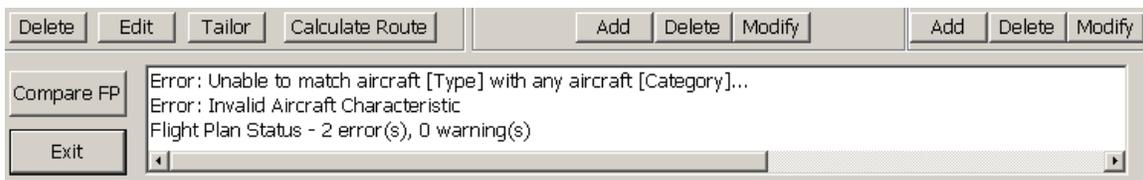
UM-086

The correct format must be used before the flight can be added.

6.5.1.2 Aircraft Type

An **Aircraft Type** being entered must have been established in the Aircraft Characteristics file of the master database. If the type entered is not contained in the Aircraft Characteristics file, the flight plan will be accepted but two error messages will be displayed in the Flight Plan Status window of the Filed Flight Plan Processor window. The error messages must be eliminated at the Flight Plan level in order to achieve the expected results during simulation.

The following Error messages will be displayed if the aircraft type is not recognized:

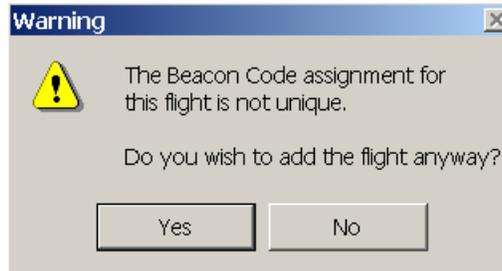


UM-090

6.5.1.3 Beacon Code

The **Beacon Code** field is **Optional** when entering a new flight plan, however, if a code is entered, it must be four octal numbers (cannot use 8 or 9) and it should be unique.

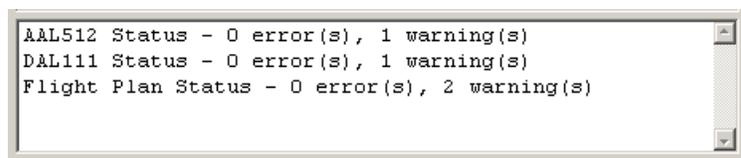
If the code has been assigned to another aircraft, the following Warning message will be displayed:



UM-087

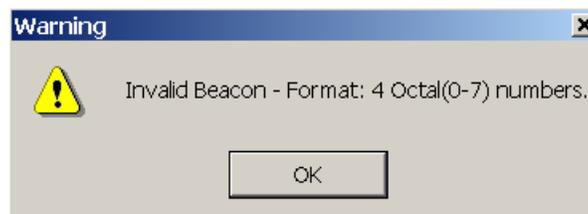
If **NO** is selected, you will be returned to the Add window and can either remove the duplicate code or change it to a unique code.

If **YES** is selected, the flight plan will be added to the list of Flight Plans and a Warning message will be displayed in the Flight Plan Status window identifying the two aircraft with the same code.



UM-091

If a non-octal number is entered as the beacon code, a Warning message will be displayed. You must select **OK** to continue. You can either correct the error or remove the assigned beacon code from the flight plan.

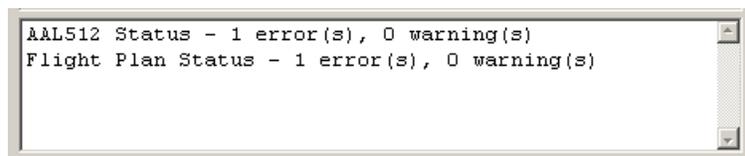


UM-099

6.5.1.4 True Airspeed

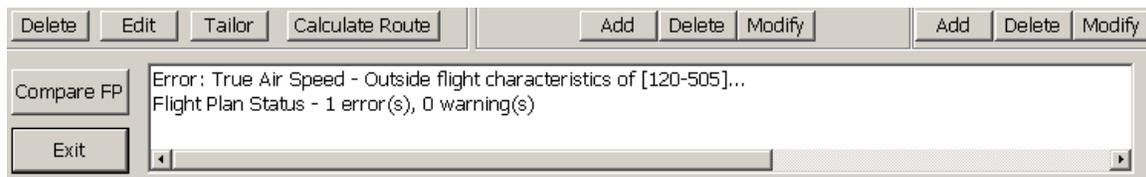
The speed that is entered in the NAS format for a New Flight Plan should be the **True Airspeed** of the aircraft. This speed must fall within the established Minimum/Maximum parameters set in the **Aircraft Characteristics** file.

If the speed entered does not fall within the minimum/maximum speed range established for the aircraft, the New Flight Plan will be accepted but the following **Error** message will be generated in the **Flight Plan Status** window:



UM-092

If the aircraft that contains the error is selected, the **Error** message at the Flight Plan level will contain the actual parameters that were set in the **Aircraft Characteristics** file.



UM-093

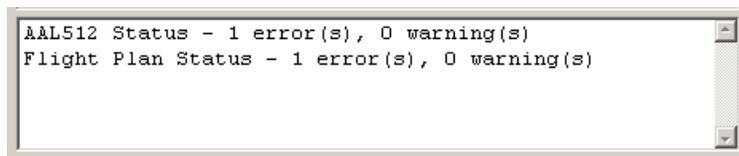
If the **Error** is not corrected, the aircraft will initialize in the scenario but will not exceed the limits defined in the **Aircraft Characteristics** file.

NOTE: During the execution of the scenario in SIGNAL, this speed will be converted to **Indicated Airspeed** for the pilot display and **Ground Speed** for the student or controller display.

6.5.1.5 Fix/Coordination Fix

The **Fix** that is entered will serve as the **Coordination Fix** in the simulation. It is the point in space that the aircraft will enter the scenario. It must be a valid fix that is established in the database and it must match a fix in the route of flight. It can be either a fix or a fix/radial/distance established from a valid fix.

If the coordination fix is not a valid fix or does not match a fix in the route of flight, the flight plan will be accepted but the following **Error** message will be displayed in the **Flight Plan Status** window:



UM-102

If the aircraft with the **Error** is selected, the following message will be displayed in the **Flight Plan Status** window:



UM-157

The Error must be corrected or the flight will not be available for simulation.

6.5.1.6 State/Time/Delay

The **State** and **Time** field must contain a letter (E, P, or D) and four digits.

The letter is considered to be the **State** of the aircraft:

E - Designates that the aircraft is airborne and already en-route.

P - Designates that the aircraft is a proposal and requires an entry from the pilot for the aircraft to depart.

D - Designates that the aircraft is a departure and will automatically activate at the associated **Time** without requiring the pilot to make an entry.

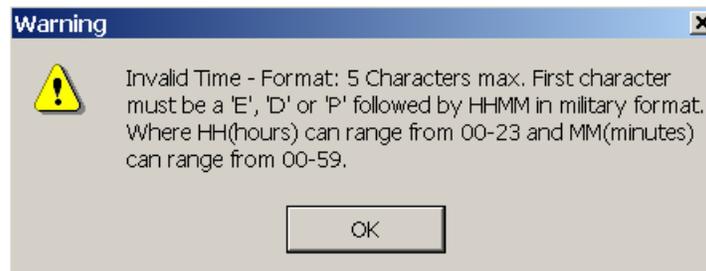
The **Time** entered with each aircraft will designate the time that the aircraft will enter the scenario. If the time is E0010, the aircraft will enter the scenario 10 minutes after the scenario has been started. **It does not represent the actual clock time.**

The four digits are entered in military format HHMM:

HH = Hours and Range from 00 to 23

MM = Minutes and Range from 00 to 59

If this field is entered incorrectly, the following Warning will be displayed:



UM-088

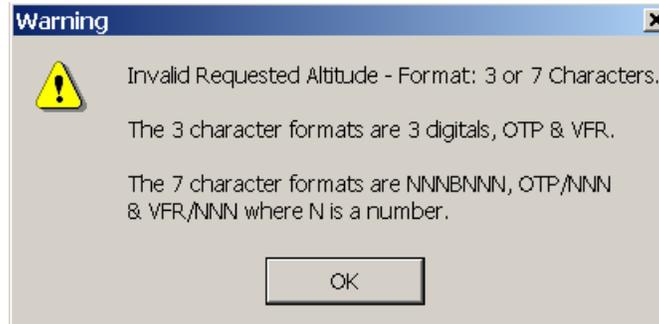
The error must be corrected before the flight can be added to the scenario.

The **Delay** field is available if the **State** is set to **P**. This allows the user to establish a predetermined delay in activating the aircraft from the time the Pilot enters the departure message and the actual time the aircraft starts to roll down the runway. This provides realistic simulation of aircraft departing from an airport that is not serviced by an ATC tower.

6.5.1.7 Altitude

The **Altitude** may be entered as 3 or 7 characters. The 3-character format can be 3 digits or OTP or VFR. The 7-character format can be a block altitude or OTP/ with an altitude or VFR/ with an altitude.

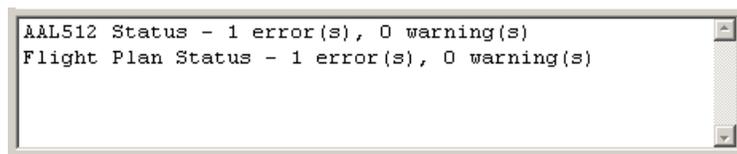
If the altitude is entered in the incorrect format, the following Warning message will be displayed.



UM-089

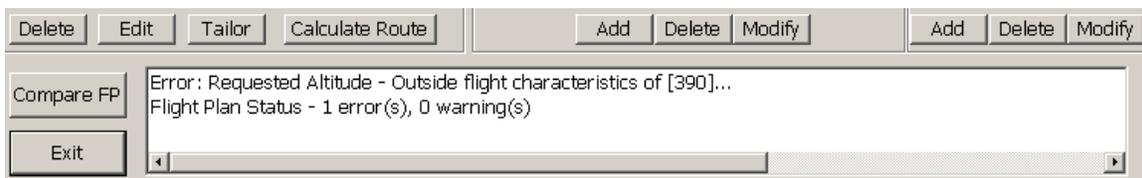
The error must be corrected before the flight can be added to the scenario.

If the altitude is outside the range established in the Aircraft Characteristics file, the flight will be added but the following **Error** message will be displayed in the **Flight Plan Status** window:



UM-100

If the aircraft that contains the error is selected, the **Error** message at the Flight Plan level will contain the actual parameters that were set in the Aircraft Characteristics file.



UM-101

6.5.1.8 Route of Flight

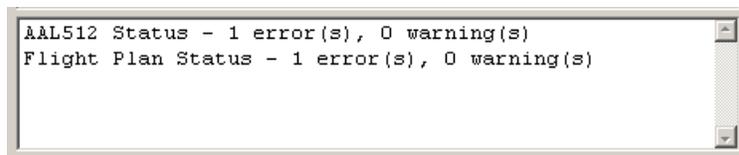
The **Route of Flight** must be entered in the FDEP format:

2 Periods separate like elements (Route..Route or Fix..Fix).

1 Period separates unlike elements (Fix.Route or Route.Fix).

All Fixes and Airways/Routes contained in the Route of Flight must be found in the Master database.

A Fix in the Route of Flight must match the Coordination Fix. If there is not a match, the flight plan will be accepted but the following **Error** message will be displayed in the **Flight Plan Status** window:



UM-102

If the aircraft that contains the error is selected, the following **Error** message will be displayed until the error is corrected:



UM-157

The Error must be corrected or the flight will not be available for simulation.

6.5.1.9 Remarks

The **Remarks** field of the Flight Plan is Optional. This is the only field that differs from NAS FDEP format. No symbol is required to separate the **Route of Flight** from **Remarks** (No Clear Weather or Overcast symbol is required). Only a space separates the two fields.

The content of the field is in plain language.

After the Flight Plan has been entered correctly, select **Add**. The new flight will now appear in the **List of Filed Flight Plans**. You can either enter additional flights or select **Cancel** to exit this area.

6.5.2 Update/Modify a Flight Plan

To modify a Flight Plan that is in the scenario, highlight the flight from the **List of Filed Flight Plans** window and select **Update**. The user can also access the Filed Flight Plan Processor area by **double clicking** on the flight from the list.

The **Filed Flight Plan Processor** window will be displayed:

The screenshot shows the 'Filed Flight Plan Processor' window with the following details:

- Call Sign:** AAL601
- State/Time/Delay:** E 0022
- AircraftType:** H/B753/W
- Category:** Boeing 757-300
- Beacon Code:** 4362
- True Air Speed:** 460
- Coordination Fix:** BIL
- Now Altitude:** (empty)
- Req Altitude:** 260
- Facility/Sector:** ZCU/15
- Departure Runway:** (empty)
- Scratch Pad:** (empty)
- Route:** ORD./BIL.J136.MLP..GLASR..SEA
- Remarks:** (empty)
- Developer Comment:** (empty)
- Pilot Assignment:** Auto
- DB Direction:** No Set
- Auto-Handoff Settings:**
 - Inbound: Active
 - Spin: Active
 - Outbound: Active
 - Distance: (value: 3)
 - Time: (value: 3)
 - Region: (empty)
 - @Altitude: (empty)
- Unique Settings:**
 - Force Missed Approach:
 - Speed Performance Override:
 - Boundary Point: Fix
- Check In with ATIS/ASOS:**
- Inhibit Handoff Auto Accept:**
- Tower Extensions:** (button)
- Flight Slots:**
 - 0:22:00 BIL, PrevNext
 - 0:29:16 Handoff
 - E1. Handoff ZCU 19
 - 0:41:06 HLN, Post
 - 1:01:55 MLP, PrevNext
 - 1:31:24 GLASR
 - 1:38:10 SEA, PrevNext
- Events:** (empty)
- Formation:** (empty)

Buttons at the bottom include: Delete, Edit, Tailor, Calculate Route, Add, Delete, Modify (for Events and Formation), Compare FP, and Exit. The status bar shows: Flight Plan Status - 0 error(s), 0 warning(s).

UM-085

This window is used to display, add or modify the data for each Filed Flight Plan. The fields and functions located on this window are divided into groups as described below:

Flight Data: This is the FDEP data items that make up the flight plan plus additional fields that are used by CREATE to apply special handling.

Auto-Handoff Settings: This area allows the user to apply handoff and spin events automatically to relieve student and pilot workload. This is used for Medium Fidelity scenarios only.

Unique Settings: These are special conditions that can be set that will affect this flight only. These special conditions affect the performance of the aircraft and how the aircraft is displayed.

Pilot Assignment: The user can manually assign an aircraft to a specific pilot if desired or the software will automatically assign the aircraft evenly distributing them between the available pilots.

DB Direction: The user can designate the direction that the full data block (FDB) will be displayed when the aircraft enters the scenario.

Check In with ATIS/ASOS: ***NEED TERMINAL INPUT

Inhibit Handoff Auto Accept: The user can designate that Signal not automatically accept the handoff on an aircraft exiting the active sector. The pilot will be given a prompt that will inform the pilot to accept the handoff after coordination has been accomplished by the student.

Tower Extensions: This functionality is available only for Tower databases and scenarios. It is used to further define the performance of an aircraft in order to provide effective simulation training for the Tower option.

Flight Slots: This area establishes the points in space that the aircraft will fly during the simulation. The user can Add, Delete or Edit these points to control the behavior of the flight.

Events: This area contains events that are implemented based on a period of time either from the start of the exercise or start of the flight and a specified condition.

Formation Flights: This area contains a list of all aircraft that are in a Formation Flight. The Pilot can activate these aircraft as individual flights during simulation.

Error Processing: This area provides the user with immediate feedback if an incorrect or illegal entry has been made. The **Flight Plan Status** window can contain Errors and Warnings. An Error requires resolution while a Warning condition may be intentional to produce a specific situation during the simulation.

Compare FP: This will provide the user with the ability to display flight slots and time over each flight slot for all aircraft in the scenario. This will allow the user to quickly make final adjustments to time and point of initialization for an aircraft to accomplish a desired action.

6.5.2.1 Flight Data area

The following is a description of the fields that make up the Flight Data area and how they affect the performance of the aircraft during simulation:

6.5.2.1.1 Call Sign



The **Call Sign** field has the same restrictions as NAS:

The aircraft identification must be 2 to 7 alphanumeric characters in length.

The first character must be a letter.

The field to the right of the Call Sign field is used for international scenarios. It is used to determine the status of Reduced Vertical Separation Minimum (RVSM) for the aircraft. The special characters that are used are #, &, and \$. The characters that are entered in this field are printed on the flight progress strips and displayed in the full data block of the aircraft.

6.5.2.1.2 Aircraft Type

AircraftType	F16/P	3
--------------	-------	---

This is a pop-down window that displays all the aircraft types that are contained in the Aircraft Characteristics file. If an aircraft type is desired that is not in the Aircraft Characteristics file, it must be added in the Master Database before it can be assigned to a flight.

NOTE: After selecting a type from the list, an equipment qualifier for the aircraft must be manually entered in this field.

The Aircraft Type can also be entered manually without using the pop-down window, however, the appropriate category must also be selected.

Warning: If the appropriate category is not selected, the aircraft may not perform as expected.

The number box at the right of this field is a counter indicating the number of aircraft in the flight. The box cannot be edited but is automatically updated each time an aircraft is added to or removed from the flight.

6.5.2.1.3 Category

A screenshot of a software interface showing a dropdown menu. The label 'Category' is on the left, and the selected value '727 Stage 3' is displayed in the dropdown box. A small downward-pointing arrow is visible on the right side of the dropdown box.

This is a pop-down window that displays all the categories of the selected Aircraft Type that are contained in the Aircraft Characteristics file. If the profiles contained in these categories do not represent the desired performance, a new category may be created in the Master Database Aircraft Characteristics file to achieve the desired results.

6.5.2.1.4 Beacon Code

A screenshot of a software interface showing a dropdown menu. The label 'Beacon Code' is on the left, and the selected value '3550' is displayed in the dropdown box. A small downward-pointing arrow is visible on the right side of the dropdown box.

If a **Beacon Code** was not entered when the flight was originally added, the **Beacon Code** assignment to an aircraft can be accomplished several ways:

The pop-down window contains:

Five unique and unassigned discrete codes that are selected randomly from the **Flight Plan Code Band** subsets established under the **State Beacon Codes**.

Code **1200** can be assigned to the aircraft to indicate that the aircraft is VFR.

A **Blank** that can be used to emulate the effect of no beacon

The user can also **Manually Enter** any code that is desired including a code that is assigned to another aircraft, however, a **Warning** message will be generated in the **Flight Plan Status** window alerting you of the condition.

6.5.2.1.5 True Airspeed

The **True Airspeed** that was originally entered for the flight can be modified. This speed must fall within the established Minimum/Maximum parameters set in the **Aircraft Characteristics** file.

If the speed entered does not fall within the Minimum/Maximum speed range established for the aircraft, an **Error** message will be generated in the **Flight Plan Status** window and must be corrected to achieve the desired performance.

If the **Error** is not corrected, the aircraft will initialize in the scenario but will not exceed the limits defined in the **Aircraft Characteristics** file.

6.5.2.1.6 Coordination Fix

The **Coordination Fix** is the point in space that the aircraft will enter the scenario. It must be a valid fix that is established in the database and it must match a fix in the route of flight. It can be either a fix or a fix/radial/distance established from a valid fix.

If the **Coordination Fix** is not a valid fix or does not match a fix in the route of flight, an **Error** message will be displayed in the **Flight Plan Status** window and must be corrected or the flight will not function during simulation.

6.5.2.1.7 State/Time/Delay



The image shows a user interface element for entering aircraft state and time. It consists of a label 'State/Time/Delay' followed by a dropdown menu currently showing 'E', and a text input field containing '0000'. There is also a small grey square button to the right of the text field.

The **State** is a pop-down window that contains the letters **E**, **P** and **D**. Each of these letters will have unique behavior characteristics:

E - Designates that the aircraft is airborne and already en-route.

P - Designates that the aircraft is a proposal and requires an entry from the pilot for the aircraft to depart.

D - Designates that the aircraft is a departure and will activate at the time entered without requiring the pilot to make an entry.

The **Time** that is entered in this field will designate when the aircraft will enter the scenario. If the time is E0010, the aircraft will initialize in the problem 10 minutes after it has been started. **It does not represent the actual clock time.**

The four digits are entered in military format HHMM:

HH = Hours and Range from 00 to 23

MM = Minutes and Range from 00 to 59

If the **Time** is not entered using the correct format, an **Error** message will be generated in the **Flight Plan Status** window and must be corrected or the flight will not initiate in **SIGNAL**.

The **Delay** field is only available if the **State** is set to **P**. This allows the user to establish a predetermined delay in activating the aircraft from the time the Pilot enters the departure message and the actual time the aircraft starts to roll down the runway. This provides realistic simulation of aircraft departing from an airport that is not serviced by an ATC tower.

6.5.2.1.8 Now Altitude

The **Now Altitude** field will allow the user to designate at what altitude the aircraft will initialize and immediately climb or descend to the **Requested Altitude**.

The **Now Altitude** is entered in hundreds of feet and must be 3 digits in length with leading zeros when required.

6.5.2.1.9 Requested Altitude

The **Altitude** may be entered as 3 or 7 characters. The 3-character format can be 3 digits or OTP or VFR. The 7-character format can be a block altitude or OTP/ with an altitude or VFR/ with an altitude.

If the **Altitude** is outside the range established in the **Aircraft Characteristics** file, an **Error** message will be displayed in the **Flight Plan Status** window and must be corrected to achieve the desired performance.

If the **Error** is not corrected, the aircraft will initialize in the scenario but will not exceed the limits defined in the **Aircraft Characteristics** file.

6.5.2.1.10 Facility/Sector



This is a pop-down window that displays all of the Facilities and Sectors that are contained in the Master Database plus a **NOT SET** option.

When a flight is initially added to a scenario, the geographic location of the **Coordination Fix** and the altitude of the aircraft are used to automatically determine the appropriate **Facility/Sector** assignment.

Each time **Calculate Route** is selected, the appropriate **Facility/Sector** is again automatically determined.

The **Facility/Sector** field is used to determine ownership of the flight. This setting determines how the data block will be displayed:

The following information pertains to Medium Fidelity Only

If the active sector is set as having ownership, the flight will initialize with a full data block.

Even if the aircraft initializes outside the active sector, the user can manually assign ownership to the active sector. This will cause the aircraft to initialize with a full data block.

If ownership is set for a sector within the active facility other than the active sector, the flight will initialize with a limited data block and will have a tracked target symbol. Selecting the target symbol will toggle the display of a full data block.

If ownership is set for a sector in another facility, the flight will initialize as an uncontrolled limited data block.

En Route only: If a boundary point is set under Unique Settings, the aircraft will be included in an Inbound List.

If ownership is set as **NOT SET**, the flight will initialize with a limited data block and will have an untracked target symbol. The ownership can be changed during the simulation by using the **Set Ownership** event. If ownership is changed to the active sector, a track can be started on the aircraft.

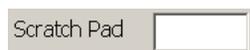
6.5.2.1.11 Departure Runway

A screenshot of a software interface element. It consists of a rectangular box with a light gray background. On the left side of the box, the text "Departure Runway" is displayed in a small, dark font. To the right of this text, the number "10" is shown in a larger font, indicating the selected value. A small downward-pointing arrow is visible on the right edge of the box, signifying it is a dropdown menu.

This is a pop-down window that contains all the runways for the point of departure if the Coordination Fix is an airport and the **State** is set as a “**P**” or a “**D**”.

The first runway that is set as **Active** in the **Master** Database for the point of departure is initially set as the default **Departure Runway** when the aircraft is added to the scenario. This field allows the user to change the **Departure Runway** on individual aircraft. After the runway has been changed, you must select **Calculate Route** to change the departure direction of the aircraft.

6.5.2.1.12 Scratch Pad

A screenshot of a software interface element. It consists of a rectangular box with a light gray background. On the left side of the box, the text "Scratch Pad" is displayed in a small, dark font. To the right of this text is an empty rectangular input field with a thin border, intended for user input.

This is used for Terminal scenarios only. Up to three alphanumeric characters may be entered that will appear in the Scratch Pad area of the data block. Any combination of characters may be used.

6.5.2.1.13 Route

Route	TUL.BOLDE1.FSM..HOT
-------	---------------------

The **Route of Flight** must be entered in NAS FDEP format:

2 Periods separate like elements (Route..Route or Fix..Fix).

1 Period separates unlike elements (Fix.Route or Route.Fix).

All Fixes and Airways/Routes must be found in the Master database.

A Fix in the Route of Flight must match the **Coordination Fix**. If there is not a match, an **Error** will be displayed in the **Flight Plan Status** window and CREATE will not be able to determine the correct Flight Slots for the aircraft to fly.

Flight Slots will be created for the route following the fix that matches the Coordination Fix and all routing prior to it will be ignored.

If "****" appears in the **Route of Flight**, all routing after it will be ignored.

If any change is made to either the Coordination Fix or the Route of Flight, the user must manually select **Calculate Route** to create the correct Flight Slots.

6.5.2.1.14 Remarks

Remarks	2152 on board
---------	---------------

This field is optional. If data is entered into this field, a clear weather symbol or overcast weather symbol is **not** required as in NAS. When it is printed on a strip or displayed in a CRD, the software will insert a clear weather symbol.

There is no limit to the number of characters that can be entered into this field, however, NAS will only print or display up to 20 characters.

6.5.2.1.15 Developer Comments

Developer Comment	These coments are not delivered to simulation.
-------------------	--

This field is optional. The developer may use this area to add pertinent comments about a flight that may be of assistance in the future. This could prevent inadvertently altering a special situation that was created to simulate an unusual activity.

Developer Comments are not delivered to the Pilot or student. The only other place this information can be seen is on the Report – Scenario Summary.

6.5.2.2 Auto-Handoff Settings area

Auto-Handoff Settings

Inbound	Spin	Outbound
<input checked="" type="checkbox"/> Active	<input type="checkbox"/> Active	<input type="checkbox"/> Active
3	1	Region
<input type="checkbox"/> Distance	<input type="checkbox"/> Distance	
<input checked="" type="checkbox"/> Time	<input checked="" type="checkbox"/> Time	
@Altitude		

UM-106

The **Auto-Handoff Settings** can be set at the Flight Plan level and are used to generate a Flight Slot for the flight.

If the **Active box is selected**, a Flight Slot will automatically be created each time **Calculate Route** is selected.

If the **Active box is not selected**, the associated information will be Grayed Out and no Flight Slot will be created when subsequent recalculations of the route are performed.

The **@Altitude** field applies only for the **Inbound Handoff** setting. If an aircraft is inbound to a sector but is descending to an altitude above the active sector or is climbing to an altitude below the active sector, no handoff would be created unless this field is activated.

Example 1: The active sector is FL230 and below, an aircraft is descending to FL240 but will land within the active sector. No handoff point will be created unless an altitude below FL240 is entered into the **@Altitude** field. This will not affect the flight of the aircraft; it will only be used to create the handoff event.

Example 2: The active sector is FL240 and above, an aircraft is climbing to FL230 but requesting FL330 as a final altitude. No handoff point will be created unless an altitude above FL230 is entered into the **@Altitude** field. This will not affect the flight of the aircraft; it will only be used to create the handoff event.

Inbound: Used to automatically set a **Handoff Flight Slot** on a flight that is entering the active sector. This calculation is accomplished each time **Calculate Route** is performed.

Flight Slot

Name: Handoff Backup

Location: 32:30:55.59N/092:10:09.32W

Events

1. Handoff ZCM 66

Buttons: Add, Delete, Modify

Restrictions

Value	Orientation
Altitude	
Speed	

Strip Processing

Based On Fix

Previous Fix

Coordination Fac

Posting Fix

PrevNext Fix

Attributes

Runway Entry Point

Boundary Point

Fix

Buttons: Save, Cancel, Delete

UM-112

The location of the Inbound Handoff Flight Slot is based on **Distance** or **Time** from the boundary:

If **Distance** is selected, the edit box is implied to be in terms of miles from the boundary.

If **Time** is selected, the edit box is implied to be in terms of minutes flying time from the boundary.

Spin: This should only be used in conjunction with an Inbound Handoff. This is used to automatically set a **Spin Flight Slot** on a flight. If an aircraft is in Handoff Status and the active sector has not accepted the handoff prior to the aircraft reaching the Spin point, the aircraft will execute 360 degree turns until the handoff has been accepted.

Flight Slot

Name Spin Backup

Location 32:30:55.38N/092:10:27.07W

Events

1. Spin Handoff

Add Delete Modify

Restrictions

	Value	Orientation
Altitude	<input type="text"/>	<input type="text"/>
Speed	<input type="text"/>	<input type="text"/>

Strip Processing

Based On Fix

Previous Fix

Coordination Fac

Posting Fix

PrevNext Fix

Attributes

Runway Entry Point

Boundary Point

Fix

Save Cancel Delete

UM-113

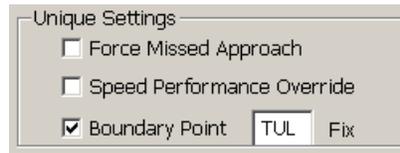
The location of the Spin Flight Slot is based on **Distance** or **Time** from the boundary:

If **Distance** is selected, the edit box is implied to be in terms of miles from the boundary.

If **Time** is selected, the edit box is implied to be in terms of minutes flying time from the boundary.

Outbound: **This area is not fully developed and is not functional.** Used to activate a handoff on a flight that is departing the active sector. The handoff is based on the aircraft crossing a point within the Outbound Handoff Region that has been selected.

6.5.2.3 Unique Settings area



UM-107

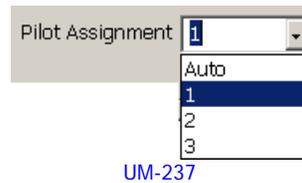
Forced Missed Approach: This setting gives the developer the capability to force an aircraft to abandon an approach. If the check box is selected, the aircraft will execute the Missed Approach Procedures established on the approach being flown. The aircraft will perform normally until reaching the Missed Approach Point (MAP) Fix Slot then will climb to the altitude and fly to the fix found in the approach profile. The pilot will receive a prompt advising of the situation and should request further clearance from the student.

Speed Performance Override: This setting allows the developer to prevent an aircraft from being subjected to speed controls that are built into the software. This will help to simulate military operations that have special requirements during training exercises. If the check box is selected, the aircraft will not be limited to 250 knots below 10,000 feet.

Boundary Point (En Route Medium Fidelity only): This is used when an aircraft is entering the active sector from another Facility. Selecting this check box will automatically force a Boundary Point to be calculated each time **Calculate Route** is selected. A Fix must be entered in the Fix box. This Fix will be used to calculate a fix/radial/distance that will be applied to the Inbound List.

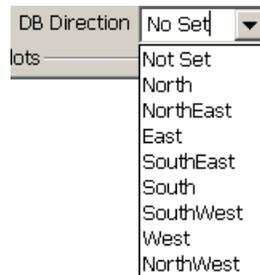
If a Boundary Point is added as a Flight Slot, an Inbound List will be created for the flight and will be available on the Radar display.

6.5.2.4 Pilot Assignment



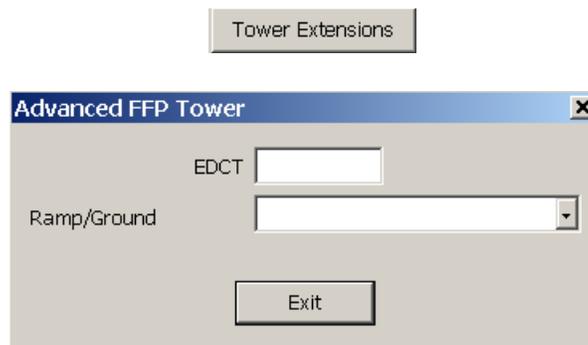
The SIGNAL software will automatically assign the aircraft to a pilot during simulation evenly distributing them between the Pilots assigned to each sector. However, this function allows the developer to manually assign each aircraft to a specific Pilot, if desired.

6.5.2.5 DB Direction



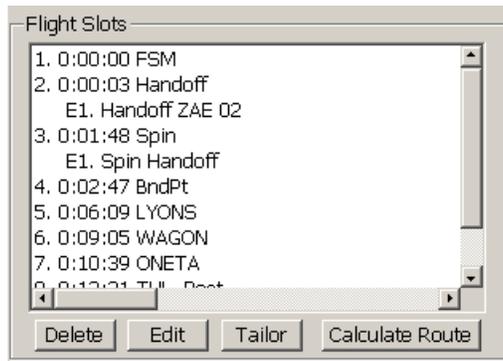
The user can designate the direction that the full data block (FDB) will be displayed when the aircraft enters the scenario.

6.5.2.6 Tower Extensions



This window allows you set an Expect Departure Clearance Time (EDCT) for an individual aircraft. This also allows you to specify the Ramp/Ground Initiation point where the aircraft will initialize. These are only applicable to Tower scenarios.

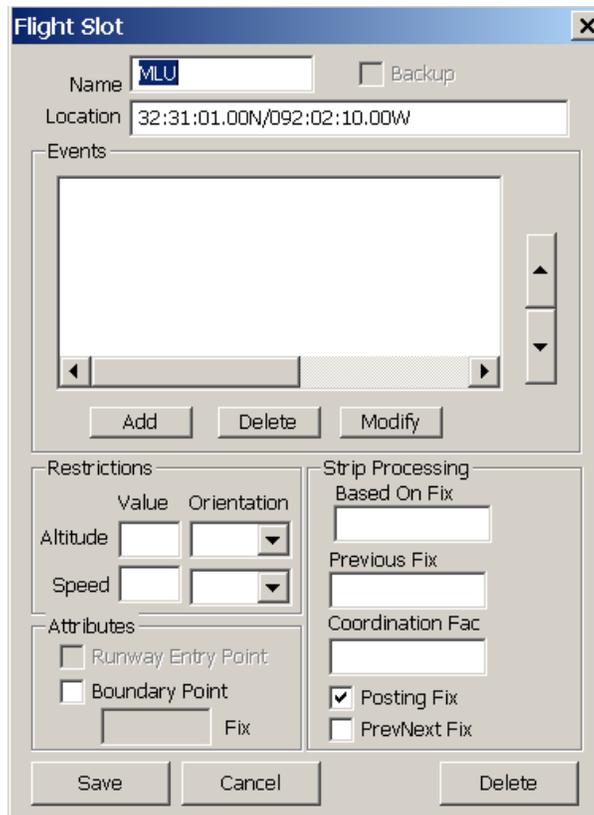
6.5.2.7 Flight Slots area



UM-108

Flight Slots are the points in space that control the flight path and behavior of this aircraft. **Flight Slots** are automatically generated when a flight is initially added to the scenario and each time **Calculate Route** is selected. The Auto-Handoff settings that were set to Active at the List of Filed Flight Plan level will be applied but can be changed at the Flight Plan level.

The **Flight Slots** can be established Fixes found in the Database, special fixes that are Tailored to the route to accomplish a deviation from an established route, or added Events that alter the normal performance of the aircraft.



UM-117

The following is a description of the items and functions contained in the **Flight Slot** window:

- Name:** This can be the name of a fix as it appears in the route of flight or it can carry a special name describing its function such as Handoff, Spin or BndPt.
- Location:** This is the Lat/Long location of the Flight Slot.
- Backup:** If this box is checked the aircraft will move in reverse to the next flight slot. **This is for Tower only.**
- Events:** Events can be added to the Flight Slots that will alter the activity of the flight. Most Pilot entries can be set on the Flight Slot and will be activated automatically when the aircraft reaches that point.

Note: All Events that are added using this process will be lost if Calculate Route is selected.

For a complete list of Events that can be set in CREATE, See **Appendix A** at the back of this document. The list also contains a description of what will happen when the event is applied.

- Restrictions:** Altitude and Speed restrictions can be set on each Flight Slot. The Orientation for the restriction can be At, Above or Below. If no Value is entered, the Orientation should be NOT SET.

Attributes:

Runway Entry Point (Tower scenarios only):

This is used to designate the point on the runway where the aircraft will begin its takeoff roll.

Boundary Point (En Route scenarios only):

The Boundary Point attribute will be set automatically if the **Unique Settings / Boundary Point** is selected at the FFP Processor level.

This will result in:

The target symbol of the aircraft will be an "I" until the aircraft changes to Handoff status.

The aircraft will be placed in the Inbound List until the handoff has been accepted.

Strip Processing:

Based On Fix: This is used if a flight strip is desired at a point that does not automatically generate a strip. The user can Tailor a point along the route of flight of an aircraft and designate it as a Posting Fix. The fix entered in this field will be the point from which a Fix/Radial/Distance is calculated. This FRD will appear as the Present Fix on the strip.

Previous Fix: This is used to control what is to be printed on a strip as the Previous Fix if none is generated automatically. Normally, this is used if the Present Fix on the strip is the Coordination Fix and the aircraft initializes within the active sector. The program would not know where the aircraft came from prior to the initialization point. The fix entered in this field will appear as the Previous Fix on the strip and the program will calculate a time based on the time that the aircraft initializes.

Coordination Fac: This field is used to designate what is to be printed on the strip as a Coordination Indication that the information has been transmitted to another facility (i.e. ZAB, ZFW, TUL).

Posting Fix: If the Flight Slot is built from a Fix in the database, and the Fix has been designated as a **Posting Fix**, the Flight Slot will initially be assigned the Posting Fix Attribute.

If the Fix in the database was not designated as a **Posting Fix**, checking this box will force a strip to be generated.

If the Fix in the database was designated as a **Posting Fix** and no strip is desired for this aircraft, removing the check from the box will cause a strip not to be generated.

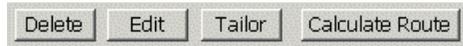
If the **Posting Fix** box is checked, the word **Post** will appear at the end of this fix in the window listing all the Flight Slots for the aircraft (3. 0:07:59 MLC, Post).

PrevNext Fix: If the Flight Slot is built from a Fix in the database, and the Fix has been designated as a **PrevNext Fix**, the Flight Slot will initially be assigned the PrevNext Fix Attribute.

If the Fix in the database was not designated as a **PrevNext Fix**, checking this box will force a strip to be generated.

If the **PrevNext Fix** box is checked, the word **PrevNext** will appear at the end of this fix in the window listing all the Flight Slots for the aircraft (3. 0:21:32 END, PrevNext).

6.5.2.7.1 Calculate Route



Calculate Route causes a new set of **Flight Slots** to be generated based on the information contained in the Flight Data area, Auto-Handoff Settings area and the Unique Settings area.

A new **Calculate Route** should be performed any time a change has been made to the following fields or settings:

Coordination Fix

Route of Flight

State

Departure Runway

Any Auto-Handoff Settings

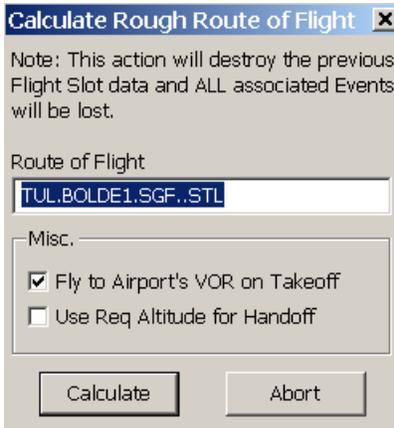
Any Unique Settings

The new **Flight Slots** that are created will reflect the changes that were made to the flight data.

Note: All previous **Flight Slots** and **Flight Slot Events** will be lost each time **Calculate Route** is selected.

Automatic recalculations are accomplished when a change is made to the **Speed, Time** or **Delay** fields. **Calculate Route** does not need to be performed if these are the only fields that have been modified.

When **Calculate Route** is selected, the following window will appear:



UM-114

Before selecting **Calculate**, ensure all **Misc.** settings are correct:

Fly to Airport's VOR on Takeoff:

This check box is available only if the aircraft is a departure otherwise it is grayed out. If this box is checked, the aircraft will fly to the VOR that is associated with the airport. If the box is not checked, the aircraft will fly directly to the first fix after the VOR on the filed route.

En Route scenario – The box **is automatically selected** but can be deselected for special situations.

Terminal scenario – The box **is not selected** but can be selected if desired.

Use Req Altitude for Handoff:

If an aircraft is climbing or descending, it may not be obvious what sector is to receive a handoff. This option provides the scenario developer more control of determining who is making the handoff and who will receive a handoff.

En Route scenarios – The check box for an En Route scenario will not initially be selected. CREATE will use the **Now Altitude** to calculate the exact location of the aircraft and determine what sector the handoff is coming from. This will also be used to specify the ownership of the aircraft (Facility/Sector). If the Now Altitude is blank, the Req Altitude will be used.

Using the Now Altitude is important when an aircraft initializes within an Approach Control's airspace and is climbing into the Centers airspace. If the Req. Altitude was used to determine the location of the aircraft, no handoff Flight Slot would be generated because it would be determined that the aircraft was in the active sectors airspace.

Terminal scenarios – The check box for a Terminal scenario will default to on. CREATE will use the **Req. Altitude** to calculate the location and ownership of the aircraft. If the developer needs to use the Now Altitude for this calculation, the check box can be deselected.

Using the Req. Altitude is important when an aircraft initializes within Center airspace and is descending into approach controls airspace. If the Now Altitude were used to determine the location of the aircraft, no handoff Flight Slot would be generated because it would be determined that the aircraft will not enter approaches airspace.

Selecting **Abort** will return the user to the FFP Processor window without any calculation being made.

Selecting **Calculate** will cause a new array of **Flight Slots** to be generated based on the Filed Flight Plan data.

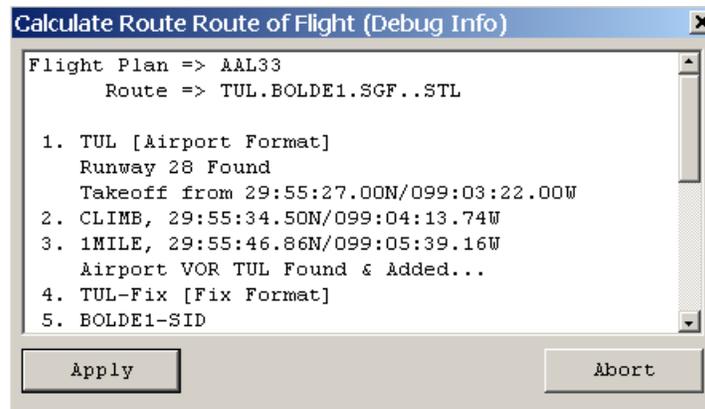
Error: In the event that the Route of Flight contains invalid data, the following dialog window will be displayed to let the user know that a problem exists:



UM-116

The user should select **OK** then select **Abort** to return to the FFP Processor window and correct the error.

Once the Calculation has been performed, the following window will be displayed showing the route that was applied and the Flight Slots that will be generated:



UM-115

Selecting **Apply** will cause the new **Flight Slots** to replace all existing Flight Slots and Flight Slot Events.

Selecting **Abort** will return the user back to the FFP Processor window without making any changes to the existing Flight Slots.

6.5.2.7.2 Tailor



Selecting **Tailor** will display the map with the Route of Flight overlaid showing each Flight Slot.

Flight Slots can be modified, deleted, added, or moved while in the **Tailor** mode.

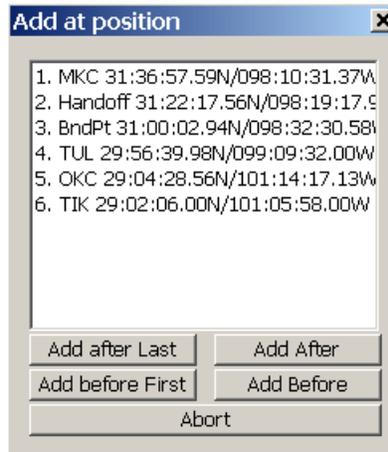
Modify: To Modify a Flight Slot, ensure that the **Mode** is set to **Modify** and **Move** is set to **Disabled**. Select the Flight Slot to be modified using the left mouse button. The Flight Slot window will be displayed and modifications can be made as necessary. When all changes have been entered, select Save. This will return you to the map display.

To return to the Filed Flight Plan Processor window, press the Enter key on the keyboard.

Delete: To Delete a Flight Slot, ensure that the **Mode** is set to **Modify** and **Move** is set to **Disabled**. Select the Flight Slot to be Deleted using the left mouse button. The Flight Slot window will be displayed. Select Delete from the window, this will force a confirmation prompt. If OK is selected, the Flight Slot will be deleted and you will be returned to the map display.

To return to the Filed Flight Plan Processor window, press the Enter key on the keyboard.

Add: A flight slot can be added to the route to force the flight to deviate from the filed route or to add an event that will be executed when the aircraft passes over the point. To add a flight slot, ensure that the **Mode** is set to **Add**. Use the left mouse button to select the location of the **New** flight slot. The following window will be displayed:



UM-118

Add after Last will place the new flight slot at the end of the route.

Add before First will place the new flight slot at the front of the route.

Add After requires the user to highlight the existing flight slot that is located just prior to the intended location of the new flight slot. This will insert the new flight slot after the highlighted slot.

Add Before requires the user to highlight the existing flight slot that is located just after the intended location of the new flight slot. This will insert the new flight slot in front of the highlighted slot.

Abort returns the user to the map without adding a new slot.

Select the button that best describes the desired location of the new **Flight Slot**:

If a new flight slot is added, the following window will be displayed:

The screenshot shows a 'Flight Slot' dialog box with the following fields and controls:

- Name:** FS0001
- Location:** 35:56:21.21N/095:24:23.68W
- Backup:**
- Events:** A large empty text area with 'Add', 'Delete', and 'Modify' buttons below it.
- Restrictions:**
 - Altitude:** Value, Orientation (Not Set)
 - Speed:** Value, Orientation (Not Set)
- Strip Processing:**
 - Based On Fix:**
 - Previous Fix:**
 - Coordination Fac:**
 - Posting Fix:**
 - PrevNext Fix:**
- Attributes:**
 - Runway Entry Point:**
 - Boundary Point:**
 - Fix:**
- Buttons:** Save, Cancel, Delete

UM-119

A unique name can be used that will describe the intent of the new flight slot. An Event may be added to the new Flight Slot if desired.

When all the necessary information has been entered, select Save. This will return you to the map with the new flight slot in the desired location.

Note: All Flight Slots that are added using this process will be lost each time Calculate Route is selected.

To return to the Filed Flight Plan Processor window, press the Enter key on the keyboard.

Move: If a flight slot is not in the desired location, it can be moved. Ensure that **Move** is set to **Enabled** and **Mode** is set to **Modify** then use the mouse to drag the slot to the correct location. The flight slot window will be displayed. Select OK if the flight slot information is correct. This will return you to the map.

To return to the Filed Flight Plan Processor window, press the Enter key on the keyboard.

6.5.2.7.3 Edit



To modify a Flight Slot, highlight the Flight Slot that is to be edited and select Edit. **Double clicking** on the Flight Slot that is to be modified will also force up the Flight Slot window.

Make the appropriate changes and select Save when completed. This will return you to the Filed Flight Plan Processor window.

6.5.2.7.4 Delete



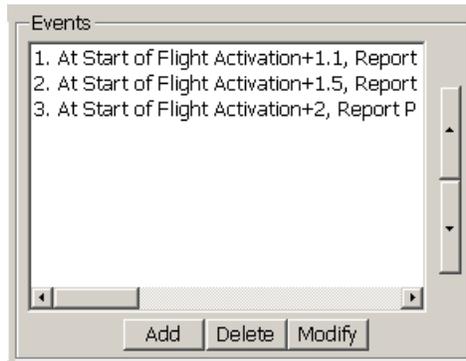
To delete a Flight Slot, highlight the Flight Slot that is to be deleted and select Delete. The following dialog box will be displayed:



UM-120

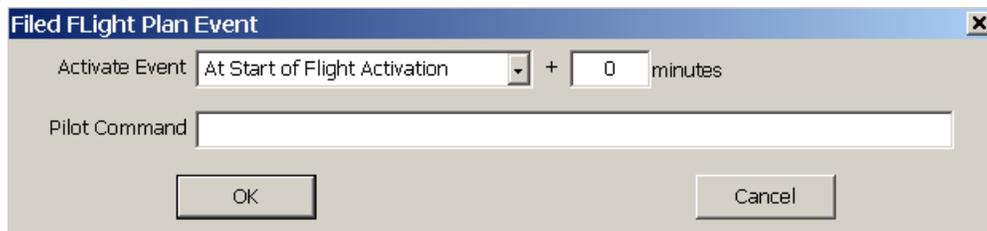
Select Yes to delete or No to return to the Filed Flight Plan Processor window without any action being taken.

6.5.2.8 Conditional Event area



UM-109

Conditional Events can be added that will alter the activity of the flight. Most Pilot entries can be set as an event and will be activated automatically when the condition has been met.



UM-121

Conditional Events are time based either from the **Start of Exercise** or **Start of Flight Activation**. After selecting the **Activate Event** option, enter the number of **Minutes** to execute the event based on the Activate Event option that was chosen. This time can be whole minutes or in tenths of minutes.

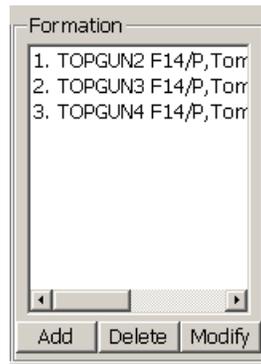
The **Pilot Command** is entered using the same keyboard entries as the Pilot position in SIGNAL. For a complete list of Events that can be set in CREATE, See **Appendix A** at the back of this document. The list of Events also contains a description of what will happen when the event is applied.

To **Delete** or **Modify** an event, highlight the event and select either Delete or Modify. If you need to modify the Pilot Command line, set the cursor to that field. The first keystroke you make will remove all the information that was in the field and an entire command will need to be entered.

6.5.2.9 Formation Flights

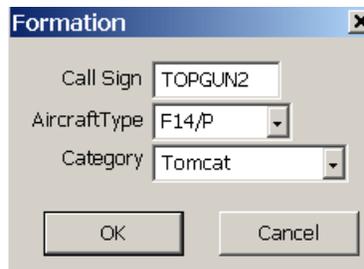
SIGNAL supports true Formation Flight capabilities. When a flight of multiple aircraft is created, only the flight leader contains full Filed Flight Plan information. The other aircraft in the formation consist of a call sign, type of aircraft and aircraft category. When the Pilot activates one of the wingmen, it will inherit all the other flight plan information from the lead aircraft.

To **Add** additional aircraft to a flight; select the lead aircraft from the List of Filed Flight Plans window. Select **Add** from the **Formation** area of the Filed Flight Plan Processor window.



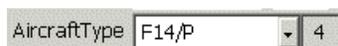
UM-110

Fill in the **Call Sign** field and select the **Aircraft Type** by using the pop-down window in the Aircraft Type field. The **Category** field will automatically contain the default category from the Aircraft Characteristics. If more than one category is established for the Aircraft Type, a different category may be selected.



UM-122

Selecting **OK** will add this flight to the original flight plan and the box at the right of the original flights Aircraft Type will be updated.



6.5.2.10 Flight Plan Status area (Error Processing)



UM-111

This area provides the user immediate feedback if an incorrect or illegal entry has been made. The **Flight Plan Status** window can contain Errors and Warnings. An Error requires resolution while a Warning condition may be intentional to produce a specific situation during the simulation.

Double clicking the left mouse button on an error or warning in the list will move the focus to that field for modification.

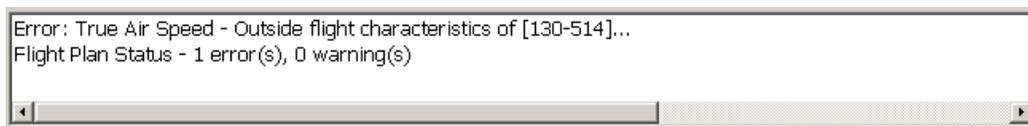
Below are several examples of Error and Warning messages:



This Error must be corrected or the aircraft will not perform as expected.



This Error must be corrected or the aircraft may not track as expected.



This Error must be corrected or the aircraft may not perform as expected.

Error: Coordination Fix does not match first Flight Slot.
Flight Plan Status - 1 error(s), 0 warning(s)

This Error must be corrected. If it is not, performing a Calculate Route will not build new Flight Slots.

Error: NO Flight Slots exist. Coordination Fix does not appear in route.
Flight Plan Status - 1 error(s), 0 warning(s)

This is the Error that is a result of not correcting the previous Coordination Fix Error Message.

Error: Invalid Time - Format: HHMM.m where HH is 0-23, MM is 0-59 and m is 0-9.
Flight Plan Status - 1 error(s), 0 warning(s)

This Error must be corrected or the aircraft may not enter the scenario at the expected time.

Error: Requested Altitude - Outside flight characteristics of [360]...
Flight Plan Status - 1 error(s), 0 warning(s)

This Error must be corrected or the aircraft may not perform as expected.

Warning: Beacon Code is not unique.
Flight Plan Status - 0 error(s), 1 warning(s)

This is a Warning only. Simulation may be performed but tracking irregularities may be encountered.

Warning: AID is not unique.
Flight Plan Status - 0 error(s), 1 warning(s)

This is a Warning only. Simulation may be performed but tracking irregularities may be encountered.

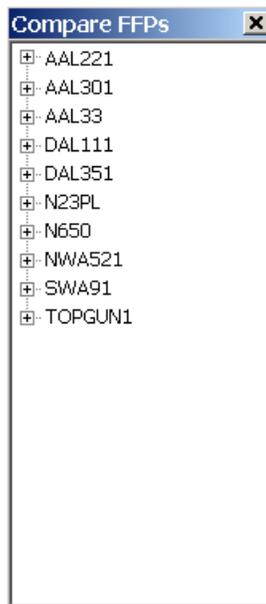
6.5.2.11 Compare FP



UM-246

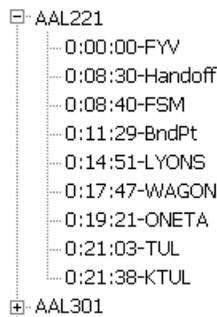
This will provide the user with the ability to display flight slots and time over each flight slot for all aircraft in the scenario. This will allow the user to quickly make adjustments to Time or Coordination Fix for an aircraft to achieve a desired result.

If Compare FP is selected, the following window will be displayed:



UM-247

All aircraft that are currently in the scenario will be included in the list. If the box to the left of an aircraft is selected, the flight slots and time over each flight slot will be displayed.

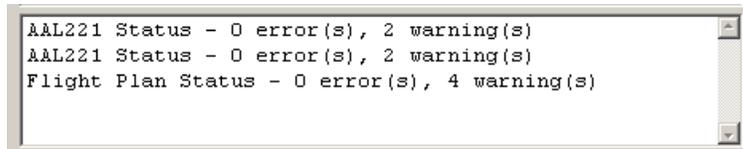


UM-248

You can then compare times and fixes on aircraft and make adjustments as necessary to ensure the intended objective will be accomplished.

6.5.3 Duplicate a Flight Plan

This function is used to duplicate a flight that is in the scenario. The user must first select a Flight Plan from the list and then press the **Duplicate** button to make a copy of the original flight plan. Warning messages will appear in the Flight Plan Status Area until the **Call Sign** and **Beacon Code** are changed.



6.5.4 Delete a Flight Plan

This function is used to delete a flight from the scenario. The user must first select a Flight Plan from the list and then press the **Delete** button to remove the Flight Plan.



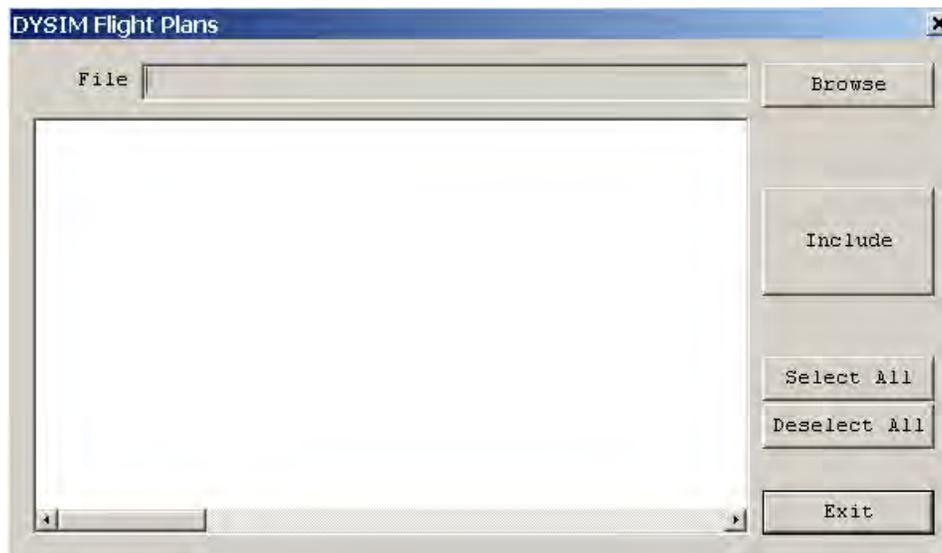
UM-120

The Confirm Delete Box is displayed and **Yes** must be selected before the flight plan is removed.

6.5.5 Import DYSIM Scenarios

This function allows the user to access a facility's DYSIM problems and import them into a CREATE scenario. This will save development time by converting existing scenarios into the CREATE format. Once the conversion has been accomplished, the scenarios can be enhanced by adding Time Tagged Events that will be automatically executed without requiring the Pilot to make entries.

When **DYSIM** is selected from the **List of Filed Flight Plans** window, the following window will be displayed:

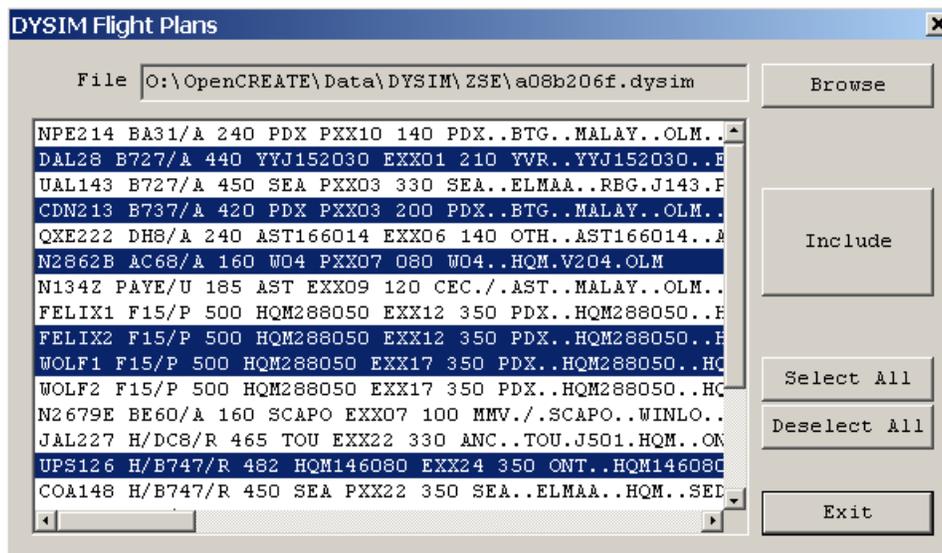


UM-123

- | | |
|---------------------|--|
| Browse | This button brings up the File Select Dialog window and allows the user to select a DYSIM file. |
| Include | This button incorporates all the highlighted Flight Plans from the list into the current scenario. |
| Select All | This button highlights all the Flight Plans that are displayed in the window. |
| Deselect All | This button deselects all the Flight Plans that were highlighted. |
| Exit | This button exits the window back to the List of Filed Flight Plans window. |

When a DYSIM file is selected, all the flight plans that are contained in the DYSIM scenario will be displayed in the window. The user can select any or all of the flights and copy them into the List of Filed Flight Plans area of the CREATE scenario.

To select specific flights from the DYSIM problem, hold down the Ctrl button on the keyboard and select the flights using the mouse left button until all desired flights have been highlighted.



UM-124

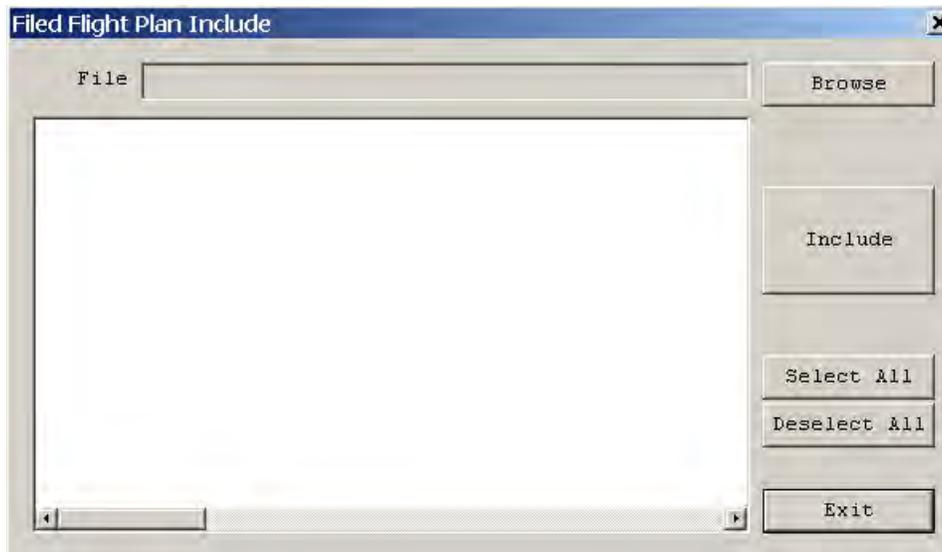
Some modification may be required depending on the currency of the DYSIM scenario. Normally, the scenario can be executed in SIGNAL immediately without any changes being necessary.

6.5.6 Include Flight Plans from other Scenarios

This function allows the user to access other Create2000 scenario files and import flight plans. This would allow the user to make a few changes to some flights and create a different version of the same complexity scenario. It would save considerable development time.

Any or all flight plans can be included into the current scenario by highlighting the desired flight and select **Include**. The selected flights will automatically be added to the current scenario and can be modified as necessary.

When **Include** is selected from the **List of Filed Flight Plans** window, the following window will be displayed:

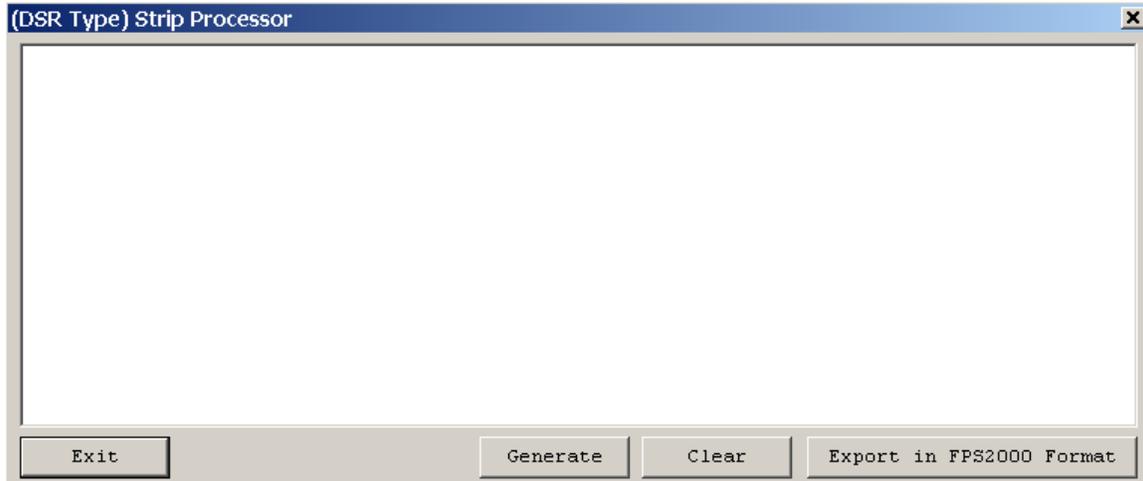


UM-125

- | | |
|---------------------|--|
| Browse | This button brings up the File Select Dialog window and allows the user to select a Create2000 file. |
| Include | This button incorporates all the highlighted Flight Plans from the list into the current scenario. |
| Select All | This button highlights all the Flight Plans that are displayed in the window. |
| Deselect All | This button deselects all the Flight Plans that were highlighted. |
| Exit | This button exits the window back to the List of Filed Flight Plans window. |

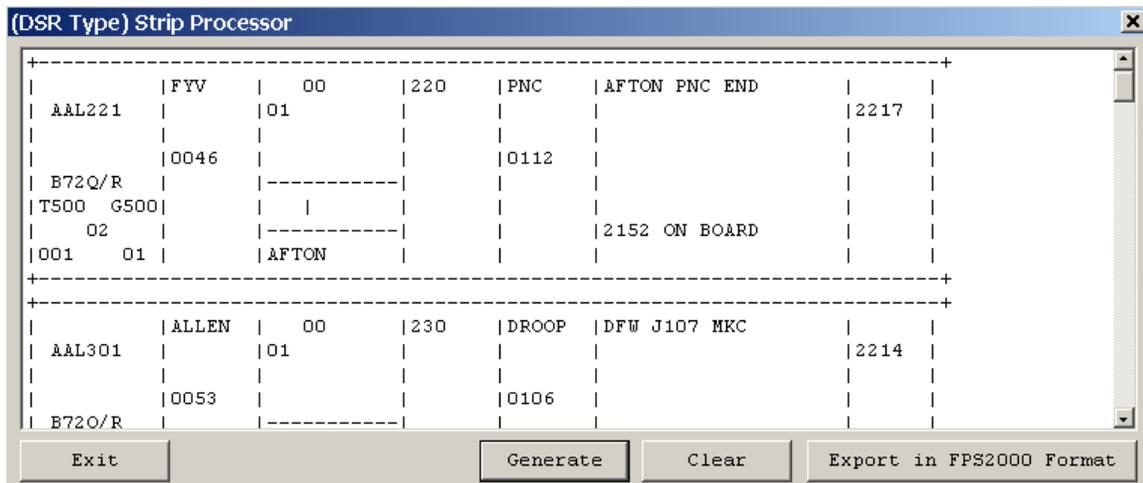
6.5.7 Strip Processing (En Route Medium Fidelity only)

This function allows the user to preview the strips and export them as a file to FPS2000 so they can be printed.



UM-126

The first time the Strip Processing area is accessed in a scenario, the Strip Processor window will be blank. To preview the strips, select Generate. The strips will be displayed in the window and can be checked for accuracy.



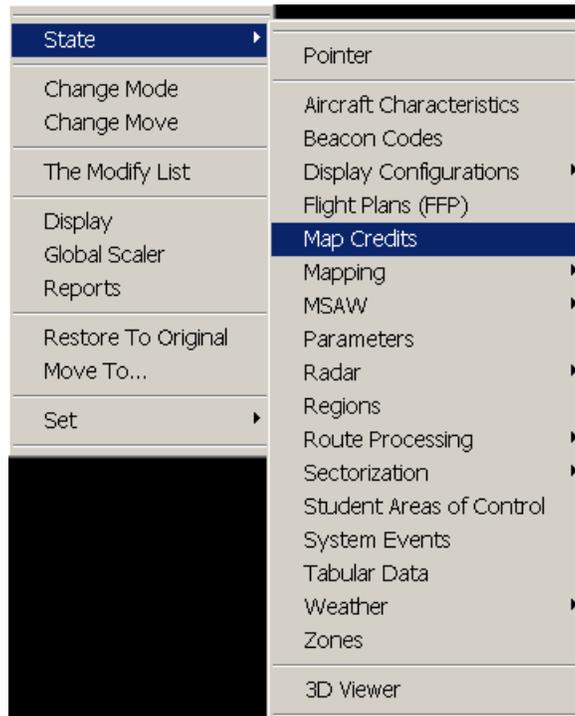
UM-254

If a change is required, access the flight plan containing the discrepancy and make the necessary change. Return to the Strip Processor window and select Clear. This will remove all strips and leave the window blank. Select Generate again and the strips will be displayed in the window reflecting the change that was made to the flight plan.

When the strips are accurate, they can be Exported in FPS2000 Format and printed using the FPS2000 software.

6.6 Map Credits

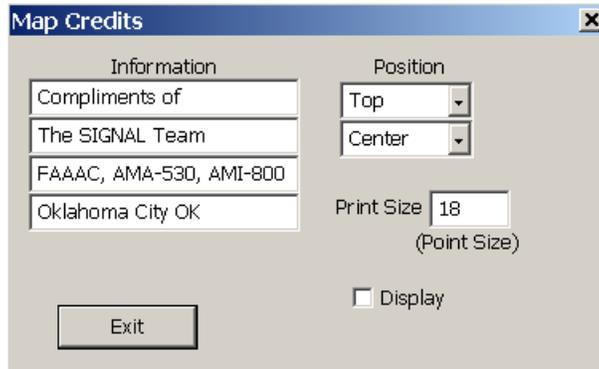
This is a Scenario and Master function, however, changes made at the Scenario level are only temporary and cannot be saved.



UM-154

The **Map Credits** window is used to specify information that can be displayed and printed from CREATE. This information is not displayable on the Pilot or Student positions.

The information is entered on 4 lines of free text. Both a Scenario and Master can access and modify the information, however, only changes made to a Master can be saved. All Scenario changes are temporary and intended to allow unique printing of maps.



UM-128

Information This is where the message is entered.

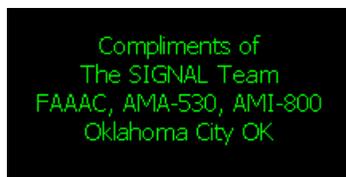
Position The message can be positioned at the Top or Bottom of the display and at the Left, Center or to the Right horizontally.

Print Size This is in terms of Pitch. 18 would be an 18 Pitch font.

Display This enables or disables the display of the Map Credits information on the map display.

Exit This exits the Map Credit area.

The message that is entered in the Information Area would look like this on the map display:

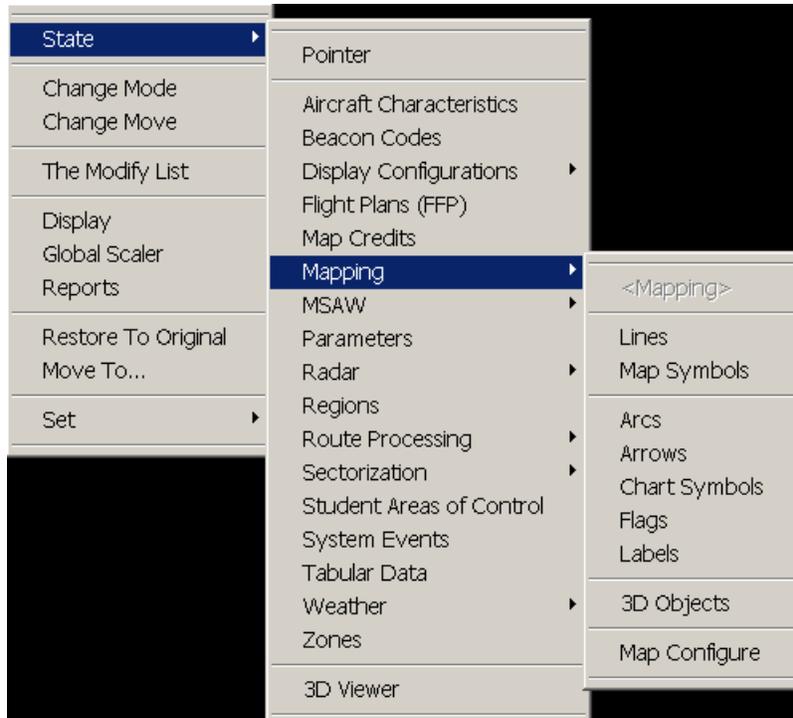


UM-235

6.7 Mapping

This is a Master only function.

To access the **Mapping** area, use the Right Mouse button or select **Edit** from the Main Menu. Highlighting **State** then **Mapping** with the mouse will force the following sub-menu:



UM-129

This State allows the user to Add or Modify map items. The user can designate where and how the mapping item will be displayed.

Some Mapping items that are included in the database are not viewable on the Pilot or Controller displays of SIGNAL. They are for printing maps only.

6.7.1 Add/Modify/Move a Line

This process is used to create and maintain map items that represent airways, boundaries or special areas contained in the airspace that is being simulated.

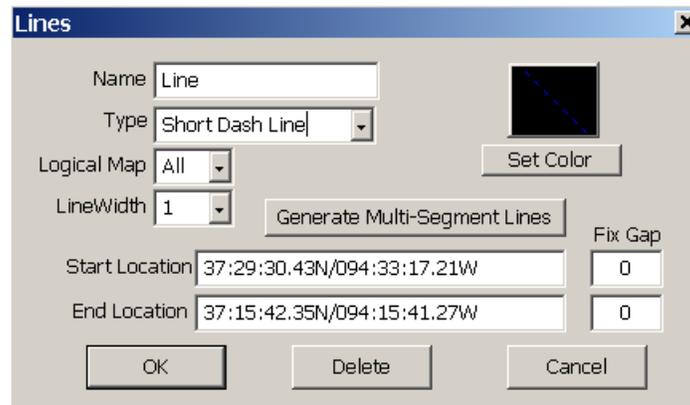
To begin the process, select **Lines** from the **Mapping** sub-menu.

6.7.1.1 Add a Line

Ensure that **State** is set to **Lines**, **Mode** is set to **Add** and **Move** is set to **Disabled**.



Click the left mouse button at the desired location of the first end of the line. Drag the mouse to the location of the second end of the line and again click the left mouse button. The following window will appear:



UM-130

Name Enter the name of the new Line. Normally the name will help identify the Line when the labels are displayed.

Type The types are Solid Line, Short Dash Line & Long Dash Line.

Generate Multi-Segment Lines

If Solid Line is selected the **Generate Multi-Segment Lines** button will be grayed out (unavailable). If Short Dash Line or Long Dash Line is selected, the **Generate Multi-Segment Lines** button will be available.

This option gives the user the ability to specify the length of the long and short dashes and the distance between each dash.

If **Generate Multi-Segment Lines** is selected, the following window will appear:

Warning: This area takes a single long/short dashed line and converts it to a series of short line segments. Once this is done, it can not be undone.

In order to delete the generated lines you will need to delete each one seperately. Cancel out of this area now, if this is not what you are wanting to do.

Name: Line
Type: Long Dash Line
Logical Map: All
LineWidth: 1
Start Location: 37:35:01.53N/094:13:57.53W
End Location: 37:22:13.06N/093:52:56.84W
Segment Length: 1.0 Nautical Miles
Gap Length: 0.5 Nautical Miles

Buttons: Generate, Cancel, Set Color

UM-255

It has the same fields as the Add Line window **plus**:

Segment Length: Designate the desired length of each segment, in Nautical miles.

Gap Length: Designate the desired spacing between each segment, in Nautical miles.

Generate: Selecting **Generate** will create a series of lines at the desired Segment and Gap length settings.

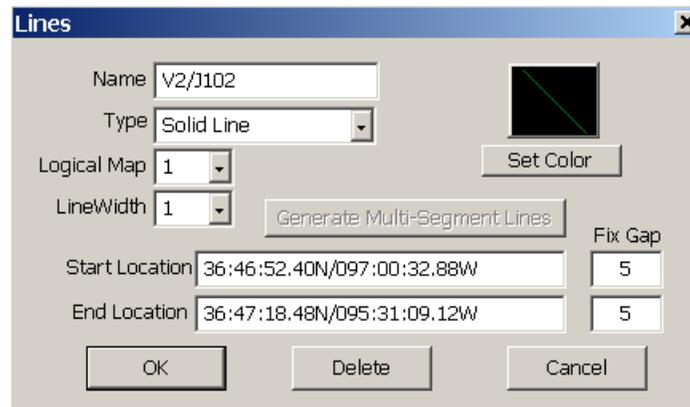
Logical Map	This assigns which logical map the Line is associated with. The range is 1-10 and All.
Line Width	This allows each Line to be set to a unique line width. Default is 1.
Start Location	This is the location of the first mouse click. If the spot that was selected by the mouse is not the exact desired location of the start point, enter a new location using the valid Lat/Long or valid Non-Lat/Long format. If the point that is being identified is collocated with a fix that already exists in the database, enter the identifier of the fix. The lat/long of the fix will be used to position the start point of this line.
End Location	This is the location of the second mouse click. If the spot that was selected by the mouse is not the exact desired location of the end point, enter a new location using the valid Lat/Long or valid Non-Lat/Long format. If the point that is being identified is collocated with a fix that already exists in the database, enter the identifier of the fix. The lat/long of the fix will be used to position the end point of this line.
Fix Gap	This allows the user to suppress the display of the line for a designated distance from the Start Location or the End Location. This field is expressed in terms of miles. If Generate Multi-Segment Lines is selected, Fix Gap is not an option.
Set Color	This option allows the user to select a color for the display of this item on the Pilot displays and, in some cases, the Controller Medium Fidelity display.

6.7.1.2 Modify a Line

Ensure that **State** is set to **Lines**, **Mode** is set to **Modify** and **Move** is set to **Disabled**.



Select the line that is to be modified using the left mouse button. The following window will appear:



UM-131

Make changes as necessary and select **OK** to save.

6.7.1.3 Move a Line

Ensure that **State** is set to **Lines**, **Mode** is set to **Modify** and **Move** is set to **Enabled**.



Using the left mouse button, click on the end of the Line that is to be repositioned and drag it to the new location then release. A window containing detailed information on the selected Line will be displayed. Changes can be made if necessary. When all the information is correct, select **OK**. If you wish to avoid saving the new information, select **Cancel**.

6.7.2 Add/Modify/Move a Map Symbol

This process is used to create and maintain the Map Symbols that are to be displayed in the airspace that is being simulated.

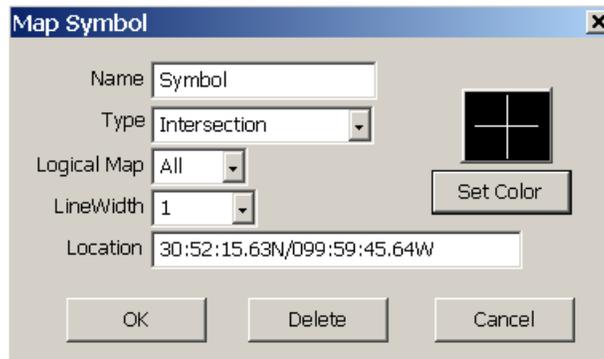
To begin the process, select **Map Symbols** from the **Mapping** sub-menu.

6.7.2.1 Add a Map Symbol

Ensure that **State** is set to **Map Symbols**, **Mode** is set to **Add** and **Move** is set to **Disabled**.



Click the left mouse button at the desired location of the Map Symbol that is to be added. The following window will appear:



UM-132

Name

Enter the name of the new Map Symbol. Normally the name will help identify the Map Symbol when the labels are displayed.

Type

Select the appropriate type of Map Symbol to be displayed.
The Map Symbol Types are:

Intersections		Major Airport	
Obstruction		Parrot	
Satellite Airport		TACAN	
VORTAC			

Logical Map

This assigns which logical map the Symbol is associated with.
The range is 1-10 and All.

Line Width

This allows each Symbol to be set to a unique line width.
Default is 1.

Location

This is the lat/long location of this Map Symbol. If the point that is being identified is collocated with a Fix that already exists in the database, enter the identifier of the Fix. The lat/long of the Fix will be used to position the Map Symbol.

Set Color

This option allows the user to select a color for the display of this item on the Pilots display and, in some cases, the Controller Medium Fidelity display.

6.7.2.2 Modify a Map Symbol

There are two ways to select a Map Symbol that is to be modified:

Using the Mouse or

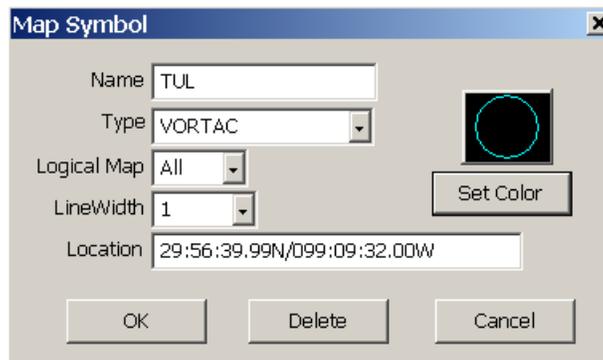
Using "The Modify List".

Ensure that the **State** is set to **Map Symbols**, **Mode** is set to **Modify** and **Move** is set to **Disabled**.



Using the Mouse

Select the Map Symbol that is to be modified using the left mouse button. The following window will appear:



UM-133

Make changes as necessary and select **OK** to save.

Using The Modify List function

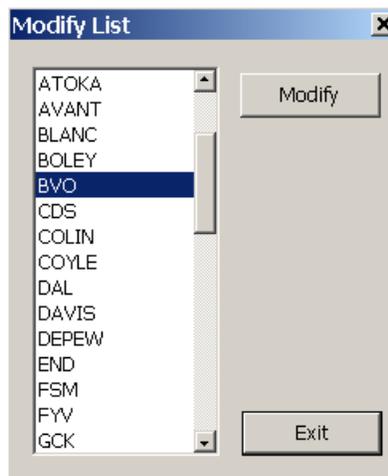
To access **The Modify List** for Map Symbols:

Click the Right Mouse button and select **The Modify List** from the pop-down window.



UM-040

The **Modify List** window will then be displayed. Highlight the Map Symbol that is to be modified from the **Modify List** and select **Modify**.

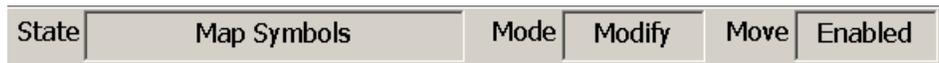


UM-011

The Map Symbol window will then be displayed and you can modify each field as necessary. Select **OK** to save.

6.7.2.3 Move a Map Symbol

Ensure that **State** is set to **Map Symbols**, **Mode** is set to **Modify** and **Move** is set to **Enabled**.



Using the left mouse button, click on the Map Symbol that is to be repositioned and drag it to the new location then release. A window containing detailed information on the selected Map Symbol will be displayed. Changes can be made if necessary. When all the information is correct, select **OK**. If you wish to avoid saving the new information, select **Cancel**.

6.7.3 Add/Modify/Move an ARC

This process is used to build complete 360-degree circles or a small pie arc. An Arc is simply a curved map line. It can be used to depict special operating areas or approach control airspace.

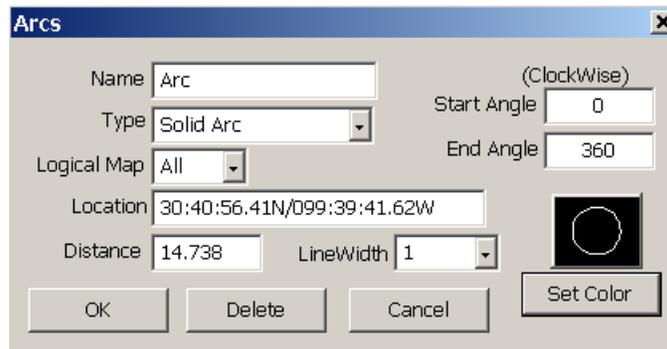
To begin the process, select **Arcs** from the **Mapping** sub-menu.

6.7.3.1 Add an Arc

Ensure that **State** is set to **Arcs**, **Mode** is set to **Add** and **Move** is set to **Disabled**.



Click the left mouse button at the desired location that is to be the center on the Arc. Drag the mouse in any direction. As the mouse is moved, a circle is displayed. When the circle is the desired size, click the left mouse button again. The following window will appear:



UM-134

Name Enter the name of the new Arc. Normally the name will help identify the purpose of the Arc.

Type The Types are Solid Arc, Short Dash Arc & Long Dash Arc.

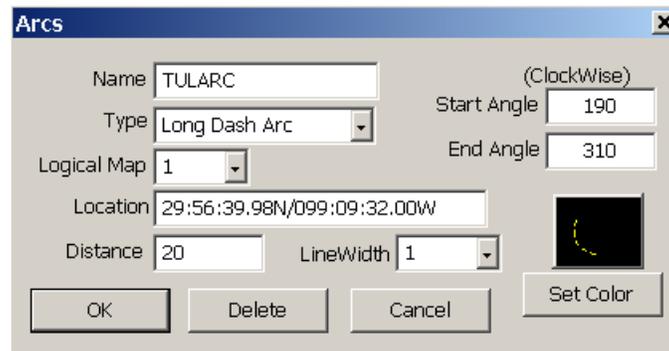
Logical Map	This assigns which logical map the Arc is associated with. The range is 1-10 and All.
Location	This is the lat/long point that was selected as the center of this Arc. If this point is not the desired location, the correct lat/long can be entered. If the center of the Arc is a fix that is established in the database, the fix identifier can be entered and the correct lat/long will be inserted.
Distance	This is the Radius of the Arc in miles. If the value that appears in the field is incorrect, the correct distance may be entered.
Line Width	This allows the user to determine the line width of the arc.
Start Angle	Starting degree of the Arc from 0 to 360. The display will be from the Start Angle Clockwise to the End Angle.
End Angle	Ending degree of the Arc from 0 to 360.
Set Color	This option allows the user to select a color for the display of this item on the Pilots display and, in some cases, the Controller Medium Fidelity display.

6.7.3.2 Modify an Arc

Ensure that **State** is set to **Arcs**, **Mode** is set to **Modify** and **Move** is set to **Disabled**.



Select the Arc that is to be modified using the left mouse button. The following window will appear:



UM-135

Make changes as necessary and select **OK** to save.

6.7.3.3 Move an Arc

Ensure that **State** is set to **Arcs**, **Mode** is set to **Modify** and **Move** is set to **Enabled**.



Using the left mouse button, click near the center of the Arc that is to be repositioned and drag it to the new location then release. A window containing detailed information on the selected Arc will be displayed. Changes can be made if necessary. When all the information is correct, select **OK**. If you wish to avoid saving the new information, select **Cancel**.

6.7.4 Add/Modify/Move an Arrow

Arrows are to be displayed in CREATE only and can be used to print a map.

Arrows are not displayed on the Pilot or Controller positions.

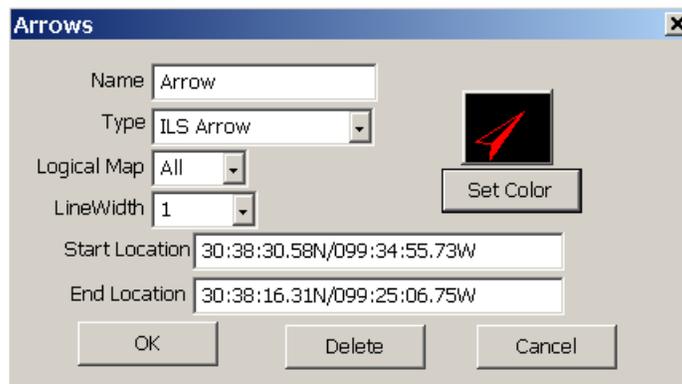
To begin the process, select **Arrows** from the **Mapping** sub-menu.

6.7.4.1 Add an Arrow

Ensure that **State** is set to **Arrows**, **Mode** is set to **Add** and **Move** is set to **Disabled**.



Click the left mouse button at the desired location that is to be the Tail End of the Arc. Drag the mouse in the direction that the Arrow is to point. As the mouse is moved, an Arrow is displayed. When the Arrow is pointing in the desired direction and is the desired length, click the left mouse button again. The following window will appear:



UM-136

Name Enter the name of the new Arrow. Normally the name will help identify the purpose of the Arrow.

Type The Arrow Types are:



Logical Map This assigns which logical map the Arrow is associated with. The range is 1-10 and All.

Line Width This allows the user to set the line width of the Arrow.

Start Location This is the first lat/long location (tail end) of this Arrow.

End Location This is the second lat/long location (point) of this Arrow.

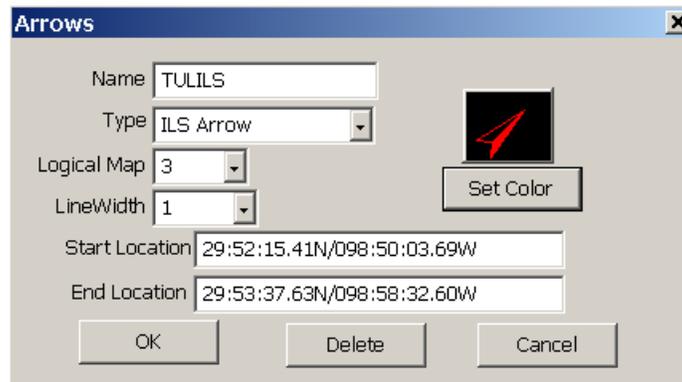
Set Color This option allows the user to select a color for the display of this item.

6.7.4.2 Modify an Arrow

Ensure that **State** is set to **Arrows**, **Mode** is set to **Modify** and **Move** is set to **Disabled**.



Select the Arc that is to be modified using the left mouse button. The following window will appear:



UM-139

Make changes as necessary and select **OK** to save.

6.7.4.3 Move an Arrow

Ensure that **State** is set to **Arrows**, **Mode** is set to **Modify** and **Move** is set to **Enabled**.

State	Arrows	Mode	Modify	Move	Enabled
-------	--------	------	--------	------	---------

Using the left mouse button, click on the end of the Arrow that is to be repositioned and drag it to the new location then release. A window containing detailed information on the selected Arrow will be displayed. Changes can be made if necessary. When all the information is correct, select **OK**. If you wish to avoid saving the new information, select **Cancel**.

6.7.5 Add/Modify/Move a Chart Symbol

Note: Chart Symbols & Map Symbols are different. Chart Symbols are to be displayed on maps for printing purpose only, they are not viewable on either the Pilot displays or the Controller displays.

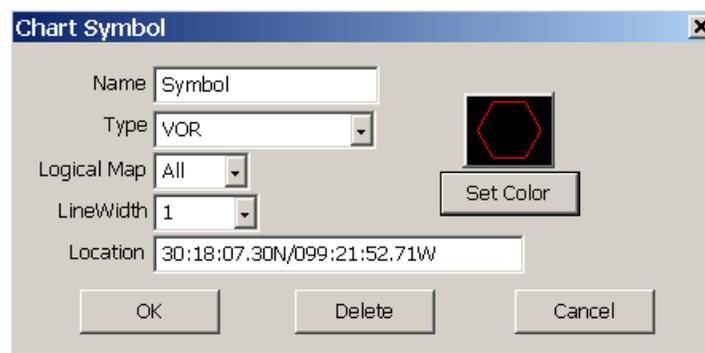
To begin the process, select **Chart Symbols** from the **Mapping** sub-menu.

6.7.5.1 Add a Chart Symbol

Ensure that **State** is set to **Chart Symbols**, **Mode** is set to **Add** and **Move** is set to **Disabled**.



Click the left mouse button at the desired location of the new Chart Symbol that is to be added. The following window will appear:



UM-137

Name Enter the name of the new Chart Symbol. Normally the name will help identify the Chart Symbol when the labels are displayed.

Type

The Chart Symbol Types are:

NDB DME



TACAN2



VOR



VOR DME



VORTAC2

**Logical Map**

This assigns which logical map the Chart Symbol is associated with. The range is 1-10 and All.

Line Width

This allows the user to designate the line width of the Chart Symbol.

Location

This is the lat/long location of this Chart Symbol. If the point that is being identified is collocated with a Fix that already exists in the database, enter the identifier of the Fix. The lat/long of the Fix will be used to position the Chart Symbol.

Set Color

This option allows the user to select a color for the display of this item.

6.7.5.2 Modify a Chart Symbol

There are two ways to select a Chart Symbol that is to be modified:

Using the Mouse or

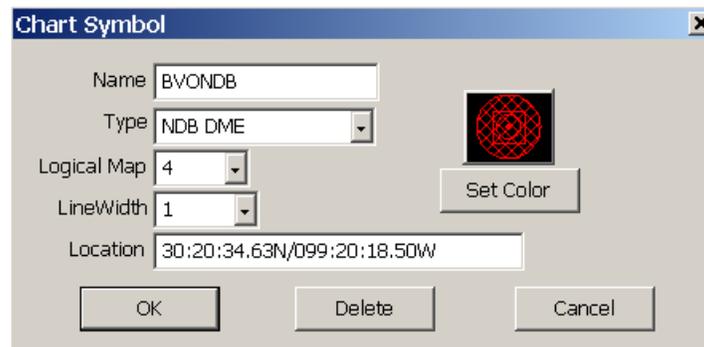
Using "The Modify List".

Ensure that the **State** is set to **Chart Symbols**, **Mode** is set to **Modify** and **Move** is set to **Disabled**.



Using the Mouse

Select the Chart Symbol that is to be modified using the left mouse button. The following window will appear:



UM-138

Make changes as necessary and select **OK** to save.

Using The Modify List function

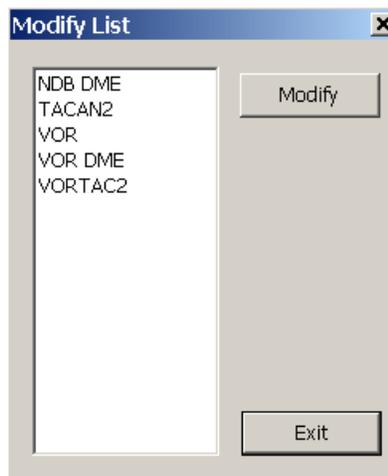
To access **The Modify List** for Chart Symbols:

Click the Right Mouse button and select **The Modify List** from the pop-down window.



UM-040

The **Modify List** window will then be displayed. Highlight the Chart Symbol that is to be modified from the **Modify List** and select **Modify**.



UM-140

The Chart Symbol window will then be displayed and you can modify each field as necessary. Select **OK** to save.

6.7.5.3 Move a Chart Symbol

Ensure that **State** is set to **Chart Symbols**, **Mode** is set to **Modify** and **Move** is set to **Enabled**.



Using the left mouse button, click on the Chart Symbol that is to be repositioned and drag it to the new location then release. A window containing detailed information on the selected Chart Symbol will be displayed. Changes can be made if necessary. When all the information is correct, select **OK**. If you wish to avoid saving the new information, select **Cancel**.

6.7.6 Add/Modify/Move a Flag

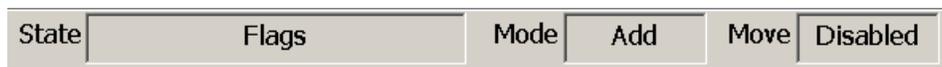
Flags are generally used only as "Place-Holders". A Flag name is eligible to be used as a valid input to identify the location of a new Fix or Symbol.

A Flag is not displayed on the Pilot or Controller positions.

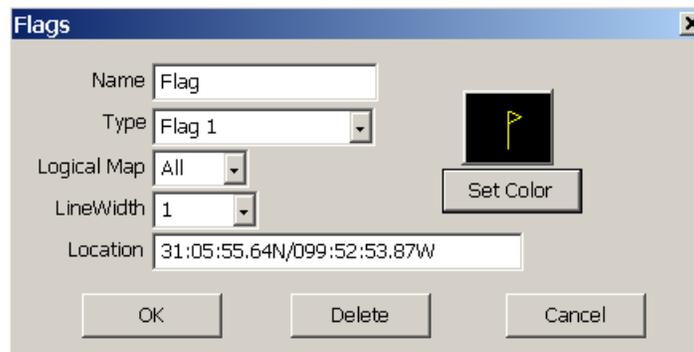
To begin the process, select **Flags** from the **Mapping** sub-menu.

6.7.6.1 Add a Flag

Ensure that **State** is set to **Flags**, **Mode** is set to **Add** and **Move** is set to **Disabled**.



Click the left mouse button at the desired location of the Flag that is to be added. The following window will appear:



UM-141

Name Enter the name of the new Flag. Normally the name will help identify the purpose of the Flag.

Type The Flag Types are:



- Logical Map** This assigns which logical map the Flag is associated with. The range is 1-10 and All.
- Line Width** This allows the user to set the line width of each Flag.
- Location** This is the lat/long location of this Flag.
- Set Color** This option allows the user to select a color for the display of this item.

6.7.6.2 Modify a Flag

There are two ways to select a Flag that is to be modified:

Using the Mouse or

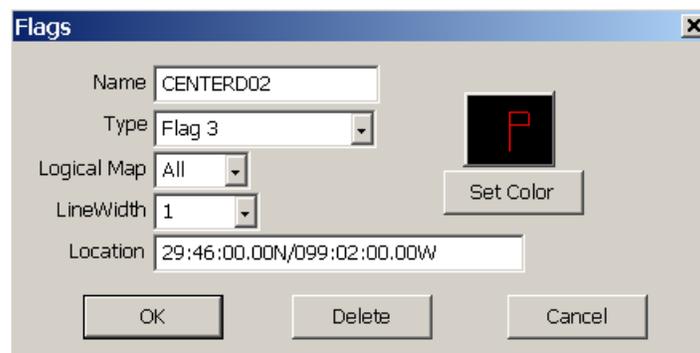
Using "The Modify List".

Ensure that the **State** is set to **Flags**, **Mode** is set to **Modify** and **Move** is set to **Disabled**.



Using the Mouse:

Select the Flag that is to be modified using the left mouse button. The following window will appear:



UM-142

Make changes as necessary and select **OK** to save.

Using The Modify List function:

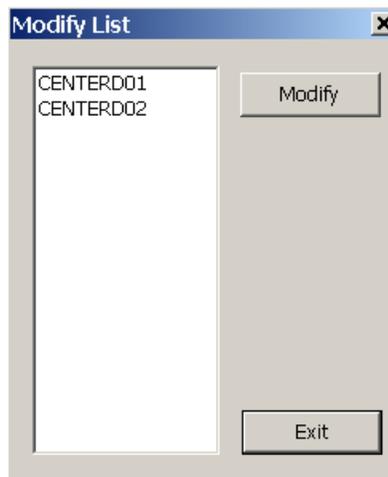
To access **The Modify List** for Flags:

Click the Right Mouse button and select **The Modify List** from the pop-down window.



UM-040

The **Modify List** window will then be displayed. Highlight the Flag that is to be modified from the **Modify List** and select **Modify**.



UM-143

The Flags window will then be displayed and you can modify each field as necessary. Select **OK** to save.

6.7.6.3 Move a Flag

Ensure that **State** is set to **Flag**, **Mode** is set to **Modify** and **Move** is set to **Enabled**.



Using the left mouse button, click on the Flag that is to be repositioned and drag it to the new location then release. A window containing detailed information on the selected Flag will be displayed. Changes can be made as necessary. When all the information is correct, select **OK**. If you wish to avoid saving the new information, select **Cancel**.

6.7.7 Add/Modify/Move a Label

A Label is used to place text on the map that can be viewed and printed from CREATE. The size, angle, color, and line width are adaptable to each unique situation or need.

As a Label, this information is only displayable in CREATE. It will not be displayed on the Pilot or Controller positions. However, there is an option to generate map lines based on the Label that can be assigned to a Map and will then be viewable to the Pilot and Medium Fidelity Controller displays.

An example of a set of Labels that could be created for print:



This is a combination of 3 Labels used to display a message that would be useful on a sector map.

To begin the process, select **Labels** from the **Mapping** sub-menu.

6.7.7.1 Add a Label

Ensure that **State** is set to **Labels**, **Mode** is set to **Add** and **Move** is set to **Disabled**.



Click the left mouse button at the desired location of the Label that is to be added. The following window will appear:

UM-144

- Name** The information contained in this field is what will be displayed on the map.
- Type** The only option is Label.
- Logical Map** This assigns which logical map the Label is associated with. The range is 1-10 and All.
- Line Width** This allows the user to set the line width of each Label.
- Location** This is the lat/long location of this Label.

- Set Color** This option allows the user to select a color for the display of this item.
- Rotation Angle** Used to rotate the Label to a desired angle. The leftmost character is the pivot point:
- 000 displays the Label from left to right
 - 090 displays the Label from bottom to top
 - 180 displays the Label upside down and right to left
 - 270 displays the Label from top to bottom
- Scale** Used to scale the Label to the desired size.
- Font** Allows the user to change the font of the Label.
- Generate Lines** If there is a requirement to display a Label at the Pilot or Medium Fidelity Controller position, selecting Generate Lines will produce line segments that resemble the characters in the Label that can then be displayed.

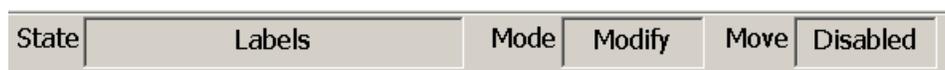
6.7.7.2 Modify a Label

There are two ways to select a Label that is to be modified:

Using the Mouse or

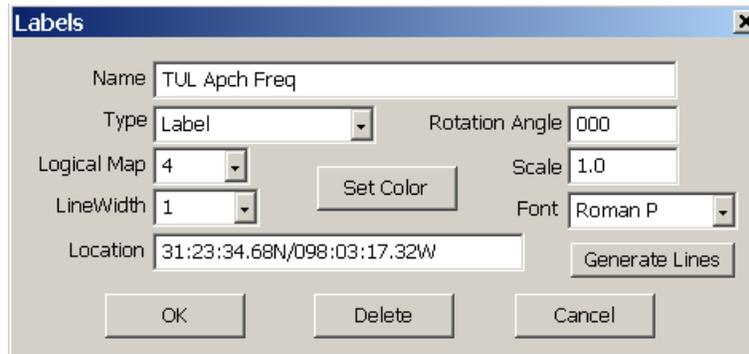
Using "The Modify List".

Ensure that the **State** is set to **Labels**, **Mode** is set to **Modify** and **Move** is set to **Disabled**.



Using the Mouse:

Select the Label that is to be modified using the left mouse button. The following window will appear:



The image shows a dialog box titled "Labels" with a close button (X) in the top right corner. The dialog contains several input fields and buttons:

- Name: TUL Apch Freq
- Type: Label (dropdown menu)
- Rotation Angle: 000
- Logical Map: 4 (dropdown menu)
- Scale: 1.0
- LineWidth: 1 (dropdown menu)
- Set Color (button)
- Font: Roman P (dropdown menu)
- Location: 31:23:34.68N/098:03:17.32W
- Generate Lines (button)
- OK (button)
- Delete (button)
- Cancel (button)

UM-145

Make changes as necessary and select **OK** to save.

Using The Modify List function:

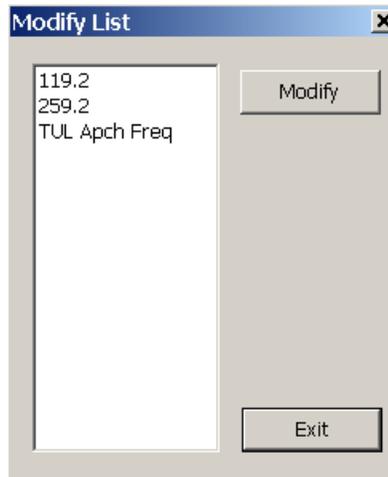
To access **The Modify List** for Labels:

Click the Right Mouse button and select **The Modify List** from the pop-down window.



UM-040

The **Modify List** window will then be displayed. Highlight the Label that is to be modified from the **Modify List** and select **Modify**.

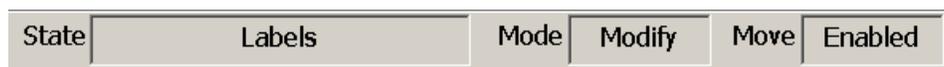


UM-146

The Labels window will then be displayed and you can modify each field as necessary. Select **OK** to save.

6.7.7.3 Move a Label

Ensure that **State** is set to **Label**, **Mode** is set to **Modify** and **Move** is set to **Enable**.



Using the left mouse button, click on the Label that is to be repositioned and drag it to the new location then release. A window containing detailed information on the selected Label will be displayed. Changes can be made if necessary. When all the information is correct, select **OK**. If you wish to avoid saving the new information, select **Cancel**.

6.7.8 Add/Modify/Move a 3D Object

This area is not fully developed and is not yet functional.

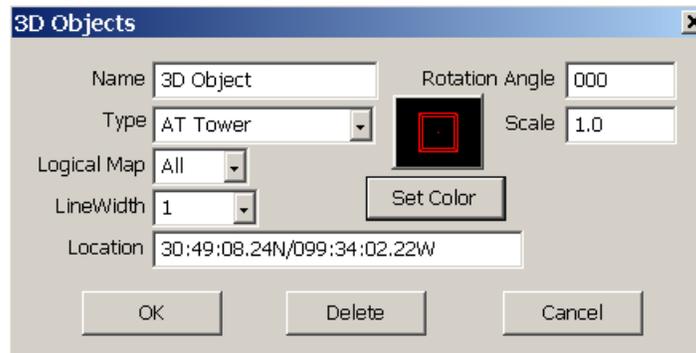
These shapes do not show up on the Pilot or Controller displays. They are intended for displaying and printing in CREATE only.

6.7.8.1 Add a 3D Object (Not functional)

Ensure that **State** is set to **3D Objects**, **Mode** is set to **Add** and **Move** is set to **Disabled**.



Click the left mouse button at the desired location of the 3D Object that is to be added. The following window will appear:



UM-147

Name

Enter the name of the new 3D Object. Normally the name will help identify the purpose of the 3D Object.

Type	The 3D Object Types are: AT Tower Antenna Bridge Hanger Mountain Radar Site Terminal Water Tower
Logical Map	This assigns which logical map the 3D Object is associated with. The range is 1-10 and All.
Line Width	This allows each 3D Object to be set to a unique line width.
Location	This is the lat/long location of this 3D Object.
Set Color	This option allows the user to select a color for the display of this item.
Rotation Angle	Used to rotate the Label to a desired angle. The leftmost character is the pivot point: 000 displays the Label from left to right. 090 displays the Label from bottom to top facing right. 180 displays the Label upside down and right to left. 270 displays the Label from top to bottom facing left.
Scale	Used to scale the object to the desired size.

6.7.8.2 Modify a 3D Object (Not functional)

There are two ways to select a 3D Object that is to be modified:

Using the Mouse or

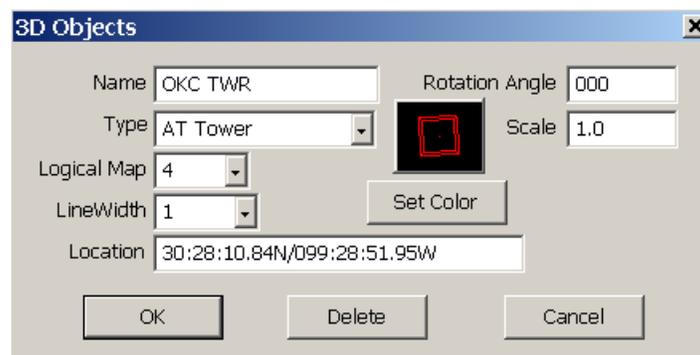
Using "The Modify List".

Ensure that the **State** is set to **3D Objects**, **Mode** is set to **Modify** and **Move** is set to **Disabled**.



Using the Mouse:

Using the left mouse button, select the 3D Object that is to be modified. The following window will appear:



UM-149

Make changes as necessary and select **OK** to save.

Using The Modify List function:

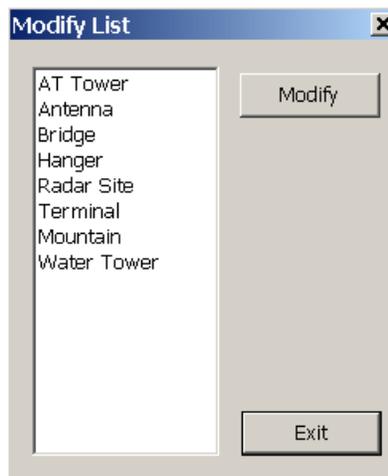
To access **The Modify List** for 3D Objects:

Click the Right Mouse button and select **The Modify List** from the pop-down window.



UM-040

The **Modify List** window will then be displayed. Highlight the 3D Object that is to be modified from the **Modify List** and select **Modify**.



UM-150

The 3D Objects window will then be displayed and you can modify each field as necessary. Select **OK** to save.

6.7.8.3 Move a 3D Object (Not functional)

Ensure that **State** is set to **3D Object**, **Mode** is set to **Modify** and **Move** is set to **Enable**.

State	3D Objects	Mode	Modify	Move	Enabled
-------	------------	------	--------	------	---------

Using the left mouse button, click on the 3D Object that is to be repositioned and drag it to the new location then release. A window containing detailed information on the selected 3D Object will be displayed. Changes can be made if necessary. When all the information is correct, select **OK**. If you wish to avoid saving the new information, select **Cancel**.

6.7.9 Map Configure

This is a Master only function.

This area will allow the user to import all mapping from another Master database. This will provide the ability to quickly update several Masters that have the same mapping. If a change has been made to the airspace that is being simulated and it will affect several databases, modify only one then use this function to update all other Masters. This will save time and prevent potential errors.



UM-245

Delete Mapping

Prior to importing mapping from another Master, all existing mapping must be removed. If this button is selected, a confirmation window will be displayed. Selecting **Yes** will delete all Lines, Symbols, Arcs, Arrows, Chart Symbols, Flags, Labels and 3D Objects.

Load C2K Mapping

This will allow the user to select a Master from a directory and import all mapping items into the loaded Master.

Load NOAA Map

This will allow you to import digital mapping from a file created by the National Oceanic and Atmospheric Administration.

6.8 MSAW

This area is not fully developed and is not yet functional.

6.8.1.1 Posts

This area is not fully developed and is not yet functional.

6.8.1.2 Sub-areas

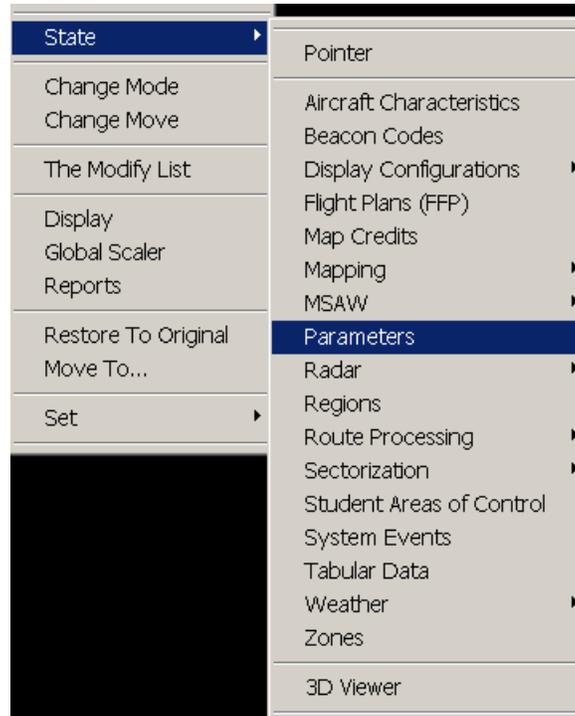
This area is not fully developed and is not yet functional.

6.8.1.3 Areas

This area is not fully developed and is not yet functional.

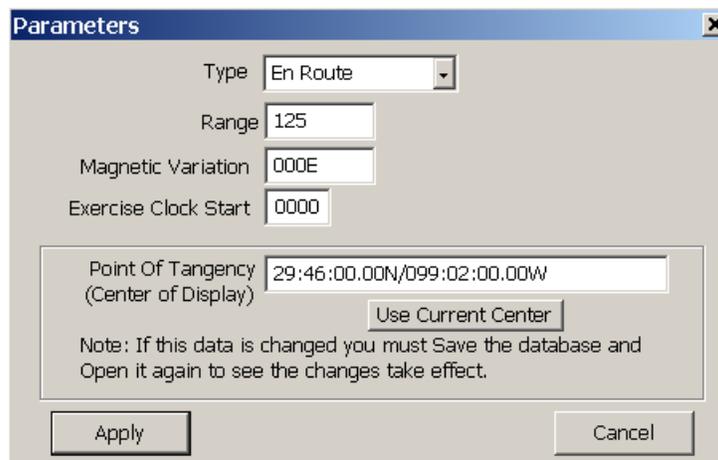
6.9 Parameters

This is a Scenario and Master function.



UM-148

When **Parameters** is selected from the **State** Sub-menu, the following window will be displayed:



UM-153

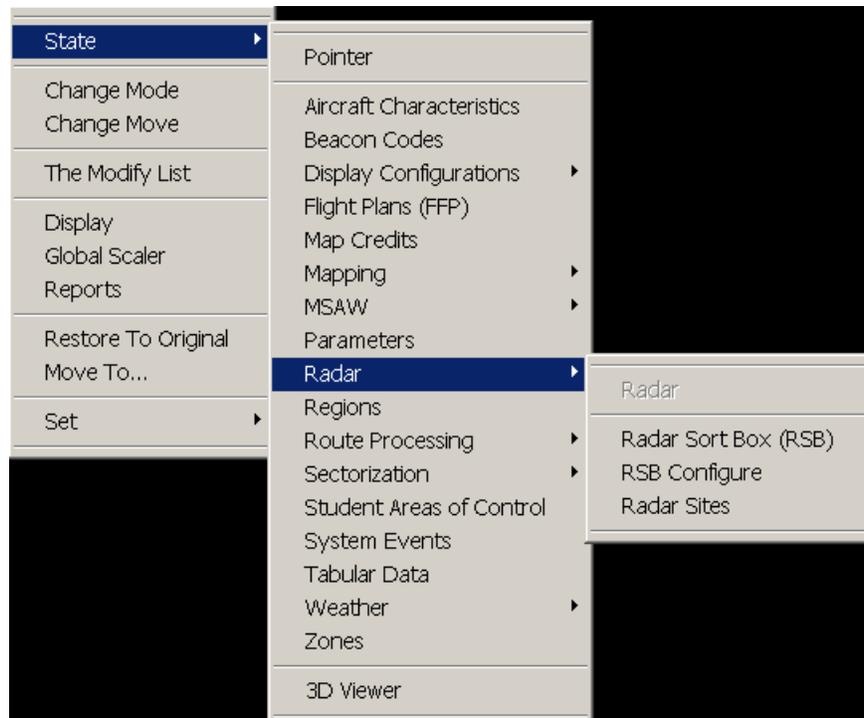
The data contained in this area is the default configuration settings that will be applied when a scenario is loaded. Also, whenever "Restore to Original" is selected, this information is used to determine the configuration.

- Type** This is used to specify the personality of the airspace that is to be simulated. The options are En Route, Terminal, Tower 2D, Tower 3D, Airspace and PRM.
- Range** This will determine the Scope Range (Display Radius). It is in terms of nautical miles. If this information is changed, the new Range will be applied each time **Restore to Original** is selected.
- If the scenario is not saved, the original Range will be applied when the scenario is reloaded.
- If saved, the new range will be the default setting.
- Magnetic Variation** The Magnetic Variation field is used to determine the difference between True North and Magnetic North that is to be applied to the database.
- Exercise Clock Start** This field is used to determine the clock start time at the beginning of the scenario. Format is HHMM where HH (Hours) is 00-23 and MM (Minutes) is 00-59. All aircraft and events included in the scenario will activate based on the time entered here being time zero.
- Point of Tangency (Center of Display)** This is the geographic Lat/Long center of the database.
- Use Current Center** If the Center of the Display has been relocated, and the **Use Current Center** button is selected, the new Center Point will be displayed in the **Point of Tangency** field.
- If this new center is to be the new **Point of Tangency**, the scenario must be save and reloaded.
- If the scenario is not saved and **Restore to Original** is selected, the display will re-center to the original **Point of Tangency**.

6.10 Radar

This is a Master only function.

To access the **Radar** area, use the Right Mouse button or select **Edit** from the Main Menu. Highlighting **State** then **Radar** with the mouse will force the following sub-menu:



UM-158

6.10.1 Radar Sort Box (RSB)

This area is not fully developed and is not yet functional.

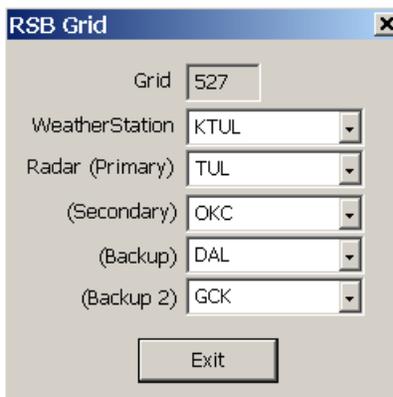
This is a Master only function.

SIGNAL has not completely implemented this application for use in Medium-Fidelity simulation. The following is provided for information only. It is not intended to instruct the user of the process.

The purpose of Radar Sort Boxes is to support the processing of radar data. A facility is divided into a number of identical square boxes that have dimensions of 16nm each. These are called sort boxes. NAS uses the sort boxes to identify the Primary and Secondary radar site that is responsible for identifying a radar target. This information is used to compensate for radar site failures.

If **Radar Sort Box (RSB)** is selected from the menu, the grid of sort boxes that was created using **RSB Configure** will be displayed

The following window will be displayed if a Radar Sort Box (RSB) is selected from the grid:



The screenshot shows a window titled "RSB Grid" with a close button (X) in the top right corner. The window contains the following fields and controls:

- Grid: 527
- WeatherStation: KTUL
- Radar (Primary): TUL
- (Secondary): OKC
- (Backup): DAL
- (Backup 2): GCK
- Exit button

UM-159

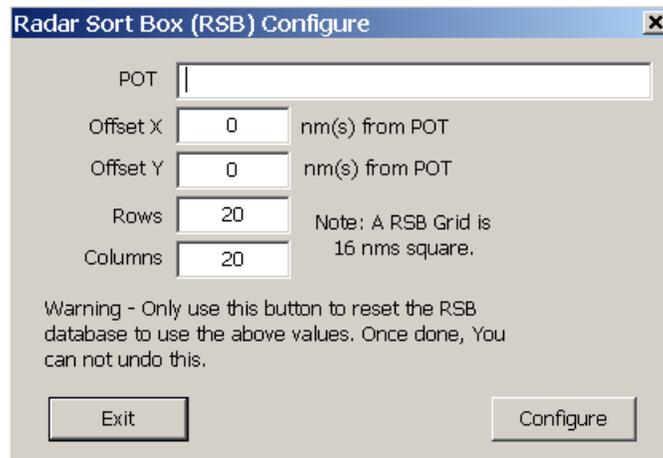
This Window allows the user to changes the Weather Station and selected Radars in a RSB grid.

6.10.2 RSB Configure

This area is not fully developed and is not yet functional.

This is a Master only function.

SIGNAL has not completely implemented this application for use in Medium-Fidelity simulation.



The screenshot shows a dialog box titled "Radar Sort Box (RSB) Configure". It contains the following fields and controls:

- POT: A text input field.
- Offset X: A numeric input field with the value "0", followed by the text "nm(s) from POT".
- Offset Y: A numeric input field with the value "0", followed by the text "nm(s) from POT".
- Rows: A numeric input field with the value "20".
- Columns: A numeric input field with the value "20".
- Note: A RSB Grid is 16 nms square.
- Warning - Only use this button to reset the RSB database to use the above values. Once done, You can not undo this.
- Buttons: "Exit" and "Configure".

UM-160

6.10.3 Radar Sites

This is a Master only function.

In SIGNAL, this area is used for Medium-Fidelity simulation only. Radar Sites are used to determine how the Analog Weather patterns will be displayed on the Controller displays. Analog Weather patterns are displayed as a series of Radial Lines centered on a Radar Site.

To **Add** a Radar Site:

Ensure that **State** is set to **Radar Sites**, **Mode** is set to **Add** and **Move** is set to **Disabled**.

State	Radar Sites	Mode	Add	Move	Disabled
-------	-------------	------	-----	------	----------

Using the Left mouse button, click on the location of the new Radar Site. The following window will be displayed:

Name	RunLength	Range(NM)	Azimuth	Beacon	Altitude(Ft)
SearchRTQC	64	1.0	0		0
BeaconRTQC	0	1.0	2048		0
Status	0	0.0	0		0

UM-162

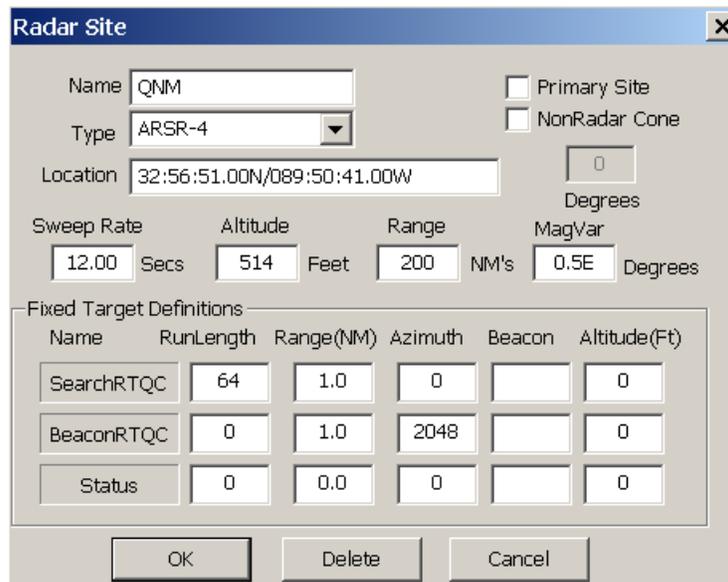
Name:	The name should be a three-letter identifier.
Type:	This is the Type of Radar equipment that is located at the site.
Location:	If the spot that was selected using the mouse is not the exact desired location of the Radar Site, enter a new location using the valid Lat/Long or valid Non-Lat/Long format.
Primary Site:	Radar Sort Boxes designate which radar site is Primary and Secondary for any given location; however, Radar Sort Boxes are not fully developed or utilized with this software. If this box is checked, the Radar Site will be designated as the primary radar for the scenario and will be used to display any weather patterns that are introduced.
NonRadar Cone:	If this box is checked, an area of non-radar coverage will be created from the Location of the Radar Site and projected up to infinity. The size of the Cone will depend on the value set in the Degrees field.
Sweep Rate:	This is the time that the Radar takes to make one complete revolution.
Altitude:	This is the field elevation of the Radar Site.
Range:	This is the range of radar coverage for the site. If Multiple Radar Sites are established, they should overlap to ensure that there are no non-radar coverage areas.
MagVar:	This is the Magnetic Variation at the Radar Site.
Fixed Target Definitions:	The values defined in these fields are required in a facility's adaptation file. The extent of the importance of this information in CREATE has not yet been determined.

To **Modify** a Radar Site:

Ensure that **State** is set to **Radar Sites**, **Mode** is set to **Modify** and **Move** is set to **Disabled**.



Select the Radar Site that is to be modified using the Left mouse button. The following window will appear:



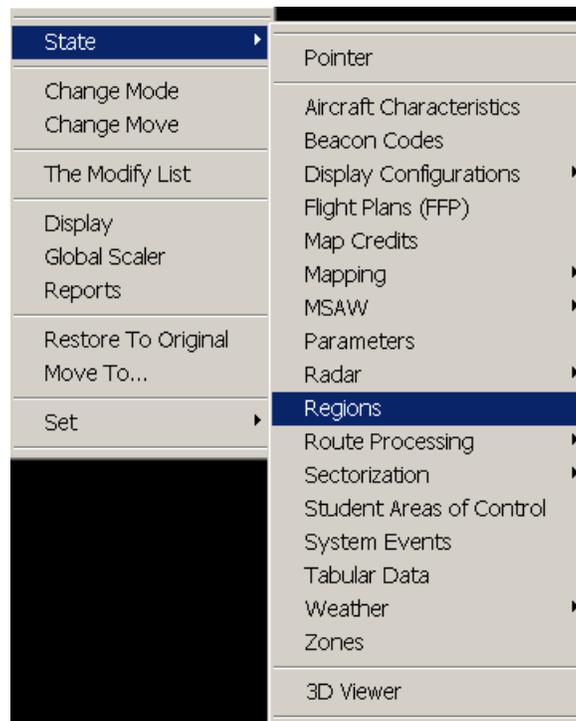
Name	RunLength	Range(NM)	Azimuth	Beacon	Altitude(Ft)
SearchRTQC	64	1.0	0		0
BeaconRTQC	0	1.0	2048		0
Status	0	0.0	0		0

UM-161

Make the necessary changes and select **OK** to save.

6.11 Regions

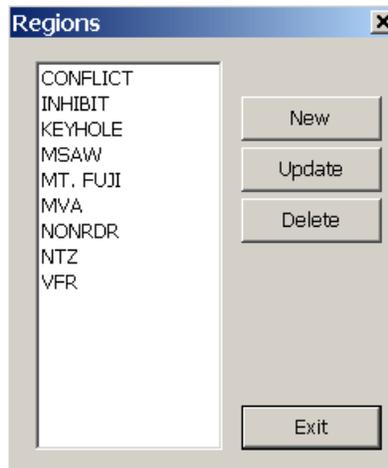
This is a Master only function.



UM-155

A Region is a section of airspace that has been designated for unique purposes. If an aircraft enters a Region, certain activity will automatically be set in motion. It may cause something to happen or prevent normal behavior from taking place.

To access the **Regions** area, use the Right Mouse button or select **Edit** from the Main Menu. Highlighting **State** then selecting **Regions** with the Left Mouse button will display the following list window:



UM-163

This window will contain a list of all existing Regions in the database. The user can Add, Modify or Delete Regions.

New This function generates a new Region with no data points.

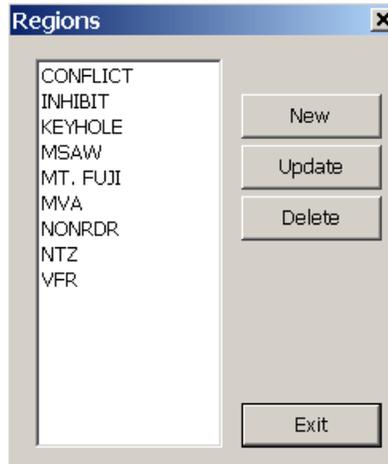
Update The user must first select a Region from the list and then pressing the **Update** button allows access to the Region's data. The user can also access the Region by **double clicking** on the Region from the list.

Delete The user must first select a Region from the list. Pressing the **Delete** button allows the user to delete the Region. The Confirm Delete Box will be displayed. Selecting **Yes** will remove the Region for the database.

Exit This will exit the Regions State and return to the Pointer State.

6.11.1 Add/Modify a Region

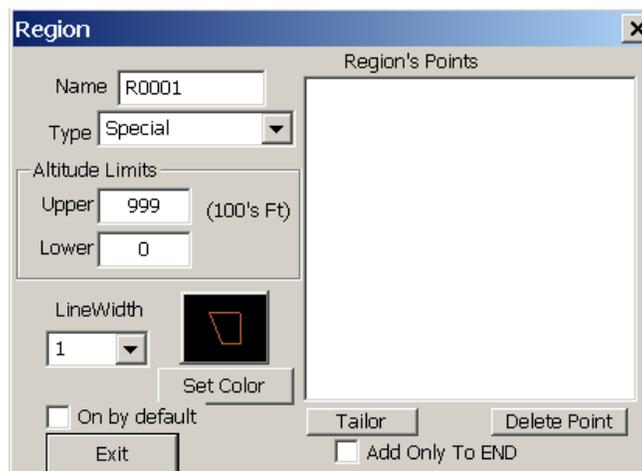
Select **Regions** from the **State** sub-menu. The following window will appear:



UM-163

6.11.1.1 Add a Region:

Select **New** from the Regions list window. The following window will be displayed:



UM-164

Enter the following essential information:

Name	Enter the name of the new Region. Normally the name will help identify the type of area that is being built.
Type	The types are Non-Radar Area, Conflict Inhibit, Outbound Handoff, Obstruction, MSAW Inhibit, MVA, Keyhole Area, NTZ Area, Inhibit ZONE and VFR Zone.
Altitude Limits	The user can set the Upper and Lower altitude of the Region.
Line Width	This allows each Line to be set to a unique line width. Default is 1.
Set Color	This option allows the user to select a color for the display of this item on the Pilot position.
On by default	If this check box is selected, the Region will be active without requiring a System Prompt.
Region's Points	The Region's Points are the points in space that make up the boundary of the Region.

If **Add Only To END** is selected, the Region can be built using the mouse and clicking on the display either clockwise or counter-clockwise to form the desired pattern that is to make up the Region.

If **Add Only To End** is **not** selected, you will be prompted each time a point is added to determine where to place it within the Region. This will require additional entries and will delay the process.

To begin the process, select the **Tailor** button. This will take you to the map display. Make sure that the **Mode** is set to **ADD**. Using the Left Mouse Button, click on the location that is to be the first point in the Region. As new points are added, the last point defined will connect back to the first point to form a complete pattern. Continue adding points using the mouse until the Region has been fully defined.

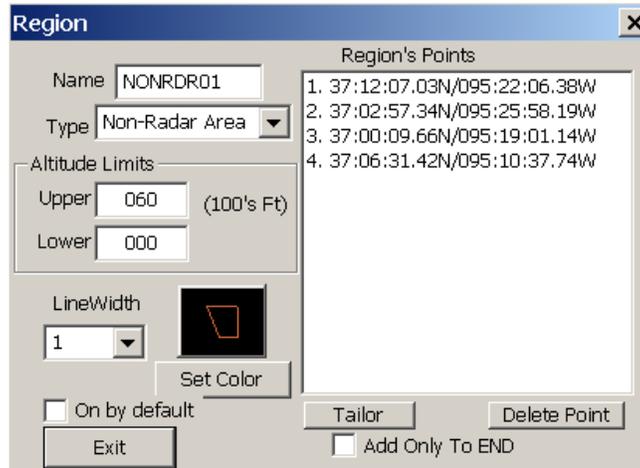
When the pattern is complete, select **Enter** or **End** on the keyboard to return to the Region window.

Each point, as it was added, was assigned a number that can be used as reference if the Region requires modification.

When you are finished defining the Region, select **Exit** to return to the Regions list window.

6.11.1.2 Modify a Region

To modify a Region, highlight the Region that is to be modified from the **Regions** list window and select **Update**. The following window will be displayed:



UM-165

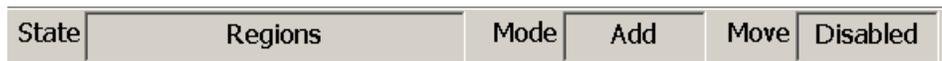
The **Name**, **Type** or **Altitude Limits** may be changed or a **Region's Point** may be deleted, added or moved.

To Delete a Point:

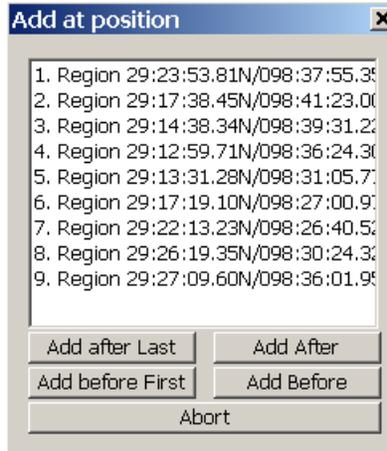
Highlight the point that is to be deleted and select **Delete Point**. Selecting **Yes** in the confirmation box will remove the point from the Region.

To Add a Point:

Ensure the **Add Only To END** select box is **deselected**. Select **Tailor**. This will take you to the map display. The Region outline will be visible with each point labeled. Make sure that the **Mode** is set to **Add** and **Move** is set to **Disabled**.



Using the Left mouse button, click on the location of the Point that is to be added. The following window will be displayed:



UM-166

Select the button that best describes the desired location of the new Point:

Add after Last: Will add the New Point after the Last Point in the list.

Add before First: Will add the New Point before the First Point in the list.

Add After: Select a Point in the list and then press **Add After**. Will add the New Point immediately after the Point you selected.

Add Before: Select a Point in the list and then press **Add Before**. Will add the New Point immediately before the Point you selected.

After the New Point is inserted into the Region, you will be returned to the map display.

Abort: Cancels the process and returns you the map display.

Either add another Point or press **Enter** or **End** on the keyboard to return to the **Region** window.

To Move a Point:

Ensure that **State** is set to **Regions**, **Mode** is set to **Modify** and **Move** is set to **Enabled**.



Using the left mouse button, click on the Point that is to be repositioned and drag it to the new location then release. A window containing detailed information on the selected Point will be displayed. Changes can be made if necessary. When all the information is correct, select **OK**. If you wish to avoid saving the new information, select **Cancel**.

When all modifications have been made to the Region, select **EXIT** to end the process.

6.11.2 Types of Regions

6.11.2.1 Non-Radar Area

This Region can be used to simulate areas of non-radar coverage. When an aircraft enters the Region, the target will become a total radar failure with no beacon on primary. When the aircraft exits the area, the display will return to normal.

If the designated area requires the horizontal boundary to be in the shape of a circle, Non-Radar Areas may also be built under Zones

6.11.2.2 Conflict Inhibit

This is only applicable for scenarios using the CommonARTS processor (DEDRV, DEDEM, INTEREM, STARSEM).

This region will inhibit the display of conflict alert for aircraft inside the region.
NOTE: Both aircraft must be inside the region for the conflict alert to be suppressed.

If the designated area requires the horizontal boundary to be in the shape of a circle, Conflict Inhibit areas may also be built under Zones

6.11.2.3 Outbound Handoff

Not yet implemented.

6.11.2.4 Obstruction (Tower only)

This region is used in Tower Masters only to indicate the location and boundaries of objects on the ground (hangers, terminal building, etc.)

6.11.2.5 MSAW Inhibit

This function has not yet been enabled.

This region will inhibit Minimum Safe Altitude Warning alerts for aircraft in the region.

6.11.2.6 Keyhole Area (PRM only)

This area allows you to designate a Keyhole area for a PRM scenario. The Keyhole Area Region only displays aircraft that are inside the area.

If the designated area requires the horizontal boundary to be in the shape of a circle, Keyhole areas may also be built under Zones

6.11.2.7 ***Keyhole Exclusion (PRM only)

***NEED TERMINAL INPUT

6.11.2.8 NTZ Area (PRM only)

This area is a **No Transgression Zone** that is applicable only to PRM scenarios.

This area is built between the extended runway centerlines.

If an aircraft enters this area it will cause a visual and audible alert.

6.11.2.9 Inhibit Zone (Scotty Only)

This type of Region is for the Morocco training system only.

Inhibit Zones utilize a four sided, polygon figure. Tracks originating in an Inhibit Zone are not eligible for auto-acquisition. Once the track exits the Zone, they become eligible for auto-acquisition.

Naming Convention: Example: ZIHI1*

ZIHI must be the first four characters. CREATE uses this to identify the area as an Inhibit Zone.

The next character can range from 0-9

A "*" indicates that the zone is active or blank for inactive.

6.11.2.10 VFR Zone (Scotty Only)

This type of Region is for the Morocco training system only.

VFR Zones utilize a four sided, rectangular figure or a circle to define the area covered by the zone. All tracks originating within active VFR Zones are automatically classified as VFR tracks unless a flight plan exists.

Naming Convention: Example: ZAVV01*

ZAVV must be the first four characters. CREATE uses this to identify the area a VFR Zone.

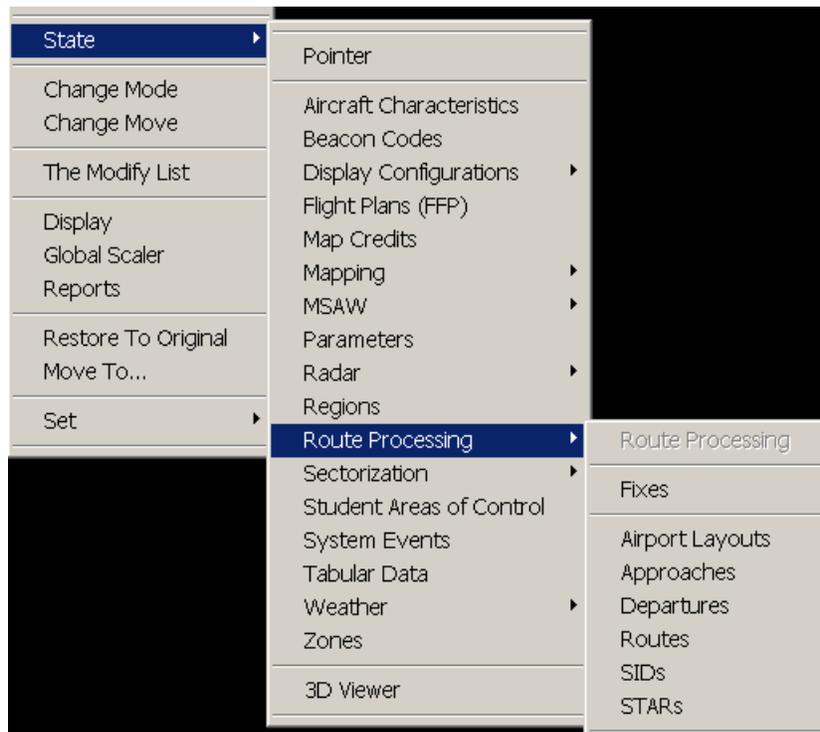
The next two characters can range from 00-99.

A "*" indicates that the zone is active or blank for inactive.

6.12 Route Processing

This is a Master only function.

To access the **Route Processing** area, use the Right Mouse button or select **Edit** from the Main Menu. Highlighting **State** then **Route Processing** with the mouse will force the following sub-menu:



UM-037

6.12.1 Add/Modify a Fix

This is a Master Only Function

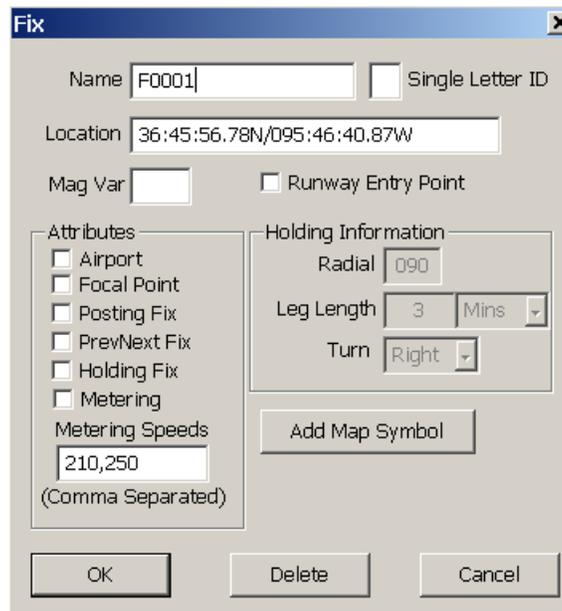
Select **Fixes** from the **Route Processing** sub-menu. This will cause the display of all Fixes that are currently in the database.

6.12.1.1 Add a Fix

Ensure that the **Mode** is set to **Add** and **Move** is set to **Disabled**.



Using the Left mouse button, click on the location of the fix that is to be added. The following window will appear:

A dialog box titled 'Fix' with a close button (X) in the top right corner. It contains several input fields and checkboxes. The 'Name' field contains 'F0001'. The 'Location' field contains '36:45:56.78N/095:46:40.87W'. The 'Mag Var' field is empty. There are checkboxes for 'Single Letter ID' and 'Runway Entry Point'. Under 'Attributes', there are checkboxes for 'Airport', 'Focal Point', 'Posting Fix', 'PrevNext Fix', 'Holding Fix', and 'Metering'. The 'Metering Speeds' field contains '210,250' with '(Comma Separated)' below it. Under 'Holding Information', there are fields for 'Radial' (090), 'Leg Length' (3) with a 'Mins' dropdown, and 'Turn' (Right) with a dropdown. There is an 'Add Map Symbol' button. At the bottom are 'OK', 'Delete', and 'Cancel' buttons.

UM-038

Enter the following pertinent information:

Name: Enter the name of the new Fix. If the Fix is to be an airport, the name must be in the ICAO format. The maximum number of characters allowed is 12.

Single Letter ID: **(Terminal Only)** This assigns a Single Letter to a fix. Assigning a Single Letter to a fix is optional. The same Single Letter may be assigned to multiple fixes.

If an aircraft's route begins at a fix that has a Single Letter ID and ends at an airport in the active sector, the Single Letter will show as an arrival in the tab list.

If an aircraft's route begins at an airport within the active sector and ends at a fix that has a Single Letter ID, the Single Letter will be reflected as a departure in the tab list.

Location: If the spot that was selected by the mouse is not the exact desired location of the fix, enter a new location using the valid Latitude/Longitude or valid Non-Latitude/Longitude format. If the fix that is being added is collocated with a symbol that already exists, enter the identifier of the symbol. The lat/long of the symbol will be used to position the fix.

MagVAR: Enter the Magnetic Variation of the Fix.

Runway Entry Point: **(Tower Only)** Select this box if the fix is the point on a runway where an aircraft will begin its takeoff roll.

Attributes: A Fix may be assigned any or all of the following attributes:

Airport This attribute must be selected if the fix is to serve as an airport within this database.

Focal Point Will permit this fix to be displayed as the Reference Fix on the Pilot display if it appears in the route of flight of the selected aircraft. At least one fix in each database must be assigned this attribute.

Posting Fix Designates that a fix is eligible to be used as a Posting Fix on strips generated for En Route Medium Fidelity scenarios.

PrevNext Fix Designates that a fix is eligible to be used as a Previous or Next Fix on strips generated for En Route Medium Fidelity scenarios.

Holding Fix If this fix may be used for holding, selecting this attribute will allow the user to define the default holding instructions. If this fix is the clearance limit of an aircraft, this will cause the aircraft to enter the defined holding pattern without requiring the pilot to make an entry.

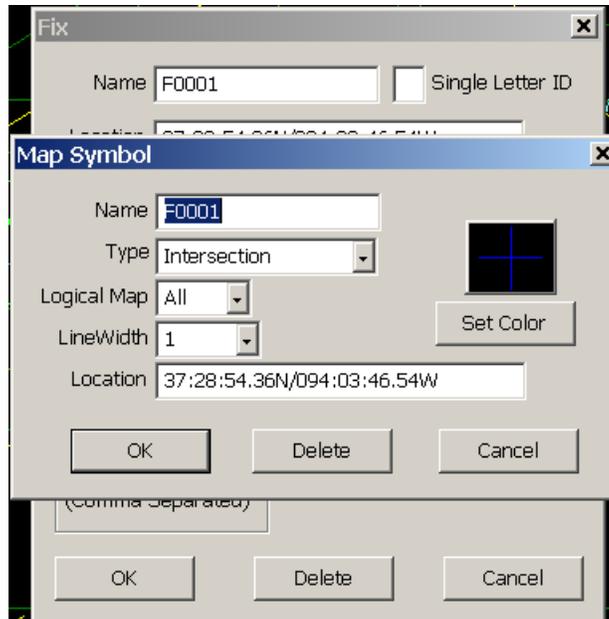
Metering ***NEED TERMINAL INPUT

**Metering
Speeds** ***NEED TERMINAL INPUT

- Holding Information:** Defines the default holding instructions for a flight that has this fix as a clearance limit.
- Radial** Designates the direction of the outbound leg from a fix.
- Leg Length** Designates the length of the outbound leg expressed in nautical miles. Can be entered in tenths of mile increments.
- Turn** Designates the direction of the turn after the aircraft has flown the outbound leg.

Add Map Symbol: This is a function that will save time when building a new database or modifying an existing database. The CREATE software will allow the user to add a map symbol that will be collocated with the fix being added without having to exit the Add Fix area and reenter the Add Map Symbol area.

If **Add Map Symbol** is selected, the following window will appear:



UM-256

Make all appropriate entries and select **OK**. When **OK** is selected from the Fix window, the Fix and the Symbol will be added to the database.

6.12.1.2 Modify a Fix

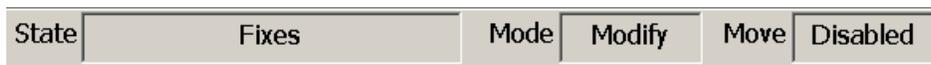
There are two ways to select a fix that is to be modified:

Using the Mouse or

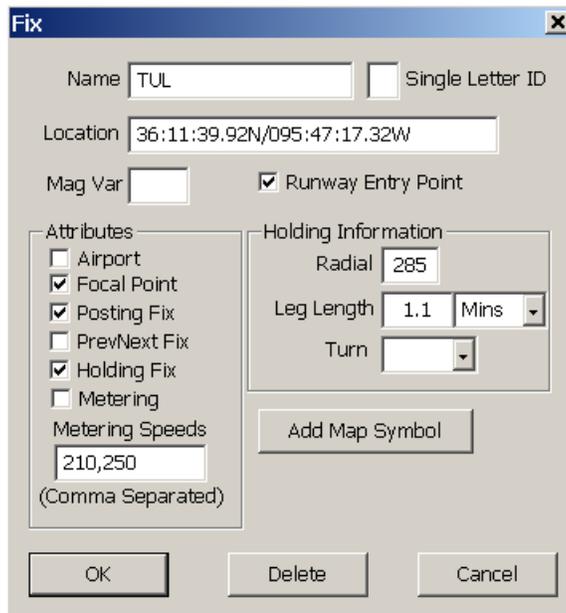
Using "The Modify List".

Using the Mouse

Ensure that the **Mode** is set to **Modify** and **Move** is set to **Disabled**.



Select the fix that is to be modified using the left mouse button. The Fix window containing the current information of the selected fix will appear:



UM-039

Make changes as necessary and select **OK** to save.

Using The Modify List function

To access **The Modify List** for Fixes:

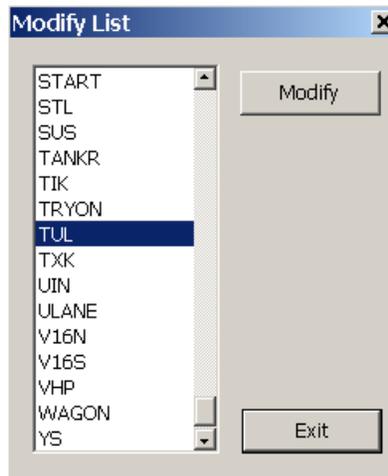
Ensure that the **State** is set to **Fixes** and the **Mode** is set to **Modify** then use the Right Mouse button or select **Edit** from the Main Menu. Select **The Modify List** using the mouse.



UM-040

The **Modify List** window will then be displayed.

Highlight the fix that is to be modified from the **Modify List** and select **Modify**.



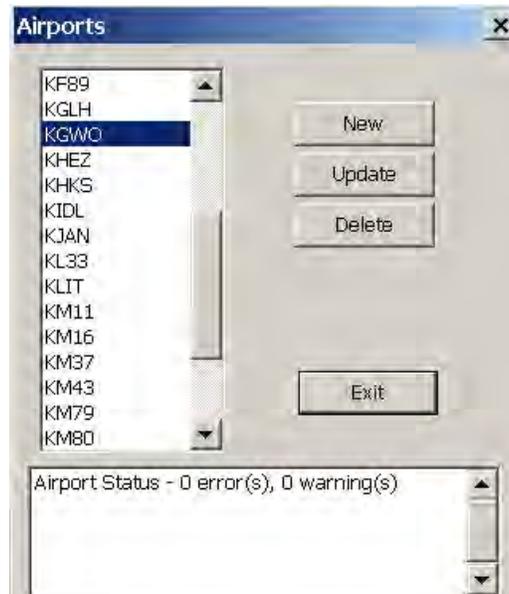
UM-041

The Fix window will then be displayed and you can modify each field as necessary. Select **OK** to save or **Cancel** to exit.

6.12.2 Add/Modify Airport Layouts

This is a Master Only Function

Select **Airport Layouts** from the **Route Processing** sub-menu. The following window will appear:



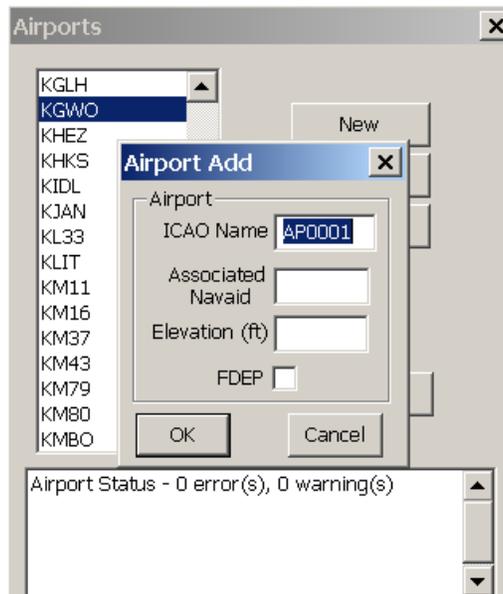
UM-042

This section is used to add an Airport to the database. You can also add or modify Runways, Taxiways or Ramps in the Airport Layout.

6.12.2.1 Add an Airport

NOTE: A Fix must first have been added to the database with the attribute Airport selected. Remember to use the ICAO naming format. (See Add a Fix)

Select **New** from the Airports window. The following window will be displayed:



UM-043

Name: Enter the name of the new airport using the ICAO format.

Associated Navaid: Enter the Navaid that services the airport.

Elevation (ft): Enter the field elevation of the airport.

FDEP: Select this box if the facility has FDEP equipment. (This will control the coordination required when the Pilot departs an aircraft from this airport.)

FDEP box selected – when the pilot departs the aircraft, a departure message is automatically delivered to the sector.

FDEP box Not selected – when the pilot departs the aircraft, manual coordination is required to deliver the departure information to the sector. The sector controller will then need to enter a departure message into the computer. A track cannot be started until the departure message has been entered at the sector.

When all necessary information has been entered for the new airport, select **OK**. This will return you to the **Airports** list window.

6.12.2.2 Modify an Airport

To modify an airport, select **Airport Layouts** from the **Route Processing** sub-menu. The list of airports will be displayed. Highlight the airport that is to be modified and select **Update**. The **Airport Layout** window will be displayed. Make revisions as necessary and select **OK** to save and exit.

6.12.2.3 Add a Runway

To Add a **Runway**, highlight the airport from the Airports list window and select **Update**. The following window will be displayed:

UM-044

Select **Add** from the **Runways** area. This will redraw the map display with the center of the selected airport as the center of the display and change the range to 2 nm. Using the left mouse button, click the point that will be the **Start Location** of the **Runway** and drag the mouse to the point that will be the **End Location** of the **Runway** and left click again. The following window will appear:

UM-045

Name Enter the name of the **Runway** (i.e. 09, 17L, 26).

Active If this is to be the default active **Runway** for this airport, select this box.

Note: The active **Runway** controls the direction of departure for flight plans that are built in a scenario. Multiple active runways may be set (as in the case of parallel runways), but the first active runway in the list will be the default runway setting when flight slots are initially built. This can be changed on individual flight plans.

This also controls the order of approaches in the list that is displayed when the pilot selects "**APCH**" on the keyboard. The default approach to the current active runway will appear first and will be highlighted in the list.

Longest Runway *****NEED TERMINAL INPUT**

Start Location This is the point of the first mouse click and represents the start of the **Runway**. This can be modified if necessary.

End Location This is the point of the second mouse click and represents the end of the **Runway**. This, also, can be modified if necessary.

EMERGENCY INFORMATION:

Length in Feet Enter the length of the runway.

Width in Feet The default setting will be 150 ft. but can be changed as necessary.

Runway Composition The options are Asphalt, Concrete or Grass.

Lighting If runway lighting is available, check this box.

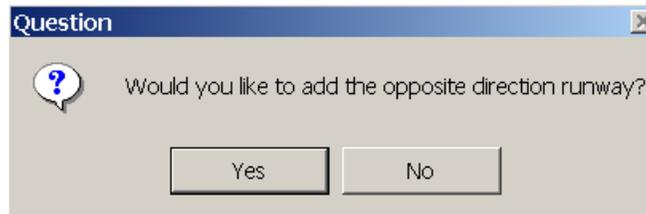
Pilot Controlled Lighting If the lighting is controlled by the pilot transmitting on a special frequency, check this box.

Visual Approach Profiles (VAP)

Software is under development to allow custom Visual Approaches to be built. At this time a default Visual Approach is created for each runway in the database and can be selected by the pilot and flown by the aircraft.

Select **OK** after all necessary information has been entered.

This will force the following Question to be displayed:



UM-046

If yes is selected, the **Reciprocal Runway** will automatically be built.

6.12.2.4 Modify a Runway

To modify a **Runway**, highlight the airport that is to be modified and select **Update**. The **Airport** window will be displayed. Highlight the **Runway** that is to be modified and select **Modify**. The **Runway** window will be displayed. Make revisions as necessary and select **OK** to save and exit.

6.12.2.5 Add a Taxiway (Tower Only)

To Add a **Taxiway**, highlight an airport from the Airports list window and select **Update**. The following window will be displayed:

Airport Layout

Airport

ICAO ID: KCYS Associated Navaid: CYS

Airport Name: CHEYENNE REGIONAL AIRPORT

Elevation (ft): 6156 Unicom Freq.: Category: [Dropdown]

FDEP:

Runways

1. 12
2. 27 [Active]
3. 30
4. 9

Add Modify Delete

Taxiways

Add Modify Delete

Approach Display Order for Pilot

27, Visual
9, Visual
12, Visual
30, Visual
27, VOR27ARCW
VOR27SI
12, VOR12SI

Move [Up] [Down]

Ramps

Add Modify Delete

OK Cancel

UM-257

Select Add from the **Taxiways** area. This will redraw the map display with the center of the selected airport as the center of the display and change the range to 2 nm. Using the left mouse button, click the point that will be the **Start Location** of the **Taxiway** and drag the mouse to the point that will be the **End Location** of the **Taxiway** and left click again. The following window will appear:

Taxiway

Name: [Text Box]

Width: 150

Start Location: 29:01:45.14N/101:13:07.18W

End Location: 29:01:08.86N/101:13:02.81W

OK Cancel

UM-238

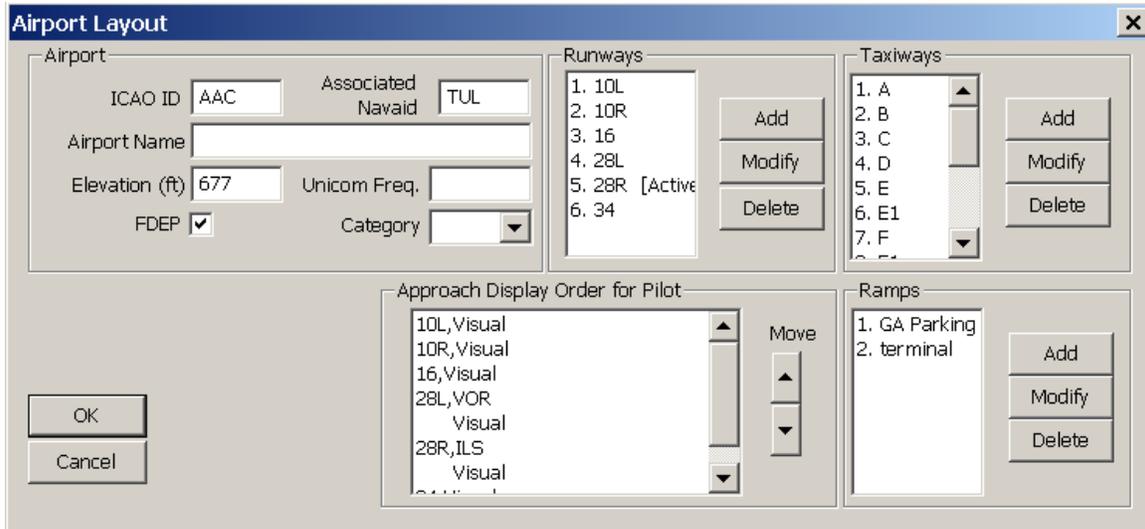
Name	Enter the name of the Taxiway (limit 3 alphanumeric characters).
Width	The default setting will be 150 ft. but can be changed as necessary.
Start Location	This is the point of the first mouse click and represents the Start of the Taxiway . This can be modified if necessary.
End Location	This is the point of the second mouse click and represents the End of the Taxiway . This, also, can be modified if necessary.

6.12.2.6 Modify a Taxiway (Tower Only)

To modify a **Taxiway**, highlight the airport that is to be modified and select **Update**. The **Airport** window will be displayed. Highlight the **Taxiway** that is to be modified and select **Modify**. The **Taxiway** window will be displayed. Make revisions as necessary and select **OK** to save and exit.

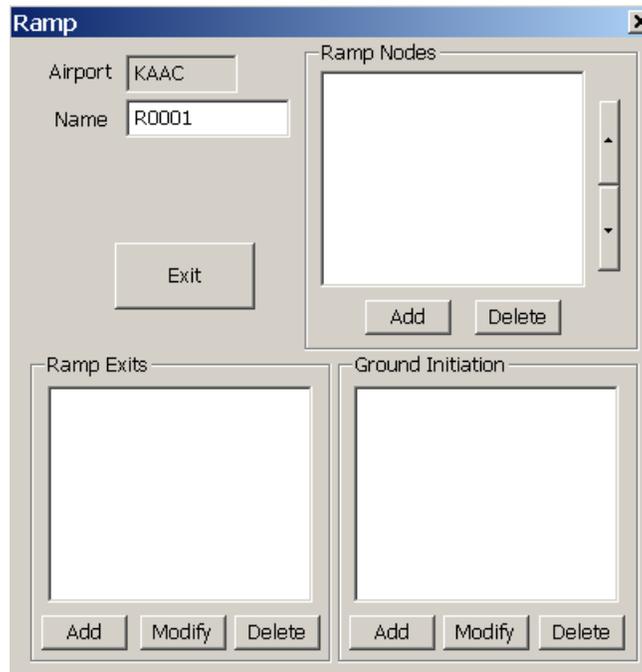
6.12.2.7 Add a Ramp (Tower Only)

To Add a **Ramp**, highlight an airport from the Airports list window and select **Update**. The following window will appear:



UM-258

Selecting **Add** from the **Ramps** area will force the display of the following window:



UM-239

Airport

This is the four letter ICAO identifier of the airport and will be filled in for you.

Name This is the name of the ramp you are creating (i.e. Terminal, General Aviation, etc.)

Ramp Nodes These are the points that define the shape of your ramp.

Ramp Exits These are the points that the aircraft will exit the ramp into the taxiway system.

Ground Initiation These are points where your aircraft will initiate (i.e. Terminal Gates, General Aviation parking, etc.)

6.12.2.8 Modify a Ramp

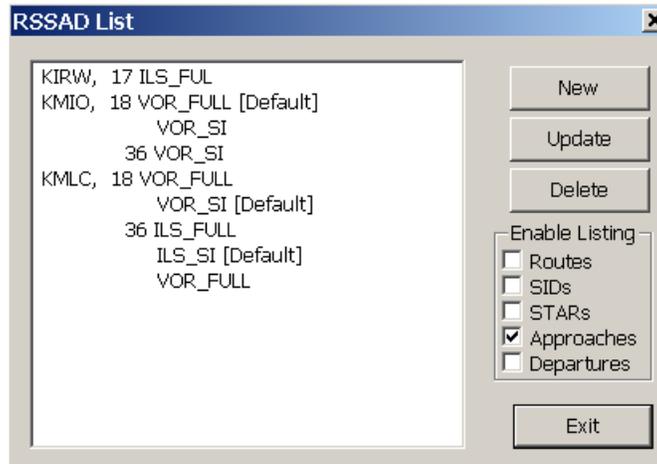
To modify a **Ramp**, highlight the airport that is to be modified and select **Update**. The **Airport** window will be displayed. Highlight the **Ramp** that is to be modified and select **Modify**. The **Ramp** window will be displayed. Make revisions as necessary and select **OK** to save and exit.

6.12.3 Add/Modify an Approach

This is a Master Only Function

Select **Approaches** from the **Route Processing** sub-menu. The **RSSAD List** window will appear:

(RSSAD = Routes, SIDs, STARS, Approaches and Departures)



UM-047

This window allows the user to create a New Approach or Modify or Delete an existing approach. The existing Approaches are displayed in the list and indentation is used to indicate relationship. Example: KMIO in the window above has 3 approaches, two for runway 18 and one for runway 36. Redundant information is not displayed.

6.12.3.1 Add an Approach

Select **New** from the **RSSAD List** window. The RSSAD window will be displayed:

The screenshot shows the 'RSSAD' window with the following configuration:

- Name: R0002
- Type: Approach, Route, Departure, SID, STAF
- SID, STAR or Approach: Type: Master, Based on: [empty]
- Approach Info: Airport/Runway: Not Set, May be intercepted, Default, Visual Turn Rates
- Buttons: Auto-Add TD/STOP, Missed Approach Procedure
- Glide Slope Angle: [empty]
- Note: Stop points are only generated for TOWER.
- Buttons: Edit FS, Tailor, Delete FS
- Options: Add Only To END, Add Map Line

UM-048

6.12.3.1.1 Approach Information

Enter the following initial approach information:

Name Enter the name of the approach using the following suggested Naming Convention: Type of approach (VOR, ILS, NDB, GPS) followed by Full or SI (for Straight-In).

Type **Approach** was pre-selected as the Type with the selection of **Approaches** from the **Route Processing** sub-menu.

SID/STAR/Approach info:

This is normally used for GPS Approaches that use multiple Transition points to intercept the actual approach. If this field is not set to Master or Transition, Master is the default.

TYPE Select the appropriate Type, either Master or Transition.

A Master is made up of all common points that make up the Approach.

A Transition is the segment of the Approach that is flown prior to intercepting the Approach.

Based on If this is a Master, no entry is required.

If this is a Transition, enter the name of the Master that this Transition will connect to.

Approach Info **Airport/Runway:** Select the airport and runway from the pop-down window. (All Airports and Runways that have been created in the database will be available.)

STOP at this point and save the approach you have just created by selecting EXIT. This will take you back to the **RSSAD List** window.

6.12.3.1.2 Add "Fix Slots"

From the **RSSAD List** window, highlight the approach that you just created and select **UPDATE**. You will be returned to the window containing the initial approach information and the display will be redrawn to a 15 nautical mile range with the airport as the center.

The screenshot shows the 'RSSAD' window with the following configuration:

- Name: VOR_RWY_16
- Type: Approach, Route, Departure, SID, STAR
- SID, STAR or Approach: Type: Master, Based on: [empty]
- Approach Info: Airport/Runway: KJAN,16L, May be intercepted, Default, Visual Turn Rates
- Buttons: Auto-Add TD/STOP, Missed Approach Procedure, Glide Slope Angle [empty]
- Note: Stop points are only generated for TOWER.
- Bottom buttons: Exit, Edit FS, Tailor, Delete FS, Add Only To END (unchecked), Add Map Line

UM-095

The **Fix Slots** are the points in space that the aircraft will fly when this approach is selected.

The approach should be built adding the **Fix Slots** in the order they will be flown. If this method is followed, **Add Only To End** should be selected. This will prevent the necessity to identify the location of each point on the approach. If **Add Only To End** is not selected, you will be prompted to determine where each point is to be placed on the approach. This will require additional entries and will delay the process.

To add **Fix Slots**, select the **Tailor** button. This will take you to the map display. Make sure that you are in the **ADD Mode**. Using the Left Mouse Button, click on the point that is to be the First Fix Slot on the approach. This will force the display of the following window:

UM-096

Posting Fix, PrevNext Fix and Runway Entry Point are not used on an Approach.

Name Create2000 will automatically assign a name to the Fix Slot but you should rename it to better identify the function of the fix (maximum 10 characters).

EXAMPLES: VOR – NAVAID associated with the Approach
 IAF – Initial Approach Fix
 CPT – Commence Procedure Turn Point
 FAF – Final Approach Fix
 MAP – Missed Approach Point

Speed Factor This is a multiple of the Approach Speed set in the Aircraft Characteristics for the aircraft flying the approach.

EXAMPLE: The aircraft flying the approach has an approach speed of 120 knots and the Speed Factor for the Fix Slot is set at "1.5". As the aircraft flies over this fix, or joins the approach at a point after this fix, the aircraft will fly at 1.5 X 120, or 180 knots.

If no Speed Factor is set, the following adjustments will be applied:

Below 2000 ft. – The aircraft will reduce to 1.5 of the Approach Speed if the speed of the aircraft is higher than that speed. If the aircraft speed is already below 1.5 of the Approach Speed at that point, no change in speed will be applied.

Final Approach Fix – The aircraft will reduce to the Approach Speed assigned to that aircraft type.

Location	This is the Lat/Long location of the point where you left-clicked on the map. If you wish to change this point, you may enter a new location using any of the accepted methods.
Type	You may designate each Fix Slot as Generic, Procedure Turn, Final Approach Fix or Missed Approach Point.
	Generic: No special processing is associated with this type of Fix Slot.
	Procedure Turn: This is the point where an aircraft executing a full approach will start the procedure turn. The Special Processing that will be applied will be defined on this page.
	Final Approach Fix: This is the point where the aircraft will reduce to the approach speed as set in the Aircraft Characteristics.
	Missed Approach Point: This is the point where it is determined if the aircraft meets the speed and altitude requirements to land or if it will execute a missed approach.
Attributes	Altitude and Speed attributes may be set for each Fix Slot. These attributes are used as crossing restrictions for that Fix Slot.
	EXAMPLE: If the Fix Slot has an Altitude Attribute of 4000 feet, as soon as the aircraft passes the fix slot immediately before this one it will begin a descent to cross this fix at 4000.
	If the Fix Slot has a Speed Attribute of 200 knots, the aircraft will begin a speed reduction to cross this fix at 200 knots.
	AT, ABOVE or BELOW may be set as qualifiers for each attribute.
	No speed or altitude attribute will be able to force an aircraft to perform in a manner that is contrary to the aircraft characteristics of the aircraft executing the approach.

Procedure Turn If the **Type** of the Fix Slot is set as **Procedure Turn**, the following parameters need to be set:

Turn: This will determine the direction the aircraft will turn at the end of the outbound leg.

Minutes: This will determine how many minutes an aircraft will fly away from the Procedure Turn Fix Slot before turning back to the next point on the approach.

Heading: This will determine the heading the aircraft will fly *away* from the Procedure Turn Fix Slot.

Continue adding the Fix Slots until the entire approach has been built with the exception of the **Touchdown Point** and **Stop Point**.

6.12.3.1.3 “Auto-Add TD/STOP” Option

After all Fix Slots have been created up to the MAP (Missed Approach Point), you can either manually add the **Touchdown** and **STOP** points or let the program automatically add them to the end of the approach.

To let the program add them, simply select the **Auto-Add TD/STOP** button. This function will automatically add a point at the end of the approach that will serve as the threshold of the runway for the aircraft to touchdown and a point that will bring the aircraft to a full stop to complete the approach.

The Stop points are only used by Tower scenarios.

This should be selected only after all other Fix Slots have been added that make up the approach.

6.12.3.1.4 “May be intercepted” Option

You may provide the ability for the Pilot to intercept this approach at any point outside the Final Approach Fix by selecting the **May be intercepted** button.

If this option is not selected, when the Pilot enters the approach, the aircraft will proceed to the first fix on the approach and execute the entire approach.

6.12.3.1.5 “Default” setting

If this is to be the Default Approach for this runway, select this box.

NOTE: This setting is provided to eliminate workload for the Pilot. When the Pilot makes the Approach entry for an aircraft the Default Approach for the active runway of the destination airport will appear first in the list of approaches. This will prevent the Pilot from having to select the approach from the list prior to selecting **Enter**.

NOTE: Only one default approach may be set per runway. If another approach is set as default the default setting is removed from the first approach.

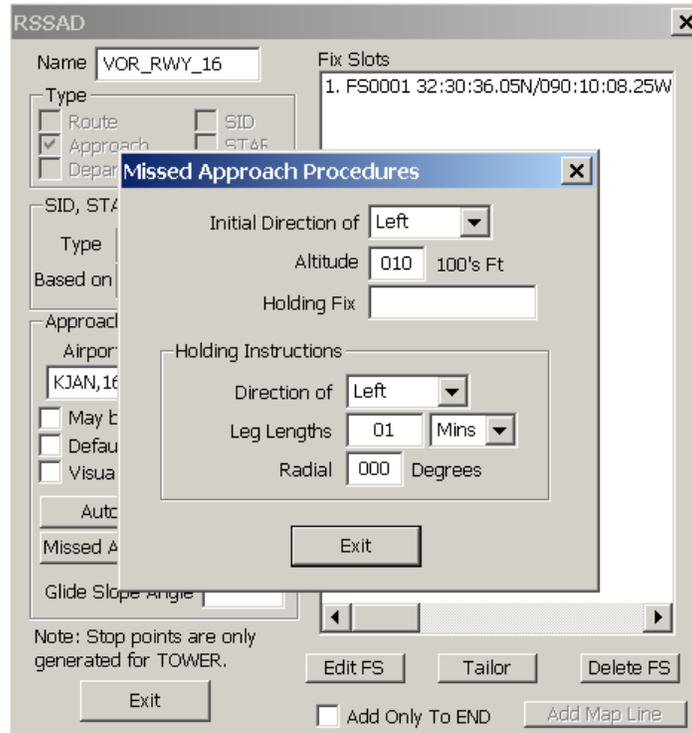
6.12.3.1.6 Visual Turn Rates (Tower Only)

This is used in Tower scenarios to allow faster turn rates to be applied on base leg and turn to final on visual approaches.

6.12.3.1.7 “Missed Approach Procedures” setting

This area of the approach will allow the user to define detailed instructions for the aircraft to comply with in the event the approach is aborted as a result of speed or altitude nonconformance.

To access this area, select the **Missed Approach Procedure** button. The following window will be displayed:



UM-097

Initial Direction of Turn: This is the direction the aircraft will initially turn when the Missed Approach is executed.

Altitude: This is the altitude the aircraft will maintain during the Missed Approach Procedure until the Pilot enters different instructions.

Holding Fix: This is the Fix the aircraft will proceed to and commence holding.

Holding Instructions:

Direction of Turn: This will determine the direction the aircraft will turn at the end of the outbound leg from the holding fix.

Leg Lengths: This will determine the length of the outbound leg. It can be defined in terms of time or distance. May be entered in tenths of mile or minutes.

Radial: This is the outbound radial from the holding fix.

After all Fix Slots have been added and all pertinent details have been applied, select **EXIT** to end the process.

It is time to test the approach to ensure that the aircraft performs as expected.

6.12.3.2 To Modify an Approach

If an approach that was just built contains errors or if an element of an established approach requires a change, the following process can be followed to ensure that your training program is accurate and always up to date.

To modify an approach, select **Approaches** from the **Route Processing** sub-menu. This will force the **RSSAD List** window to be displayed. Select the approach that is to be modified from the list and press **UPDATE**.

The window containing the details of the approach will be displayed and you can revise as necessary.

UM-094

6.12.3.2.1 Edit “May be intercepted” setting

If selected This approach may be intercepted at any point outside the Final Approach Fix.

If not selected The aircraft will proceed to the first fix on the approach and execute the entire approach

6.12.3.2.2 Edit “Default” setting

If selected When the Pilot makes the Approach entry for an aircraft, this approach will appear first in the list of approaches and it will be highlighted. The Pilot will only need to select **Enter** for the approach to be executed.

If not selected The Pilot will need to select the approach from the list prior to selecting **Enter**.

6.12.3.2.3 Visual Turn Rates (Tower Only)

This is used in Tower scenarios to allow faster turn rates to be applied on base leg and turn to final on visual approaches.

6.12.3.2.4 Edit "Missed Approach Procedure"

The Missed Approach Procedure that was originally defined when the approach was created may be modified. After required changes have been made, select **EXIT** to save.

6.12.3.2.5 “Modify” Fix Slots

Fix Slots may be modified using two different methods, Edit FS or Tailor.

Edit FS

Highlight the item in the Fix Slot area that is to be modified and select the **Edit FS** button. This will force the display of the **Fix Slot** window.

Make changes as necessary and select **OK**.

You will be returned to the approach’s **RSSAD** window.

Tailor

From the approach’s **RSSAD** window, without highlighting a specific **Fix Slot**, select the **TAILOR** button. This will take you to the map display with the selected approach drawn out. Yellow triangles and a name label identify each of the **Fix Slots**.

There are two methods to edit using the Tailor mode:

Selecting the Fix Slot using the mouse and modify as in **Edit FS** above, OR

Move the Fix Slot to the desired location using the following steps:

Make sure the **Mode** is set to **Modify**, and that **Move** has been **Enabled**.

You can move any **Fix Slot** by using the mouse to left-click and drag the fix to a new location. As soon as you release the mouse button the **Fix Slot** window will be displayed.

Make changes as necessary and select **OK**. You will be returned to the map.

You can either modify another **Fix Slot** or press **Enter** or **End** on the keyboard to return to the approach’s **RSSAD** window.

6.12.3.2.6 “Delete” Fix Slots

To Delete a **Fix Slot**, highlight the fix that is to be deleted from the items listed in the **Fix Slots** window. Select the **Delete FS** button. The Confirm Delete window will be displayed. Selecting **Yes** will remove the fix from the approach.

6.12.3.2.7 “Insert” Fix Slots

If you need to add a **Fix Slot** and it is to be located at the end of the approach, select **Add Only To End**. This will eliminate several keystrokes.

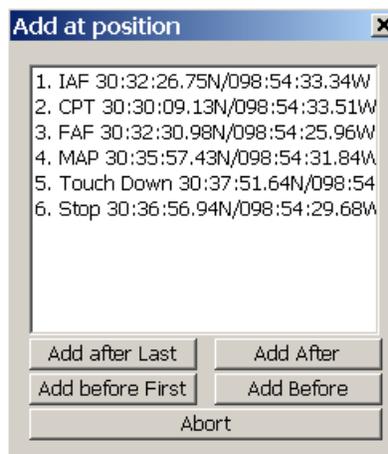
If the new **Fix Slot** will not be located at the end of the approach, do not select **Add Only To End**. You will be given a choice of where the new **Fix Slot** is to be located on the approach.

To Insert a Fix Slot:

From the **RSSAD** window, without highlighting a specific **Fix Slot**, select the **TAILOR** button. This will take you to the map display with the selected approach drawn out.

Make sure the **Mode** is set to **Add**, and that **Move** is set to **Disabled**.

Using the left mouse button, click on the location of the new **Fix Slot**. The **Add at position** window will be displayed.



UM-098

Select the button that best describes the desired location of the new **Fix Slot**:

Add after Last: Will add the **Fix Slot** after the last fix slot in the list.

Add before First: Will add the **Fix Slot** before the first fix slot in the list.

Add After: Select a **Fix Slot** in the list and then press **Add After**. Will add the new **Fix Slot** immediately after the **Fix Slot** you selected.

Add Before: Select a **Fix Slot** in the list and then press **Add Before**. Will add the new **Fix Slot** immediately before the **Fix Slot** you selected.

Abort: Cancels the process and returns you to the map display.

After selecting a location for the new **Fix Slot**, the **Fix Slot** window will be displayed.

Enter all required data and select **OK**. This will return you to the map display.

Either add another **Fix Slot** or press **Enter** or **End** on the keyboard to return to the approach's **RSSAD** window.

When all modifications have been made to the approach, select **EXIT** to end the process.

6.12.4 Add/Modify a Departure

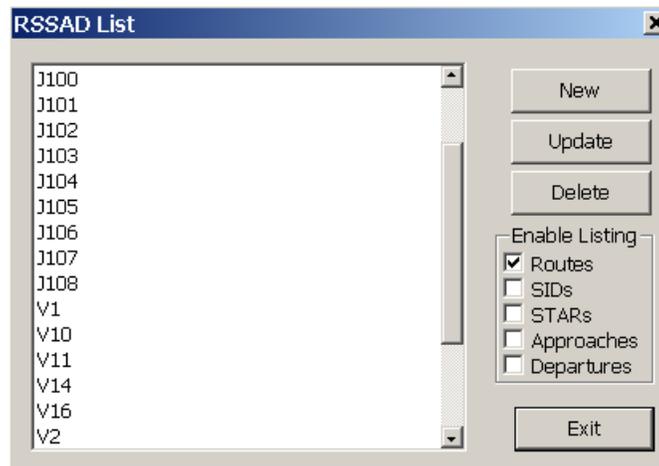
Unique Departure routes cannot be created, however, a default Departure Profile is automatically built for each departing aircraft in the scenario. Aircraft will use this profile to exit the airport and join the filed route. A **Start Climb** and **One Mile Fix** are automatically inserted when Calculate Route is selected if the State of the aircraft is **P** or **D**.

6.12.5 Add/Modify a Route

This is a Master only function.

Select **Routes** from the **Route Processing** sub-menu. The following window will appear:

(RSSAD = Routes, SIDs, STARS, Approaches and Departures)



UM-167

This window allows the user to create a new Route or Modify or Delete an existing Route. The existing Routes are displayed in the list and sorted Alpha Numerically.

6.12.5.1 Add a Route

Select **New** from the RSSAD List window. The following window will be displayed:

UM-168

Enter the following essential Route information:

Name Enter the name of the Route.

Type **Route** was pre-selected as the **Type** with the selection of **Route** from the **Route Processing** sub-menu.

Except for Fix Slots, all other fields on this window are not applicable to Routes and are unavailable (Grayed-out).

Fix Slots **Fix Slots** are the points in space that the aircraft will fly when the **Route** appears in the Filed Flight Plan.

All Fixes that are to be used to build a route must be present in the database.

Fix Slots should be added in the order they will be flown. If this method is followed, **Add Only To End** should be selected. This will prevent the necessity to identify the location of each point on the **Route**.

If **Add Only To End** is not selected, you will be prompted to determine where each point is to be placed on the **Route**. This will require additional entries and will delay the process.

To Add Fix Slots:

Select the **Tailor** button. This will take you to the map display. Make sure that you are in the **ADD** Mode. Using the Left Mouse Button, click on a point that is in the general location of the First Fix Slot on the **Route**. This will force the display of the following window:

Name	FS0001	Speed Factor	
Location	33:06:56.01N/091:43:11.96W		
Type	Generic		
<input type="checkbox"/> Posting Fix	<input type="checkbox"/> Runway Entry Point		
<input type="checkbox"/> PrevNext Fix			
Attributes		Procedure Turn	
Altitude	Value	Orientation	Turn
		Not St	Right
Speed		Not St	Minutes
			Heading

UM-096

Name Enter the name of the Fix that is being added to the Route.

Speed Factor This field is not required when adding a Route.

Location This is the Lat/Long location of the point where you left-clicked on the map. Replace the information with the name of the Fix as it appears in the database.

Type Generic should be used for all points on the Route.

Posting Fix **This applies to medium fidelity simulation only.**
If this is to be a posting fix on the Route, the check box must be selected even if the Fix itself has been designated with the Attribute "Posting Fix". This will automatically force a **Post Setting** to be made on the Flight Slot for the aircraft when this Route appears in a flight plan.

Runway Entry Point This will be selected if the Fix Slot is the point on a runway where an aircraft will begin its takeoff roll. This is only applicable to Tower Masters.

Attributes and Procedure Turn settings are not required for Routes.

Continue adding Fix Slots until the entire Route has been built. When all Fix Slots have been added select **Enter** or **End** on the keyboard. This will take you back to the RSSAD window.

Select **Exit** to return to the RSSAD List window.

6.12.5.2 Modify a Route

If a Route that was just built contains errors or if an element of an established Route changes, the following process can be followed to ensure that your training program is accurate and always up to date.

To modify a Route, select **Routes** from the **Route Processing** sub-menu. This will force the **RSSAD List** window to be displayed. Select the Route that is to be modified from the list and press **UPDATE**.

The window containing the details of the Route will be displayed. You can now modify the Route as necessary.

The screenshot shows the RSSAD window with the following details:

- Name:** J101
- Type:** Route, Approach, Departure, SID, STAF
- SID, STAR or Approach:** Type: [Dropdown], Based on: [Text]
- Approach Info:** Airport/Runway: Not Set, May be intercepted, Default, Visual Turn Rates, Auto-Add TD/STOP, Missed Approach Procedure, Glide Slope Angle: [Text]
- Fix Slots:**
 1. IAH 29:57:25.00N/095:20:45.00W
 2. LFK 31:09:44.00N/094:43:01.00W
 3. MOTLY 31:50:34.00N/094:06:19.00W
 4. EMG 32:24:01.00N/093:35:43.00W
 5. WOOTN 33:30:40.00N/092:54:57.00W
 6. MATIE 34:05:42.00N/092:33:02.00W
 7. LIT 34:40:40.00N/092:10:50.00W
 8. IGLOO 35:49:07.00N/091:44:12.00W
 9. PLIED 36:08:00.00N/091:36:41.00W
 10. STL 38:51:38.00N/090:28:57.00W
 11. CAP 39:53:32.00N/089:37:32.00W
 12. BMI 40:28:51.00N/088:55:52.00W
 13. PNT 40:49:16.00N/088:44:01.00W
 14. JOT 41:32:47.00N/088:19:06.00W
 15. MDW 41:47:10.00N/087:45:09.00W
 16. ORD 41:59:16.00N/087:54:18.00W
- Buttons:** Edit FS, Tailor, Delete FS, Add Only To END, Add Map Line, Exit
- Note:** Stop points are only generated for TOWER.

UM-169

6.12.5.2.1 Edit FS

Highlight the item in the Fix Slot area that is to be modified and select the **Edit FS** button. This will force the display of the **Fix Slot** window.

Make changes as necessary and select **OK**.

You will be returned to the **RSSAD** window.

6.12.5.2.2 Tailor

Using the Tailor method, you can either **Move** or **Insert a Fix Slot**.

To Move a Fix Slot

From the **RSSAD** window, without highlighting a specific **Fix Slot**, select the **Tailor** button. This will take you to the map display with the selected Route drawn out. Yellow triangles and a name label identify each of the **Fix Slots**.

Ensure the **Mode** is set to **Modify**, and that **Move** has been **Enabled**.

You can move any **Fix Slot** by using the mouse to left-click and drag the fix to a new location. As soon as you release the mouse button the **Fix Slot** window will be displayed.

Make changes as necessary and select **OK**. You will be returned to the map display.

You can either **Move** another **Fix Slot** or press **Enter** or **End** on the keyboard to return to the **RSSAD** window.

To Insert a Fix Slots

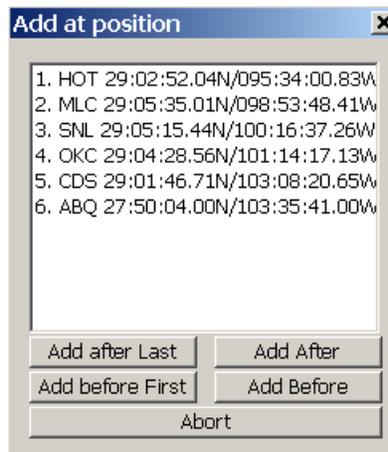
If you need to add a **Fix Slot** and it is to be located at the end of the Route, select **Add Only To End**. This will eliminate several keystrokes.

If the new **Fix Slot** will not be located at the end of the Route, do not select **Add Only To End**. You will be given a choice of where the new **Fix Slot** is to be located.

From the **RSSAD** window, without highlighting a specific **Fix Slot**, select the **Tailor** button. This will take you to the map display with the selected Route drawn out.

Make sure the **Mode** is set to **Add**, and that **Move** is set to **Disabled**.

Using the left mouse button, click on the location of the new **Fix Slot**. The **Add at position** window will be displayed.



UM-170

Select the button that best describes the desired location of the new **Fix Slot**:

Add after Last: Will add the **Fix Slot** after the last element in the list.

Add before First: Will add the **Fix Slot** before the first element in the list.

Add After: Select a **Fix Slot** in the list and then press **Add After**. Will add the new **Fix Slot** immediately after the **Fix Slot** you selected.

Add Before: Select a **Fix Slot** in the list and then press **Add Before**. Will add the new **Fix Slot** immediately before the **Fix Slot** you selected.

Abort: Cancels the **Fix Slot** you are trying to create.

If you select a location for the new **Fix Slot**, the **Fix Slot** window will be displayed.

Enter all required data and select **OK**. This will return you to the map display.

Either add another **Fix Slot** or press **Enter** or **End** on the keyboard to return to the **RSSAD** window.

When all modifications have been made to the Route, select **EXIT** to end the process.

6.12.5.2.3 Delete Fix Slots

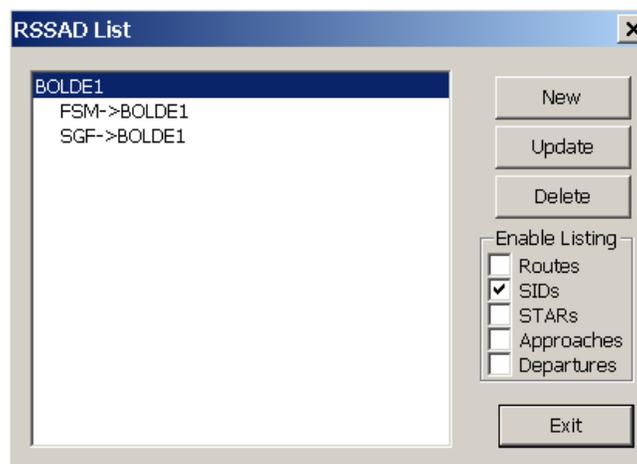
To Delete a **Fix Slot**, highlight the fix that is to be deleted from the items listed in the **Fix Slot** window. Select the **Delete FS** button. The Confirm Delete window will be displayed. Selecting **Yes** will remove the **Fix Slot** from the Route.

6.12.6 Add/Modify a SID/Transition

This is a Master only function.

Select **SIDs** from the **Route Processing** sub-menu. The following window will appear:

(RSSAD = Routes, SIDs, STARS, Approaches and Departures)



UM-171

This window allows the user to create a new SID or Modify or Delete an existing SID. The existing SIDs are displayed in the list and sorted alpha/numerically.

6.12.6.1 Add a SID/Transition

Select **New** from the RSSAD List window. The following window will be displayed:

The screenshot shows the 'RSSAD' window with the following details:

- Name:** R0002
- Type:** SID, STAF
- SID, STAR or Approach:** Type: Master (dropdown), Based on: (empty)
- Approach Info:** Airport/Runway: Not Set (dropdown); May be intercepted; Default; Visual Turn Rates; Auto-Add TD/STOP; Missed Approach Procedure; Glide Slope Angle: (empty)
- Buttons:** Exit, Edit FS, Tailor, Delete FS, Add Only To END, Add Map Line
- Fix Slots:** A large empty area on the right side of the window.

UM-172

Enter the following essential SID information:

Name Enter the name of the SID.

Type **SID** was pre-selected as the **Type** with the selection of **SIDs** from the **Route Processing** sub-menu.

SID STAR info

TYPE Select the appropriate Type, either Master or Transition.

A Master is made up of all common points that make up the initial leg of the departure route.

A Transition is the segment of the departure route that is flown beyond the last common point of the Master.

Based on If this is a Master, no entry is required.

If this is a Transition, enter the name of the Master that this Transition will link to.

Except for Fix Slots, all other fields on this window are not applicable to SIDs and are unavailable (Grayed-out).

Fix Slots **Fix Slots** are the points in space that the aircraft will fly when the **SID** appears in the Filed Flight Plan.

All Fixes that are to be used to build a SID must be present in the database.

The **SID** should be created adding the **Fix Slots** in the order they will be flown. If this method is followed, **Add Only To End** should be selected. This will prevent the necessity to identify the location of each point on the **SID**.

If **Add Only To End** is not selected, you will be prompted to determine where each point is to be placed on the **SID**. This will require additional entries and will delay the process.

To Add Fix Slots:

Select the **Tailor** button. This will take you to the map display. Make sure that you are in the **ADD** Mode. Using the Left Mouse Button, click on a point that is in the general location of the First Fix Slot on the **SID**. This will force the display of the following window:

UM-096

Enter the following information:

Name Enter the name of the Fix that is being added to the SID.

Speed Factor This field is not required for a SID.

Location This is the Lat/Long location of the point where you left-clicked on the map. Replace the information with the name of the Fix as it appears in the database.

Type Generic should be used for all points on the SID.

Posting Fix This affects medium fidelity simulation only. If this is to be a posting fix on the SID, the check box must be selected even if the Fix itself has been designated with the Attribute "Posting Fix". This will automatically force a **Post** setting to be placed on the Flight Slot if this SID appears in a Filed Flight Plan.

Runway Entry Point This field is not used on a SID.

Attributes

Altitude and Speed Attributes may be set for each Fix Slot. These Attributes are used as crossing restrictions for that Fix Slot.

EXAMPLE: If the Fix Slot has an **Altitude Attribute** of At 4,000 feet, as soon as the aircraft passes the fix slot immediately before this one it will begin an altitude change to cross this fix at 4,000.

If the Fix Slot has a **Speed Attribute** of At 200 knots, the aircraft will begin a speed change to cross this fix at 200 knots.

At, Above or **Below** may be set as qualifiers for each Attribute.

No Speed or Altitude Attribute will be able to force an aircraft to perform in a manner that is contrary to the aircraft characteristics of the aircraft flying the route.

Procedure Turn These settings are not required for SIDs.

Continue adding Fix Slots until the entire SID has been built. When all Fix Slots have been added, select **Enter** or **End** on the keyboard. This will take you back to the RSSAD window.

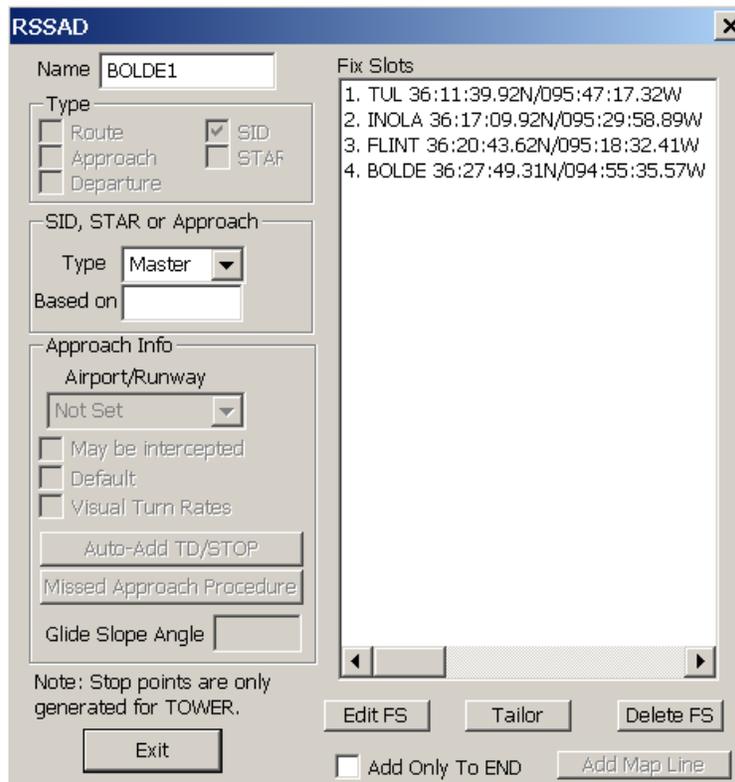
Select **Exit** to return to the RSSAD List window.

6.12.6.2 Modify a SID/Transition

If a SID that was just built contains errors or if an element of an established SID changes, the following process can be followed to ensure that your training program is accurate and always up to date.

To modify a SID, select **SIDs** from the **Route Processing** sub-menu. This will force the **RSSAD List** window to be displayed. Select the SID or SID Transition that is to be modified from the list and press **UPDATE**.

The window containing the details of the selected item will be displayed. You can now make the necessary modifications.



UM-173

6.12.6.2.1 Edit FS

Highlight the item in the Fix Slot area that is to be modified and select the **Edit FS** button. This will force the display of the **Fix Slot** window.

Make changes as necessary and select **OK**.

You will be returned to the **RSSAD** window.

6.12.6.2.2 Tailor

Using the Tailor method, you can either **Move** or **Insert a Fix Slot**.

To Move a Fix Slot

From the **RSSAD** window, without highlighting a specific **Fix Slot**, select the **Tailor** button. This will take you to the map display with the selected SID drawn out. Yellow triangles and a name label identify each of the **Fix Slots**.

Ensure the **Mode** is set to **Modify**, and that **Move** has been **Enabled**.

You can move any **Fix Slot** by using the mouse to left-click and drag the fix to a new location. As soon as you release the mouse button the **Fix Slot** window will be displayed.

Make changes as necessary and select **OK**. You will be returned to the map display.

You can either **Move** another **Fix Slot** or press **Enter** or **End** on the keyboard to return to the **RSSAD** window.

To Insert a Fix Slots

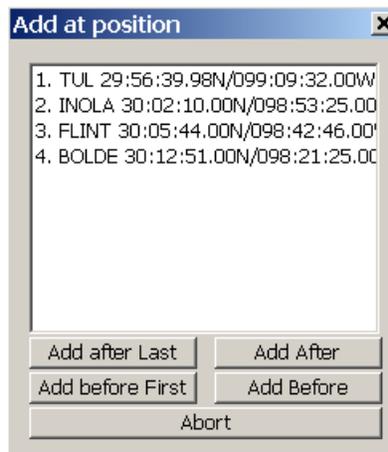
If you need to add a **Fix Slot** and it is to be located at the end of the SID, select **Add Only To End**. This will eliminate several keystrokes.

If the new **Fix Slot** will not be located at the end of the SID, do not select **Add Only To End**. You will be given a choice of where the new **Fix Slot** is to be located.

From the **RSSAD** window, without highlighting a specific **Fix Slot**, select the **Tailor** button. This will take you to the map display with the selected SID drawn out.

Make sure the **Mode** is set to **Add**, and that **Move** is set to **Disabled**.

Using the left mouse button, click on the location of the new **Fix Slot**. The **Add at position** window will be displayed.



UM-240

Select the button that best describes the desired location of the new **Fix Slot**:

Add after Last: Will add the **Fix Slot** after the last element in the list.

Add before First: Will add the **Fix Slot** before the first element in the list.

Add After: Select a **Fix Slot** in the list and then press **Add After**. This will add the new **Fix Slot** immediately after the **Fix Slot** you selected.

Add Before: Select a **Fix Slot** in the list and then press **Add Before**. This will add the new **Fix Slot** immediately before the **Fix Slot** you selected.

Abort: Cancels the process and will not add a **Fix Slot**.

If you select a location for the new **Fix Slot**, the **Fix Slot** window will be displayed.

Enter all required data and select **OK**. This will return you to the map display.

Either add another **Fix Slot** or press **Enter** or **End** on the keyboard to return to the **RSSAD** window.

When all modifications have been made to the SID, select **EXIT** to end the process.

6.12.6.2.3 Delete Fix Slots

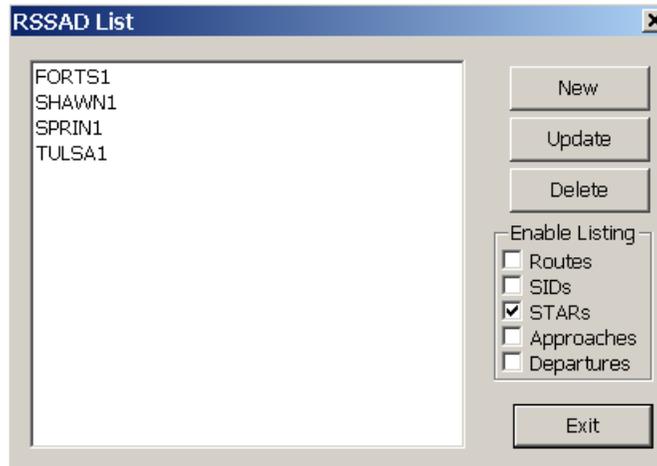
To Delete a **Fix Slot**, highlight the fix that is to be deleted from the items listed in the **Fix Slot** window. Select the **Delete FS** button. The Confirm Delete window will be displayed. Selecting **Yes** will remove the **Fix Slot** from the SID.

6.12.7 Add/Modify a STAR/Transition

This is a Master only function.

Select **STARs** from the **Route Processing** sub-menu. The following window will be displayed:

(RSSAD = Routes, SIDs, STARs, Approaches and Departures)



UM-174

This window allows the user to create a new STAR or Modify or Delete an existing STAR. The existing STARs are displayed in the list and sorted alpha/numerically.

A **STAR** can be used for arriving aircraft at multiple airports.

6.12.7.1 Add a STAR/Transition

Select **New** from the RSSAD List window. The following window will be displayed:

The screenshot shows the 'RSSAD' window with the following fields and options:

- Name: R0001
- Type: Route, Approach, Departure, SID, STAF
- SID, STAR or Approach: Type: Master (dropdown), Based on: (empty field)
- Approach Info: Airport/Runway: Not Set (dropdown), May be intercepted, Default, Visual Turn Rates, Auto-Add TD/STOP, Missed Approach Procedure, Glide Slope Angle: (empty field)
- Note: Stop points are only generated for TOWER.
- Buttons: Exit, Edit FS, Tailor, Delete FS, Add Only To END, Add Map Line

UM-175

Enter the following essential STAR information:

Name Enter the name of the STAR.

Type **STAR** was pre-selected as the **Type** with the selection of **STARs** from the **Route Processing** sub-menu.

SID STAR info

TYPE Select the appropriate Type, either Master or Transition.

A Master is made up of all common points that make up the arrival route.

A Transition is the segment of the arrival route that is used to connect one of several routes to the basic STAR.

Based on If this is a Master, no entry is required.

If this is a Transition, enter the name of the Master that this Transition will connect to.

Except for Fix Slots, all other fields on this window are not applicable to STARS and are unavailable (Grayed-out).

Fix Slots **Fix Slots** are the points in space that the aircraft will fly when the **STAR** appears in the Filed Flight Plan.

All Fixes that are to be used to build a STAR must be present in the database.

The **STAR** should be created adding the **Fix Slots** in the order they will be flown. If this method is followed, **Add Only To End** should be selected. This will prevent the necessity to identify the location of each point on the **STAR**.

If **Add Only To End** is not selected, you will be prompted to determine where each point is to be placed on the **STAR**. This will require additional entries and will delay the process.

To Add Fix Slots:

Select the **Tailor** button. This will take you to the map display. Make sure that you are in the **ADD** Mode. Using the Left Mouse Button, click on a point that is in the general location of the First Fix Slot on the **SID**. This will force the display of the following window:

Value	Orientation
Altitude	Not Set
Speed	Not Set

UM-096

- Name** Enter the name of the Fix that is being added to the STAR.
- Speed Factor** This field is not required for a STAR.
- Location** This is the Lat/Long location of the point where you left-clicked on the map. Replace the information with the name of the Fix as it appears in the database.
- Type** Generic should be used for all points on the STAR.
- Posting Fix** This affects medium fidelity simulation only. If this is to be a posting fix on the STAR, the check box must be selected even if the Fix itself has been designated with the Attribute "Posting Fix". This will automatically force a **Post Setting** to be made on the Flight Slot for the aircraft if this STAR appears in a Filed Flight Plan.

Runway Entry Point This field is not used for a STAR.

Attributes Altitude and Speed Attributes may be set for each Fix Slot. These Attributes are used as crossing restrictions for that Fix Slot.

EXAMPLE: If the Fix Slot has an **Altitude Attribute** of 4,000 feet, as soon as the aircraft passes the Fix Slot immediately before this one it will begin an altitude change to cross this fix at 4,000.

If the Fix Slot has a **Speed Attribute** of 200 knots, the aircraft will begin a speed change to cross this fix at 200 knots.

At, Above or **Below** may be set as qualifiers for each Attribute.

No Speed or Altitude Attribute will be able to force an aircraft to perform in a manner that is contrary to the aircraft characteristics of the aircraft flying the route.

Procedure Turn These settings are not required for STARs.

Continue adding Fix Slots until the entire STAR has been built. When all Fix Slots have been added, select **Enter** or **End** on the keyboard. This will take you back to the RSSAD window.

Select **Exit** to return to the RSSAD List window.

6.12.7.2 Modify a STAR/Transition

If a STAR that was just built contains errors or if an element of an established STAR changes, the following process can be followed to ensure that your training program is accurate and always up to date.

To modify a STAR, select **SIDs** from the **Route Processing** sub-menu. This will force the **RSSAD List** window to be displayed. Select the STAR that is to be modified from the list and press **UPDATE**.

The window containing the details of the STAR will be displayed. You can now modify the STAR as necessary.

RSSAD

Name: SHAWN1

Type:

- Route
- Approach
- Departure
- SID
- STAR

SID, STAR or Approach

Type: Master

Based on:

Approach Info

Airport/Runway: Not Set

- May be intercepted
- Default
- Visual Turn Rates

Auto-Add TD/STOP

Missed Approach Procedure

Glide Slope Angle:

Note: Stop points are only generated for TOWER.

Fix Slots

1. SNL 35:20:09.77N/096:59:08.20W
2. SHAWN 35:40:08.70N/096:03:54.81W
3. ARROW 35:51:52.35N/095:30:23.64W
4. ONETA 36:07:54.79N/095:30:13.85W
5. TUL 36:11:39.92N/095:47:17.32W

Exit Edit FS Tailor Delete FS Add Only To END Add Map Line

UM-176

6.12.7.2.1 Edit FS

Highlight the item in the Fix Slot area that is to be modified and select the **Edit FS** button. This will force the display of the **Fix Slot** window.

Make changes as necessary and select **OK**.

You will be returned to the **RSSAD** window.

6.12.7.2.2 Tailor

Using the Tailor method, you can either **Move** or **Insert a Fix Slot**.

To Move a Fix Slot

From the **RSSAD** window, without highlighting a specific **Fix Slot**, select the **Tailor** button. This will take you to the map display with the selected STAR drawn out. Yellow triangles and a name label identify each of the **Fix Slots**.

Ensure the **Mode** is set to **Modify**, and that **Move** has been **Enabled**.

You can move any **Fix Slot** by using the mouse to left-click and drag the fix to a new location. As soon as you release the mouse button the **Fix Slot** window will be displayed.

Make changes as necessary and select **OK**. You will be returned to the map display.

You can either **Move** another **Fix Slot** or press **Enter** or **End** on the keyboard to return to the **RSSAD** window.

To Insert a Fix Slots

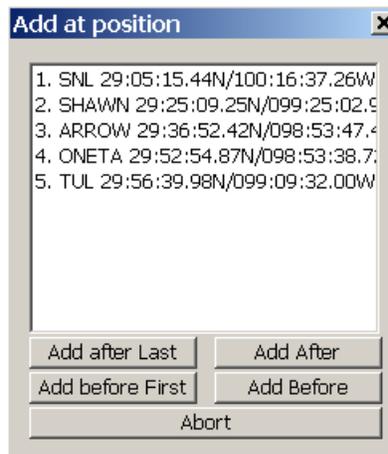
If you need to add a **Fix Slot** and it is to be located at the end of the STAR, select **Add Only To End**. This will eliminate several keystrokes.

If the new **Fix Slot** will not be located at the end of the STAR, do not select **Add Only To End**. You will be given a choice of where the new **Fix Slot** is to be located.

From the **RSSAD** window, without highlighting a specific **Fix Slot**, select the **Tailor** button. This will take you to the map display with the selected STAR drawn out.

Make sure the **Mode** is set to **Add**, and that **Move** is set to **Disabled**.

Using the left mouse button, click on the location of the new **Fix Slot**. The **Add at position** window will be displayed.



UM-241

Select the button that best describes the desired location of the new **Fix Slot**:

Add after Last: Will add the **Fix Slot** after the last element in the list.

Add before First: Will add the **Fix Slot** before the first element in the list.

Add After: Select a **Fix Slot** in the list and then press **Add After**. Will add the new **Fix Slot** immediately after the **Fix Slot** you selected.

Add Before: Select a **Fix Slot** in the list and then press **Add Before**. Will add the new **Fix Slot** immediately before the **Fix Slot** you selected.

Abort: Cancels the **Fix Slot** you are trying to create.

If you select a location for the new **Fix Slot**, the **Fix Slot** window will be displayed.

Enter all required data and select **OK**. This will return you to the map display.

Either add another **Fix Slot** or press **Enter** or **End** on the keyboard to return to the **RSSAD** window.

When all modifications have been made to the STAR, select **EXIT** to end the process.

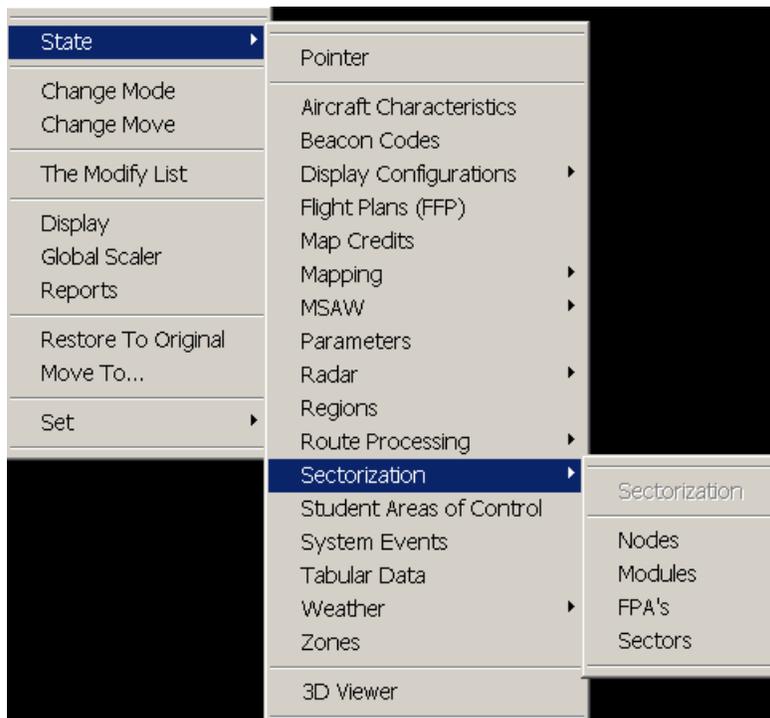
6.12.7.2.3 Delete Fix Slots

To Delete a **Fix Slot**, highlight the fix that is to be deleted from the items listed in the **Fix Slot** window. Select the **Delete FS** button. The Confirm Delete window will be displayed. Selecting **Yes** will remove the **Fix Slot** from the STAR.

6.13 Sectorization

This is a Master only function.

To access the **Sectorization** area, use the Right Mouse button or select **Edit** from the Main Menu. Highlighting **State** then **Sectorization** with the mouse will force the following sub-menu:



UM-179

This submenu allows the users to access the area to Add/Modify/Delete Nodes, Modules, FPAs and Sectors as described in the following sections.

The Hierarchy of the Sectorization structure is:

Nodes are used to build Modules

Modules are used to build FPAs

FPAs are used to build Sectors.

6.13.1 Add/Modify a Node

Nodes are geographic points that are used to define the horizontal structure of a Module.

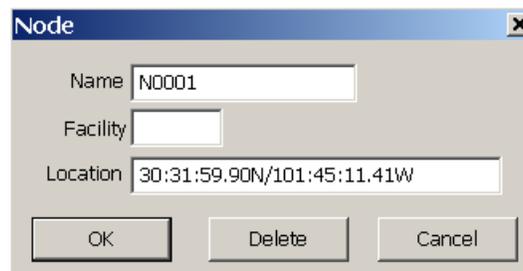
To begin the process, select **Nodes** from the **Sectorization** sub-menu.

6.13.1.1 Add a Node

Ensure that **State** is set to **Nodes**, **Mode** is set to **Add** and **Move** is set to **Disabled**.



Click the left mouse button at the desired location of the **Node**. The following window will appear:



UM-180

Name: Nodes are identified by two to four alphanumeric characters that are unique within the fix and node identifiers.

Facility: This field is optional but should be the facility that created the node.

Location: If the point that was selected by the mouse is not the exact desired location of the **Node**, enter a new location using latitude and longitude in degrees, minutes, and seconds. North and south latitude and east and west longitude may be adapted. If both directions are not adapted, north latitude and west longitude are implied. If a direction is specified for either the latitude or the longitude, it must be specified for both.

Select **OK** to save the new **Node**.

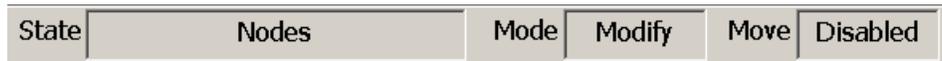
6.13.1.2 Modify a Node

There are two ways to select a **Node** that is to be modified:

Using the Mouse or

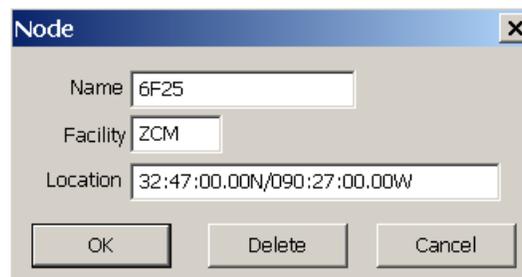
Using "The Modify List".

Ensure that the **State** is set to **Nodes**, **Mode** is set to **Modify** and **Move** is set to **Disabled**.



Using the Mouse:

Select the **Node** that is to be modified using the left mouse button. The following window will appear:



The dialog box titled "Node" contains the following fields and buttons:

- Name: 6F25
- Facility: ZCM
- Location: 32:47:00.00N/090:27:00.00W
- Buttons: OK, Delete, Cancel

UM-181

Make changes as necessary and select **OK** to save.

Using The Modify List function:

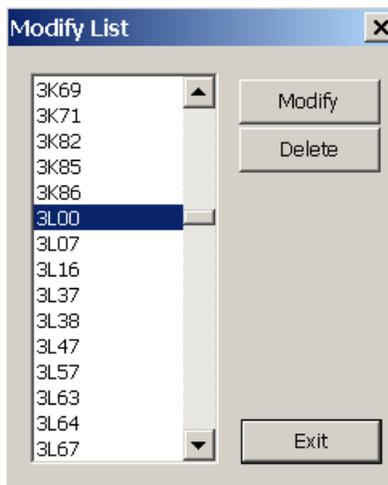
To access **The Modify List** for **Nodes**:

Click the Right Mouse button and select **The Modify List** from the pop-down window.



UM-040

The **Modify List** window will then be displayed. Highlight the **Node** that is to be modified from the **Modify List** and select **Modify**.



UM-182

The **Nodes** window will then be displayed and you can modify each field as necessary. Select **OK** to save.

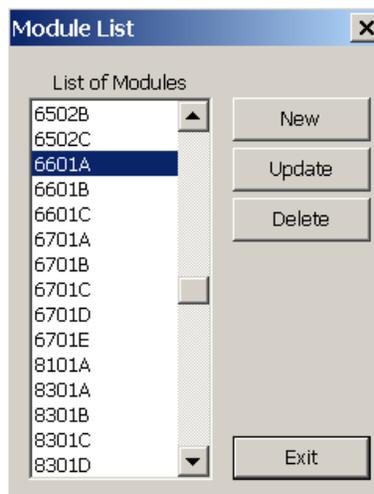
6.13.2 Add/Modify/Delete a Module

A **Module** is made up of three or more Nodes to determine the Horizontal Boundaries and an upper and lower altitude to determine the Vertical Boundaries.

Careful planning should be accomplished before designing Modules to ensure that all required airspace is contained in a Module when it is time to design an FPA.

When defining an FPA, Modules may be stacked vertically to accommodate shelving or exclude airspace assigned to other facilities (i.e., approach control).

To access the **Modules** area, use the Right Mouse button or select **Edit** from the Main Menu. Highlighting **State** then **Sectorization** then selecting **Modules** with the Left Mouse button will display the following list window:

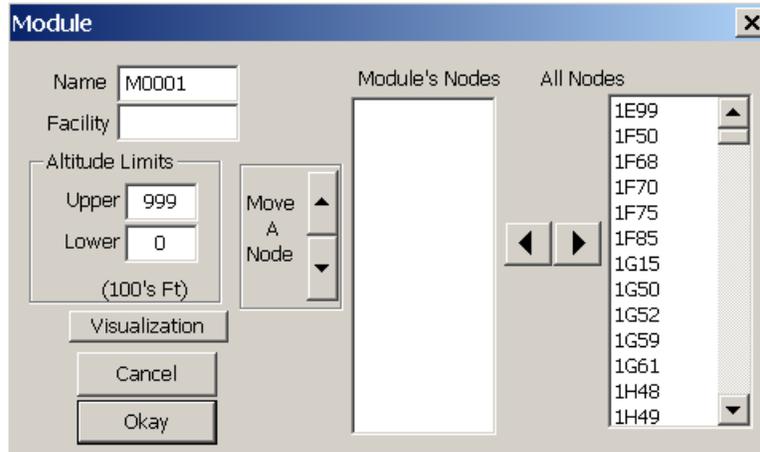


UM-183

This window will contain a list of all existing Modules. The user may now Add, Modify or Delete Modules.

6.13.2.1 Add a Module

Select **New** from the **Module List** window. The following window will appear:



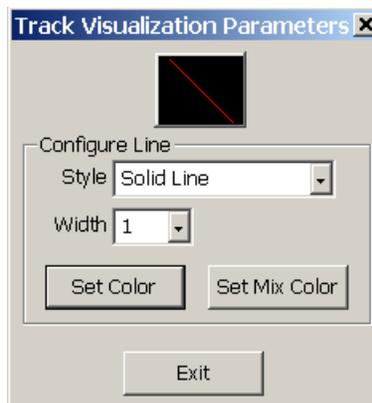
UM-184

Name: The name must be unique among other Modules and should be relevant to the facility or sector it will help define.

Facility: This field is optional but should be the facility that created the module.

Altitude Limits: This is the Upper and Lower vertical boundary of the Module. To ensure that there is no gap in airspace definition, the Upper limit of one Module must be the same altitude as the Lower limit of the Module residing above it up to 999. The Lower limit of one Module must be the same altitude as the Upper limit of the Module residing below it down to 0.

Visualization The user can set the Style, Width and Color of the Line that will define the Module.



UM-185

Module's Nodes: This window contains the Nodes that make up the Module. The Nodes may be added clockwise or counter-clockwise, but they must be added point to point until the entire Module has been identified with the Last Node connecting to the First Node to form the desired airspace.

All Nodes: This window contains all the Nodes that have been identified in the database.

Nodes are added or removed from the Module using the Arrows located between the two windows. To move a Node, highlight the Node and select the appropriate arrow.

Move a Node A Node can be moved to another location in the Module using the up and down arrows. Highlight the Node that is to be moved and select the appropriate arrow.

6.13.2.2 Modify a Module

Highlight the Module that is to be modified from the List of Modules then select **Update**. The Module window will be displayed. Make the appropriate changes and select **Okay** to return to the Module List window.

6.13.2.3 Delete a Module

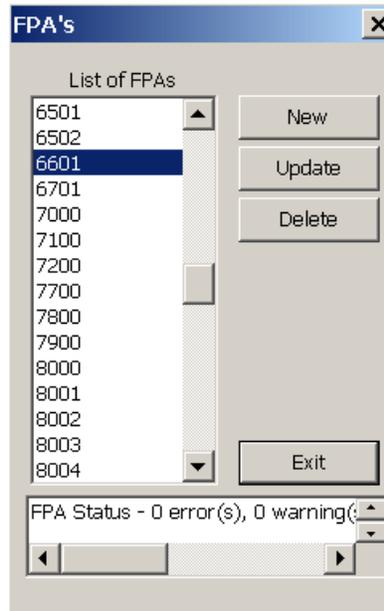
Highlight the Module that is to be deleted and select **Delete**. The Delete Confirmation popup window will be displayed. Select **Yes** or **No**, which ever is appropriate.

When all activity under Modules has been accomplished, select **Exit** to return to the Pointer State.

6.13.3 Add/Modify/Delete an FPA

An FPA consists of at least one but as many Modules as necessary to accommodate shelves or approach control areas.

To access the **FPA** area, use the Right Mouse button or select **Edit** from the Main Menu. Highlighting **State** then **Sectorization** then selecting **FPA's** with the Left Mouse button will display the following list window:

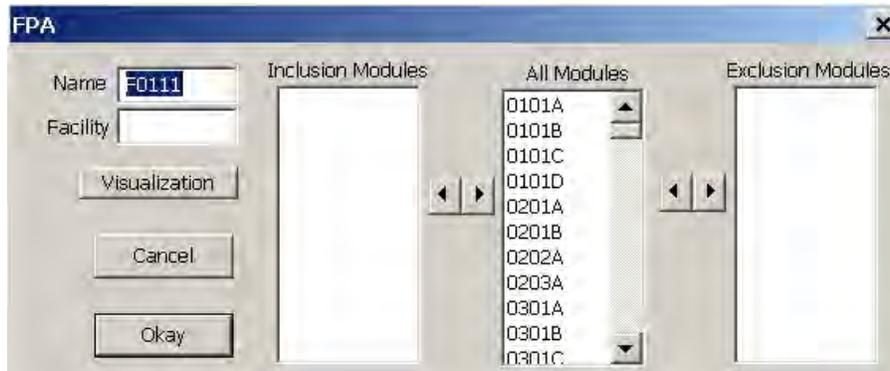


UM-186

This window allows the user to create a new FPA, Modify or Delete an existing FPA. The existing FPAs are displayed in the list.

6.13.3.1 Add an FPA

Select **New** from the **FPA's** window. The following window will be displayed:



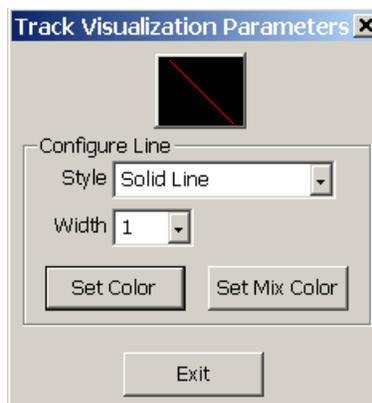
UM-187

This window is used to configure an FPA. An FPA is a collection of Inclusion and Exclusion Modules.

Name: The name must be unique among other FPAs and should be relevant to the facility or sector it will help define

Facility: This field is optional, however, it will help identify the location of the FPA.

Visualization: The user can set the Style, Width and Color of the Line that will define the FPA.



UM-185

Inclusion Modules: The Modules that determine the vertical and horizontal airspace of the FPA should be added to this window.

All Modules: This is a list of all Modules contained in the database.

Exclusion Modules: These Modules contain airspace that lies within the vertical and horizontal boundaries of the FPA but should **not** be included in the airspace.

Modules are added or removed from the FPA using the Arrows located between the three windows. To move a Module, highlight the Module and select the appropriate arrow.

6.13.3.2 Modify an FPA

Highlight the FPA that is to be Modified from the List of FPAs then select **Update**. The FPA window will be displayed. Make the appropriate changes and select **Okay** to return to the FPA List window.

6.13.3.3 Delete an FPA

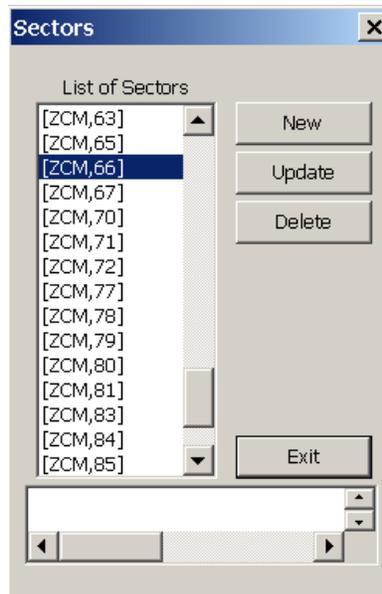
Highlight the FPA that is to be Deleted and select **Delete**. The Delete Confirmation popup window will be displayed. Select **Yes** or **No**, which ever is appropriate.

When all activity under FPAs has been accomplished, select **Exit** to return to the Pointer State.

6.13.4 Add/Modify/Delete a Sector

This is the final step in the Sectorization process. The Sectors defined here will be the Players in the simulation. A **Sector** is an air traffic control position that is located within the active facility or within an adjacent facility. The SIGNAL software will react differently depending on how Sectors are defined in this area.

To access the **Sector** area, use the Right Mouse button or select **Edit** from the Main Menu. Highlighting **State** then **Sectorization** then selecting **Sectors** with the Left Mouse button will display the following list window:



UM-188

This window allows the user to create a new Sector or Modify or Delete an existing Sector. The existing Sectors are displayed in the list.

6.13.4.1 Add a Sector

Select **New** from the **Sectors** window. The following window will be displayed:

The screenshot shows a 'Sector' dialog box with the following elements:

- Name:** An empty text input field.
- Facility:** A text input field containing 'XXX'.
- SLID:** An empty text input field.
- Default:** An unchecked checkbox.
- Pilot List:** A checked checkbox.
- Visualization:** A button.
- Frequencies:** A section containing 'VHF' and 'UHF' text input fields.
- Sector's FPAs:** An empty list box.
- All FPAs:** A list box containing the following items: 0101, 0201, 0202, 0203, 0301, 0302, 0401, 0501, 0502, 0601, 0701.
- Navigation:** Left and right arrow buttons between the two list boxes.
- Buttons:** 'Cancel' and 'Okay' buttons at the bottom left.

UM-189

A Sector may consist of only one FPA but may have as many as necessary to define the entire airspace associated with the Sector.

Name: The Name should be the locally adapted Sector number. It can be from 1 to 3 characters. This is also the input required by the controller to initialize a hand-off to another Sector.

Facility: This is the three-letter identifier of the Facility.

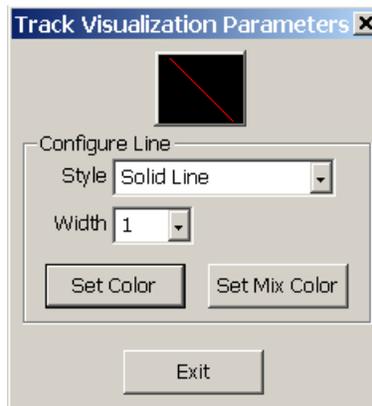
SLID: (Terminal Only) This is a Single Letter ID that can be assigned to a Sector. The SLID will be displayed as the Position Symbol in the aircraft's data block.

Default: Only one Sector within the database can be designated as the Default Sector. If this Check Box is selected, this Sector will be assigned ownership of a flight that is added to the scenario and initializes at a point that does not fall within an established sector.

Pilot List: This check box controls the display of the sector in a list on the pilot position.

Frequencies: This is STARS only. **NEED TERMINAL INPUT**

Visualization: The user can set the Style, Width and Color of the Line that will define the Sector.



UM-185

Sector's FPAs: This window should contain the FPAs that make up the Sector being defined.

All FPAs: This window contains all the FPAs that have been defined in the database.

FPAs are added or removed from the Sector using the Arrows located between the two windows. To move an FPA, highlight the FPA and select the appropriate arrow.

6.13.4.2 Modify a Sector

Highlight the Sector that is to be modified from the List of Sectors then select **Update**. The Sector window will be displayed. Make the appropriate changes and select **Okay** to return to the Sector List window.

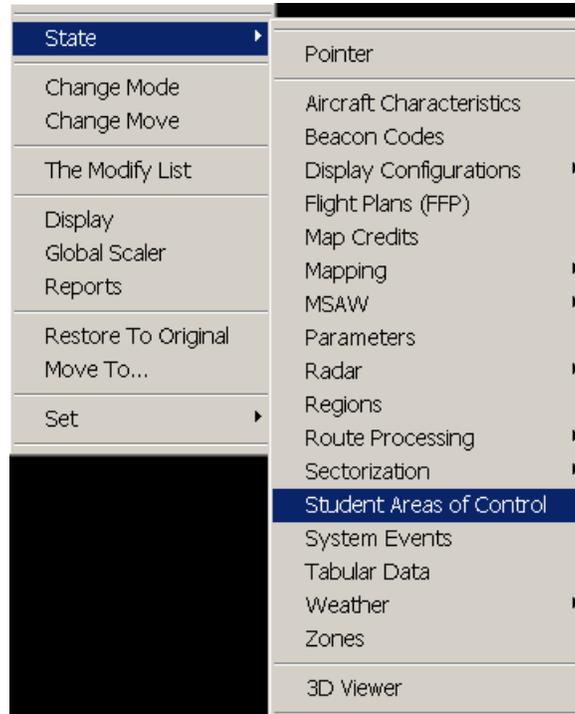
6.13.4.3 Delete a Sector

Highlight the Sector that is to be deleted and select **Delete**. The Delete Confirmation popup window will be displayed. Select **Yes** or **No**, which ever is appropriate.

When all activity under Sectors has been accomplished, select **Exit** to return to the Pointer State.

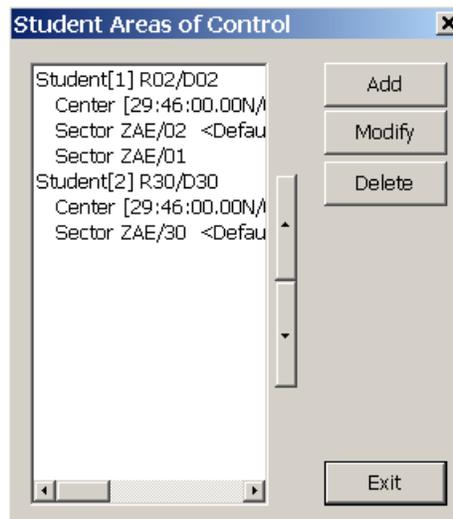
6.14 Student Areas of Control

This is a Scenario and Master function.



UM-190

When **Student Areas of Control** is selected from the **State** Sub-menu, the following window will be displayed:



UM-191

The Student Areas of Control allows the user to configure the active sector or sectors in a scenario. The scenario may contain a single active sector, multiple active sectors interacting with each other, or multiple sectors combined into a single active sector.

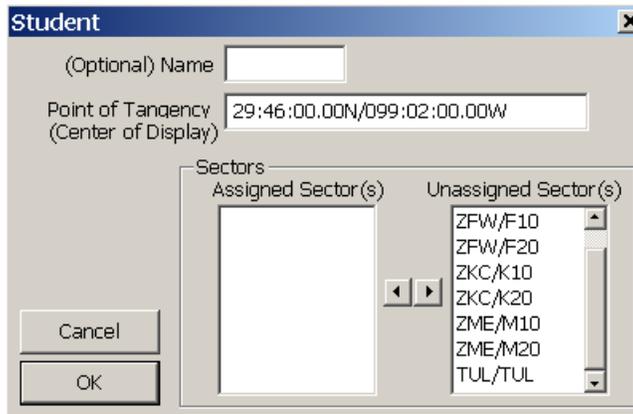
The example above shows a multiple sector configuration with two sectors combined at one position and another active sector that will interact with the combined sectors during the simulation.

Student 1 consists of ZAE/02 and ZAE/01 combined at ZAE/02. Sector ZAE/02 is designated as the Default sector and will control all aircraft within the combined airspace.

Student 2 consists of ZAE/30 airspace only. Student 2 will interact with Student 1.

Add a Student:

Select Add from the Student Areas of Control window, the following window will be displayed:



UM192

Name:

This is the Name of the airspace that is being configured. If multiple sectors are to be combined at one sector, the first sector selected will be the Default sector. All hand-off and spin points will be assigned to the default sector.

Point of Tangency: This is the **Center of the Display** for the airspace that is being configured.

Sectors: The **Assigned Sector(s)** window should contain all the sectors that will make up the desired airspace configuration.

The **Unassigned Sector(s)** window contains all the unassigned sectors that are contained in the database.

Sectors are added or removed from the Student using the Arrows located between the two windows. To move a Sector, highlight the Sector and select the appropriate arrow.

Modify a Student:

To Modify a Student, highlight the Student that is to be modified from the list then select **Modify**. The Student window will be displayed. Make the appropriate changes and select **OK** to return to the Student Areas of Control List window.

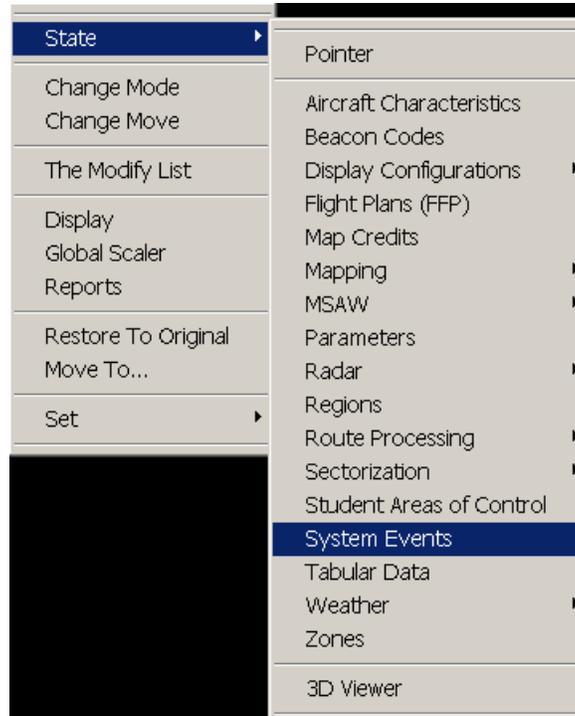
Delete a Student:

To Delete a Student, highlight the Student that is to be Deleted and select **Delete**. The Delete Confirmation popup window will be displayed. Select **Yes** or **No**, which ever is appropriate.

When all activity under Student Areas of Control has been accomplished, select **Exit** to return to the Pointer State.

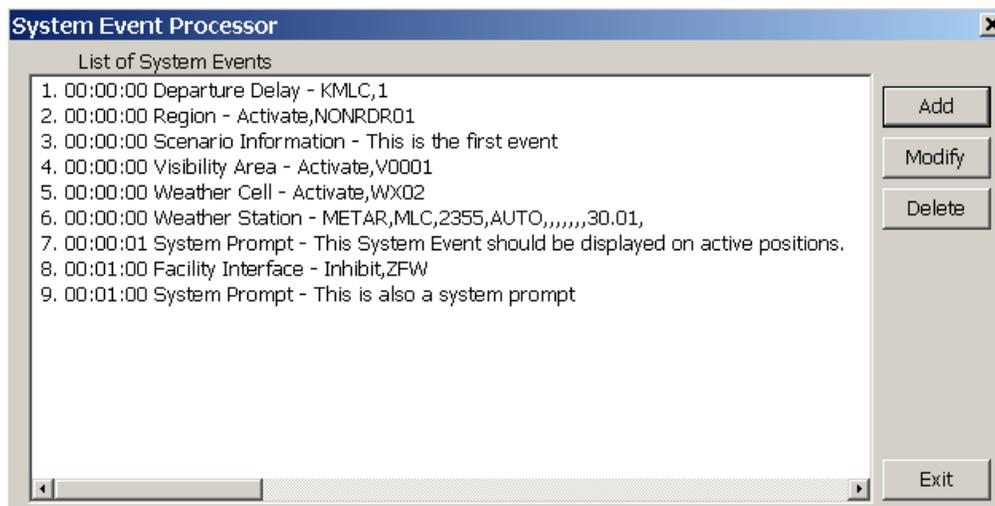
6.15 System Events

This is a Scenario and Master function.



UM-193

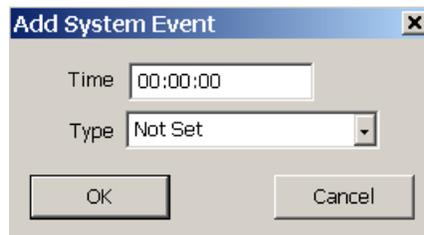
System Events are used to control the scenario environment, not individual aircraft. When **System Events** is selected from the **State** Sub-menu, the System Event Processor window will be displayed:



UM-194

The System Event Processor window contains a list of all System Events that have been created for the scenario. The user can Add new events or Modify or Delete existing events.

Add: If Add is selected, the following window will appear:



UM-195

The **Time** is relative to the start time of the scenario not actual clock time.

The **Type** field is a pop down window. The Types of events that can be added are:

Alpha Numerics (Terminal Only)	ARTS System Event (Terminal Only)
Auto-Departure	Departure Delay
Default Approach	Exercise Pause
Facility Interface	GI Message
Radar Site	Region
Scenario Information	System Prompt
TIS Data	Tower Instruments
Visibility Area	Weather Cell
Weather Station	Zone (Used to Build Circles Only)

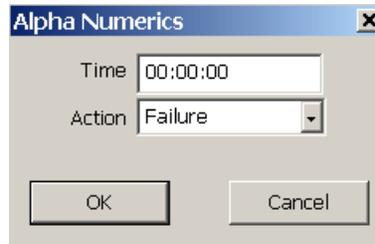
Modify: To Modify an existing System Event, either highlight the Event in the list and select Modify or double click on the event. Make the appropriate changes and select **OK** to return to the System Event Processor window.

Delete: To Delete a System Event, highlight the Event in the List and select Delete. The Delete Confirmation popup window will be displayed. Select **Yes** or **No**, which ever is appropriate.

The following paragraphs explain in detail each type of System Event.

6.15.1 Alpha Numerics (Terminal Only)

Select Alpha Numerics from the Add System Event window then select OK. The following window will be displayed:



UM-196

This System Event controls the display of Alpha Numeric Data on the Terminal Controller display.

Time: The information entered in this field is used to activate the Event. The Time is from start of scenario not actual clock time. Time is in Hours:Minutes:Seconds.

Action: The options are Failure or Recovery.

6.15.2 ARTS System Event (Terminal Only)

Select ARTS System Events from the Add System Event window then select OK. The following window will be displayed:

The screenshot shows a dialog box titled "ARTS System Events". On the left side, there are several input fields: "Time" with the value "00:00:00", "Type" with a dropdown menu showing "Initial Setting", "Altimeter" with the value "2998", "ATISC" with the value "P", "OP Level" with the value "0", and "General Info (ARTS-9 STARS-30)" with the value "ILS 28R". Below these fields are "OK" and "Cancel" buttons. On the right side, there are three panels: "Environmental Data" with 8 empty lines, "ATISC/Altimeter" with an empty area, and "Add", "Mod", and "Del" buttons at the bottom right.

UM-197

This System Event provides information used in the Systems Area of the ARTS display.

Time: The information entered in this field is used to activate the Event. The Time is from start of scenario not actual clock time. Time is in Hours:Minutes:Seconds.

Type:

Initial Setting This **Type** Option will allow you to fill in all the fields at the same time. The other **Type** Options (listed separately below) allow you to change just that one field at the specified **Time**.

Altimeter Allows you to set/change the altimeter setting.

ATISC Allows you to set/change the ATIS Code (single letter).

Op Level Allows you to enter/change an Operational Level (0 or 1)

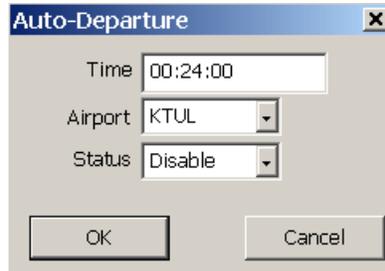
General Info Allows you to set/change general information to the line that begins with the ATIS code. General information consists of a maximum of 9 alphanumeric characters.

Environmental Data This area should contain the METAR weather observation. The area contains 8 lines with a maximum of 32 alphanumeric characters on each line.

Airport ATISC **NEED TERMINAL INPUT**

6.15.3 Auto-Departure

Select Auto-Departure from the Add System Event window then select OK. The following window will be displayed:



UM-198

Some airports may have an LOA allowing silent/automatic departures. This is accomplished in SIGNAL by selecting "D" as the State on the filed flight plan. It may be desired to discontinue/resume this procedure during the execution of a scenario. This System Event provides the user with that ability.

Time: The information entered in this field is used to activate the Event. The Time is from start of scenario not actual clock time. Time is in Hours:Minutes:Seconds.

Airport: This is a pop down window with a list of all Airports that exist in the database. Select the desired airport from the list.

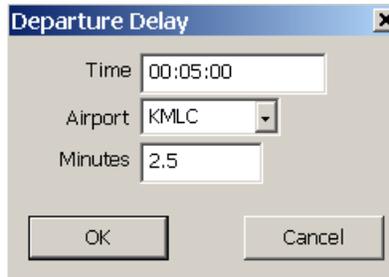
Status: The options are Enable or Disable.

If this event is used to stop Auto-Departures at an airport, all aircraft with State set as a "D" and a departure time within the period of suspension will require a Pilot entered departure message.

If Auto-Departures are resumed with another Auto-Departure system event, all remaining aircraft with a State set as a "D" and a departure time after the event will automatically depart.

6.15.4 Departure Delay

Select Departure Delay from the Add System Event window then select OK. The following window will be displayed:



UM-199

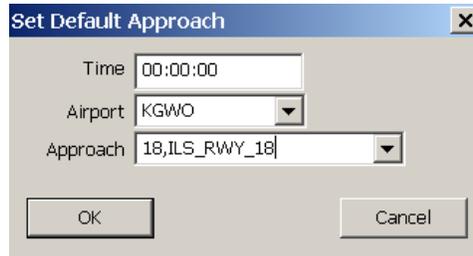
This System Event delays the actual departure of all aircraft at a specified airport. After the Pilot enters a departure message, the aircraft will not depart until the specified time in the Minutes field has passed. This is intended to create realism at airports that are not served by an ATC Tower.

- Time:** The information entered in this field is used to activate the Event. The Time is from start of scenario not actual clock time. Time is in Hours:Minutes:Seconds.
- Airport:** This is a pop down window with a list of all Airports that exist in the database. Select the desired airport from the list.
- Minutes:** This is the time that will elapse before the aircraft departs after the Pilot has entered a departure message.

While this event affects all aircraft departing from an airport, additional delay time can be controlled on individual flight plans under the State/Time/Delay field of the Filed Flight Plan Processor window.

6.15.5 Default Approach

Select Default Approach from the Add System Event window then select OK. The following window will be displayed:



The screenshot shows a dialog box titled "Set Default Approach" with a close button (X) in the top right corner. The dialog contains three input fields: "Time" with the value "00:00:00", "Airport" with a dropdown menu showing "KGWO", and "Approach" with a dropdown menu showing "18,ILS_RWY_18". At the bottom of the dialog are two buttons: "OK" and "Cancel".

UM-259

This System Event will allow the user to change the default approach from scenario to scenario at each airport. The approach that is designated as the default approach using this event will appear first in the list of approaches when the Pilot selects APCH on the Pilot keyboard. This will save the Pilot time by not having to use the mouse to select the approach.

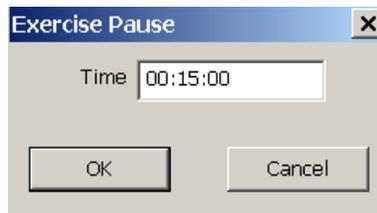
Time: The information entered in this field is used to activate the Event. The Time is from start of scenario not actual clock time. Time is in Hours:Minutes:Seconds.

Airport: This is a pop down window with a list of all Airports that exist in the database. Select the desired airport from the list.

Approach: This is a pop down window with a list of all approaches to the selected Airport. Select the desired approach from the list.

6.15.6 Exercise Pause

Select Exercise Pause from the Add System Event window then select OK. The following window will be displayed:



UM-260

This System Event will automatically execute the Pause command and stop the scenario.

Time: The information entered in this field is used to activate the Event. The Time is from start of scenario not actual clock time. Time is in Hours:Minutes:Seconds.

6.15.7 Facility Interface

Select Facility Interface from the Add System Event window then select OK. The following window will be displayed:



UM-200

This System Event allows the user to control the computer interface between the active facility and any other facility that exists in the database. If inhibited, automated handoffs between the two facilities will not be accomplished.

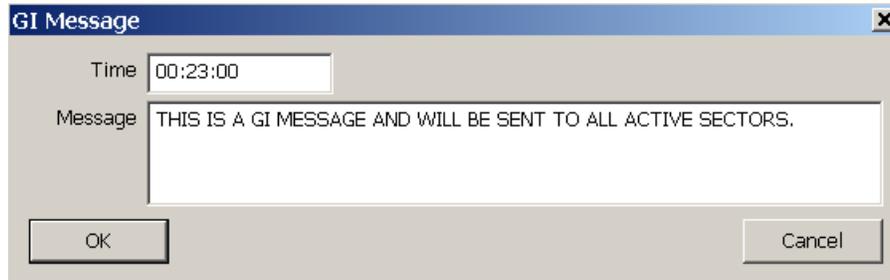
Time: The information entered in this field is used to activate the Event. The Time is from start of scenario not actual clock time. Time is in Hours:Minutes:Seconds.

Action: The options are Allow and Inhibit.

Facility: This is a pop down window that contains a list of all Facilities that exist in the database. Select the desired Facility from the list.

6.15.8 GI Message

Select GI Message from the Add System Event window then select OK. The following window will be displayed:



The screenshot shows a dialog box titled "GI Message". It has a "Time" input field containing "00:23:00" and a "Message" text area containing "THIS IS A GI MESSAGE AND WILL BE SENT TO ALL ACTIVE SECTORS.". At the bottom, there are "OK" and "Cancel" buttons.

UM-242

This allows you to input information that will be reproduced as a General Information message in the Flight Data Input/Output portion of the Tower software or printed on a strip in the EnRoute labs.

Time: The information entered in this field is used to activate the Event. The Time is from start of scenario not actual clock time. Time is in Hours:Minutes:Seconds.

Message: This is a plain language message that will be sent to all active sectors.

6.15.9 Radar Site

Select Radar Site from the Add System Event window then select OK. The following window will be displayed:



The image shows a dialog box titled "Radar Site Action". It has a close button (X) in the top right corner. The dialog contains three input fields: "Time" with the value "00:00:00", "Action" with a dropdown menu showing "Activate", and "Radar Site" with a dropdown menu showing "QNM". At the bottom of the dialog are two buttons: "OK" and "Cancel".

UM-201

This System Event allows the user to fail or recover the Radar signal of a specified site. All aircraft that are located within an area that uses that radar site as the primary source for tracking radar targets will now be tracked by the secondary radar site for the area. Failing a radar site will also affect the display of analog weather.

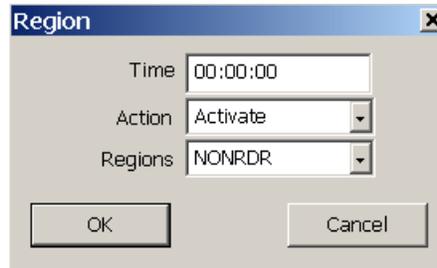
Time: The information entered in this field is used to activate the Event. The Time is from start of scenario not actual clock time. Time is in Hours:Minutes:Seconds.

Action: The options are Activate and Deactivate.

Radar Site: This is a pop down window that contains a list of the Radar Sites that exist in the database. Selecting **All Sites** will affect all sites in the list.

6.15.10 Region

Select Region from the Add System Event window then select OK. The following window will be displayed:



The image shows a dialog box titled "Region". It has a title bar with a close button (X). The dialog contains three input fields: "Time" with the value "00:00:00", "Action" with a dropdown menu showing "Activate", and "Regions" with a dropdown menu showing "NONRDR". At the bottom are "OK" and "Cancel" buttons.

UM-202

This event allows the user to manage the airspace that has been designated for special activity.

If an aircraft enters an active Region, certain unusual behavior will automatically be set in motion. It may cause something to happen or prevent normal performance from taking place.

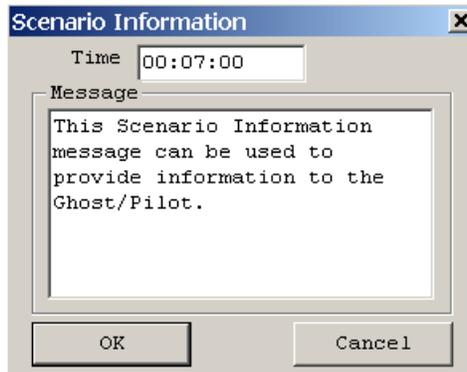
Time: The information entered in this field is used to activate the Event. The Time is from start of scenario not actual clock time. Time is in Hours:Minutes:Seconds.

Action: The options are Activate or Deactivate.

Regions: This is a pop down window that contains a list of all Regions that exist in the database. Select the desired Region from the list.

6.15.11 Scenario Information

Select Scenario Information from the Add System Event window then select OK. The following window will be displayed:



UM-203

This System Event allows the user to send a plain language text message to the Pilot positions.

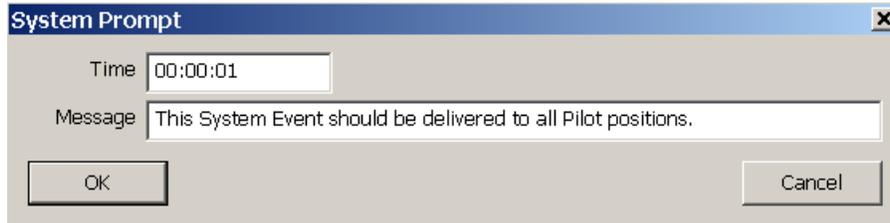
Only one Scenario Information message can be displayed at a time. If a Scenario Information event is delivered and another one is already present, the new event will replace the old one.

Time: The information entered in this field is used to activate the Event. The Time is from start of scenario not actual clock time. Time is in Hours:Minutes:Seconds.

Message: This area is for the developer to introduce information to the Pilot positions that will assist them in performing their tasks.

6.15.12 System Prompt

Select System Prompt from the Add System Event window then select OK. The following window will be displayed:



The screenshot shows a dialog box titled "System Prompt". It has a blue title bar with a close button (X) on the right. The dialog contains two input fields: "Time" with the value "00:00:01" and "Message" with the text "This System Event should be delivered to all Pilot positions.". At the bottom are "OK" and "Cancel" buttons.

UM-204

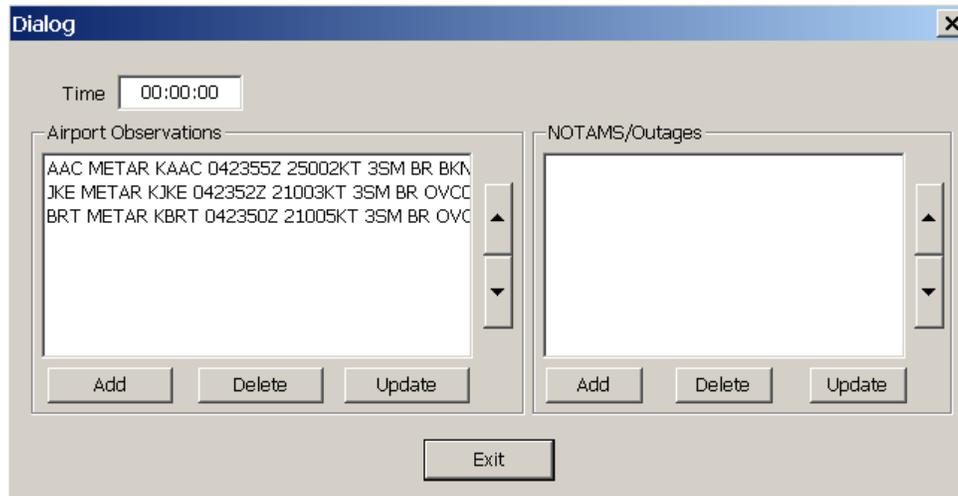
This System Event is to enable the user to inform the Pilots of pertinent information that is needed in the performance of their duties.

Time: The information entered in this field is used to activate the Event. The Time is from start of scenario not actual clock time. Time is in Hours:Minutes:Seconds.

Message: This area is for the developer to input the message that is to be delivered to the Pilots. The field is limited to 65 characters.

6.15.13 TIS Data (This System Event is for Tower Only)

Select TIS Data from the Add System Event window then select OK. The following window will be displayed:



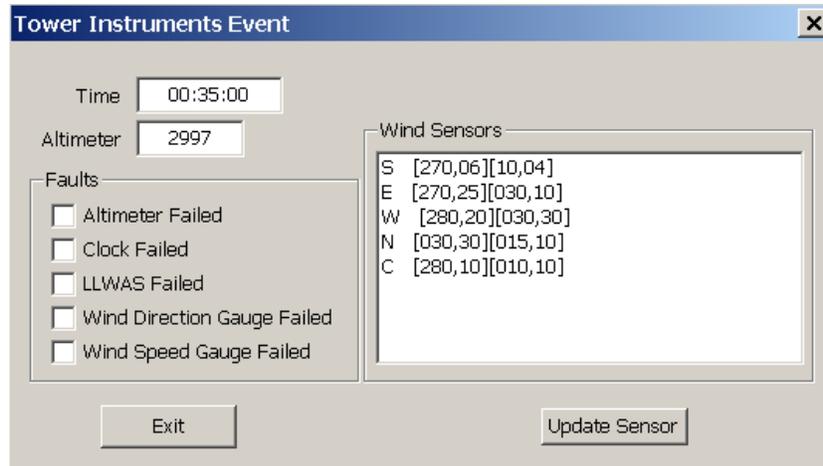
UM-261

NEED TERMINAL INPUT

6.15.14 Tower Instruments

This System Event is for T2D Only.

Select Tower Instruments from the Add System Event window then select OK. The following window will be displayed:



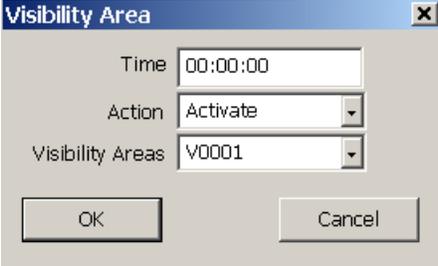
UM-243

This allows you to input the data and events that will be displayed on the Tower Instruments display.

NEED TERMINAL INPUT

6.15.15 Visibility Area

Select Visibility Area from the Add System Event window then select OK. The following window will be displayed:



The screenshot shows a dialog box titled "Visibility Area" with a close button (X) in the top right corner. The dialog contains three input fields: "Time" with the value "00:00:00", "Action" with a dropdown menu showing "Activate", and "Visibility Areas" with a dropdown menu showing "V0001". At the bottom of the dialog are two buttons: "OK" and "Cancel".

UM-205

This System Event permits the user to activate or deactivate a predefined area that restricts the line of sight of a pilot. The area is most commonly used to simulate the presence of clouds and weather that will affect aircraft approaching an airport.

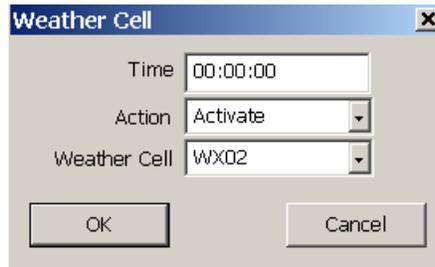
Time: The information entered in this field is used to activate the Event. The Time is from start of scenario not actual clock time. Time is in Hours:Minutes:Seconds.

Action: The options are Activate and Deactivate.

Visibility Area: This is a pop down window that contains a list of all Visibility Areas that exist in the database. Select the desired Visibility Area from the list.

6.15.16 Weather Cell

Select Weather Cell from the Add System Event window then select OK. The following window will be displayed:



UM-206

This System Event allows the user to introduce areas of weather into the scenario.

More than one weather cell can be present in a scenario but each must be activated by a separate event.

Time: The information entered in this field is used to activate the Event. The Time is from start of scenario not actual clock time. Time is in Hours:Minutes:Seconds.

Action: The options are Activate and Deactivate.

Weather Cell: This is a pop down window that contains a list of all Weather Cells that exist in the database. Select the desired Weather Cell from the list.

6.15.17 Weather Station

Select Weather Station from the Add System Event window then select OK. The following window will be displayed:

The screenshot shows a dialog box titled "Weather Station Update". At the top, there is a "Time" text box containing "00:00:00" and a "Weather Station" dropdown menu currently set to "Not Set". Below these is a section titled "Reporting Information" which contains several input fields: "Type Ob" (METAR), "ReportTime" (000000Z), "Auto" (AUTO), "Wind", "Visibility", "RVR", "Weather", "Clouds", "Temp/Dew", and "Altimeter". At the bottom of this section is a "Remarks" text box. The dialog box has "OK" and "Cancel" buttons at the bottom.

UM-207

Each Weather Station will have a weather sequence created in the Master Database. This will be the default setting for each scenario; however, the settings can be changed for each Weather Station using this System Event. This event could also be used to deliver a special weather report, corrected weather report or simply update the altimeter setting.

Time: The information entered in this field is used to activate the Event. **This is not the time of the weather report.** The Time is from start of scenario not actual clock time. Time is in Hours:Minutes:Seconds.

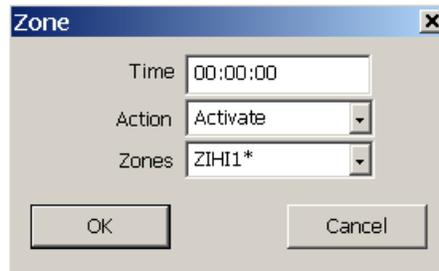
Weather Station: This is a pop down window that contains a list of all Weather Stations that exist in the database. Select the desired Weather Station from the list.

This will import the information that is contained in the Master. All fields are available for revision as necessary.

6.15.18 Zone

This System Events is for the Morocco System ONLY.

Select Zones from the Add System Event window then select OK. The following window will be displayed:



The screenshot shows a dialog box titled "Zone" with a close button in the top right corner. Inside the dialog, there are three input fields: "Time" with the value "00:00:00", "Action" with a dropdown menu showing "Activate", and "Zones" with a dropdown menu showing "ZIH1*". At the bottom of the dialog are two buttons: "OK" and "Cancel".

UM-208

This System Event is for the user to activate or deactivate existing Zones.

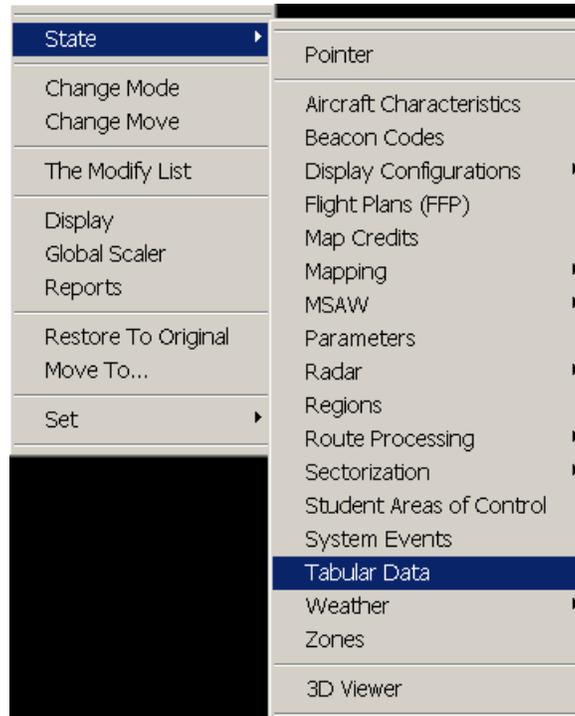
Time: The information entered in this field is used to activate the Event. The Time is from start of scenario not actual clock time. Time is in Hours:Minutes:Seconds.

Action: The options are Activate and Deactivate.

Zones: This is a pop down window that contains a list of all the Zones that exist in the database. Select the desired Zone from the list.

6.16 Tabular Data

**This is a Master only function.
This is for Medium Fidelity Only.**



UM-209

This area allows the user to control where the Tab Lists will be located on the student display when the scenario is initialized. The student may relocate each list after the scenario has been started.

To move a Tab List to a new location on the display, using the left mouse button click on the large "X" at the left of the list and drag to the desired location.

En Route Tab Lists



UM-210

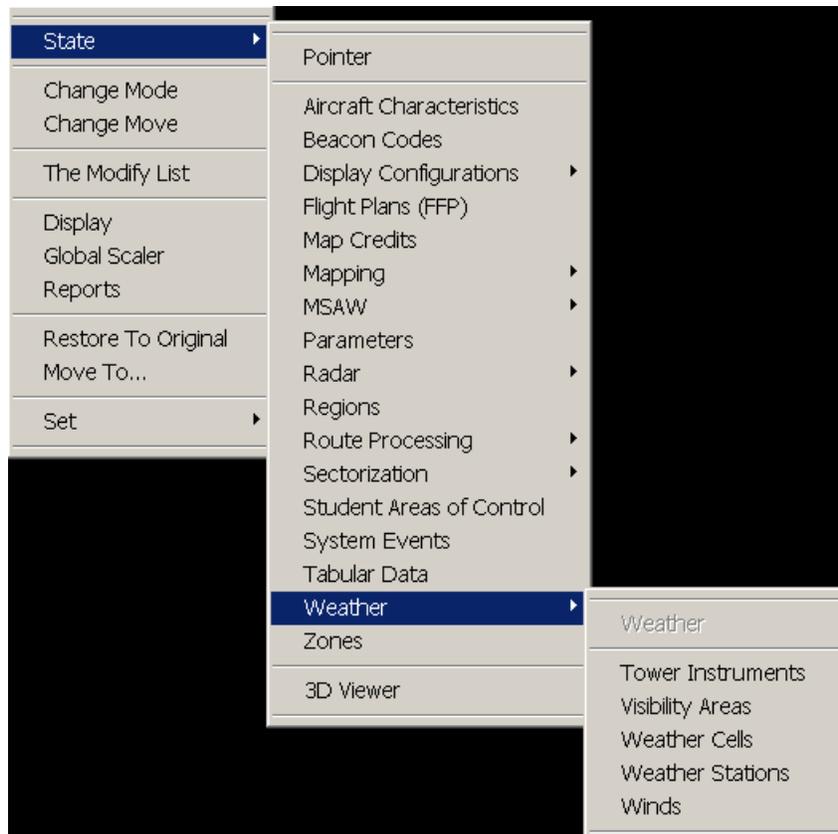
Terminal Tab Lists



UM-211

6.17 Weather

To access the **Weather** area, use the Right Mouse button or select **Edit** from the Main Menu. Highlighting **State** then **Weather** with the mouse will force the following sub-menu:



UM-212

Tower Instruments are T2D Master only.

Visibility Areas, Weather Cells and Weather Stations are Master only functions.

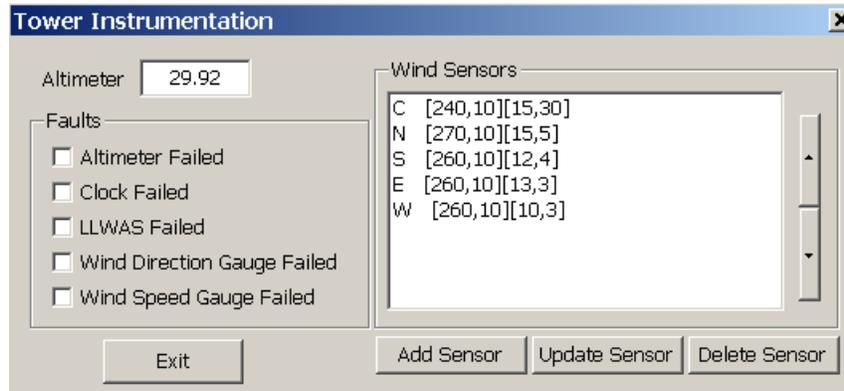
Winds are Master and Scenario functions.

From this area, the user can create conditions that either affect the performance of aircraft or affect the decisions made by the pilot.

6.17.1 Tower Instruments

This is a Master T2D only function.

This allows you to input the data and events that will be displayed on the Tower Instruments display.



UM-244

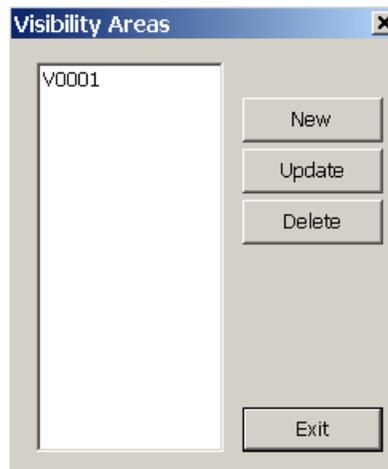
NEED TOWER INPUT

6.17.2 Visibility Areas

This is a Master only function.

Visibility Areas can be used to create areas that will restrict the line of sight of the Pilot. In some cases, the Pilot will not be able to see the ground or other aircraft. This will be especially useful when attempting to simulate visual approaches.

To Add or Modify a Visibility Area select **Visibility Areas** from the **Weather** sub-menu. The following window will appear:

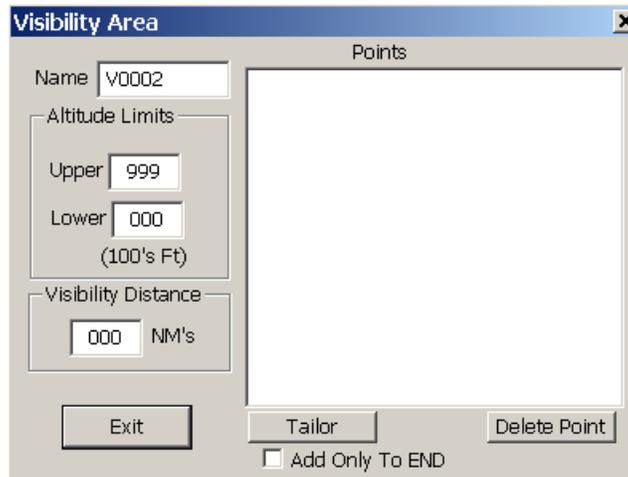


UM-213

This window allows the user to create a new Visibility Area, Modify or Delete an existing area. The existing Visibility Areas are displayed in the list.

6.17.2.1 Add a Visibility Area

To add a new Visibility Area, select **New** from the Visibility Areas window. The following window will be displayed:



UM-214

Name: CREATE automatically assigns a unique name to the new area but the user can change it to reflect the location or purpose of the area.

Altitude Limits: The user can set the upper and lower vertical boundary of the area.

Visibility Distance: The value entered here will be calculated for each aircraft that is within the horizontal and vertical limits of the area. It will be applied for aircraft to aircraft and aircraft to ground.

Add Areas Points:

The Areas **Points** are the points in space that make up the horizontal boundary of the Area.

If **Add Only To END** is selected, the Area can be built using the mouse and clicking on the display either clockwise or counter-clockwise to form the desired pattern that is to make up the Area.

If **Add Only To End** is **not** selected, you will be prompted each time a point is added to determine where to place it within the Area. This will require additional entries and will delay the process.

To begin the process, select the **Tailor** button. This will take you to the map display. Make sure that the **Mode** is set to **ADD**. Using the Left Mouse Button, click on the location that is to be the first point in the Area. As new points are added, the last point defined will connect back to the first point to form a complete pattern. Continue adding points using the mouse until the Area has been fully defined.

When the pattern is complete, select **Enter** or **End** on the keyboard to return to the Visibility Area window.

Each point, as it was added, was assigned a number that can be used as reference if the Area requires modification.

When you are finished defining the Area, select **Exit** to return to the Visibility Areas list window.

6.17.2.2 Modify a Visibility Area

To modify a Visibility Area, highlight the Area that is to be modified from the **Visibility Areas** list window and select **Update**. The following window will be displayed:

Visibility Area

Name: V0001

Altitude Limits

Upper: 090

Lower: 030
(100's Ft)

Visibility Distance

3 NM's

Points

1. 28:52:06.90N/098:28:43.85W
2. 28:50:47.82N/099:18:02.64W
3. 29:15:48.78N/099:20:51.61W
4. 29:14:24.05N/098:30:10.85W

Exit Tailor Delete Point

Add Only To END

UM-215

The **Name**, **Altitude Limits** or **Visibility Distance** may be changed or a **Point** may be deleted, added or moved.

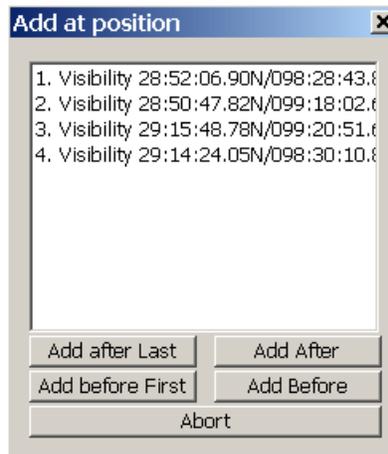
To Delete a Point:

Highlight the point that is to be deleted and select **Delete Point**. Selecting **Yes** in the confirmation box will remove the point from the Area.

To Add a Point:

Ensure the **Add Only To END** select box is deselected. Select **Tailor**. This will take you to the map display. The Area outline will be visible with each point labeled. Make sure that the **Mode** is set to **Add** and **Move** is set to **Disabled**.

Using the Left mouse button, click on the location of the Point that is to be added. The following window will be displayed:



UM-216

Select the button that best describes the desired location of the new Point:

Add after Last: Will add the New Point after the last Point in the list.

Add before First: Will add the New Point before the first Point in the list.

Add After: Select a Point in the list and then press **Add After**. Will add the New Point immediately after the Point you selected.

Add Before: Select a Point in the list and then press **Add Before**. Will add the New Point immediately before the Point you selected.

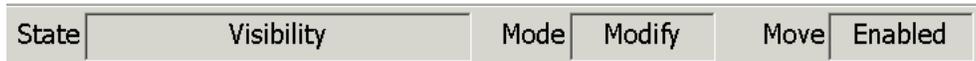
After the New Point is inserted into the Area, you will be returned to the map display.

Abort: Cancels the process and returns you to the map display.

Either add another Point or press **Enter** or **End** on the keyboard to return to the **Visibility Area** window.

To Move a Point:

Ensure the **Add Only To END** select box is deselected. Select **Tailor**. This will take you to the map display. The Area outline will be visible with each point labeled. Ensure that **State** is set to **Visibility**, **Mode** is set to **Modify** and **Move** is set to **Enabled**.



Using the left mouse button, click on the Point that is to be repositioned and drag it to the new location then release. A window containing detailed information on the selected Point will be displayed. Changes can be made if necessary. When all the information is correct, select **OK**. If you wish to avoid saving the new information, select **Cancel**.

When all modifications have been made to the Area, select **EXIT** to end the process.

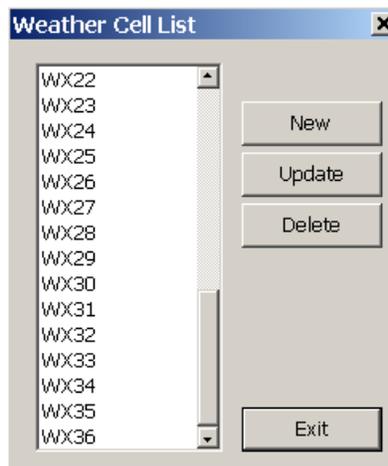
6.17.3 Weather Cells

This is a Master only function.

Weather Cells are created and maintained in the Master Database and are introduced to the scenarios by System Events.

Weather Cells are used to simulate real weather conditions. The cells can vary in size, speed and direction of movement. Multiple cells can be displayed at the same time in the same scenario.

To Add or Modify a Weather Cell select **Weather Cells** from the **Weather** sub-menu. The following window will appear:

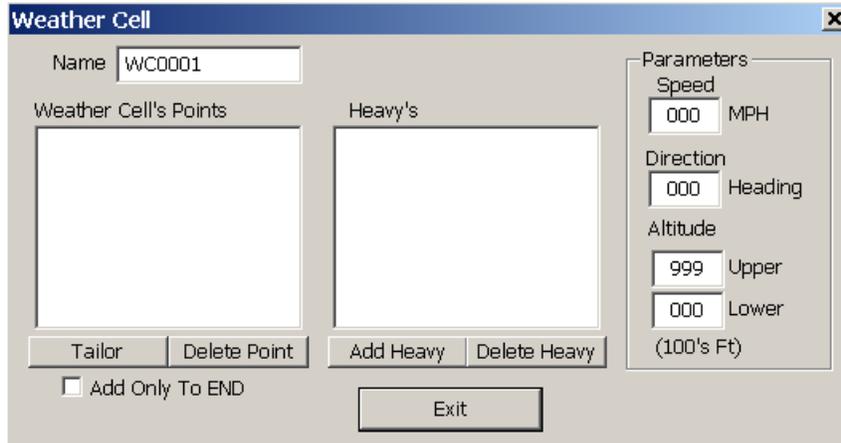


UM-217

The existing Weather Cells are displayed in the list. This window allows the user to create a new Weather Cell or Modify or Delete an existing Weather Cell.

6.17.3.1 Add a Weather Cell

To add a new Weather Cell, select **New** from the Weather Cell List window. The following window will be displayed:



UM-218

Name: CREATE automatically assigns a unique name to the new cell but may be changed by the user.

Parameters:

Speed This is the speed at which the Cell will move across the display.

Heading This is the Direction of Movement the Cell will travel.

Altitude This is the Upper and Lower parameters of the cell. Aircraft can actually fly over or under the cell and visibility may not be affected.

Add Weather Cell's Points:

The Weather Cell's **Points** are the points in space that make up the horizontal boundary of the Cell.

If **Add Only To END** is selected, the Cell can be built using the mouse and clicking on the display either clockwise or counter-clockwise to form the desired pattern that is to make up the Cell.

If **Add Only To End** is **not** selected, you will be prompted each time a point is added to determine where to place it within the Cell. This will require additional entries and will delay the process.

To begin the process, select the **Tailor** button. This will take you to the map display. Make sure that the **Mode** is set to **ADD**. Using the Left Mouse Button, click on the location that is to be the first point in the Cell. As new points are added, the last point defined will connect back to the first point to form a complete pattern. Continue adding points using the mouse until the Cell has been fully defined.

When the pattern is complete, select **Enter** or **End** on the keyboard to return to the Weather Cell window.

Each point, as it was added, was assigned a number that can be used as reference if the Cell requires modification.

When you are finished defining the Area, select **Exit** to return to the Weather Cell List window.

Add/Delete Heavy's:

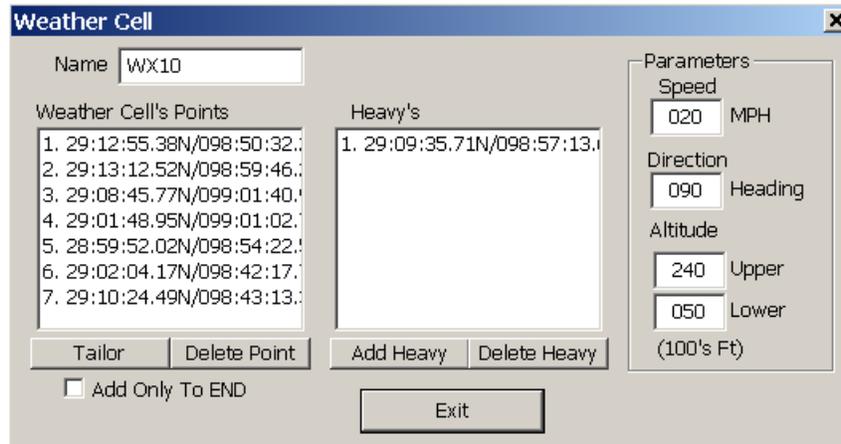
Heavy's are areas in the Weather Cell that contain high levels of intensity. Depending on the Operational System that is being simulated, if a Heavy is added to the Cell, the display on the Pilot and Student position will reflect the different intensity.

Add: Select the **Add Heavy** button. This will take you to the map display with the Cell outline. Using the left mouse button, click on the location where you want the Heavy to be displayed. You will be returned to the Weather Cell window. Repeat the operation until all desired Heavy's have been added.

Delete: To delete a Heavy, highlight the Heavy that is to be deleted in the Heavy's list window and select the **Delete Heavy** button. Selecting Yes in the confirmation window will remove the Heavy from the Cell.

6.17.3.2 Modify a Weather Cell

To modify a Weather Cell, highlight the Cell that is to be modified from the **Weather Cell List** window and select **Update**. The selected Weather Cell window will be displayed:



UM-219

The **Name**, **Speed**, **Direction** or **Altitude** may be changed or a **Point** may be deleted, added or moved.

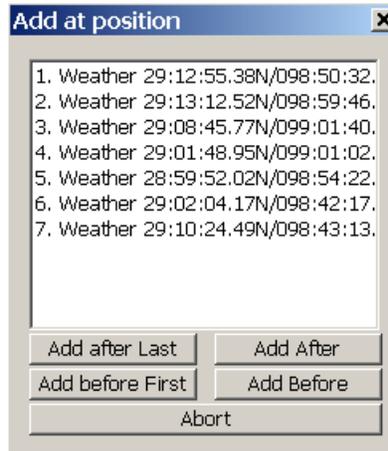
To Delete a Point:

Highlight the Point that is to be deleted and select **Delete Point**. Selecting **Yes** in the confirmation box will remove the point from the Cell.

To Add a Point:

Ensure the **Add Only To END** select box is **not** selected. Select **Tailor**. This will take you to the map display. The Cell outline will be visible with each point labeled. Make sure that the **Mode** is set to **Add** and **Move** is set to **Disabled**.

Using the Left mouse button, click on the location of the Point that is to be added. The following window will be displayed:



UM-220

Select the button that best describes the desired location of the new Point:

Add after Last: Will add the New Point after the last Point in the list.

Add before First: Will add the New Point before the first Point in the list.

Add After: Select a Point in the list and then press **Add After**. Will add the New Point immediately after the Point you selected.

Add Before: Select a Point in the list and then press **Add Before**. Will add the New Point immediately before the Point you selected.

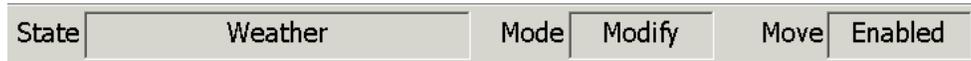
After the New Point is inserted into the Cell, you will be returned to the map display.

Abort: Cancels the process and returns you to the map display.

Either add another Point or press **Enter** or **End** on the keyboard to return to the **Weather Cell** window.

To Move a Point:

Ensure the **Add Only To END** select box is **not** selected. Select **Tailor**. This will take you to the map display. The Cell outline will be visible with each point labeled. Ensure that **Mode** is set to **Modify** and **Move** is set to **Enabled**.



Using the left mouse button, **click** on the Point that is to be repositioned **and drag** it to the new location then release. A window containing detailed information on the selected Point will be displayed. Changes can be made if necessary. When all the information is correct, select **OK**. If you wish to avoid saving the new information, select **Cancel**.

Either move another Point or press **Enter** or **End** on the keyboard to return to the **Weather Cell** window.

After all modifications have been made to the Cell, select **EXIT** to end the process.

6.17.4 Weather Stations

This is a Master only function.

Weather Stations are used to introduce weather information into a scenario. The weather information includes report time, altimeter settings and surface observations. The Weather Stations are initially established in the Master Database but the information can be modified and introduced into the scenarios by the use of System Events.

6.17.4.1 Add a Weather Station

Select **Weather Stations** from the **Weather** sub-menu. This will take you to the map display.

Ensure that the **Mode** is set to **Add** and **Move** is set to **Disabled**.

Click the left mouse button at the desired location of the Weather Station that is to be added. The following window will appear:

The screenshot shows a dialog box titled "Weather Station" with a close button (X) in the top right corner. The dialog contains the following fields and controls:

- Name:** A text box containing "WS0001".
- Location:** A text box containing "33:22:54.81N/091:41:46.06W".
- Default:** A checkbox that is currently unchecked.
- Reporting Information (Default):** A section containing several input fields:
 - Type Ob:** METAR
 - ReportTime:** 000000Z
 - Modifier:** AUTO
 - Wind:** (empty)
 - Visibility:** (empty)
 - RVR:** (empty)
 - Weather:** (empty)
 - Clouds:** (empty)
 - Temp/Dew:** (empty)
 - Altimeter:** A2992
- Remarks:** A text box (empty).
- Buttons:** OK, Delete, and Cancel buttons are located at the bottom of the dialog.

UM-221

Name: Enter the name of the new Weather Station.

EnRoute facilities will only display the three-letter identifiers as the name of the Weather Station on the reports.

Location: This is the lat/long location of this Weather Station. If the point that is being identified is collocated with a Fix that already exists in the database, enter the identifier of the Fix. The lat/long of that Fix will be used to position the Weather Station.

Default: This is for T2D scenarios only. This will specify that this weather station is at the same location as the tower.

Reporting Information:

Type Ob The two options are METAR (for normal observations) and SPECI (for special reports).

EnRoute facilities will only display an M or S on the reports.

Report Time This is the date and time of the weather observation. It includes a two digit date, four digit Time and a "Z" at the end.

EnRoute facilities will drop the two digit date on the reports.

Modifier The options are COR, AUTO or a blank field.

COR – Report is a correction of a previous report
AUTO – Report is from a fully automated station
Blank field – Report is a manual observation

Wind The wind direction is entered in three characters followed by the speed in two or three characters followed by KT.

Visibility	This is the Visibility at the reporting station. Whole numbers and fractions are separated by a space. SM, indicating statute miles, always follows the reported visibility.
RVR	This is the Runway Visual Range. It is entered with the runway first then the range with following zeros included. This is followed by FT to indicate that it is in feet versus meters. EnRoute facilities will not display the RVR element.
Weather	This field is used to detail weather phenomena that affect visibility.
Clouds	This field is to describe Sky Conditions or cloud cover.
Temp/Dew	The temperature and dew point are reported in two digits each separated by a slant (/). The temperature is in Celsius.
Altimeter	This is the altimeter setting at the time of the weather observation. The setting is expressed in inches of mercury. It should be four digits without the decimal preceded by an A (i.e. A2992, A3005).
Remarks	This field is used to introduce any pertinent information relative to the observation. If a remark is included in the report, the element begins with the contraction RMK .

After entering all information, select **OK**. This will return you to the map display. You can either add another **Weather Station** or select **Pointer** from the **State** pop-down window.

6.17.4.2 Modify a Weather Station

There are two ways to select a Weather Station that is to be modified:

Using the Mouse or

Using "The Modify List".

Ensure that the **State** is set to **Weather Stations**, **Mode** is set to **Modify** and **Move** is set to **Disabled**.

State	Weather Stations	Mode	Modify	Move	Disabled
-------	------------------	------	--------	------	----------

Using the Mouse

Select the Weather Station that is to be modified using the left mouse button. The following window will appear:

Weather Station [X]

Name: Default

Location:

Reporting Information (Default)

Type Ob	<input type="text" value="METAR"/>	RVR	<input type="text"/>
ReportTime	<input type="text" value="000000Z"/>	Weather	<input type="text"/>
Modifier	<input type="text" value="AUTO"/>	Clouds	<input type="text" value="BKN013"/>
Wind	<input type="text" value="33010KT"/>	Temp/Dew	<input type="text" value="23/21"/>
Visibility	<input type="text" value="4SM"/>	Altimeter	<input type="text" value="A2992"/>

Remarks:

OK Delete Cancel

UM-222

Make changes as necessary and select **OK** to save.

Using The Modify List function

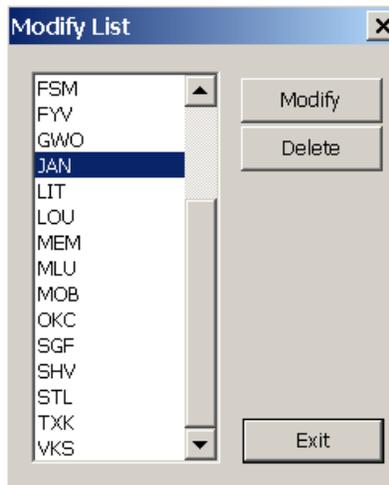
To access **The Modify List** for Weather Stations:

Click the Right Mouse button and select **The Modify List** from the pop-down window.



UM-040

The **Modify List** window will then be displayed. Highlight the Weather Station that is to be modified from the **Modify List** and select **Modify**.



UM-223

The Weather Station window will then be displayed and you can modify each field as necessary. Select **OK** to save.

6.17.5 Winds

This is a Scenario and Master function.

Winds are introduced into a scenario to better simulate actual flying conditions. The Winds will affect the speed and heading of aircraft. This will force the student to take into account how the aircraft will be affected when choosing separation options.

Before a Wind Event can be added to a scenario, a Wind Reporting Station must be created.

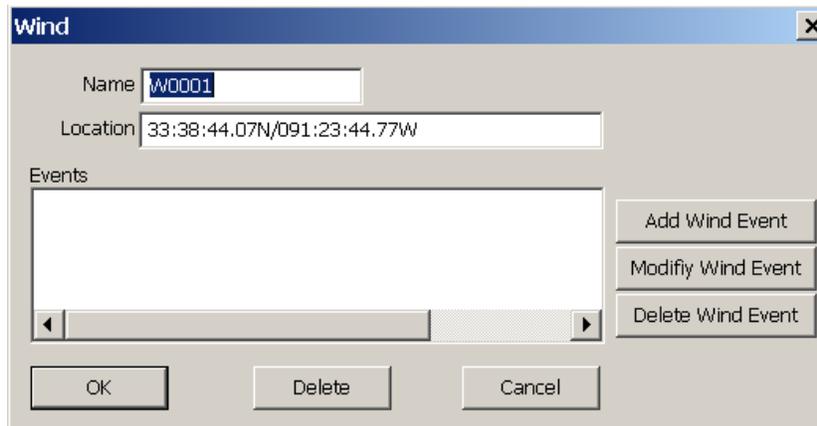
6.17.5.1 Add a Wind Reporting Station

Select **Winds** from the **Weather** sub-menu. This will take you to the map display.

Ensure that the **Mode** is set to **Add** and **Move** is set to **Disabled**.



Click the left mouse button at the desired location of the Wind Reporting Station that is to be added. The following window will appear:



UM-225

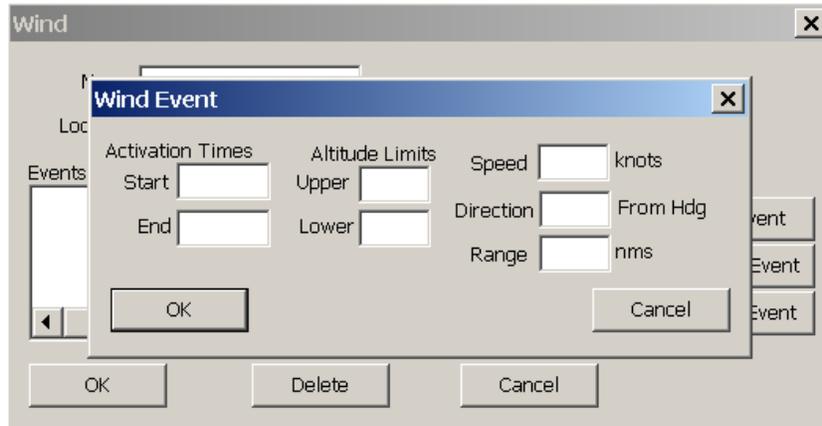
Name The Name should be the name of the reporting station.

Location: This is the lat/long location of the reporting station.

Events: The Events window will display all wind events created for this reporting station.

6.17.5.2 Add a Wind Event

If **Add Wind Event** is selected, the following window will be displayed:



UM262

Activation Times

This is time from start of the problem not actual clock time. This will allow the user to change the wind configuration during the running of a problem. If the **End** time of one wind configuration is the same as the **Start** time of another and has the same **Altitude Limits**, the second configuration will be applied.

Altitude Limits

This is the Upper and Lower parameter of the Wind Area. Multiple stratum may be included in each scenario. Avoid gaps in the stratum; the Upper limit of one stratum must be the same as the Lower limit of the stratum above it.

Speed

This is the wind velocity within the defined area.

Direction

This is the direction the winds will be coming from.

Range

This is the Radius of the Wind area. If an aircraft is within the circle created at this Range, it will be influenced by the defined parameters. If an aircraft is outside the Range of this area, it will be affected by either another Wind area that has been defined in the scenario or the wind velocity will be decreased by 1% each 10 nm beyond the defined area.

If an aircraft is within more than one area (overlapped areas) the aircraft will be influenced by the wind whose Location point is closest to the aircraft.

6.17.5.3 Modify a Wind Event

To modify a Wind Event, select Winds from the Weather sub-menu. This will take you to the map display. All Wind Reporting Stations that have been defined in the scenario will display a large blue "W".



Ensure that **Mode** is set to **Modify** and **Move** is set to **Disabled**. Using the left mouse button, select the Wind Reporting Station that is to be modified. When the Wind Reporting Station window is displayed, select the Wind Event that is to be modified and select **Modify Wind Event**. Any of the information pertaining to that event can be modified.

Select **OK** when all information is correct.

6.17.5.4 Delete a Wind Event

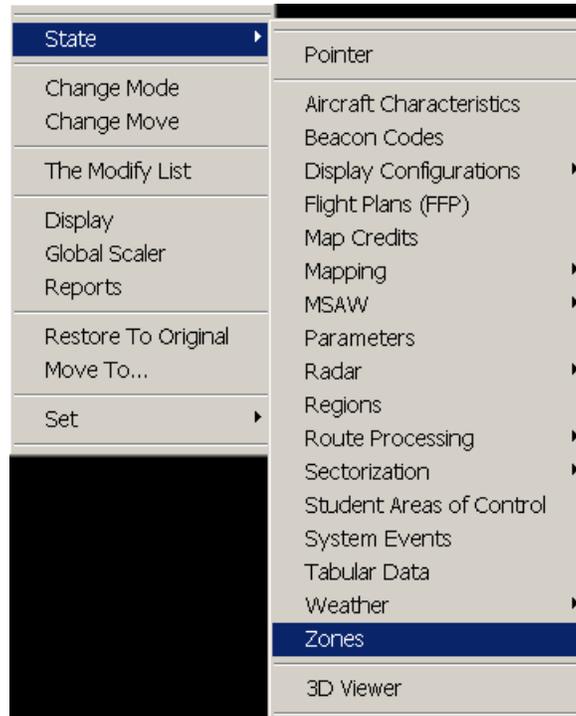
Select the Wind Reporting Station that contains the event that is to be deleted. Select the Wind Event that is to be deleted and select **Delete Wind Event**.

Warning: The **Delete** button located at the bottom of the window will delete the Wind Reporting Station and all Wind Events.

6.18 Zones

This is a Master only function.

Zones can be activated/deactivated in a Scenario by System Event.



UM-224

Zones were originally developed to support the simulation of the Morocco Operational system, however, other users may take advantage of this State to design airspace that requires horizontal boundaries in the shape of a circle.

Zones are built as three-dimensional areas. They may cause visual or audible alarms to determine if an aircraft has entered the designated airspace.

All Zones developed under this State will be built as a circle; however, Inhibit Zones and VFR Zones for the Morocco system may also be built in the shape of a four-sided polygon under the Regions State.

When Zones is selected from the State sub-menu, you will be taken to the map display. All existing Zones will be displayed. The user can add additional Zones or modify any of the existing Zones.

6.18.1 Types of Zones

There are 5 types of Zones that are specific to the Morocco system. They are Danger Zone, Prohibited Zone, Restricted Zone, Inhibit Zone and VFR Zone.

Other users may use Zones to create areas in the shape of a circle. They are Non-Radar Area, Conflict Inhibit, Outbound Handoff, MSAW Inhibit and Keyhole Area.

Danger Zones:

Color:	Red
Naming Convention:	Example: ZAD0001* Explanation: The field 0001 can range from 0000-9999; the "*" indicates that the zone is active or blank for inactive.
Purpose:	Danger Zones are used to alert the operator when an aircraft is predicted to or has violated designated airspace.

Prohibited Zones

Color:	Yellow
Naming Convention:	Example: ZAP0001* Explanation: The field 0001 can range from 0000-9999; the "*" indicates that the zone is active or blank for inactive.
Purpose:	Prohibited Zones are used to alert the operator when an aircraft is predicted to or has violated designated airspace.

Restricted Zones

Color:	Green
Naming Convention:	Example: ZAR0001* Explanation: The field 0001 can range from 0000-9999; the "*" indicates that the zone is active or blank for inactive.
Purpose:	Restricted Zones are used to alert the operator when an aircraft is predicted to or has violated designated airspace.

Inhibit Zones

Color:	Blue
Naming Convention:	Example: ZIH1* Explanation: The field 1 can range from 0-9; the "*" indicates that the zone is active or blank for inactive.
Purpose:	Tracks originating in an Inhibit Zone are not eligible for automatic initiation. Once the track exits the Zone, they become eligible for automatic initiation.
Description:	Inhibit Zones utilize a four sided, polygon figure. Located in the lower right of the zone is a two-character identifier representing the identity and number of the zone.

VFR Zones

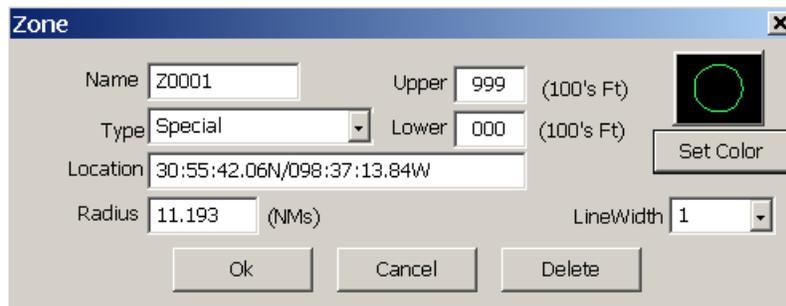
Color:	Cyan
Naming Convention:	Example: ZAVV01* Explanation: The field 01 can range from 00-99; the "*" indicates that the zone is active or blank for inactive.
Purpose:	All tracks originating within active VFR Zones are automatically classified as VFR tracks unless a flight plan exists.
Description:	VFR Zones utilize a four sided, rectangular figure or a circle to define the area covered by the zone. Located in the lower right of the zone is a three-character identifier representing the identity and number of the zone. The identifier consists of the letter V followed by a number from 1 through 14. A maximum of fourteen VFR Zones can be created.

6.18.2 Add a Zone

Ensure that **State** is set to **Zones**, **Mode** is set to **Add** and **Move** is set to **Disabled**.



Click the left mouse button at the desired location that is to be the center on the Zone. Drag the mouse in any direction. As the mouse is moved, a circle is displayed. When the circle is the desired size, click the left mouse button again. The following window will appear:

A screenshot of a dialog box titled 'Zone'. It contains several input fields and buttons. The 'Name' field contains 'Z0001'. The 'Upper' field contains '999' with '(100's Ft)' to its right. The 'Type' dropdown menu is set to 'Special'. The 'Lower' field contains '000' with '(100's Ft)' to its right. The 'Location' field contains '30:55:42.06N/098:37:13.84W'. The 'Radius' field contains '11.193' with '(NMs)' to its right. The 'LineWidth' dropdown menu is set to '1'. There is a 'Set Color' button with a small circular icon to its left. At the bottom are 'Ok', 'Cancel', and 'Delete' buttons.

UM-227

Name: The Name must be in the special format described in the Naming Convention portion of Types of Zones. This is to ensure that the label associated with the Zone is displayed correctly.

Type: The options for the Morocco system are Danger Zone, Prohibited Zone, Restricted Zone, Inhibit Zone and VFR Zone.

Other options that are available for other users are Non-Radar Area, Conflict Inhibit, Outbound Handoff, MSAW Inhibit and Keyhole Area.

Location: This is the point of the first mouse click when the Zone was created. If the exact location is known it can be entered using the valid Latitude/Longitude or valid Non-Latitude/Longitude format.

Radius: Enter the exact Radius of the Zone.

Upper/Lower: This is the Upper and Lower altitude of the Zone.

Line Width This allows each Zone to be set to a unique line width. Default is 1.

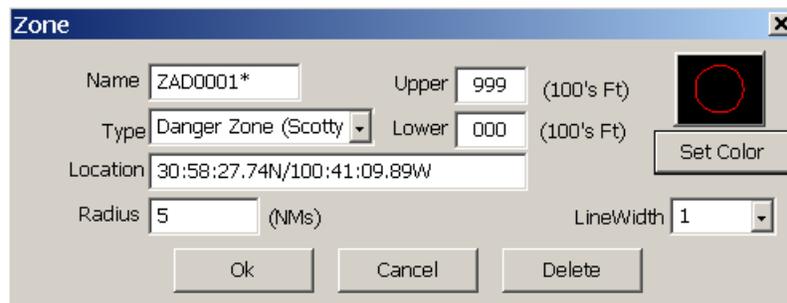
Set Color This option allows the user to select a color for the display of this item.

6.18.3 Modify a Zone

Ensure that **State** is set to **Zones**, **Mode** is set to **Modify** and **Move** is set to **Disabled**.



Select the Zone that is to be modified using the left mouse button. The following window will appear:

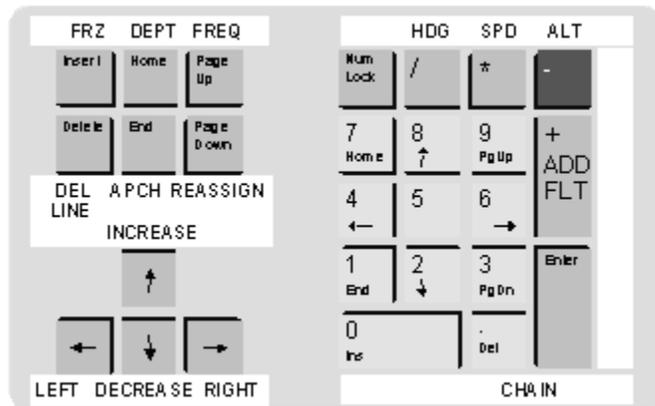
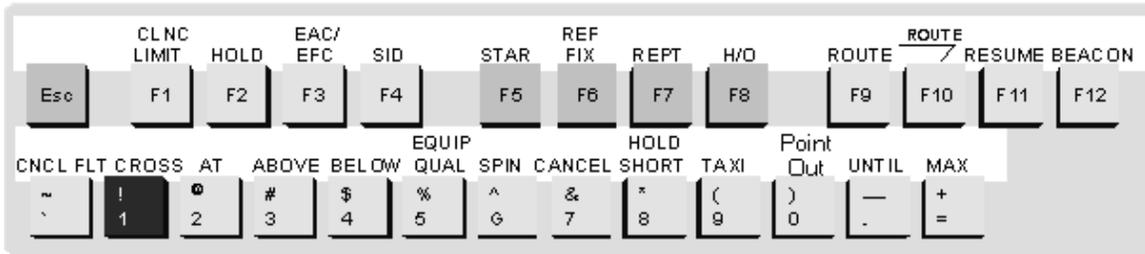


UM-228

Make changes as necessary and select **Ok** to save.

APPENDIX A

Events Command Set



The Pilot Commands have been assigned to the keyboard for ease of use. These images of the Pilot Keyboard Template show the locations of these assignments.

All Pilot Commands except Add_A_Flight require that an aircraft be selected first.

Altitude Commands

Altitude *altitude*

Replaces the Assigned Altitude for an aircraft.

Altitude *altitude rate*

Replaces the Assigned Altitude for the aircraft using the Rate of change in 100's of feet/minute as input.

Altitude MAX

The aircraft will use the **MAX** rate to reach the Assigned Altitude.

Altitude MAX *altitude*

The aircraft will use the **MAX** rate to reach the new Assigned Altitude.

Altitude *altitude* **Heading** *heading*

This is a do then do command. Once the Altitude is reached then the aircraft will turn to the new Heading.

Altitude *altitude* **Speed** *speed*

This is a do then do command. Once the altitude is reached then the aircraft will change to the new Speed.

Altitude *altitude* **Until** *fix* **Altitude** *altitude2*

Replaces the Assigned Altitude for an aircraft and waits until the aircraft reaches the Fix location to set Altitude2 as the new Altitude for the aircraft.

Altitude *altitude* **Until** *fix* **Altitude MAX**

Replaces the Assigned Altitude for an aircraft and waits until the aircraft reaches the Fix location and then uses the **MAX** rate to reach the Altitude.

Altitude *altitude* **Until** *fix* **Altitude MAX** *altitude2*

Replaces the Assigned Altitude for an aircraft and waits until the aircraft reaches the Fix location to set Altitude2 as the new Altitude for the aircraft and uses the **MAX** rate to reach Altitude2.

Altitude *altitude* **Until** *fix* **Speed** *speed*

Replaces the Assigned Altitude for an aircraft and waits until the aircraft reaches the Fix location to set the new speed for the aircraft.

Altitude *altitude* **Until** *fix* **Speed H**

Replaces the Assigned Altitude for an aircraft and waits until the aircraft reaches the Fix location to set the Holding speed for the aircraft.

Altitude *altitude* Until *fix* Speed **A**

Replaces the Assigned Altitude for an aircraft and waits until the aircraft reaches the Fix location to set the Approach speed for the aircraft.

Altitude *altitude* Until *fix* Heading *heading*

Replaces the Assigned Altitude for an aircraft and waits until the aircraft reaches the Fix location to set a new Heading for the aircraft.

Altitude *altitude* Until *fix* Heading **Left *heading***

Replaces the Assigned Altitude for an aircraft and waits until the aircraft reaches the Fix location to set a new Heading for the aircraft and turns Left to it.

Altitude *altitude* Until *fix* Heading **Right *heading***

Replaces the Assigned Altitude for an aircraft and waits until the aircraft reaches the Fix location to set a new Heading for the aircraft and turns Right to it.

Altitude *altitude* Until *fix* Heading **Left**

Replaces the Assigned Altitude for an aircraft and waits until the aircraft reaches the Fix location and then starts turning Left.

Altitude *altitude* Until *fix* Heading **Right**

Replaces the Assigned Altitude for an aircraft and waits until the aircraft reaches the Fix location and then starts turning Right.

Altitude *altitude* Until *fix* Heading *number of degrees* **Left**

Replaces the Assigned Altitude for an aircraft and waits until the aircraft reaches the Fix location and then turns Left the Number of Degrees.

Altitude *altitude* Until *fix* Heading *number of degrees* **Right**

Replaces the Assigned Altitude for an aircraft and waits until the aircraft reaches the Fix location and turns Right the Number of Degrees.

Altitude *altitude* Until *fix* Approach **V *runway***

Replaces the Assigned Altitude for an aircraft and waits until the aircraft reaches the Fix location and then attempts a visual approach.

Altitude **Increase/Decrease 100's of feet**

Uses the current altitude and increases or decreases it by the number of 100s of feet.

Approach Commands

Approach approach

Press the Approach button and select from the list of valid approaches built for the destination airport.

Note: If a list is not displayed, then this aircraft is not routed to a valid airport. Reroute the aircraft to the desired valid airport and follow the approach instruction again.

Approach Cancel

If an aircraft is flying an approach, this causes the aircraft to execute a missed approach.

At Commands

At Commands are conditional events. Any **Condition** can be combined with any or all of the **Parameters**. Duplication of parameters is not allowed. Once the conditional part of the command is met, the Parameter that was entered will be performed on the aircraft.

CONDITIONS

At Altitude *altitude*

At Heading *heading*

At Speed *speed*

At flightslot or **At flightslot distance** (Distance is optional for FlightSlot.)

PARAMETERS

Heading *heading*

Speed *speed*

Altitude *altitude*

Equipment Qualifier A-Z

Radio *T or R*

Beacon *beacon*

Route *flight plan route*

Cancel Flight

Route Intercept *(fix) optional*

Beacon Commands

Beacon I

Causes an aircraft to Ident.

Beacon *beacon I*

Replaces the existing Beacon Code of an aircraft and causes the aircraft to Ident.

Beacon *beacon*

Replaces the existing Beacon Code of an aircraft.

Beacon S

Toggles the Beacon of an aircraft on or off.

Beacon A

Toggles the Mode C of an aircraft on or off.

Beacon Z

Toggles the Radar display of an aircraft on or off.

Cancel Flight Commands

Cancel_Flight

Removes an aircraft from the simulation.

Crossing Commands

Cross *fix* At Altitude *altitude*

Causes aircraft to be AT the specified Altitude prior to crossing over the Fix.

Cross *fix* At Speed *speed*

Causes aircraft to be AT the specified Speed prior to crossing over the Fix.

Cross *fix* At Altitude *altitude* Speed *speed*

Causes aircraft to be AT the specified Altitude and Speed prior to crossing over the Fix.

Cross *fix* At *time*

Causes aircraft to reach the fix at the state time.

Cross *fix* Above Altitude *altitude*

Causes aircraft to be Above the specified Altitude when crossing over the Fix.

Cross *fix* Below Altitude *altitude*

Causes aircraft to be Below the specified Altitude when crossing over the Fix.

Cross *fix* Above Speed *speed*

Causes aircraft to be Above the specified Speed when crossing over the Fix.

Cross *fix* Below Speed *speed*

Causes aircraft to be Below the specified Speed when crossing over the Fix.

Cross *fix* Above Altitude *altitude* Speed *speed*

Causes aircraft to be Above the specified Altitude and Speed when crossing over the Fix.

Cross *fix* Below Altitude *altitude* Speed *speed*

Causes aircraft to be Below the specified Altitude and Speed when crossing over the Fix.

Departure Commands

Depart

Causes an aircraft waiting for departure to begin takeoff and ascent from airport.

Depart direction

Causes an aircraft waiting for departure to begin takeoff and ascent from airport in the direction specified.

Direction: N=North, S=South, E=East, W=West, NE=NorthEast, NW=NorthWest, SE=SouthEast, SW=SouthWest

Depart Cancel

Stops automatic departures of aircraft that have a D#### time.

Depart Resume

Resumes automatic departures of aircraft that have a D#### time.

Equipment Qualifier

Equipment Qualifier *equip. code*

Causes the equipment qualifier of an aircraft to be change to the new code input. Code is single letter A-Z.

Handoff Commands

Press the Handoff button and select from the list of valid sectors. You may not handoff to the sector that already owns the aircraft.

Heading Commands

Heading Left

Causes an aircraft to start turning left.

Heading Right

Causes an aircraft to start turning right.

Heading

A turning aircraft will stop turning and continue on its present heading.

Heading *heading*

Causes an aircraft to turn to the Assigned Heading.

Heading Range 0 to 360.

Heading Left *heading*

Causes an aircraft to turn left to the Assigned Heading.

Heading Range 0 to 360.

Heading Right *heading*

Causes an aircraft to turn right to the Assigned Heading.

Heading Range 0 to 360.

Heading *number of degrees* **Left**

Causes an aircraft to turn left Number of Degrees specified.

Heading *number of degrees* **Right**

Causes an aircraft to turn right Number of Degrees specified.

Heading MAX

Causes an aircraft to use its **MAX** turn rate during the turn.

Heading Until *time*

Causes an aircraft to maintain current heading until specified time, then prompts the pilot to request further instructions.

Time Range is 0 to 2359.

Heading *heading* **Until** *time*

Causes an aircraft to turn to the specified Heading and maintain that heading until specified Time, then prompts the pilot to request further instructions.

Time Range is 0 to 2359.

Heading Until *fix*

Causes an aircraft to maintain current heading until reaching specified Fix, then prompts the pilot to request further instructions.

Heading *heading* **Until** *fix*

Causes an aircraft to turn to the specified Heading and maintain that heading until reaching the specified Fix, then prompts the pilot to request further instructions.

Heading Range is 0 to 360.

Heading Until Altitude *altitude*

Causes an aircraft to maintain current Heading until reaching the specified Altitude, then prompts the pilot to request further instructions.

Altitude Range is 0 to upper legal altitude for this aircraft.

Heading *heading* **Until Altitude** *altitude*

Causes an aircraft to turn the specified Heading and maintain that heading until reaching the specified Altitude, then prompts the pilot to request further instructions.

Heading *heading* **Altitude** *altitude*

This is a do then do command. Once the aircraft has turned to the specified Heading it will change to the specified Altitude.

Heading *heading* **Speed** *speed*

This is a do then do command. Once the aircraft has turned to the specified Heading it will change to the specified Speed.

Note: The variables *Heading* and *Altitude* are 3 digit numbers. The variable *Time* is a 4-digit number. The variable *Fix* must be a valid name found in the database.

Radio

Radio T

Toggles the Radio transmitter between Failed and Okay.

Radio R

Toggles the Radio receiver between Failed and Okay.

Reference Fix Commands

Reference_Fix *fix*

Establishes the specified Fix as the Reference Fix.

Reference_Fix L

Establishes the last Fix in the route of the aircraft as the Reference Fix.

Reference_Fix N

Establishes the next Fix in the route of the aircraft as the Reference Fix.

Reference_Fix C

Establishes the Clearance Limit Fix as the Reference Fix.

Report

Report P *prompt*

This is not a prompt that can be entered by the Pilot, it is used in CREATE only.

This will generate a plain language prompt for the Pilot.

Set Ownership

Press the Set Ownership button and select from the list of valid sectors.

Speed Commands

Speed *speed*

Sets the Assigned Speed of an aircraft to the specified *speed*.

Speed: Must fall into the range valid for the aircraft.

Speed Increase *number of knots*

Increases the Assigned Speed of an aircraft by the specified Speed.
Speed: Must fall into the range valid for the aircraft.

Speed Decrease *number of knots*

Reduces the Assigned Speed of an aircraft by the specified Speed.
Speed: Must fall into the range valid for the aircraft.

Speed

Sets the current speed to be the Assigned Speed of an aircraft.

Speed Resume

Sets the Assigned Speed of an aircraft to the original assigned speed.

Speed OK *speed*

Allows for the Assigned Speed to be overridden in the descent and level flights at or below 10,000 feet from the maximum of 250 knots. The Speed can be increased to the maximum allowable for the aircraft.

Speed C

Sets the Assigned Speed of an aircraft to normal Cruising Speed.

Speed H

Sets the Assigned Speed of an aircraft to Holding Speed

Speed A

Sets the Assigned Speed of an aircraft to Approach Speed.

Speed *speed* **Until** *fix* **Speed** *speed2*

Sets the Assigned Speed of an aircraft to the speed and waits until the specified Fix is reached, and then sets the speed to Speed2.

Speed & Speed2: Must fall into the range valid for the aircraft.

Speed *speed* **Until** *fix* **Speed H**

Sets the Assigned Speed of an aircraft to the speed and waits until the specified Fix is reached, and then sets the speed to Holding Speed.

Speed: Must fall into the range valid for the aircraft.

Speed *speed* **Until** *fix* **Speed A**

Sets the Assigned Speed of an aircraft to the speed and waits until the specified Fix is reached, and then sets the speed to Approach Speed.

Speed: Must fall into the range valid for the aircraft.

Speed *speed* Until *fix* Altitude *altitude*

Sets the Assigned Speed of an aircraft to the speed and waits until the specified Fix is reached, and then sets the altitude to Altitude.

Speed: Must fall into the range valid for the aircraft.

Altitude: Must fall into the range valid for the aircraft.

Speed *speed* Until *fix* Altitude MAX

Sets the Assigned Speed of an aircraft to the speed and waits until the specified Fix is reached, then sets the climb/descent rate to MAX for the aircraft.

Speed: Must fall into the range valid for the aircraft.

Speed *speed* Until *fix* Altitude MAX *altitude*

Sets the Assigned Speed of an aircraft to the speed and waits until the specified Fix is reached, then sets the altitude to Altitude and uses MAX rate to reach it.

Speed: Must fall into the range valid for this aircraft.

Altitude: Must fall into the range valid for the aircraft.

Speed *speed* Until *fix* Heading *heading*

Sets the Assigned Speed of an aircraft to the speed and waits until the specified Fix is reached, then turns to the new Heading.

Speed: Must fall into the range valid for the aircraft.

Heading: Range is 0 to 360.

Speed *speed* Until *fix* Heading Left *heading*

Sets the Assigned Speed of an aircraft to the speed and waits until the specified Fix is reached, then turns Left to the new Heading.

Speed: Must fall into the range valid for the aircraft.

Heading: Range is 0 to 360.

Speed *speed* Until *fix* Heading Right *heading*

Sets the Assigned Speed of an aircraft to the speed and waits until the specified Fix is reached, then turns Right to the new Heading.

Speed: Must fall into the range valid for the aircraft.

Heading: Range is 0 to 360.

Speed *speed* Until *fix* Heading Left

Sets the Assigned Speed of an aircraft to the speed and waits until the specified Fix is reached, then starts turning Left.

Speed: Must fall into the range valid for the aircraft.

Speed *speed* Until *fix* Heading Right

Sets the Assigned Speed of an aircraft to the speed and waits until the specified Fix is reached, then starts turning Right.

Speed: Must fall into the range valid for the aircraft.

Speed *speed* Until *fix* Heading MAX

Sets the Assigned Speed of an aircraft to the speed and waits until the specified Fix is reached, then sets the turn rate to MAX for the aircraft.

Speed: Must fall into the range valid for the aircraft.

Heading: Range is 0 to 360.

Speed *speed* Until *fix* Heading *number of degrees* Left

Sets the Assigned Speed of an aircraft to the speed and waits until the specified Fix is reached, then turns Left to the Number of Degrees specified.

Speed: Must fall into the range valid for the aircraft.

Heading: Range is 0 to 360.

Speed *speed* Until *fix* Heading *number of degrees* Right

Sets the Assigned Speed of an aircraft to the speed and waits until the specified Fix is reached, then turns Right the Number of Degrees specified.

Speed: Must fall into the range valid for the aircraft.

Heading: Range is 0 to 360.

Speed L

Sets the Assigned Speed of an aircraft to approach speed.

Speed *speed* Altitude *altitude*

This is a do then do command. Once the Speed change is accomplished then the Altitude change is executed.

Speed *speed* Heading *heading*

This is a do then do command. Once the Speed change is accomplished then the aircraft will turn to the new Heading.

Spin Commands

Spin Left

Used to place an aircraft in a left turn Spin status. The aircraft will continue this until Spin Cancel is input for this aircraft.

Spin Right

Used to place an aircraft in a right turn Spin status. The aircraft will continue this until Spin Cancel is input for this aircraft.

Spin Left *count*

Used to place an aircraft in a left turn Spin status for the number of spins as specified by *Count*. The value of *Count* may range from 1 to 10. After the aircraft has performed the number of spins requested, the aircraft will continue on the route of flight.

Spin Right *count*

Used to place an aircraft in a right turn Spin status for the number of spins as specified by *Count*. The value of *Count* may range from 1 to 10. After the aircraft has performed the number of spins requested, the aircraft will continue on the route of flight.

Spin Cancel

Used to cancel the Spin status for an aircraft.

Spin Handoff

Used to cause an aircraft to spin waiting for handoff acceptance.