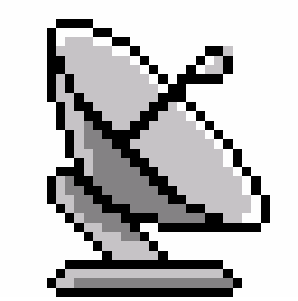
Users Manual

For



International **Em**ulator
(**INTEREM**)

Version 1.0

A Component of

SIGNAL

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

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May, 2000

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Federal Aviation Administration
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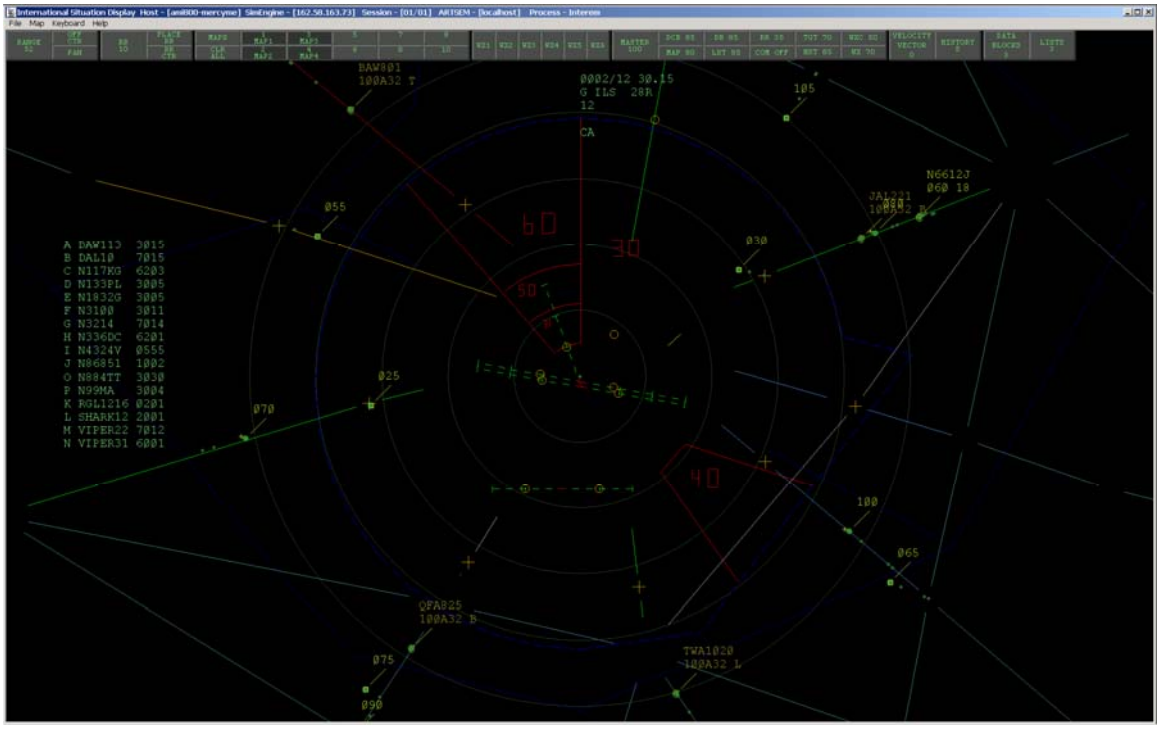
1 Overview

This document covers the features and functions that make up the INTEREM interface.



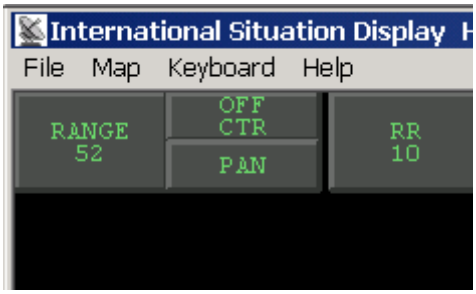
INTEREM is a component of the SIGNAL software system of air traffic simulations written by AMI-800 in support of the FAA Academy in Oklahoma City, Oklahoma.

2 Web Site

Information about INTEREM and the other components of the SIGNAL software system can be found on our web site @ **WWW.SIGNAL.JCCBI.GOV**.

3 Menus

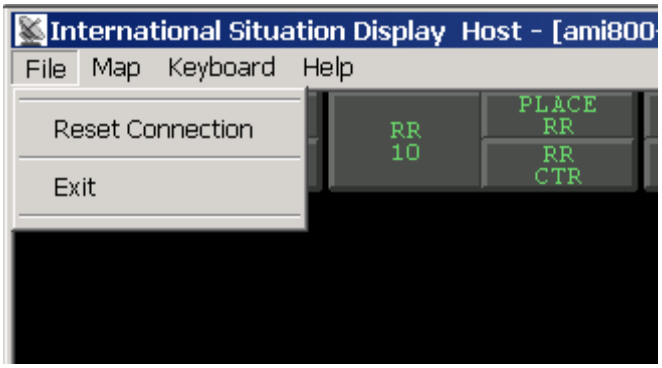
The menu buttons allow functions to be used. When a function is not permitted it is grayed out and does not work. The main menu is displayed across the top of the program window and above the toolbar.



The Main menu has many sub-menus and they will each be described in the following paragraphs.

3.1 File Menu

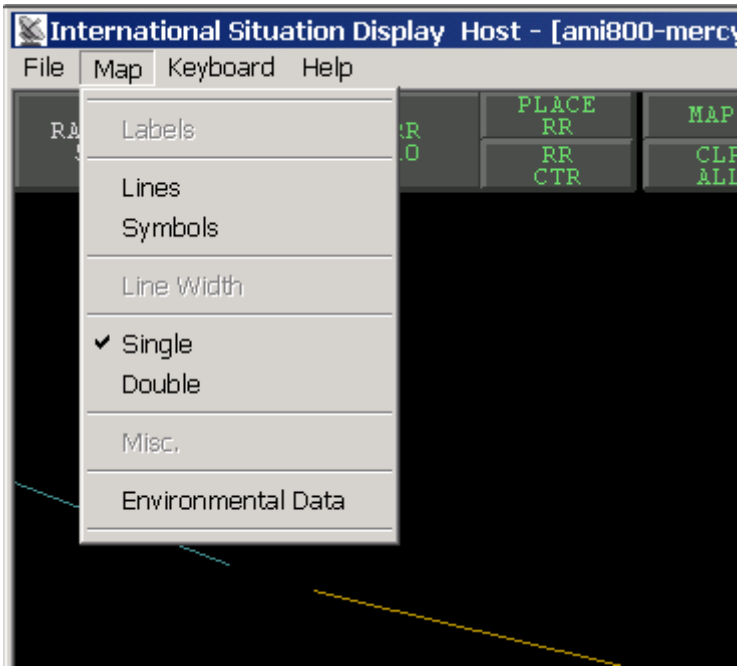
The File menu is mainly used to control the operation of the software as to termination and network connectivity.



Function	Description
Reset Connection	This button drops all established network connections and then reestablishes them.
Exit	This button terminates the program.

3.2 Map Menu

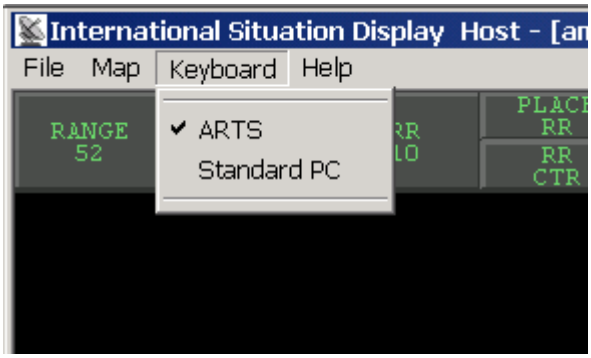
The software has the ability to change various parts of the display as shown below.



Function	Description
Lines	When selected, labels will be displayed on the mapping lines. This is useful when learning the airspace.
Symbols	When selected, labels will be displayed on the mapping symbols. This is useful when learning the airspace.
Single	When selected, the map lines will be drawn using a line width of 1.
Double	When selected, the map lines will be drawn using a line width of 2.
Environmental Data	This button toggles the display of the Environmental Data from the scenario.

3.3 Keyboard

The software has two valid keyboard selections. Default is ARTS keyboard. The main difference is in the area of the keypad and the order of the numbers.

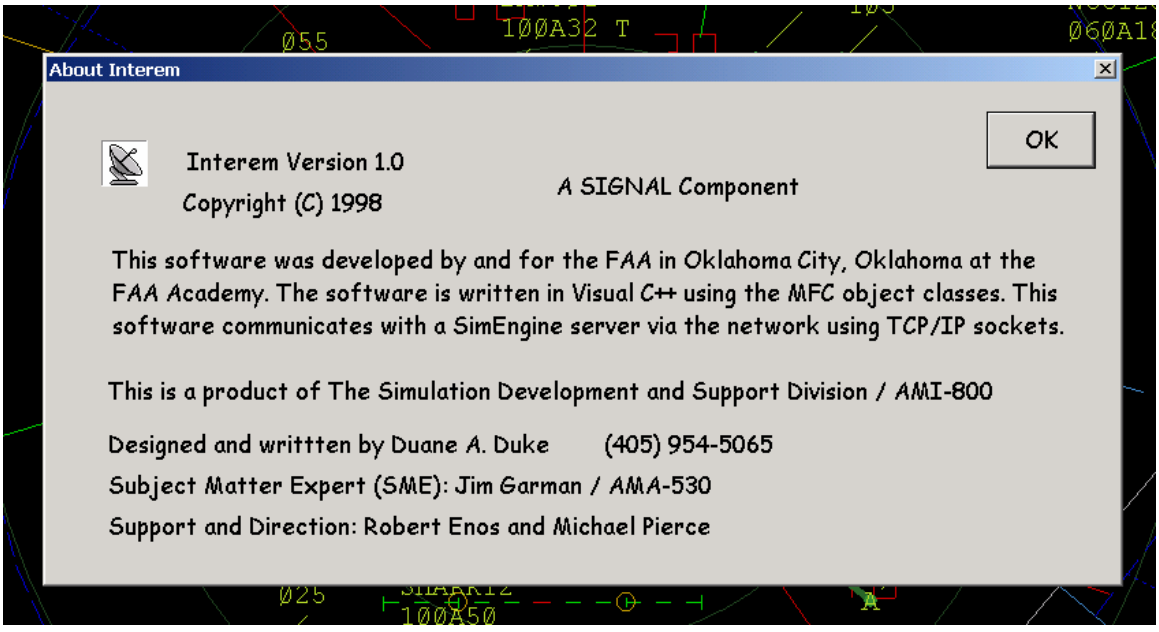


Function	Description
ARTS	When selected, keyboard inputs are handled as coming from an ARTS keyboard.
Standard PC	When selected, keyboard inputs are handled as coming from an standard PC keyboard.

3.4 Help Menu

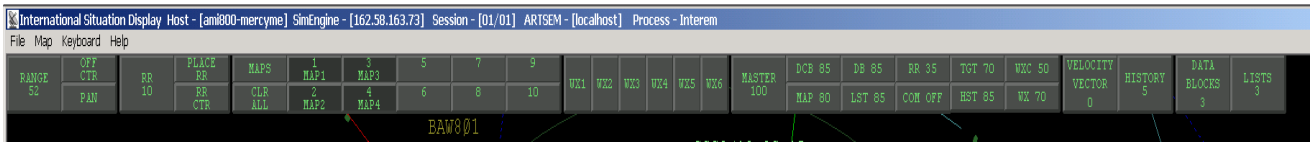
At this time the only available feature of the Help menu is to display the About box for the software.

Function	Description
About Interem...	This menu allows the display of the About box.



4 Toolbars

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



These buttons are mouse sensitive in that when the mouse pointer moves over each button*, the text on that button will change from* ***green*** *to* ***white***. Once a button is selected (Left mouse button is clicked on button) then two methods exist to provide input for the button.

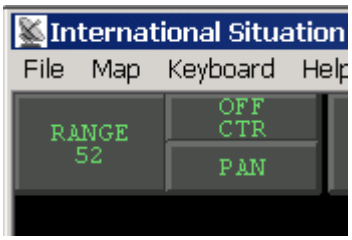
Methods of input for the tools bar buttons:

- Keyboard input terminated by using the "Enter" key.
- Moving the mouse up(Increases the value) or down(decreases the value) of the display. This method of input is terminated by clicking the left mouse button on the map.

The following paragraphs discuss the functions available and the valid range of inputs for each button.

4.1 Display Setup

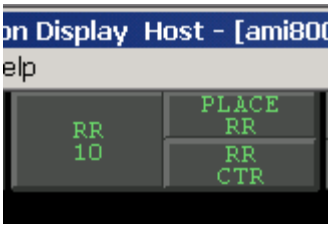
These buttons control the Display Setup of the Interem software.



Function	Description
RANGE	This button controls the Range of the display. Valid inputs range from 2-400 in terms of miles.
OFF CTR	When pressed the map returns to the original center of the display.
PAN	When pressed the map can be moved to any location of the display. This function is terminated by clicking the Left mouse button.

4.2 Range Rings

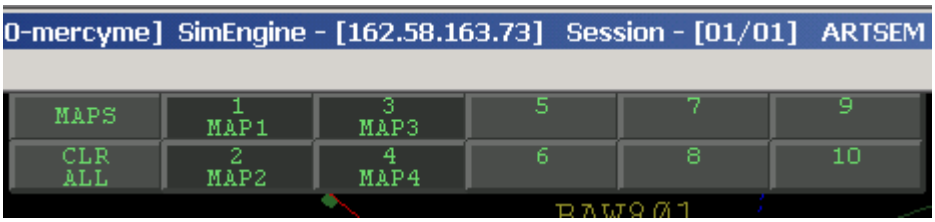
These buttons control the Range Rings provided with the Interem software.



Function	Description
RR	This button controls the increment of the Range Rings. Valid inputs are 2, 5, 10 & 20 in terms of miles.
PLACE RR	This button once pressed is waiting for an additional left mouse click on the display indicating the new center for the Range Rings.
RR CTR	This button moves the Range Rings back to the original location on the display.

4.3 Maps

These buttons control the Map selection for the Interem software.

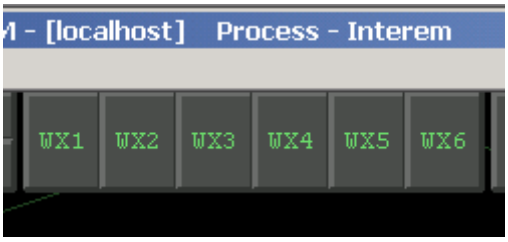


Function	Description
MAPS	No assigned function.
CLR ALL	This button deselects all maps.
MAP1	Toggles the display of the mapping date associated with Map 1 of the scenario data.
MAP2	Toggles the display of the mapping date associated with Map 2 of the scenario data.
MAP3	Toggles the display of the mapping date associated with Map 3 of the scenario data.
MAP4	Toggles the display of the mapping date associated with Map 4 of the scenario data.
5,6,7,8,9,10	No assigned function at this time. Waiting for Create2000 when additional maps will become available.

4.4 Weather

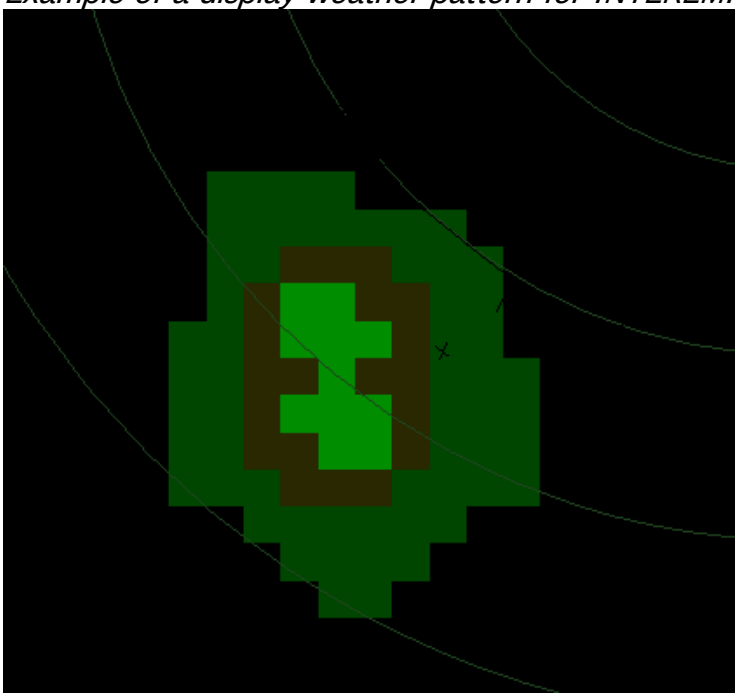
These buttons control the display of weather for the Interem software. INTEREM uses an ARS-9 weather display configuration.

- WX1 & WX2 control the display of the lite weather
- WX3 & WX4 control the display of the medium weather
- WX5 & WX6 are used to display the heavy weather.



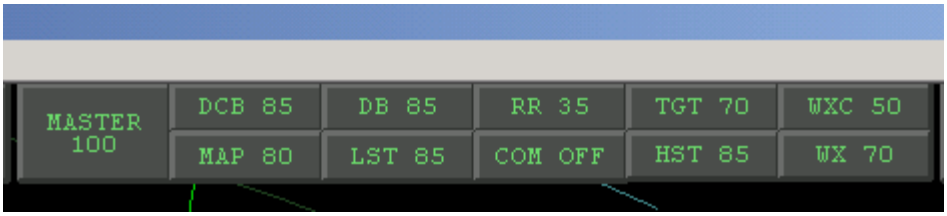
When weather is available for display these button turn a dim shade of green.

Example of a display weather pattern for INTEREM.



4.5 Intensity

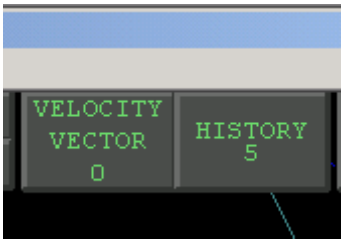
These buttons are used to control the color intensity of the various items displayed on the map. Valid range of input for all these buttons is 0(Off) to 100.



Function	Description
MASTER	The Master is used to shift all the intensity at once up or down.
DCB	Display Control also known as the tool bar.
MAP	Displayed Map.
DB	Data Blocks
LST	Displayed List
RR	Range Rings
COM	Compass Rose (Default is off)
TGT	Targets
HST	Histories
WXC	Weather Contrast
WX	Weather

4.6 Data Blocks

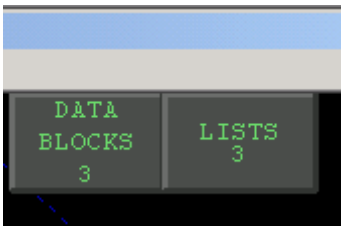
These buttons are used to control the display of the data blocks.



Function	Description
VELOCITY VECTOR	This button controls the display of a velocity vector on the Tracks. Valid input is 0(Off)-10 in terms of minutes.
HISTORY	This button controls the display of the number of histories shown for the Tracks. Valid input is 0(Off)-10.

4.7 Font Sizes

These buttons are used to control the font sizes used by the display.



Function	Description
DATA BLOCKS	This button controls the size of the font used to display the data blocks. Valid input is 1-5 with 3 being the default.
LISTS	This button controls the size of the font used to display the list of the display. Valid input is 1-5 with 3 being the default.

5 Command Set

The command set is based on the Common ARTS.

5.1 Create A New Track

Track start **(ST Acid Enter)**	**Track start** **(ST Acid Slew)**
Track start **(ST Acid ^ (discrete code) Enter)**	**Track start** **(ST Acid ^ (discrete code) Slew)**
Track Start with beacon code from IFR block **(ST Acid ^ + Enter)**	**Track start with code from IFR block** **(ST Acid ^ + Slew)**
Track start with code from VFR block **(ST Acid ^ / Enter)**	**Track start with code from VFR block** **(ST Acid ^ / Slew)**
Track start as radar only **(ST Acid ^ Delta Enter)**	**Track start as radar only** **(ST Acid ^ Delta Slew)**
Track start w/ code from IFR block and with 1st scratchpad **(ST Acid ^ + ^ Delta (scratchpad) Enter)**	**Track start w/ code from IFR block and with 1st scratchpad** **(ST Acid ^ + ^ Delta (scratchpad) Slew)**
Track start w/ code from VFR block and with 1st scratchpad **(ST Acid ^ / ^ Delta (scratchpad) Enter)**	**Track start w/ code from VFR block and with 1st scratchpad** **(ST Acid ^ / ^ Delta (scratchpad) Slew)**
Track start specifying 1st scratchpad **(ST Acid ^ Delta ^ Delta (scratchpad) Enter)**	**Track start specifying 1st scratchpad** **(ST Acid ^ Delta ^ Delta (scratchpad) Slew)**
Track start w/ code from IFR block and type aircraft **(ST Acid ^ + ^ (acft type) Enter)**	**Track start w/ code from IFR block and type aircraft** **(ST Acid ^ + ^ (acft type) Slew)**
Track start w/ code from VFR block and type aircraft **(ST Acid ^ / ^ (acft type) Enter)**	**Track start w/ code from VFR block and type aircraft** **(ST Acid ^ / ^ (acft type) Slew)**

5.2 Activate Existing Track

Activate existing track **(ST Acid Slew)**	**Activate existing track with code** **(ST (discrete code) Slew)**
Activate existing track with tabID **(ST TabID Slew)**	**Activate existing track w/ code and specify 1st scratchpad** **(ST (discrete code) ^ Delta (scratchpad) Slew)**
Activate existing track w/TabID and specify 1st scratchpad **(ST TabID ^ Delta (scratchpad) Slew)**	

5.3 Enable auto-acquisition from Coast/Suspend

Auto acquire by Acid **(ST Acid Enter)**	**Auto acquire by discrete code** **(ST (discrete code) Enter)**
Auto acquire by TabID **(ST TabID Enter)**	

5.4 Track Reposition

Reposition onto target using Acid **(RP Acid Slew)**	**Reposition onto target using discrete code** **(RP (discrete code) Slew)**
Reposition onto Target using SLEW **(RP Slew Slew)**	

5.5 Track Suspend

Track Suspend using Acid **(SU Acid Enter)**	**Track Suspend using discrete code** **(SU (discrete code) Enter)**
Track Suspend using TabID **(SU TabID Enter)**	**Track Suspend using Slew** **(SU Slew)**

5.6 Track Drop

Track drop using Acid **(DR Acid Enter)**	**Track drop using discrete code** **(DR (discrete code) Enter)**
Track drop using TabID **(DR TabID Enter)**	**Track drop using Slew** **(DR Slew)**
Track drop all **(DR ALL Enter)**	

5.7 Handoff Initiate/Recall/Accept

5.7.1 Initiate Track Handoff

Hand off using Acid **(HO (position symbol) ^ Acid Enter)**	**Hand off using discrete code** **(HO (position symbol) ^ (discrete code) Enter)**
Hand off using Slew **(HO (position symbol) ^ Slew)**	

5.7.2 Accept Track Handoff

Accept handoff on using Acid **(HO Acid Enter)**	**Accept handoff on using discrete code** **(HO (discrete code) Enter)**
Accept handoff on using Slew **(HO Slew)**	

5.7.3 Recall Track Handoff

Recall using Acid **(HO Acid Enter)**	**Recall using discrete code** **(HO (discrete code) Enter)**
Recall using Slew **(HO Slew)**	

5.8 Beacon

Obtain code **(FB Slew)**	**Enter and Delete a selected code block** **(FB (code block) Enter) (1200=12, 2300=23, etc)**

5.9 Display

Reduce FDB to LDB on data blocks displayed but not controlled **(FD Enter)**	**Reduce FDB to LDB on a single data block displayed but not controlled** **(FD Slew)**
Display track info in preview area using Acid **(FD Acid Enter)**	**Display track info in preview area using discrete code** **(FD (discrete code) Enter)**
Display track info in preview area using TabID **(FD TabID Enter)**	

5.10 Filter

Display filter limits **(FF Enter)**	**Modify unassociated filter limit** **(FF ulimit Enter)**
Modify Unassociated and Associated filter limits **(FF ulimit ^ alimit Enter)**	**Modify Associated filter limits** **(FF c ^ alimit Enter)**

5.11 Heavy

Inhibit a Heavy/TCAS indicator using ACID **(FH Acid Enter)**	**Inhibit a Heavy/TCAS indicator using discrete code** **(FH (discrete code) Enter)**
Inhibit a Heavy/TCAS indicator using Slew **(FH Slew)**	**Inhibit a Heavy/TCAS indicator using TabID** **(FH TabID Enter)**
Display a VFR indicator using Acid **(FH Acid ^ .V Enter)**	**Display a VFR indicator using Discrete beacon code** **(FH (discrete code) ^ .V Enter)**
Display a VFR indicator using Slew **(FH .V Slew)**	**Display a VFR indicator using TabID** **(FH TabID ^ .V Enter)**
Display a Heavy indicator using Acid **(FH Acid ^ (H, B, T, L, or F) Enter)**	**Display a Heavy indicator using discrete code** **(FH (discrete code) ^ (H, B, T, L, or F) Enter)**
Display a Heavy indicator using Slew **(FH (H, B, T, L, or F) Slew)**	**Display a Heavy indicator using TabID** **(FH TabID ^ (H, B, T, L, or F) Enter)**
Modify type aircraft using Acid **(FH Acid ^ (acft type) Enter)**	**Modify type aircraft using discrete code** **(FH (discrete code) ^ (acft type) Enter)**
Modify type aircraft using Slew **(FH (acft type) Slew)**	**Modify type aircraft using TabID** **(FH TabID ^ (acft type) Enter)**

5.12 Track Ball

Specify new center home trackball position **(FI nc Slew)**	**Select home trackball position** **(FI hs Enter)**
Select no-home trackball option **(FI nh Enter)**	

5.13 Initialize

Reinitialize display, enable auto offset, automatic display of unassociated radar only tracks (FK Enter)	

5.14 Modify

Provide new Acid using current data block Acid (FM (current) Acid ^ (corrected) Acid Enter)	**Provide new Acid using discrete code (FM (discrete code) ^ (corrected) Acid Enter)**
Provide new Acid using TabID (FM TabID ^ (corrected) Acid Enter)	**Provide new Acid using Coast ID (FM CoastID ^ (corrected) Acid Enter)**
Provide new Acid using Slew (FM (corrected) Acid Slew)	

5.15 Offset

Select/Inhibit auto-offset (FO Enter)	

5.16 Preview

Relocate Preview area (FP Slew)	

5.17 System

Relocate the system area (FS Slew)	**Enter new altimeter in systems area (FS altm (4 digits) Enter) NOTE: enter 5 digits for international use**
Enter new ATIS code in systems area (FS (single alpha) Enter)	**Enter new ATIS code and general information in systems area (FS (single alpha) ^ GI Enter (9 spaces for GI))**

5.18 Tabular

Relocate Arrival/Departure tab list **(FT Slew)**	**Select/Inhibit display of arrival/departure tab list** **(FT Enter)**
Relocate coast/suspend tab list **(FT C Slew)**	**Relocate LA/CA/MCI list** **(FT M Slew)**

5.19 Scratch Pad

Delete scratchpad data **(FY Acid Enter)**	**Delete scratchpad data using discrete code** **(FY (discrete code) Enter)**
Delete scratchpad data **(FY Slew)**	**Enter scratchpad data** **(FY Acid ^ (scratchpad) Enter)**
Display scratchpad data **(FY (scratchpad) Slew)**	

5.20 Implied Entries

Slew (Slew with no data entered)	
Handoff Accept/Recall **(Slew)**	**Display/Inhibit associated track FDB** **(Slew)**
Beacon readout associated track **(Slew)**	**Beacon readout unassociated track** **(Slew)**

Data Slew (Slew with data entered)	
Handoff initiate **((position symbol) Slew)**	**Scratchpad entry** **((scratchpad) Slew)**
Change aircraft type **((acft type) Slew)**	

5.21 Asterisk Entry

Force display of the specified FDB to the display designated ((Controller position symbol) Slew)**	

5.22 Data enter

Handoff Accept ((ACID Enter) or (discrete code) Enter)	**Track Start Entry (ACID ^ (+, /, or delta) (Delta (scratchpad) (^ acft type)Enter)**
Display/Inhibit non-owned FDBs (Controller position symbol) Enter)	**Leader Entry ((single digit) Enter)**

6 Mouse Functions

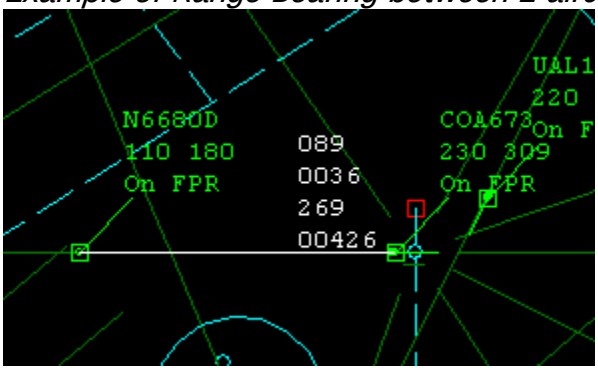
The mouse has a left and a right button. Both buttons have been programmed for use with the INTEREM software.

6.1 Range Bearing

The INTEREM interface has a Range Bearing function. This function can provide Range Bearing information between 2 locations, a location and a plane, a plane and a location and finally 2 planes.

Function	Description
Initiation	Range Bearing readings can be initiated by using the left mouse button as follows. Move the mouse to the first point and hold the Ctrl button on the keyboard down. Now, hold the left mouse button down and drag the mouse over the second point and release the mouse button and Ctrl button. A Range Bearing readout should be initiated. Also as verification of the process, while dragging the mouse to the second point, a line will be displayed showing where the function is monitoring.
Data Block	The Range Bearing data block can be moved in the same fashion as a targets data block by right clicking over the Range Bearing data block and holding down then dragging the data block to the new desired location. The data block has 4 lines of information possible. Only 3 lines of information are displayed when doing a readout on 2 locations. Line1 -> Heading from Point1 to Point2 Line2 -> Distance between Point1 & Point2 Line3 -> Heading from Point2 to Point1 Line4 -> Time till intercept
Deletion	A Range Bearing readout can be deleted by holding down the Crtl button on the keyboard and then clicking with the right mouse button on the Range Bearing data block.

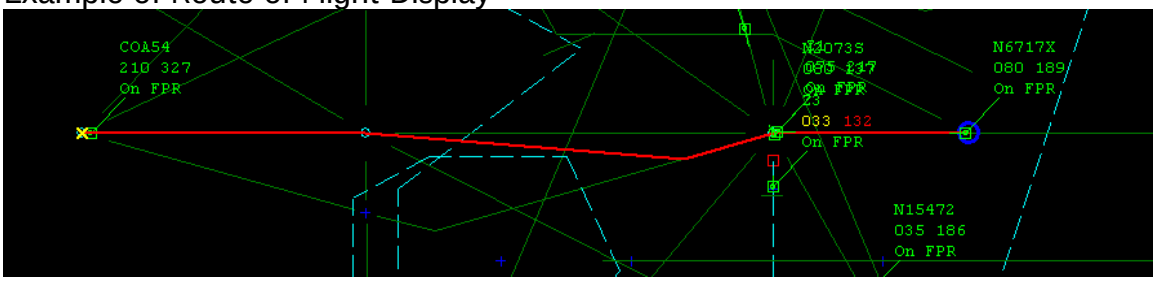
Example of Range Bearing between 2 aircraft.



6.2 Route of Flight Display

To graphically display on the map the route of flight of an aircraft simply use the mouse and click the right mouse button on the aircraft. This will display the route of flight for approximately 6 seconds and then disappear. There is not a limit on how many routes of flight can be displayed at one time.

Example of Route of Flight Display



The blue circle marks the beginning of the flight and the yellow x is the present end of the flights route.

6.3 Data Block Offset

This function has the highest priority. To offset a data block, click on a data block with the right mouse button and hold the button down while dragging the data block to the new desired location and release the mouse button.

Example of Data Blocks offset.