



Dynamic Simulation (DYSIM)

User Reference Guide

October 22, 2026

JVN Tool Suite v15.2.3 Volume 3

Copyright © 2026

JVN Communications Inc.
2111 New Road, Suite 104
Northfield, NJ 08225
609-569-9255
www.jvncomm.com

TABLE OF CONTENTS

1. DYSIM Overview	9
2. Getting Started	10
3. System Configuration	11
3.1. Environment Variables	11
4. simDriver.....	12
4.1. Starting simDriver	12
4.2. Command Line Options	13
4.3. simDriver GUI	19
4.3.1. Menu Bar	19
4.3.2. Date and Time Clock.....	20
4.3.3. Display Tabs	21
4.3.3.1. Status Tab	22
4.3.3.2. Dysim Tab	23
4.3.3.2.1. Active Tab	26
4.3.3.2.2. Inactive Tab.....	38
4.3.3.2.3. Dropped Tab	48
4.3.3.2.4. Map View.....	50
4.3.3.2.5. LNAV/VNAV Command Input	81
4.3.3.2.6. Time Based Targets.....	85
4.3.3.2.7. Context Boxes	86
4.3.3.2.8. Status Bar	87
4.3.3.3. Log Tab.....	89
5. simPilot	90
5.1. Starting simPilot	90
5.2. Command Line Options	90
5.3. simPilot GUI	93
5.3.1. Menu Bar	93
5.3.2. Date and Time Clock.....	94
5.3.3. Display Tabs.....	94
5.3.3.1. Status Tab	95
5.3.3.2. SimPilot Tab	95
5.3.3.2.1. Active Tab	97
5.3.3.2.2. Inactive Tab.....	108
5.3.3.2.3. Dropped Tab	121

5.3.3.2.4. Map View	122
5.3.3.2.5. LNAV/VNAV Command Input	145
5.3.3.2.6. Context Boxes	149
5.3.3.2.7. Status Bar	150
5.3.3.3. Log Tab	150
6. surfaceDriver	151
6.1. Starting surfaceDriver	151
6.2. Command Line Options	152
6.3. surfaceDriver GUI	153
6.3.1. Menu Bar	153
6.3.2. Date and Time Clock	153
6.3.3. Display Tabs	154
6.3.3.1. Status Tab	155
6.3.3.2. Dysim Tab	156
6.3.3.2.1. Active Tab	159
6.3.3.2.2. Inactive Tab	160
6.3.3.2.3. Map View	162
7. Target Manipulation	163
7.1. Target Datablock	163
7.1.1. Modifying Altitude	163
7.1.2. Modifying Heading	164
7.1.3. Modifying Speed	164
7.1.4. Give Control	165
7.2. Macro Entry	166
7.3. Timed Macros Box	167
8. Sample Configuration Files	168
8.1. Adaptation File	168
8.2. Macro File	168
8.3. Key Assignment File	170
Appendix A. Acronyms	171

TABLE OF FIGURES

Figure 1. DYSIM Processor Login	10
Figure 2. DYSIM Processor Desktop	10
Figure 3. simDriver Menu Bar	19
Figure 4. Start At Dialog	19
Figure 5. Option to Abort Start At	19
Figure 6. About SimDriver Dialog	20
Figure 7. simDriver Exit Warning	20
Figure 8. simDriver Run Clock	20
Figure 9. Message Area Text Options	21
Figure 10. simDriver Status Tab	22
Figure 11. simDriver Dysim Tab	23
Figure 12. Dysim Tab Target View	23
Figure 13. Mouse-over Text for an Active Target	25
Figure 14. Mouse-over Text for an Inactive Target	25
Figure 15. Mouse-over Text for a Dropped Target	26
Figure 16. Active Target List Menu Options	27
Figure 17. Create Target Dialog	29
Figure 18. Speed Advisory Message Dialog for an Active Target	30
Figure 19. Send a Route Modification Message	30
Figure 20. Send Logon Message for Active Target	31
Figure 21. Flight CPDLC10 Set for Manual Response Mode	31
Figure 22. CPDLC Response Delay	32
Figure 23. Send Downlink Message for Active Target – Part 1	33
Figure 24. Send Downlink Message for Active Target – Part 2	34
Figure 25. Route Clearance Text for Active Target	35
Figure 26. Active Target Control Dialog Messages Tab	36
Figure 27. Active Target Control Dialog Timed Macros Tab	37
Figure 28. Release Now Option for an Inactive Target	38
Figure 29. Release with Delay Option for an Inactive Target	39
Figure 30. Release at a Specified Time for an Inactive Target	39
Figure 31. Release at a Randomized	39
Figure 32. Clone Dialog for an Inactive Target	40
Figure 33. Create Popup Dialog for an Inactive Target	41
Figure 34. Edit Dialog for an Inactive Target	42
Figure 35. Delete an Inactive Target	43
Figure 36. Suspend an Inactive Target	43
Figure 37. TBFM Options	44

Figure 38. Message Window for an Inactive Target	45
Figure 39. Send a Route Modification Message.....	45
Figure 40. Send Logon for an Inactive Target	46
Figure 41. Flight ANNA008 Set for Manual Response Mode	46
Figure 42. CPDLC Response Delay	46
Figure 43. Send Downlink Message for an Inactive Target – Part 1	47
Figure 44. Send Downlink Message for an Inactive Target – Part 2	48
Figure 45. Clone Dialog for a Dropped Target	49
Figure 46. Menu Tear Off	50
Figure 47. New Dialog	51
Figure 48. Map View Options	51
Figure 49. Airspace View Option	52
Figure 50. Airspace Fixes View Options	52
Figure 51. Airspace Airports View Options.....	53
Figure 52. Airspace Airways View Options	53
Figure 53. Macro View Option	57
Figure 54. Neighboring Facilities View Option	60
Figure 55. Find Dialog	61
Figure 56. Settings Options.....	62
Figure 57. Save Display Settings Dialog.....	62
Figure 58. Load Display Settings Dialog	63
Figure 59. Save Targets to Xml.....	64
Figure 60. Enable RSIs Tools Menu Option.....	65
Figure 61. Enable RSIs Dialog	65
Figure 62. Add Live Sector Tools Menu Option.....	66
Figure 63. Add Live Sector Dialog	66
Figure 64. Remove Live Sector Tools Menu Option	66
Figure 65. Display Live Sectors Tools Menu Option	67
Figure 66. Display Live Sectors Dialog.....	67
Figure 67. Change Airport Configuration Menu Option.....	67
Figure 68. Create Route Clearance Tools Menu Option	68
Figure 69. Create Route Clearance Dialog.....	68
Figure 70. Unhilitate Targets	69
Figure 71. Show/Hide Datablocks	70
Figure 72. Adjust Datablock Font Size Tools Menu Option	71
Figure 73. Adjust Datablock Font Size Dialog	71
Figure 74. Add/Remove Dropshadow.....	72
Figure 75. Clear Target Selections	73
Figure 76. Current Wx Hour.....	74

Figure 77. Clear SDRR Dynamic Targets	75
Figure 78. Help Menu.....	75
Figure 79. Macro Definitions Help Menu Option	76
Figure 80. Macro Definitions Help Page	77
Figure 81. Quick Action Keys Help Menu Option	78
Figure 82. Quick Action Keys Help Page.....	78
Figure 83. Controller Requests Help Menu Option	79
Figure 84. Controller Requests Help Page	79
Figure 85. Flight Level	80
Figure 86. Zoom.....	80
Figure 87. Range	80
Figure 88. Macro Command Bar	81
Figure 89. Log Tab.....	89
Figure 90. About SimPilot Dialog	93
Figure 91. simPilot Exit Warning	93
Figure 92. Inactive Status Prior to Scenario Start.....	94
Figure 93. Date and Time Clock After Scenario Start.....	94
Figure 94. Status Tab Text Options.....	95
Figure 95. Log Tab Test Options	95
Figure 96. SimPilot Tab Targets View	96
Figure 97. Active Target List Menu Options	97
Figure 98. Drop Target Confirmation Dialog.....	98
Figure 99. Clone Target Dialog for Active Targets	98
Figure 100. Create Popup Dialog for Active Targets.....	99
Figure 101. Give Control Dialog	100
Figure 102. Send Speed Advisory Dialog	101
Figure 103. Send a Route Modification Message.....	101
Figure 104. Send Logon Dialog.....	102
Figure 105. Send Downlink Message – Part 1.....	103
Figure 106. Send Downlink Message – Part 2.....	104
Figure 107. Show Route Clearance Text	105
Figure 108. Target Control Dialog Messages Tab	106
Figure 109. Target Control Timed Macros Tab	107
Figure 110. Release Now Menu Option	108
Figure 111. Release with Delay Dialog	109
Figure 112. Release at Specified Time Dialog	109
Figure 113. Release at a Randomized	109
Figure 114. Give Control Dialog	110
Figure 115. Clone Dialog.....	110

Figure 116. Create Popup Dialog	111
Figure 117. Edit Dialog	112
Figure 118. TBFM Options	113
Figure 119. Messages Window	114
Figure 120. Send a Route Modification Message	115
Figure 121. Send Logon Dialog	115
Figure 122. Send Downlink Message – Part 1	117
Figure 123. Send Downlink Message – Part 2	118
Figure 124. Show Route Clearance Text	119
Figure 125. Edit Dialog	120
Figure 126. Clone Dialog	121
Figure 127. View Menu Option	122
Figure 128. Map View Menu Options	123
Figure 129. Airspace Menu Options	124
Figure 130. Fixes Menu Options	124
Figure 131. Airspace Airports View Menu Options	125
Figure 132. Airspace Airways View Menu Options	125
Figure 133. Airspace Airways View Menu Options (High airways)	126
Figure 134. Airspace Airways View Menu Options (Low airways)	127
Figure 135. Airspace Airways View Menu Options (Other airways)	128
Figure 136. Macro View Option	129
Figure 137. En Route Facility View Menu Options	129
Figure 138. En Route Facility View Menu Options Contd.	130
Figure 139. Radars View Menu Options	131
Figure 140. External Facility View Menu Option	132
Figure 141. Find Dialog	133
Figure 142. Help Menu	133
Figure 143. Macro Definitions	134
Figure 144. Available Keyboard Shortcuts	135
Figure 145. Controller Request Dialog	136
Figure 146: SimPilot – User Display Settings	137
Figure 147. Tools Menu Option	137
Figure 148. Add Live Sector Tools Menu Option	138
Figure 149. Add Live Sector Dialog	138
Figure 150. Remove Live Sector Tools Menu Option	139
Figure 151. Remove Live Sector Dialog	139
Figure 152. Display Live Sectors Tools Menu Option	140
Figure 153. Display Live Sectors Dialog	140
Figure 154. Create Route Clearance Tools Menu Option	141

Figure 155. Create Route Clearance Dialog	141
Figure 156. Adjust Datablock Font Size Tools Menu Option	142
Figure 157. Adjust Datablock Font Size Dialog.....	142
Figure 158. Macro Command Bar	144
Figure 159. Context Boxes	149
Figure 160. Log Tab.....	150
Figure 161. surfaceDriver Menu Bar.....	153
Figure 162. surfaceDriver Run Clock.....	153
Figure 163. Message Area Text Options	154
Figure 164. surfaceDriver Status Tab.....	155
Figure 165. surfaceDriver Dysim Tab	156
Figure 166. Dysim Tab Targets View	157
Figure 167. Mouse-over Text.....	158
Figure 168. Active Target List Menu Options	159
Figure 169. Inactive Target List Menu Options	160
Figure 170: simPilot Target Datablock	163
Figure 171: Right Click Altitude Change	164
Figure 172: Right Click Heading Change.....	164
Figure 173: Right Click Speed Change	165
Figure 174: Give Control.....	165
Figure 175. Macro Entry.....	166
Figure 176. Accepted Macro Entry	166
Figure 177. Timed Macros Box.....	167

1. DYSIM Overview

Dynamic Simulation (DYSIM) refers to a group of executables included in the JVN Tool Suite that provide capabilities for simulation of aircraft operations in the National Airspace System (NAS). With DYSIM, users can generate real-time flight data messages and target positions, process live surveillance and non-surveillance data, and together with JVN's Simulation Driver Radar Recorder (SDRR) can interface with other systems including but not limited to TBFM, STARS, and ERAM. Interfacing with these systems allows automatic simulation modification in response to system feedback, dynamic Simulation Pilots (simPilot) that manually manipulate live targets, generate live target events, and send messaging data.

2. Getting Started

The processor with DYSIM installed is configured to boot up to a user login screen. Users can enter a username and password, then click the login button or press **Enter** on the keyboard.

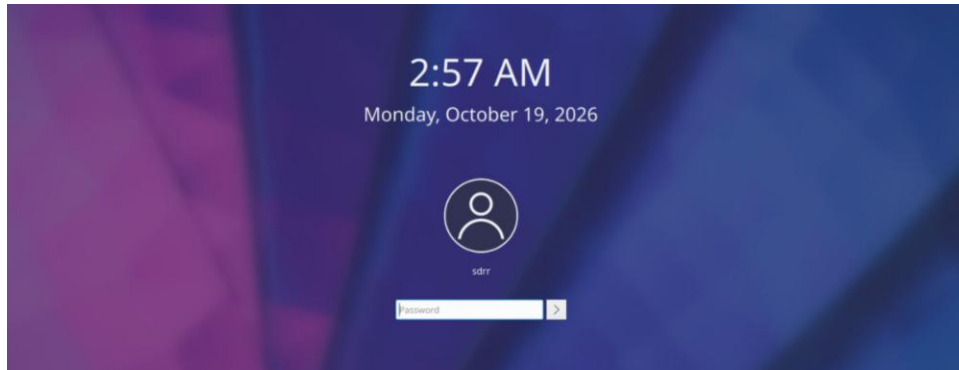


Figure 1. DYSIM Processor Login

NOTE: The 'root' user does not have access to the DYSIM commands and utilities. If root access is needed while logged in, the user should either log out and log in again as 'root' or open a terminal window, type **su** and enter the 'root' user password.

After a short loading period the KDE desktop will appear.

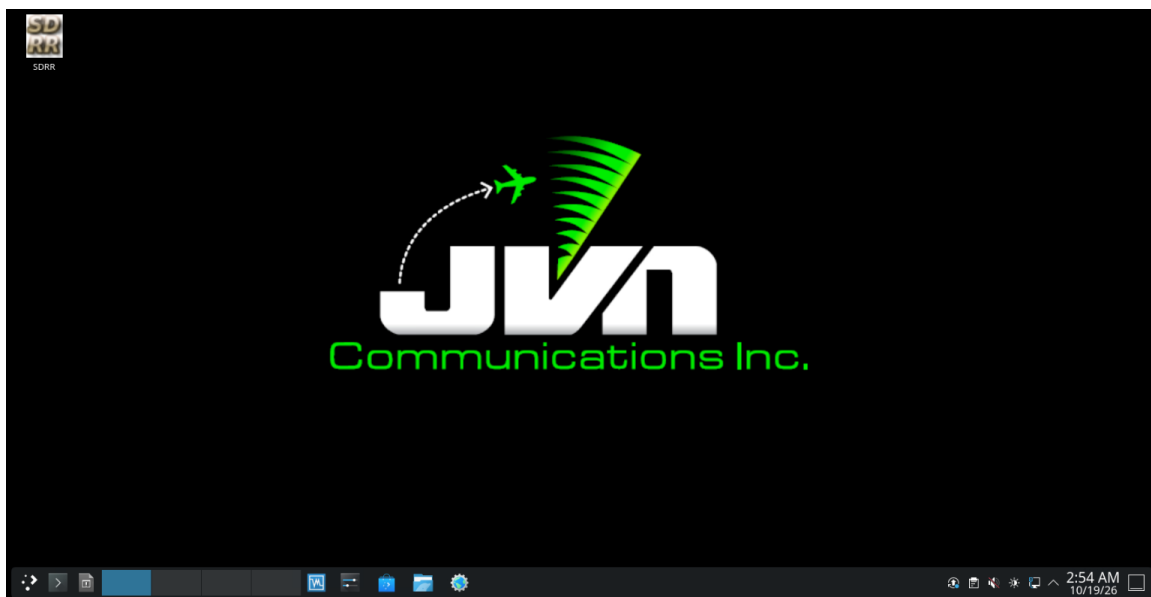


Figure 2. DYSIM Processor Desktop

3. System Configuration

3.1. Environment Variables

DYSIM uses environment variables for the locations of weather scenarios, and adaptation data, including En Route Automation Modernization (ERAM), Standard Terminal Automation Replacement System (STARS), and Time-Based Flow Management (TBFM) adaptation files.

Table 1. Environment Variables

Variable Name	Description	Default Location
DYSIM_LOG_PATH	Location of DYSIM system log files.	/usr/local/log
WX_PATH	Location of weather scenarios.	/opt/wx
ADAPTATION_PATH	Location of adaptation data.	/opt/adaptation

Additional configuration needed for individual executables is described below.

4. simDriver

The simDriver executable generates flight data and target positions dynamically during scenario execution and provides the capability to manipulate and interactively “pilot” targets. This executable sends commands to Simulation Driver and Radar Recorder (SDRR).

4.1. Starting simDriver

Start the simDriver executable from the command line while inside the desired scenario directory created with the Graphic Simulation Generation Tool (GSGT). To launch simDriver with basic parameters, enter:

```
> simDriver --cmuListenPort=<port#> --tgtOutDev=tcp://<sdr_address>:<port#>  
--sdrCmdDev=tcp://<sdr_address>:<port#> --precipDev=tcp://<sdr_address>:<port#>  
--cmsListenPort=<port#> --scenarioFile=scenario.xml
```

Other optional parameters may be specified. For example:

```
> simDriver --nofullscreen --setIndependentRelease --cpdlcResponseDelay=5  
--cmuListenPort=10332 --tgtOutDev=tcp://sim4:10320 --sdrCmdDev=tcp://sim4:10330  
--precipDev=tcp://sim4:10334 --cmsListenPort=9800 --scenarioFile=scenario.zob_zbw.xml
```

To launch a version of simDriver that is not the default version, enter:

```
> /usr/local/jvn.x.x.x/bin/simDriver --sdrCmdDev=tcp://<sdr_address>:<port#>  
--tgtDev=tcp://<sdr_address>:<port#>
```

NOTE: The simDriver executable must be started from a command line while inside the scenario directory.

4.2. Command Line Options

The simDriver executable can be started with various options which control its operation. Typing the simDriver -h will show the following arguments:

Table 2. Program Parameters

Parameter	Description
--cmdDev=tcp://<sdr_address>:<port#> or --cmdListenPort=<port#>	Directs simDriver to send flight data messages to SDRR at the named address & port. SDRR must be started with the corresponding parameter.
--tgtDev=tcp://<sdr_address>:<port#>	Directs simDriver to send target positions to SDRR at the named address & port. SDRR must be started with the corresponding parameter.
--precipDev=tcp://<sdr_address>:<port#>	Directs simDriver to send precipitation data to SDRR at the named address & port. SDRR must be started with the corresponding parameter.
--cmuDev=tcp://<sdr_address>:<port#> or cmuListenPort=<port#>	Directs simDriver to send AFN/CPDLC data to SDRR at the named address & port. SDRR must be started with the corresponding parameter.
--simPilotPort=<port#>	Defines the port for the connection to simPilot. The simPilot executable must be started with the corresponding parameter.
--webPilotPort=<port#>	Defines the port for the connection to simPilot via web browser. The simPilot executable must be started with the corresponding parameter.
--noss1	Additional flag to be added to webPilot option to bring up webPilot without SSL encryption.
--cmsListenPort=<port#>	Used with haddsClient utility. Directs simDriver to listen on the port where the haddsClient utility will output Common Message Set (CMS) messages from a

Parameter	Description
	live ERAM System via an En Route Data Distribution System (EDDS). The haddsClient must be started with the corresponding parameter.
--aigListenPort=<port#>	Used with the aigClient utility. Directs simDriver to listen on the port where the aigClient utility will output AIG messages from a live STARS System. The aigClient must be started with the corresponding parameter.
--misServer=<hostname or ip>	Connects to TBFM MIS (Metering Information Service) to dynamically start targets at the TBFM suggested departure time (EDCT).
--tcwDev=<device>	Connects to TCW Server.
--tcwFacName="facility name"	3-letter id of facility-in-use. If using multiple facs, use format CENTER:FAC (ex: ZNY:PPP)
--surfaceListenPort="portdevice" (for surfaceDriver)	Port used to connect surfaceDriver.
--disableVerticalCrossings	
--hoMargin=<nautical_miles>	Globally sets the distance from all facility boundaries where simDriver will start sending target position messages to SDRR. Applies to sector boundaries, enroute and terminal facility boundaries. Value is in nautical miles. The default value is 5 nmi.
--hoDuration=<seconds>	Sets the duration for a target to remain in handoff. Value is in seconds. The default value is zero.
--facHoMargin=<facility/nautical_miles>	Sets the distance from the specified facility boundary where simDriver will start sending target position messages to SDRR. Applies to enroute or terminal facility boundaries. Value is in nautical miles.

Parameter	Description
--interval=<seconds>	TargetStateInterval; default is 5.0 secs.
--liveFacility=<eramName:starsName or caatsName>	Defines which ERAM star names will be applied. This states that the TRACON is live.
--liveSectors=<facility name:sector position(s)>	Defines which ERAM sector positions will be manned by controllers. Applies to indirect mode only.
--eramSimMode	ERAM simulation mode. Sets simDriver to send ERAM CMS messages to a live or virtual EDDS.
--rsi=<RSI>	Controls which portions of a scenario, as indicated by the record select indicator (RSI), to run. This parameter can be repeated for each RSI. Omitting this parameter results in execution of all RSIs.
--disableRsi=<RSI>	Controls which portions of a scenario, as indicated by the record select indicator (RSI), to exclude from execution. This parameter can be repeated for each RSI to be disabled.
--supervisorPosition=<facName:position>	Changes what ERAM ATS simDriver uses for injecting messages such as an RS after a flight is dropped. Default position used is S1.
--pilotAssignment=<position:RSI>	Defines which simPilot positions will have control of targets tagged with an RSI. This parameter can be repeated for each simPilot position.
--scriptDefinitions=<file>	Selects the scriptDefinitions file manually.
--cpdlcManualMode	Sets all flights in Manual Mode.
--cpdlcResponseDelay=(secs)	Sets the default cpdlc response delay to x many seconds. This is similar to adding it directly to the prefs.xml.

Parameter	Description
--setIndependentRelease	Sets all flights to Independent Release.
--setManualRelease	Set all flights to Manual Release.
--createNewTargetFromFH	Creates a live target based on the FH message. This is a type of CMS message.
--holdTailoredRoutes	This option is used with --createNewTargetFromFH on flights created dynamically from FH and puts the newly created target on hold if it's not a departure so the route can be adjusted if needed.
--incomingHandoffsOnly	For eramFlightTracker
--disableToggleFreq	Excludes the ability to send QN messages.
--inhibitHandoff=<facName>	Disable auto handoff to facility.
--disableInterimAltitudes	Disable processing interim altitudes from CMS messages to change target altitude.
--disableCmsToDysim	Disable processing of all CMS messages to manipulate targets.
--ignoreRestrictions	Ignores speed and altitude restrictions for all flights.
--processSpeedAdvisory	Enables speed advisory processing.
--processTMA	Enables HC resequence and HB manual swap processing.
--enableEffects-- arrivalInGateDelay="time"	Enables additional graphical effects used, (default is 00:05:00).

Parameter	Description
--nofullscreen--enableEffects	Not full screen mode; simDriver will be started in a window roughly half the size of the screen. Enables additional graphical effects used.
--start--nofullscreen	This starts the scenario immediately on launch. Not full screen mode; simDriver will be started in a window roughly half the size of the screen.
--preview--start	Previews the scenario. Initializes scenario immediately on launch.
--logFile=<filename>--preview	Specify log file name. Previews the scenario.
--nologfile--logFile=<filename>	No log file is used. Specifies log file name.
--aid=AID--nologfile	Filters the AID flight list. No log file is used.
--scenarioFile=<file>. (defaults to scenario.xml)--aid=AID	Select a scenario file manually. Filters the AID flight list.
--displaySettings="file"	Adjusts display settings of file specified.
--flatMode="websocketDevice"	Web browser based live interface.
--slickUrl="url"	Web browser based live interface.
--tfmsUrl="url"	
--proxy=http://server:port	For mapTiles and live (FLAT/SLICK) interfaces
--help	Display application parameters.
--help--proxy=http://<server>:<port#>	Display web version of application parameters.

For example, simDriver can be started in ERAM Simulation Mode with additional optional parameters:

```
> simDriver --cmdDev=tcp://tbfmsdrr01:9601 --tgtDev=tcp://tbfmsdrr01:9600 --eramSimMode  
--hoMargin=20 --hoDuration=60 --rsi=10 --rsi=20
```

Note that there may be a need to multiplex the cmdDev and tgtDev definitions to a second device or file. For example, one simDriver instance may be connected to two instances of SDRR:

```
> simDriver --cmdDev="(tcp://tsim-sdrr1:10560+tcp://tsim-sdrr2:10561)"  
--tgtDev="(tcp://tsim-sdrr1:10570+tcp://tsim-sdrr2:10571)" --eramSimMode
```

To multiplex a device to a file:

```
> simDriver --cmdDev="(tcp://tsim-sdrr1:10560+/tmp/commands.jvn)"  
--tgtDev="(tcp://tsim-sdrr1:10570+/tmp/targets.jvn)" --eramSimMode
```

4.3. simDriver GUI

The simDriver Graphical User Interface (GUI) is composed of a main menu bar, date and time clock, and display tabs. The times are displayed in UTC.

4.3.1. Menu Bar

The menu bar includes the following options:

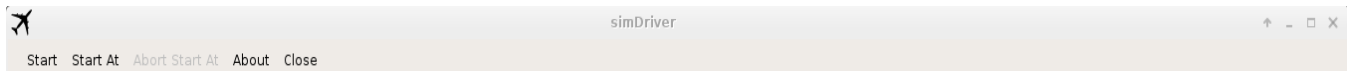


Figure 3. simDriver Menu Bar

Start

Starts the scenario execution, immediately.

Start At

Starts the scenario execution, at a specified time. When 'Start At' is selected, a dialog is displayed for entering a start time. The time is pre-populated with the current system time.

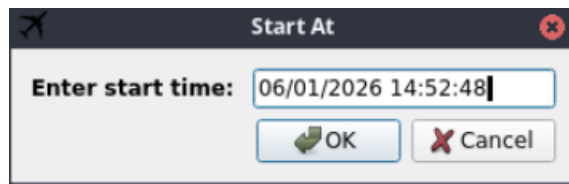


Figure 4. Start At Dialog

Entering a future time and selecting 'OK' causes the 'Abort Start At' option to become available in the menu bar. Also, the 'Start At' time is displayed in the upper right corner of the menu bar. Once the specified time is reached, the time begins to increment, and the scenario starts executing.

Abort Start At

Interrupts the 'Start At' countdown.

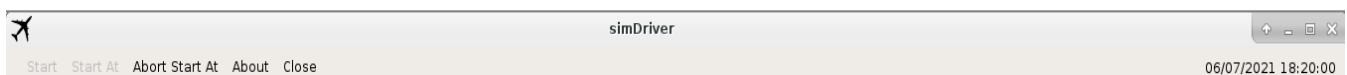


Figure 5. Option to Abort Start At

About

Displays the About simDriver dialog which shows the version of simDriver, and the date and time that the simDriver executable was built.

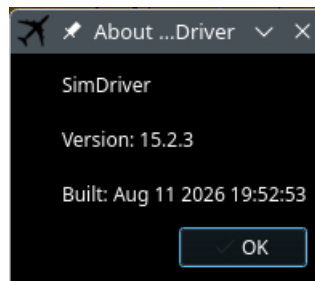


Figure 6. About SimDriver Dialog

Close

Stops the scenario execution and closes the simDriver GUI. When 'Close' is selected, the warning below is displayed. Selecting 'Yes' exits the GUI; selecting 'No' closes the warning and returns to the GUI.

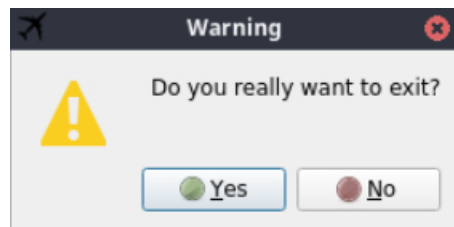


Figure 7. simDriver Exit Warning

4.3.2. Date and Time Clock

When a scenario is running, the scenario date and time are displayed in the upper right corner.

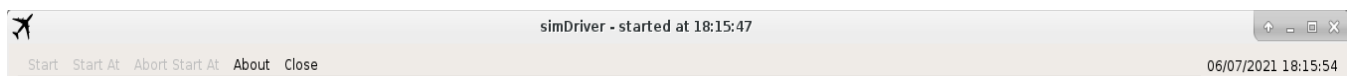


Figure 8. simDriver Run Clock

4.3.3. Display Tabs

The display tabs are Status, Dysim, and Log. Right clicking in the text area of a display tab launches a pop-up with the following options:

Copy

Places any selected text into the copy buffer.

Select All

Selects all the text in the current display tab message log area.

Find

Opens a search bar at the bottom of the current display tab message log area.

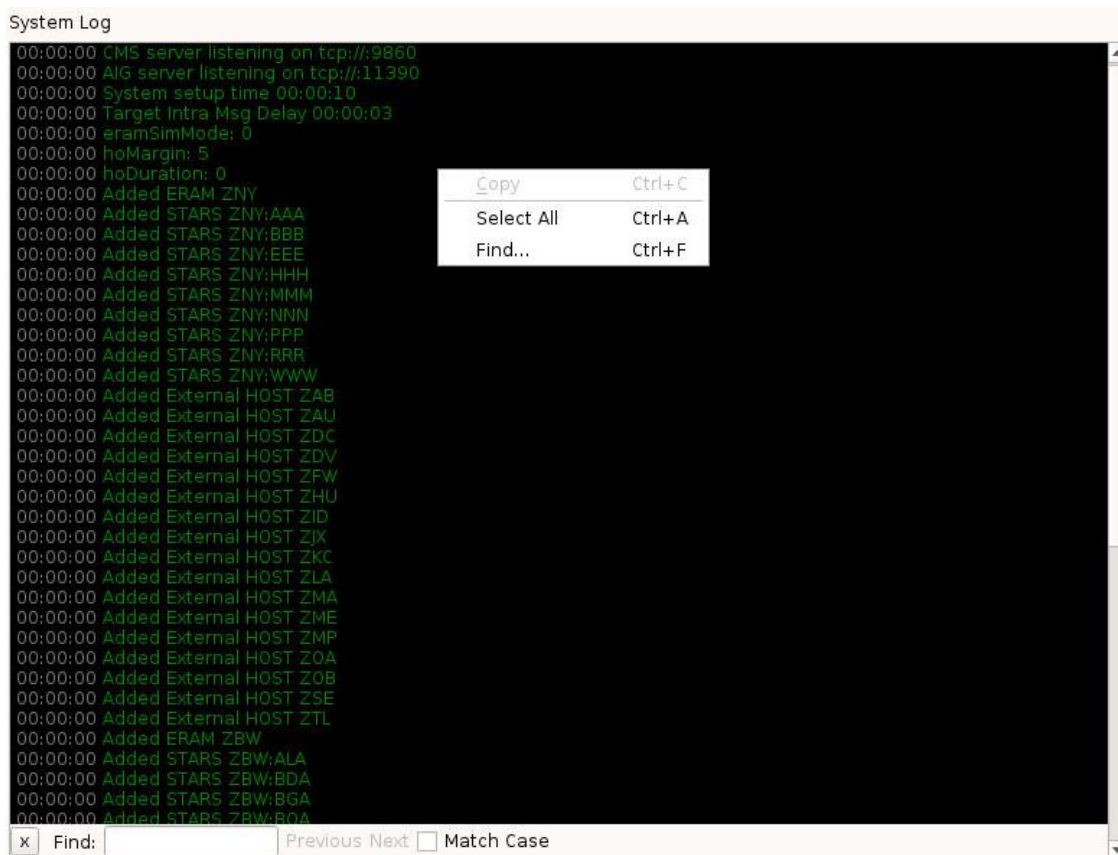


Figure 9. Message Area Text Options

4.3.3.1. Status Tab

The status display tab is separated into two parts. The left side shows the Device Status. All devices connected to simDriver are listed and color coded to indicate connection status. The red indicates that the connection has yet to be established. The yellow indicates that there is at least one connection made. Green indicates that the connection has been fully established. The right side contains a System Log where all system messages, such as status, warnings and errors are displayed.

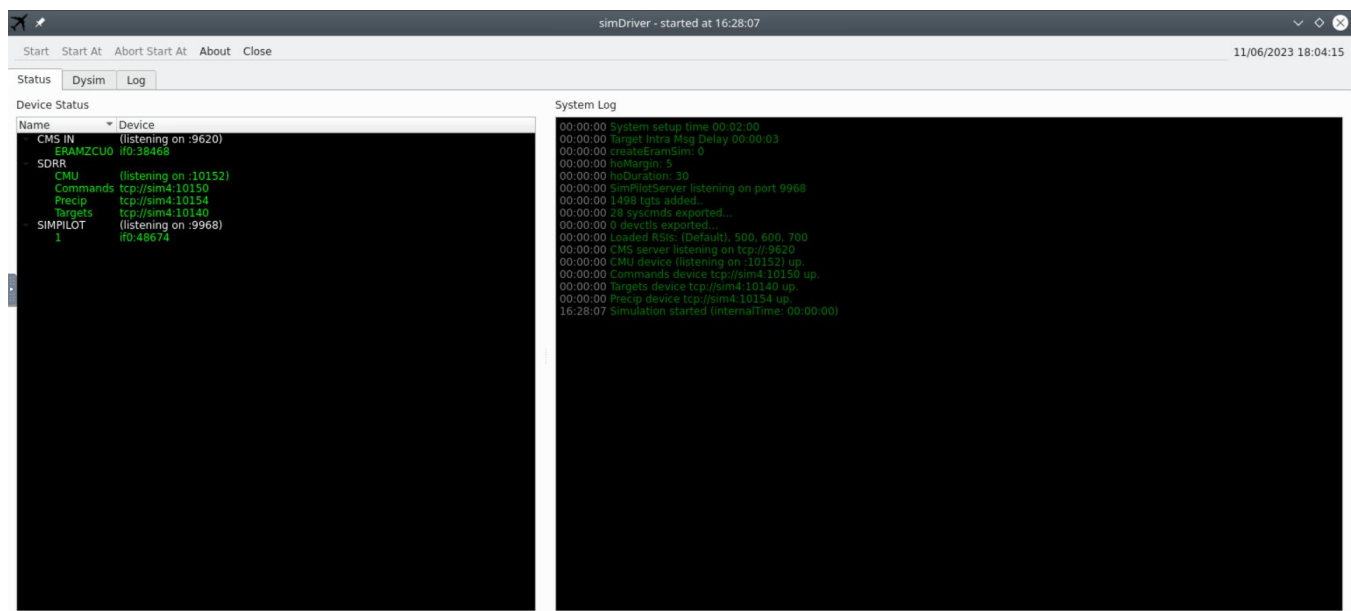


Figure 10. simDriver Status Tab

4.3.3.2. Dysim Tab

The Dysim Tab is separated into two parts. The left side displays the Targets View and the right side displays the Map View.

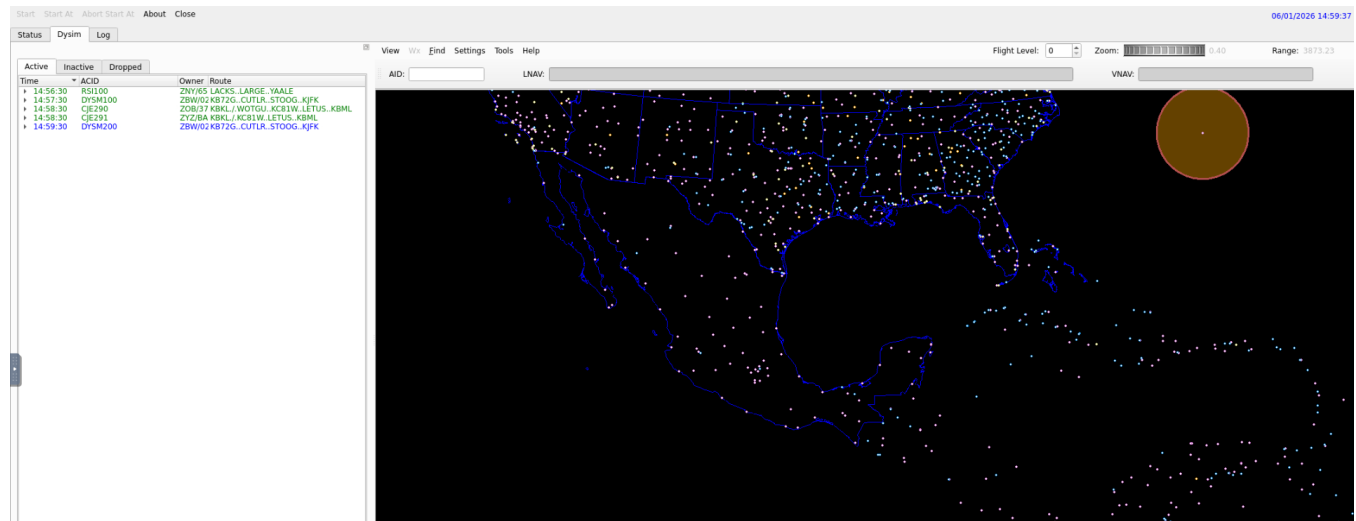


Figure 11. simDriver Dysim Tab

The left side Targets View can be re-sized or popped out into its own window. This view displays Active, Inactive, and Dropped target tabs.

Status Dysim Log												
Active Inactive Dropped												
Time	ACID	Owner	Route	Bcn	Alt	Spd	AChar	RSI	Pilot	Address	TailNo	Comments
12:52:09	ABRR100		KJFK./ICCEY..DOSAN..E		430	420tas	B738	100	1	A0002D	NA0002D	
12:52:56	ABRR200		KJFK./ICCEY..LARGE..B		390	420tas	B738	100	1	A0002E	NA0002E	
12:52:56	AMD100		ZUDEK..KB75G..LFV13		300	400tas	B737		1	A0002F	NA0002F	
12:52:56	AMD200		ZUDEK205020..KB75G		300	400tas	B737		1	A00006	NA00006	
12:52:56	AMD300		ZUDEK205040..KB75G		300	400tas	B737		1	A00007	NA00007	
12:52:56	ATOP100		KJFK./RESQU..KW36A1		420	580tas	B737			A0001D	NA0001D	
12:52:56	ATOP200		TXKF./3608N/07221W.0001		280	580tas	B737			A0002A	NA0002A	
12:52:56	BCN100		KJFK./SQUAD..BOXBU.		280	400tas	B737			A00014	NA00014	

Figure 12. Dysim Tab Target View

The Targets View tabs list details for active, inactive, and dropped targets. The target lists can be sorted by clicking on any of the column headers.

Time

This is the time that the target was, or will be activated. This value could also show the status “HOLD”. Time populated with “HOLD” means the flight was suspended or set for manual release and will require further action from the user to activate. Right clicking on an inactive flight displays the options: release now, release with delay(s), release at, and release at randomized.

ACID

Aircraft identification callsign. The callsign is made up of a minimum of two and a maximum of seven letters/numbers. The first character must be a letter.

Owner

Controlling facility and sector position.

Route

Flight plan route.

BCN

Beacon code. The beacon code must be four octal digits. A beacon code of FFFF signifies that a beacon code has not been assigned to the aircraft.

ALT

Filed altitude.

SPD

Aircraft speed.

AChar

Aircraft type.

RSI

Record select indicator.

Pilot

Number of the simPilot position that has been assigned to have control of the target.

Address

ICAO address. The ICAO address is six alphanumeric characters.

TailNo

Aircraft registration. The tail number can be a maximum of seven alphanumeric characters.

Comments

Additional user entered text for a target.

Further details about a target can be displayed in a mouse-over text box by allowing the cursor to dwell over a target in any of the Targets View tabs.

In the Active targets tab, the mouse-over text box displays the following: transponder(s) enabled/disabled, beacon, arrival airport (arrArpt), owners, and origin airport (orgArpt).

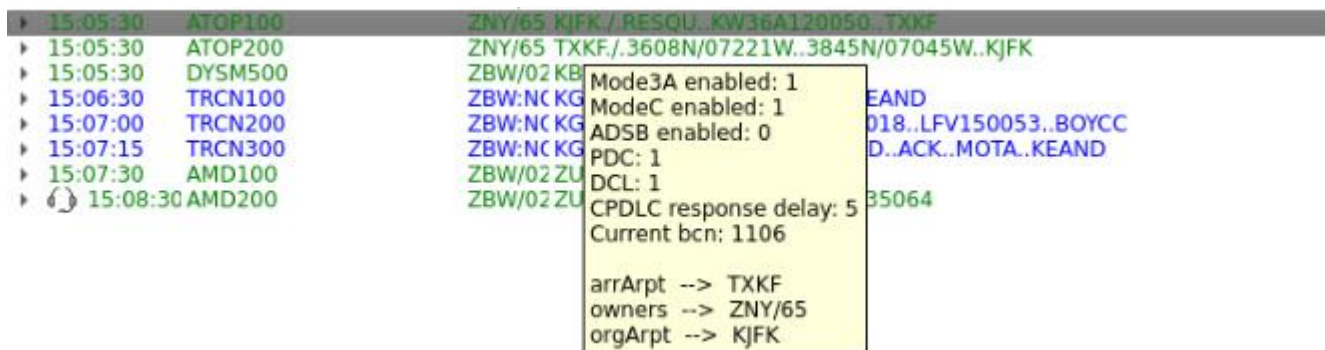


Figure 13. Mouse-over Text for an Active Target

In the Inactive targets tab, the mouse-over text box displays the same information as the active targets tab, but with owners and origin airport (orgArpt) omitted.

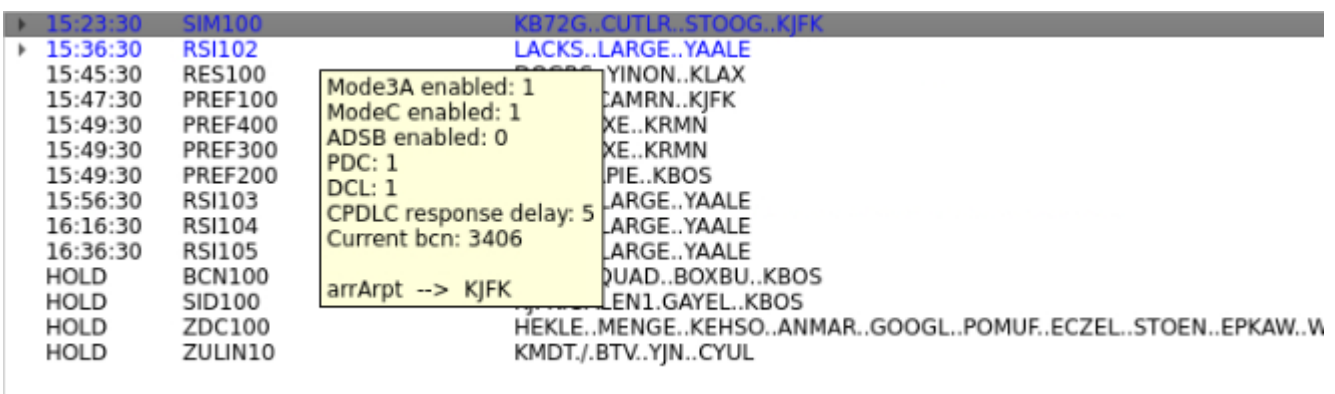


Figure 14. Mouse-over Text for an Inactive Target

In the Dropped targets tab, the mouse-over text box displays the following: transponder(s) enabled/disabled, beacon, arrival airport (arrArpt), owners, departure airport, origin airport (orgArpt) , and script assignment(s) [if applicable]:

```
Mode3A enabled: 1
ModeC enabled: 1
ADSB enabled: 0
PDC: 1
DCL: 1
CPDLC response delay: 5
Current bcn: 1103

arrArpt --> TXKF
owners --> ZNY/65
depArpt --> JFK
orgArpt --> JFK
```

Figure 15. Mouse-over Text for a Dropped Target

```
Mode3A enabled: 1
ModeC enabled: 1
ADSB enabled: 0
PDC: 1
DCL: 1
CPDLC response delay: 5
Current bcn: 5307

arrArpt --> KBOS
owners --> ZBW/02
attachedScripts --> EMERGENCY
```

Figure 17.2. Mouse-over Text for a Dropped Target (with script)

4.3.3.2.1.Active Tab

Right clicking on an entry in the Active tab displays the following options:

- Target Management
 - Drop
 - Drop incrementally
 - Clone
 - Create popup
 - Hilite
 - Enable tracking
 - Disable tracking
 - Show Datablocks
 - Hide Datablocks
- Messages
 - Send Speed Advisory
 - Send route MOD message
- Datacomm
 - Send Logon
 - Set CPDLC responseMode to auto
 - Set CPDLC responseMode to manual
 - Set CPDLC response delay (secs)
 - Disable auto logon
 - Enable auto logon
 - Send Downlink msg
 - Show route clearance text
- Attributes
 - Dump Attributes
 - Selection count

Figure 16. Active Target List Menu Options

Target Management

Drop

simDriver stops generating target position data for the selected aircraft and sends cancel and remove strip messages.

Drop incrementally

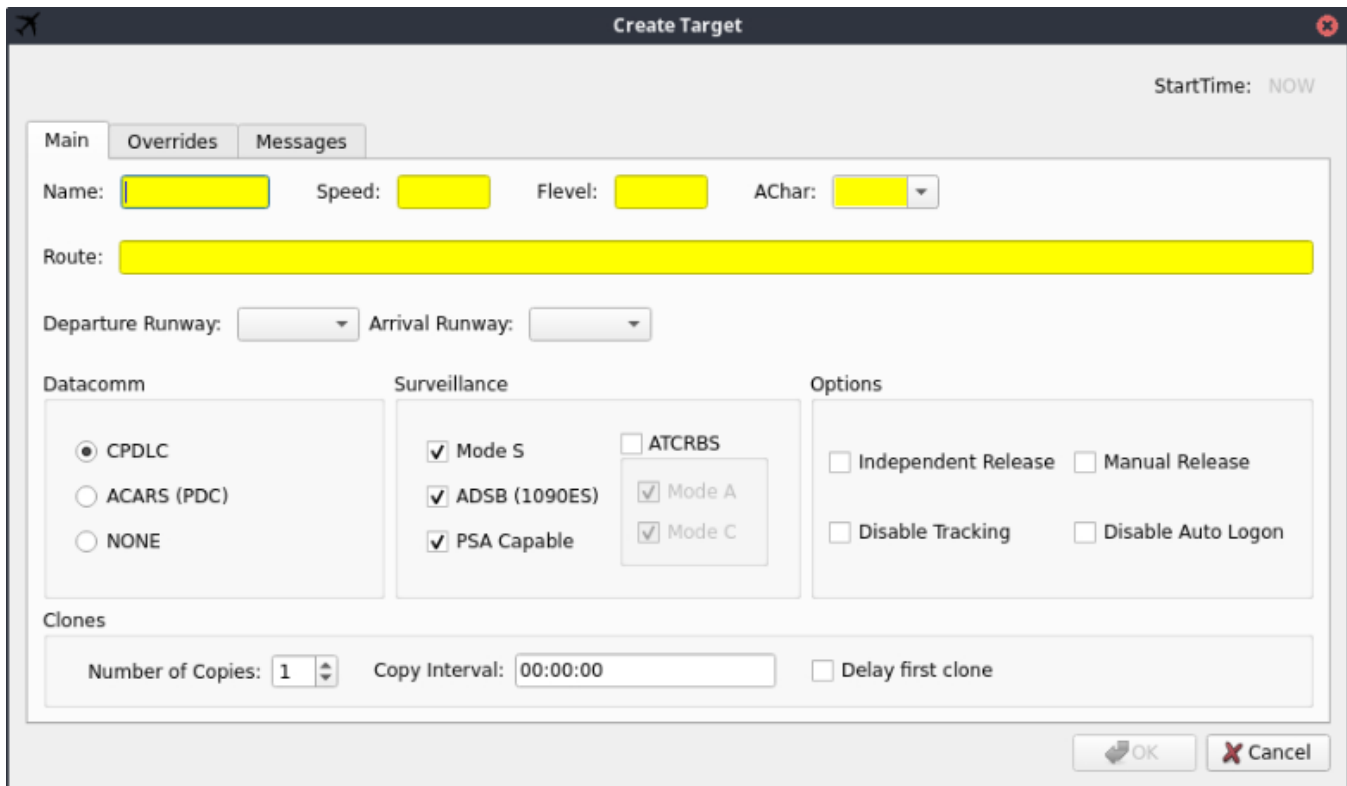
simDriver stops generating target position data for the selected aircrafts and sends cancel and remove strip messages incrementally for each flight.

Clone

Creates a new target with the exact same characteristics as the selected target.

Create popup

Opens a blank dialog for creating a new target. Each yellow field is mandatory. The Name is the desired aircraft ID (ACID) or callsign, the assigned speed can be specified in calibrated air speed (CAS) or true air speed (TAS), the Flevel is the flight level (altitude), AChar is the aircraft type, Route is the Flight Plan Route, and user can also select departure/arrival runway(s). Further options include Data Communication, Transponder(s) [surveillance], flight release (independent/manual), tracking, logging, and cloning.



The screenshot shows the 'Create Target' dialog box. It has a title bar with a close button. The 'Main' tab is selected, showing fields for Name, Speed, Flevel, and AChar. Below these is a Route field. Further down are Departure Runway and Arrival Runway dropdowns. The dialog is divided into three sections: Datacomm (with radio buttons for CPDLC, ACARS (PDC), and NONE), Surveillance (with checkboxes for Mode S, ADSB (1090ES), PSA Capable, and ATCRBS, and a sub-section for Mode A and Mode C), and Options (with checkboxes for Independent Release, Manual Release, Disable Tracking, and Disable Auto Logon). At the bottom is a Clones section with Number of Copies (set to 1), Copy Interval (00:00:00), and a Delay first clone checkbox. OK and Cancel buttons are at the bottom right.

Figure 17. Create Target Dialog

Hilite

Highlights the target, displays its flight path, and displays its message window.

Enable tracking

Processes CMS data that simDriver receives to change target dynamics or generate hand off messages.

Disable tracking

Does not process CMS messages to change target dynamics or generate hand off messages.

Show Datablocks

Enables datablocks.

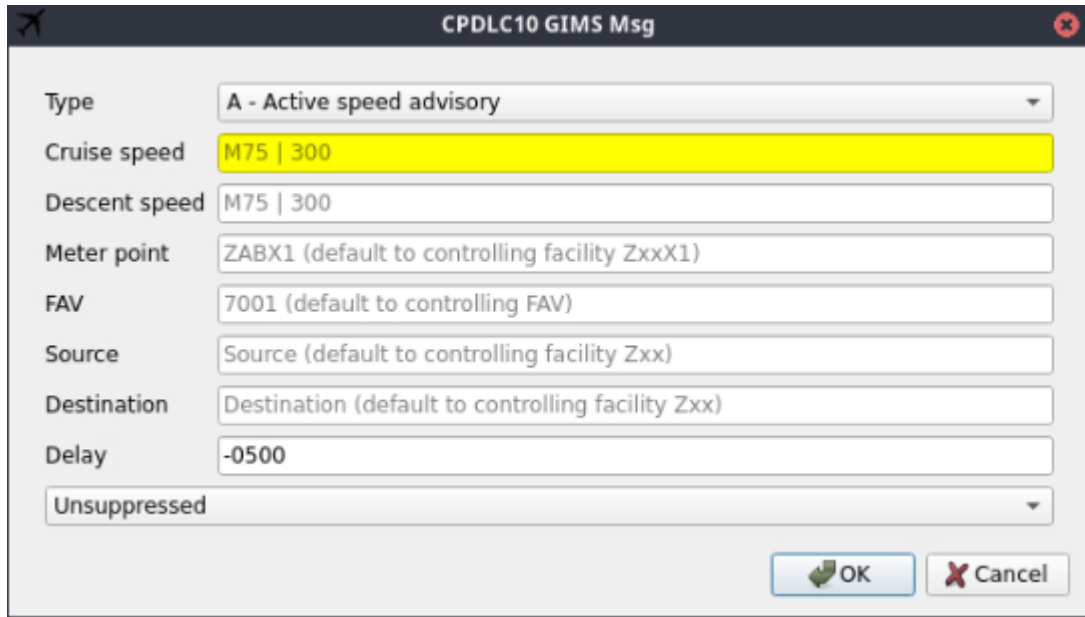
Hide Datablocks

Disables datablocks.

Messages

Send Speed Advisory

Displays a GIM-S Message dialog box for the speed advisory message.



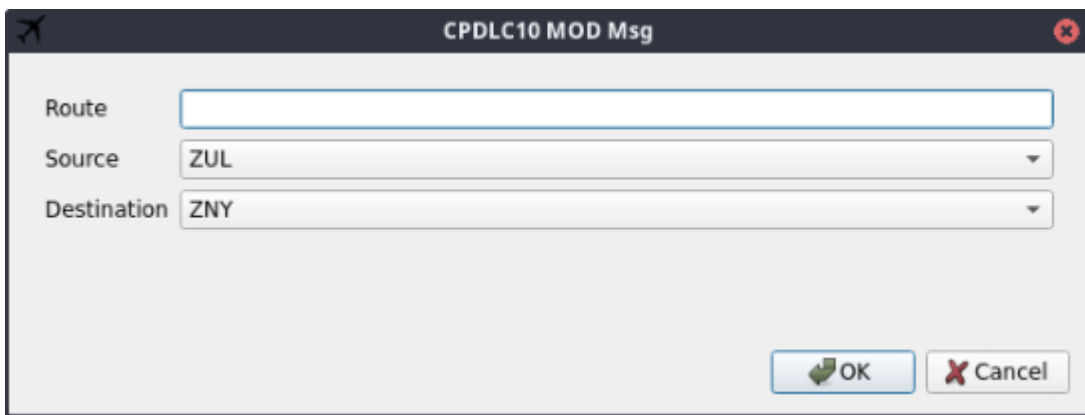
The dialog box titled "CPDLC10 GIMS Msg" contains the following fields and controls:

- Type:** A dropdown menu with "A - Active speed advisory" selected.
- Cruise speed:** A text field containing "M75 | 300", which is highlighted in yellow.
- Descent speed:** A text field containing "M75 | 300".
- Meter point:** A text field containing "ZABX1 (default to controlling facility ZxxX1)".
- FAV:** A text field containing "7001 (default to controlling FAV)".
- Source:** A text field containing "Source (default to controlling facility Zxx)".
- Destination:** A text field containing "Destination (default to controlling facility Zxx)".
- Delay:** A text field containing "-0500".
- Suppression:** A dropdown menu with "Unsuppressed" selected.
- Buttons:** "OK" and "Cancel" buttons at the bottom right.

Figure 18. Speed Advisory Message Dialog for an Active Target

Send route MOD message

Displays a MOD message dialog box.



The dialog box titled "CPDLC10 MOD Msg" contains the following fields and controls:

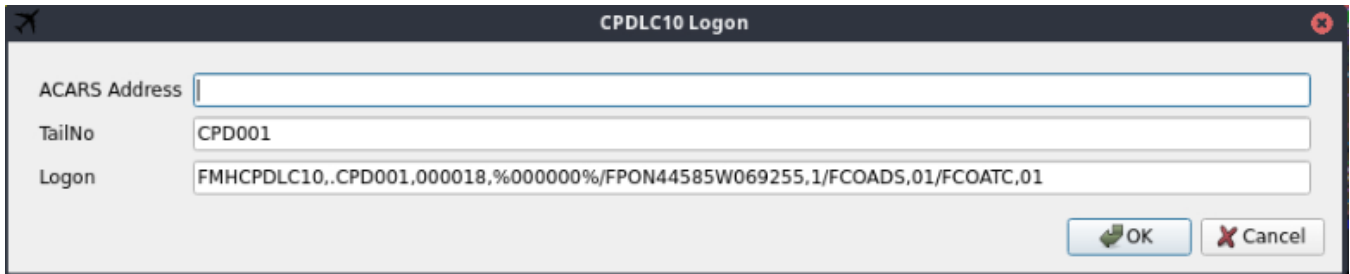
- Route:** An empty text field.
- Source:** A dropdown menu with "ZUL" selected.
- Destination:** A dropdown menu with "ZNY" selected.
- Buttons:** "OK" and "Cancel" buttons at the bottom right.

Figure 19. Send a Route Modification Message

Datacomm

Send Logon

Sends a logon for the flight. This logon message is an aircraft logon for CPDLC services.



The image shows a dialog box titled "CPDLC10 Logon". It contains three input fields: "ACARS Address" (empty), "TailNo" (containing "CPD001"), and "Logon" (containing "FMHCPDLC10,.CPD001,000018,%000000%/FPON44585W069255,1/FCOADS,01/FCOATC,01"). At the bottom right, there are "OK" and "Cancel" buttons.

Figure 20. Send Logon Message for Active Target

Set CPDLC ResponseMode to Auto

Changes flight to auto mode. Auto mode is where all CPDLC messages are automatically processed.

Set CPDLC ResponseMode to Manual

Changes flight to manual mode. Manual mode is where the pilot will have to manually send messages and respond to messages received. Flights set to manual mode are marked with a headset icon.

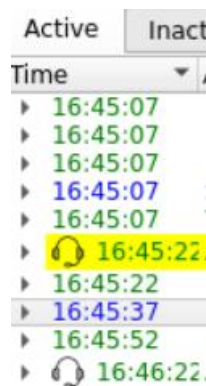


Figure 21. Flight CPDLC10 Set for Manual Response Mode

Set CPDLC Response Delay (Secs)

Changes the CPDLC response time to have a delay. This is additional time it will take the aircraft to receive the CPDLC message.

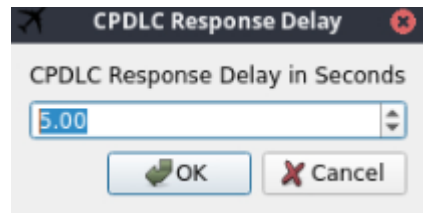


Figure 22. CPDLC Response Delay

Disable Auto Logon

Disables auto logons.

Enable Auto Logon

Enables auto logons.

Send Downlink Message

Sends a downlink message with one of the selected options listed below.

CPDLC10 Downlink Msg

IMI

☒ AT1
☐ DR1

LiteralMode ☐ **EI (D68 TEXT)**

D0: WILCO
D1: UNABLE
D2: STANDBY
D3: ROGER
D4: AFFIRM
D5: NEGATIVE
D6: REQUEST [altitude FL >= 180]
D6: REQUEST [altitude QNH < 180]
D7: REQUEST BLOCK [altitude] TO [altitude FL >= 180]
D7: REQUEST BLOCK [altitude] TO [altitude QNH < 180]
D8: REQUEST CRUISE CLIMB TO [altitude]
D9: REQUEST CLIMB TO [altitude FL >= 180]
D9: REQUEST CLIMB TO [altitude QNH < 180]
D10: REQUEST DESCENT TO [altitude FL >= 180]
D10: REQUEST DESCENT TO [altitude QNH < 180]
D11: AT [position] REQUEST CLIMB TO [altitude]
D12: AT [position] REQUEST DESCENT TO [altitude]
D13: AT [time] REQUEST CLIMB TO [altitude]
D14: AT [time] REQUEST DESCENT TO [altitude]
D15: REQUEST OFFSET [distanceoffset] [direction] OF ROUTE
D16: AT [position] REQUEST OFFSET [distanceoffset] [direction] OF ROUTE
D17: AT [time] REQUEST OFFSET [distanceoffset] [direction] OF ROUTE
D18: REQUEST [speed]
D19: REQUEST [speed] TO [speed]
D20: REQUEST VOICE CONTACT
D21: REQUEST VOICE CONTACT [frequency]
D22: REQUEST DIRECT TO [fix]
D22: REQUEST DIRECT TO [LatLon]
D22: REQUEST DIRECT TO [FRD]
D23: REQUEST [procedurename]
D24: REQUEST [route clearance]
D25: REQUEST CLEARANCE
D26: REQUEST WEATHER DEVIATION TO [position] VIA [route clearance]
D27: REQUEST WEATHER DEVIATION UP TO [distanceoffset] [direction] OF ROUTE
D28: LEAVING [altitude]
D29: CLIMBING TO [altitude]
D30: DESCENDING TO [altitude]
D31: PASSING [position]
D32: PRESENT ALTITUDE [altitude]
D33: PRESENT POSITION [position]
D34: PRESENT SPEED [speed]
D35: PRESENT HEADING [degrees]
D36: PRESENT GROUND TRACK [degrees]
D37: LEVEL [altitude]
D38: ASSIGNED ALTITUDE [altitude]
D39: ASSIGNED SPEED [speed]
D40: ASSIGNED ROUTE [route clearance]
D41: BACK ON ROUTE
D42: NEXT WAYPOINT [position]

OK Cancel

Figure 23. Send Downlink Message for Active Target – Part 1

CPDLC10 Downlink Msg

IMI

☒ AT1
☐ DR1

LiteralMode ☐ **EI (D68 TEXT)**

D35: PRESENT HEADING [degrees]
D36: PRESENT GROUND TRACK [degrees]
D37: LEVEL [altitude]
D38: ASSIGNED ALTITUDE [altitude]
D39: ASSIGNED SPEED [speed]
D40: ASSIGNED ROUTE [routeclearance]
D41: BACK ON ROUTE
D42: NEXT WAYPOINT [position]
D43: NEXT WAYPOINT ETA [time]
D44: ENSUING WAYPOINT [position]
D45: REPORTED WAYPOINT [position]
D46: REPORTED WAYPOINT [time]
D47: SQUAWKING [beaconcode]
D48: POSITION REPORT [positionreport]
D49: WHEN CAN WE EXPECT [speed]
D50: WHEN CAN WE EXPECT [speed] TO [speed]
D51: WHEN CAN WE EXPECT BACK ON ROUTE
D52: WHEN CAN WE EXPECT LOWER ALTITUDE
D53: WHEN CAN WE EXPECT HIGHER ALTITUDE
D54: WHEN CAN WE EXPECT CRUISE CLIMB TO [altitude]
D55: PAN PAN PAN
D56: MAYDAY MAYDAY MAYDAY
D57: [remainingfuel] OF FUEL REMAINING AND [remainingsouls] SOULS ON BOARD
D58: CANCEL EMERGENCY
D59: DIVERTING TO [position] VIA [routeclearance]
D60: OFFSETTING [distanceoffset] [direction] OF ROUTE
D61: DESCENDING TO [altitude FL >= 180]
D61: DESCENDING TO [altitude QNH < 180]
D62: ERROR [errorinformation]
D63: NOT CURRENT DATA AUTHORITY
D64: [icaofacilitydesignation]
D65: DUE TO WEATHER
D66: DUE TO AIRCRAFT PERFORMANCE
D67: [freedisplayText] Note: The ATS Provider System peer will assign an urgency of Low for message element [67].
D68: [freedisplayText] Note: The ATS Provider System peer will assign an urgency of Distress for message element [68].
D69: REQUEST VMC DESCENT
D70: REQUEST HEADING [degrees]
D71: REQUEST GROUND TRACK [degrees]
D72: REACHING [altitude]
D73: [versionnumber]
D74: MAINTAIN OWN SEPARATION AND VMC
D75: AT PILOTS DISCRETION
D76: REACHING BLOCK [altitude] TO [altitude]
D77: ASSIGNED BLOCK [altitude] TO [altitude]
D78: AT [time] [distance] [tofrom] [position]
D79: ATIS [atiscodes]
D80: DEVIATING [distanceoffset] [direction] OF ROUTE
EMERSPID: EMERGENCY PID TEST MESSAGE (D56 MAYDAY MAYDAY MAYDAY) EI (D68 THIS IS A TEST)

OK Cancel

Figure 24. Send Downlink Message for Active Target – Part 2

Show Route Clearance Text

Displays the route clearance in a popup window.

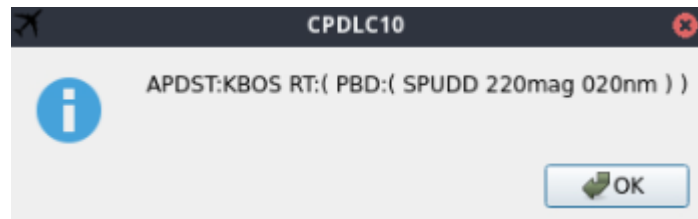


Figure 25. Route Clearance Text for Active Target

Attributes

Dump Attributes

Sends all currently applied attributes for the selected target to standard output.

Selection Count

Returns the number of targets currently selected.

Double clicking on an entry in the Active list opens a control dialog for the selected target. The control dialog consists of a Messages tab and Timed Macros tab. The Messages tab displays the time, type (of message), injector, device/destination, IMI, and text. The Timed Macros tab lists any scheduled dynamic events that were scripted in the scenario for the selected target.

Note: For Time based targets, right click and select Take Control and then double click to open the control dialog. For more information on time-based targets, see section 4.3.3.2.6.

CPDLC10					
Messages		Timed Macros			
Time	Type	Injector	Device/Dest	IMI	Text
14:56:30	ssrvmsg	zbx	d02		FP CPDLC10 B738/L 420 SPUDD220020 E1516 430 SPUDD220020..KBOS EQP ...
14:56:41	afnmsg	datacomm			FMHCPDLC10..CPD001.000018,%000000%/FPON46306W068253,1/FCOADS,01...
14:56:44	afnmsg	ground			FMHCPDLC10..CPD001.000018,145644/FAK0,KUSB/FARADS,1,USBDCA/FARAT...
15:15:45	cpdlcmsg	ground		CR1	ID 0 TS 151545 EI (U163 KUSB A)
15:15:50	cpdlcmsg	avionics		CC1	ID 0 REF 0 TS 151550 EI (D73 1)
15:15:54	cpdlcmsg	ground		AT1	ID 1 TS 151554 EI (U169 CONFIRM CPDLC CONTACT WITH KUSA. ROGER/ACCE...
15:15:59	cpdlcmsg	avionics		AT1	ID 1 REF 1 TS 151559 EI (ROGER)
15:16:29	cpdlcmsg	avionics		AT1	ID 2 TS 151629 EI (D20)
15:16:39	cpdlcmsg	avionics		AT1	ID 3 TS 151639 EI (D6 230FL)
15:16:49	cpdlcmsg	avionics		AT1	ID 4 TS 151649 EI (D22 JFK) EI (D65 DUE TO WEATHER)
15:40:35	cpdlcmsg	ground		AT1	ID 2 TS 154035 EI (U117 BOSTON CEN 128.200vhf)
15:40:40	cpdlcmsg	avionics		AT1	ID 5 REF 2 TS 154040 EI (WILCO)

Transponder LComms SADE2E3GJ4RWZ | Alt 19136 | Hdg 204° true 219° mag | TAS 383 | CAS 290 | Mach 0.62 | Wind 0 kts @ 180° | Mode 3A 5310

Figure 26. Active Target Control Dialog Messages Tab

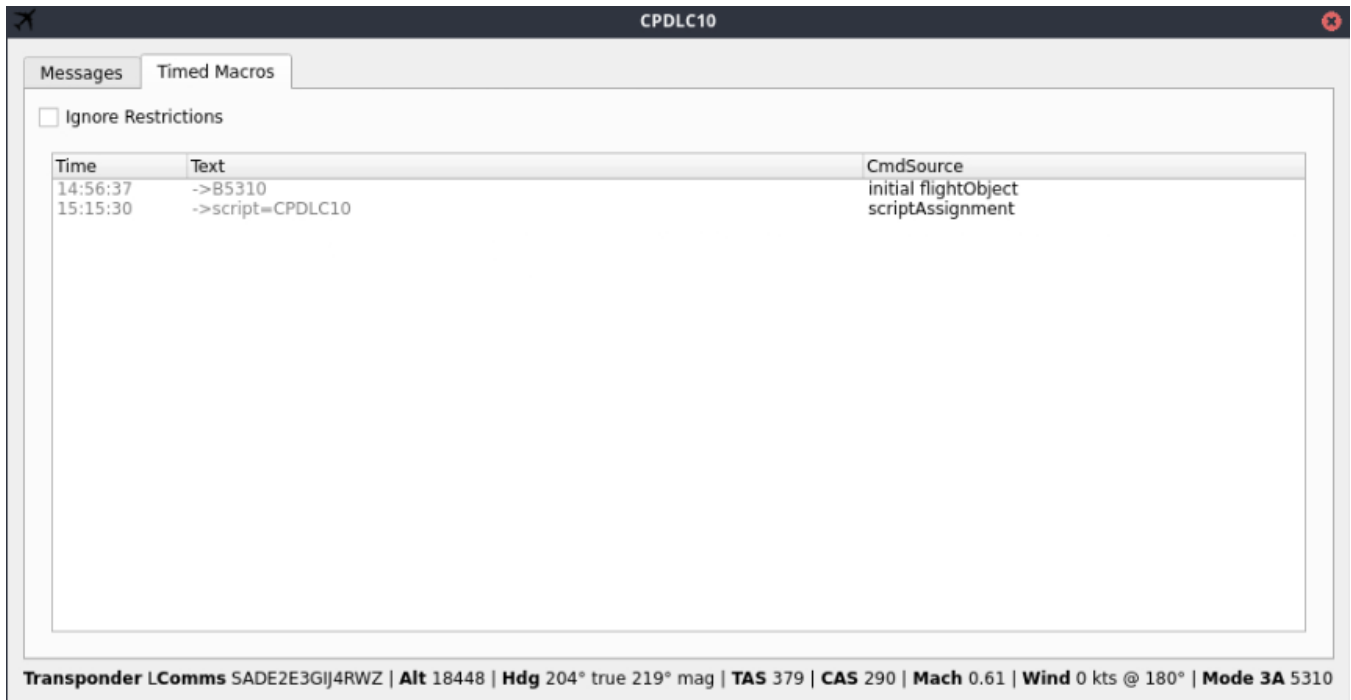


Figure 27. Active Target Control Dialog Timed Macros Tab

4.3.3.2.2. Inactive Tab

Right clicking on an entry in the Inactive list displays the following options:

Target Management

Release Now

Activates the target immediately.

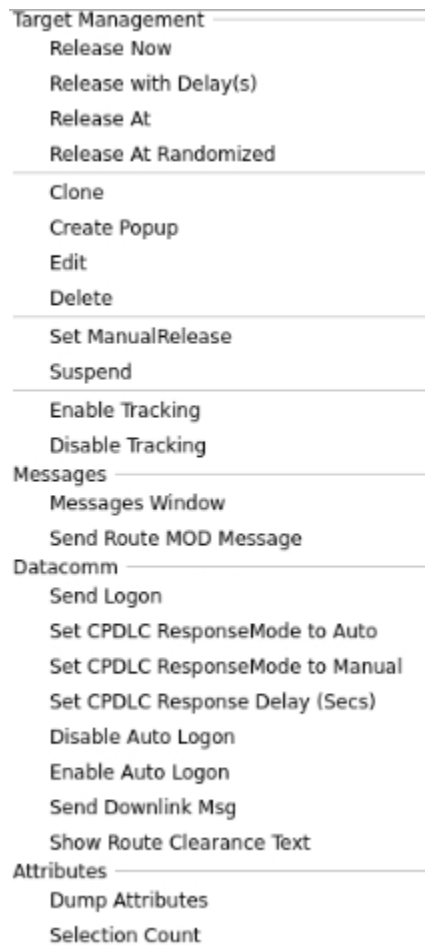


Figure 28. Release Now Option for an Inactive Target

Release with Delay(s)

Activates the target after the specified amount of time has elapsed.

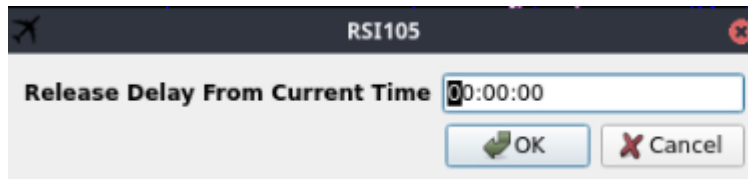


Figure 29. Release with Delay Option for an Inactive Target

Release At

Activates the target at the specified external system time.

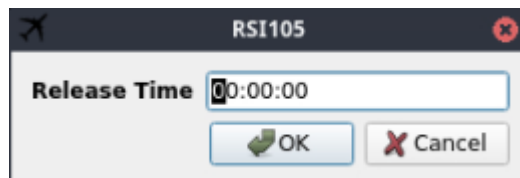


Figure 30. Release at a Specified Time for an Inactive Target

Release at Randomized

Activates targets at a randomized time after the specified release time.

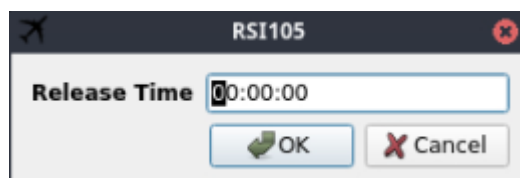
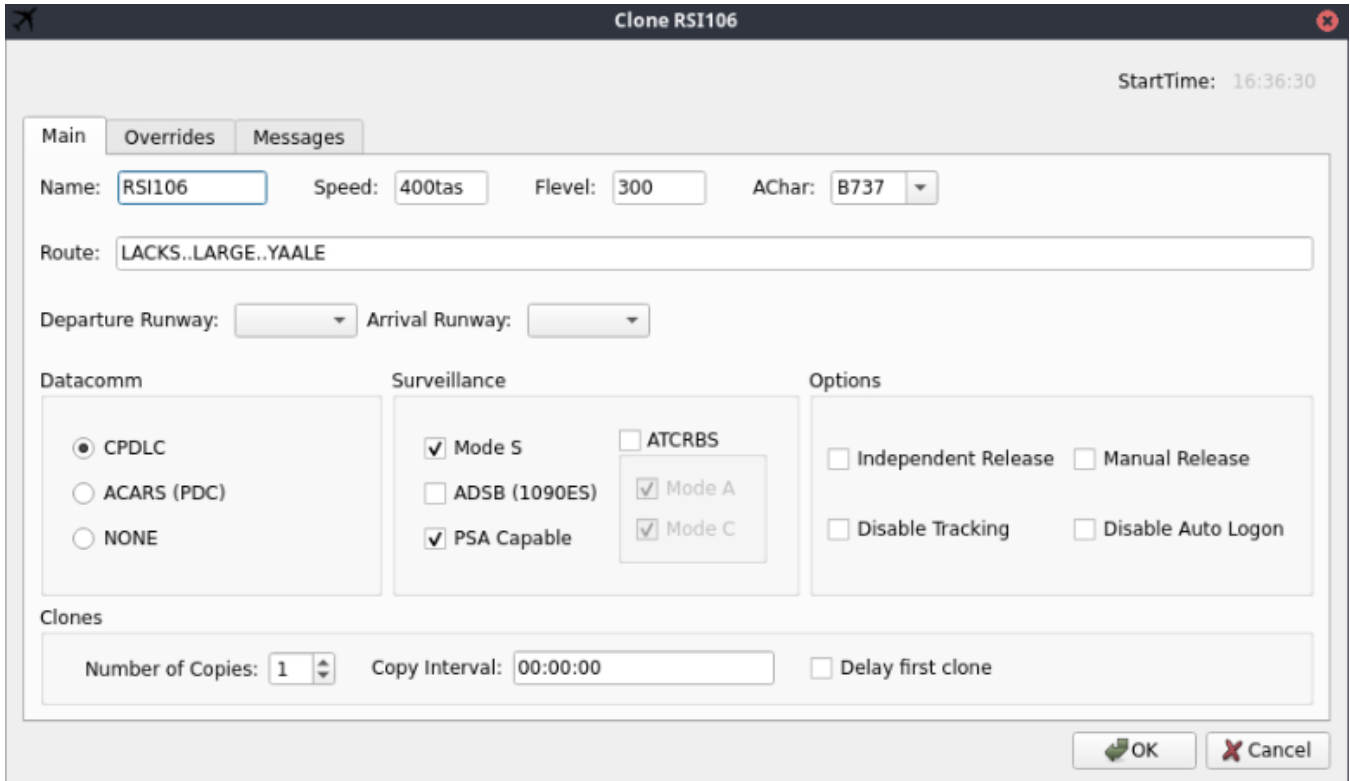


Figure 31. Release at a Randomized

Clone

Opens a Clone dialog and populates the new target with the exact same characteristics as the selected one.

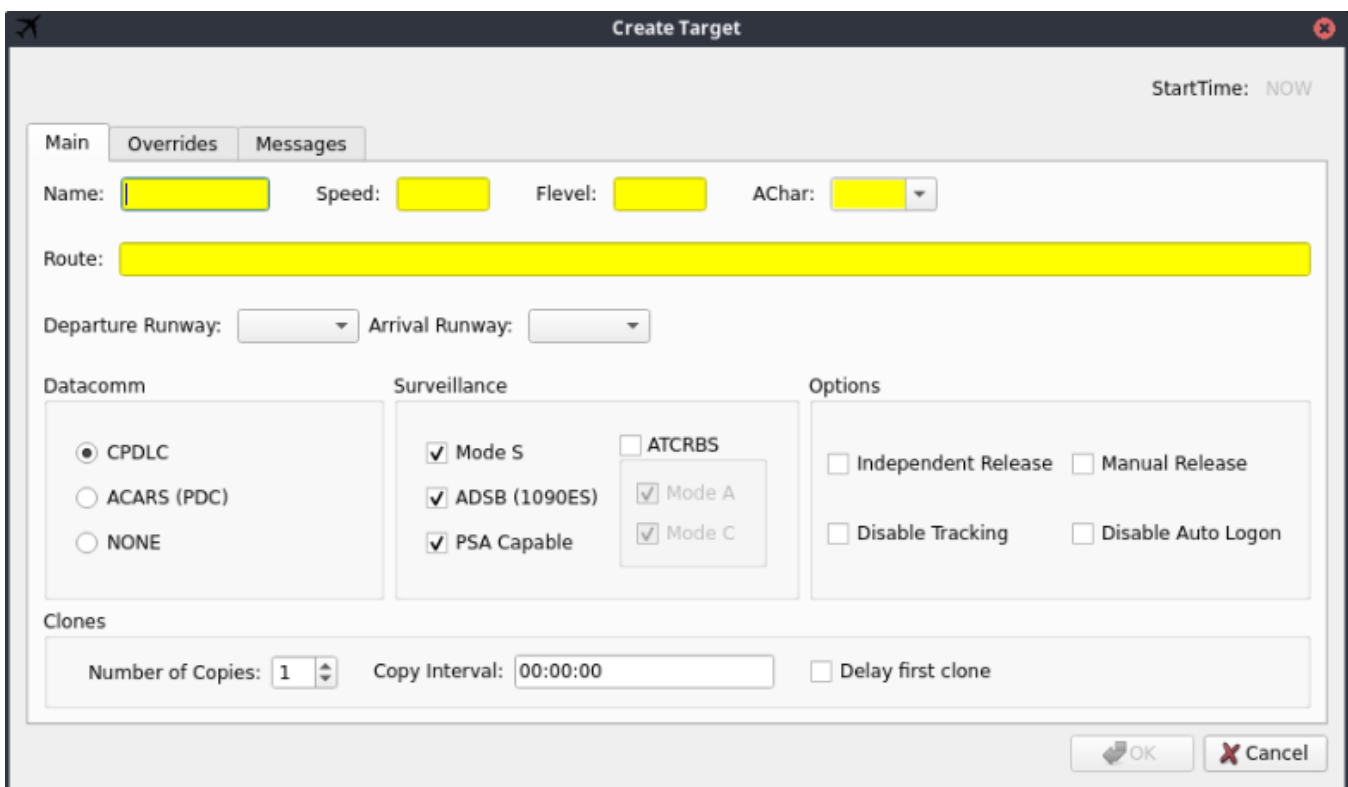


The image shows a software dialog box titled "Clone RSI106". It has a dark title bar with a close button. The main area has a light gray background. At the top right, it says "StartTime: 16:36:30". Below the title bar, there are three tabs: "Main", "Overrides", and "Messages". The "Main" tab is selected. The "Main" tab contains several input fields and checkboxes. The "Name" field is "RSI106", "Speed" is "400tas", "Flevel" is "300", and "AChar" is "B737". The "Route" field is "LACKS..LARGE..YAALE". Below these are "Departure Runway" and "Arrival Runway" dropdown menus. There are three sections: "Datacomm" with radio buttons for "CPDLC" (selected), "ACARS (PDC)", and "NONE"; "Surveillance" with checkboxes for "Mode S" (checked), "ADSB (1090ES)", "PSA Capable" (checked), "ATCRBS", "Mode A" (checked), and "Mode C" (checked); and "Options" with checkboxes for "Independent Release", "Manual Release", "Disable Tracking", and "Disable Auto Logon". At the bottom, there is a "Clones" section with "Number of Copies" set to "1", "Copy Interval" set to "00:00:00", and a "Delay first clone" checkbox. At the bottom right are "OK" and "Cancel" buttons.

Figure 32. Clone Dialog for an Inactive Target

Create Popup

Opens a blank dialog for creating a new target. Each yellow field is mandatory. The Name is the desired aircraft ID (ACID) or callsign, the assigned speed can be specified in calibrated air speed (CAS) or true air speed (TAS), the Flevel is the flight level (altitude), AChar is the aircraft type, Route is the Flight Plan Route, and user can also select departure/arrival runway(s). Further options include Data Communication, Transponder(s) [surveillance], flight release (independent/manual), tracking, logging, and cloning.



Create Target

StartTime: NOW

Main | Overrides | Messages

Name: Speed: Flevel: AChar:

Route:

Departure Runway: Arrival Runway:

Datacomm

☒ CPDLC
☐ ACARS (PDC)
☐ NONE

Surveillance

☒ Mode S
☒ ADSB (1090ES)
☒ PSA Capable
☐ ATCRBS
☒ Mode A
☒ Mode C

Options

☐ Independent Release ☐ Manual Release
☐ Disable Tracking ☐ Disable Auto Logon

Clones

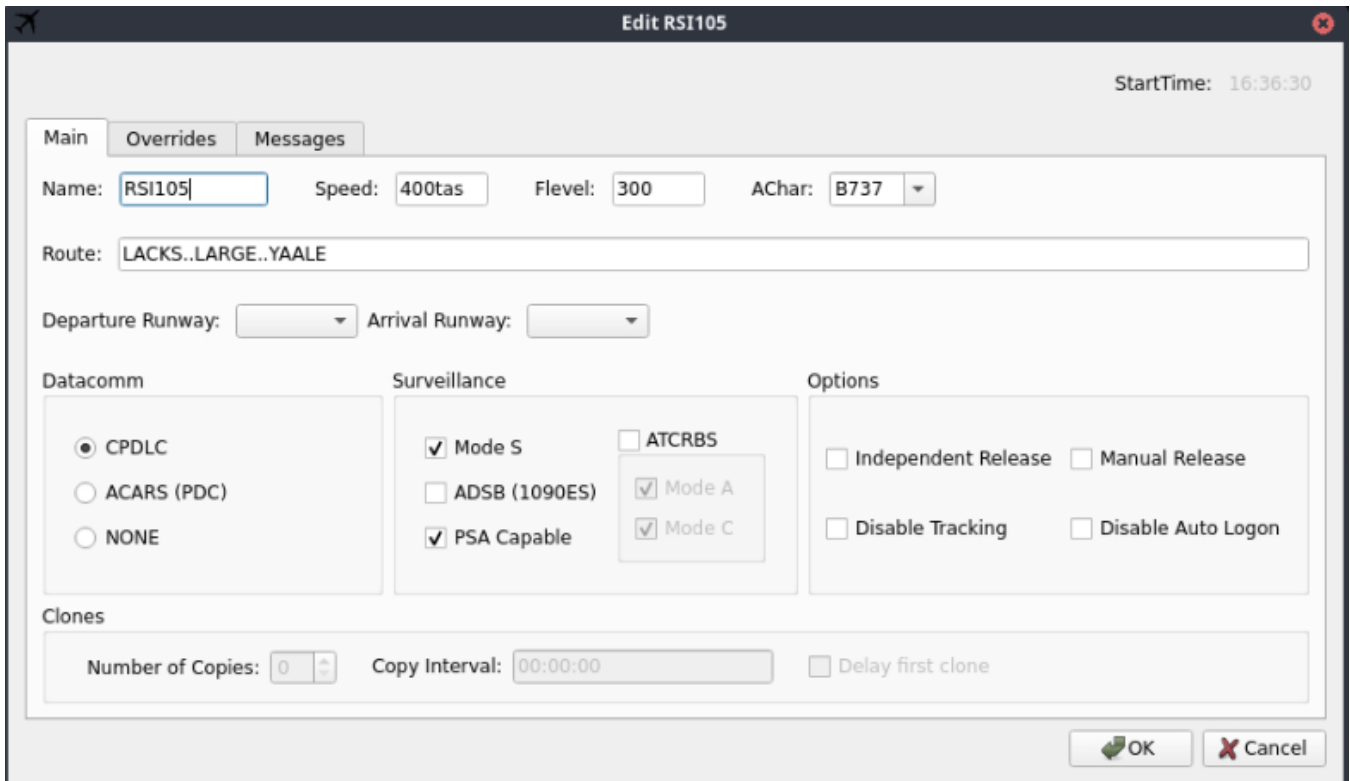
Number of Copies: Copy Interval: ☐ Delay first clone

OK Cancel

Figure 33. Create Popup Dialog for an Inactive Target

Edit

Opens a dialog for editing the selected target. Double clicking the target performs the same action as clicking edit.



Edit RSI105 StartTime: 16:36:30

Main Overrides Messages

Name: RSI105 Speed: 400tas Flevel: 300 AChar: B737

Route: LACKS..LARGE..YAALE

Departure Runway: Arrival Runway:

Datacomm

- ☒ CPDLC
- ☐ ACARS (PDC)
- ☐ NONE

Surveillance

- ☒ Mode S
- ☐ ADSB (1090ES)
- ☒ PSA Capable
- ☐ ATCRBS
- ☒ Mode A
- ☒ Mode C

Options

- ☐ Independent Release
- ☐ Manual Release
- ☐ Disable Tracking
- ☐ Disable Auto Logon

Clones

Number of Copies: 0 Copy Interval: 00:00:00 ☐ Delay first clone

OK Cancel

Figure 34. Edit Dialog for an Inactive Target

Delete

Removes the selected target(s) from the current simulation execution and sends the target(s) to the Dropped list.

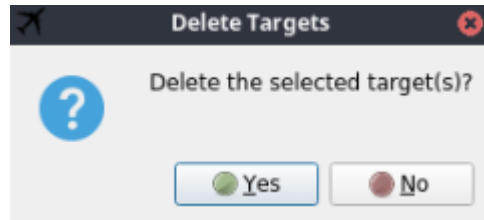


Figure 35. Delete an Inactive Target

Set ManualRelease

Places the selected target into manual release. The target is highlighted in blue.

Suspend

Prevents the target from activating at the scripted injection time. The target may be manually released at another time. Flights in manual mode are highlighted in blue in the Inactive tab.

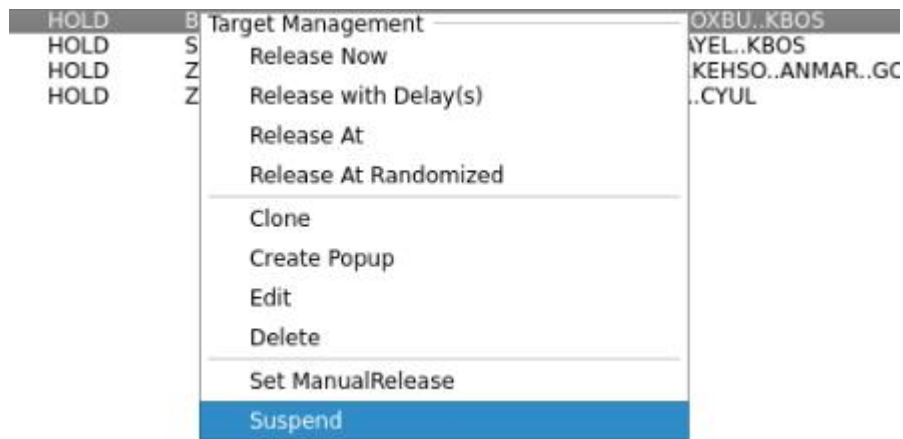


Figure 36. Suspend an Inactive Target

Enable Tracking

Processes CMS data that simDriver receives to change target dynamics or generate hand off messages.

Disable Tracking

Does not process CMS messages to change target dynamics or generate hand off messages.

If simDriver is configured for TBFM, the following options will be available:



Figure 37. TBFM Options

TBFM -> Release at and send ETD update

Activates the target at the specified external system time and sends a TTP update message.

TBFM -> Release at and send EDCT update

Activates the target at the specified external system time and sends an ET message.

TBFM -> Release at and cancel EDCT

Activates the target at the specified external system time and sends an ET Cancel message.

Messages

Messages Window

Opens a dialog showing the flight data messages associated with the selected aircraft. Messages that have been injected are displayed in gray. Messages awaiting injections are displayed in blue. Existing messages can be selected and edited, or new messages can be written and injected.

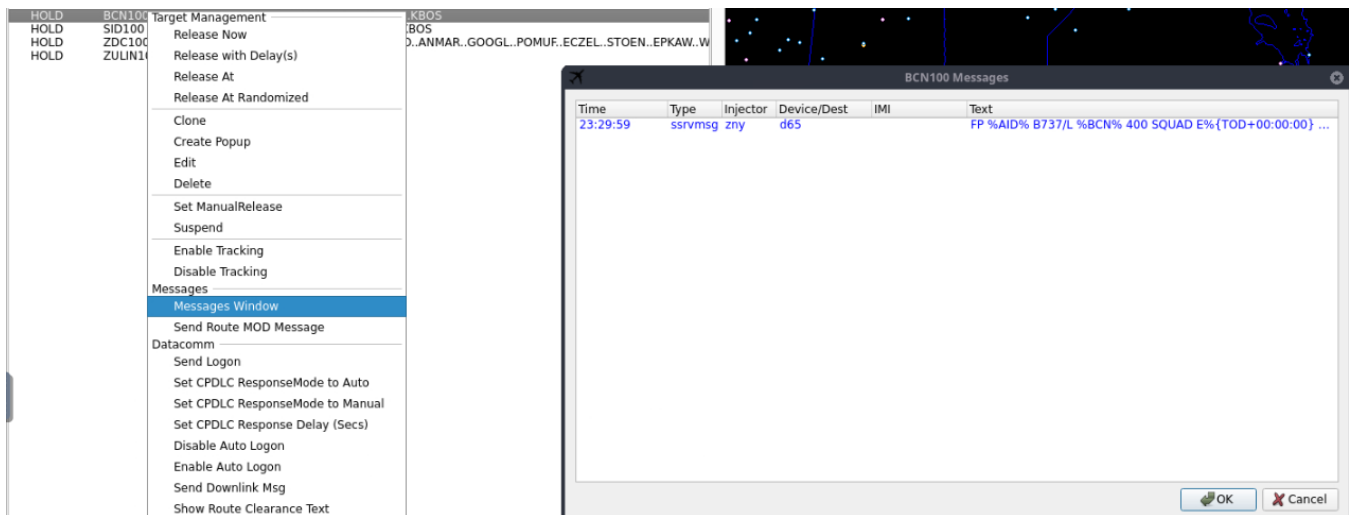


Figure 38. Message Window for an Inactive Target

Send Route MOD Message

Displays a MOD message dialog box.



Figure 39. Send a Route Modification Message

Datacomm

Send Logon

Sends a logon to the flight. This logon message is an aircraft logon for CPDLC services. Further, Messages and Attributes are all related to Datacomm.

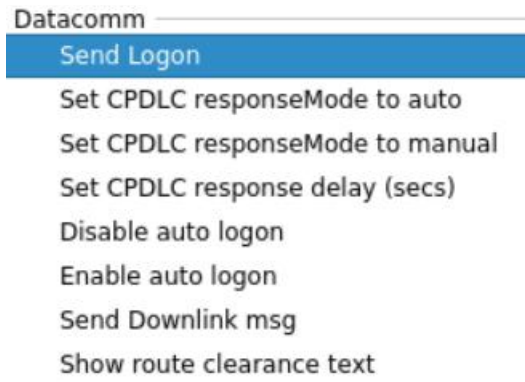


Figure 40. Send Logon for an Inactive Target

Set CPDLC ResponseMode to Auto

Changes flight to auto mode. Auto mode is where all CPDLC messages are automatically processed.

Set CPDLC ResponseMode to Manual

Changes flight to manual mode. Manual mode is where the pilot will have to manually send messages and respond to messages received. Flights set to manual mode are marked with a headset icon.

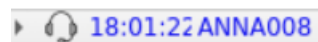


Figure 41. Flight ANNA008 Set for Manual Response Mode

Set CPDLC response delay (secs)

Changes the CPDLC response time to have a delay. This is additional time it will take the aircraft to receive the CPDLC message.

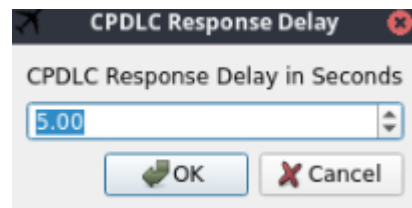


Figure 42. CPDLC Response Delay

Disable Auto Logon

Disables auto logons.

Enable Auto Logon

Enables auto logons.

Send Downlink Msg

Sends a downlink message with one of the selected options listed below.



SID100 Downlink Msg

IMI

☒ AT1
☐ DR1

LiteralMode ☐ **EI (D68 TEXT)**

D0: WILCO
D1: UNABLE
D2: STANDBY
D3: ROGER
D4: AFFIRM
D5: NEGATIVE
D6: REQUEST [altitude FL >= 180]
D6: REQUEST [altitude QNH < 180]
D7: REQUEST BLOCK [altitude] TO [altitude FL >= 180]
D7: REQUEST BLOCK [altitude] TO [altitude QNH < 180]
D8: REQUEST CRUISE CLIMB TO [altitude]
D9: REQUEST CLIMB TO [altitude FL >= 180]
D9: REQUEST CLIMB TO [altitude QNH < 180]
D10: REQUEST DESCENT TO [altitude FL >= 180]
D10: REQUEST DESCENT TO [altitude QNH < 180]
D11: AT [position] REQUEST CLIMB TO [altitude]
D12: AT [position] REQUEST DESCENT TO [altitude]

OK Cancel

Figure 43. Send Downlink Message for an Inactive Target – Part 1

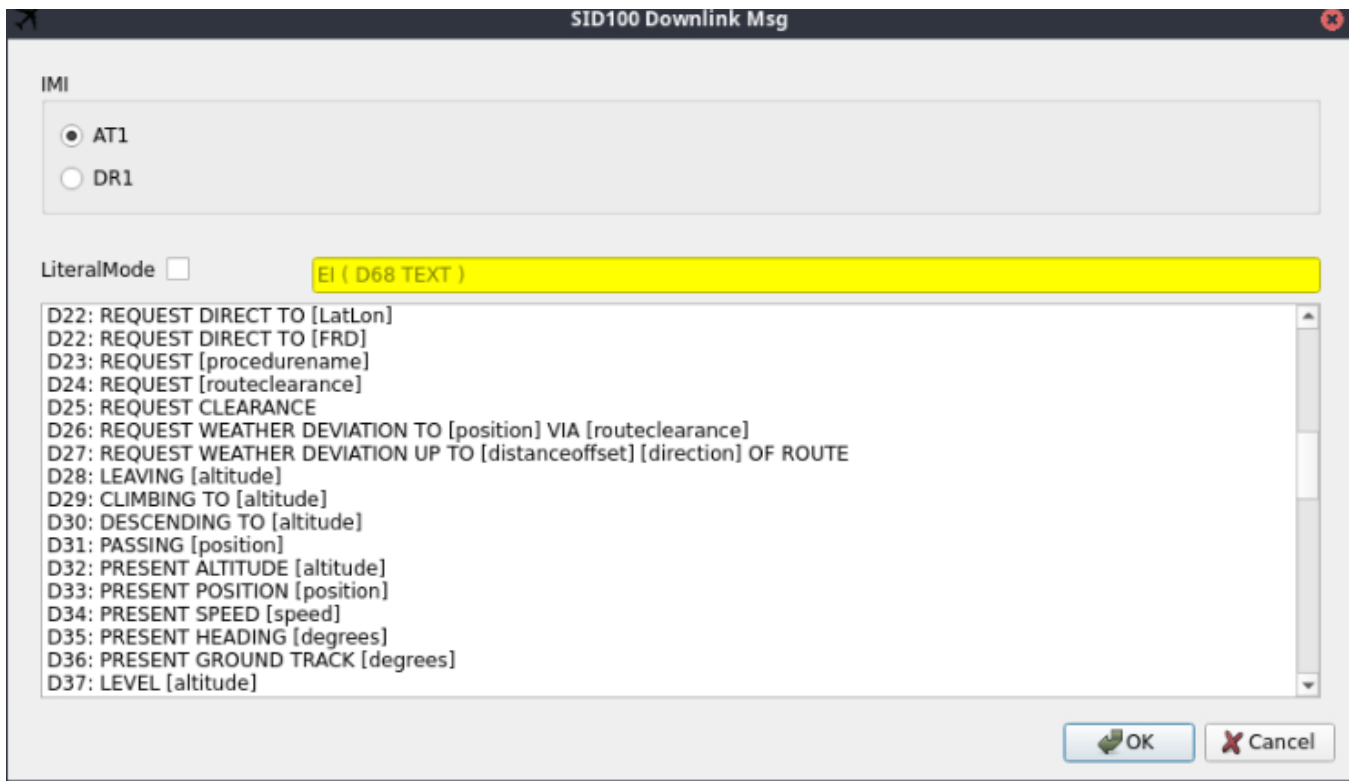


Figure 44. Send Downlink Message for an Inactive Target – Part 2

Show Route Clearance Text

Displays the route clearance in a popup window.

Attributes

Dump Attributes

Sends all currently applied attributes for the selected target to standard output.

Selection Count

Returns the number of targets currently selected.

4.3.3.2.3.Dropped Tab

Right clicking on an entry in the Dropped tab displays the following option:

Clone

A Clone target dialog is displayed and is populated with the same characteristics as the selected one.

4.3.3.2.4. Map View

The right side of the Dysim Tab displays a large map area that includes a menu bar, tool bar, and a macro command bar along the top and a status or measurement bar (when invoked) along the bottom. The menu bar options are:

View

Clicking on **View** displays submenus that allow selection of airspace elements to be added to the map. These elements include Maps, Airspace, Terminal Airspace Data, ARTCC Name(s) (e.g., ZJX and ZTL in the figure below), Radars, and External Facilities.

NOTE: Each menu and submenu has a dashed line at the top. Selecting the dashed line will “tear off” the menu into a new dialog. The menu will remain displayed after a selection is made.

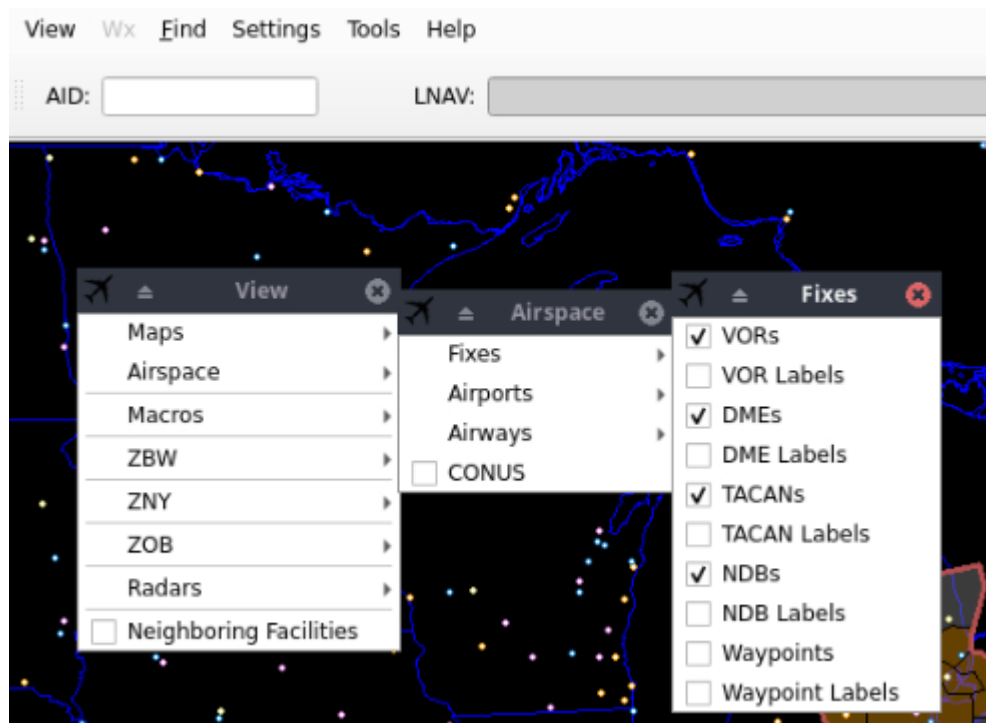


Figure 46. Menu Tear Off

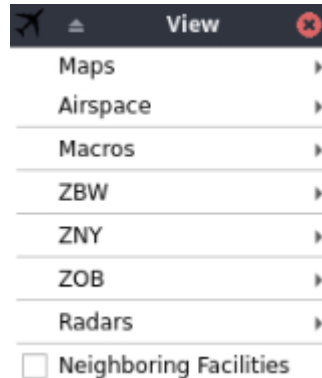


Figure 47. New Dialog

Maps

Political maps displaying boundaries in blue are available, and include US Map showing state boundaries, Canada showing provinces and territories, and Mexico.

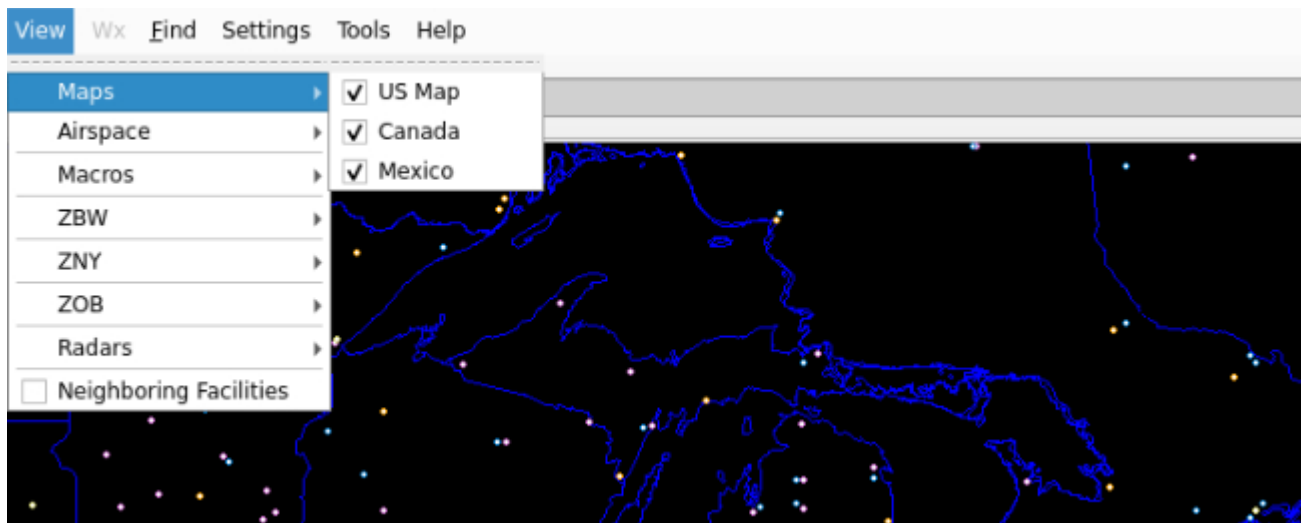


Figure 48. Map View Options

Airspace

The Airspace has a dropdown that includes Fixes, Airports, Airways, DPs, STARs, Coded, Routes, ADRs, AARs, ADARs, DLines, and Alines. The fixes tab has a dropdown that includes VORs, VOR Labels, DMEs, DME Labels, TACANs, TACAN Labels, NDBs, NDB Labels, Waypoints, Waypoint Labels, Fix Aliases, and Fix Alias Labels. The Airports tab includes Airports, Airport Labels, Airport

Aliases, and Airport Alias Labels. The Airways tab includes High Airways, Low Airways, and Other Airways.

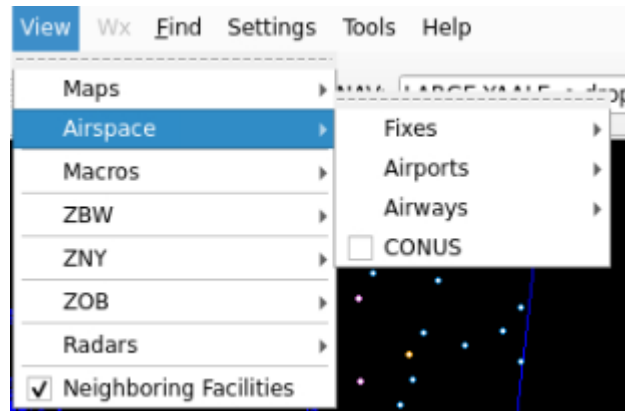


Figure 49. Airspace View Option

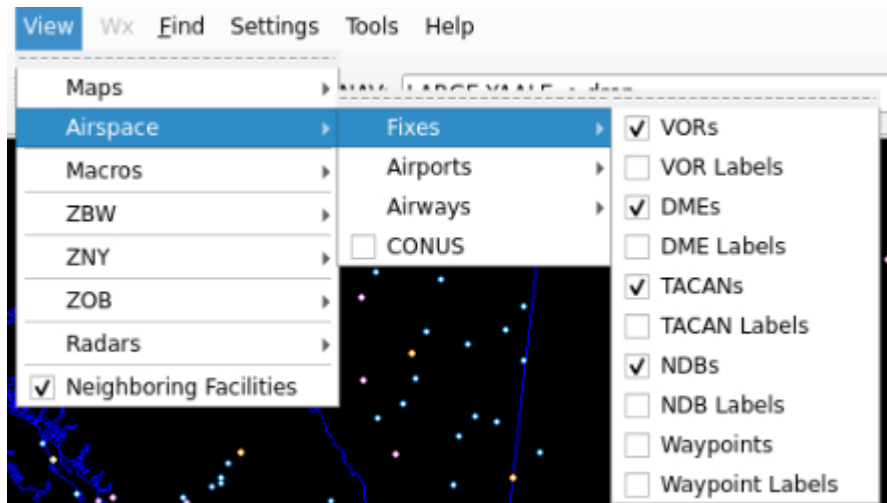


Figure 50. Airspace Fixes View Options

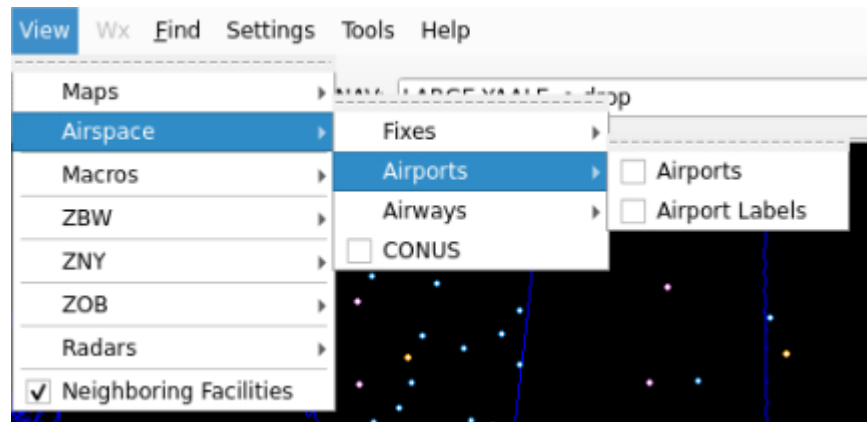


Figure 51. Airspace Airports View Options

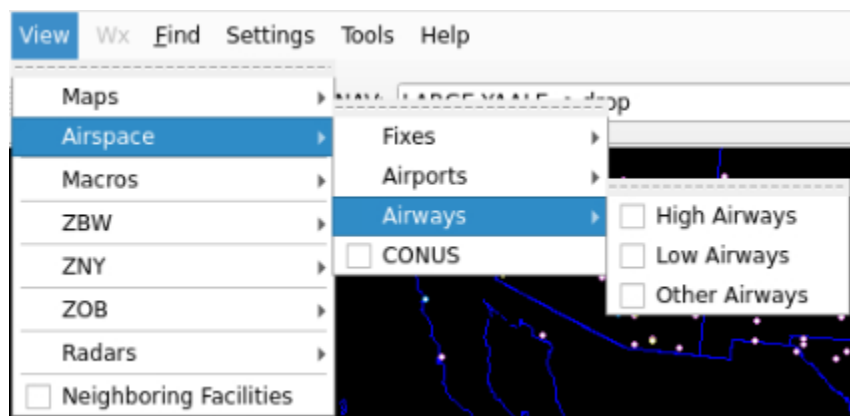


Figure 52. Airspace Airways View Options

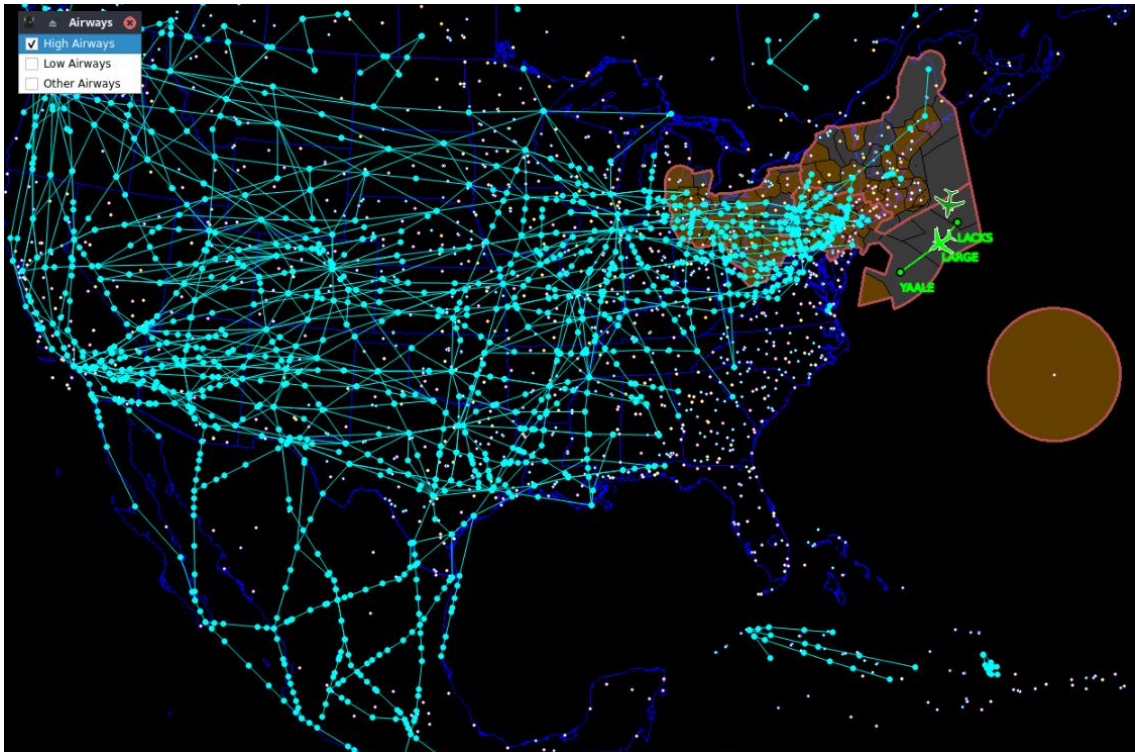


Figure 54.2. Airspace Airways View Menu Options (High airways)

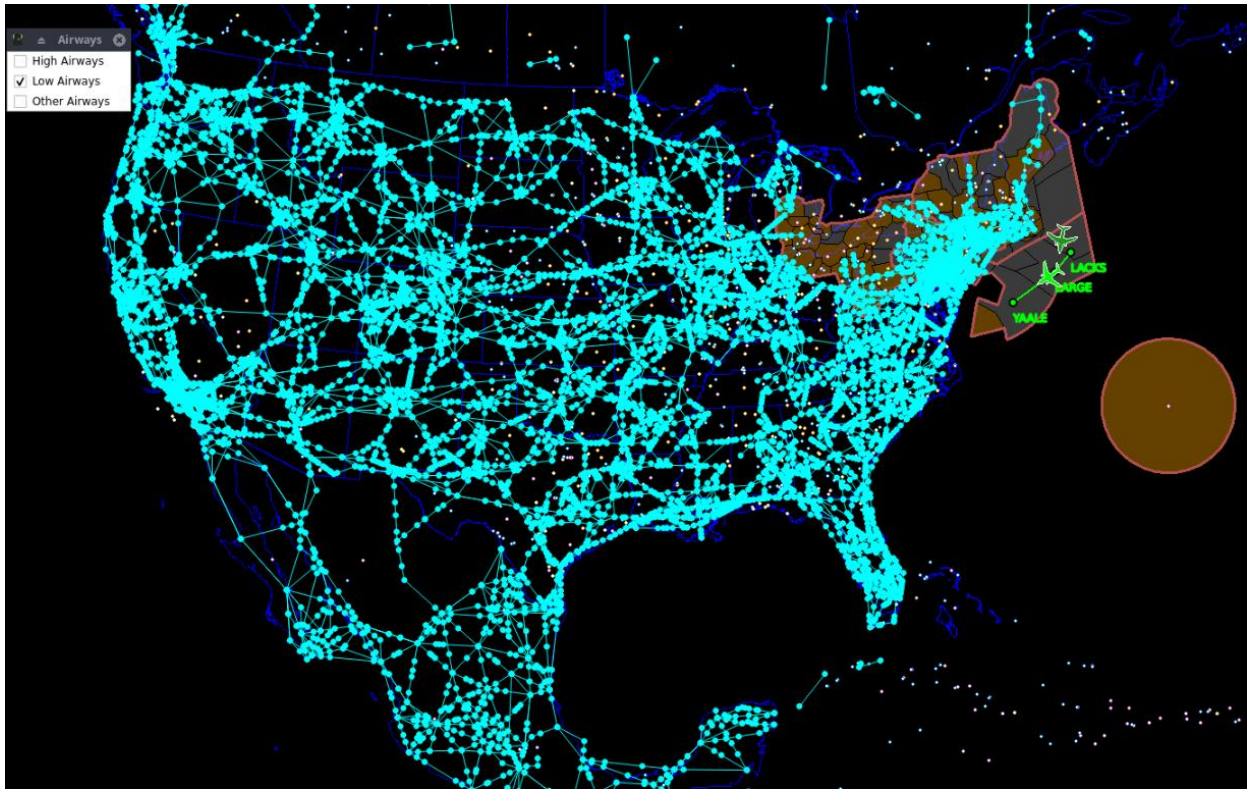


Figure 54.3. Airspace Airways View Menu Options (Low airways)

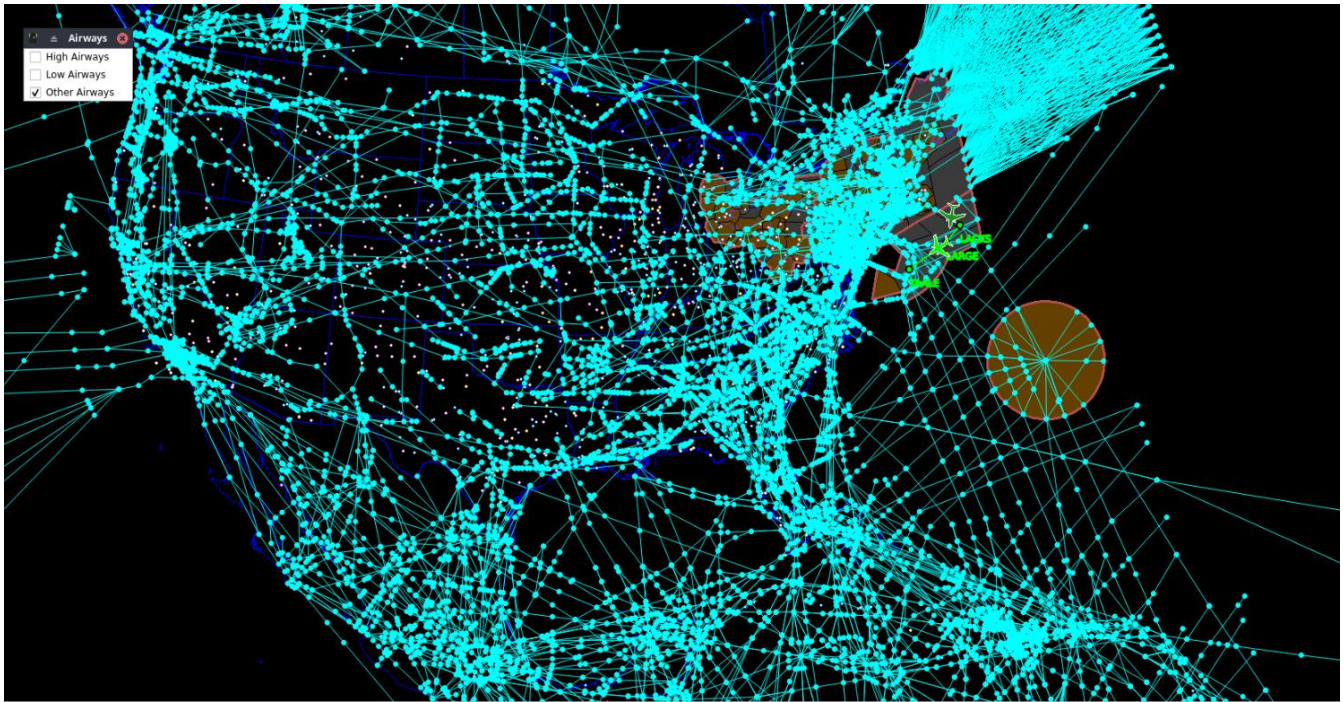


Figure 54.4. Airspace Airways View Menu Options (Other airways)

Macro View Option

The Terminal Airspace Data has a dropdown that includes Macros, Points, and Airports. The Macros dropdown will show user defined macros defined in a macro.xml file specified in the scenario.xml or adaptation.xml with the option to select a specific macro to be displayed on the map, or the option to display all macros using On or Off.

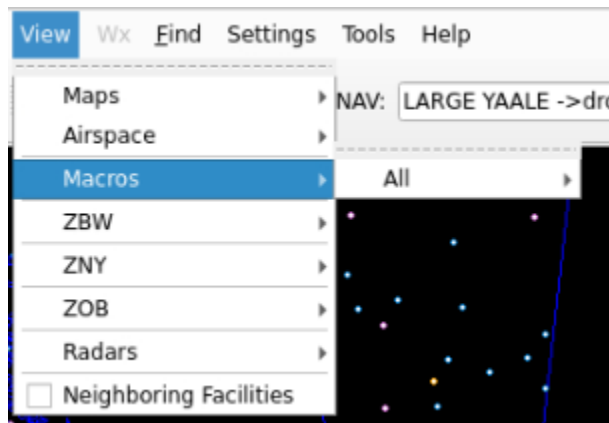


Figure 53. Macro View Option

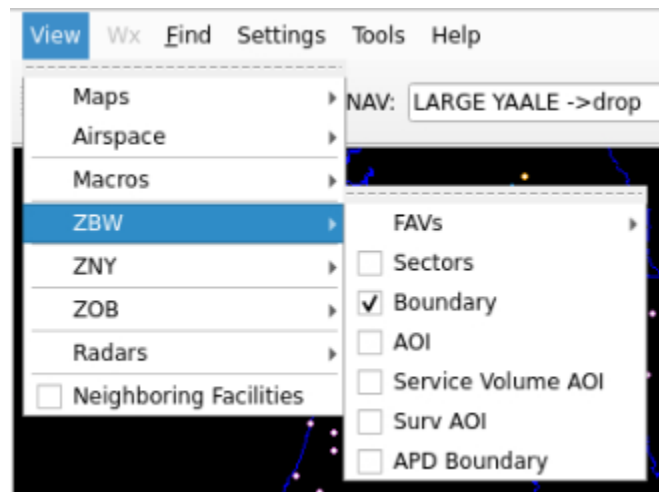


Figure 56. En Route Facility View Menu Options

En Route Facilities

This option includes FAVs, Sectors, Boundary, FP AOI, Service Volume AOI, Surv AOI, and APD Boundary.

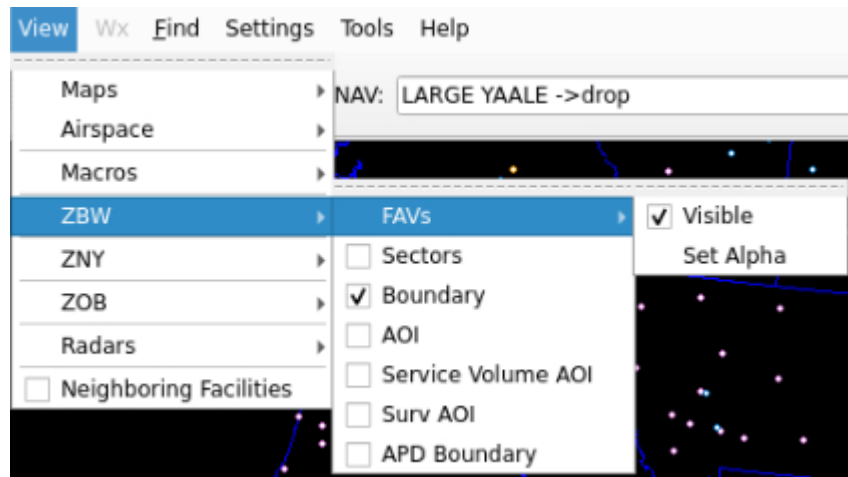


Figure 56.1. En Route Facility View Menu Options Contd.

FAVs

Fixed Airspace Volumes (gray for ARTCC and orange for Terminal airspace)

Sectors

Contains a submenu with the adapted sector plans (blue)

Boundary

Area of responsibility (AOR) boundary (red line)

FP AOI

Flight Plan (FP) Area of Interest (AOI) boundary (green)

Service Volume AOI

ADS-B Service Volume Area of Interest boundary (blue)

Surv AOI

Surveillance Area of Interest boundary (teal)

APD Boundary

(yellow)

Radars

The Radar submenu lists all adapted radar sites and an option for toggling all radar sites on or off. When a radar site is on, the range is displayed as a circle with a shaded area indicating the coverage area at the selected altitude.

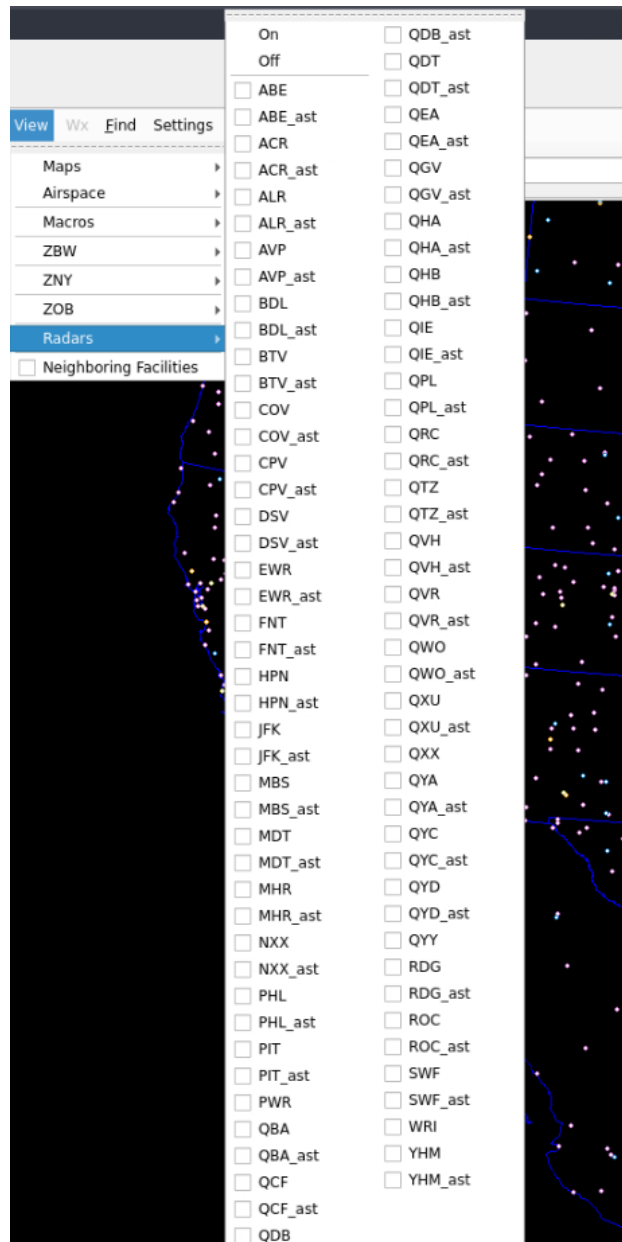


Figure 57. Radars View Menu Options

Neighboring Facilities

Turns Highlighting of Neighboring Facilities on or off

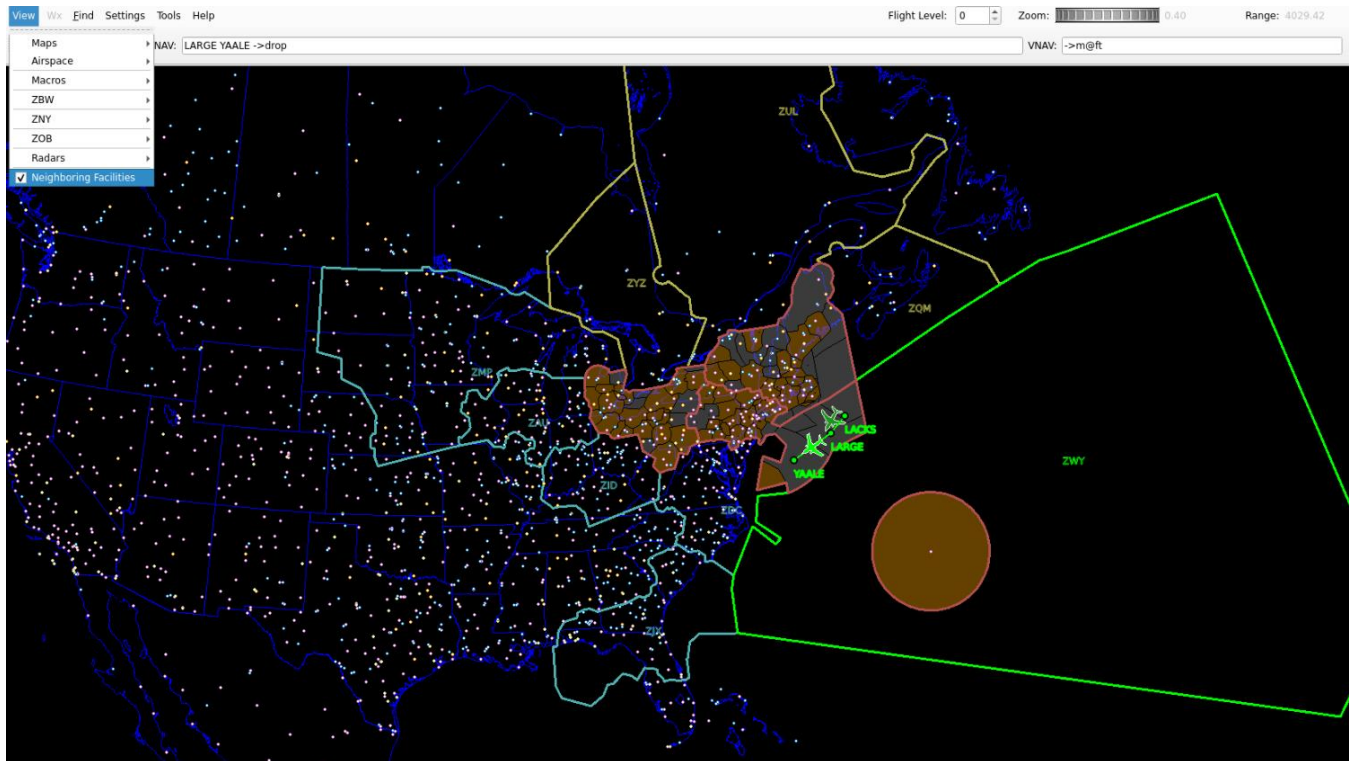


Figure 54. Neighboring Facilities View Option

Find

Clicking on **Find** displays the Find dialog. The Find dialog can be used to search the adaptation for airspace elements by name. When found, the element(s) are added to the map display and a context box is displayed with details about the element.

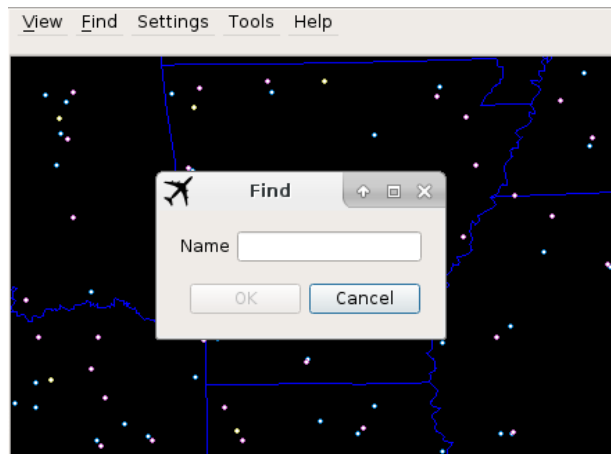


Figure 55. Find Dialog

Settings

Clicking on **Settings** displays the following submenus:

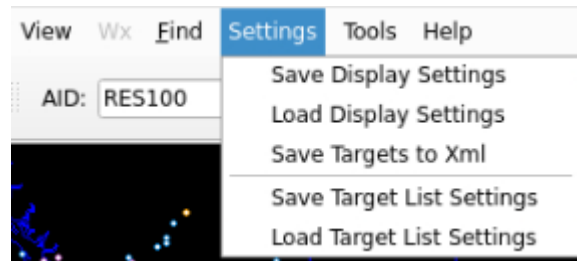


Figure 56. Settings Options

Save Display Settings

Allows saving of preferred display settings.

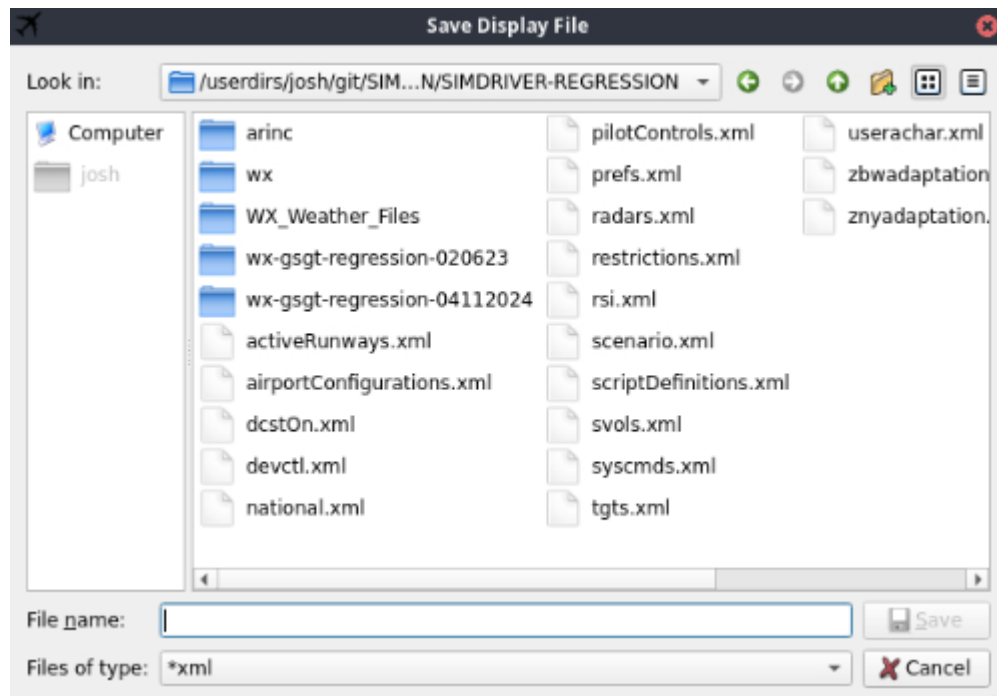


Figure 57. Save Display Settings Dialog

Load Display Settings

Allows loading of previously saved display settings.

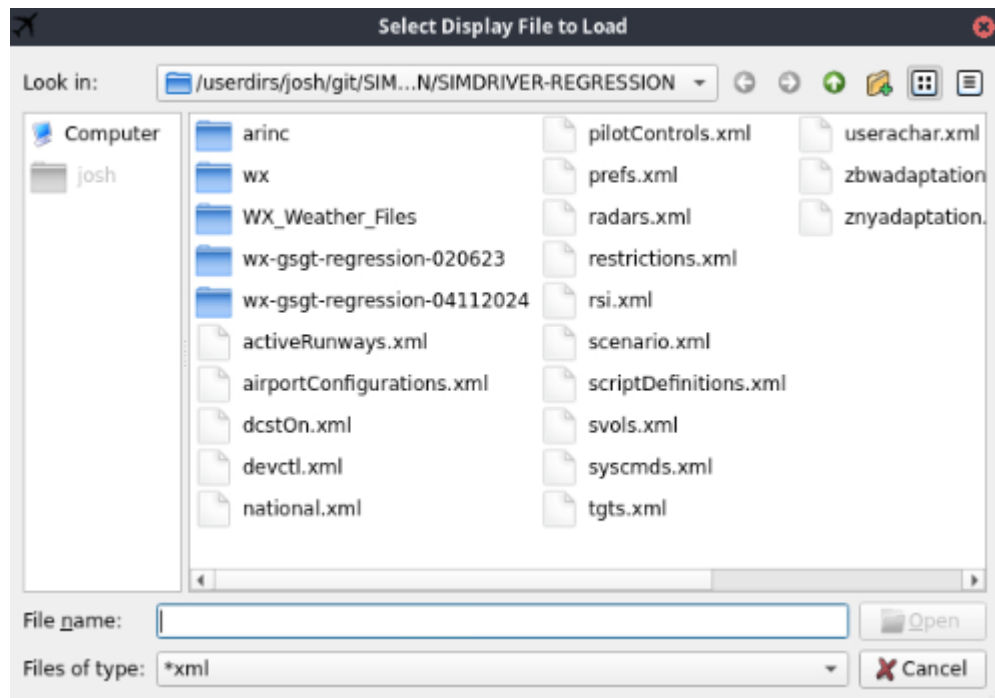


Figure 58. Load Display Settings Dialog

Save Targets to Xml

Allows you to update scenario tgts.xml file with any new flights added during simulation.

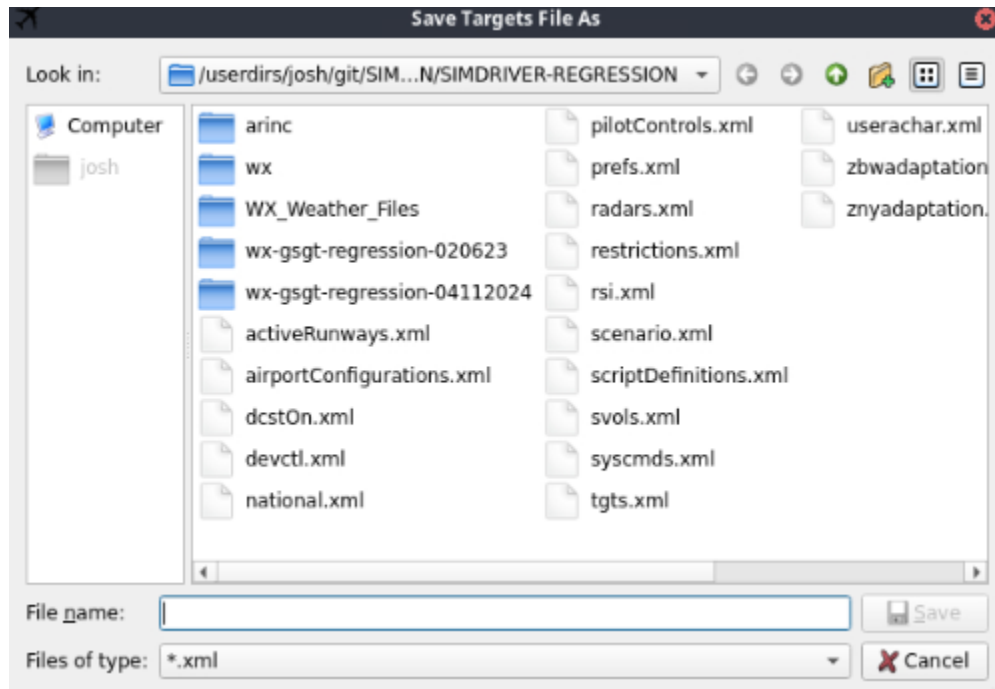


Figure 59. Save Targets to Xml

Save Target List Settings

Allows you to save the target list settings as a .dat file.

Load Target List Settings

Allows you to load the target list settings as a .dat file.

Tools

Clicking on **Tools** displays the following submenus:

Enable RSIs

Allows selection of RSIs to be executed not initially included in the simDriver command line parameter option.

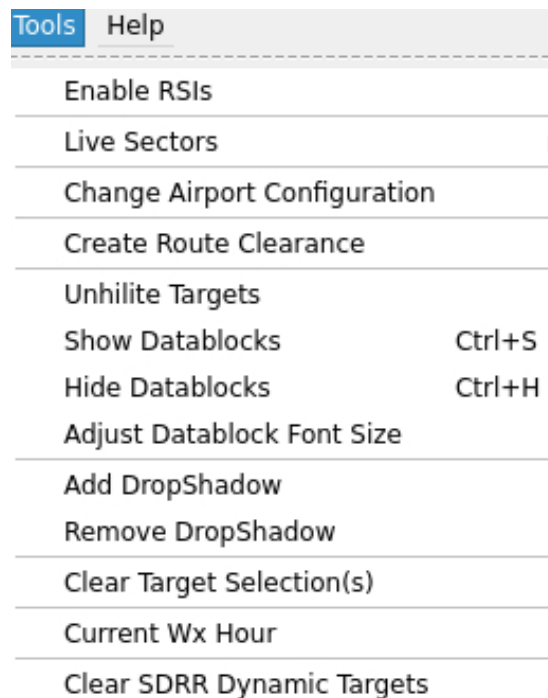


Figure 60. Enable RSIs Tools Menu Option

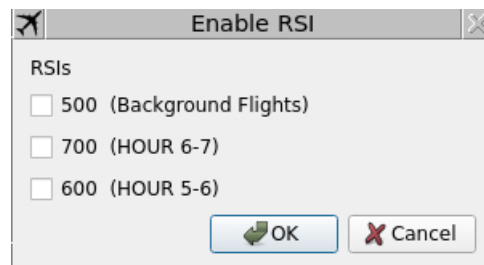


Figure 61. Enable RSIs Dialog

Add Live Sector

Identifies sector position as having live controller interaction.

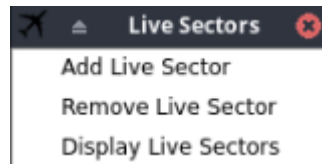


Figure 62. Add Live Sector Tools Menu Option

NOTE: Multiple sectors can be added at one time.

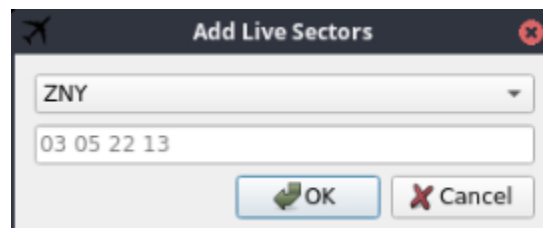


Figure 63. Add Live Sector Dialog

Remove Live Sectors

Removes sector position from list of positions with live controller interaction.

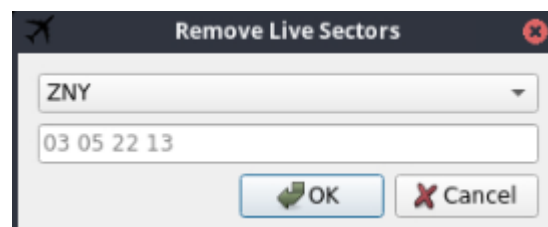


Figure 64. Remove Live Sector Tools Menu Option

NOTE: Multiple sectors can be removed at one time.

Display Live Sectors

Displays all sector positions identified as having live controllers.

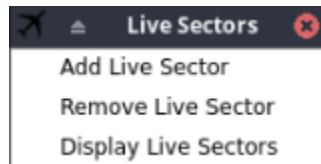


Figure 65. Display Live Sectors Tools Menu Option

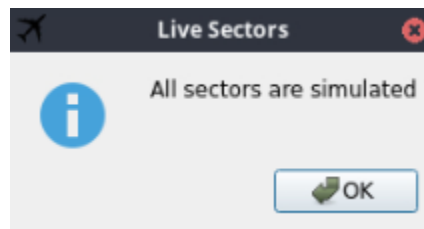


Figure 66. Display Live Sectors Dialog

Airport Configurations

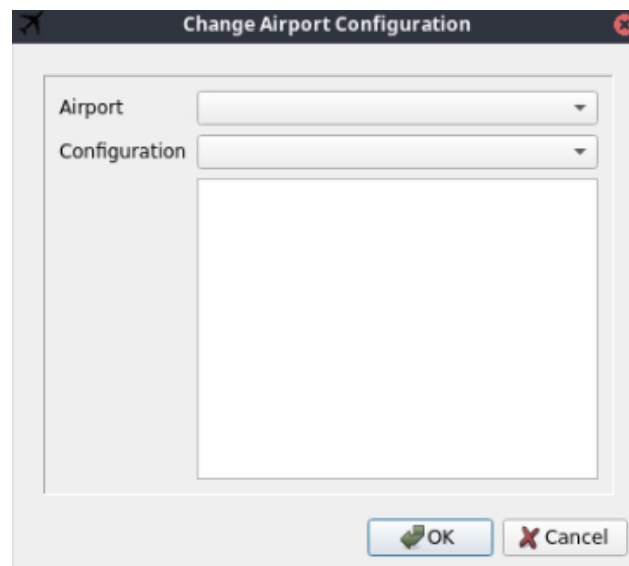


Figure 67. Change Airport Configuration Menu Option

Create Route Clearance

Opens a dialog to enter a route clearance.

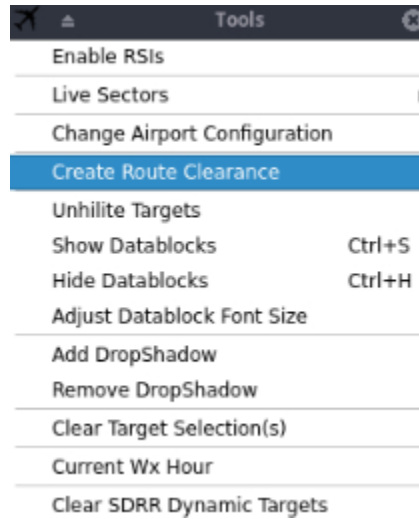


Figure 68. Create Route Clearance Tools Menu Option

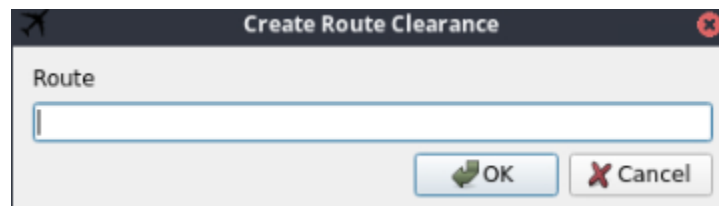


Figure 69. Create Route Clearance Dialog

Unhiliate Targets

Removes all highlighted flight paths.

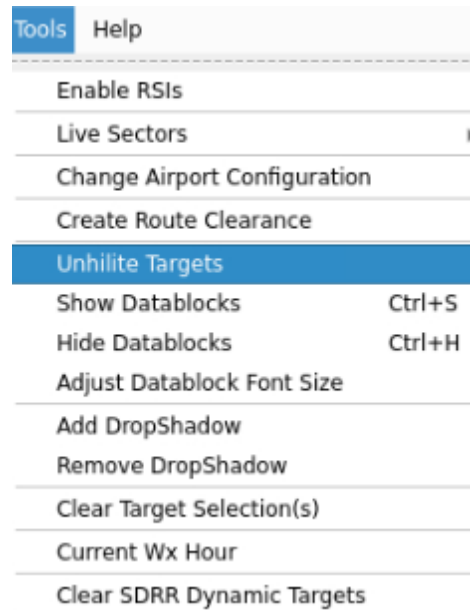


Figure 70. Unhiliate Targets

Show/Hide Datablocks

Shows/Hides Datablocks on map.

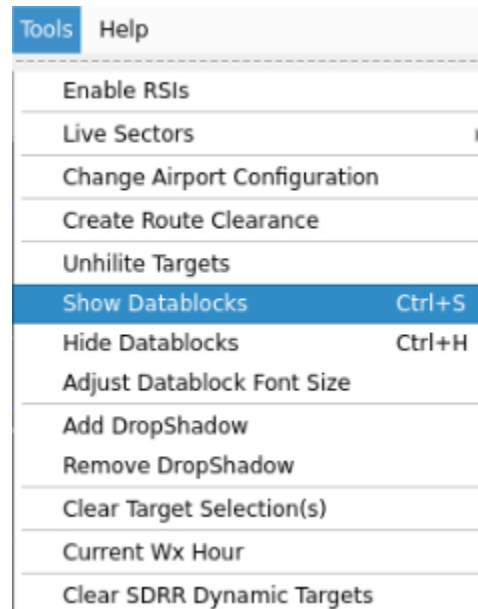


Figure 71. Show/Hide Datablocks

Adjust Datablock Font Size

Changes the font of the datablock text displayed on the map.

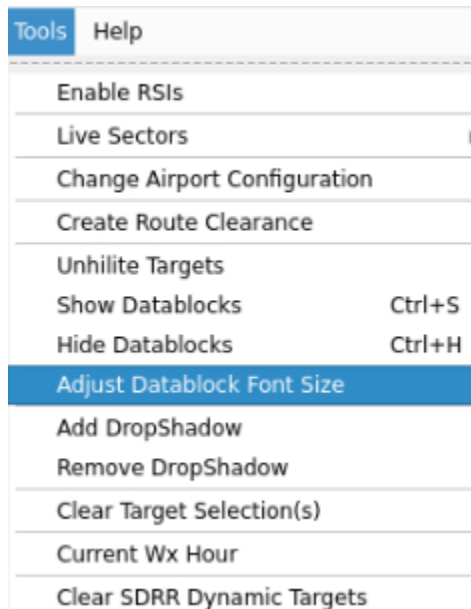


Figure 72. Adjust Datablock Font Size Tools Menu Option

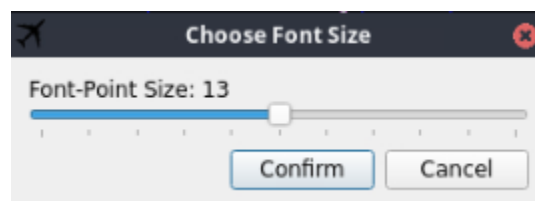


Figure 73. Adjust Datablock Font Size Dialog

Add/Remove Dropshadow

Adds/removes dropshadow from targets and datablocks.

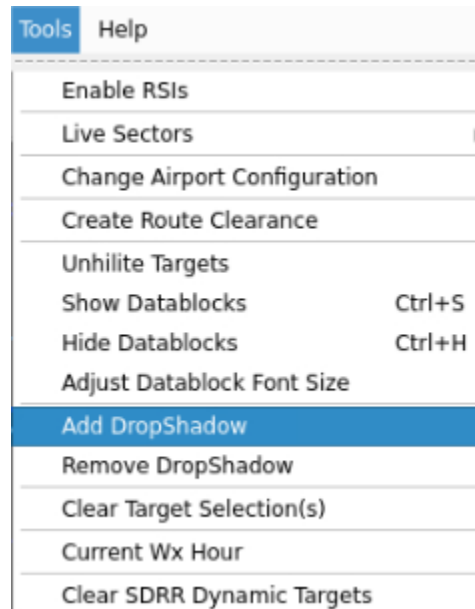


Figure 74. Add/Remove Dropshadow

Clear Target Selection(s)

Unhighlights any selected flights.

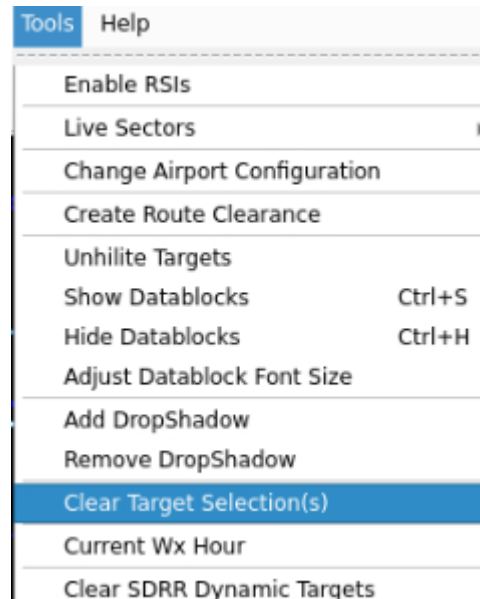


Figure 75. Clear Target Selections

Current Wx Hour

Displays the current weather hour.

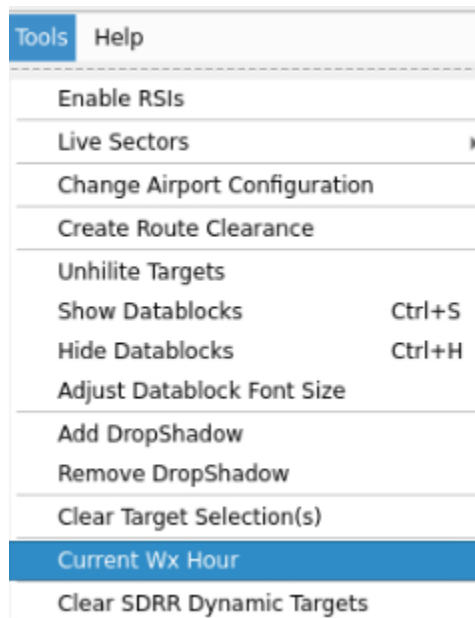


Figure 76. Current Wx Hour

Clear SDRR Dynamic Targets

If you restart simDriver, the button gives you the option to tell SDRR to stop "dead reckoning".

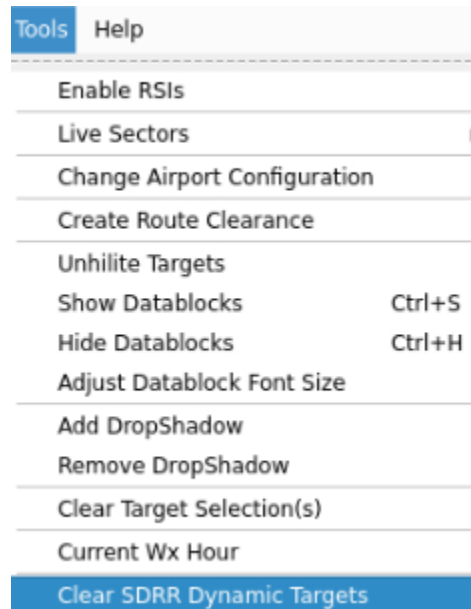


Figure 77. Clear SDRR Dynamic Targets

Help

Clicking on **Help** displays submenus for:

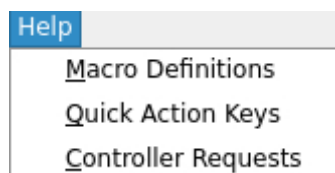


Figure 78. Help Menu

Macro Definitions

Displays a list of available macro commands.



Figure 79. Macro Definitions Help Menu Option



Figure 80. Macro Definitions Help Page

Quick Action Keys

Displays a list of available keyboard short cuts.

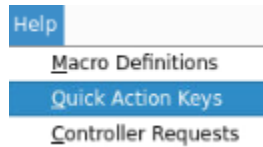


Figure 81. Quick Action Keys Help Menu Option



Figure 82. Quick Action Keys Help Page

Controller Requests

Displays a list of commands available for an ERAM controller to enter via the QS command for entry of free text into the 4th line of a target full datablock.



Figure 83. Controller Requests Help Menu Option



Figure 84. Controller Requests Help Page

The tool bar items on the upper right of the map display are:

Flight Level

The **Flight Level** tool allows an altitude to be set either by typing the value into the box or by clicking the up and down arrows. Changing the altitude also changes the sector and facility boundaries that are displayed.

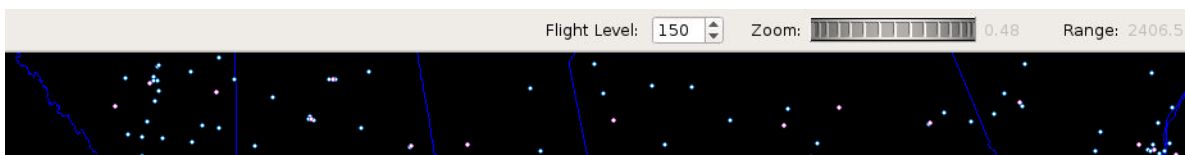


Figure 85. Flight Level

Zoom

The **Zoom** tool allows the range of the display to be adjusted using a wheel selector.

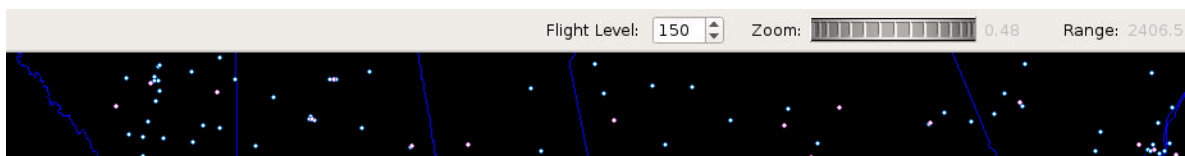


Figure 86. Zoom

Range

The **Range** tool displays the horizontal size (in nmi) of the airspace showing in the map display.

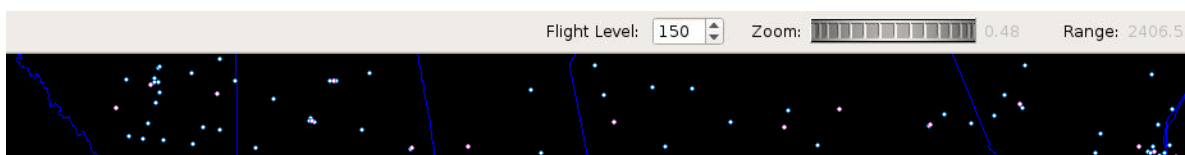


Figure 87. Range

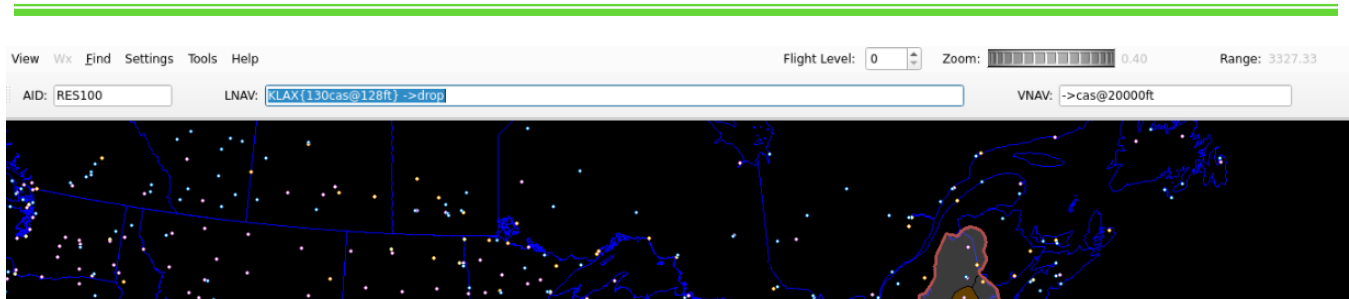


Figure 88. Macro Command Bar

The macro command bar items just above the map are:

AID

Callsign of the selected target.

LNAV

Route macro commands.

VNAV

Altitude and velocity commands.

When an active target is selected by double clicking, the input text boxes are automatically populated with the current values and the target is selected. Further when a target is manually entered into the AID box, the GUI should jump to the target, and the target itself should be highlighted.

4.3.3.2.5.LNAV/VNAV Command Input

The macro command bar consists of input text boxes that allow LNAV and VNAV macro commands to be applied to selected active targets. A list of macro commands is provided in the table below:

Table 3. Custom Macro Commands

Command	Description
VNAV Commands	
->dddcas	Change the calibrated air speed of the target to the value specified.

<p>->dddcas~dddkt/min</p> <p>->dddtas</p> <p>->dddtas~dddkt/min</p> <p>->.ddm</p> <p>->.ddm~dddkt/min</p>	<p>Change the calibrated air speed of the target to the value specified at a given rate of change.</p> <p>Change the true air speed of the target to the value specified.</p> <p>Change the true air speed of the target to the value specified at a given rate of change.</p> <p>Change the mach speed of the target to the value specified.</p> <p>Change the mach speed of the target to the value specified at a given rate of change.</p>
<p>->dddcas@ddddddft or</p> <p>->dddtas@ddddddft or</p> <p>->.ddm@ddddddft</p> <p>->(+\-)dddcas</p>	<p>Change the speed and altitude of the target to the values specified.</p> <p>Change the speed of the target by the specified amount.</p>
<p>->ddddddft</p> <p>->ddddddft~dddd</p> <p>->(+\-)dddft</p>	<p>Change the altitude of the target to the value specified in feet.</p> <p>Change the altitude of the target to the value specified in feet at a given rate of change (in feet per minute).</p> <p>Change the altitude of the target by the specified amount.</p>
LNAV Commands	
<p>FIXNAME</p> <p>FIXNAME{attributes}</p> <p>Attributes:</p> <p>{arpt}</p>	<p>Proceed to the fix.</p> <p>Proceed to the fix and obey additional instructions or restrictions specified as attributes of the fix. Some attributes (such as speed and altitude restrictions) may be combined for the same fix.</p> <p>On the first fix, auto-apply departure logic; on the last fix, auto-apply top of descent (TOD) restriction. Not valid on other fixes.</p>

<p>{rw:dd} or {rw:ddA}</p> <p>{ils:dd} or {ils:ddA}</p> <p>{dddddft}</p> <p>{<dddddft}</p> <p>{>dddddft}</p> <p>{dddddftBdddddft}</p> <p>{dddcas}, {dddtas}, or {.ddm}</p> <p>{<dddcas}, {<dddtas}, or {<.ddm}</p> <p>{>dddcas}, {>dddtas}, or {>.ddm}</p> <p>{rf}{dddmag}{turnDir:A}</p>	<p>In conjunction with {arpt} on departures, use a defined departure procedure for the specified runway.</p> <p>In conjunction with {arpt} on arrivals, perform an ILS approach to the specified runway. This disables TOD processing.</p> <p>Cross the fix at the specified restriction altitude.</p> <p>Cross the fix at or below the specified restriction altitude.</p> <p>Cross the fix at or above the specified restriction altitude.</p> <p>Cross the fix between the specified restriction altitudes. Order is of the restriction altitudes is irrelevant.</p> <p>Cross the fix at the specified restriction speed.</p> <p>Cross the fix at or below the specified restriction speed.</p> <p>Cross the fix at or above the specified restriction speed.</p> <p>Perform a radius to fix turn (in the specified turn direction), exiting the fix at the specified heading.</p>
<p>->ddd[RL]mag</p> <p>->ddd[RL]mag~ddddeg/sec</p> <p>->ddd[RL>true</p> <p>->ddd[RL>true~ddddeg/sec</p> <p>->(+\-)ddddeg</p>	<p>Change the heading of the target to the value specified in degrees from magnetic North or by the right or left offset.</p> <p>Change the heading of the target to the value specified in degrees from magnetic North or by the right or left offset, at a given rate of change.</p> <p>Change the heading of the target to the value specified in degrees from true North or by the right or left offset.</p> <p>Change the heading of the target to the value specified in degrees from true North or by the right or left offset, at a given rate of change.</p> <p>Change the heading of the target by the specified amount.</p>

->hold	Hold indefinitely with right hand turns and 1 minute leg lengths.
->hold{legTime:dmin}	Hold indefinitely with right hand turns and leg lengths as specified in minutes.
->hold{turnDir:A}	Hold indefinitely with 1 minute leg lengths and left or right hand turns as specified.
->hold{duration:dmin}	Hold with right hand turns and 1 minute leg lengths for the specified amount of time. Once the duration time has expired, complete the current turn and proceed with the remaining route.
->hold{count:d}	Hold with right hand turns and 1 minute leg lengths for the specified number of laps.
->drop	Drop the target.
Mode3A and Mode C Commands	
->Boooo	Set or change the beacon code.
->BE	Enable the Mode 3A beacon.
->BD	Disable the Mode 3A beacon.
->MCE	Enable Mode C.
->MCD	Disable Mode C.
->RADARE	Enable radar detection.
->RADARD	Disable radar detection.
->ADSBE	Enable ADSB detection.
->ADSBD	Disable ADSB detection.
Target Attributes	
->set:autoLogon=d	Set the autoLogon attribute to 0, off, or 1, on.

->set:cpdlcResponseMode=<mode>	Set the cpdlcResponseMode attribute to manual or auto.
->set:cpdlcResponseDelay=ddd	Set the cpdlcResponseDelay attribute to the specified number of seconds.
->set:script=name	Set the script attribute to the specified script name.
->set:tdls=name	Set the tdls attribute to the specified TDLS name.
->set:disableTracker=d	Set the disableTracker attribute to 1, disabled, or 0, enabled.
->set:freeText=text	Set the freeText attribute to the specified text. This appears in the datablock of the target.
->set:taAcceptDelta=-1	Set the flight to not automatically accept handoffs.
->set:rtiResponse="NO REPLY,-1"	Flight will ignore handoff request.
->set:rtaResponse="NO REPLY,-1"	Flight will ignore handoff accept.
->set:rtiResponse="LRM,10,57/00/INVALID MESSAGE"	Flight will respond to handoff requests with Logical Reject Message.
->set:tuDisable=1	Flight will not send TRAC update messages when in handoff state.
->set:tuOffset=10,10	TRAC update messages will add this offset to their position messages.
->clear:<attribute>	Clear the target attribute specified.
->IDENT	Sets the IDENT on the ERAM R position display to highlight the aircraft.

NOTE: An 'a' indicates an alphabetic character, 'd' indicates decimal digits, 'o' indicates octal digits, and ~ indicates a rate of change.

4.3.3.2.6. Time Based Targets

Time Based Targets are targets that have been imported into a GSGT scenario from STARS CDR data. The route of a Time-Based Target is a series of latitude and longitude points. Time Based Targets appear in the Target View in red text and the route field is blank. To dynamically pilot these targets, the user must take control. Once control of the target is taken, the original target is dropped and a dynamic target is created, allowing LNAV/VNAV macro commands to be entered.

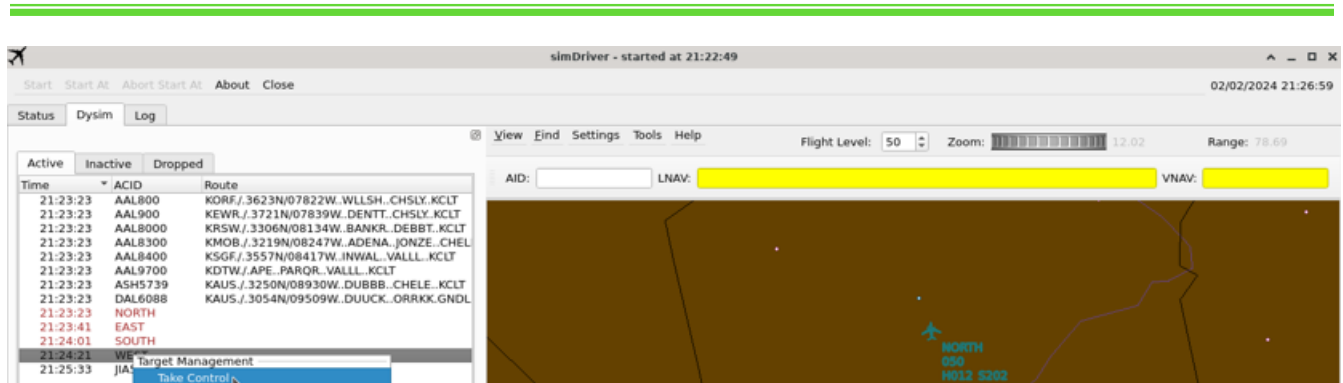


Figure 93. Time Based Targets

4.3.3.2.7.Context Boxes

Holding down the **SHIFT** key and right clicking on any airspace item (such as a Fix, Airport, or FAV) will cause a context box to be displayed. A context box displays information about the airspace item. The contents of each context box depend on the type of item selected and may contain a menu that includes additional data for the selected item.

A context box can be closed by right-clicking again on the item, or by selecting the X button of the context box window.

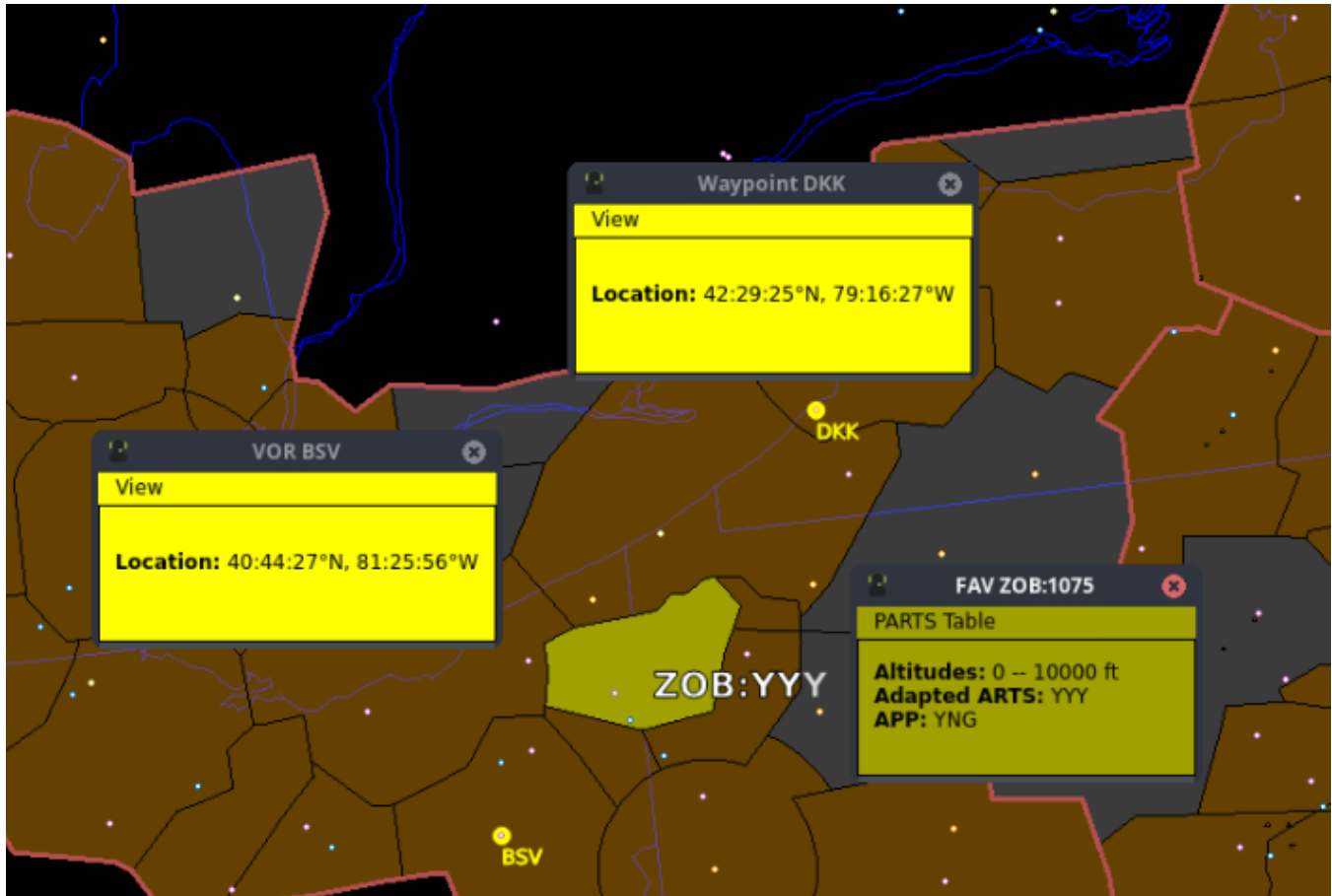


Figure 94. Context Boxes

4.3.3.2.8. Status Bar

The Status Bar, also referred to as the Measurement Bar (located at the bottom of the main window), is used to display measurement information from the map. The bar is automatically displayed and updated upon user action that triggers the measurement information.

To display lat/long and X/Y system coordinates at any specific point, hold down the **SHIFT** key while mouse clicking in any location on the map. Holding down the **SHIFT** key and left click dragging the mouse will display spherical distance in nmi, heading, both true and magnetic, and delta X/Y system coordinates.

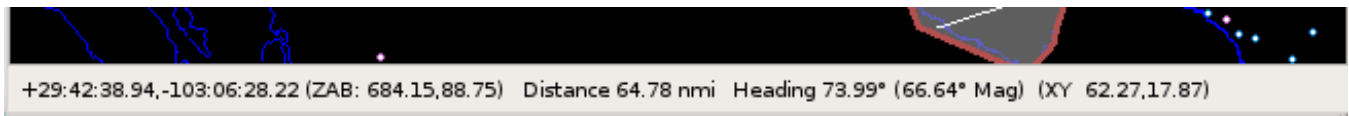


Figure 95. Status Bar

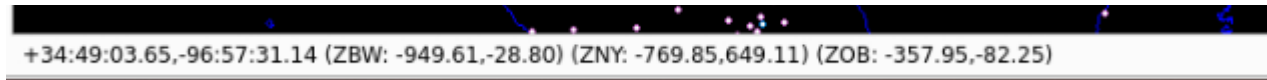


Figure 96. Status Bar (without distance + heading)

4.3.3.3. Log Tab

The Log tab displays a log of activation status, track ownership, handoff status changes, flight data messages sent from simDriver to SDRR, and macro commands.

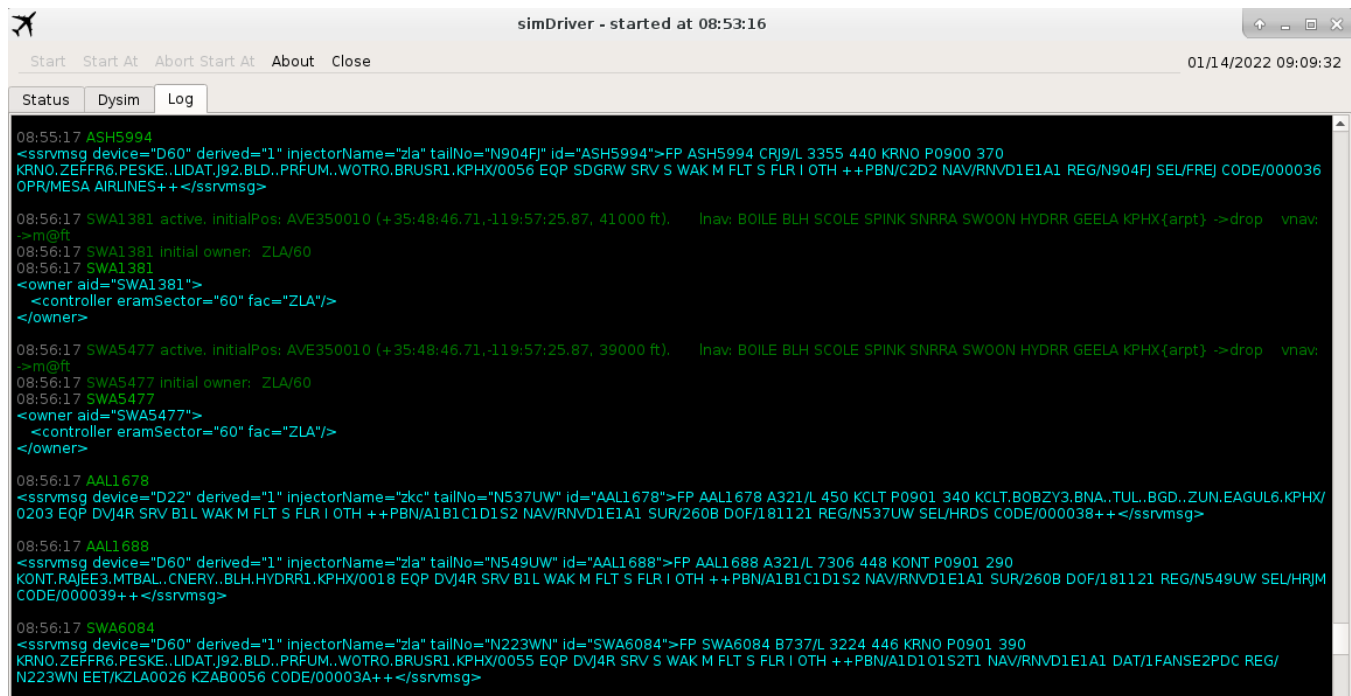


Figure 89. Log Tab

5. simPilot

The simPilot executable provides a graphical interface for dynamic interaction with simulation targets and flight data messages. This executable exchanges information with DYSIM executables like simDriver and allows multiple instances to be connected to the same scenario execution via simDriver. Each simPilot client can then be used to manipulate targets and flight data messages omitting the control of stopping and starting the scenario.

5.1. Starting simPilot

To launch simPilot with only the required parameters, enter:

```
> simPilot <scenario.xml> --dysimDev=tcp://<dysim_address>:<port#> --position=<pilot#>
```

To execute a version of simPilot that is not the default version, enter:

```
> /usr/local/jvn.x.x.x/bin/simPilot <scenario.xml>
--dysimDev=tcp://<dysim_address>:<port#> --position=<pilot#>
```

5.2. Command Line Options

The simPilot executable can be started with various options which control its operation.

Table 4. Program Parameters

Parameter	Description
<adaptation> or <scenario.xml>	At a minimum, one ERAM adaptation must be specified. The location of the adaptation can be specified as a directory relative to the ADAPTATION_PATH environment variable. Multiple adaptations may be listed. Alternately, a scenario.xml file may be specified. These XML files may contain ERAM adaptation, TBFM adaptation, STARS DMS reports, and ATCoach site/macro files where additional routes and procedures may be defined.

Parameter	Description
--dysimDev=tcp://<dysim_address>:<port#>	Directs simPilot to connect to the address and port where the DYSIM executable simDriver will output simulation messages and target details. The DYSIM executable must be started with the corresponding parameter identifying the same port number.
--position=<#>	Assigns a position number to the simPilot instance. A corresponding parameter can be specified for SimDriver to assign certain targets, tagged with an RSI, to particular simPilot position. Multiple instances of the same simPilot position number is prohibited.
--terminalMode	Start simPilot in Terminal Mode
--macroKeyAssignments=<filename>	Indicates a file which assigns pilot customizable commands to keyboard function keys.
--nofullscreen	Not full screen mode; simPilot will be started in a window roughly half the size of the screen.
--proxy=http://server:port	For mapTiles and live (FLAT/SLICK) interfaces
--displaySettings="filename"	Start simPilot with display settings file
--showMacroExample	<p>Below is an example macro file. Be sure to match 'position' to your current position.</p> <p>Enter your desired key in the 'key' attribute, and DO NOT MODIFY the 'shortcut' value</p> <p>'standardMacro' entries are used when the quick command box is in focus and will insert a built-in macro.</p> <p>'customMacro' entries are also used when the quick command box is in focus but can be whatever you set 'macro' to</p> <p>'ControlKey' entries are also used when the quick command box is NOT in focus and are activated by holding 'Ctrl' plus your assigned 'key'</p>

Parameter	Description
	<pre> <root> <standardMacro key="F1" position="1" shortcut="TRUE_HEADING"/> <standardMacro key="F2" position="1" shortcut="MAG_HEADING"/> <standardMacro key="F3" position="1" shortcut="SPD_MACH"/> <standardMacro key="F4" position="1" shortcut="SPD_CAS"/> <standardMacro key="F5" position="1" shortcut="SPD_TAS"/> <standardMacro key="F6" position="1" shortcut="ALT_FEET"/> <standardMacro key="F7" position="1" shortcut="FREE_TEXT"/> <customMacro key="F9" needsConfirm="0" position="1" shortcut="- &gt;whateverYouWant"/> <ControlKey key="A" position="1" shortcut="TOGGLE_AUTO_LOGON"/> <ControlKey key="B" position="1" shortcut="SET_CPDLC_RESPONSE_DELAY"/> <ControlKey key="C" position="1" shortcut="SEND_DOWNLINK_MESSAGE"/> <ControlKey key="D" position="1" shortcut="CLONE_TARGET"/> <ControlKey key="E" position="1" shortcut="SEND_LOGON"/> <ControlKey key="F" position="1" shortcut="TOGGLE_CPDLC_AUTO_RESPONSE"/> <ControlKey key="G" position="1" shortcut="RELEASE_TGT_NOW"/> <ControlKey key="H" position="1" shortcut="CREATE_POPUP"/> <ControlKey key="I" position="1" shortcut="RESPONSE_TO_UPLINK"/> <ControlKey key="J" position="1" shortcut="TOGGLE_TRACKING"/> </root> </pre>

5.3. simPilot GUI

The simPilot GUI is composed of a main menu bar, date and time clock, and display tabs. The times are displayed in UTC.

5.3.1. Menu Bar

The menu bar includes the following options:

About

Displays the About simPilot dialog which shows the version of simPilot, and the date and time that the simPilot executable was built.

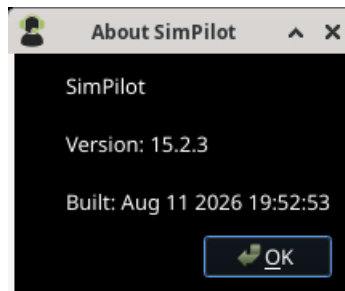


Figure 90. About SimPilot Dialog

Close

Closes the simPilot GUI. When 'Close' is selected, the warning below is displayed. Selecting 'Yes' exits the GUI; selecting 'No' closes the warning and returns to the GUI.

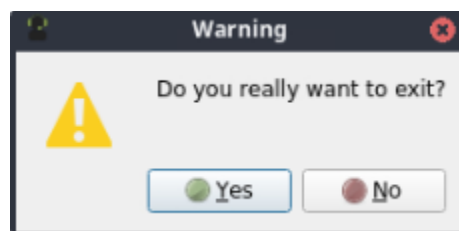


Figure 91. simPilot Exit Warning

5.3.2. Date and Time Clock

When simPilot is launched, if the connected instance of simDriver has not been started, the simPilot window title displays the pilot position number and “INACTIVE”. Once the simDriver scenario is started, the scenario time and the current date are displayed in the upper right corner. The time is displayed in UTC.



Figure 92. Inactive Status Prior to Scenario Start



Figure 93. Date and Time Clock After Scenario Start

5.3.3. Display Tabs

The display tabs are Status, SimPilot, and Log. Right clicking in the text areas of either the Status tab or the Log tab launches a pop-up with the following options:

Copy

Places any selected text into the copy buffer.

Select All

Selects all the text in the current display tab text area.

Find

Opens a search bar at the bottom of the current display tab text area.

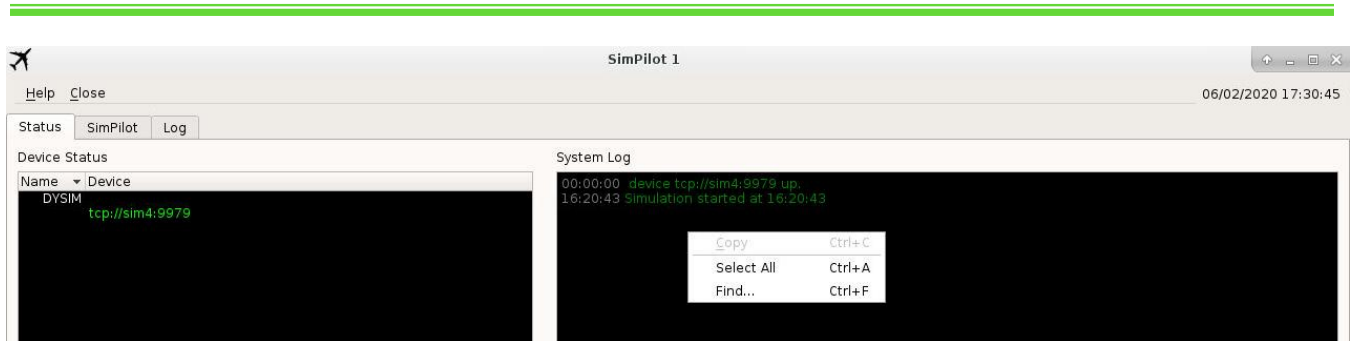


Figure 94. Status Tab Text Options

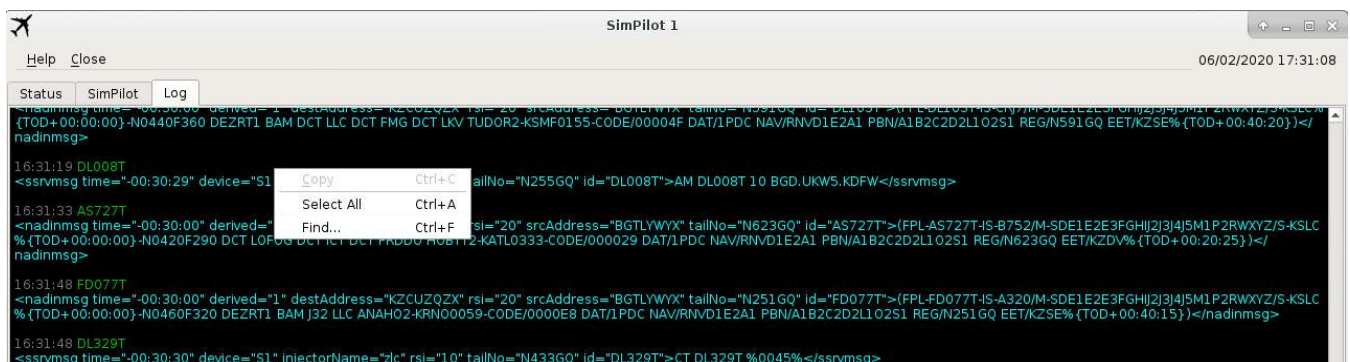


Figure 95. Log Tab Test Options

5.3.3.1. Status Tab

The status display tab is separated into two parts. The left side shows the Device Status. All devices connected to simPilot are listed and color coded to indicate connection status. The right side contains a System Log where all system messages, such as status, warnings and errors are displayed.

5.3.3.2. SimPilot Tab

The SimPilot Tab is separated into two parts. The left side displays the Targets List View, and the right side displays the Map View.

The left side Targets List View can be re-sized or popped out into its own window. The Targets List View displays Active, Inactive, and Dropped target tabs. The target tabs list the following details for active, inactive, and dropped targets:

Status Dysim Log													
Active Inactive Dropped													
Time	ACID	Owner	Route	Bcn	Alt	Spd	AChar	RSI	Pilot	Address	TailNo	Comments	
12:52:09	ABRR100		KJFK./ICCEY..DOSAN..E		430	420tas	B738	100	1	A0002D	NA0002D		
12:52:56	ABRR200		KJFK./ICCEY..LARGE..B		390	420tas	B738	100	1	A0002E	NA0002E		
12:52:56	AMD100		ZUDEK..KB75G..LFV13		300	400tas	B737		1	A0002F	NA0002F		
12:52:56	AMD200		ZUDEK205020..KB75G		300	400tas	B737		1	A00006	NA00006		
12:52:56	AMD300		ZUDEK205040..KB75G		300	400tas	B737		1	A00007	NA00007		
12:52:56	ATOP100		KJFK./RESQU..KW36A1		420	580tas	B737			A0001D	NA0001D		
12:52:56	ATOP200		TXKF./3608N/07221W.0001		280	580tas	B737			A0002A	NA0002A		
12:52:56	BCN100		KJFK./SQUAD..BOXBU.		280	400tas	B737			A00014	NA00014		

Figure 96. SimPilot Tab Targets View

Time

Time that the target was or will be activated.

ACID

Aircraft identification callsign. The callsign is made up of a minimum of two and a maximum of seven letters/numbers. The first character must be a letter.

Owner

Controlling facility and sector position.

Route

Flight plan route.

BCN

Beacon code. The beacon code must be four octal digits. A beacon code of FFFF signifies that a beacon code has not been assigned to the aircraft.

ALT

Filed aircraft altitude.

SPD

Aircraft speed.

AChar

Aircraft type.

RSI

Record select indicator.

Position

Number of the simPilot position that has been assigned to have control of the target.

Address

Assigned ICAO address.

TailNo

Assigned tail number or registration of the target.

Comments

Additional user entered text for a target.

The target lists can be sorted by clicking on any of the column headers.

5.3.3.2.1.Active Tab

Right clicking on an entry in the Active list displays the following options:

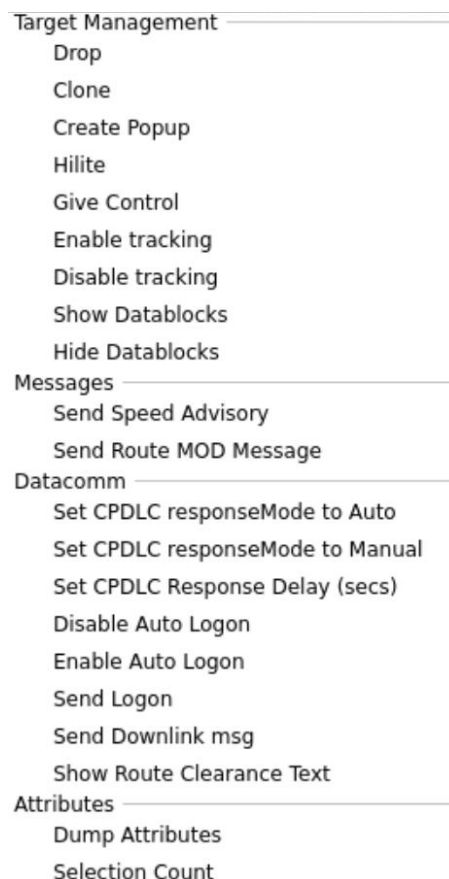


Figure 97. Active Target List Menu Options

Target Management

Drop

simDriver stops generating target position data for the selected aircraft and sends cancel and remove strip messages.

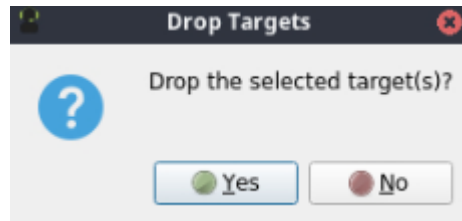


Figure 98. Drop Target Confirmation Dialog

Clone

Creates a new target with the exact same characteristics as the selected target.

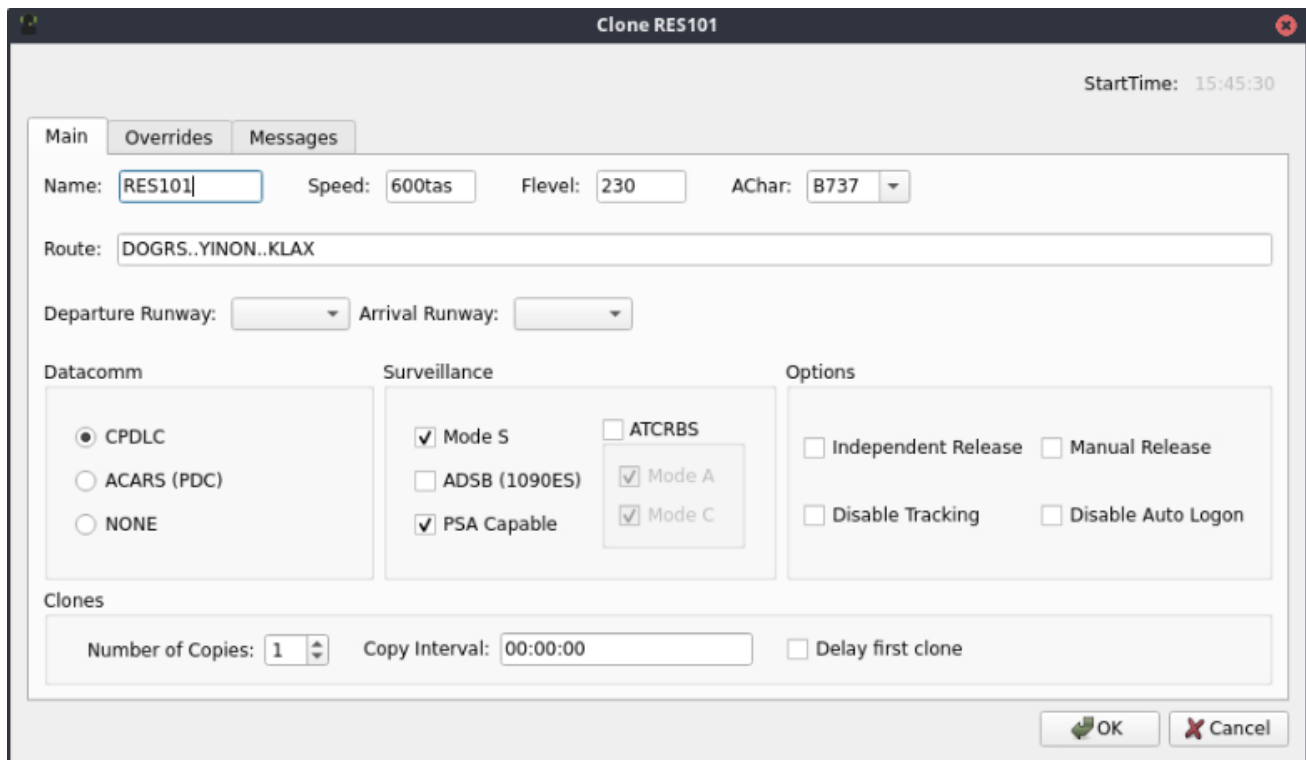
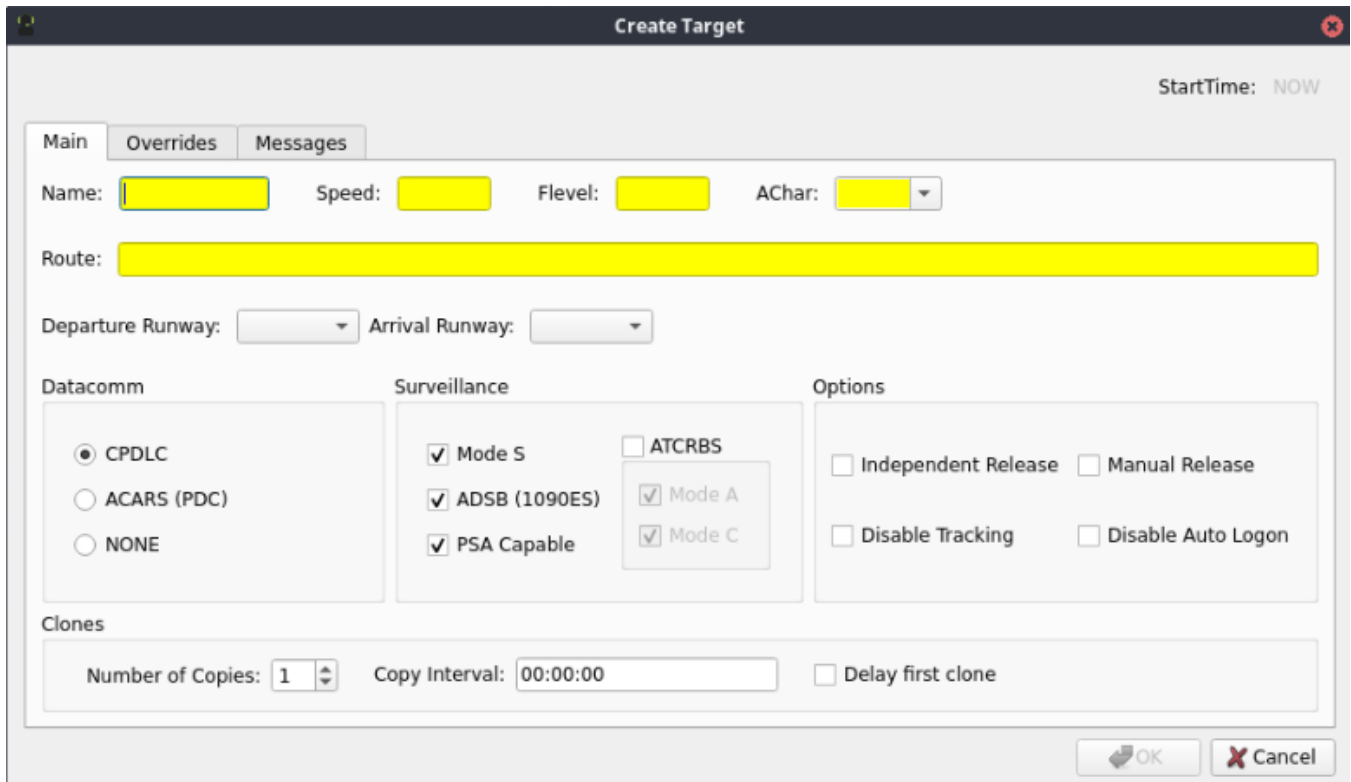


Figure 99. Clone Target Dialog for Active Targets

Create popup

Opens a blank dialog for creating a new target. Each yellow field is mandatory. The Name is the desired aircraft ID (ACID) or callsign, the assigned speed can be specified in calibrated air speed (CAS) or true air speed (TAS), the Flevel is the flight level (altitude), AChar is the aircraft type, Route is the Flight Plan Route, and user can also select departure/arrival runway(s). Further options include Data Communication, Transponder(s) [surveillance], flight release (independent/manual), tracking, logging, and cloning.



Create Target

StartTime: NOW

Main Overrides Messages

Name: Speed: Flevel: AChar:

Route:

Departure Runway: Arrival Runway:

Datacomm

- ☒ CPDLC
- ☐ ACARS (PDC)
- ☐ NONE

Surveillance

- ☒ Mode S
- ☒ ADSB (1090ES)
- ☒ PSA Capable
- ☐ ATCRBS
- ☒ Mode A
- ☒ Mode C

Options

- ☐ Independent Release
- ☐ Manual Release
- ☐ Disable Tracking
- ☐ Disable Auto Logon

Clones

Number of Copies: 1 Copy Interval: 00:00:00 ☐ Delay first clone

OK Cancel

Figure 100. Create Popup Dialog for Active Targets

Hilite

Highlights the target, displays its flight path, and displays its message window.

Give Control

Assigns the selected flight to a new pilot.



Figure 101. Give Control Dialog

Disable/Enable tracking

Processes CMS data that simDriver receives if enabled. If disabled, simDriver does not process CMS messages to change target dynamics or generate hand off messages.

Show Datablocks

Enables datablocks.

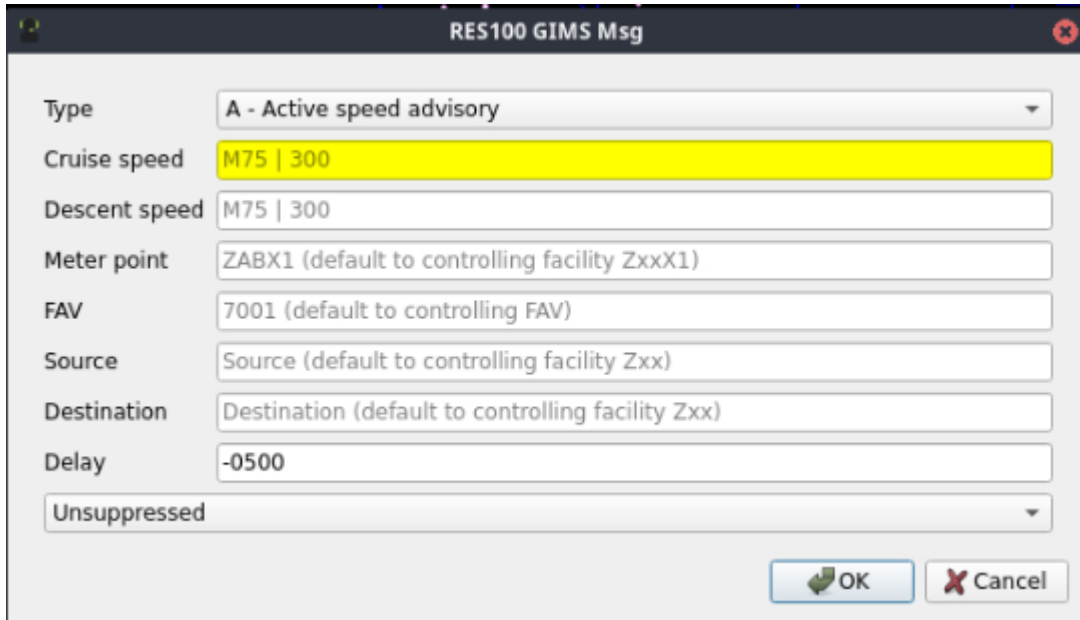
Hide Datablocks

Disables datablocks.

Messages

Send Speed Advisory

Displays a GIM-S Message dialog box for the speed advisory message.



RES100 GIMS Msg

Type: A - Active speed advisory

Cruise speed: M75 | 300

Descent speed: M75 | 300

Meter point: ZABX1 (default to controlling facility ZxxX1)

FAV: 7001 (default to controlling FAV)

Source: Source (default to controlling facility Zxx)

Destination: Destination (default to controlling facility Zxx)

Delay: -0500

Unsuppressed

OK Cancel

Figure 102. Send Speed Advisory Dialog

Send Route MOD Message

Displays a MOD message dialog box.



RES100 MOD Msg

Route:

Source: ZUL

Destination: ZBW

OK Cancel

Figure 103. Send a Route Modification Message

Datacomm

Set CPDLC ResponseMode to Auto/Manual

Changes flight to auto/manual mode. Auto mode is where everything is automatically processed. Manual mode is where the pilot will have to manually send messages and respond to messages received.

Set CPDLC Response Delay (secs)

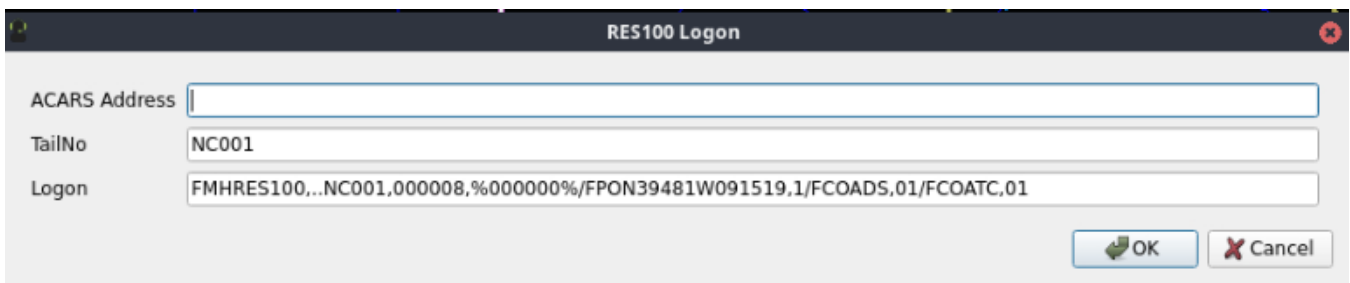
Changes the CPDLC response time to have a delay. This is additional time it will take the aircraft to receive the CPDLC message.

Disable/Enable Auto Logon

Disables and enables auto logons.

Send Logon

Sends a logon to the flight. This logon message is an aircraft logon for CPDLC services. Further, Messages and Attributes are all related to Datacomm.

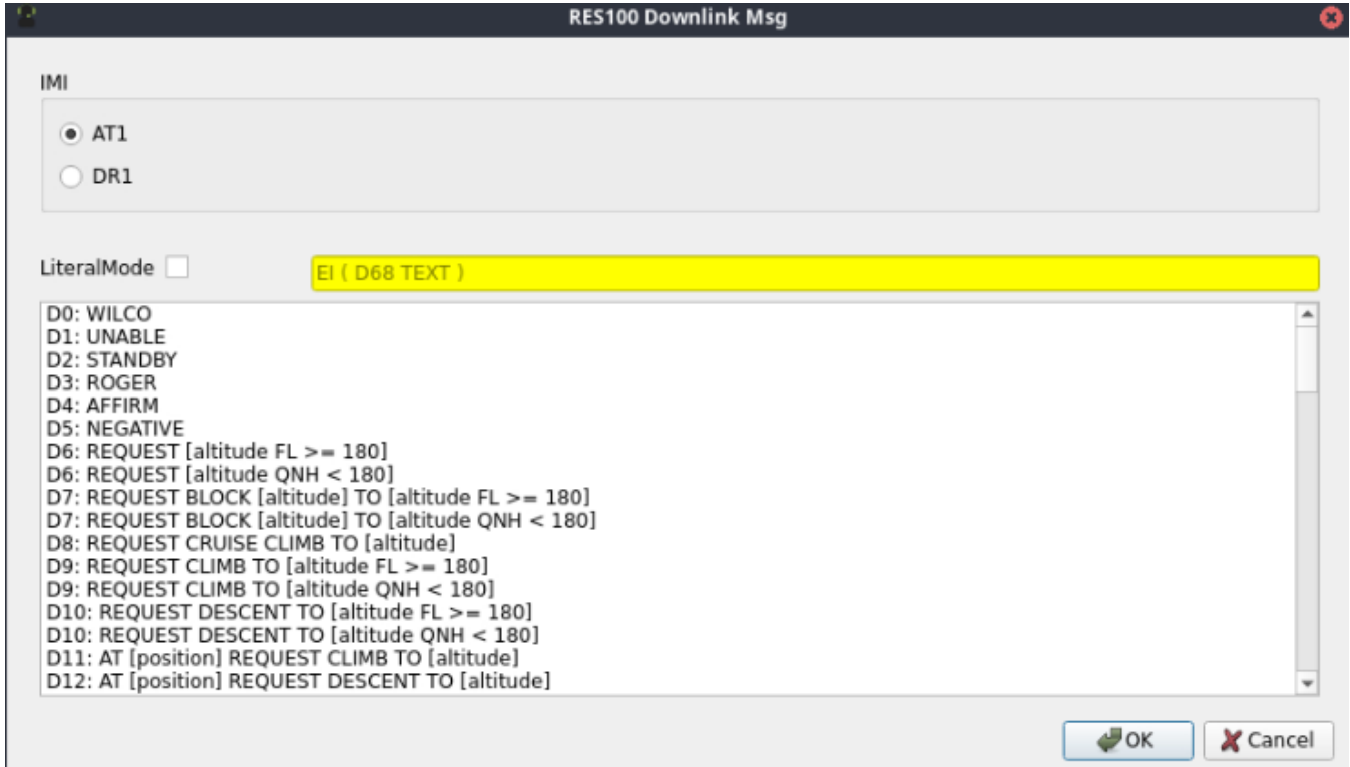


The image shows a software dialog box titled "RES100 Logon". It contains three input fields: "ACARS Address" (empty), "TailNo" (containing "NC001"), and "Logon" (containing "FMHRES100,...NC001,000008,%000000%/FPON39481W091519,1/FCOADS,01/FCOATC,01"). At the bottom right, there are "OK" and "Cancel" buttons.

Figure 104. Send Logon Dialog

Send Downlink Msg

Sends a downlink message with one of the selected options listed below.



The screenshot shows a dialog box titled "RES100 Downlink Msg". It contains the following elements:

- IMI** section with two radio buttons: ☒ AT1 and ☐ DR1.
- LiteralMode** checkbox, which is unchecked.
- A yellow highlighted text field containing "EI (D68 TEXT)".
- A list box containing the following options:
 - D0: WILCO
 - D1: UNABLE
 - D2: STANDBY
 - D3: ROGER
 - D4: AFFIRM
 - D5: NEGATIVE
 - D6: REQUEST [altitude FL >= 180]
 - D6: REQUEST [altitude QNH < 180]
 - D7: REQUEST BLOCK [altitude] TO [altitude FL >= 180]
 - D7: REQUEST BLOCK [altitude] TO [altitude QNH < 180]
 - D8: REQUEST CRUISE CLIMB TO [altitude]
 - D9: REQUEST CLIMB TO [altitude FL >= 180]
 - D9: REQUEST CLIMB TO [altitude QNH < 180]
 - D10: REQUEST DESCENT TO [altitude FL >= 180]
 - D10: REQUEST DESCENT TO [altitude QNH < 180]
 - D11: AT [position] REQUEST CLIMB TO [altitude]
 - D12: AT [position] REQUEST DESCENT TO [altitude]
- Buttons at the bottom right: and .

Figure 105. Send Downlink Message – Part 1

RES100 Downlink Msg

IMI

☒ AT1
☐ DR1

LiteralMode ☐ **EI (D68 TEXT)**

D65: DUE TO WEATHER
D66: DUE TO AIRCRAFT PERFORMANCE
D67: [freedisplayText] Note: The ATS Provider System peer will assign an urgency of Low for message element [67].
D68: [freedisplayText] Note: The ATS Provider System peer will assign an urgency of Distress for message element [68].
D69: REQUEST VMC DESCENT
D70: REQUEST HEADING [degrees]
D71: REQUEST GROUND TRACK [degrees]
D72: REACHING [altitude]
D73: [versionnumber]
D74: MAINTAIN OWN SEPARATION AND VMC
D75: AT PILOTS DISCRETION
D76: REACHING BLOCK [altitude] TO [altitude]
D77: ASSIGNED BLOCK [altitude] TO [altitude]
D78: AT [time] [distance] [tofrom] [position]
D79: ATIS [atiscodes]
D80: DEVIATING [distanceoffset] [direction] OF ROUTE
EMERYSYPID: EMERGENCY PID TEST MESSAGE (D56 MAYDAY MAYDAY MAYDAY) EI (D68 THIS IS A TEST)

OK Cancel

Figure 106. Send Downlink Message – Part 2

Show Route Clearance Text

Displays the route clearance in a popup window.

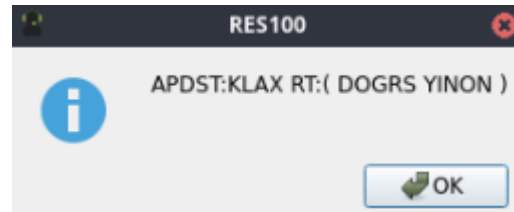


Figure 107. Show Route Clearance Text

Attributes

Dump Attributes

Sends all currently applied attributes for the selected target to standard output.

Selection Count

Returns the number of targets currently selected.

Double clicking on an entry in the Active list opens a control dialog for the selected target. The control dialog consists of a Messages tab, Timed Macros tab, and an information line which displays the time, type (of message), injector, device/destination, IMI, and text. The Timed Macros tab lists any scheduled dynamic events that were scripted in the scenario for the selected target.

RES100					
Messages		Timed Macros			
Time	Type	Injector	Device/Dest	IMI	Text
15:15:30	ssrvmsg	zny	d65		FP RES100 B737/A 600 DOGRS E1546 230 DOGRS..YINON..KLAX EQP SADE2E3...
15:15:35	afnmsg	datacomm			FMHRES100...NC001,000008,%000000%/FPON40062W072477,1/FCOADS,01/F...
15:15:39	afnmsg	ground			FMHRES100...NC001,000008,151539/FAK0,KUSB/FARADS,1,USBDCXA/FARATC,...
15:45:38	cpdlcmsg	ground		CR1	ID 0 TS 154538 EI (U163 KUSB A)
15:45:43	cpdlcmsg	avionics		CC1	ID 0 REF 0 TS 154543 EI (D73 1)
15:45:47	cpdlcmsg	ground		AT1	ID 1 TS 154547 EI (U169 CONFIRM CPDLC CONTACT WITH KUSA. ROGER/ACCE...
15:45:52	cpdlcmsg	avionics		AT1	ID 1 REF 1 TS 154552 EI (ROGER)
15:49:56	cpdlcmsg	ground		AT1	ID 2 TS 154955 EI (U117 NEW YORK CEN 118.975vhf)
15:50:00	cpdlcmsg	avionics		AT1	ID 2 REF 2 TS 155000 EI (WILCO)
15:51:54	ifnmsg	zid	zau		FP RES100 B737/A 1107 600 4013N/08552W E1646 230 DOGRS./YINON..KLAX...
16:26:58	cpdlcmsg	ground		AT1	ID 3 TS 162658 EI (U161)
16:27:03	cpdlcmsg	avionics		DR1	

Transponder LComms SADE2E3GJ4RWZ | Alt 20000 | Hdg 262° true 261° mag | TAS 387 | CAS 290 | Mach 0.63 | Wind 0 kts @ 180° | Mode 3A 1107

Figure 108. Target Control Dialog Messages Tab

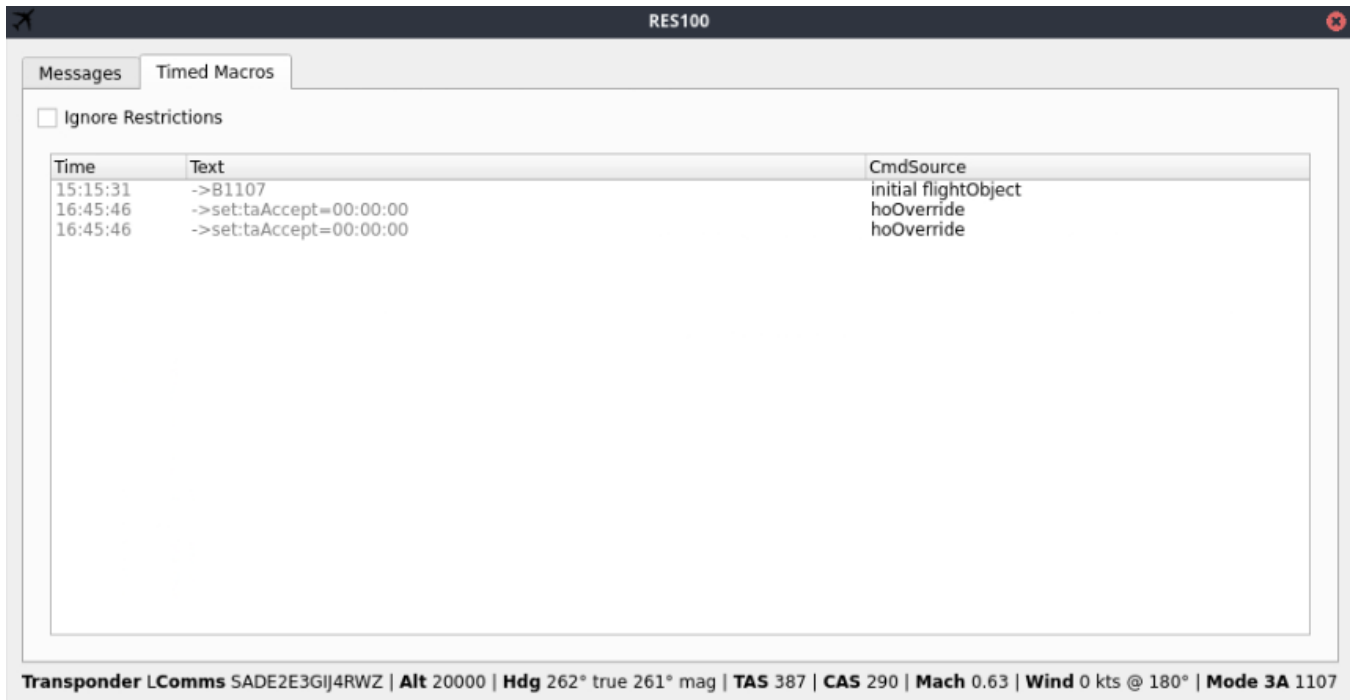


Figure 109. Target Control Timed Macros Tab

5.3.3.2.2. Inactive Tab

Right clicking on an entry in the Inactive list displays the following options:

Target Management

Release now

Activates the target immediately.

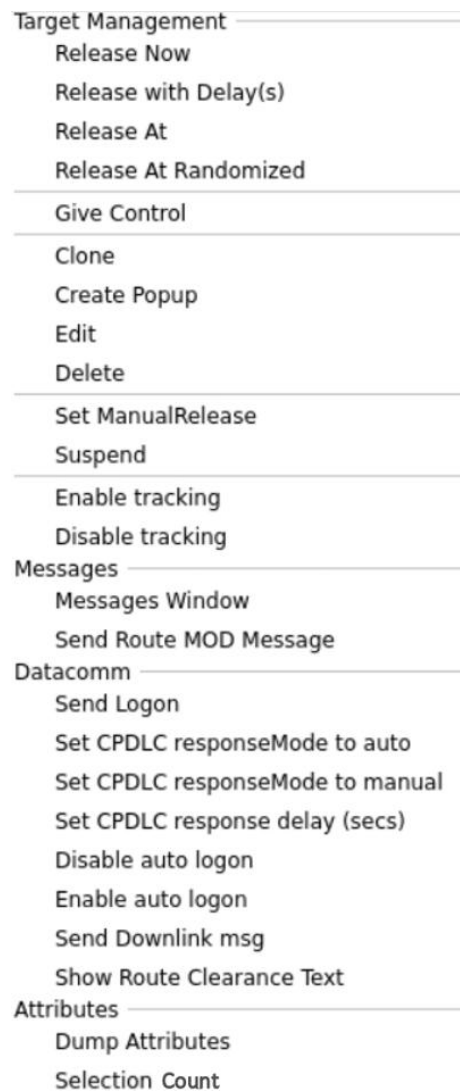


Figure 110. Release Now Menu Option

Release with Delay(s)

Activates the target after the specified amount of time has elapsed.

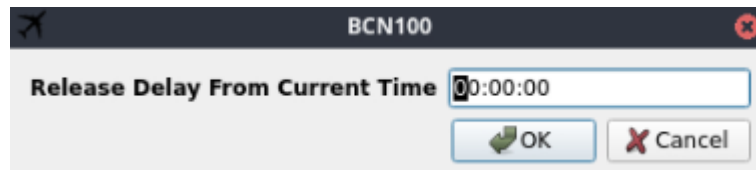


Figure 111. Release with Delay Dialog

Release At

Activates the target at the specified external system time.

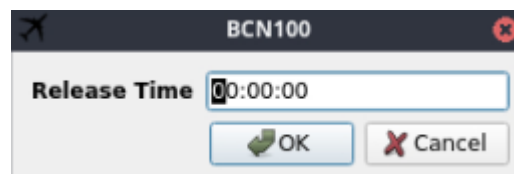


Figure 112. Release at Specified Time Dialog

Release At Randomized

Activates targets at a randomized time after the specified release time.

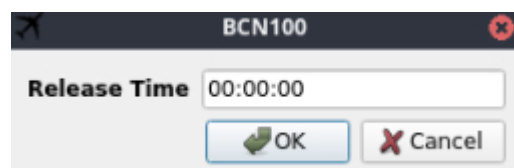


Figure 113. Release at a Randomized

Give Control

Assigns the selected flight to a new pilot position number.



Figure 114. Give Control Dialog

Clone

Opens a Clone dialog and populates the new target with the exact same characteristics as the selected one.

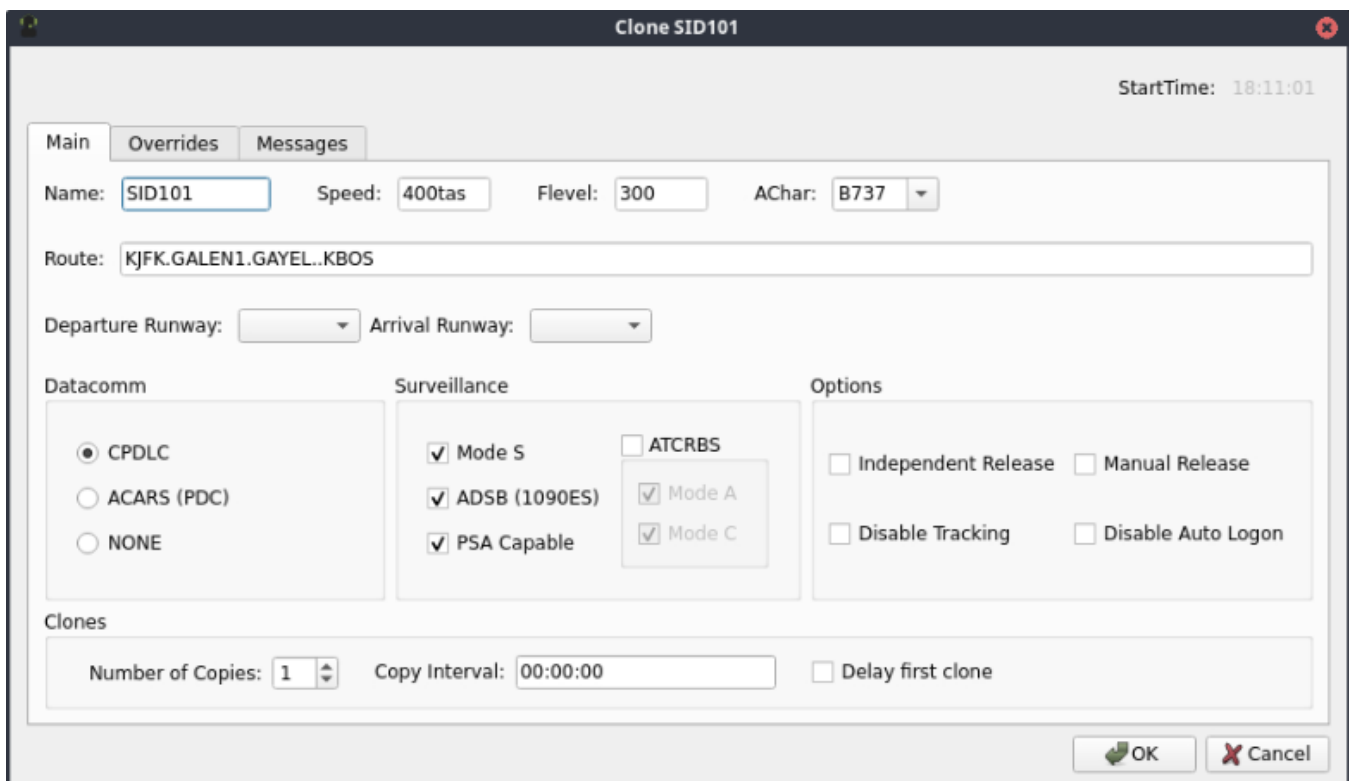


Figure 115. Clone Dialog

Create Popup

Opens a blank dialog for generating a new target. Each yellow field is mandatory to fill out. The Name is the ACID, the TailNo is just the tail number of the flight, the speed is how fast the flight is going in CAS/TAS, the Flevel is the flight level, AChar is the aircraft type, NAV Equipment is the type of equipment on board the aircraft, FP Route is the Flight Plan Route, and Macro appears after selecting Generate macro. The text of the Generate macro button will be red if a macro has not been created. Press the Generate macro button to automatically populate the Macro Text input box with macro commands generated from the contents of the FP Route. Or manually enter macro commands to fly a route that is different from the filed flight plan route.

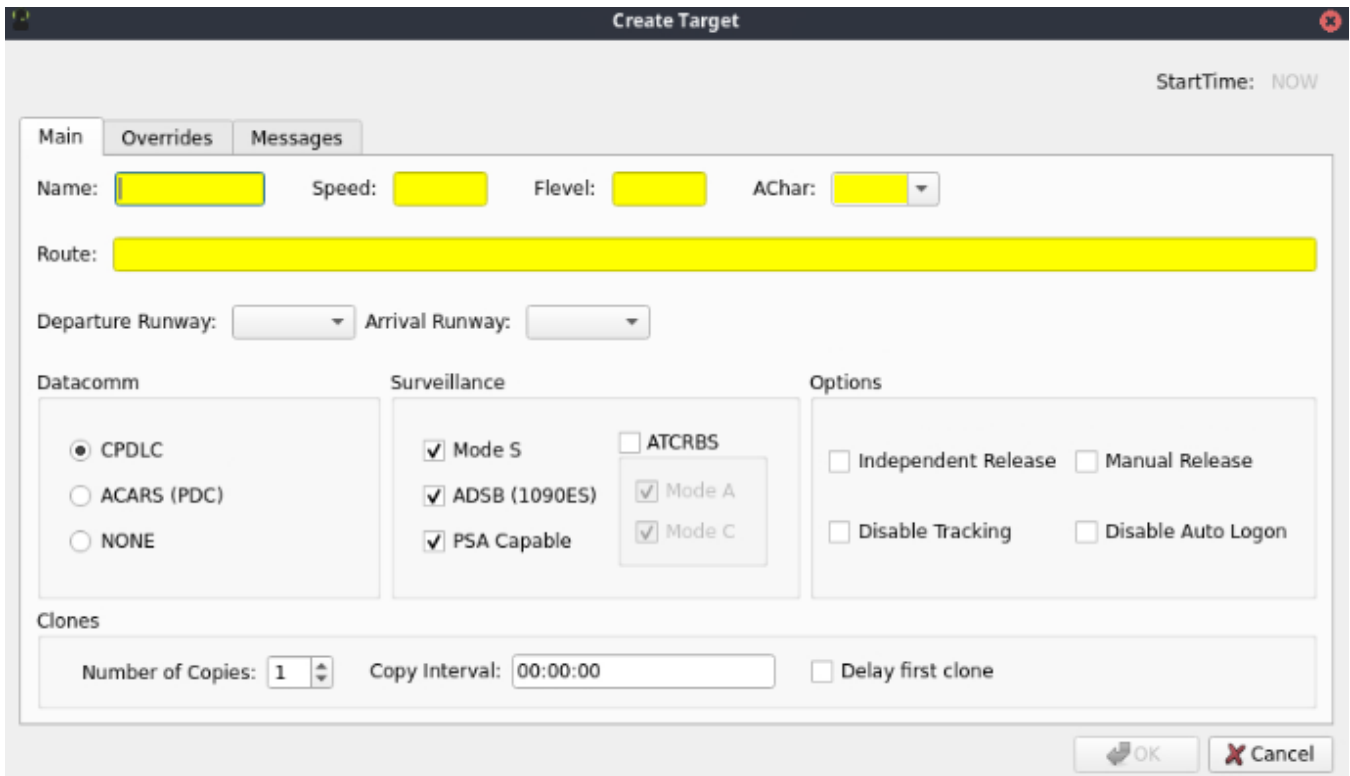


Figure 116. Create Popup Dialog

Edit

Opens a dialog for editing the selected target. Double clicking the target performs the same action as clicking edit.

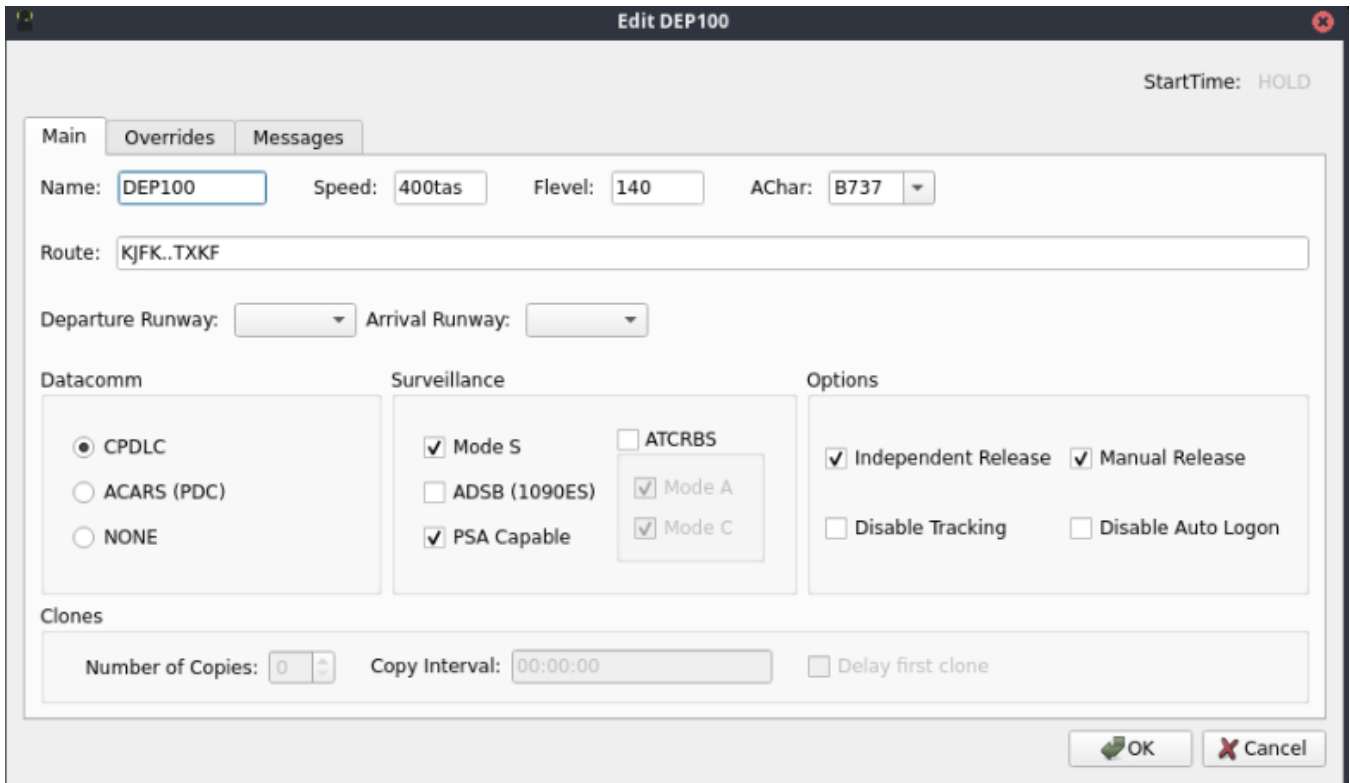


Figure 117. Edit Dialog

Delete

Removes the selected target(s) from the current simulation execution and sends the target(s) to the Dropped list.

Set ManualRelease

This will prevent the target from departing at its set release time. Will not depart unless manually released or a departure message is sent.

Suspend

Prevents the target from activating at the scripted injection time. The target may be manually released at another time. Flights in manual mode are highlighted in blue in the Inactive tab.

Disable/Enable Tracking

Processes CMS data that simDriver receives if enabled. If disabled, simDriver does not process CMS messages to change target dynamics or generate hand off messages.

If simDriver is configured for TBFM, the following options will be available:



Figure 118. TBFM Options

TBFM -> Release at and send ETD update

Activates the target at the specified external system time and sends a TTP update message.

TBFM -> Release at and send EDCT update

Activates the target at the specified external system time and sends an ET message.

TBFM -> Release at and cancel EDCT

Activates the target at the specified external system time and sends an ET Cancel message.

Messages

Messages Window

Opens a dialog showing the flight data messages associated with the selected aircraft. Messages that have been injected are displayed in gray. Messages awaiting injection are displayed in blue. Existing messages can be selected and edited, or new messages can be written and injected.

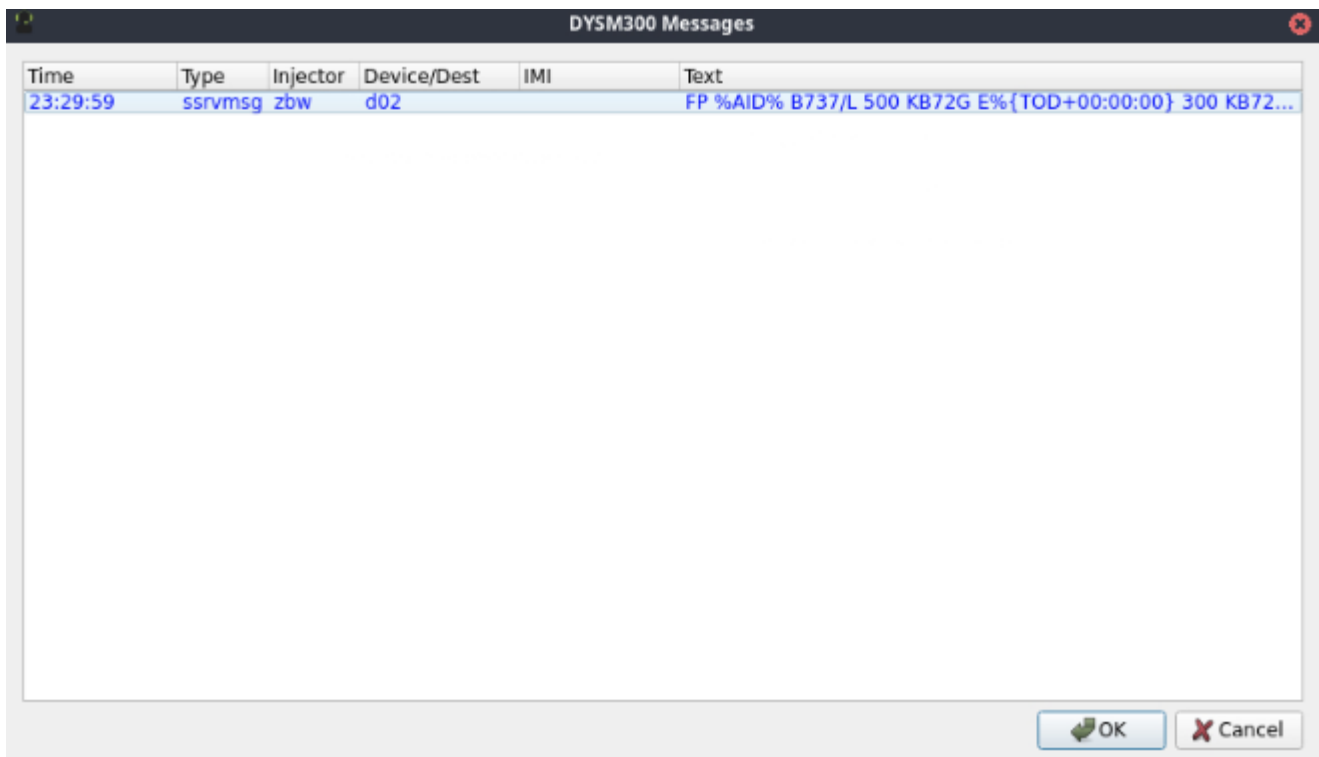
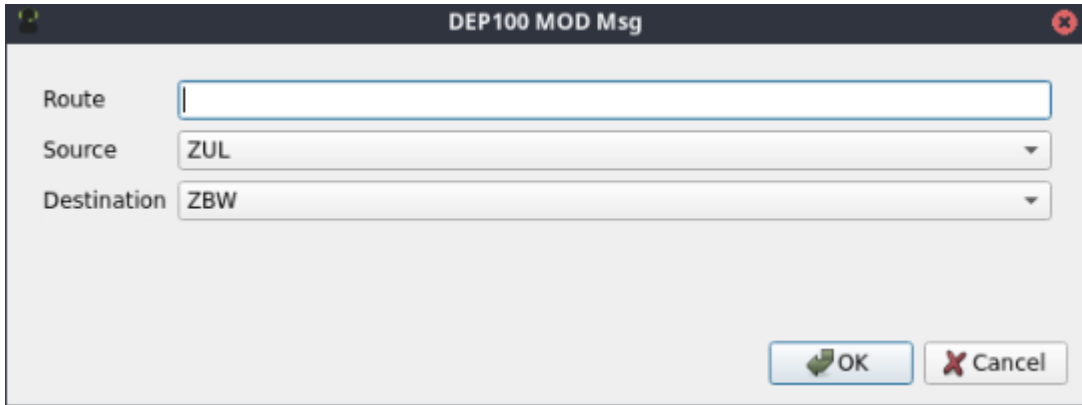


Figure 119. Messages Window

Send Route MOD Message

Displays a MOD message dialog box.



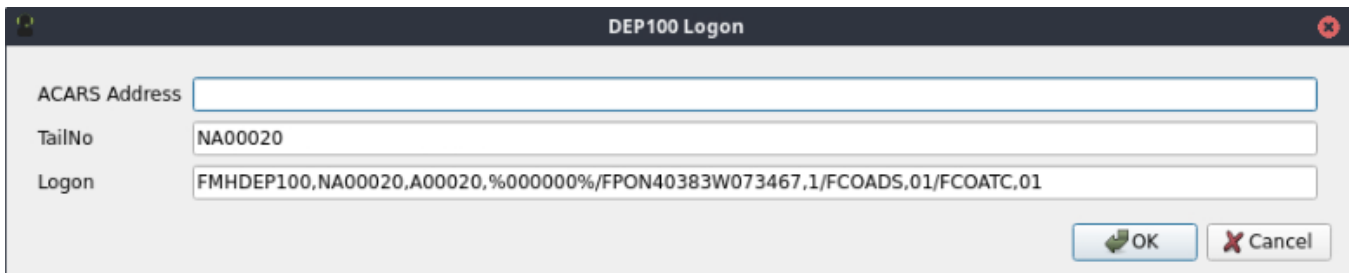
The dialog box titled "DEP100 MOD Msg" contains three input fields: "Route" (a text box), "Source" (a dropdown menu with "ZUL" selected), and "Destination" (a dropdown menu with "ZBW" selected). At the bottom right, there are "OK" and "Cancel" buttons.

Figure 120. Send a Route Modification Message

Datacomm

Send Logon

Sends a logon to the flight. This logon message is an aircraft logon for CPDLC services. Further, Messages and Attributes are all related to Datacomm.



The dialog box titled "DEP100 Logon" contains three input fields: "ACARS Address" (a text box), "TailNo" (a text box with "NA00020" entered), and "Logon" (a text box with "FMHDEP100,NA00020,A00020,%000000%/FPON40383W073467,1/FCOADS,01/FCOATC,01" entered). At the bottom right, there are "OK" and "Cancel" buttons.

Figure 121. Send Logon Dialog

Set CPDLC ResponseMode to Auto/Manual

Changes flight to auto/manual mode. Auto mode is where everything is automatically processed. Manual mode is where the pilot will have to manually send messages and respond to messages received.

Set CPDLC response Delay (Secs)

Changes the CPDLC response time to have a delay. This is additional time it will take the aircraft to receive the CPDLC message.

Disable/Enable Auto Logon

Disables and enables auto logons.

Send Downlink Msg

Sends a downlink message with one of the selected options listed below.

DEP100 Downlink Msg

IMI

☒ AT1
☐ DR1

LiteralMode ☐ EI (D68 TEXT)

D0: WILCO
D1: UNABLE
D2: STANDBY
D3: ROGER
D4: AFFIRM
D5: NEGATIVE
D6: REQUEST [altitude FL >= 180]
D6: REQUEST [altitude QNH < 180]
D7: REQUEST BLOCK [altitude] TO [altitude FL >= 180]
D7: REQUEST BLOCK [altitude] TO [altitude QNH < 180]
D8: REQUEST CRUISE CLIMB TO [altitude]
D9: REQUEST CLIMB TO [altitude FL >= 180]
D9: REQUEST CLIMB TO [altitude QNH < 180]
D10: REQUEST DESCENT TO [altitude FL >= 180]
D10: REQUEST DESCENT TO [altitude QNH < 180]
D11: AT [position] REQUEST CLIMB TO [altitude]
D12: AT [position] REQUEST DESCENT TO [altitude]
D13: AT [time] REQUEST CLIMB TO [altitude]
D14: AT [time] REQUEST DESCENT TO [altitude]
D15: REQUEST OFFSET [distanceoffset] [direction] OF ROUTE
D16: AT [position] REQUEST OFFSET [distanceoffset] [direction] OF ROUTE
D17: AT [time] REQUEST OFFSET [distanceoffset] [direction] OF ROUTE
D18: REQUEST [speed]
D19: REQUEST [speed] TO [speed]
D20: REQUEST VOICE CONTACT
D21: REQUEST VOICE CONTACT [frequency]
D22: REQUEST DIRECT TO [fix]
D22: REQUEST DIRECT TO [LatLon]
D22: REQUEST DIRECT TO [FRD]
D23: REQUEST [procedurename]
D24: REQUEST [routeclearance]
D25: REQUEST CLEARANCE
D26: REQUEST WEATHER DEVIATION TO [position] VIA [routeclearance]
D27: REQUEST WEATHER DEVIATION UP TO [distanceoffset] [direction] OF ROUTE
D28: LEAVING [altitude]
D29: CLIMBING TO [altitude]
D30: DESCENDING TO [altitude]
D31: PASSING [position]
D32: PRESENT ALTITUDE [altitude]
D33: PRESENT POSITION [position]
D34: PRESENT SPEED [speed]
D35: PRESENT HEADING [degrees]
D36: PRESENT GROUND TRACK [degrees]
D37: LEVEL [altitude]
D38: ASSIGNED ALTITUDE [altitude]
D39: ASSIGNED SPEED [speed]
D40: ASSIGNED ROUTE [routeclearance]
D41: BACK ON ROUTE
D42: NEXT WAYPOINT [position]
D43: NEXT WAYPOINT ETA [time]
D44: ENSUING WAYPOINT [position]
D45: REPORTED WAYPOINT [position]
D46: REPORTED WAYPOINT [time]

Figure 122. Send Downlink Message – Part 1

DEP100 Downlink Msg

IMI

☒ AT1
☐ DR1

LiteralMode ☐
EI (D68 TEXT)

D44: ENSUING WAYPOINT [position]
 D45: REPORTED WAYPOINT [position]
 D46: REPORTED WAYPOINT [time]
 D47: SQUAWKING [beaconcode]
 D48: POSITION REPORT [positionreport]
 D49: WHEN CAN WE EXPECT [speed]
 D50: WHEN CAN WE EXPECT [speed] TO [speed]
 D51: WHEN CAN WE EXPECT BACK ON ROUTE
 D52: WHEN CAN WE EXPECT LOWER ALTITUDE
 D53: WHEN CAN WE EXPECT HIGHER ALTITUDE
 D54: WHEN CAN WE EXPECT CRUISE CLIMB TO [altitude]
 D55: PAN PAN PAN
 D56: MAYDAY MAYDAY MAYDAY
 D57: [remainingfuel] OF FUEL REMAINING AND [remainingsouls] SOULS ON BOARD
 D58: CANCEL EMERGENCY
 D59: DIVERTING TO [position] VIA [routeclearance]
 D60: OFFSETTING [distanceoffset] [direction] OF ROUTE
 D61: DESCENDING TO [altitude FL >= 180]
 D61: DESCENDING TO [altitude QNH < 180]
 D62: ERROR [errorinformation]
 D63: NOT CURRENT DATA AUTHORITY
 D64: [icaofacilitydesignation]
 D65: DUE TO WEATHER
 D66: DUE TO AIRCRAFT PERFORMANCE
 D67: [freedisplayText] Note: The ATS Provider System peer will assign an urgency of Low for message element [67].
 D68: [freedisplayText] Note: The ATS Provider System peer will assign an urgency of Distress for message element [68].
 D69: REQUEST VMC DESCENT
 D70: REQUEST HEADING [degrees]
 D71: REQUEST GROUND TRACK [degrees]
 D72: REACHING [altitude]
 D73: [versionnumber]
 D74: MAINTAIN OWN SEPARATION AND VMC
 D75: AT PILOTS DISCRETION
 D76: REACHING BLOCK [altitude] TO [altitude]
 D77: ASSIGNED BLOCK [altitude] TO [altitude]
 D78: AT [time] [distance] [tofrom] [position]
 D79: ATIS [atiscode]
 D80: DEVIATING [distanceoffset] [direction] OF ROUTE
 EMERSYSPID: EMERGENCY PID TEST MESSAGE (D56 MAYDAY MAYDAY MAYDAY) EI (D68 THIS IS A TEST)

OK
Cancel

Figure 123. Send Downlink Message – Part 2

Show Route Clearance Text

Displays the route clearance in a popup window.

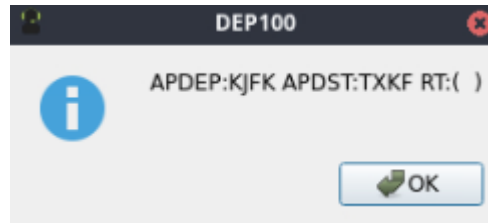


Figure 124. Show Route Clearance Text

Attributes

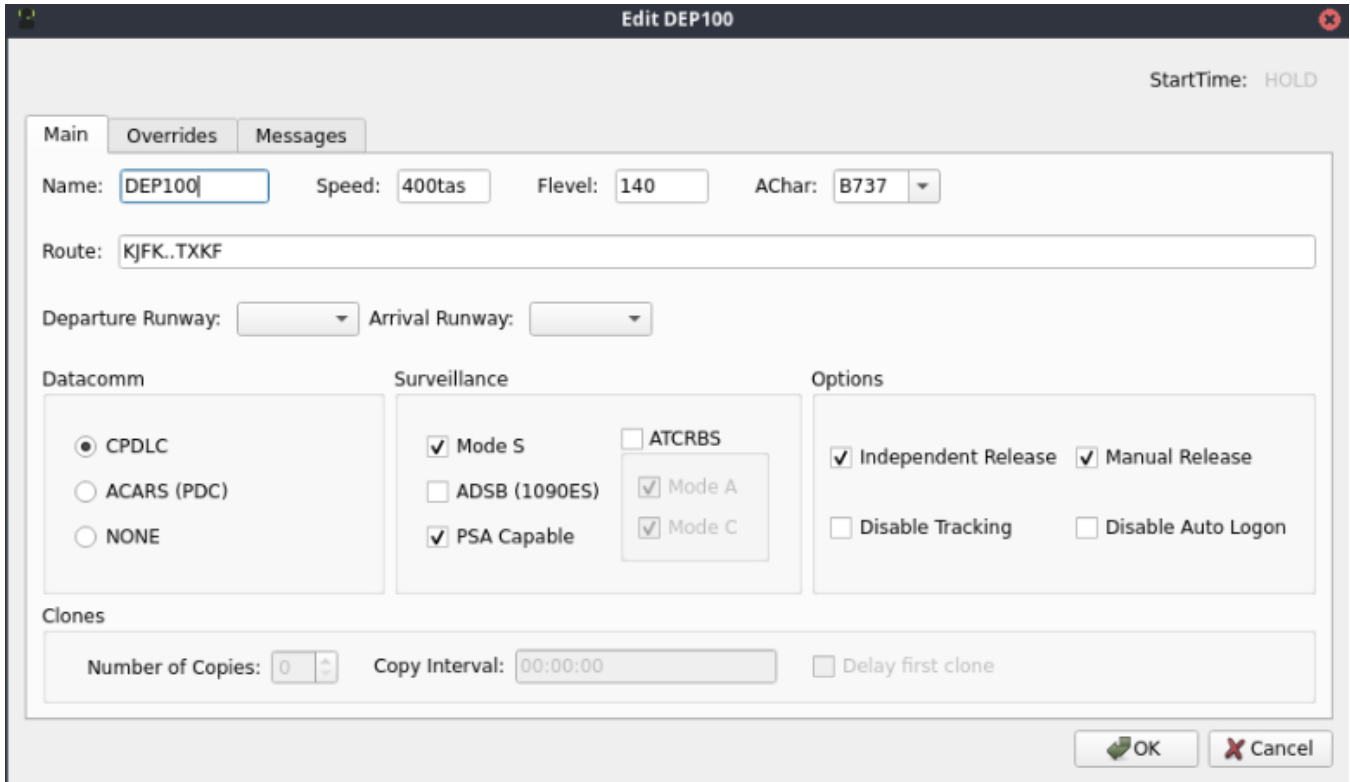
Dump Attributes

Sends all currently applied attributes for the selected target to standard output.

Selection Count

Returns the number of targets currently selected.

Double clicking on an entry in the Inactive tab opens a dialog for editing the selected target.



The screenshot shows a dialog box titled "Edit DEP100" with a close button in the top right corner. The "StartTime" is set to "HOLD". The dialog has three tabs: "Main", "Overrides", and "Messages", with "Main" selected. The "Main" tab contains the following fields and options:

- Name:** DEP100
- Speed:** 400tas
- Flevel:** 140
- AChar:** B737
- Route:** KJFK..TXKF
- Departure Runway:** (dropdown menu)
- Arrival Runway:** (dropdown menu)
- Datacomm:**
 - ☒ CPDLC
 - ☐ ACARS (PDC)
 - ☐ NONE
- Surveillance:**
 - ☒ Mode S
 - ☐ ADSB (1090ES)
 - ☒ PSA Capable
 - ☐ ATCRBS
 - ☒ Mode A
 - ☒ Mode C
- Options:**
 - ☒ Independent Release
 - ☒ Manual Release
 - ☐ Disable Tracking
 - ☐ Disable Auto Logon
- Clones:**
 - Number of Copies:** 0
 - Copy Interval:** 00:00:00
 - ☐ Delay first clone

At the bottom right, there are "OK" and "Cancel" buttons.

Figure 125. Edit Dialog

5.3.3.2.3.Dropped Tab

Right clicking on an entry in the Dropped tab displays the following option:

Clone

A Clone target dialog is displayed and is populated with the exact same characteristics as the selected one.

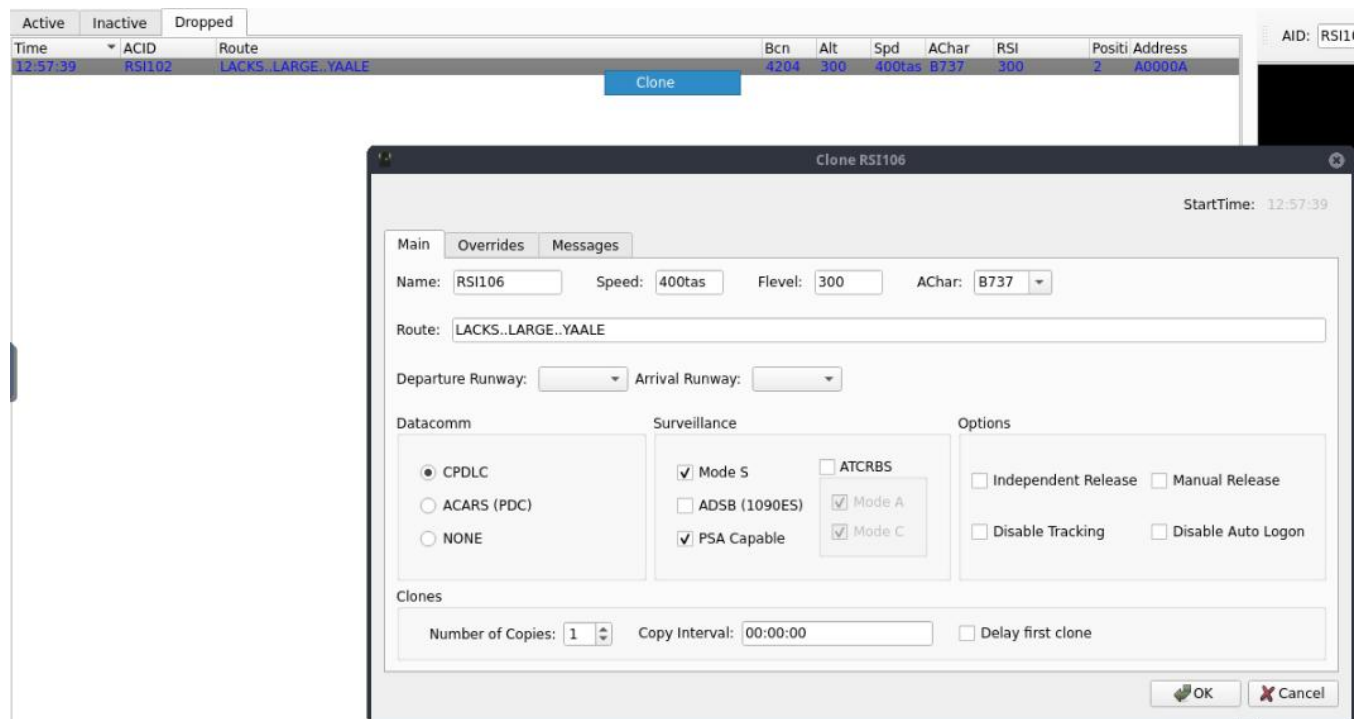


Figure 126. Clone Dialog

5.3.3.2.4. Map View

The right side of the Pilot Tab displays a large map area that includes a menu bar and tool bar along the top and a status or measurement bar (when invoked) along the bottom. The menu bar options are:

View

Clicking on **View** displays submenus that allow selection of airspace elements to be added to the map. These elements include Maps, Airspace, Terminal Airspace Data, ARTCC Name(s) (e.g., ZDV in the figure below), Radars, and External Facilities.

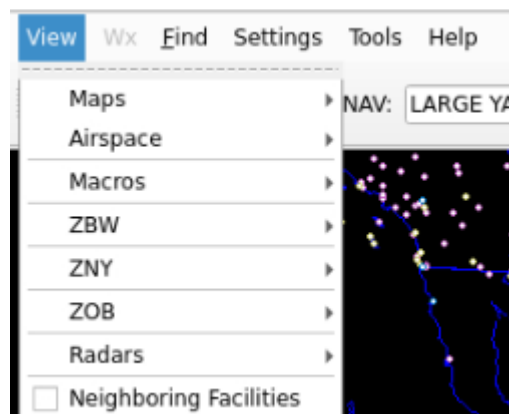


Figure 127. View Menu Option

Maps

The map dropdown includes US Map, Canada, and Mexico.

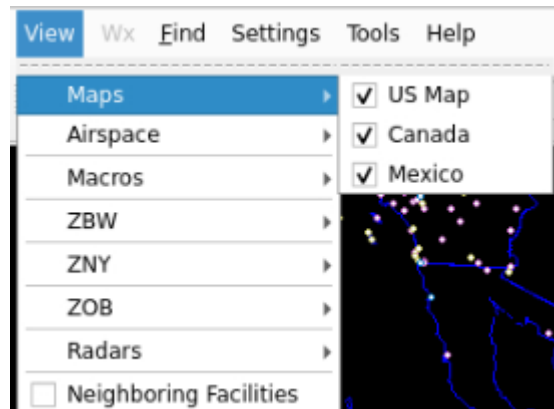


Figure 128. Map View Menu Options

Airspace

The Airspace dropdown includes Fixes, Airports, Airways, DP, STARs, Coded Routes, ADRs, AARs, ADARs, DLines, Alines, and CONUS. Fixes, Airports, and Airways have dropdowns shown below.

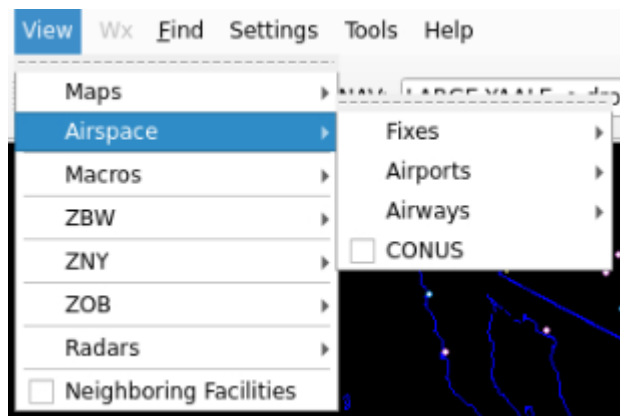


Figure 129. Airspace Menu Options

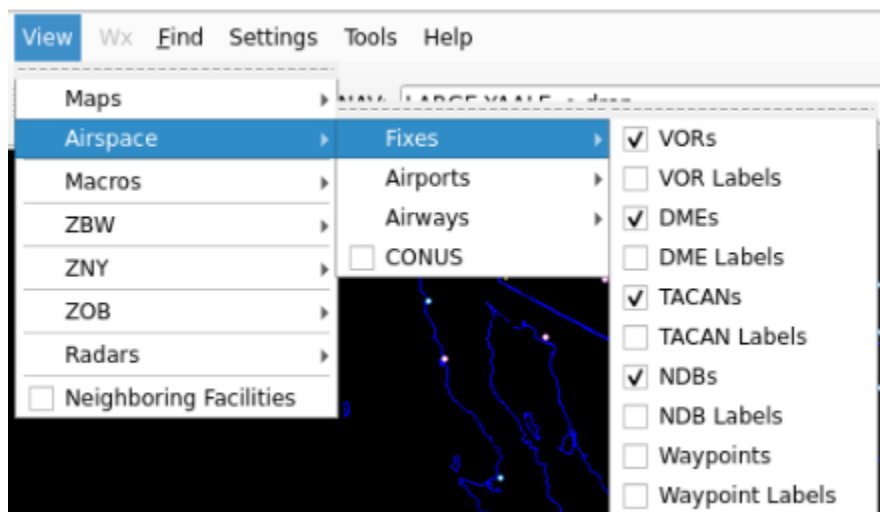


Figure 130. Fixes Menu Options

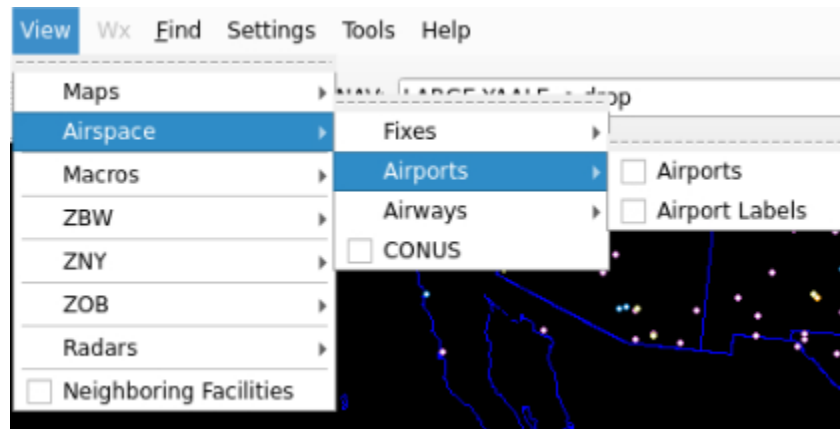


Figure 131. Airspace Airports View Menu Options

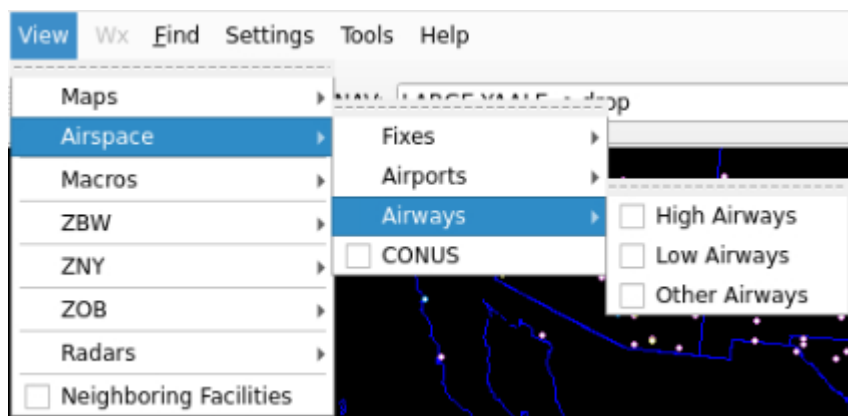


Figure 132. Airspace Airways View Menu Options

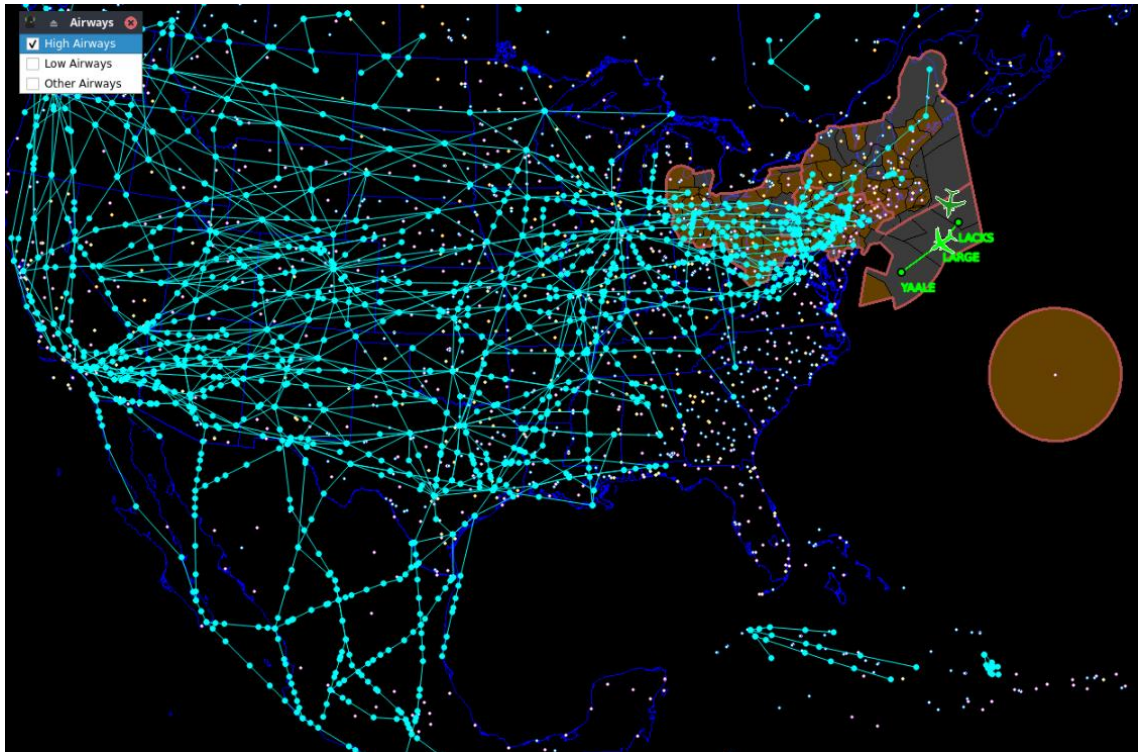


Figure 133. Airspace Airways View Menu Options (High airways)

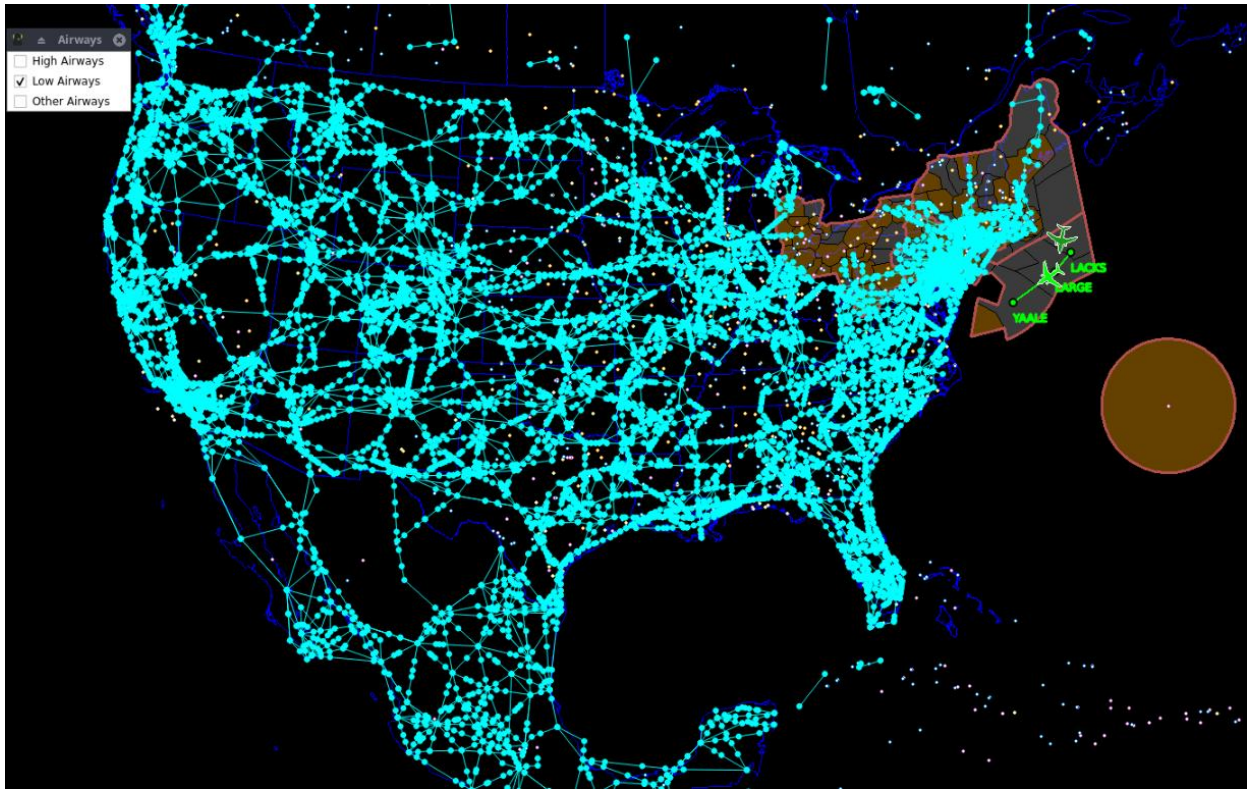


Figure 134. Airspace Airways View Menu Options (Low airways)

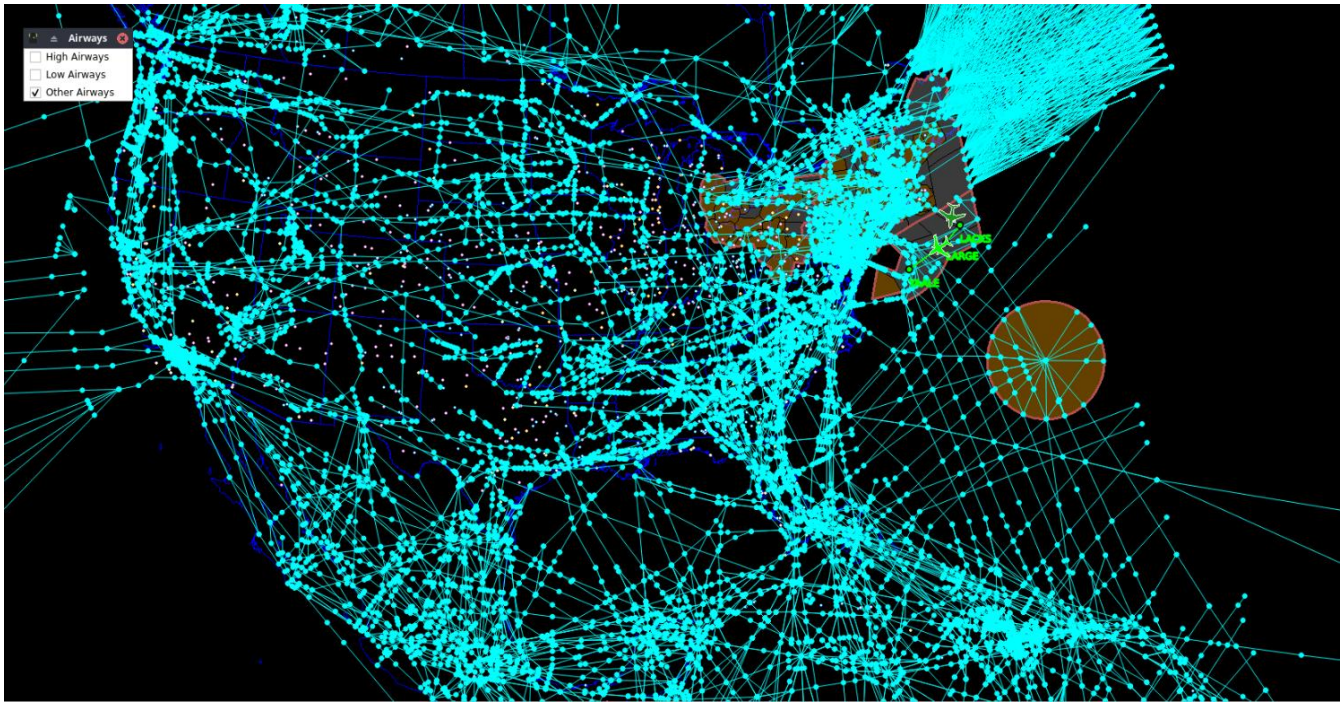


Figure 135. Airspace Airways View Menu Options (Other airways)

Macro View Option

The Terminal Airspace Data has a dropdown that includes Macros, Points, and Airports. The Macros dropdown will show user defined macros defined in a macro.xml file specified in the scenario.xml or adaptation.xml with the option to select a specific macro to be displayed on the map, or the option to display all macros using On or Off.

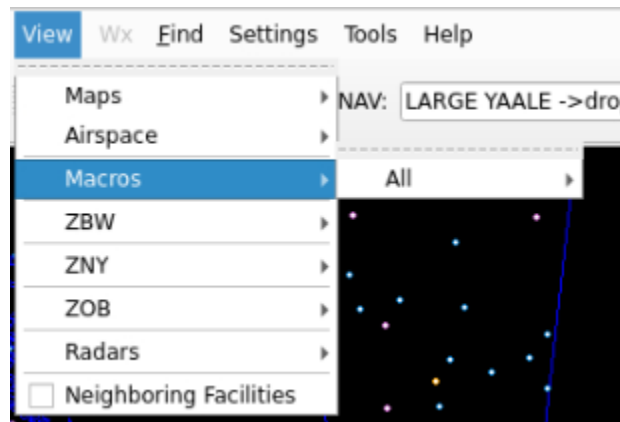


Figure 136. Macro View Option

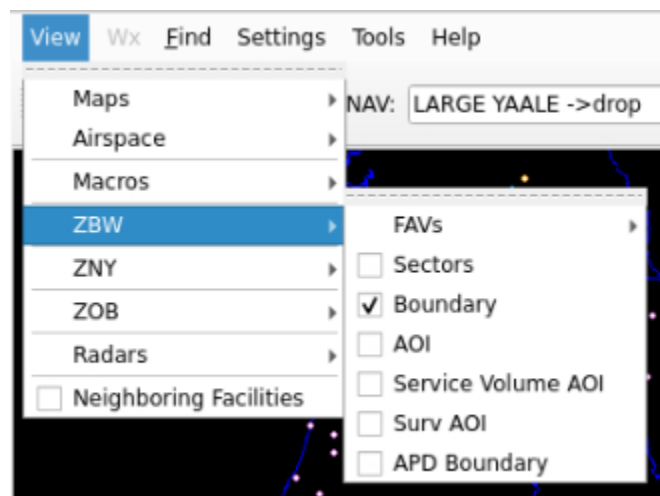


Figure 137. En Route Facility View Menu Options

En Route Facilities

This option includes FAVs, Sectors, Boundary, FP AOI, Service Volume AOI, Surv AOI, and APD Boundary.

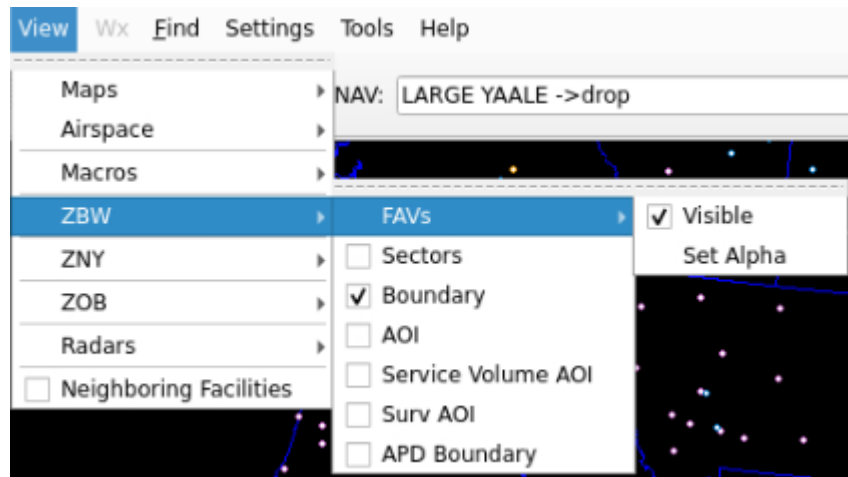


Figure 138. En Route Facility View Menu Options Contd.

FAVs

Fixed Airspace Volumes (gray for ARTCC and orange for Terminal airspace)

Sectors

Contains a submenu with the adapted sector plans (blue)

Boundary

Area of responsibility (AOR) boundary (red line)

FP AOI

Flight Plan (FP) Area of Interest (AOI) boundary (green)

Service Volume AOI

ADS-B Service Volume Area of Interest boundary (blue)

Surv AOI

Surveillance Area of Interest boundary (teal)

APD Boundary

(yellow)

Radars

The Radar submenu lists all adapted radar sites and an option for toggling all radar sites on or off. When a radar site is on, the range is displayed as a circle with a shaded area indicating the coverage area at the selected altitude.

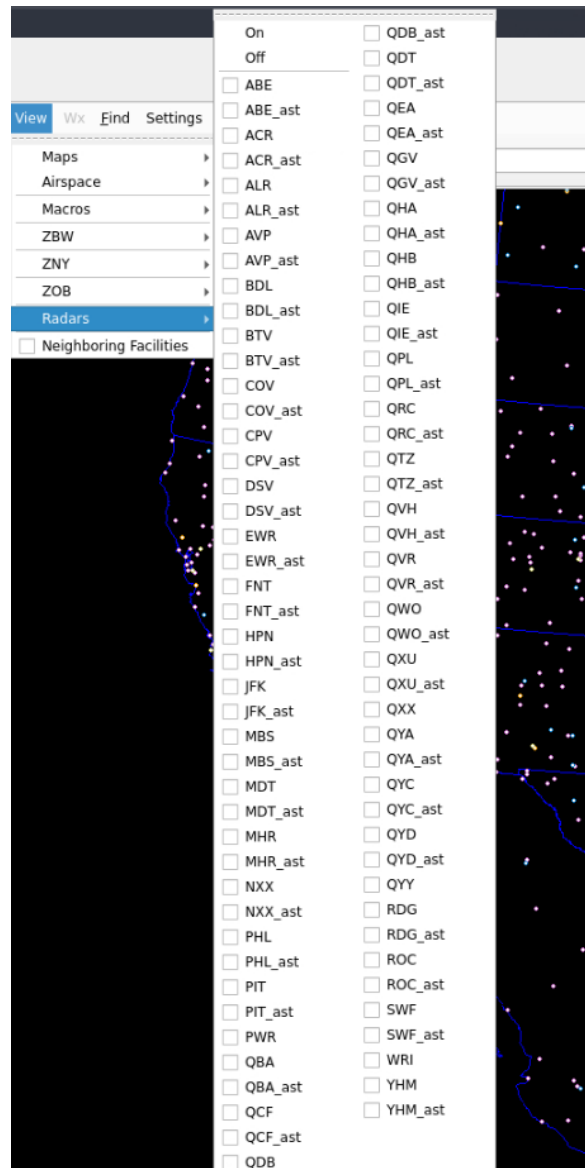


Figure 139. Radars View Menu Options

Neighboring Facilities

Turns Highlighting of Neighboring Facilities on or off.

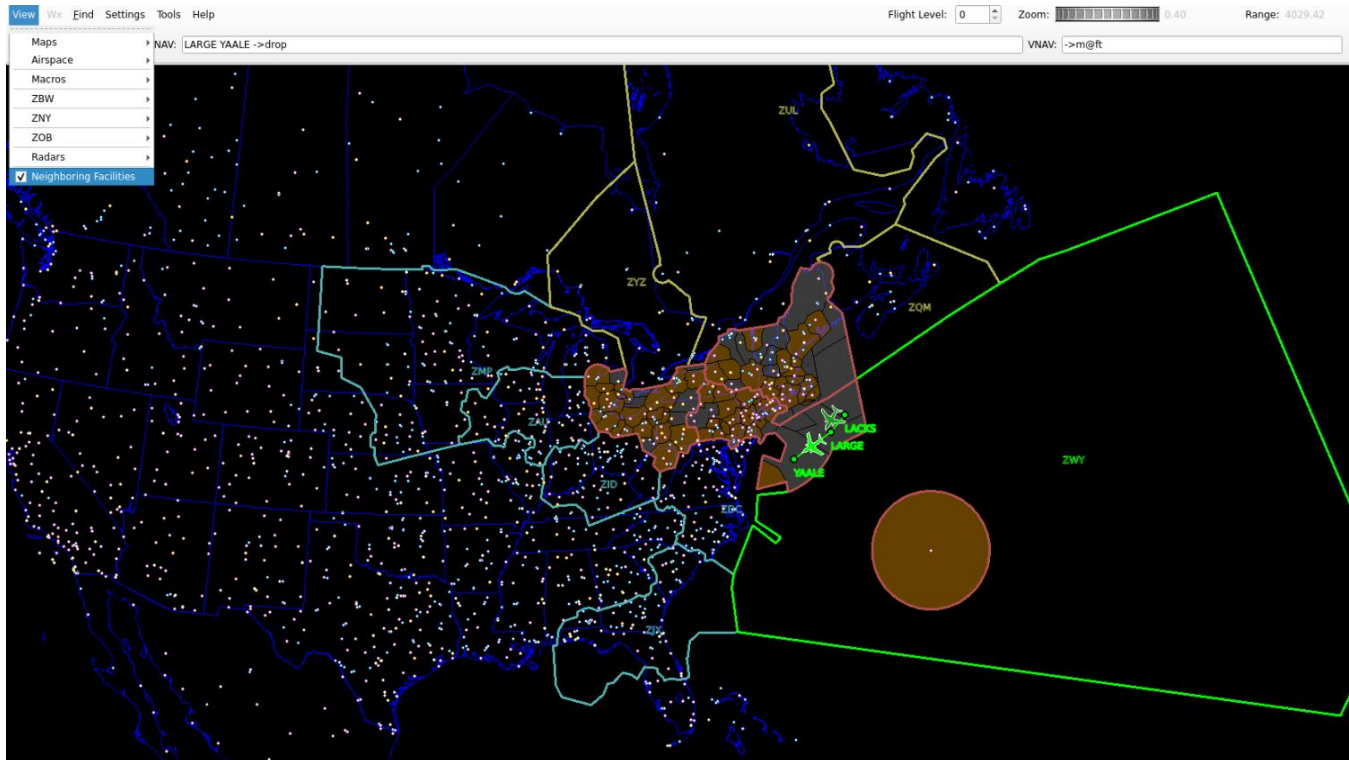


Figure 140. External Facility View Menu Option

Find

Clicking on **Find** displays the Find dialog. The Find dialog can be used to search the adaptation for airspace elements by name. When found, the element(s) are added to the map display, and a context box is displayed with details about the element.

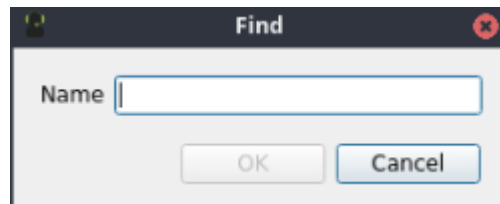


Figure 141. Find Dialog

Help

Clicking on **Help** displays submenus for:

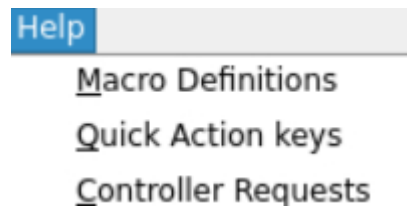


Figure 142. Help Menu

Macro Definitions

Displays a list of available macro commands.



Figure 143. Macro Definitions

Quick Action keys

Displays a list of available keyboard short cuts.



Figure 144. Available Keyboard Shortcuts

Controller Requests

Displays a list of commands available for an ERAM controller to enter via the QS command for entry of free text into the 4th line of a target full datablock.



Figure 145. Controller Request Dialog

Settings

The user may create Preference Sets of SimPilot display maps once all points, routes or macros, map center location, zoom level, and font size for a particular scenario and based on lab configurations. Within the **Settings** menu, the user can Save the Display Setting which generates a user display file. This display file may then be imported into the SimPilot using the Load Display Settings option. The Change Fix Menu Visibility will Show/Hide the pop-up waypoint menu boxes to remove clutter on the screen that may be caused by a large amount of fixes displayed on the map.

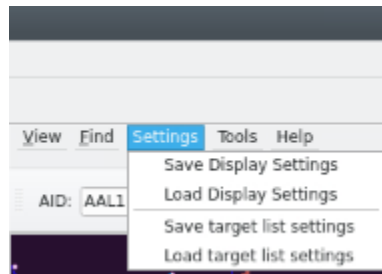


Figure 146: SimPilot – User Display Settings

Tools

Clicking on **Tools** displays the following submenus:

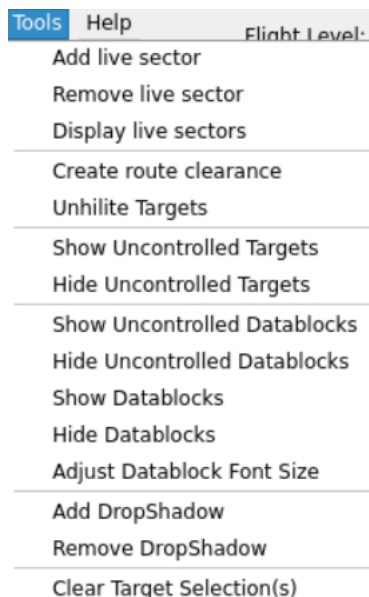


Figure 147. Tools Menu Option

Add Live Sector

Identifies sector position as having live controller interaction.

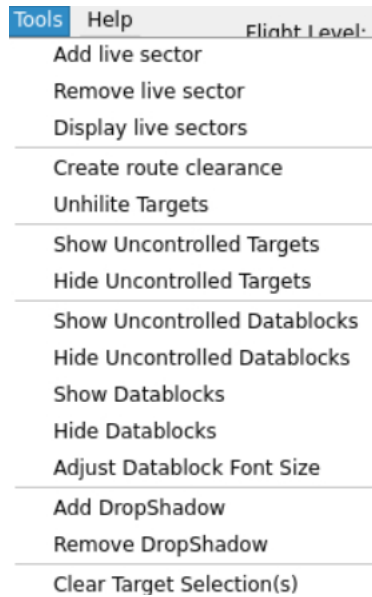


Figure 148. Add Live Sector Tools Menu Option

NOTE: Multiple sectors can be added at one time.

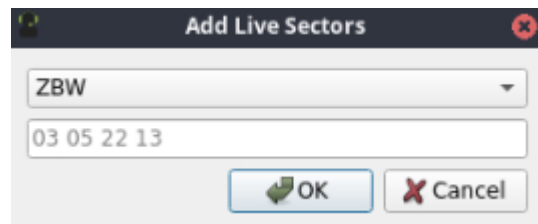


Figure 149. Add Live Sector Dialog

Remove Live Sector

Removes sector position from list of positions with live controller interaction.

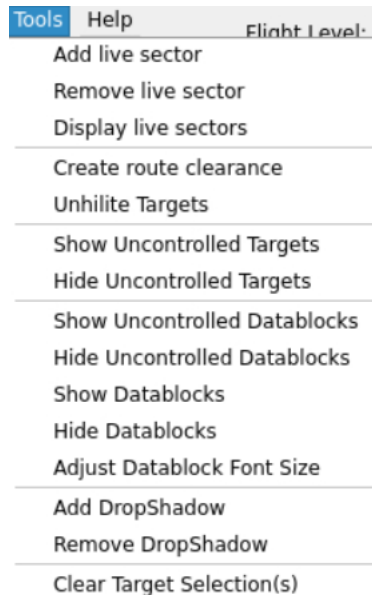


Figure 150. Remove Live Sector Tools Menu Option

NOTE: Multiple sectors can be removed at one time.

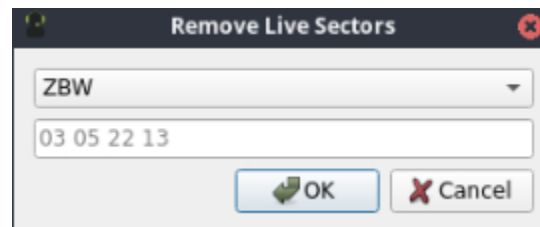


Figure 151. Remove Live Sector Dialog

Display Live Sectors

Displays all sector positions identified as having live controllers.

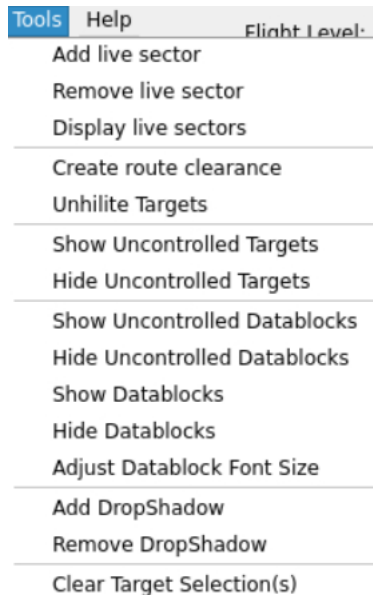


Figure 152. Display Live Sectors Tools Menu Option

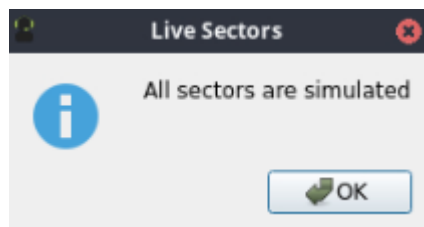


Figure 153. Display Live Sectors Dialog

Create Route Clearance

Opens a dialog to enter a route clearance.

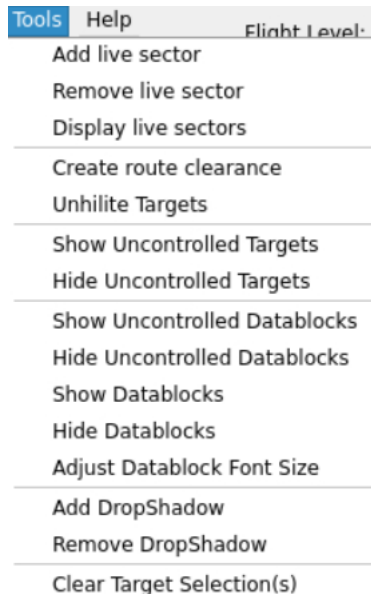


Figure 154. Create Route Clearance Tools Menu Option

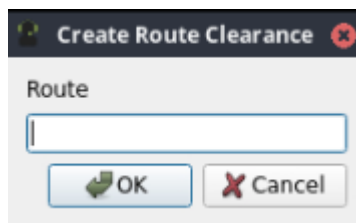


Figure 155. Create Route Clearance Dialog

Unhilit Targets

Removes all highlighted flight paths.

Show / Hide Uncontrolled Targets

The targets on the simPilot display can be hidden or displayed based on pilot position control to reduce clutter. The simPilot program defaults to **Show Uncontrolled** for all targets.

Show / Hide Uncontrolled Datablocks

Hide Uncontrolled Datablocks leaves all targets on the display but removes the datablocks of targets not under the pilot position's control. **Show Uncontrolled Datablocks** will display target datablocks regardless of pilot position's control status.

Show/Hide Datablocks

Shows/Hides Datablocks on map.

Adjust Datablock Font Size

The size of the target datablocks can be adjusted to the SimPilot user's preference by clicking the **Adjust Datablock Font Size**. Font size can be set between 8pt.-18pt. font size.

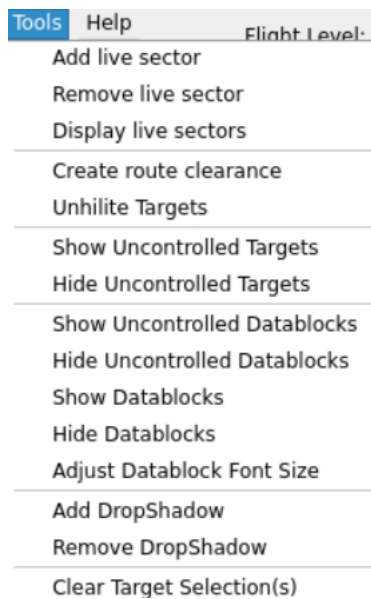


Figure 156. Adjust Datablock Font Size Tools Menu Option

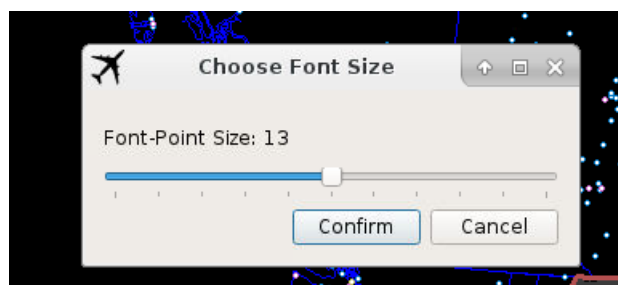


Figure 157. Adjust Datablock Font Size Dialog

Add/Remove Dropshadow

Adds/removes dropshadow from targets and datablocks.

Clear Target Selections

Unhighlights any selected flights.

Flight Level

The **Flight Level** tool allows an altitude to be set either by typing the value into the box or by clicking the up and down arrows. Changing the altitude also changes the sector and facility boundaries that are displayed.

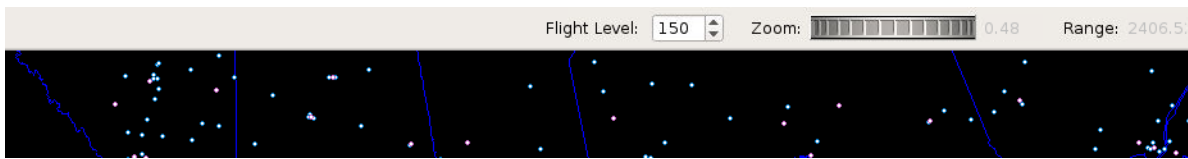


Figure 163. Flight Level

Zoom

The **Zoom** tool allows the range of the display to be adjusted using a wheel selector.



Figure 164. Zoom

Range

The **Range** tool displays the horizontal size (in nmi) of the airspace showing in the map display.



Figure 165. Range

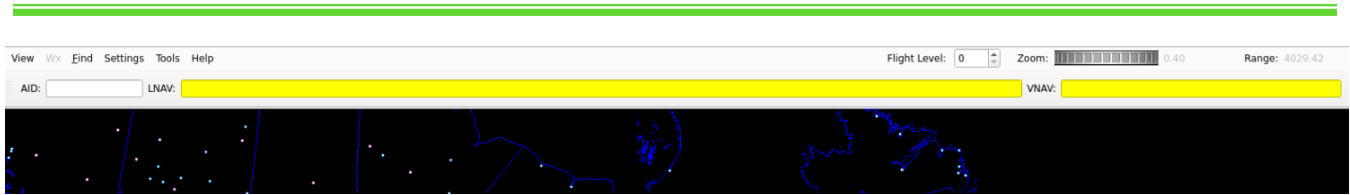


Figure 158. Macro Command Bar

The macro command bar items just above the map are:

AID

Callsign of the selected target.

LNAV

Route macro commands.

VNAV

Altitude and velocity commands.

When an active target is selected by double clicking, the input text boxes are automatically populated with the current values and the target is selected. Further when a target is manually entered into the AID box, the GUI should jump to the target, and the target itself should be highlighted.

5.3.3.2.5.LNAV/VNAV Command Input

The command input text box allows macro commands to be applied to selected active targets. A “Save macro” button is displayed above the command input box to allow often used commands to be saved and made available for recall. A list of macro commands is provided in the table below:

Table 5. Custom Macro Commands

Command	Description
VNAV Commands	
->dddcas	Change the calibrated air speed of the target to the value specified.
->dddcas~dddkt/min	Change the calibrated air speed of the target to the value specified at a given rate of change.
->dddtas	Change the true air speed of the target to the value specified.
->dddtas~dddkt/min	Change the true air speed of the target to the value specified at a given rate of change.
->.ddm	Change the mach speed of the target to the value specified.
->.ddm~dddkt/min	Change the mach speed of the target to the value specified at a given rate of change.
->dddcas@ddddddft or ->dddtas@ddddddft or ->.ddm@ddddddft	Change the speed and altitude of the target to the values specified.
->ddddddft	Change the altitude of the target to the value specified in feet.
->ddddddft~dddd	Change the altitude of the target to the value specified in feet at a given rate of change (in feet per minute).

LNAV Commands

FIXNAME

FIXNAME{attributes}

Attributes:

{arpt}

{rw:dd} or {rw:ddA}

{ils:dd} or {ils:ddA}

{dddddft}

{<dddddft}

{>dddddft}

{dddddftBdddddft}

{dddcas}, {dddtas}, or {.ddm}

{<dddcas}, {<dddtas}, or {<.ddm}

{>dddcas}, {>dddtas}, or {>.ddm}

{rf}{dddmag}{turnDir:A}

Proceed to the fix.

Proceed to the fix and obey additional instructions or restrictions specified as attributes of the fix. Some attributes (such as speed and altitude restrictions) may be combined for the same fix.

On the first fix, auto-apply departure logic; on the last fix, auto-apply top of descent (TOD) restriction. Not valid on other fixes.

In conjunction with {arpt} on departures, use a defined departure procedure for the specified runway.

In conjunction with {arpt} on arrivals, perform an ILS approach to the specified runway. This disables TOD processing.

Cross the fix at the specified restriction altitude.

Cross the fix at or below the specified restriction altitude.

Cross the fix at or above the specified restriction altitude.

Cross the fix between the specified restriction altitudes. Order is of the restriction altitudes is irrelevant.

Cross the fix at the specified restriction speed.

Cross the fix at or below the specified restriction speed.

Cross the fix at or above the specified restriction speed.

Perform a radius to fix turn (in the specified turn direction), exiting the fix at the specified heading.

->ddd[RL]mag

Change the heading of the target to the value specified in degrees from magnetic North or by the right or left offset.

->ddd[RL]mag~ddddeg/sec	Change the heading of the target to the value specified in degrees from magnetic North or by the right or left offset, at a given rate of change.
->ddd[RL>true	Change the heading of the target to the value specified in degrees from true North or by the right or left offset.
->ddd[RL>true~ddddeg/sec	Change the heading of the target to the value specified in degrees from true North or by the right or left offset, at a given rate of change.
->hold	Hold indefinitely with right hand turns and 1 minute leg lengths.
->hold{legTime:dmin}	Hold indefinitely with right hand turns and leg lengths as specified in minutes.
->hold{turnDir:A}	Hold indefinitely with 1 minute leg lengths and left or right hand turns as specified.
->hold{duration:dmin}	Hold with right hand turns and 1 minute leg lengths for the specified amount of time. Once the duration time has expired, complete the current turn and proceed with the remaining route.
->hold{count:d}	Hold with right hand turns and 1 minute leg lengths for the specified number of laps.
->drop	Drop the target.
Mode3A and Mode C Commands	
->Boooo	Set or change the beacon code.
->BE	Enable the Mode 3A beacon.
->BD	Disable the Mode 3A beacon.
->MCE	Enable Mode C.
->MCD	Disable Mode C.
->RADARE	Enable radar detection.

->RADARD	Disable radar detection.
->ADSBE	Enable ADSB detection.
->ADSBD	Disable ADSB detection.
Target Attributes	
->set:autoLogon=d	Set the autoLogon attribute to 0, off, or 1, on.
->set:cpdlcResponseMode=<mode>	Set the cpdlcResponseMode attribute to manual or auto.
->set:cpdlcResponseDelay=ddd	Set the cpdlcResponseDelay attribute to the specified number of seconds.
->set:script=name	Set the script attribute to the specified script name.
->set:tdls=name	Set the tdls attribute to the specified TDLS name.
->set:disableTracker=d	Set the disableTracker attribute to 1, disabled, or 0, enabled.
->set:freeText=text	Set the freeText attribute to the specified text. This appears in the datablock of the target.
->set:taAcceptDelta=-1	Set the flight to not automatically accept handoffs.
->set:rtaResponse="NO REPLY,-1"	Flight will ignore handoff request.
->set:rtaResponse="NO REPLY,-1"	Flight will ignore handoff accept.
->set:rtaResponse="LRM,10,57/00/INVALID MESSAGE"	Flight will respond to handoff request with Logical Reject Message.
->set:tuDisable=1	Flight will not send TRAC update messages when in handoff state.
->set:tuOffset=10,10	TRAC update messages will add this offset to their position messages.
->clear:<attribute>	Clear the target attribute specified.
->IDENT	Sets IDENT to highlight the aircraft on the ERAM R position display.

NOTE: An ‘a’ indicates an alphabetic character, ‘d’ indicates decimal digits, ‘o’ indicates octal digits, and ~ indicates a rate of change.

5.3.3.2.6.Context Boxes

Holding down the **SHIFT** key and right clicking on any airspace item (such as a Fix, Airport, or FAV) will cause a context box to be displayed. A context box displays information about the airspace item. The contents of each context box depend on the type of item selected and may contain a menu that includes additional data for the selected item.

A context box can be closed by right clicking again on the item, or by selecting the X button of the context box window.

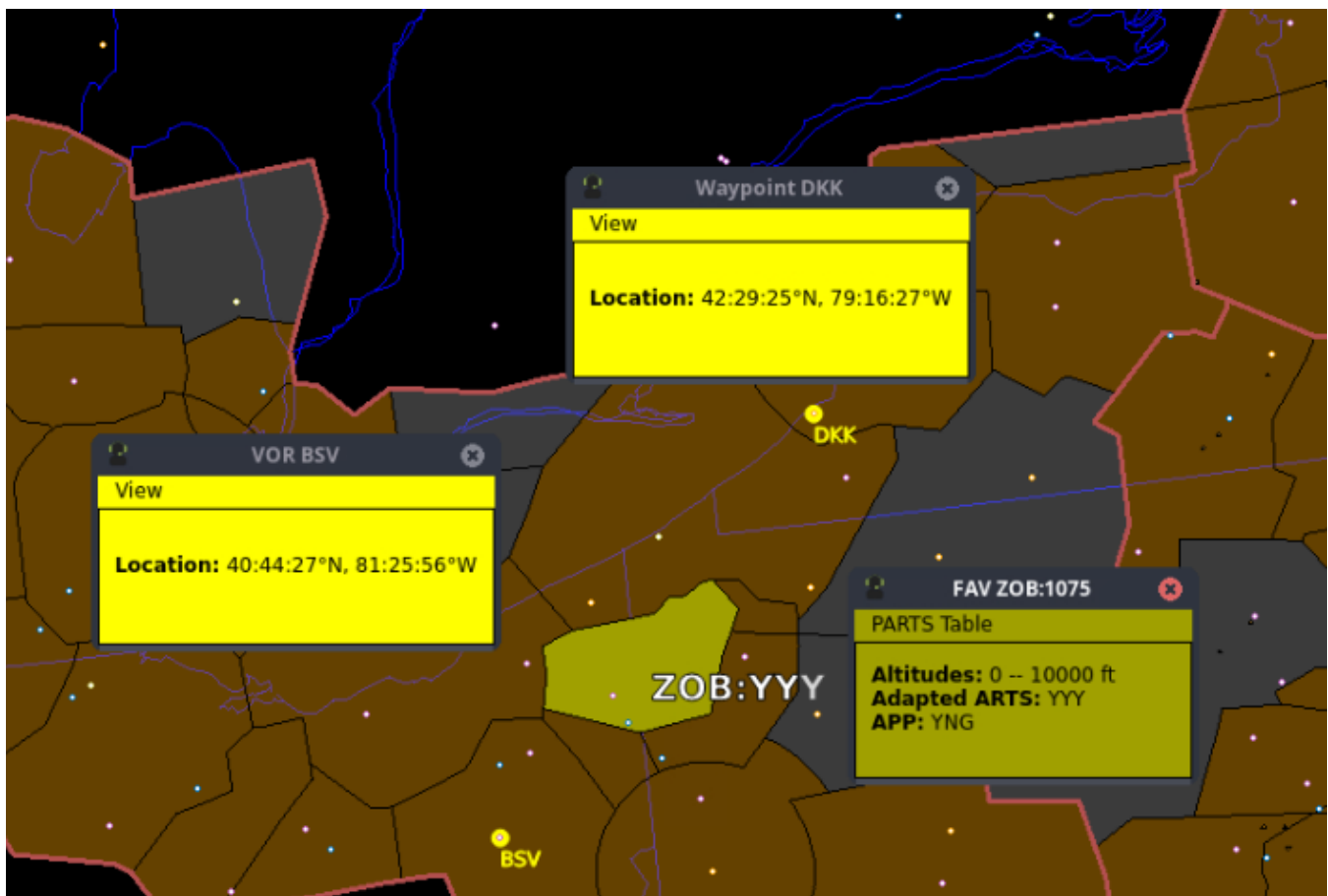


Figure 159. Context Boxes

5.3.3.2.7. Status Bar

The Status Bar, also referred to as the Measurement Bar, located on the bottom of the main window is used to display measurement information from the map. The bar is automatically displayed and updated upon user action that triggers the measurement information.

To display lat/lon and X/Y system coordinates at any specific point, hold down the **SHIFT** key while mouse clicking in any location on the map. Holding down the **SHIFT** key and left click dragging the mouse will display spherical distance in nmi, heading, both true and magnetic, and delta X/Y system coordinates.

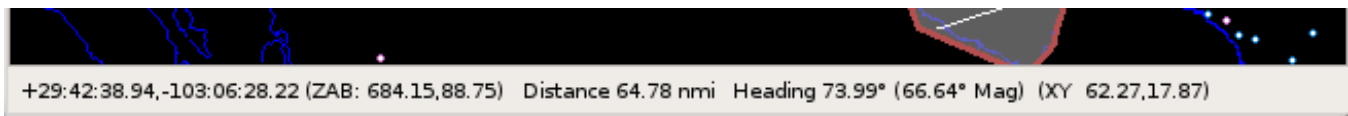


Figure 168. Status Bar

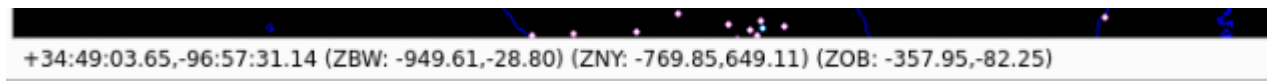


Figure 168.2. Status Bar (without distance + heading)

5.3.3.3. Log Tab

The Log tab displays a list of flight data messages associated with the targets under the control of the simPilot position.

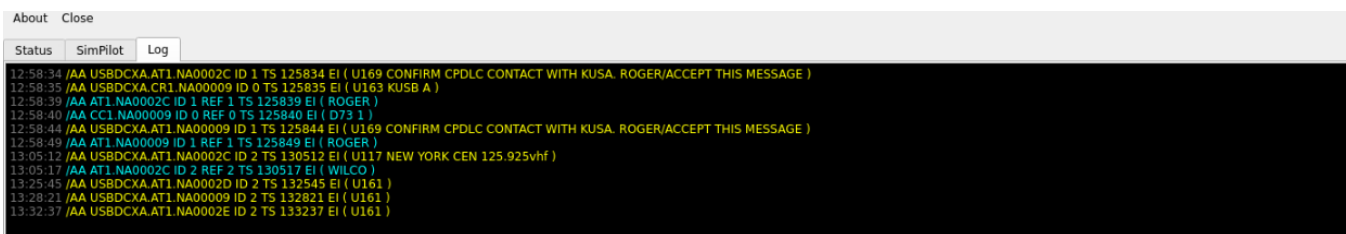


Figure 160. Log Tab

6. surfaceDriver

The surfaceDriver executable generates target positions dynamically during scenario execution for flights on the surface of the airport. Departing flights are simulated to back away from a gate and proceed to the selected runway. Arriving flights are simulated to move from the selected runway to a gate. Gates and runways can be assigned in GSGT or in simDriver. Flights that have gate and runway assignments are automatically transferred between simDriver and surfaceDriver at the point of takeoff or touchdown.

6.1. Starting surfaceDriver

Start the surfaceDriver executable from the command line while inside the desired scenario directory created with the GSGT. To launch surfaceDriver with basic parameters, enter:

```
> surfaceDriver --arpt=<icao airport name> --tgtDev=tcp://<sdr_address>:<port#>  
--dysimDevice=tcp://<simDriver_address>:<port#>
```

Other optional parameters may be specified. For example:

```
> surfaceDriver --arpt=<icao airport name> --tgtDev=tcp://<sdr_address>:<port#>  
--dysimDevice=tcp://<simDriver_address>:<port#> --nofullscreen --nologfile
```

To launch a version of simDriver that is not the default version, enter:

```
> /usr/local/jvn.x.x.x/bin/surfaceDriver --arpt=<icao airport name>  
--tgtDev=tcp://<sdr_address>:<port#> --dysimDevice=tcp://<simDriver_address>:<port#>
```

NOTE: The surfaceDriver executable must be started from a command line while inside the scenario directory.

6.2. Command Line Options

The surfaceDriver executable can be started with various options which control its operation. Typing the surfaceDriver -h will show the following arguments:

Table 6. Program Parameters

Parameter	Description
--tgtDev=tcp://<sdr_address>:<port#>	Directs surfaceDriver to send target positions to SDRR at the named address & port. SDRR must be started with the corresponding parameter.
--dysimDevice=tcp://<dysim_address>:<port#>	Directs surfaceDriver to connect to the address and port where the DYSIM executable simDriver will output simulation messages and target details. The DYSIM executable must be started with the corresponding parameter identifying the same port number.
--nofullscreen	Not full screen mode; surfaceDriver will be started in a window roughly half the size of the screen.
--start	This starts the scenario immediately on launch.
--preview	Previews the scenario.
--logfile=<filename>	Specify log file name.
--nologfile	No log file will be written.
--proxy=http://<server>:<port#>	Sets up a proxy server for mapTiles.
--help	Display application parameters.

6.3. surfaceDriver GUI

The surfaceDriver Graphical User Interface (GUI) is composed of a main menu bar, date and time clock, and display tabs. The times are displayed in UTC.

6.3.1. Menu Bar

The menu bar includes the following options:

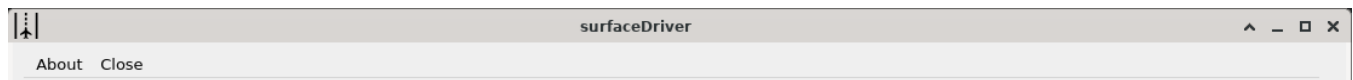


Figure 161. surfaceDriver Menu Bar

About

Displays the About surfaceDriver dialog which shows the version of surfaceDriver, and the date and time that the surfaceDriver executable was built.

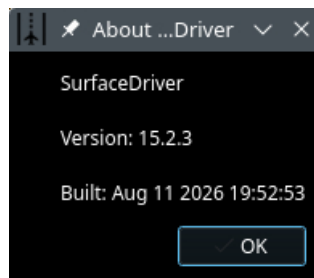


Figure 162. About SurfaceDriver Dialog

Close

Stops the scenario execution and closes the surfaceDriver GUI. When 'Close' is selected, the warning below is displayed. Selecting 'Yes' exits the GUI; selecting 'No' closes the warning and returns to the GUI.

6.3.2. Date and Time Clock

When a scenario is running, the scenario date and time are displayed in the upper right corner.

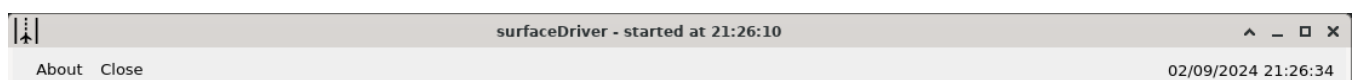


Figure 163. surfaceDriver Run Clock

6.3.3. Display Tabs

The display tabs are Status, Dysim, and Log. Right clicking in the text area of a display tab launches a pop-up with the following options:

Copy

Places any selected text into the copy buffer.

Select All

Selects all the text in the current display tab message log area.

Find

Opens a search bar at the bottom of the current display tab message log area.

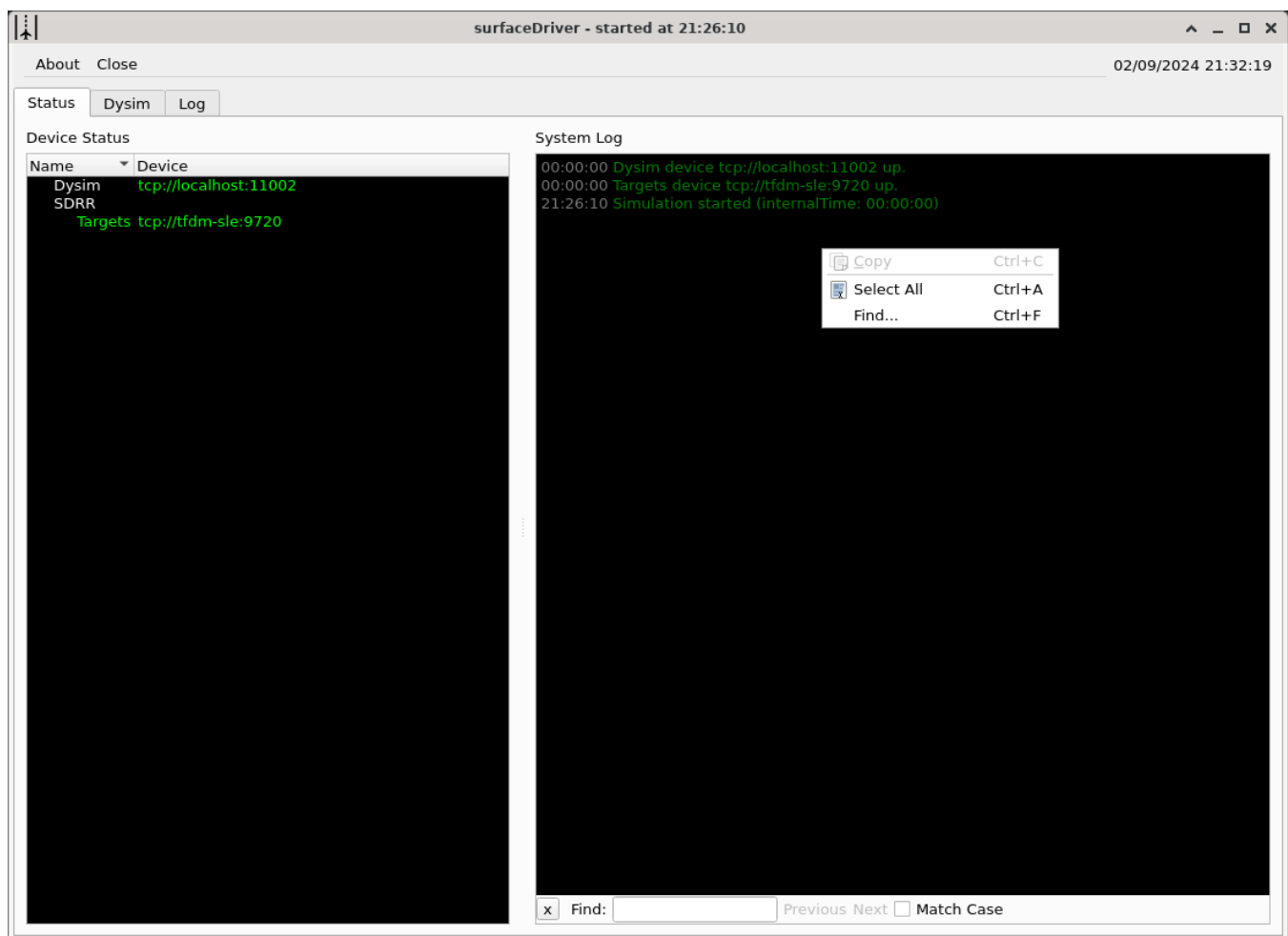


Figure 164. Message Area Text Options

6.3.3.1. Status Tab

The status display tab is separated into two parts. The left side shows the Device Status. All devices connected to surfaceDriver are listed and color coded to indicate connection status. The red indicates that the connection has yet to be established. The yellow indicates that there is at least one connection made. The green indicates that the connection has been fully established. The right side contains a System Log where all system messages, such as status, warnings and errors are displayed.

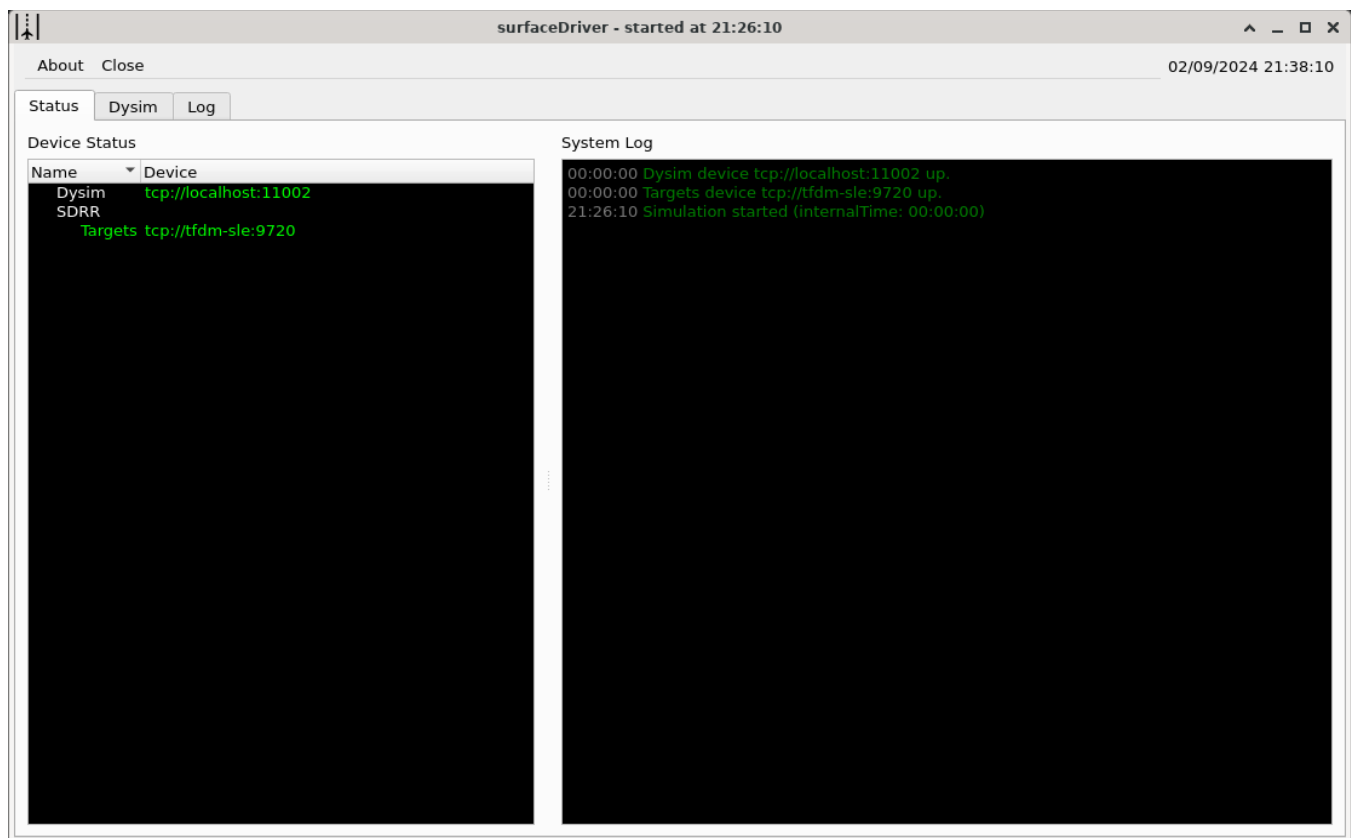


Figure 165. surfaceDriver Status Tab

6.3.3.2. Dysim Tab

The Dysim Tab is separated into two parts. The left side displays the Targets View and the right side displays the Map View.

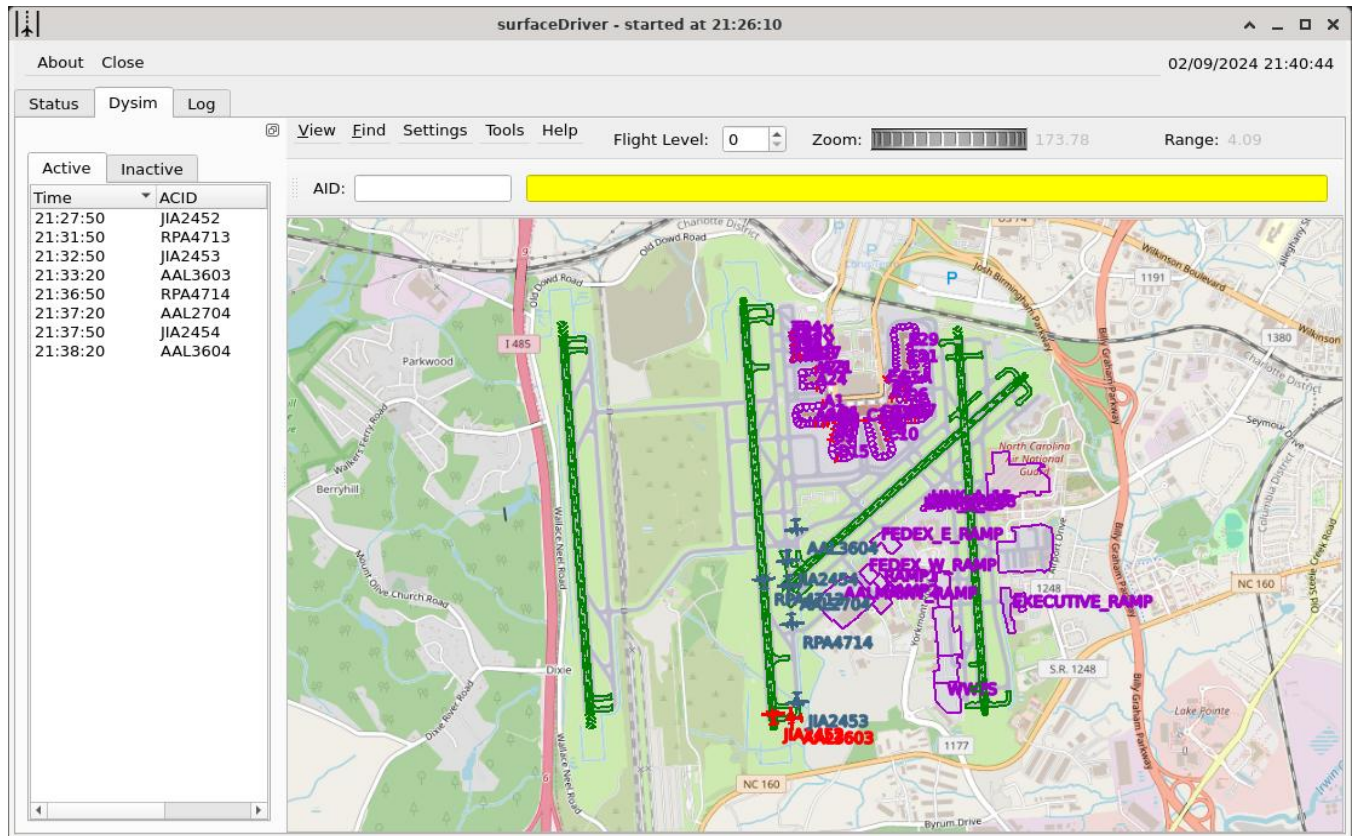
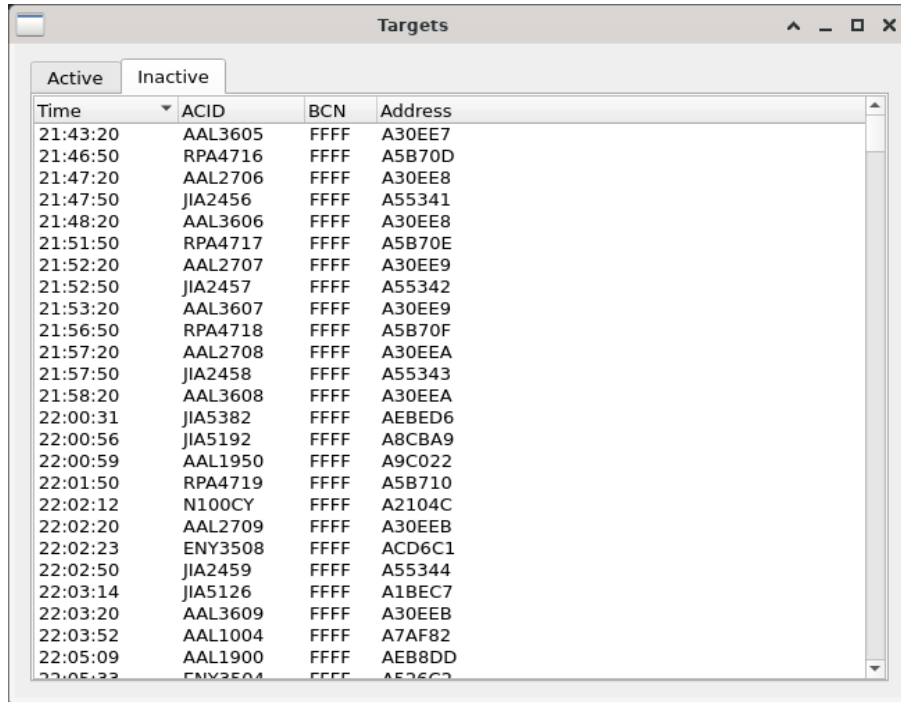


Figure 166. surfaceDriver Dysim Tab

The left side Targets View can be re-sized or popped out into its own window. This view displays Active and Inactive target tabs.



Time	ACID	BCN	Address
21:43:20	AAL3605	FFFF	A30EE7
21:46:50	RPA4716	FFFF	A5B70D
21:47:20	AAL2706	FFFF	A30EE8
21:47:50	JIA2456	FFFF	A55341
21:48:20	AAL3606	FFFF	A30EE8
21:51:50	RPA4717	FFFF	A5B70E
21:52:20	AAL2707	FFFF	A30EE9
21:52:50	JIA2457	FFFF	A55342
21:53:20	AAL3607	FFFF	A30EE9
21:56:50	RPA4718	FFFF	A5B70F
21:57:20	AAL2708	FFFF	A30EEA
21:57:50	JIA2458	FFFF	A55343
21:58:20	AAL3608	FFFF	A30EEA
22:00:31	JIA5382	FFFF	AEBED6
22:00:56	JIA5192	FFFF	A8CBA9
22:00:59	AAL1950	FFFF	A9C022
22:01:50	RPA4719	FFFF	A5B710
22:02:12	N100CY	FFFF	A2104C
22:02:20	AAL2709	FFFF	A30EEB
22:02:23	ENY3508	FFFF	ACD6C1
22:02:50	JIA2459	FFFF	A55344
22:03:14	JIA5126	FFFF	A1BEC7
22:03:20	AAL3609	FFFF	A30EEB
22:03:52	AAL1004	FFFF	A7AF82
22:05:09	AAL1900	FFFF	AEB8DD
22:05:23	ENY3504	FFFF	A55343

Figure 167. Dysim Tab Targets View

The Targets View tabs list details for active and inactive targets. The target lists can be sorted by clicking on the any of the column headers.

Time

This is the time that the target was or will be activated. This value could also show the status HOLD. A HOLD time means that the flight was suspended or set for manual release and will require further action to activate. Right clicking on an inactive flight displays the options: release now, release with delay(s), and release at.

ACID

Aircraft identification callsign. The callsign is made up of a minimum of two and a maximum of seven letters/numbers. The first character must be a letter.

BCN

Beacon code. The beacon code must be four octal digits. A beacon code of FFFF signifies that a beacon code has not been assigned to the aircraft.

Address

ICAO address. The ICAO address is six alphanumeric characters.

Further details about a target can be displayed in a mouse-over text box by allowing the cursor to dwell over a target in either of the Targets View tabs. The mouse-over text box displays the departure airport and departure runway for the target.

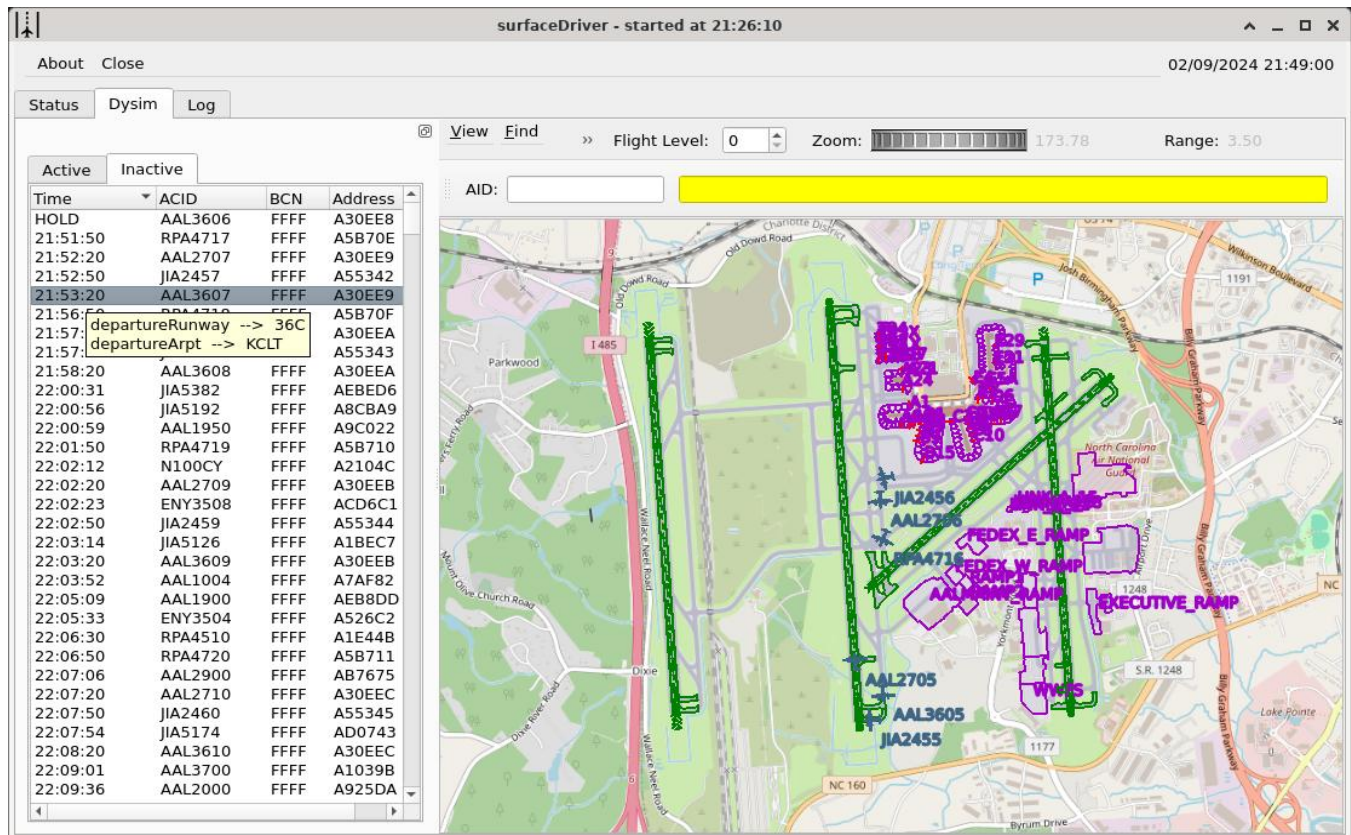


Figure 168. Mouse-over Text

Clear Prompt Message

Clears prompt message.

Dump Attributes

Sends all currently applied attributes for the selected target to standard output.

Selection Count

Returns the number of targets currently selected.

6.3.3.2.2. Inactive Tab

Right clicking on an entry in the Inactive tab displays the following options:

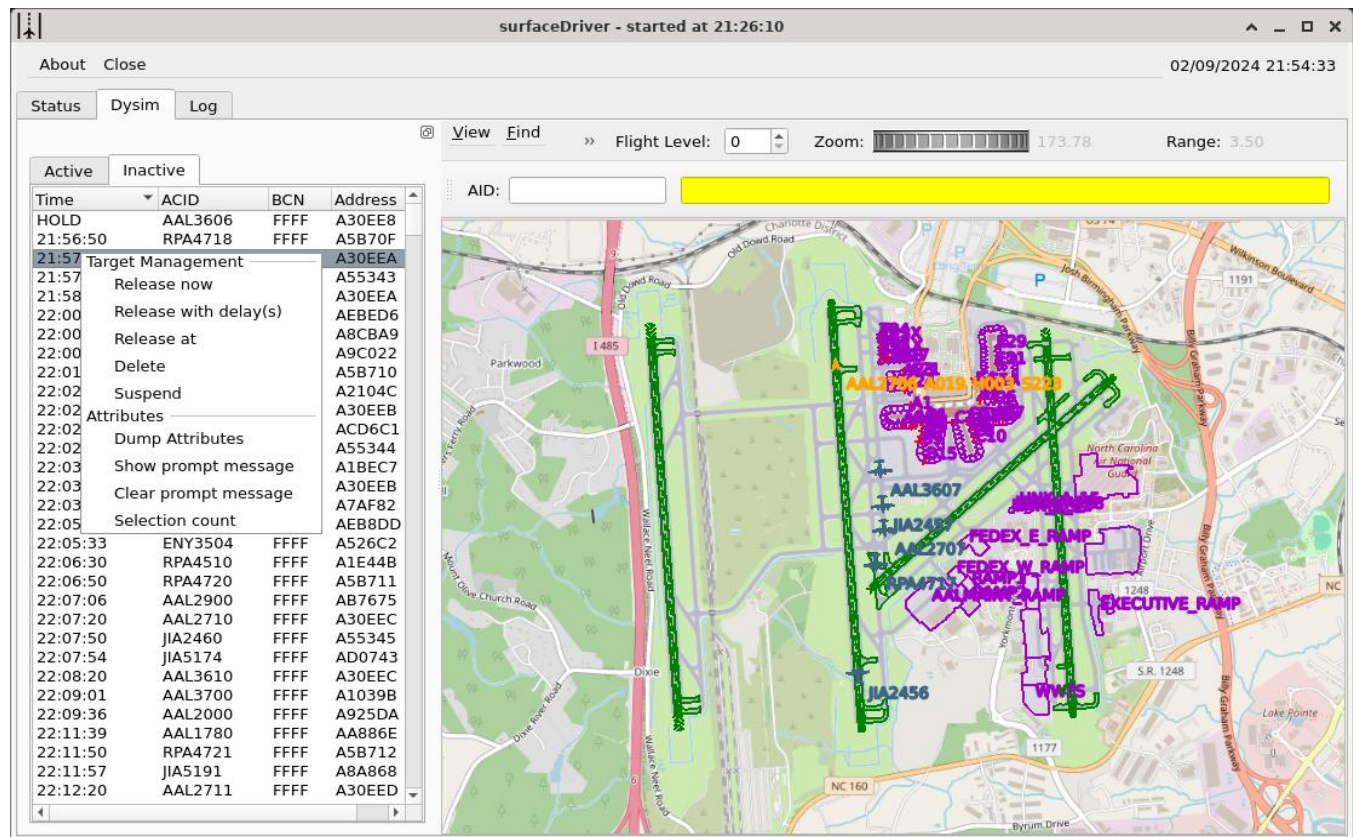


Figure 170. Inactive Target List Menu Options

Target Management

Release now

Activates the target immediately.

Release with delay(s)

Activates the target after the specified amount of time has elapsed.

Release at

Activates the target at the specified external system time.

Delete

Removes the selected target(s) from processing in surfaceDriver but does not remove them from simDriver.

Suspend

Prevents the target from activating at the scripted injection time. The target may be manually released at another time. Flights in manual mode are highlighted in blue in the Inactive tab.

Attributes

Dump Attributes

Sends all currently applied attributes for the selected target to standard output.

Show Prompt Message

Displays prompt message.

Clear Prompt Message

Clears prompt message.

Selection Count

Returns the number of targets currently selected.

6.3.3.2.3. Map View

The right side of the Dysim Tab displays a large map area that includes a menu bar, tool bar, and a macro command bar along the top and a status or measurement bar (when invoked) along the bottom. The menu bar options are:

View

Clicking on **View** displays submenus that allow selection of airspace elements to be added to the map. These elements include Maps, Airspace, Terminal Airspace Data, ARTCC Name(s) (e.g., ZIX and ZTL in the figure below), Radars, and External Facilities.

NOTE: *Each menu and submenu has a dashed line at the top. Selecting the dashed line will “tear off” the menu into a new dialog. The menu will remain displayed after a selection is made.*

7. Target Manipulation

Dynamic simulation allows for the aircraft dynamics to be modified during the scenario playback such as speed, altitude, heading, and route. There are three different ways in which these dynamics may be modified during a scenario, via the target's datablock, macro entry box, or the control dialog box. These methods may be used in both simDriver and simPilot within the Dysim tab and SimPilot tab, respectively.

7.1. Target Datablock

The dynamics of a target may also be manipulated via right clicking the areas of a target's datablock. Figure 169 shows the target's datablock, where 'SWA1288' is the FLID, '180' is the altitude, 'H304' is the magnetic heading, 'S362' is the speed in knots, and ZDV/27 is the controlling sector. A fifth line may be incorporated that displays the free text entered by the pilot using the freeText command.



Figure 171: simPilot Target Datablock

7.1.1. Modifying Altitude

The target's altitude may be modified by right clicking the altitude of the target's datablock. Within this window, the altitude is entered in hundreds of feet. The "Ignore Altitude Restrictions?" checkbox is available to force the aircraft to maintain the altitude and ignore any altitude restrictions that may be included in the aircraft's route or macro restrictions. Altitude restrictions are ignored until the checkbox is unchecked. Target's altitude in the datablock will display an underline while the "Ignore Altitude Restrictions?" checkbox remains checked.



Figure 172: Right Click Altitude Change

7.1.2. Modifying Heading

The target's heading may be modified by right clicking the altitude of the target's datablock. Within this window, the heading is entered in magnetic degrees. By default, turn direction is calculated by the software to minimize the angle between present heading and desired heading. Turn direction can be force by specifying the heading and appending "L" or "R" to the heading value to turn left or right to the desired heading.



Figure 173: Right Click Heading Change

7.1.3. Modifying Speed

The target's speed may be modified by right clicking the speed in the target's datablock. Within this window, the speed is entered in knots calibrated airspeed (CAS) by default. True airspeed (TAS) and Mach Number speeds are also available by appending "tas" or "m", respectively. The "Ignore Speed Restrictions" checkbox is available to force the aircraft to maintain the speed entered and ignore any speed restrictions that may be included in the aircraft's route or macro restrictions. Speed restrictions are ignored until the checkbox is unchecked. Target's speed in the datablock will display an underline while the "Ignore Speed Restrictions?" checkbox remains checked.

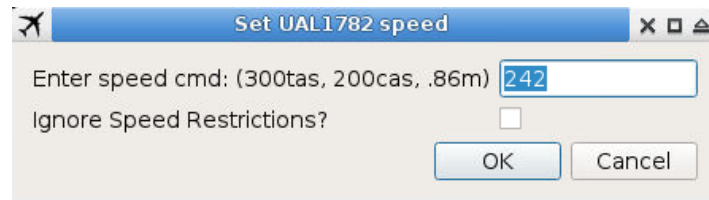


Figure 174: Right Click Speed Change

7.1.4. Give Control

SimPilot ownership may be invoked by right clicking a target's FLID in the Active list and selecting "Take Control". Once ownership is taken, it may be given by also right clicking the target's FLID in the Active list and selecting "Give Control". Once "Give Control" is selected, the user will be prompted with a dialog box of which position to give control to.

Taking and giving ownership may also be invoked by double middle clicking the target on the map, where the user will automatically take control of a selected target or will be prompted to give control to a pilot position. The Give Control dialogue box value will default to the last Given Control position number sent.



Figure 175: Give Control

7.2. Macro Entry

Aircraft dynamics may be modified, and new macro commands may be entered, using the entry boxes for LNAV and VNAV. If a valid command is typed, the input box remains white. If an invalid command is typed, the input box is highlighted yellow to indicate an error.

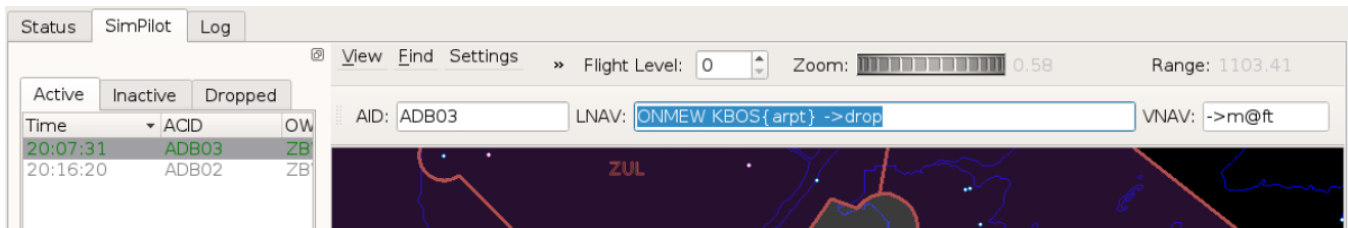


Figure 176. Macro Entry

When the Enter key is pressed, the input box is highlighted green to indicate the successful entry of a valid command.



Figure 177. Accepted Macro Entry

A list of macro commands is provided in Table 5 of Section 5.3.3.2.5.

7.3. Timed Macros Box

A timed macros box can be invoked by either double clicking a target in the active tab or by holding the SHIFT key while right clicking a target on the map. The timed macros box contains a list of commands scripted in the scenario to be executed at a specific time.



Figure 178. Timed Macros Box

8. Sample Configuration Files

8.1. Adaptation File

The simPilot executable must be launched with at least one ERAM facility adaptation specified as a parameter. To maximize the capability of the simPilot, all the adaptation that was selected to create the scenario should also be specified in the simPilot command. Including all ERAM, STARS, and TBFM adaptation will allow simPilot to have definitions for all waypoints, routes, airports, and runways that are available to simDriver. Within the scenario directory, references to all the adaptation are included in the scenario.xml file. As an alternative, a separate file called adaptation.xml can be created that includes just the airspace stanza portion of the scenario.xml file. An example of a scenario.xml file is shown below:

```
<scenario version="13.3.2">
  <airspace>
    <eadp dir="/opt/adaptation/eadp/e310gdk0">
      <override product="STAR.xml.74">./STAR.xml</override>
      <dms file="STARS/d01/DenAdapt-MG-02-17-2021" name="RDC"/>
      <atcoach file="STARS/d01/d01_SYS1_ENV001_ad.st" name="RDC"/>
      <atcoach file="/opt/adaptation/macro/ZDV_D01/macro.st" name="RDC"/>
      <tbfm dir="/opt/adaptation/tbfm/ZDV_T4.14.0_0.0MG"/>
    </eadp>
  </airspace>
  <facility>
    <eadp dir="/opt/adaptation/eadp/e310gdk0">
  </facility>
  <targets>tgts.xml</targets>
  <syscmds>syscmds.xml</syscmds>
  <prefs>prefs.xml</prefs>
  <rsi>rsi.xml</rsi>
  <devctl>devctl.xml</devctl>
</scenario>
```

8.2. Macro File

In addition to adaptation information, the scenario.xml file can also specify one or more macro files. In the example scenario.xml file above, the file defined as 'macro.st' contains custom user macros that may be invoked by simPilots while running a scenario with simDriver. Rather than typing each fix and restriction manually during simulation, a pilot can apply a macro to a target to fly a desired route. These

macros can be defined for SIDs, STARs, ILS approaches, or any other routes that a user desires to abbreviate.

For example, a macro for an ILS approach to runway 16L at Denver International Airport (D01) is named ILS16L within the macro.st file and is defined with a route that is based on the approach plate:

```
RT ILS16L JEEPR{200cas@<10000ft} JOBOB{<190cas@<10000ft} 16L{130cas@5343ft} ->drop
```

where **RT** indicates a route macro, **ILS16L** is the name by which a pilot can invoke the macro during a simulation, and

```
JEEPR{200cas@<10000ft} JOBOB{<190cas@<10000ft} 16L{130cas@5343ft} ->drop
```

is the route defined by the approach plate for an ILS approach to runway 16L.

There is no limit to the quantity of macros defined in the macro.st file.

8.3. Key Assignment File

For macros or pilot commands that are frequently used, the keyboard function keys are fully customizable to adapt to the needs of the dynamic simulation. When the simPilot clicks in the command input text box, the keyboard function keys can be used to populate the text area with a defined macro. This is accomplished by specifying the --macroKeyAssignments program parameter on simPilot startup to read in the file in which these function key assignments are defined. The full path is required to apply the macroKeyAssignment file in the program parameter. An example of the contents macroKeyAssignments file is as follows:

```
<root>
  <standardMacro key="F1" position="1" shortcut="TRUE HEADING"/>
  <standardMacro key="F2" position="1" shortcut="MAG HEADING"/>
  <standardMacro key="F3" position="1" shortcut="SPD MACH"/>
  <standardMacro key="F4" position="1" shortcut="SPD CAS"/>
  <standardMacro key="F5" position="1" shortcut="SPD TAS"/>
  <standardMacro key="F6" position="1" shortcut="ALT FEET"/>
  <standardMacro key="F7" position="1" shortcut="FREE TEXT"/>
  <customMacro key="F9" needsConfirm="0" position="1" shortcut="-&gt;"/>
  <ControlKey key="A" position="1" shortcut="TOGGLE AUTO LOGON"/>
  <ControlKey key="B" position="1" shortcut="SET CPDLC RESPONSE DELAY"/>
  <ControlKey key="C" position="1" shortcut="SEND DOWNLINK MESSAGE"/>
  <ControlKey key="D" position="1" shortcut="CLONE TARGET"/>
  <ControlKey key="E" position="1" shortcut="SEND LOGON"/>
  <ControlKey key="F" position="1" shortcut="TOGGLE CPDLC AUTO RESPONSE"/>
  <ControlKey key="G" position="1" shortcut="RELEASE TGT NOW"/>
  <ControlKey key="H" position="1" shortcut="CREATE POPUP"/>
  <ControlKey key="I" position="1" shortcut="RESPONSE TO UPLINK"/>
  <ControlKey key="J" position="1" shortcut="TOGGLE TRACKING"/>
</root>
```

where **position** defines the pilot position number 1, **shortcut** defines what is invoked within the macro input box, **needsConfirm** determines if the simPilot needs to confirm the entry by pressing Enter (1) or is entered automatically (0).

To customize the assignments, a user can enter the desired key in the 'key' attribute, however, the 'shortcut' value must NOT BE MODIFIED. The 'standardMacro' entries are used when the quick command box is in focus and will insert a built-in macro. The 'customMacro' entries are also used when the quick command box is in focus but can be any macro command. The 'ControlKey' entries are used when the quick command box is NOT in focus and are activated by holding the CTRL plus the assigned 'key'.

Appendix A. Acronyms

AAR	Adapted Arrival Routes
AAV	Aircraft Alert Volumes
ACID	Aircraft Identification
ADAR	Adapted Departure/Arrival Routes
ADR	Adapted Departure Routes
ADS-B	Automatic Dependent Surveillance – Broadcast
AIG	Application Interface Gateway
AOI	Area of Interest
API	Application Program Interface
ARSR	Air Route Surveillance Radar
ARTCC	Air Route Traffic Control Center
ARTS	Automated Radar Terminal System
ASDI	Aircraft Situation Display to Industry
ASR	Airport Surveillance Radar
ASR-9	Airport Surveillance Radar Model-9
ASTERIX	All Purpose Structured Eurocontrol Radar Information Exchange
ATC	Air Traffic Control
AViD	Airspace Visualization Display
BRTQC	Beacon Real Time Quality Control
CAS	Commercially Available Software
CD	Common Digitizer
CDR	Continuous Data Recording
CMS	Common Message Set
DASI	Digital Altimeter Setting Indication System
DASR	Digital Airport Surveillance Radar
DataComm	Data Communications

DME	Distance Measuring Equipment
DP	Departure Procedure
DYSIM	Dynamic Simulation
ECG	External Communications Gateway
ECGP	External Communications Gateway Protocol
EDDS	En Route Data Distribution System
ERAM	En Route Automation Modernization
ETMS	Enhanced Traffic Management System
FAA	Federal Aviation Administration
FAV	Fixed Airspace Volumes
FDIO	Flight Data Input/Output
GIM-S	Groundbased Interval Management-Spacing
GSGT	Graphic Simulation Generation Tool
GUI	Graphical User Interface
IFDT	Interfacility Flight Data Transfer
JMS	JAVA Messaging Service
JRE	Java Runtime Environment
MIS	Metering Information Service
Mode 3/A	Identification Reporting Mode of Secondary Radar
Mode C	Altitude Reporting Mode of Secondary Radar
Mode S	Mode Select Beacon System
MLAT	Multilateration
NAS	National Air Space
NDB	Non-directional (radio) Beacon
NEMS	NAS Enterprise Messaging System
RAPPI	Random Access Plan Position Indicator
RF	Radius-to-fix
RSI	Record Select Indicator
RTCS	Release Time Coordination Service

RTQC	Real Time Quality Control
SAA	Special Activities Airspace
SAC	System Area Code
SDRR	Simulation Driver Radar Recorder
SIC	System Identity Code
SIRS	STARS Interfacility and Radar Simulator
SLICK	Simulated Live Interactive Capability Kit
SMIF	Simulation Interface Support
SSRV	Simulation Services
STAR	Standard Terminal Arrival Route
STARS	Standard Terminal Automation Replacement System
SWIM	System-Wide Information Management
TACAN	Tactical Air Navigation System
TARP	Time-based Archive Recording Player
TAV	Terrain Alert Volume
TBFM	Time Based Flow Management
TFDM	Terminal Flight Data Manager
TFMS	Traffic Flow Management System
TRACON	Terminal Radar Approach Control
TSIM	TBFM Simulation
TTP	TFDM Terminal Publication
VOR	Very High Frequency (VHF) Omni-Directional Range
WAM	Wide Area Multilateration
WJHTC	William J. Hughes Technical Center