

Simulation Driver and Radar Recorder (SDRR)

User Reference Guide

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1. SDRR Overview

The Simulation Driver and Radar Recorder (SDRR) is a versatile tool that can be configured to provide injection of local, interfacility, and surveillance messages to a variety of National Air Space (NAS) Air Traffic Control (ATC) systems; connect and relay data between physical systems; and record incoming surveillance data. SDRR can also be configured to emulate and respond to messages from En Route, Terminal, and other flight and surveillance data systems. SDRR can be used to replay recorded surveillance files, inject custom static simulation scenarios, or for dynamic simulation. The SDRR Graphical User Interface (GUI) provides displays of the status and exchanged message for physically connected and simulated systems.

SDRR was designed by JVN Communications Inc. to provide flight and surveillance data communications to En Route, Terminal, and other ATC systems. Flight data support includes NAS messages through Simulation Services (SSRV) keystroke injection into the En Route Automation Modernization (ERAM) system, interfacility messages into the Standard Terminal Automation Replacement System (STARS), as well as Common Message Set (CMS) message into the En Route Data Distribution System (EDDS). The surveillance data types that SDRR can provide include Airport Surveillance Radar (ASR) Model-8 (ASR-8), ASR-9, ASR-9/Mode Select Beacon System (Mode S), ASR-11, Air Route Surveillance Radar (ARSR), Automatic Dependent Surveillance – Broadcast (ADS-B), Multilateration (MLAT), Wide Area Multilateration (WAM), Digital Altimeter Setting Indication (DASI) System, All Purpose Structured Eurocontrol Radar Information Exchange (ASTERIX), and Enhanced Traffic Management System (ETMS).

In order to inject interfacility and radar data, dedicated SDRR processors are connected directly to En Route External Communications Gateway (ECG) and STARS. In the En Route installation, interfacility and surveillance cards in the SDRR's slave processors are directly connected to the ECG modem splitters. For an SDRR in the STARS Interfacility and Radar Simulation (SIRS) installation, interfacility and surveillance cards in the SDRR's slave processors are directly connected to the STARS Line Shares and Radar Splitters. Additional SDRR processor installations can also access these physical devices via network connections and SDRR Connector relay configuration files.





Figure 1. STARS Interfacility and Radar Simulator (SIRS) SDRR Installation



2. Getting Started

The processor with SDRR 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 2. SDRR Processor Login

NOTE: The 'root' user does not have access to the SDRR 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 3. SDRR Processor Desktop



3. System Configuration

3.1. Environment Variables

SDRR uses several environment variables that set the locations of configuration files, scenarios, recordings, and log files.

Table 1. Environment Variables

Variable Name	Description	Default Location
SDRR_CONFIG_PATH	Location of SDRR configuration files.	/usr/local/cfg
SDRR_SCENARIO_PATH	Location of SDRR scenario files.	/usr/local/scenarios
RECORD_PATH	Location of recording files.	/usr/local/recordings
SDRR_LOG_PATH	Location of SDRR system log files.	/usr/local/log

3.2. Starting SDRR

SDRR can be started either by left clicking on the SDRR icon in the system task bar on the lower right side of the display (see figure below) or by typing **sdrr** at the command line in a terminal window:

> sdrr



Figure 4. SDRR Icon



3.2.1. SDRR Startup Wizard

Once SDRR is launched, the Select Configuration window appears. This window shows expandable directories in black and selectable configuration files in green. For configuration files to appear selectable green, they need to end in '.xml'. Users may need to expand the Name bar to the right to see the entire filename. The Comments are displayed from the comments section of the configuration file. Users can add or change these comments. Configuration files are located in the directory specified by the environment variable \${SDRR_CONFIG_PATH}. Once a configuration file is selected, the Next button becomes available.

Specify the configuratio	n to be used	SDR.
Terminal Mode Options	Name	Comments
Generate STARS Config	 Live OSE-Rec 	
Generate	 Scenario ACY 	
	ACY-config.xml	ACY
	 IAH N90 NCT PCT PHL PHX Regression SCT SIRS10 pct.xml phl-regression.xml record AZ0-config-E2.xml DASI-test-config.xml DEN-test-cfg.xml HOU-cfg.xml 	SDRR Scenario Playback ZDV-DEN-cfg.xml (Use for sc

Figure 5. Select Configuration Window

After a configuration file is selected and the Next button is pressed, the Select Scenario window appears displaying directories in black and scenarios in green. The Location button on the left side allows users to select a scenario from the Local machine, Media (CD/USB/Tape), or Recording. On the Local machine, scenarios are located in the directory specified by the environment variable \${SDRR_SCENARIO_PATH}. The Recording option is for playback of recorded scenarios from the directory specified by the environment variable \${RECORD_PATH}.

Selecting a scenario is optional. The Skip Scenario button can be pressed when the window is first displayed and before any files or directories are selected. After pressing the Skip Scenario button, the



Next button becomes available and allows users to continue without specifying a scenario. Running SDRR without selecting a scenario can be used to test a configuration file or interfacility connections.

The example below illustrates the ACY directory expanded and the ACY-ARRDEP scenario selected.



Figure 6. Select Scenario Window

After the Next button is pressed in the Select Scenario window, the Select Options window appears. If a scenario was selected in the previous window, the options will be populated from the scenario file (sdrr.xml) found in the scenario directory. This file can be modified to predefine some of the options.



Times		External Date
Start Time System Setup Dela	0/00:00:00	06/24/2022
Tgt Intramsg Delay	0/00:00:00	Include Date in Internal Starttime
Controls		
Start on GI Autoset Starttime DASI Override Early FP Injection Lead Time 00:30:00 Auto TA 10		Record Select Indicators
		Reconfigure LRR (From 3chan to 1chan)
Log File		

Figure 7. Select Options Window

Times

- *Start Time* Starting point of the scenario. The pre-populated time is read from the scenario file, sdrr.xml.
- *System Setup Delay* The amount of time to delay scenario injections after the start button is pressed.
- **Tgt Intramsg Delay** The amount of time between consecutive messages for the same target. This option is used to ensure that flight messages for a flight are not injected out of order.



External Date

Scenario date. The pre-populated date is the current system date and cannot be modified.

Include Date in internal Starttime – When this box is checked, the date is included in the SDRR internal start time.

Controls

- **Start on GI** Start upon receiving GI message from ERAM. ERAM sends GI messages to attached devices when it transitions to an operational state. When this option is selected, SDRR will start running upon receipt of this message.
- *Autoset Starttime* SDRR will determine start time based on first radar message (time stamp from the .srv files). This option is usually used for playback of live radar recordings.
- DASI Override Sets the default DASI value.
- *Early FP Injection Lead Time* The default amount of time prior to a target start time to inject the flight plan message. For targets starting within the window of "Scenario Start Time" to "Early FP Injection Lead Time", the flight plans will be immediately injected upon pressing Start.

Auto TA – The default time (in seconds) for SDRR to send a TA message after receiving a TI.

Record Select Indicators

Only targets and messages tagged with the selected RSIs will be injected.

Reconfigure LRR (From 3chan to 1chan)

SDRR will search the configuration file for any long range radars that are set for three channels. Checking the box of the long range radar will change it to a single channel radar. If a channel has been previously set to 1 channel in the configuration file, it will show up checked by default.

Log File

Location of the SDRR log file. The log file can be renamed to a scenario related name for easier tracking.

Once all the desired options are specified and the Finish button is pressed, the SDRR GUI is launched with the selected configuration and, optionally, a scenario loaded.



3.2.2. Command Line Startup

To bypass the Startup Wizard, SDRR can be started from the command line of a terminal window with a configuration file, scenario, and other optional parameters specified. To launch SDRR, enter:

> sdrr cfgFile.xml -s sdrrScenFile.xml [options]

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

> /usr/local/jvn.x.x.x/bin/sdrr cfgFile.xml -s sdrrScenFile.xml [options]

3.2.3. Dynamic Simulation

For dynamic simulation, SDRR must be started from the command line in order to set the parameters for message exchange with the DYSIM executable, simDriver. The simDriver executable must also be started with the corresponding parameters. To launch SDRR, enter:

```
> sdrr cfgFile.xml --start -noscenario --cmdDev=tcps://<address>:<port#>?serverMode=1
--tgtDev=tcps://<address>:<port#>?serverMode=1
```

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

```
> sdrr cfgFile.xml --start --noscenario
--cmdDev=(tcps://<address1>:<port1>?serverMode=1+tcps://<address2>:<port2>?serverMode=1)
--tgtDev=(tcps://<address1>:<port3>?serverMode=1+tcps://<address2>:<port4>?serverMode=1)
```

Or the output could also be multiplexed to a file:

```
> sdrr cfgFile.xml --start --noscenario
```

```
--cmdDev=(tcps://<address1>:<port1>?serverMode=1+/tmp/commands.jvn)
```

--tgtDev=(tcps://<address1>:<port3>?serverMode=1+/tmp/targets.jvn)



Also note that the cmdDev option is allowed multiple times on the command line:

- > sdrr cfgFile.xml --start --noscenario
- --cmdDev=tcps://<address1>:<port1>?serverMode=1
- --cmdDev=tcps://<address2>:<port2>?serverMode=1
- --tgtDev=tcps://<address1>:<port3>?serverMode=1

3.2.4. Command Line Options

For a list of the command line options and parameters available, the **sdrr** command can be entered with the **help** parameter:

```
> sdrr --help
```



\$ sdrrhelp				
Usage: sdrr [options] [cfgfile] [-scenarioFile=FILE	<pre>] [recordingDir=DIR] [scriptDefinitions=FILE]</pre>			
cfgfile is in SDRR_CONFIG_PATH (unless it starts with a '.') scenfile is in SDRR_SCENARIO_PATH (unless it starts with a '.') scriptDefinitions are in SDRR_SCENARIO_PATH (unless it starts with a '.')				
Common options:				
noscenario				
start				
headless				
externalNadinIp="ip"				
externalNadinPort="port"				
version				
Dysim options:				
cmdDev=device orcmdListenPort=port	(send/receive)			
tgtDev=device ortgtListenPort=port precipDev=device orprecipListenPort=port	(receive) (receive)			
Miscellaneous options:				
connectionFile="sdrrconnector.xml"				
early+PMargin="nn:mm:ss" sysSetupDelay="hh:mm:ss"				
tgtInterMsgDelay="hh:mm:ss"				
internalStartTime="hh:mm:ss"				
externalStartTime="hh:mm:ss"				
externalStartDate="MM/dd/yyyy" runLength="hh:mm:ss"				
deviceFile="file"				
proxy=server/port (for avid use)				
giStart[="text"]				
<pre>autota=secs (set to <=0 to disable)tile-windows</pre>				
about-text <text></text>				
sskbautostart				
opengi quiet (ignore msgparse errors)				
title="title"				
live="injectorName" (may be specified multip	le times. For arts, use qualified "host:arts" name)			
autoStartSendDevice="dev" may be specifie autoStartListenDevice="dev"	a muttiple times			
speedTestClockDevice="dev"				
ignoreSSIM do not auto start when SSIM is	received			
logFile=LOGFILE	r fast restarts)			
dasiValue <dasi value=""></dasi>	dasiValue <dasi value=""></dasi>			
cpdlcResponseDelay=hh:mm:ss				
dontUseisolatedCPU disableFormattedLogging				
nofullscroop				
nologfile				
minimized				
rsi="rsi" (specify runtime rsi. may be speci	fied multiple times.)			
Test Options:				
genStaticMsgs[=1 0] (this is normal	<pre>ly autodetected based on presence of tgtDev/scenarioFiles) - no timeout)</pre>			
preview	no concore,			
ignoreUnhandledMsgs				
useRemoteDevSctp				

Figure 8. SDRR Command Line Options



The most common program parameters are described in Table 2below. For a complete list of options, refer to Figure 8 above.

Table 2. Program Parameters

Parameter	Description
cfgFile.xml	At least one XML configuration file is required to start SDRR. A relative path from \${SDRR_CONFIG_PATH} is assumed, unless an explicit path is given. Multiple files may be specified. See section 8 for further details.
cmdDev=tcp:// <address>:<port#>?serverMode=1</port#></address>	Directs SDRR to listen for simulated flight data messages from DYSIM over a TCP connection on the named address and port. The DYSIM executable, simDriver, must be started with the corresponding parameter. This parameter may be specified multiple times.
tgtDev=tcp:// <address>:<port#>?serverMode=1</port#></address>	Directs SDRR to listen for simulated target position data from DYSIM over a TCP connection on the named address & port. The DYSIM executable, simDriver, must be started with the corresponding parameter.
precipDev=tcp:// <i><address>:<port#></port#></address></i> ?serverMode=1	Directs SDRR to listen for simulated precipitation data from DYSIM over a TCP connection on the named address & port. The DYSIM executable, simDriver, must be started with the corresponding parameter.
connectionFile=sdrrconnector.xml	File that defines a relay between facility interfaces in different physical test beds or lab strings.
deviceFile=deviceFile	File that defines devices used in variable configurations.



Parameter	Description
recordingDir=directory	Directs SDRR to read in recorded files from the specified directory.
scriptDefinitions=file	Selects the scriptDefinitions file.
-s sdrrScenFile.xml	Start SDRR with an exported scenario. A relative path from \${SDRR_SCENARIO_PATH} is assumed, unless an explicit path is given.
-n ornoscenario	Start SDRR without specifying a scenario. Injections can come from a non-scenario source, such as DYSIM.
disableFormattedLogging	Removes extra white space and makes SDRR log files easier to read.
start	Directs SDRR to begin running immediately upon launch.
norappi	Directs SDRR to not display a RAPPI tab.
nofullscreen	Not full screen mode.
headless	Runs SDRR without launching the GUI.
version	Displays SDRR version.
help	Displays application parameters.



4. Error Status

When starting SDRR, there may be possible errors that occur while the configuration or the scenario is loading. Dialog boxes will be displayed to indicate the cause of the errors. Below are some possible errors that may pop up while loading SDRR.

The following error will be displayed when there is a process already running and using the same instance on the SDRR machine.

00	SDRR ALREADY RUNNING - KDialog 2 😪 🙁
	There is another instance of siteshadow already running on this computer, perhaps by another user.
A	 You can terminate the scenario and start a new one by clicking 'Choose New Scenario' and start a new session.
-	- Select 'Cancel' to leave the scenario running.
	Additional info: Scenario Elapsed Time: 00:15 Using command:>siteshadow /usr/local/cfg/Live/phl-input.xml /usr/local/cfg/Scenario/archive/PHL/PHL-live-ADS-config.xml avidifshadow=zny.pppsdrr /usr/local/cfg/Live/phl-etms.xml
	Choose New Scenario Cancel

Figure 9. SDRR Already Running Error

The following error is displayed when a physical device is unavailable. Ensure that each physical device in assigned to a single source in the configuration file and that no other instances of SDRR are connected to the device.



Figure 10. Device Busy Error



5. Scenario Playback

5.1. Simulation Modes

SDRR can be configured in multiple ways depending on which systems will be physically connected and which systems will be simulated by SDRR. This is defined in one or more configuration files. The configuration must include either a simulated ERAM or an ERAM interface. In the case of a simulated ERAM, SDRR is configured to act as an En Route center. SDRR typically emulates an ERAM system generating messages and responses to interfacing systems accordingly; however, in Terminal environment testing, SDRR can be configured as a legacy Host system. This can provide a simpler En Route center simulation when connections to other external systems are not required.

5.1.1. Direct Mode

When SDRR is configured to simulate all En Route and Terminal systems, the configuration is referred to as direct mode. In addition to the standard interfacility and surveillance data, SDRR can generate other data formats. For En Route data, SDRR generates and responds to CMS messages, emulating the interface that would be provided by ERAM to an EDDS. For Terminal data, SDRR generates and responds to AIG messages, emulating the interface provided by STARS. This simulation mode can be used to test systems such as TBFM when an ERAM test bed and STARS string are not available.

5.1.2. Mixed Mode

In mixed mode, SDRR is configured to emulate En Route systems while driving one or more Terminal systems. For the En Route data, SDRR generates CMS messages for injections into an EDDS, emulating the feed that would be provided by ERAM. For terminal data, SDRR sends IFDT messages and radar data to a STARS system through a directly connected SDRR processor, also known as SIRS.

5.1.3. Indirect Mode

In indirect mode, SDRR is configured to drive En Route and Terminal systems. For the En Route data, SDRR uses SSRV command injection, interfacility messages, and surveillance data to drive an ERAM system. The interfacility and radar data are sent through an ECG to an ERAM test bed or with an ECG emulation to an ERAM virtual lab or ERAM-in-a-Box (EIB). For terminal data, SDRR sends surveillance data to a STARS system while the IFDT messages are sent to STARS by the ERAM system.



5.2. Graphical User Interface

Once launched successfully, the main SDRR Graphical User Interface (GUI) appears. The GUI is made up of a main menu bar, date and time clock, and display tabs.

SDRR							sdrr		
<u>W</u> indows	Start	Start At	Abort Start At	Pause	<u>H</u> elp	<u>C</u> lose			
									(00:00:00)

Figure 11. SDRR Menu Bar

The menu bar includes the following options:

Windows

When multiple windows are present on a particular display tab, those windows can be arranged using the options Cascade or Tile.

Start

Start the scenario execution immediately.

Start At

Start the scenario execution at the specified time.

Abort Start At

Interrupt the 'Start At' countdown.

Pause

Pause the scenario execution. The Start option becomes available.

Help

The Help menu provides an option to select **About**. The **About** option displays the "About SDRR" dialog which shows the version of SDRR, and the date and time that the SDRR executable was created.

Close

Stop the scenario execution and close the SDRR GUI.



SDRR	About SDRR A X
SDRR	SDRR Simulate radars and facilities
J Communications, Inc	License info: 30 user license, expires never.
	13.4.19
	Built: Feb 9 2024 15:25:00
	ОК

Figure 12. About SDRR

When SDRR is running, a scenario runtime clock (displayed in blue and in parentheses) and the current date and external system time are displayed in the upper right corner. Note that this runtime clock is not synced to the start of the scenario running in the DYSIM executable, if running in dynamic mode.



Figure 13. Runtime Clock

The display tabs include a Status tab, and various other tabs determined by the SDRR configuration file. Right clicking in the message log areas of each display tab launches a pop-up dialog with the following options:

Сору

Place any selected text into the copy buffer.

Select All

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

Find

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

In addition to accessing the Find function as described above, it can also be initiated by pressing the Ctrl and F keys while in a message log are of any tab. The figure below shows the search bar.



Status	Sensors	STARS	CCU	Avionics	CMU	CSP	DCNS	TIMS	TDLS	IPOP	SSRV	NADIN Service	NADIN Users	External Facilities	TFMS	WMSCR	Nexrad	1 ()
NORM										кночес	XH						E	×
Send M	essage Se	nd Cancel																
15:35:05	кноиссхн	> KZCHZ	ZQZX: (FPL-FU1009	0-IS-E19	0/M-DG\	/WRJ4/S-K	HOU1605	5-N0450	300 ELC	DCO4 LLA	DCT HRV DCT-KGPT	T0054-CODE/000	8B0 DAT/1FANS2PDC	NAV/RNV	D1E2A1 PE	BN/	A
A1B2C20	ACK ERL VZ	EG/N40870		(HU1605)														
15:35:15	KHOUCCXH	> KZCHZ	QZX: (FPL-FU1009	1-IS-E19	0/M-DG\	/WRJ4/S-K	HOU1605	5-N0450	-300 ELC	0CO4 LLA	DCT HRV DCT SJI D	CT CATLN Q22 BE	EARI DCT THHMP DCT	MAAXY DO	T 00D J42	RBV J222	JFK
ROBUC3-	KB0S0327-0	ODE/0008	BA DAT/	1FANS2PDC	NAV/RN	VD1E2A	1 PBN/A1	B2C2D2L	102S1 R	EG/N406	3A EET/k	ZHU1605 KZTL170	06)					
15:35:15	ACK FPL KZ	HU FU100	91 KHOU	J 1605 KB09	2.16.610		ANDIA IS V		5-N0450		004114			ENSI DOT PRISOTIO	005/000		EANISOPDO	-
NAV/RNV	D1E2A1 PB	V/A1B2C2D	211025	1 REG/N707	SF EET/	ZHU16	05 KZ[X17	05)	5-1104501	-300 ELC	JC04 LDA	Det HKV Det Sji D	CT LOALT VI96 P	EN31 DC1-KFN50110-	LODE/000	ODD DAI/1	FANSZEDU	
15:35:25	ACK FPL KZ	HU FU100	92 KHOL	J 1605 KPN	5													
15:35:35 BNVD1E1	KHOUCCXH	> KZCHZ	QZX: (FPL-FU1009	3-IS-E19	0/M-DG\	/WRJ4/S-K ZTL1 206)	HOU160	5-N0450	-300 ELC	DC04 LLA	DCT HRV DCT SJI D	CT LYMPH DCT-K	BHM0126-CODE/0008	DO DAT/1	-ANS2PDC	NAV/	
15:35:35	ACK FPL KZ	HU FU100	93 KHOL	J 1606 KBH	M.	1000 K2	2111/00)											
15:35:45	KHOUCCXH	> KZCHZ	ZQZX: (FPL-FU1009	4-IS-E19	0/M-DG	/WRJ4/S-K	HOU160	5-N0450	300 ELC	DCO4 LLA	DCT HRV DCT SJI J2	2 CEW DCT AMG D	OCT SAV BAGGY2-KCH	50200-CO	DE/0008D	2 DAT/	
1FANS2F	DC NAV/RN	DIE2AL P	BN/ATB:	2C2D2L102	SI REG/N	18122F I	EET/KZHU	1606 KZ	TL1704)									
15:35:55	KHOUCCXH	> KZCHZ	QZX: (FPL-FU1009	5-IS-E19	0/M-DG	/WRJ4/S-K	HOU160	5-N0450	300 ELC	CO4 LLA	DCT HRV DCT SJI J2	CEW DCT DEFUI	N DCT CUGAR DCT-KE	P0119-C	DDE/00080	D3 DAT/	
1FANS2F	DC NAV/RN	/D1E2A1 P	BN/A1B	2C2D2L102	S1 REG/N	4248N	EET/KZHU	1606 KZ	TL1704)									
15:35:55	KHOUCCXH	HU FUI00		5 1606 KECH	6-IS-E19		MRI4/S-K	1001 60	S-N0450F	300 ELC	004114	DOT HRV DOT SILI2	CEW DCT DEFU	N 12 SZW DCT CAPPS		14X0145-0	ODE/0008	De
DAT/1FAI	VS2PDC NAV	//RNVD1E2	AI PBN/	A1B2C2D2L	102S1 R	EG/N93	55A EET/k	ZHU160	6 KZTL1	704)		Der nite Der bji j2	CEW DEI DEI OI	NJZ SZW DCI CALISI	MAINQ 02 II	JHN0140-0	001/0000	00
15:36:05	ACK FPL KZ	HU FU100	96 KHOL	J 1606 KJAX	-			10110.00										
15:36:15 RM/D1E1	KHOUCCXH	> KZCHZ	QZX: (FPL-FU1009	FT/KZHI	0/M-DG\	/WRJ4/S-K ZTL1 Z041	HOU1606	5-N0450	-300 ELC	DC04 LLA	DCT HRV DCT SJI J2	2 CEW DCT OTK P	IGL16-KMC00200-COD	E/0008DE	DAT/1FAP	IS2PDC NA	AV/
15:36:15	ACK FPL KZ	HU FU100	97 KHOL	J 1606 KMC	0	1000 10	2121/04/											
15:36:25	KHOUCCXH	> KZCHZ	QZX: (FPL-FU1009	8-IS-E19	0/M-DG\	/WRJ4/S-K	HOU160	6-N0450	-300 ELC	DCO4 LLA	DCT HRV DCT SJI J2	2 SZW DCT HEVV	N FOOXX5-KTPA0152-	CODE/000	8E0 DAT/1	FANS2PDC	
15/36/25	ACK FPL K7	WAI B2C2D	98 KHOL	1 REG/N/41	.8W EE1/	KZHU16	606 KZTLI	704)										
15:36:35	KHOUCCXH	> KZCHZ	QZX: (FPL-FU1009	9-IS-E19	0/M-DG\	/WRJ4/S-K	HOU160	7-N0450	-300 ELC	0CO4 LLA	DCT HRV DCT SJI J2	SZW DCT OCF D	CT-KSFB0154-CODE/0	008E5 D4	AT/1FANS2	PDC NAV/	
RNVD1E2	A1 PBN/A1	32C2D2L10	02S1 RE	G/N5676A E	ET/KZHL	1607 K	ZTL1705)											
15:36:35	KHOUCCXH	HU FU100		J 1607 KSFE	S-8738/		RIA/S-KSI	1607-N	0464E35	o couu	TWEIT2	EPH DCT PAE GRU	776-CW/R0144-C		NIS2PDC			NZ
A1B2C2D	2L102S1 R	EG/N7000L	J SUR/26	50B EET/KZL	C1607 K	ZSE165	5)	100710		O COULL	1 1 1 1 1 2 2	LITT DETTAL ON	220 01 010144-0	0000,0000000 DAI/11/	ANDER DC	NAME OF TAXABLE	ICZAI I DI	
× Find	FU1008	F	Previous	Next 🗌 Ma	atch Cas	9	ANDIAGO IZ	10111-001	- 10 100	1000 FL/			CEN DECOMES		100010.00	205/0000	D DAT	-

Figure 14. Find Function Search Bar

5.2.1. Status Tab

Upon startup, the SDRR GUI displays the Status Tab. The left side of the status tab shows Device Status. This is a direct reflection of the contents within the SDRR configuration file(s). The device or facility types are labeled in white. The physical or simulated devices are displayed in green. The prefix "pipe" indicates an internal simulated device. In the figure below, the Radar and SVOL list the defined surveillance sources, STARS and ZNY list the defined interfacility sources, and DASI and ETMS list additional non-surveillance sources. The device to which each source is assigned is listed to its right.

To further illustrate, the ZNY:AAA source under the STARS heading is shown with a pipe device. The same device is listed for the AAA source under the ZNY heading. This indicates that ZNY ARTCC and AAA STARS are configured to communicate via an SDRR simulated device. In the case of PPP, the live site, the configured device is a physical interface card, /dev/if0. This physical device connects a simulated En Route center, ZNY, to a live STARS string configured as PPP. A terminal controller at PPP could initiate a handoff of a flight through ZNY to AAA and AAA could send an accept (DA) or a reject (DR) response back to PPP. When SDRR is started, the link turns green as soon as a clock signal is detected. If the device is red, it is an indication of a down link.





Figure 15. SDRR Status Tab

The right side of the status tab shows the System Log. The log displays error and warning messages about the scenario. Green messages indicate success; yellow and red messages indicate a problem. Not all problems will affect the success of the scenario but should be noted and may need to be investigated. These messages are also written to the SDRR log file. The log file of each run can be found in the directory specified by the environment variable \${SDRR_LOG_PATH} and will include a timestamp in the filename.

5.2.2. Sensors Tab

The Sensors tab is displayed when SDRR is configured with any surveillance devices. This tab displays a window for each radar and service volume defined in the configuration file. The window for each surveillance device shows details for radar channels, counts, message types, and errors. The **ResetStats** button is available to reset the channel counts to zero. This does not affect the output data.



SNR 😡 Regression1303_22	613.0951	\otimes \otimes \otimes
Windows Start Start At Abort Start At Pause Help Close		(00:00:05) 06/24/2022 17:30:56
Status Sensors STARS ERAMSim DASI ETMS RAPPI		
STRR DOV		_ _ _ _
STRR DOX		ResetStats
SDRR NXY		
QIE		
WRI WRI		
WRI	ppp-ads	
stee ppp-ads		ResetStats
mit TOTAL Cat 33 Cat 23	T 1090ES OTHER	
L 1090 58 58 0	0 58 0	
L 1 TOTAL Ca uat 11 11 0	0 0 0	
		_

Figure 16. Sensors Tab

The figure below shows the window for radar QIE. The column on the left, in blue, lists the channels that are adapted for this radar device. The top row, in yellow, lists the message types. The numbers displayed in green are message counts for each of the feeds with good data. The three columns at the far right displayed in red indicate errors in the data.







5.2.3. ERAMSim Tab

The ERAMSim tab is displayed if SDRR is configured for En Route simulation for testing where an ERAM connection is not required, such as Terminal or TBFM testing. This tab provides the user with all of the messages that are exchanged between a simulated ERAM and its neighbors. Within the ERAMSim tab, a window is displayed for each ERAM facility included in the SDRR configuration file. Each ERAM window displays tabs for an internal log and the configured terminal facilities and adjacent En Route centers. If the simulated ERAM facility stanza in the SDRR configuration file includes an external eddserver, then the ERAM facility window will also include a tab labeled EDDS (see section 5.2.3.2 EDDS Tab).

SDRR 💮						Reg	ression13	803_220613	8.0951	
<u>W</u> indow	/s Start S	itart At A	bort Start At	Pause	<u>H</u> elp	<u>C</u> lose				
Status	Sensors	STARS	ERAMSim	DASI	ETMS	RAPPI				
SHE							ZN	(
Enable	FDT Logging	Disable	FDT Logging	Enable	field13	Enable	Quiet Mo	de		
Log	AAA BBB	EEE	ННН МММ		I PPP	RRR	www			
TR FP	AM TI S	endMsg	RB Respons	eOverrio	le VFRO	override				
17:32:41	ZCN17320	47 ::DR PF	P1732056 ::*	k						
17:32:49	PPP17320	58 ::RF 12	01 PPP ::*							
17:32:4:	2CN1/320	48 ::DR PF	P1/32058 ::*		727 200	000.01	725 100			
17:32:5.	APPO2 ZC	11 732049	TEP 202APP0	1 PHL/B	7 4002 8	AD A1 739	735 100 100 PU			
17:32:5	2 7 CM1 7220	51 JTD DD	D ICI CODD	*	/ 4003 F	AD AL / J.	5 100 FH			
17:32:5	S PPP1 7320	59 TR 70	N ITEST 11*							
17:32:50	7CN17320	52DT PP	P1732059 IT	EST*						
17:32:5	7 ARRO3 ZCM	1732050	EP 302ARR0	31/B73	7 4003 P	AB A1735	5 100 PH	***		
17:32:5	7 DEP01 ZCM	1732049	::FP 701DEP0	D1 PHL/B	737 300	1 PD0 P1	735 100	::*		
17:32:5	7 PPP17320	60 ::RF 11	01 PPP ::*							
17:32:5	7 ZCN17320	53 :: DR PF	P1732060 ::*							
17:32:58	PPP17320	61 ::RF 16	01 PPP ::*							
17:32:58	3 ZCN17320	54 :: DR PF	P1732061 ::*							
17:33:00	PPP17330	62 ::RF 24	01 PPP ::*							
17:33:00	2CN17330	55 ::DR PF	P1733062 ::*	k						
17:33:02	2 ARR03 ZCM	1732050	::FP 302ARR0	31/B73	7 4003 P	AB A1735	5100 PH	- ::*		
17:33:02	2 DEP01 ZCI	11732049	::FP 701DEP(DI PHL/B	737 300	1 PD0 P1	735 100	::*		
17:33:04	+ ZCN17330	56 :: IR PP	P IST SDRR ::	•						
17:33:05	PPP1/320	58 ::RF 12	01 PPP ::*							
17:33:0:	2CN1/330	57 HDR PH	P1/32058 ::*							

Figure 18. ERAMSim Tab

In each ERAM facility window, the following buttons are available: Enable FDT Logging, Disable FDT Logging, Enable field13, and Enable Quiet Mode.

48						ZNY				[. • ×
	Enabl	e FDT Lo	ogging	Disable	FDT Lo	gging	Enable fie	eld13	Enable (Quiet Mod	е
1	Log	AAA	BBB	EEE	ннн	MMM	NNN	PPP	RRR	www	

Figure 19. ERAM Facility Window



Enable FDT Logging

Enables Flight Data Table logging in the Log Tab.

Disable FDT Logging

Disables Flight Data Table logging in the Log Tab.

Enable field13

Enables Field13 on FP Messages.

Enable Quiet Mode

Disables TR / DT Logging.

Within each facilities tab, the following buttons are available specific for the facility:

TR

Sends Test Message, TR, to the facility.

FP

Sends a custom flight plan message for an aircraft.

AM

Sends a custom amendment message for an aircraft.

ΤI

Sends a custom Initiate Transfer message, TI, for an aircraft.

SendMsg

Sends a custom IFDT message, such as FP, AM, DR, TA, or any other valid message.

RB

Restore Base. Resends all previously sent flight plan messages.

ResponseOverride

Overrides the automatic message response function. The default function is for the simulated facility to send responses of acceptance, DA. This override allows reject, DR; retransmit, DX; or no responses to be sent upon receipt of a message requiring a response.

VFROverride

Controls the automatic response to VFR requests; including beacon code, fix, or STARS destination.



5.2.3.1. Terminal Facility Tab

In the figure below, ZNY is configured as the ERAM facility. The terminal facilities within ZNY airspace are configured to communicate with ZNY. This is defined in the SDRR configuration file based on ERAM and STARS adaptation.

Enabl	e FDT Lo	ogging	Disable	FDT Lo	gging	Enable fie	eld13	Enable (Quiet Mode
Log	AAA	BBB	EEE	ннн	MMM	NNN	PPP	RRR	WWW
TR F	P AM	TI Se	endMsg	RB Re	sponse	override	VFRO	verride	

Figure 20. Terminal Facility Tabs

In each terminal facility tab, the following buttons are available: TR, FP, AM, TI, SendMsg, RB, ResponseOverride, and VFROverride. These buttons give users the ability to send any interfacility messages as well as the ability to control how the simulated facilities respond. The messages are sent in real time, providing many advantages during testing.

TR

Sends Test Message, TR, to the facility.

FP

Sends a custom flight plan message for an aircraft.

AM

Sends a custom amendment message for an aircraft.

ΤI

Sends a custom Initiate Transfer message, TI, for an aircraft.

SendMsg

Sends a custom IFDT message, such as FP, AM, DR, TA, or any other valid message.

RB

Restore Base. Resends all previously sent flight plan messages.

ResponseOverride

Overrides the automatic message response function. The default function is for the simulated facility to send responses of acceptance, DA. This override allows reject, DR; retransmit, DX; or no responses to be sent upon receipt of a message requiring a response.

VFROverride

Controls the automatic response to VFR requests; including beacon code, fix, or STARS destination.



5.2.3.1.1.Error Messages

Messages in red text indicate a message processing error. In the figure below, flight plan messages sent from ZNY to PPP were rejected by STARS. This could indicate an adaptation mismatch between the simulation and the live STARS, duplicate flights in the STARS database, etc. When the STARS system is populated with surveillance targets without the accompanying flight plans, PPP sends an RF (request flight plan) message to ZNY. Since the flight plans were rejected, SDRR does not have the mapping of aircraft identification to the requested beacon code and the RF message is rejected.



Figure 21. Error Messages

5.2.3.1.2.Test Message

The TR button can be pressed to send a test message from the Local Host. In the figure below, the TR messages in blue text are outgoing from ZNY and the DT responses in yellow text are incoming from NNN. Receiving DT responses indicates that the interface between the facilities is configured correctly.



1000						ZNY				
Enal	ole FDT L	ogging	Disable	FDT L	ogging	Enable fie	eld13	Enable (Quiet Mode	
Log	AAA	BBB	EEE	ннн	MMM	NNN	PPP	RRR	WWW	
TR	PP AM	TI S	endMsg	RB F	Response	eOverride	VFRO	verride		
17:3	9:28 NNN	17390	59 ::DT Z	CN173	9052 [S	1 SDRR ::*				A
17:3	9:40 ZCN	173905	53 ::TR N	NN IS1	SDRR ::	*				
17:3	9:40 NNN	17390	60 ::DT Z	CN173	9053 [S	1 SDRR ::*				
17:3	9:52 ZCN	17390	54 ::TR N	NN IST	SDRR ::	* 				
17:3	9:52 NNN	17390	61 ::DT Z	CN173	9054 SI	1 SDRR ::*				
17:4	0:04 ZCN	174005	55 ::TR N	NN S1	SDRR ::!	*				
17:4	0:04 NNN	17400	62 ::DT Z	CN174	0055 SI	1 SDRR ::*				
17:4	0:16 ZCN	174005	56 ::TR N	NN S1	SDRR ::	*				
17:4	0:16 NNN	17400	63 ::DT Z	CN174	0056 [SI	1 SDRR ::*				
17:4	0:18 ZCN	174005	57 ::TR N	NN IS1	SDRR ::!	k				
17:4	0:18 NNN	17400	64 ::DT Z	CN174	0057 [S]	1 SDRR ::*				
17:4	0:19 ZCN	174005	58 :: TR N	NN IS1	SDRR ::	ĸ				
17:4	0:19 NNN	17400	65 ::DT Z	CN174	0058 [SI	1 SDRR ::*				

Figure 22. TR Message

5.2.3.1.3.Send Message

The Send Message button allows the user to inject messages while the scenario is running. This provides the ability to create different situations without modification of the scenario. From a facility tab within the Local Host tab, users can click the **SendMsg** button. The Send IF Message dialog is displayed with the destination pre-populated with the name of the facility of the current tab.

1058					ZN	IY						X	
Enab	le FDT Lo	gging	Disable	FDT Lo	gging E	nable fie	eld13 E	Enable (uiet Mo	de			
Log	AAA	BBB	EEE	ннн	MMM	NNN	PPP	RRR	www				
TR	FP AM	TI Se	ndMsg	RB Re	esponsed	verride	VFROV	erride					
17:40	18 NNN	174006	4 ::DT Z	CN1740	057 (S1 9	SDRR 🕒)	Se	nd IFMes	sage Fr	om ZNY	2008	
17:40	:19 ZCN	74005	8 :: TR N	NN IST S	DRR ::*								
17:40	19 NNN	174006	GTR N	CN1740	058 S1 9	Dest	tination	NNN					
17:40	19 NNN	174006	6 ::DT Z	CN1740	059 51 9	Acid							
17:40	19 ZCN	74006	0 ::TR N	NN IS1 S	DRR ::*								-
17:40	27 ZCN	74006	1 ::TR N	NN IS1 S	060 [S1 3 DRR ::*	Mes	sage						
17:40	27 NNN	174006	8 ::DT Z	CN1740	061 S1 9		iteral mo	ode					
17:40	27 ZCN	74006	2 :: TR N	NN IS1 S	DRR ::*					-			
17:40	28 ZCN	74006	3 :: TR N	NN IS1 5	062 (51 S 5DRR ::*	5L					Send	Cancel	
17:40	28 NNN	174007	0 ::DT Z	CN1740	063 S1 S	SDame							
17:40	40 ZCN	74006	4 ::TR N	NN IS1 S	DRR ::*								
17:40	:52 ZCN	174007	5 ::TR N	NN IS1 S	5DRR ::*								
17:40	:52 NNN	174007	2 ::DT Z	CN1740	065 S1 9	SDRR ::*							
17:41	:04 ZCN	74106	6 :: TR N	NN IS1 S	DRR ::*								
17:41	:16 ZCN	174107	7 :: TR N	NN IS1 S	5DRR ::*	DUNN II''							
17:41	:16 NNN	174107	4 ::DT Z	CN1741	067 S1 9	5DRR ::*							
17:41	28 ZCN	74106	8 :: TR N	NN IS1 S	DRR ::*								
1 / 1 4 1	20 INIVIV	1/410/	5.012	CN1/41	000 31 3	JUNN II						•	

Figure 23. Send Interfacility Message



In the figure below, the **SendMsg** button is pressed in the NNN tab. The destination is set to NNN, indicating that the message is to be sent from the Local Host ZNY to NNN. Next, the aircraft identification of a scenario target needs to be entered for any flight related messages. Finally the desired message text can be entered and the Send button pressed.

In this example, a flight plan message is being sent from ZNY to NNN. After providing the aircraft ID, a flight message can be entered including substitution tokens. SDRR recognizes ### as a substitution token for the En Route computer ID (ECID) and will automatically assign a unique value. The @@@ is a substitution token for the terminal computer ID (TCID), which SDRR will also automatically assign for simulated terminal facilities. For a live STARS facility, the actual TCID will be inserted in the message upon injection. The user may also enter values for the ECID and TCID.



Figure 24. Send Message

SDRR also recognizes % at the beginning and end of the coordination time as an offset of the current time. For example, an arrival time of A%0010% is processed as current system time plus ten minutes.

NOTE: The % coordination time substitution should only be used when the scenario start time is set to 00:00:00. For scenarios with start times other than 00:00:00, the exact coordination time (e.g., A1900) should be entered without the % substitution.

The Literal mode check box allows symbols to be sent without any substitution. This may be helpful for sending custom error conditions and invalid characters.



5.2.3.1.4.Send Flight Plan

To create a new flight while running a scenario, users can input a terminal flight plan by clicking on the **FP** button. This button has a drop down menu allowing the user to select the type of flight plan to send – arrival, departure, or overflight. The figure below shows a dialog box for each flight plan type.



Figure 25. Send Flight Plan Types

The yellow textboxes are required fields. Once the fields are populated, the Send button becomes available. When the Send button is pressed, the flight plan is injected and added to the message log.



SINA 🔘	Regression1303_220613.0951		\odot \odot \otimes
Windows Start Start At Abort Start At Pause Help Close		(00:55:30)	06/24/2022 18:26:21
Status Sensors STARS ERAMSim DASI ETMS RAPPI			
ZNY			
Enable FDT Logging Disable FDT Logging Enable field13 Enable Quiet Mode			
Log AAA BBB EEE HHH MMM NNN PPP RRR WWW			
TR FP AM TI SendMsg RB ResponseOverride VFROverride			
18:2428 ZCN18224291 ::TR NNN 51 SORR ::* 18:2428 ZCN18224292 ::TR NNN 51 SORR ::* 18:2440 ZCN1824292 ::TR NNN 51 SORR ::* 18:2440 ZCN1824293 ::TR NNN 51 SORR ::* 18:2452 ZCN1824293 ::TR NNN 51 SORR ::* 18:2452 ZCN1825294 ::TR NNN 51 SORR ::* 18:2550 ZCN1825294 ::TR NNN 51 SORR ::* 18:2551 ZCN1825295 ::TR NNN 51 SORR ::* 18:2552 ZCN1825296 ::TR NNN 51 SORR ::* 18:2552 ZCN1825297 ::TR NNN 51 SORR ::* 18:2552 ZCN182597 ::TR NNN 51 SORR ::* 18:2551 ZCN			
SUMR 🕓	Send FP (Overflight)		$\odot \odot \odot \odot$
ACID NUMBER OF AIRCRAFTS AIRCRAFT CATEGORY AIRCRA	AFT TYPE BEACON COORDFIX 1	COORD TIME ALTITUDE CO	OORDFIX 2
TEST3 H B757	1114 PHL	1950 100 JF	ĸ
		Sen	d Cancel

Figure 26. Send Flight Plan Example

5.2.3.1.5.Send Amendment

Flight plan amendments can be injected by clicking on the **AM** button. When the button is pressed a dialog box is displayed listing the flight plan fields that may be amended. Once the new values are entered in the flight plan fields to be amended and the Send button is pressed, an amendment message is injected and added to the message log. In the figure below, the beacon code in field four is amended from 1114 to 1111 for flight TEST3.





Figure 27. Send Amendment

5.2.3.1.6. Initiate Transfer of Control

To initiate a transfer of control for a flight, a TI message can be manually injected. When the **TI** button is pressed, a dialog is displayed with an ACID textbox. In the textbox, once the aircraft identification is entered the Send button becomes available. When the Send button is pressed, the TI message is injected and added to the messages log. The figure below shows a TI message for flight TEST3 sent from ZNY to NNN.




Figure 28. Send Transfer Initiate

5.2.3.1.7.Response Override

By default, SDRR sends acceptance responses from all simulated facilities. However, users can control how an individual facility responds to interfacility messages. The **ResponseOverride** button allows the user to override how the selected facility (in the current tab) will respond to messages for an individual flight. The STARS facility can be set to respond with DA, DX, DR, or NONE for a specific aircraft. Changes in response control are indicated in the message log by green status messages.

NOTE: The response override will only affect the next response. After the selected response is sent one time, the responses will return to normal, default processing.



atus	Sensors	STARS	ERAMSIM	DASI	ETMS				
-	zny:aaa								
RR	zny:bb	b							
SDBR	zny:e	ee	_ _ 						
SDRR	znv	hhh		×					
Cause .	- ,				-70W	mmm			
T	P AutoBoor	ond AP		P. Bosno	neoOverridu	Sond Med	Sond TI	Togglo Quiet Me	ada
1	n Autonest	JUIIU AN	SAFE VENE	r nespoi	Iseovernue	e seria Msg	Senu II	Toggle Quiet Mc	Jue
IF	FLog								
4	3:23:58 MMM	1323092	DI ZCN132	3091 121 2	SDRR ::*				
	3:24:10 ZCN.	1324092	TR MMM [SI	5DRR ::*					
	3:24:22 ZCN	324093	::TR MMM IS1	SDRR ::*	DINK				
1	3:24:22 MMM	1324094	::DT ZCN132	4093 S1 9	5DRR ::*				
13	3:24:34 ZCN	1324094	::TR MMM [S1	SDRR ::*					
	3:24:34 MMM	1324095	::DT ZCN132	4094 S1 \$	5DRR ::*				
	3:24:46 ZCN	324095	::TR MMM [S1	SDRR ::*					
	3:24:40 MMM	1324096	TD MMM ICI	4095 SI S	DRR II*				
	3:24:58 MMM	1324090	DT 7CN1 32	4096 151 9	SDRR ++				
Î	3:25:10 ZCN	325097	::TR MMM IS1	SDRR ::*					
- 13	3:25:10 MMM	1325098	DT ZCN132	5097 S1 \$	5DRR ::*				🕅 🕑 Set Res 🕐 🌝 🖉
13	3:25:22 ZCN	325098	::TR MMM [S1	SDRR ::*					
	3:25:22 MMM	1325099	DT ZCN132	5098 S1 S	SDRR ::*				Response Mode
	3:25:34 ZUN.	1225100	TR MMM [SI	5000 IS1 (0 PA
	3:25:46 ZCN	325100	TR MMM IS1	SDBB*	DUNNAS				U DA
13	3:25:46 MMM	1325101	::DT ZCN132	5100 IS1 9	SDRR ::*				O DX
13	3:25:58 ZCN	325101	::TR MMM [S1	SDRR ::*					
13	3:25:58 MMM	1325102	:::DT ZCN132	5101 S1 S	SDRR ::*				DR
13	3:26:00 TEST	RO ZCN1	326102 ::FP 3	OOTESTRO) 1/B737 12	34 PHL A134	5 100 PHL	*	
	3:26:00 TEST	RO MMM.	1326103 ::DA	CDDD*	326102 ::*				O NONE
	3:26:10 ZCN.	1326103	DT 7CN1 32	SURN ::*	SDRR ···*				1
	3:26:22 ZCN	326104	:TR MMM IS1	SDRR ::*	DETAIL				MsgType AM
13	3:26:22 MMM	1326105	::DT ZCN132	6104 JS1 9	SDRR ::*				A sid TECTDO
13	3:26:34 ZCN	326105	::TR MMM [S1	SDRR ::*					Acid
13	3:26:34 MMM	1326106	::DT ZCN132	6105 S1 S	SDRR ::*				OK Cancel
	3:26:46 ZCN	326106	::TR MMM [S1	SDRR ::*					Cancer
	3:20:40 MMM	1326107	TR MMM ICI	SDBB*	SDRR ::*				
H	3:20:58 ZCN	1326107	UDT ZCN122	50RR ::*	SDRR ···*				
	3:27:10 ZCN	3271.08	TR MMM IS1	SDRR ::*					
and the second second		111100							

Figure 29. Response Override

In the figure below, MMM is set to respond with a DR to the next message from ZNY for flight TESTRO.



Status	Sensors	STARS	ERAMSim	DASI	ETMS				
**			606060	<u></u>					
80					Znym	anana			
	AutoRespor	nd ARSA	FP VFR FP	Respor	seOverride	Send Msg	Send TI	Toggle Quiet Mode	
IFLO	og								
		26104 HL	1 ZCN13261	03 SL S	DRR ::*				
13:2	26:22 ZCN13	26104 ::TF	R MMM IS1 SE)RR ::*					
13:2	26:22 MMM13	26105 ::D	T ZCN13261	04 S1 S	DRR ::*				
13:2	20:34 ZCN13	26105 :: 11	T ZCNI 3261	05 IS1 S	DRR ···*				
13:2	26:46 ZCN13	26106 ::TF	R MMM IS1 SE)RR ::*	DIMNAS				
13:2	26:46 MMM13	326107 ::D	T ZCN13261	06 S1 S	DRR ::*				
13:2	26:58 ZCN13	26107 ::TF	R MMM IS1 SE	DRR ::*					
13:2	26:58 MMM13	326108 ::D	T ZCN13261	07 S1 S	DRR ::*				
13:2	27:10 ZCN13	27108 :: 11	T 70N1 2271	00 IC1 C	DPP*				
13:2	27:22 ZCN13	27109 ::TF	R MMM IS1 SE)RR ::*	DINK				
13:2	27:22 MMM13	27110 ::D	T ZCN13271	09 S1 S	DRR ::*				
13:2	27:34 ZCN13	27110 ::TF	R MMM (S1 SE	DRR ::*					
13:2	27:34 MMM13	327111 ::D	T ZCN13271	10 S1 S	DRR ::*				
13:2	27:41 MMM a	aded resp							
13:5	27:46 ZCN13	27112 :: IT	T 7CN1 3271	11 151 5	DRR*				
13:2	27:58 ZCN13	27112 ::TF	R MMM (S1 SE	DRR ::*					
13:2	27:58 MMM13	27113 ::D	T ZCN13271	12 S1 S	DRR ::*				
13:2	28:07 TESTRO	ZCN1328	3113 ::AM 00	2 03 1/B	747 ::*				
13:2	28:07 RDC L	DR respon	se mode	INT 2201	12*				
13:2	28:10 ZCN13	28114 ::TF	R MMM IST SE)RR ::*	19.05				
13:2	28:10 MMM13	28115 ::D	T ZCN13281	14 S1 S	DRR ::*				
13:2	28:22 ZCN13	28115 ::TF	R MMM (S1 SE	DRR ::*					
13:2	28:22 MMM13	328116 ::D	T ZCN13281	15 S1 S	DRR ::*				
13:2	28:34 ZCN13	28116 :: 1	T ZCNI 2291		DDD				
13:2	28:46 ZCN13	28117 ::T	R MMM IST SI)RR ::*	DRR II''				10
13:2	28:46 MMM13	28118 :: D	T ZCN13281	17 S1 S	DRR ::*				
13:2	28:58 ZCN13	28118 ::TF	R MMM IS1 SE	DRR ::*					
13:2	28:58 MMM13	328119 ::D	T ZCN13281	18 S1 S	DRR ::*				
13:2	29:10 ZCN13	29119 :: 1	T ZCN1 3201		DBB*				
13:2	23,10 MMM13	29120 11	1 2CN15291	ra lor 2	UNN II'				*

Figure 30. Response Override for TESTRO in STARS Tab





Figure 31. DR from MMM for Flight TESTRO

NOTE: For a live facility, ResponseOverride can be set to override responses sent from TCW Controller units.



5.2.3.2. EDDS Tab

If the simulated ERAM facility stanza in the SDRR configuration file includes an external eddserver, then the ERAM facility window will also include a tab labeled EDDS. The EDDS tab shows messages sent to and received from a connected EDDS.

Status	Sensors	STARS	ERAMSim	Dynam	icInput										
SDRR						Z	NV V							Ē	₽×
Flight L	og EDDS	RAS	RCO RC	Y RDC	RKP	RRC	ZKC	Internal	ZMP	ZAB	ZLA	ZLC			
Send I	Send Msg	Show M	etering List	S											
Started	listening for	connectio	ons on /480	43 11 494-EON	n										
16:33:4	5 RN[0E:163	3450003]	[144A:ARR]	[149A:EOM]										
16:33:4	6 RN[0E:1633	450018][3460019]	258:0003][[144A:HRS]	[149A:EOM] [149A:EOM	1]										
16:33:4 16:33:4	6 RN[0E:1633 6 IA[0E:1633	3460004] 4600201[[144A:ARD] 25B:00041[[149A:EOM 149A:EOM	1]										
16:33:4	6 HS[0E:163	3460021	[140A:0N2]	[140B:PSN][140C:	SSN][14	0D:DON][140E:ON]	[168A:EF	RAM][16	9A:D10(D][149A	EOM]		
16:33:4	6 CI[0E:1633	460005][146A:CTAS2	DV0][147	A:CT][14	9A:EOM]									
16:33:4	6 IA[0E:1633	460023][25B:0005][L49A:EOM]											

Figure 32. ERAMSim Tab

The EDDS Tab of each simulated ERAM facility window has the following buttons:

Send IT

Clicking on this button causes an IT message to be sent to EDDS.

Send Msg

This button launches a dialog box where any freeform CMS message can be entered and sent to EDDS.

Show Metering Lists

This button displays the Meter Entry Viewer including meter fixes, aircraft IDs, meter times, delays and



speed advisories sent by TBFM. Note that this Viewer is not updated dynamically; it must be closed and re-opened to view the most current entries.

5.2.4. STARS Tab

The STARS Tab is displayed if SDRR is configured to simulate one or more Terminal facilities and shows messages sent to and received from the host En Route facility. A window is displayed for each STARS facility included in the SDRR configuration file. Each STARS facility window includes the following buttons: TR, AutoRespond, ARSA FP, VFR FP, ResponseOverride, Send Msg, Send TI, Toggle Quiet Mode.



Figure 33. STARS Tab



5.2.5. TCW Injectors Tab

The TCW Injectors tab is displayed if the TCW Injector element is present in the configuration file. This allows SDRR to send scripted or injected TCW messages from the TCW Injector tab.

Example cfg.xml file:

```
<tcwInjector fac="ppp" user="ATBTEAM">
        <position name="*">tcp://${TCW_URL}</position>
</tcwInjector>
```



Figure 34. TCW Injectors Tab

Sign-on

Clicking on this button will auto sign-on as the user specified in the configuration file. A message will appear to indicate which user was signed in on the TCW machine, e.g. ATBTEAM.





Figure 35. TCW Sign-on

Custom Injection

This button displays a Command dialog box where the user can inject a TCW message.

Sign-on	Custom Injection			
23:59:59 23:59:59	Auto signing in as user 'ATBTEAM' to tcp://192.168.219.61:3100 Sending inhibit handoff command to tcp://192.168.219.61:3100			
		STIT	sdrr	~ ^ 🛇
		Command:		
			Send	© Cancel

Figure 36. Custom TCW Injection



5.2.6. ETMS Tab

The ETMS tab is displayed if an ETMS data source is defined in the SDRR configuration file. This allows SDRR to provide an ETMS link to a live Terminal string via a DB9 serial port. Like the interfacility data, SDRR sends blue TR / DT messages and receives yellow TR / DT messages from the Terminal.

Status	Sensors	Local Host	STARS	DASI	ETMS
SORR					
TR XO	N XOFF				
19:04:57	START				
19:04:58	*L651 TR X	XX TEST*			
19:04:58	*X000 DT L	I TECT*			
19:04:58	* 652 DT X	001 TEST*			
19:05:27	*X002 TR L	LL TEST*			
19:05:27	*L653 DT X	002 TEST*			
19:05:28	*L654 TR X	XX TEST*			
19:05:28	*X003 DT L	654 TEST*			
19:05:33	*X004 TR L	LL TEST*			
19:05:33	*L655 DT X	004 TEST*			
19:05:33	*X005 TR L	LL TEST*			
19:05:34	*L656 DT X	005 TEST*			
19:05:34	*L657 DT X	006 TEST*			

Figure 37. ETMS Tab



5.2.7. DASI Tab

The DASI tab is displayed if a DASI device is defined in the SDRR configuration file. Within the DASI tab, a window is displayed for each configured device. Buttons are available in each window to change DASI settings such as the update period and DASI value and to send generic messages. The SDRR configuration file contains the default values in DASI setting. Changes to the DASI values can also be a part of the SDRR scenario, from CDR extraction or recording, and can be injected into the terminal system to recreate recorded data.



Figure 38. DASI Tab (SendMessage and Adjust Update Period)



Status	Sensors	Local Host	STARS	DASI	ETMS	
SDRR DAS	0 (FA1045	4 mode) 📃				
1088		DASIL (FA	10454 mc	de)		
SendM	lessage A	djust Update P	eriod Ad	just DASI	Setting)
19:05:0 19:05:1 19:05:2 19:05:2 19:05:2 19:05:4 19:05:4 19:05:5 19:05:5 19:05:5 19:06:5 19:06:1 19:06:1	7 29.90 .2 29.90 .7 29.90 22 29.90			site (Das 29) D SI Settin .900 OK	ASI1 ? > > > > ng: Cancel
19:06:2 19:06:2 19:06:3	22 29.90 27 29.90 32 29.90 37 29.90					

Figure 39. DASI Tab (Adjust DASI Setting)



5.2.8. RAPPI Tab

The RAPPI tab is displayed if the SDRR configuration file includes surveillance devices. Within the RAPPI tab, an individual tab will be available for each radar and service volume found in the configuration file. These tabs give a visual representation of the targets that are sent from each surveillance source.



Figure 40. RAPPI Tab

The tab for each surveillance source includes a map display and a menu/tool bar which includes:

View

The View menu is used to select maps for display and to set options for radar sources.

Find

The Find menu is used to search for a specific target by beacon code or ICAO address. Enter the three letter radar name followed by the beacon code or ICAO address and click on "OK". If the track exists, a dialog box will appear with real-time track information.



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 surveillance coverage area.

Zoom

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

Range

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

The figure below shows the Find dialog along with the search results for a target with beacon code 5001 in the QIE radar. The search results consist of a target information box containing radar details. This target information box can also be displayed by right clicking on a track in the RAPPI map display. Once the information box is displayed, right clicking the track again toggles the box off.



Figure 41. Target Details



Clicking on the **View** button and selecting the **Sources** option displays the radars found in the SDRR configuration file. For each radar source, options are available to control the data that are displayed. Text that is grayed out indicates options that are listed for information only and cannot be modified. The options in black text allow users to modify the presentation of the data from the radar. Checking an option enables the display of the data; un-checking disables the display. In the figure below, the weather (wx) option for radar PHL is checked and weather data are added to the RAPPI map display. The correct radar tab must be selected to see the effect of the change.



Figure 42. Sources Option

The RAPPI tab is a function of the Airspace Visualization Display (AViD) software and can be used for radar recording, displaying and analyzing data. For more information on AViD, please refer to the AViD user manual.



5.2.9. CCU Tab

The CCU tab is displayed if the SDRR configuration file includes CCU devices. A window is displayed for each configured CCU and shows a log of all messages exchanged with that device. Each window also includes menu buttons **SendMessage** and **QuietMode**.

isors	STARS	ccu ,	Avionics	CMU	CSP	DCNS	TIMS	TDLS	IPOP	SSRV	NAD	IN Service	NADIN Users	s External Facilities	TFMS	WMSCR	Nexrad	DynamicInp	ut 🔹 🕨
51908					alc-cenil					E		SDRR		zhu-o	cu2			_	. DX
ERAM Send	1 Message	QuietMo	de									ERAM SendMes	sage QuietM	lode					
027	370			KSG	U						-	B752/L	P1358	LOADS3 KTKI+	y sin A ji				A
13:27 13:27 CCU A 13:27 13:27 CCU A 13:27 CCU A 13:27 13:27 CCU A	:00 RCU4,F :14 CCU (Q :14 CCU PRIMARY :29 CCU (Q :29 CCU PRIMARY :44 CCU (Q :44 CCU PRIMARY	SP1 (ACK UERY CCI UERY CCI UERY CCI	(r (r									029 13:28:00 13:28:04 13:28:04 CCU A PRI 13:28:19 13:28:19 CCU A PRI	320 RCU17,FSP1 (/ CCU (QUERY C CCU MARY CCU (QUERY C CCU MARY	KHOU IA CCK) CU)	H V477 C	QY./.KTKI			
13:27 13:27	:59 CCU (Q :59 CCU	UERY CCI	J)									SDRR		zhu-o	cul			-	. 🗆 🗙
13:28 FU113	00 RCU4,F	SP1 2	KSLC	KSLC	CGULLI	1 TWF BR	орн					SendMes	sage Quiet№	lode					
A319/ 028	L P13 370	58	ЈОТВА НН	100D4 KI	PDX							B752/L 029	P1358 320	LOADS3 KTKI+ KHOU IA	H V477 C	QY./.ΚΤΚΙ			•
13:28 13:28 13:28 CCU A 13:28 13:28 13:28 CCU A	:00 RCU4,F :14 CCU (Q :14 CCU PRIMARY :29 CCU (Q :29 CCU PRIMARY	SP1 (ACK UERY CCI UERY CCI	() ()									13:28:00 13:28:04 13:28:04 CCU A PRI 13:28:19 13:28:19 CCU A PRI	RCU3,FSP1 (A CCU (QUERY C CCU MARY CCU (QUERY C CCU MARY	ck) cu)					

Figure 43. CCU Tab

When the **SendMessage** button is clicked, a dialog is opened allowing users to enter a specific device and message to send. The **QuietMode** button disables display of health check messages.

SDR 🖈	Send CCU Message via ZLC-CCU1:ccu1 💿 🗸 👌	3
RCU (1-28)]
RANK (16-20)]
Text]
	Send Cancel]

Figure 44. Send CCU Message



5.2.10. Avionics Tab

The Avionics tab displays logon messages for a flight. Green text indicates a successful logon, while red text indicates that the logon has failed.

sors	STARS	CCU	Avionics	СМО	CSP	DCNS	TIMS	TDLS	IPOP	SSRV	NADIN Service	NADIN Users	External Facilities	TFMS	WMSCR	Nexrad	DynamicInpu	it 🖣	F
S DRUK			4). 							ę	vionics							e ×	1
AFNL	ogon Se	nd Mes	sage																
AFNL 13:03 13:03 13:03 13:03 13:03 13:03 13:03 13:03 13:03 13:03 13:03 13:03 13:03 13:03 13:03 13:05 13:	ogon Sec :04 FU100 :04 FU100 :07 N652; :07 FU100 :07 N818; :24 /USAC :24 /USAC :24 /USAC :24 /USAC :24 /USAC :24 /USAC :07 N918; :07 FU100 :07 N918; :07 FU100 :07 N918; :25 /USAC :25 /USAC :26 /USAC :27 /USAC :28 /USAC :28 /USAC :27 /USAC :	end Mes 2000 AFN 2000 AFN/FI 2000 AFN/FI 2000 AFN/FI 2000 AFN/FI 2000 AFN 2000 AFN 2000 AFN 2000 AFN 2001 AFN/FI 2001 AFN/FI	sage //FMHFU100. //FMHFU100. DCXA, AFM/F constitution DCXA, AFM/F constitution DCXA, CR1. NBCXA, CR1. NBCXA, CR1. NBCXA, CR1. NBCXA, CR1. NBCXA, CR1. NBCXA, CR1. NBCXA, CR1. NCXA, CR1. NDCXA, CR1. NDCXA, CR1. NCXA, C	00N652 B18186N, 0 MHFU100 on to USA MHFU100 to USAD0 f65208 IC B18186N IC 0 1 T S 13 0 0 T S 13 0 0 T S 13 165208 IC B18186N IC 0 1 REF 1 01N984 I7197W I0 0 1 REF 1 0 0 T S 13 19840A IC V7197W I 0 0 T S 13 19840A IC	208,000 0005,N55 000,N65 000,N65 000,N65 000,N51 00324 El 00324 El 00324 El 01 REF (01 REF (01 REF (00727, 001,N98 000727, 001,N98 000727, 001,N98 000727, 001,N98 000727, 001,N98 000727, 001,N98 000727, 001,N98 000727, 001,N98 000727, 001,N98 000727, 001,N98 000727, 001,N98 000727, 001,N98 000727, 001,18 000727, 001,18 000727, 001,18 000727, 001,18 000727, 001,18 000727, 001,18 000727, 001,18 000727, 001,18 000727, 001,18 000727, 000,18 000727, 000,18 000727, 000,18 000,000,000000,00000,00000,00000,00000,0000	697,1303 30304/FF 2008,0000 5N,00069 30309 EI (073 1) 0 TS 1303 0 TS 1303 347 EI (R 699,1305 130504/Ff 340A,0000 7W,00077 30509 EI (1073 1) 0 TS 1305 0 TS 1505 0 TS 1	04/FPON PON4047 597,1303 6,13030 (U163 kl (U163 kl 277 EI (U 2877 EI (U 2877 EI (U 06FR) 04/FPON PON4047 04/FPON 04/	29387wi 307/FAK0 7/FAK0,K USA A) USA A) 169 (CLE 1169 (CLE 29387wi 29397wi 293970wi 293970wi 293970wi 293970wi 293970wi 293970wi 293970wi 293970wi 2	0951 67.1 37.1/FCO USA/FAR/ USA/FAR/ SARED AS 2ARED AS 2ARED AS 267.1/FCC 0,KUSA/FAR KUSA/FAR KUSA/FAR	I/FCOADS ADS,01,1 ADS,1,US FILED)) SFILED)) I/FCOADS DADS,01/ ARADS,1,US SFILED)) SFILED)) SFILED))	,01/FCOATC.01 COATC.01 JSADCXA/FARATC.0, ADCXA/FARATC.0, 5,01/FCOATC.01 FCOATC.01 USADCXA/FARATC,0 SADCXA/FARATC.0	0,USADCXA USADCXA 0,USADCXA USADCXA							
13:07 13:07	:04 FU100 :04 FU102	002 AFN 2 AFN/FI	I/FMHFU100 MHFU102N	02N252	29N,000	698,1307 130704/FI	04/FPON PON4047	29387W 3W1115	095167 87.1/FCC	1/FCOADS	COATC.01								
13:07	:07 N252	9N /USA	DCXA.AFN/F	MHFU10	002, N2	529N,000	698,130	707/FAK	,KUSA/F	ARADS,1,	USADCXA/FARATC	0.USADCXA							
13:07	07 N671	6U /USA	DCXA.AFN/F	MHFU10	2N671	6U,00076	4,13070	7/FAK0,K	USA/FAR	ADS,1,US	ADCXA/FARATC.0,	USADCXA							

Figure 45. Avionics Tab

The Avionics tab includes buttons for **AFNLogon** and **SendMessage**. The **AFNLogon** button allows users to manually send an AFN logon if the flight is not scripted to log on automatically. The **SendMessage** button allows users to manually send any CPDLC downlink message.

Status	Sensors	STARS	CCU	Avionics	CMU	CSP	DCNS	TIMS	TDLS	IPOP	SSRV	NADIN Service	NADIN Users	External Facilities	TFMS	WMSCR	Nexrad	1
- 198 .										avionic	s							
AFNLog	on Send M	lessage																
15.31.0	8 V/FI 1 0 0 5 s	uccessful	logan to	LISADCXA														-
15:31:1	0 N081 2F /U	SADCXA.C	R1.N081	2F ID 0 TS 1	53109 F	1 (11 63	KUSA A	Ý										
15:31:1	0 N7095B /U	SADCXA.C	R1.N709	5B ID 0 TS 1	53109 E	I (U163	KUSA A				Course and							
15:31:1	0 N9706V /U	ISADCXA.C	R1.N970	6V ID 0 TS 1	53109 E	I (U163	KUSA A	SDRR S		Logon	(· □	× .						
15:31:2	5 /USADCXA.	CC1.N9700	6V ID 0 1	'S 153125 E	I (D731													
15:31:2	5 /USADCXA.	CC1.N7095	5B ID 0 1	'S 153125 E	I (D731			AID										
15:31:2	5 /USADCXA.	CC1.N081	2F ID 0 T	S 153125 E	I (D73 1)													
15:31:3	4 N9706V /U	SADCXA.A	T1.N970	6VID 1 REF	0 15 15:	3128 EI	(0169 ((TailNo										
15:31:3	4 NU812F /U	SADCXA.A	T1 N700	ZFIDI REF	0 15 15:	129 EI	0169 (0											
15:31:3		AT1 N709	50 ID 1 0	DE I TE IST	0 15 15.	POCED)	(0109 ((ICAO A	aaress									
15.31.4	9 /USADCXA	AT1 N0813		EF 1 TS 153	149 EI (ROGER)		Airport			CTAVA	-						
15:31:4	9 /USADCXA.	AT1.N9706	SVID 1 F	EF 1 TS 153	149 EI (ROGER)		Anpon		A03-A0	JIWAA							
15:32:4	9 N3072D /L	JSADCXA.A	T1.N307	2D ID 2 TS 1	53249 E	I (U161)	V Ena	ble auto	respons	se							
15:32:4	9 N2913B /U	SADCXA.A	T1.N291	3B ID 2 TS 1	53249 E	I (U161		taken										
15:32:5	0 /USADCXA.	DR1.N291	3B							nd	Cancel							
15:32:5	0 /USADCXA.	DR1.N307:	2D															
15:33:0	4 FU175 AFN	V/FMHFU17	5,.N089	8S,000D7F,	153304/	FPON40	473W11	587,1/F	CUADS, U	L/FCOATC	-,01							
15:33:0	7 N08985 /U	ISADCXA.A	EN/EMHE	U175,.N089	8S,000E	7F,153	307/FAK0	KUSA/FA	RADS,1,	JSADCXA	FARATC,	0,USADCXA						
15:33:0	FUL/5 SUC	Cessful loo	Jon to U	SADCXA.	E0000 F	1/112.00												
15:33:0	A /LISADCYA	CC1 NO89	85 ID 0 1	S 153324 E	U(D73 1	10103	KUSA A											
15:33:3	3 N08985 /U	ISADCXA.A	T1.N089	8S ID 1 REF	0 TS 15:	3327 EL	(U169 ((LEARED	AS FILED))								

Figure 46. Send AFN Logon



TailNo		
IMI	CC1	
Airport	KB0I-B0ITWXA	-
REF		
Text	D73 1	-

Figure 47. Send Avionics Message

5.2.11. CMU Tab

The CMU tab includes sub tabs for Avionics and CSP. The Avionics tab displays messages that include AFN messages and CPDLC messages. The CSP tab displays CSP messages.

sors ST	RS CCU	Avionics	CMU	CSP	DCNS	TIMS	TDLS	IPOP	SSRV	NADIN Service	NADIN Users	External Facilities	TFMS	WMSCR	Nexrad	DynamicInput
* DER						··· //										_ # ×
Avionics	CSP															
13:03:04 <afnmsg< td=""><td>U10000 mi="AFN" in</td><td>jectorName=</td><td>="avionic</td><th>s" tailNo</th><th>="N6520</th><th>B" id="F</th><td>J10000":</td><td>FMHFU</td><td>10000,.N</td><td>6520B,000697,1</td><td>80304/FP0N2938</td><td>7W095167,1/FCOADS</td><td>01/FCOA</td><th>TC,01<th>msg></th><td></td></th></afnmsg<>	U10000 mi="AFN" in	jectorName=	="avionic	s" tailNo	="N6520	B" id="F	J10000":	FMHFU	10000,.N	6520B,000697,1	80304/FP0N2938	7W095167,1/FCOADS	01/FCOA	TC,01 <th>msg></th> <td></td>	msg>	
13:03:04 <afnmsg< td=""><td>F<mark>U100</mark> mi="AFN" in</td><td>jectorName=</td><td>="avionic</td><th>s" tailNo</th><th>="N8186</th><th>N" id="F</th><td>U100">F</td><td>MHFU10</td><td>0,.N8186</td><td>N,000696,13030</td><td>4/FPON40473W11</td><td>11587,1/FCOADS,01/F</td><td>COATC,0</td><th>L≺/afnmsg:</th><th>></th><td></td></afnmsg<>	F <mark>U100</mark> mi="AFN" in	jectorName=	="avionic	s" tailNo	="N8186	N" id="F	U100">F	MHFU10	0,.N8186	N,000696,13030	4/FPON40473W11	11587,1/FCOADS,01/F	COATC,0	L≺/afnmsg:	>	
13:03:07 <afnmsg< td=""><td>src="ground</td><td>l" imi="AFN"</td><td>suppAdo</td><th>iress="l</th><th>JSADCXA"</th><th>tailNo="</th><td>N6520B"</td><td>>FMHFU</td><td>10000,.N</td><td>V6520B,000697,1</td><td>30307/FAK0,KUS4</td><td>VFARADS,1,USADCXA</td><td>FARATC, (</td><th>,USADCXA-</th><th></th><td></td></afnmsg<>	src="ground	l" imi="AFN"	suppAdo	iress="l	JSADCXA"	tailNo="	N6520B"	>FMHFU	10000,.N	V6520B,000697,1	30307/FAK0,KUS4	VFARADS,1,USADCXA	FARATC, (,USADCXA-		
13:03:07 <afnmsg< td=""><td>src="ground</td><td>l" imi="AFN"</td><td>suppAdo</td><th>iress="l</th><th>JSADCXA"</th><th>tailNo="</th><td>N8186N"</td><td>>FMHFU</td><td>100,.N81</td><td>186N,000696,130</td><td>307/FAK0,KUSA/F</td><td>ARADS,1,USADCXA/FA</td><td>RATC, 0, U</td><th>ISADCXA<th>afnmsg></th><td></td></th></afnmsg<>	src="ground	l" imi="AFN"	suppAdo	iress="l	JSADCXA"	tailNo="	N8186N"	>FMHFU	100,.N81	186N,000696,130	307/FAK0,KUSA/F	ARADS,1,USADCXA/FA	RATC, 0, U	ISADCXA <th>afnmsg></th> <td></td>	afnmsg>	
13:03:10 <cpdlcms< td=""><td>g src="grou</td><td>nd" imi="CR]</td><td>L" suppA</td><th>ddress=</th><th>USADCX</th><th>A" tailNo</th><td>="N6520</td><td>B">ID 0</td><td>TS 13030</td><td>09 EI (U163 KUSA</td><td>A)</td><td></td><td></td><th></th><th></th><td></td></cpdlcms<>	g src="grou	nd" imi="CR]	L" suppA	ddress=	USADCX	A" tailNo	="N6520	B">ID 0	TS 13030	09 EI (U163 KUSA	A)					
13:03:10 <cpdlcms< td=""><td>g src="grou</td><td>nd" imi="CRI</td><td>L" suppA</td><th>ddress=</th><th>USADCX</th><th>A" tailNo</th><td>="N8186</td><td>N">ID 0</td><td>TS 1303</td><td>09 EI (U163 KUSA</td><td>A)</td><td></td><td></td><th></th><th></th><td></td></cpdlcms<>	g src="grou	nd" imi="CRI	L" suppA	ddress=	USADCX	A" tailNo	="N8186	N">ID 0	TS 1303	09 EI (U163 KUSA	A)					
13:03:24 <cpdlcms< td=""><td>g src="avior</td><td>nics" imi="CC</td><td>1" supp#</td><th>Address</th><th>="USADC)</th><th>(A" tailNo</th><td>)="N8186</td><td>5N">ID 0</td><td>TS 1303</td><td>824 EI (D73 1)≺/cj</td><td>odlcmsg></td><td></td><td></td><th></th><th></th><td></td></cpdlcms<>	g src="avior	nics" imi="CC	1" supp#	Address	="USADC)	(A" tailNo)="N8186	5N">ID 0	TS 1303	824 EI (D73 1)≺/cj	odlcmsg>					
13:03:24 <cpdlcms< td=""><td>g src="avior</td><td>nics" imi="CC</td><td>:1" supp4</td><th>Address</th><th>="USADC)</th><th>(A" tailNo</th><td>)="N652(</td><td>)B">ID 0</td><td>TS 1303</td><td>824 El (D73 1)<td>odlcmsg></td><td></td><td></td><th></th><th></th><td></td></td></cpdlcms<>	g src="avior	nics" imi="CC	:1" supp4	Address	="USADC)	(A" tailNo)="N652()B">ID 0	TS 1303	824 El (D73 1) <td>odlcmsg></td> <td></td> <td></td> <th></th> <th></th> <td></td>	odlcmsg>					
13:03:32 <cpdlcms< td=""><td>g src="grou</td><td>nd" imi="AT1</td><td>L" suppA</td><th>ddress=</th><th>"USADCX</th><th>A" tailNo:</th><td>="N6520 </td><td>3">ID 1 </td><td>REF 0 TS</td><td>130327 EI (U169</td><td>(CLEARED AS FIL</td><td>.ED))</td><td></td><th></th><th></th><td></td></cpdlcms<>	g src="grou	nd" imi="AT1	L" suppA	ddress=	"USADCX	A" tailNo:	="N6520	3">ID 1	REF 0 TS	130327 EI (U169	(CLEARED AS FIL	.ED))				
13:03:33 <cpdlcms< td=""><td>g src="grou</td><td>nd" imi="AT1</td><td>L" suppA</td><th>ddress=</th><th>"USADCX</th><th>A" tailNo</th><td>="N8186</td><td>V">ID 1</td><td>REF 0 TS</td><td>130327 EI (U16</td><td>(CLEARED AS FIL</td><td>_ED))</td><td></td><th></th><th></th><td></td></cpdlcms<>	g src="grou	nd" imi="AT1	L" suppA	ddress=	"USADCX	A" tailNo	="N8186	V">ID 1	REF 0 TS	130327 EI (U16	(CLEARED AS FIL	_ED))				
13:03:47 <cpdlcms< td=""><td>g src="avior</td><td>nics" imi="AT</td><td>1" suppA</td><th>Address:</th><th>="USADC></th><th>(A" tailNo</th><td>="N6520</td><td>08">ID 1</td><td>REF 1 TS</td><td>5 130347 EI (ROGI</td><td>ER)</td><td></td><td></td><th></th><th></th><td>_</td></cpdlcms<>	g src="avior	nics" imi="AT	1" suppA	Address:	="USADC>	(A" tailNo	="N6520	08">ID 1	REF 1 TS	5 130347 EI (ROGI	ER)					_
																*

Figure 48. CMU Tab - Avionics



Status	Sensors	STARS	CCU	Avionics	CMU	CSP	DCNS	IPOP	SSRV	TFDM	NADIN Service	NADIN Users	External Facilities	TFMS	WMSCR	Nexrad	Dynamic	1
some																		×
Avionics 13:35:17 618 f mode: 2 address technica label: B0	CSP Message N6520B IAck: <nak< td=""><td>></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></nak<>	>																
blockid: msgSeq flightID:	0 No: M00A 9X0001	16520B 00	0697 13	351 7/EPON	20387\\	195167			ATC 01 AA	AF								
13:35:11 618 I mode: 2 address technica label: B0 blockid: msgSeq flightID:	Message N8186N IAck: ≺NAK 1 No: M01A 9X0001	>		35191101	23307		11 00 40	.01/1 00.										
AFN/FMH	FU100,.N8	186N,0006	96,1335	17/FPON40	473W11	1587,1/	FCOADS,0	1/FCOAT	C,01BBOF									
13:35:17 618 M mode: 2 address technica label: <0 blockld:	Message : N6520B IlAck: 0 GEN RESPOI A	- NSE>																

Figure 49. CMU Tab - CSP

5.2.12. CSP Tab

The CSP tab displays SDR messages and DCNS messages. The user has the ability to send MAS Response Override messages. These messages will override the message assurance (MAS) responses sent for received uplinks. These messages can include the following error codes:

SDRR	Set MAS Override		•	×
TailNo				
Error Text				•
Delay	INVALID AIRCRAFT NUMBER	211		^
	INVALID FLIGHT NUMBER	213		
	INVALID STATION TYPE NO ADDRESSEE	215 216		
	NO END OF ADDRESS UNKNOWN AIRCRFT NUMBER AND UN	217 IKNOWN GL AP	218	

Figure 50. CSP Error Codes



To stop the MAS response overrides, click the **Clear MAS Response Override** button.

Status	Sensors	STARS	CCU	DCNS	TIMS	TDLS	IPOP	SSRV	NADIN Service	NADIN Users	External Facilities	TFMS	WMSCR	Nexrad	CMU	CSP	DynamicInput
1008											CSP						
Set MAS	5 Response	Override	Clear M	IAS Resp	onse Ov	erride S	trip DB f	rom MAS	Responses (Disa	abled)							
SDR	DCNS																
address technica label: B0 blockld: msgSeo flightID: AFN/FM	:: CAAT001 alAck: <nak 0 2 NO: M82A 9X0001 HCAATS1,CA</nak 	<> 4AT001,,17	72807/F	RP0E1EE	3												
17:28:0 618 mode: 2 address technica	6 Message 2 :: CAAT001 alAck: 2																

Figure 51. CSP Tab - SDR

SDR 🖈		Set MAS Ove	rride	~ ^ 😣
TailNo	[
Error Text				*
Delay	00:00:00			
			✓ OK	♦ Cancel

Figure 52. CSP Tab - DCNS with MAS Override Dialog

SDER 🖈	Clear MAS Ove	rride 🗸 🔨 🛞
TailNo 🛛		
	✓ OK	⊘ Cancel

Figure 53. CSP Tab - DCNS with Clear MAS Override Dialog

Strip DB from MAS Responses (Disabled/Enabled) - The MAS response includes a copy of the uplink it's in reference too. Strip DB removes that field from the copy of the uplink.



Ctatur	Concore	CTARE COL	DCNIC	TIME	TDIC	IDOD	CCDV	MADINI Condico	NADINULGORS	Extornal Excilition	TEMC	WMCCD	Novrad	Chall	CCD	Dumamicianut
Status	Sensors	STARS CCO	DCNS	111115	TDLS	IFUF	SSRV	NADIN Service	NADIN USEIS	External Facilities	TEMS	WINISCH	Nexiau	CIMO	CSF	Dynamicinput
S DER-										CSP						
Set MA	S Response	Override Clear	MAS Resp	onse Ove	erride St	trip DB fr	rom MAS	Responses (Disa	abled)							
SDR	DCNS															
17:31:0																
[CR]		CPI														
JVN000	1 061731[C	R]														
[STX]M/	AS[CR]															
AN CAA	SDR 06173	2S[CR] 1 S044[CB]														
[ETX]	5DR 00175	1 3047(CN)														
17.01.0																
17:31:0 [CB]																
[SOH]Q	U JVN0001[C	R]														
USADC	XA 061731[CR]														
AN CAA																
- /USAD	CXA.AFN/FM	HCAATS2,CAAT	002,,1731	04/FCAY	QME2YA,	17015[0	[R]									
[ETX]																

Figure 54. CSP Tab – Strip DB from MAS Responses (Disabled/Enabled)

5.2.13. DCNS Tab

The DCNS tab displays DCNS messages. Cyan color is the messages that SDRR sends and yellow is the response from ERAM.



Figure 55. DCNS Tab - JVN



Status	Sensors	STARS	CCU	Avionics	CMU	CSP	DCNS	IPOP	SSRV	TFDM	NADIN Service	NADIN Users	External Facilities	TFMS	WMSCR	Nexrad	Dynamic 🕨 🕨
SURR										DCNS							_ # ×
JVN	DCNS-A-PGV	v															
Active Active	e																
14:07:2 Connec [CR] [SOH]Q .DCNSO [STX]AF FI FU10 DT TSP - AFN/F [ETX]	20 tivityPDU (v 01 181407[D[CR] 016/AN N11 SDR 181407 MHFU10016	1 AFN) Dat CR] CR] 37A[CR] 7 M71A[CR] 1.N1137A,C	a. Senc 0006ED,1	ler app/nod 40717/FPC	ie: DDEE 0N29387	/FF02. W09516	Rovr app/	node: 00	03A/0206 COATC,01	8AA5(CR)							~
14:07:2 Connec [CR] [SOH]Q .USADC [STX]AF AN N44 - /USAD [ETX]	20 utivityPDU(v U TBD22SE[XA 181407[i U[CR] 58U[CR] DCXA.AFN/FM	1 AFN) Dat CR] CR] IHFU116,.N	a. Senc 14458U,0	ler app/noc 00878,140	le: 003A) 720/FAKI	0206. L,KUSA/F	Rovr app/	node: Di USADCX	DEE/FF02 A/FARATC	.1,USAD0	CXA4241 [CR]						
14:07:2 Connec [CR] [SOH]Q .USADC [STX]AF AN N11 - /USAD [ETX]	20 tivityPDU (v U TBD22SE[XA 181407[i U[CR] 37A[CR] DCXA.AFN/FM	1 AFN) Dat CR] CR] IHFU10016	a. Send	der app/noc 4,0006ED,1	le: 003A/ 40720/F/	10206. 4K0, KUS	Rcvr app/	node: Di	DEE/FF02 CXA/FAR4	TC,0,USA	ADCXA4BCD[CR]						

Figure 56. DCNS Tab - DCNS-A-PGW

5.2.14. TIMS Tab

The TIMS tab displays information about the active TIMS: WST or EST. This tab also shows information about TDLS. This tab is for simulated TIMS/TDLS.



Figure 57. TIMS Tab - TIMSWST





Figure 58. TIMS Tab - TDLS

5.2.15. TDLS Tab

The TDLS tab displays a separate window for each simulated TDLS included in the configuration file. Each window includes an ERAM tab and a CPDLC tab. The ERAM tab displays a message log for messages exchanged between ERAM and the simulated TDLS. The CPDLC tab displays a message log for messages exchanged between CPDLC and the simulated TDLS.



Figure 59. TDLS Tab - ERAM



Status	Sensors	STARS	CCU	DCNS	TIMS	TDLS	IPOP	SSRV	NADIN Service	NADIN Users	Exte
STREET						KJFK					. 🗆 🗙
Options	ERAM C	PDLC									
ERAM	TFDM	CPDLC									
-00:00:(17:46:5 <msg> <fd> <un <uir <uir <uir <uir <uir <uir <uir <uir< th=""><td>00 Started II 0 iqueFlightid >XXXcraftAddress mberOfAircr craftAyders porneEquipi questedAltit signedBeac partureAirpo partureAirpo partureAirpo partureAirpo ginalFiledRo RerouteInd htPlanStatu sgTimeStam</td><td>stening for Al KN6401: S S>000013 aft>1artoraft>1mentQualit ude>140- conCode>: ont>KJFK arture Time int>TXKF lanRoute/: ute>kJFK. licator/> s>PROPO p>2022-0</td><td>r tfdm co tld> L200:umberOf :raftType fier>A<, 1104/departL >> 1748- :/departL >> .TXKF/0 SED:6-06T1</td><td>iniqueFlig ftAddress Aircraft> > /airbornef stedAltitu assignedf ationPoint 144144<th>is on if0/ httid> s> Equipme de> BeaconC > edDepar :> ginalFilec tatus> <th>ntQualific ode> tureTime iRoute></th><td>er></td><th>1)</th><td></td><td></td><td></td></th></td></uir<></uir </uir </uir </uir </uir </uir </uir </un </fd></msg>	00 Started II 0 iqueFlightid >XXXcraftAddress mberOfAircr craftAyders porneEquipi questedAltit signedBeac partureAirpo partureAirpo partureAirpo partureAirpo ginalFiledRo RerouteInd htPlanStatu sgTimeStam	stening for Al KN6401: S S>000013 aft>1artoraft>1mentQualit ude>140- conCode>: ont>KJFK arture Time int>TXKF lanRoute/: ute>kJFK. licator/> s>PROPO p>2022-0	r tfdm co tld> L200:umberOf :raftType fier>A<, 1104/departL >> 1748- :/departL >> .TXKF/0 SED:6-06T1	iniqueFlig ftAddress Aircraft> > /airbornef stedAltitu assignedf ationPoint 144144 <th>is on if0/ httid> s> Equipme de> BeaconC > edDepar :> ginalFilec tatus> <th>ntQualific ode> tureTime iRoute></th><td>er></td><th>1)</th><td></td><td></td><td></td></th>	is on if0/ httid> s> Equipme de> BeaconC > edDepar :> ginalFilec tatus> <th>ntQualific ode> tureTime iRoute></th> <td>er></td> <th>1)</th> <td></td> <td></td> <td></td>	ntQualific ode> tureTime iRoute>	er>	1)			

Figure 60. TDLS Tab - TFDM

Status	Sensors	STARS	CCU	DCNS	TIMS	TDLS	IPOP	SSRV	NADIN Service	NADIN Users	Exter
SDRR						KJFK				-	. • ×
Options	ERAM C	PDLC									
ERAM	TFDM	CPDLC									
17:47:0 17:47:0 17:47:1 17:47:1 17:47:1 17:47:1 17:47:1	2 /USADCX/ 4 Received 1 /USADCX/ 2 /USADCX/ 3 Received 7 /USADCX/ 9 Received	A.CR1.DEP MAS S for A.CR1.DEP A.CC1.DEP MAS S for A.AT1.DEP MAS S for	001 ID (1 003 ID (001 ID (1 001 ID 1 1	D TS 1747 D TS 1747 D REF 0 T . REF 0 T	702 EI (U 711 EI (U S 17470 S 17471	J163 KUS J163 KUS 9 EI (D7 7 EI (U16	5A A) 5A A) 3 1) 59 CLEAF	RED AS F	ILED)		
17:47:2 17:47:2 17:47:2	0 /USADCX/ 5 /USADCX/ 7 /USADCX/	A.CC1.DEP A.AT1.DEP A.AT1.DEP	003 ID 0 003 ID 1 001 ID 1	REFOT REFOT REF1T	S 17471 S 17472 S 17472	7 EI (D7 5 EI (U16 4 EI (RO	31) 59 CLEAF GER)	RED AS F	ILED)		

Figure 61. TDLS Tab - CPDLC

Each TDLS window also includes a menu bar with the following items: **Options**, **ERAM**, and **CPDLC**. The **Options** menu item allows users to select the Autoresponse Mode option and Require MAS Response. When the Autoresponse Mode option is checked, the simulated TDLS automatically processes and responds to CPDLC messages. When Require MAS Response is checked it will require a MAS response from TDLS uplinks.



Status	Sensors	STARS	CCU	DCNS	TIMS	TDLS	IPOP	SSRV	NADIN Service	NADIN Users	Exter
SORR						KJFK					. I X
<u>O</u> ptions	ERAM C	PDLC									
✓ Autore	esponse M	1ode									
🖌 🖌 Requi	re MAS Re	sponse	elD)>							-
 	essageID> ueFlightID ateFlightID ateFlightRe	>4ock="7484 ock="7484 ock="7484 equestSta	essagell 1318 - 2 2007 - 2 200	C)> KN64021 35">KJFK< E9D7">tri 0> KN64021 /UpdateF	/Departu /Departu ue1201 <td>inqueFig ionDataR iniqueFlig uestStat</td> <td>ghtiD> ghtiD> us></td> <td></td> <td></td> <td></td> <td></td>	inqueFig ionDataR iniqueFlig uestStat	ghtiD> ghtiD> us>				

Figure 62. Autoresponse Mode & Require MAS Response Options

The ERAM menu item lists the following selections: Request Reconstitution, Send Logon Request, Send Session Update, Send Clearance Delivered, and Disconnect. Selecting Request Reconstitution reconstitutes the TEDC connection. The Send Logon Request selection sends a UF-LR message for the tower to log on. The Send Session Update selection sends a CC1 message to establish the connection. The Send Clearance Delivered selection sends the tower clearance. When the Disconnect option is checked, the simulated TDLS disconnects from ERAM.

Status	Sensors	STARS	CCU	Avionics	CMU	CSP	DCNS	TIMS	TDLS	IPOP
3.000R				KSLC					E	
<u>Options</u>		DLC								
ERAM	Reque	st Recons								
14:42:00 14:42:18 14:42:23 14:42:41 14:44:01 14:44:19	Send Send Send Send Send Send Send Send	Logon Rec Session U Clearance nnect	juest pdate Delivere	ed	EI (U163 EI (D73) 4218 EI (4238 EI (EI (U163 EI (D73	KUSA A) 1) (U169 (((ROGER KUSA A 1)) CLEARED ())	AS FILED)))	
14:44:24 14:44:42 14:46:01 14:46:19	/USADCXA. /USADCXA. /USADCXA. /USADCXA.	AT1.N719 AT1.N719 CR1.N671 CC1.N671	7W ID 1 7W ID 1 6U ID 0 6U ID 0	REF 0 TS 14 REF 1 TS 14 TS 144601 E TS 144616 E	4419 El 4439 El El (U163 El (D73)	(U169 ((ROGEF KUSA A) 1)))	

Figure 63. ERAM Session Selections

The CPDLC menu item lists the following selections: **Connection Request**, **Disconnect**, **CAF**, and **Generic Message**. Selecting the **Connection Request** sends the CR1 messages and waits for CC1 reply. Selecting **Disconnect** sends a DR1 message that makes the flight disconnect the CPDLC session. The



CAF selection is a Cleared as Filed clearance. Selecting **Generic Message** allows the user to send any AT1 message.

Status	Sensors	STARS	CCU	Avionics	CMU	CSP	DCNS	TIMS	TDLS	IPOP
-				KSLC					E	
<u>O</u> ptions		PDLC								
ERAM	CPDLC	Connect	ion Req	uest						
14:42:00	/USADC)	Disconne	ect	0.6	I (U163	KUSA A)			
14:42:18	(USADC)	CAF		5 E	I (D73]	1)				
14:42:23	(USADC)	Generic	Messag	e 4	4218 EI (4238 EI (ROGER	LEARED #	AS FILED,	11	
14:44:01	/USADCXA.	CR1.N719	7W ID 0	TS 144401	EI (U163	KUSA A)			
14:44:19	/USADCXA.	CC1.N719	7W ID 0	TS 144416	EI (D73)	1)				
14:44:24	/USADCXA.	AT1.N7197	7W ID 1	REF 0 TS 14	4419 EI	(U169 (CLEARED	AS FILED))	
14:44:42	/USADCXA.	AT1.N7197	7W ID 1	REF 1 TS 14	4439 EI	(ROGEP	()			

Figure 64. CPDLC Session Messages

5.2.16. IPOP Tab

The IPOP tab shows the logs for the CMS messages for each local facility. There is an option to send CMS messages and to turn quiet mode on. Quiet mode stops displaying the IPOP heartbeat messages.

sors	STARS	CCU	Avionics	CMU	CSP	DCNS	TIMS	TDLS	IPOP	SSRV	NAD	IN Service	NADIN Users	External Facilities	TFMS	WMSCR	Nexrad	DynamicInput
STREE												SDRR		zh	u			_ 🗆 🗙
IPOF	Log											IPOPLog						
Sen	dMessage	Ouiet	Mode									SendMes	sage Ouiet Mo	de				
Sen [918 [149] 13:3 [6802 [149] 13:3 [44:6 [10A STU.] [910] 0000F 13:3 [6802 [1455] 13:3 [6802 [14:5 [13:3 [6802 [13:3] [6802 [13:3] [6802 [13:3] [6802 [13:3] [6802 [13:3] [6802 [13:3] [13:4] [13:4] [13:4]	dMessage Q:00081A A:EOM] 9:49 HX[0] 9:49 HX[0] 9:50 DH[0] 9:50 DH[0] 9:50 DH[0] 9:54 HH[0] 9:54 HH[0] 9:54 HX[0] 9:54 HX[0] 9:54 HX[0] 9:54 HX[0] 9:55 HX[0] 9:	Quiet [[9185: []9185: []9185: []1394 [444][680 []1395 []39][64: [301.00] []01.01 [201.02] []01.01 [201.02] []01.01\\[]0	Mode #3058](918X: #31254][2A: :TRILA/1344 1255][2A: (28A:1502] 41255][2A: 41255][2A: 41255][2A: 41256][2A: 41258][2A	A1B2C2[FU104][; 3][68C:E FU104][[149A:E(SATE10] 1410][94 LY, HYR. LFPG/00 (LC1410 2D2L102 SATE10] .8][68C: 5][9090 FANS2P[50][925 FANS2P[00][925 FANS2P[119][28][68C: 8][68C: 8][149A:E A:EOM] J:149A:E A:EOM] A:EOM]	D2L102S 2D:010][DETH/13 2D:010] DM] [2D:041 :310] SAW55 550][14] KZDV14 ST][925 [2D:041] St0[14]	1][925A: 167A:11] 152][68C: 167A:11] 1]316A:KL 1][316A:KL 1][316A:KL 1][167A:5] 1][68C:PC 167A:8][1][67A:5] 1][67A:6] 167A:6] 167A:6] 167A:11]]	0100][9: [68C:KSI WINEN/1][3C:B73]491946 J.N389B [1908A:I [1908A:I [1908A:I [1496 [68C:KSL 4919460 [68L:KSL 4919460 [68C:KSL 4919460 [149] 68C:KSL 00][149 68C:KSL DRYAD/1 [16B:ZLA	258:0200 c/1340] 407][680 8][3E:L][00][167/ ALLRYM [9088:5 1][9188:1 00][925D c/1410][1][167A:KS 1][167A:KS 1][167A:KS 1][167A:KS 1][167A:KS 1][1678-608] A:E0M]	0) [925D: (68C:SCA (:LAKRR/I 26A:KSL(A:5) [3C:C (ALOTGi [909C:M FANS2PI (:00) [1] (68C:BUE (55/1 434 ANI[149, 6] [3C:C (56) (3C:C (56) (3C:C (57) (434 ANI[149, 6] (3C:C (57) (434 ANI[149, 6] (3C:C (57) (434 (37) (434) (38) (36) (37) (43) (38) (37) (44) (38) (37) (44)	2100) INT/1342 (422) C] RJ7][3E:L STIBAKU C[918C 498/1413 [][68C:DC A:EOM] [7][3E:L] KLWS/ 10 R/1415] I33] A:EOM]	▲]]]]]]]]]]]]]]]]]	SendMes UMROC/0 [9188:42] [9188:42] [13:9:54 [13:9:55 [13:9:55 [13:9:55 [13:9:55 [13:9:55 [13:9:55 [13:9:55 [13:9:55 [14:9] [925A:010 [14:9A:E01 [13:9:56 [14:9] [14:9A:E01 [13:9:56 [14:9] [14:9A:E01 [13:9:56 [14:9] [14:9] [14:9] [14:9A:E01 [13:9:56 [14:9] [14:9	sage Quiet Mo 250[14:15:MUM 250[14:15:MUM 250[14:15:MUM 250[14:15:MUM 1012(20:21) 251[16:8:ANKR 1117[168:ANKR 1117[168:ANKR 0 25541 41 21[168:ANKR 0 25541 452:41[54:451]6 25541 452:41[54:451]6 2500]1425: 101[92:58:200]1 42 40 13395414 15:4:201[64:54] 45 40 13395414 15:4:201[64:54] 45 40 13395414 15:4:201[64:54] 45 41 15 42:01[64:54] 40 101[92:58:0200]1 10 101[92:58:0200]1 10 101[92:58:0200]1 10 101[92:58:0200]1 10 101[92:58:0200]1 10 101[92:58:0200]1 10 101[92:58:0200]1 10 101[92:58:0200]1 10 101[92:58:0200]1 10 101[92:58:0200]1	de 2][908A:]][908B:S][9 9]8A0[1918X:1FANS] 925A:0100][925B:02 01][2A:HPE10][2D: KPI 436][68C:RUMMM 02][2A:FU10003][2D 03][2A:AA1305T][2D 03][2A:AA1305T][2D 03][2A:AA1305T][2D 03][2A:AA1305T][2D 03][2A:FU10019][2C 82:GRIPY1 418][68C 05][2A:FU10019][2C 82:GRIPY1 418][68C 06][2A:AA2319T][2D 09[2A:AA2319T][2D 09[2A:AA2319T][2D 09[2][2A:AA2319T][2D 09[2][2A:AA2319T][2D 09[2][2A:AA2319T][2D 09[2][2A:AA2319T][2D 09[2][2A:AA2319T][2D 09[2][2A:AA2319T][2D 09[2][2A:AA2319T][2D 09[2][2A:AA2319T][2D 09[2][2A:AA2319T][2D 09[2][2A:AA2319T][2D 09[2][2A:AA2319T][2D 09[2][2A:AA2319T][2D 09[2][2A:AA2319T][2D 09[2][2A:AA2319T][2D 00][2A:AA2319T][2A 0][2A:AA2319T][2A 0][2A:AA2319T][2A 0][2A:AA2319T][2A 0][2A:AA2319T][2A 0][2A:AA2319T][2A 0][2A 0][2A 0][2A:AA2319T][2A 0][2A	909C:M][92 2PDC][918 2PDC][918 2001][167: 004][167: 008[167: 008[167: 0042][16] 904:360][90 2PDC][918 0042][16] 904:360][16] 90423[16] 9	10C:DGVW 8N:2000N0 :01001[14 :41[68C:K4 SC:PEGLG/1 :43][26A:K :43][26A:K :43][26A:K :43][26A:K :43][26A:K :43][26A:K :43][26A:S :53][462:1 :20][68C:S :53] :43] :43] :43] :43] :43] :43] :43] :4	RJ4][910D:: 8413WJ[91 A4:E0M] 40U/1410][274: HOUJ[274: HOUJ[274: 4601][167 4601][167 4601][167 4601][167 4601/167 4602][167 4602][167 1446][862 (9105:S][1418 (9105:S][1418 (9105:S] 500] 1446][802 500] HOU/1410 BU/1423][67	S) S0:0009B2] 680:0009B2] S0:0009B2] 680:PEECE/1413] JUTMA/1507] VDTMA/1507] S0:00000000000000000000000000000000000
13:4	0:12 CK[0]	-13400	2126511149	A:EOMI								13:40:13	CK[0E:13400714	1111149A:FOM1				
13:4	0:18 CK[0	:13401	81266 149	A:EOM]								13:40:19	CK[0E:13401914	12][149A:EOM]				
13:4	0:24 CKIO	13402	4126711149	A:FOM1								13:40:25	CKI0E:13402514	1311149A:FOM1				

Figure 65. IPOP Tab



Status	Sensors	STARS	CCU	Avionics	CMU	CSP	DCNS	TIMS	TDLS	IPOP	SSRV	NADIN Service	NADIN Users	External Facilities	TFMS	WMSCR	Nexrad	Þ
Sonal				zle					(SDRR	hove		zhu			-	 ×
IPOPLog	3										IPOPLO	g						
SendMe	essage Qu	iet Mode									Send	lessage Quiet	Mode					
Added o	lient device										Added							
Quiet m	ode disable						SDRR		Send	CMS M	essage		×					
							-	. –					_					
							Tex	đ										
							AID											
							So	urce										
												Cancel						

Figure 66. Send CMS Message

5.2.17. SSRV Tab

The SSRV tab displays the PSIM and SSIM status messages and ERAM console messages. On the lower right-hand corner of each En Route facility channel, there is an indicator to show the PSIM/SSIM status. Once the PSIM/SSIM status is green, the scenario can be started.

- Red indicates that the scenario needs a PSIM
- Yellow indicates that the PSIM was successful
- Green indicates the channel is ready for scenario to be started

Channel A/B displays can be checked to be the active channel and the flight information is sent through the active channel(s). Cyan messages are messages injected via the scenario, whereas yellow is the response SDRR receives from ERAM in regards to those messages.



isors	STARS	CCU	Avionics	CMU	CSP	DCNS	TIMS	TDLS	IPOP	SSRV	NAD	N Service	NADIN Users	External Facilities	TFMS	WMSCR	Nexrad	DynamicInp	ut 🖣 🕨
S DIER			zic Channe	A le	pipe://#	zle-A-ssrvi	nj-task2	3				SDRR	zhu	Channel A pipe	e://#zhu-A	-ssrvinj-tasl	k23		
Ser	ndMessag	Э								✓ Ac	tive	SendMe	essage					V	Active
13:01 13:24 13:24 13:24 13:24 13:33 13:34 13:35 13:36 13:36 13:36 13:36 13:36 13:36 13:36 13:37	119 (4) S; 119 (4) S; 1254 SPTE1 RUGGD1.0; 154 (5) S; 154 (6) S; 154 (6) S; 154 (6) S; 154 (7) W; 154 (8) E; 154 (8) E; 154 (8) E; 154 (9) S; 154 (9) S; 154 (9) S; 154 (13) H; 154 (13) H; 154 (14) H; 154 (14) H; 154 (14) H; 154 (14) H; 154 (15) H; 154 (16) Y; 154 (16) Y; 155 (17)	I> SA I> F:A (S.:MBA CS.:MBA I> RS I> RS I RS I I RS I	ARCHEZIJON CCEPT SWT S1 > AM SPT S1 > AM SPT S1 > AM SPT VFL1000 CCEPT REMO CCEPT REMO CCEPT REMO CCEPT REMO CCEPT REMO RUID RUID RUID RUID RUID RUID RUID RUID	H ACTIV E1010 .GUJ14 DMENT VE STRII VE STRII VE STRII 100 IOVE STRI 100 IOVE STRI 100 IOVE STRI 101 IO1 FUID OVE STRI 101 IO1 FUID IO1 FUID IO1 FUID	ITY [R: VFL10(C, C, X, E, Y) VFL10(C, Y)	WC.JST.BU 009 R: //001 R: //001 R: //003 R: *ORED ACC /78T/004 F STORED A 2/005 R: 41T/006 R *ORED ACC /3/007 R: STORED A	EPT HAI 6 5 5 6 7 7 8 7 7 7 7 7 8 7 7 7 7 7 7 7 7 7 7	HL IDOFF FL IDOFF FL IDOFF FL	100 QN AA1004 101 QN AA1078	FU100 R F QN FU101 R F QN	L V	Fullosong 13:35:54 13:35:54 13:35:54 13:35:54 13:35:54 13:35:54 13:35:54 13:35:54 13:35:54 13:35:54 13:35:54 13:35:54 13:36:24 Prilocold 13:37:39 13:37:44 13:37:54 13:37:54 13:37:54 13:37:54 13:37:54 13:37:54 13:37:54 13:37:54 13:37:54 13:39:44 Ax10007 13:39:54 13:39:54	R: (8) W1> RS FUI (8) W1> RS AAI (8) W1> RS AAI (8) W1> F: ACCE (9) W1> F: ACCE (9) W1> F: ACCE (9) W1> F: ACCE (10) R80> F: RE (11) R80> F: RE (12) R80> F: RE (13) R80> F: RE (14) S1> RS FU (13) R80> F: RE (14) S1> RS FU (15) W1> F: ACC (14) S1> F: RE RA: C1(6) R49> F: RE R4: C1(7) (16) R49> F: RE R1: C1(17) (18) E1> F: ACC (19) S1> F: ACC (19) S1> F: ACC	0001 01T PT REMOVE STRIP FL PT REMOVE STRIP AF 050 NVFL2000 > 0N A034T IECT - VFL2000 FLID P IECT - AA034T FLID N 050 N FU10001 FLID I 050 QN AA101T FLID N 10002 IECT - FU10001 FLID I 050 QN AA101T FLID N 10002 IECT - FU10002 FLID I 057 QN AA1106T IECT - AA1106T FLID I 057 QN AA1106T IECT - AA1106T FLID I 10003 1306T EFT REMOVE STRIP F EPT REMOVE STRIP F	VI 0001/00 I 017/004 NOT STORE NOT STORE OT STORE UI 0002/0 NOT STOR NOT STOR NOT STOR UI 0003/0 AI 306T/0	D3JR: ED ACCEPT D ACCEPT H ED ACCEPT H D ACCEPT H D ACCEPT H 005JR: ED ACCEPT ED ACCEPT ED ACCEPT	HANDOFF \ HANDOFF A HANDOFF A HANDOFF A HANDOFF J	/FL2000 QN A034T QN AA0 FU10001 QN A101T QN AA1 FU10002 QN AA1106T QN.	34T] 01T]

Figure 67. SSRV Tab

If a message needs to be manually sent, it can be sent through the **SendMessage** button on the SSRV tab. The channel display will indicate if the message was accepted or rejected.

Status	Sensors	STARS	CCU	Avionics	CMU	CSP	DCNS	TIMS	TDLS	IPOP	SSRV	NADIN Service	NADIN Users	External Facilities	TFMS	WMSCR	Nexrad
SDRR		zlc Cha	annel A	pipe://	#zlc-A-ss	rvinj-tas	k23			_ 🗆 🗙	-	zhu	Channel A	pipe://#zhu-A-sarvir	nj-task23		_ = ×
SendM	dessage									Active	Sen	dMessage					✓ Active
16:52:44 16:52:53 16:53:54 16:53:55 16:53:55 16:53:55 16:53:55 16:53:55 16:54:55 16:55:45 16:55:45 16:55:45 16:55:44 16:55:44 16:55:44 16:55:44 16:55:44 16:55:44 16:55:44 16:55:44 16:55:44 16:55:45 16:55:44 16:55:45 16:57:15 16:57:15 16:57:35 17:57:35 17:57:35 17:57:35 17:57:35 17:57:35 17:57:35 17:57:35 17:57:35 17:57:35 17:57:35 17:57:37 17:57:37 17:57:37 17:57:37 17:57:37 17:57:37 17:57:37 17:	4 AAGOGST (4 (1592) W1 4 (1592) W1 4 (1592) W1 4 S7093T (4 S7093T (4 V1930 (15 4 V1930 (15 4 V1930 (15 4 V1930 (15 4 S7E13 (1 4 S7E13 (1 5 S7E13 (1	1591) R44 1593) R43 1594) R40 5593 R43 1594) R40 55) R03- 55) R03- 5591 R05- 88 R03- 1599) R40 8000 R03- 6011 R03- 5991 R05- 801 R03- 801	> 0N 1 290T > 0N 4 0 (N FU) 00 00 00 00 00 00 00 00 00 00 00 00 00	1 AA9083T IS AS7095T I3 AS7095T I3 AS7095T I3 AS7095T IS PTE13 IS PTE13 IQ VFL2002 IS 7200T IS 720T IS 720T IS 720T IS 720T IS 720T IS 720T IS 720T I FU192 I FU192 I FU192 I AA8835T I AA885	2 EFOU.N3 T	1898.ALL	RYGIST	Position Text Aid	RV ZHU- S1 CN FU102 eend	A Conce	16:54 16:555	54 FU10234 (3323) 54 FU10234 (3323) 54 HPTE10 (3324) 14 AS7425T (3325) 19 FU10263 (3326) 19 AS7261T (3327) 19 AS7261T (3328) 24 FU10260 (3330) 39 AS7176T (3328) 24 FU10254 (3333) 54 (3334) E1> RS 39 FU10261 (3336) 54 (3334) E1> RS 39 FU10261 (3337) 59 HATE13 (3349) 59 HATE13 (3349) 59 HATE13 (3349) 59 HATE13 (3349) 59 HATE13 (3349) 54 AS7273T (3342) 44 FU10255 (3347) 44 FU10255 (3347) 44 AS7506T (3346) 44 S7506T (3346) 44 S7106T (3346) 44 S7106T (3346) 54 (3349) W1> RS 54 (3349) W1> RS 54 (3346) S1> RS 19 AA3168T (3352)	R58> QN ACI R58> QN ACI S1> AM HPTE; R49> QN ASI R480> QN AGI R49> QN ASI R49> QN ASI R49> QN AGI R74> QN FUI R78> QN AGI R400 QN 78 R500 QN 79 R46> QN 60 R46> QN 461 R40> QN 462 R40>	R FU10233 R FU10234 I FU10234 I D ANKHRMID V425T V261T N0260 FU10260 L0254 FU10261 FU10254 I0261 FU10254 I0261 FU10251 R FU10251 I AS7204T 2733T AS7204T 2733T I0264 I0255 S066T FU10255 S166T AA3168T		55RV/5ti	ate RUNNING

Figure 68. Send ERAM Message



5.2.18. TFDM Tab – TDLS Connection

The TFDM tab shows all the messages TFDM receives from TDLS.



Figure 69. TFDM Tab - TDLS

5.2.19. TFDM Tab – TBFM Connection

TFDM can also be configured with TBFM connections for MIS, RTCS, and TTP. If configured, one MIS tab is displayed per TBFM/ARTCC. If configured, an RTCS tab is displayed for each RTCS airport included in the SDRR configuration. If configured, a TTP tab is displayed for each TTP airport included in the SDRR configuration.



SDRR					TFDM 2	(LA		_ 6 X
TTP KLAX	TTP KLAS	TTP	KSAN					
IssueStart	ChangeHBP	Period	Enable/DisableHBs	ChangeResyncPeriod	DisableResync	ChangeResyncinterval	ChangeResyncMsgsPerLoop	
Using guara								
Heartbeats								
Resync peri								
Resync inte								
Resync ena								
Start delay								

Figure 70. TFDM Tab - TBFM

Each RTCS tab has the following buttons:

IssueReconRequest

Clicking on this button causes a solicited reconstitution request message to be sent.

ChangeHBPeriod

This button launches a dialog box where the heartbeat period can be changed. The heartbeat period is specified in seconds and controls the amount of time between heartbeat messages.

DisableHBs

This button launches a dialog box where the heartbeat can suspended for the specified number of counts or permanently disabled.

DisableReceiptAcks

This button launches a dialog box where the ReceiptAcks value can be enabled or disabled. When disabled, the RTCS Airport will not reply with a receipt acknowledgement message.



DelayReceiptAcks

This button launches a dialog box where the AckDelay value can be changed. The AckDelay value sets the number of seconds the RTCS Airport will wait before replying with a receipt acknowledgement message.

MaxRetries

This button launches a dialog box where the Maximum Retries value can be changed. The Maximum Retries value sets the number of times the RTCS Airport will resend a message for which an acknowledgement message was not received.

RetransmitTimeout

This button launches a dialog box where the Retransmit Timeout value can be changed. The Retransmit Timeout value sets the number of seconds the RTCS Airport will wait before resending a message for which an acknowledgement message was not received.

UnsolicitedReconWaitTime

This button launches a dialog box where the unsolicited recon wait time can be changed. The recon wait time is specified in seconds. After receiving a heartbeat message with a new or changed service start time, the RTCS Airport will wait the indicated amount of time for an unsolicited reconstitution message. If a reconstitution message is not received in the specified time, the RTCS Airport will send a reconstitution request.

Show Flights

This button displays the RTCS Flight Viewer table with all of the flights received in rtcsFlt messages that are applicable to the RTCS Airport. Right clicking on an aircraft ID in the table displays options to schedule, cancel, and acknowledge a release time request. Selecting the schedule option opens a dialog where a runway and an external release time can be entered. Selecting the cancel option causes a release request message with a schedule activity of CANCEL to be sent. Selecting the acknowledge option causes a release request message with a schedule activity of ACK to be sent. Note that this Viewer is not updated dynamically; it must be closed and re-opened to view the most current entries.

Each TTP window has the following buttons:

IssueStart

Clicking on this button causes the startup sequence of messages (System Start, Periodic Start, and Periodic End) to be sent.



ChangeHBPeriod

This button launches a dialog box where the heartbeat period can be changed. The heartbeat period is specified in seconds and controls the amount of time between heartbeat messages.

Enable/DisableHBs

This button launches a dialog box where the heartbeat can suspended for the specified number of counts or permanently disabled.

ChangeResyncPeriod

This button launches a dialog box where the resync period can be changed. The resync period is specified in minutes and controls the amount of time between publications of the startup sequence of messages (System Start, Periodic Start, and Periodic End).

DisableResync

This button launches a dialog box where the resync publications of the startup sequence of messages (System Start, Periodic Start, and Periodic End) can suspended for the specified number of counts or permanently disabled.

ChangeResyncInterval

This button launches a dialog box where the resync batch interval wait time can be changed. The resync batch interval wait time is specified in milliseconds and controls the amount of time between the end on one batch and the start of the next batch. The default value is 1000ms.

ChangeResyncMsgsPerLoop

This button launches a dialog box where the resync messages per loop can be changed. The resync messages per loop is controls the number of TTP messages that are sent per batch. The default batch size is 10 messages.



5.2.20. NADIN Service Tab

The NADIN Service tab sends the FPLs to target destinations. These destinations can be added through the Create User button. The Toggle Quiet Mode stops the messages from appearing.

Status	Sensors	STARS	CCU	DCNS	TIMS	TDLS	IPOP	SSRV	NADIN Service
1.008		"							
Create	User Togg	le Quiet M	ode						
18:00:1	5 KATLYTAA	<-KZCN2	ZQZX)S	ST					
18:00:1	5 KATLYTAA	-> KZCNZ	ZQZX)S	ST					
18:00:1	5 KSLCYTAA	<- K2CC2	202X)S	SI					
18:00:2	4 KATI VTAA	<- K7CB7	207X IS	ST					
18:00:2	4 KATLYTAA	-> KZCBZ	OZX)S	ST					
18:00:2	4 KSLCYTAA	<- KZCBZ	ZQZX)S	ST					
18:00:2	4 KSLCYTAA	-> KZCB2	ZQZX)S	ST					
18:00:3	1 KATLYTAA	<-KZCNZ	ZQZX)S	ST					
18:00:3		-> KZCNZ	QZX)S	ST					
18:00:3	I KSLCYTAA	- K2CC2	202X 15	ST CT					
18:00:3	9 KATI YTAA	<-KZCB2	07X)S	ST					
18:00:3	9 KATLYTAA	-> KZCBZ	OZX)S	ST					
18:00:3	9 KSLCYTAA	<-KZCBZ	ZQZX)S	ST					
18:00:3	9 KSLCYTAA	-> KZCB2	ZQZX)S	ST					
18:00:4	6 KATLYTAA	<- KZCNZ	ZQZX)S	ST					
18:00:4	6 KATLYTAA	-> KZCNZ		ST					
18:00:4	6 KSLCYTAA	- KZCC2	202X />	CT					
18:00:5	4 KATLYTAA	<-KZCBZ	07X)S	ST					
18:00:5	4 KATLYTAA	-> KZCBZ	OZX)S	ST					
18:00:5	4 KSLCYTAA	<- KZCB2	ZQZX)S	ST					
18:00:5	4 KSLCYTAA	-> KZCB2	ZQZX)S	ST					
18:01:0	1 KATLYTAA	<- KZCNZ	ZQZX)S	ST					
18:01:0	1 KATLYTAA	-> KZCN2	202X)5	ST					
18:01:0	I KSLCYTAA	SK7CC7	207X 19	ST					
18:01:0	9 KATLYTAA	<-KZCBZ	OZX)S	ST					
18:01:0	9 KATLYTAA	-> KZCBZ	QZX)S	ST					
18:01:0	9 KSLCYTAA	<-KZCB2	ZQZX)S	ST					
18:01:0	9 KSLCYTAA	-> KZCBZ	zqzx)s	ST					
18:01:1	5 KATLYTAA	<- KZCNZ	QZX)S	ST					
18:01:10	6 KSI CVTAA	-> K2CN2	207X)S	ST					
18:01:1	5 KSLCYTAA	-> KZCCZ	207X)S	ST					
18:01:2	4 KATLYTAA	<-KZCB2	ZQZX)S	ST					
18:01:2	4 KATLYTAA	-> KZCB2	ZQZX)S	ST					
18:01:2	4 KSLCYTAA	<-KZCB2	ZQZX)S	ST					
18:01:2	4 KSLCYTAA	-> KZCB2	ZQZX)S	ST					

Figure 71. NADIN Service Tab





Figure 72. Add NADIN User Dialog

5.2.21. NADIN Users Tab

NADIN Users tab shows the FPLs receiving an ACK. If the FPL does not receive an ACK, the user can try to send a message to manually attempt to ACK the FPL. The send NADIN message allows the user to input a destination address of the NADIN client the user is sending the message to. The text is the actual message being sent. Send Cancel sends a NADIN CNL message to cancel a flight.



Figure 73. NADIN Users Tab



Status	Sensors	STARS	CCU	Avionics	CMU	CSP	DCNS	IPOP	SSRV	TFDM	NADIN Service	NADIN Use	ers External Facilities	TFMS	WMSCR	Nexrad	Dynamic	()+
NOR									1	HOUCCX	H							×
Send M	essade Se	nd Cancel															Summer County of	
14:10:08	KHOUCCXH	> KZCUZ	QZX: (FPL-FU118-	S-CRJ7/M	-DGVWF	J4/S-KSLC	1440-NO	439F310	CGULLI	WE DCT-KPUW01	06-CODE/000	37A DAT/1FANS2PDC NAV	RNVDIE	2A1 PBN/AI	IB2C2D2LLC	251 REG/	
N7482A	SUR/260B E	ET/KZLC14	40 KZSE	1528)														
14:10:06	KHOUCCXH	> KZCHZ	QZX (FPL-FU1001	8-IS-C65	0/M-DG	/WRJ4/S-K	H0U144	0-N0451F	360 DCT	HUB J37 SJI J2 SZ	W J20 ORL DC	F-KMC00158-CODE/0006F	8 DAT/1F.	ANS2PDC N	JAV/RNVD1E	2A1 PBN/	
AIB2C2L	2L102S1 RE	=G/N / 5938	BEEL/KZ	HU1440 KZ	TIC C65	OMIDO	MIDIAIC K		NOAGOE	Den DCT				NUMIDOC	202110201	DECMISEL		
KZHU14		KZUHZ	YZA: (FFL-AAZI/3	1-13-003	U/M-DOV	WINERSEN.				NEUSINU 22EU UNE		FUC NAV/NIVUIEZAL FE	IN/ALDZU	202110231	L PEO/MOOT	Ja CC1/	
14:10:00	ACK FPL KZ	HU FU100	18 KHOL	J 1 4 4 0 KMC	0		SDRR		Send N	adin Me	ssage							
14:10:06	ACK FPL KZ	HU AA217	9T KHOL	1440 KAUS					-									
14:11:06	KHOUCCXH	> KZCUZ	QZX: (FPL-AA2269	T-IS-CRJS	M-DGV	🔥 Dest /	Address					DCT FST DCT JCT DCT G	UTZZ BOC	VE4-KDFW	0240-CODE/	000026	
DAT/1PD	C NAV/RNVD	1E2A1 PBM	V/A1B2C	2D2L102S1	REG/N1	520F SL									LUDDOD L	U.D. DOT IN	OTDOT	
14(12)00 CIETI DO		-> KZCUZ		TUARD DC	-15-CRJ7/	M-DGVW	Text						HYR DCT SAW DCT SSM I	DCT CEFO	U N389B A	CINIT ADGO S	LOT DCT	
EET/K7L	1442 K7DV	1520)		T VALUE DC	I MID DC	a aru u	с.				Send	Cancel	VAV/NIVDIEZAL FDN/A	10202020	10251 NEV	olurraadd a	0172006	
14:12:06	KHOUCCXH	> KZCHZ	20ZX: (FPL-HPTE10	-IS-CRI2/	M-DGVW	/F						UB753 BZE UZ512 MG	A UA502	ULAPO BAR	A1U-ZZZZO	250-DEST/	
MROC 10	00N08413W	CODE/000	09B2 DA	T/1FANS2PI	DC NAV/P	RNVD1E:	2AL PBN/A	ALB2C2D	2010251	REG/N91	8AQ EET/KZHU1	142)						
14:12:06	KHOUCCXH	> KZCUZ	QZX: (FPL-FU119-	S-CRJ7/M	1-DGVWR	14/S-KSLC	1442-NO	439F310	CGULL1 T	TWF DCT KU90K [OCT MQG DCT-	LWS0104-CODE/000B7B	DAT/1FAN	S2PDC NAV	V/RNVD1E24	1 PBN/	
A1B2C20	2L102S1 R	G/N2241N	SUR/20	50B EET/KZL	C1442 K	ZSE153	1)					DOT HANDLOOD		LUCODD C	A LAN COMPANY OF THE			
14:12:00	KHOUCCXH	> KZCHZ		FPL-FUI001	9-15-065	0/M-DG	/WRJ4/S•K	H0U144	2-N0451F	360 DCT	HOB AT 88 LOFE2	DCT-KHUM00	45-CODE/000702 DAT/1F/	ANS2PDC	NAV/RNVD.	IEZAI PBN/		
14-12-06	KHOUCCYH		078 (FPL-AA2310	TUS-CRIS		WRIAIS-KH	011/1/2	-NI0420E3	40 DCT-K	AVI 0151-CODE/	00027 DAT/1		UA18202	02110251	REG/N83240	EET/	
KZHU14	12 KZME152	2)	den t		in or or ga	1.1.000		0021112	110 12 01 1	BCIN	CODEN	DOULT DAIL	Denninininini	WALDE CE	02020201	120/1100240		
14:12:06	ACK FPL K7	HU HPTEL	0 KHOU	1442 7777														

Figure 74. Send NADIN Message

5.2.22. External Facilities Tab

The External Facilities tab displays all the facilities involved with the users chosen NAP/Local Site(s). For Host, the user will be able to send IFMessages from the external site to the NAP/local sites. For NonUS, the user will be able to send ICAO messages and MOD/CHG from the external site to the NAP/local sites.



Figure 75. External Facilities



17:01:20 (ASMKZLC/CZWG037) 17:01:20 (LAMCZWG/KZLC064KZLC/CZWG037) 17:01:26 (ASMKZLC/CZWG038) 17:01:26 (LAMCZWG/KZLC065KZLC/CZWG038) 17:01:33 (ASMKZLC/CZWG039) 17:01:33 (LAMCZWG/KZLC066KZLC/CZWG039) 17:01:39 (ASMKZLC/CZWG040)		*	Send AM	~ ^ 😣
17:01:39 (LAMCZWG/KZLC067KZLC/CZWG040) 17:01:45 (ASMKZLC/CZWG041)		NAME/ID		
17:01:45 (LAMCZWG/KZLC068KZLC/CZWG041) 17:01:51 (ASMKZLC/CZWG042)		02 (ACID)		
17:0 SDR × Send Icao Message	\sim \sim \otimes	03 (AC Type)		
17:0 17:0 Toyt		04 (Bcn)		
17:0		05 (Speed)	[
17:0 17:0	Cancal	06 (CoordFix)		
17:0	Cancel	07 (CoordTime)		
17:02:21 (LAMCZWG/KZLC074KZLC/CZWG047) 17:02:27 (ASMKZLC/CZWG048)		08 (Assigned uA	ltitude)	
17:02:27 (LAMCZWG/KZLC075KZLC/CZWG048)		09 (Requested A	ltitude)	
17:02:33 (LAMCZUG/KZILC/CZWG049) 17:02:33 (LAMCZUG/KZILC/CZWG049)		10 (Route)		
17:02:39 (ASMKZLC/CZWG050) 17:02:39 (LAMCZWG/KZLC077KZLC/CZWG050)		12/17 (ICAO)		
17:02:45 (ASMKZLC/CZWG051) 17:02:45 (LAMCZWG/KZLC078KZLC/CZWG051)			Ok	Close
17:02:51 (ASMKZLC/CZWG052) 17:02:51 (LAMCZWG/KZLC079KZLC/CZWG052)				Close
17:02:57 (ASMKZLC/CZWG053) 17:02:57 (LAMCZWG/KZLC080KZLC/CZWG053)				
17:03:03 (ASMKZLC/CZWG054) 17:03:03 (LAMCZWG/KZLC081KZLC/CZWG054)				
17:03:09 (ASMKZLC/CZWG055) 17:03:09 (LAMCZWG/KZLC082KZLC/CZWG055)				
17:03:15 (ASMKZLC/CZWG056) 17:03:15 (LAMCZWG/KZLC083KZLC/CZWG056)				
17:03:21 (ASMKZLC/CZWG057) 17:03:21 (LAMCZWG/KZLC084KZLC/CZWG057)				
17:03:27 (ASMKZLC/CZWG058) 17:03:27 (LAMCZWG/KZLC/085KZLC/CZWG058)				

Figure 76. Send Message Dialog – Non US

SDRR	×	Create	CNL	×	^	\otimes
CP	L Se	eqno				
	`	/ OK	0	Ca	nce	el 📄

Figure 77. Send CNL Dialog



Status	Sensors	STARS	CCU	DCNS	TIMS	TDLS	IPOP	SSRV	NADIN Servic	e NADIN U	Jsers	External Facilities
SDER							1	ZWY (AT	OP)			
Internal	ZNY	TFMS Z	ZOB Z	zyz zi	DC ZUL	_ ZJX	ZQM					
Clear W	indow Se	end Messag	ge Tog	gle Quiet	Mode S	end TR						
-00:00:0	00 N480 ::	TR ZCZ (MO	ONITOR	::*								
-00:00:0	00 Z018 ::[00 N481 :: ⁻	DT N480 [M TR ZCZ IM(₹::* ::*	SDRR		Send IFN	lessage	From ZWY	↑ [×	
-00:00:0	00 Z019 ::[DT N481 M	IONITOF	R::*	Destin	ation Z	NY]			
-00:00:0	00 N482 :: 00 Z020 ::[DT N482 IM	ONITOR 10NITOF	::* {::*	Acid				ĩ			
-00:00:0	00 N483 ::	TR ZCZ M	ONITOR	::*	, Acid	_					_	
-00:00:0	00 2021 ::: 00 N484 :: ⁻	TR ZCZ [M(ONITOR	::* ::*	Messa	ge						
-00:00:0	00 Z022 ::[DT N484 M	IONITOF	R::*	Liter	al mode	9					
-00:00:0	00 N485 :: 00 Z023 ::[DT N485 [M	10NITOR	₹:: *					Send	Cance	el	
-00:00:0	0 N486 ::	TR ZCZ M	ONITOR	::*								
-00:00:0	00 2024 ::: 00 N487 :: ⁻	TR ZCZ M	ONITOR	::*								
-00:00:0	00 Z025 ::[DT N487 M	IONITOF	R::*								



5.2.23. TFMS Tab

The TFMS tab displays ASDI, SWIM, and CMS messages.



Figure 79. TFMS Tab - ASDI


Status	Sensors	STARS C	CU Avionic	S CMU CSP	DCNS T	MS TDLS	IPOP	SSRV	NADIN Service	NADIN Users	External Facilities	TFMS	WMSCR	Nexrad	F
AURA		1		- W - W	- W		TEMS	Č.	-00-	- 20		10- 	÷		a X
Contraction of the second s	í		T				111013							L	CORE
ASDI	ZHU-SWIM	ZHU-CMS	ZLC-SWIM	ZLC-CMS											
TFMRe	route														
Using L	JRL http://loca	alhost:8080/z	hu/ERAMElight	nfoService											-
13:01:5															
13:01:5															
13:01:5	6 Mapped AA														
13:03:5	4 Mapped FU	10001> KH													
13:05:5	A Manned FL	110002 KH	47154600												
13:05:5	4 Mapped AA														
13:07:5															
13:07:5															
13:09:5	4 Mapped HA		17394600												
13:09:5	54 Mapped FL	1240T -> KH	47394601												
13:09:0	4 Mapped AA	110005 -> KH	47514600												
13:11:5	5 Mapped AA														
13:13:5															
13:13:5															
13:15:5	4 Mapped FL		147754600												
13:15:3	4 Mapped AA	415591 -> KF	147754601												
13.17.5	4 Manned A4		47874601												
13:19:5	4 Mapped FL														
13:19:5															
13:21:5	64 Mapped FL														
13:21:5	64 Mapped AA		48114601												
13:23:5	4 Mapped FU		448234600												
13:25:5	54 Manned El		48354600												
13:25:5	5 Mapped AA		48354601												
13:27:5															
13:27:5															
13:29:5	54 Mapped FL	10014> KH	48594600												-



Status	Sensors	STARS	CCU	Avionics	CMU	CSP	DCNS	TIMS	TDLS	IPOP	SSRV	NADIN Service	NADIN Users	External Facilities	TFMS	WMSCR	Nexrad	4 Þ
TRMS																		
ACDI	71 ILL CM/IM	ZHUCM	IC 71	C CHARA	THE CHE					1000							Contract Contract	
ASDI	ZHU-SWIM	280-0		C-SWIM	ZLC-CMS													
ASDI 15:23:27 [908B:S] 15:23:29 [1498:E0 15:23:30 15:23:30 15:23:30 15:23:39 [142A:E 0100][14 15:23:39 [142A:E 0100][14 15:23:39 [15:23:39] [15:23:39 [15:23:39]	CK[0E:1523 AH[0E:1523 [9090:M][91 HK[0E:1523 M] DH[0E:1523 CK[0E:1523 CK[0E:1523 AH[0E:1523 AH[0E:1523 AH[0E:1523 DCO4,LLA.H 9A:EOM] HX[0E:1523 DCO4,LLA.H H[0E:1523 DCO4,LLA.H	266-CM 2264-228][0C:DGVW[2294-230][3294-230][344233][3344233][3344234][1728:INV 3842235][3394236]] IRV][908 3394236]] 3394237][3394238]] 3394238]	149A:E0 2A:AA90 2A:AA90 2A:AA90 2A:AA90 2A:AA90 2A:AA90 2A:AA90 2A:AA90 2A:AA90 A:1][908 2A:AA90 2A:AA90 2A:AA90	DM] D16T][2D: D16T][2D: D16T][2D: D16T][2D: DM] D53T][2D: D53T][2D: DM] D53T][2D: D81T][2D: D81T][2D: D81T][2D: D81T][2D:	247][167A 3:KZHU152 247][167A 247][167A 233][167A 233][167A 20 00:00:0 248][167A 248][167A 248][167A	(295)[3C 24 KZME (295)[68 (295)[68 (295)[3C (204)[32 (204)[1494 (296)[3C (204)[1494] (296)[68 (296)[68 (296)[3C	:C650][38 :1615][9] C:KHOU/1 :C650][31 A:KHOU][2 000][8A :A:E0M] :C650][38 4][910D: C:KHOU/1 :C650][31	E:L][4A:2 [8D:N24] 523][680 E:L][26A: 27A:KHUN 360][54/ E:L][4A:4 S][918B: 524][680 E:L][26A:	702][5A: 3E][918 C:ELOCO/ KHOU][7 (1][149A: 4][149A: 4][149A: 4][149A: 4][149A: 4][149A: 623][5A: 623][5A: 623][5A: 623][5A: 623][5A: 623][5A: 623][5A: 623][5A: 623][5A: 623][5A: 623][5A: 623][5A: 623][5A: 623][5][6][6][6][6][6][6][6][6][6][6][6][6][6]	451)[6A: K;1PDC][1526][68 D:D1523] EOM] 48:N][130 451][6A: 24][918D 1527][68 D:D1524]	KHOU][7[9180:00 3C:CHPEE][27A:KM 8A:ZHU][KHOU][7[::N5586B 3C:CHPEE][27A:KGI	D:D1523] (8A:360) OoFD] [918X:A1820 OoFD] [918X:A1820 OoFD] [918X:A1810] [14 1388:36] [23D:293 D:D1524] (8A:360] [918:4:14PDC] [918 (/1529] [68C:GRIPY, PT] [28A:1620] [14	[104:KHOU.ELOCC 2021.0251][92 1531][68C:YOKE 9A:EOM] (104:KHOU.ELOCC 9:000100][918X (1532][68C:YOKE 9A:EOM]	04.LLARIC.RIPKN2.KW 8x0100[925B:0200] M/1533][68C:SBI/153 /][23E:-0/-0][170A:05 04.LLAHRVKGPT/16 ALB2C2D2L10251][9 M/1534][68C:SBI/153	ITN/1810] [925D:01 5][68C:LL /15/2020 20][141A 25A:0100 6][68C:LL	[141B:ELO0 00][149A:E A/1548][68 15:23:28][:ELOGP] D][925B:020 A/1549][68	02][908A:I] :0M] :C:RIC/1746] 171A: 00][925D: C:HRV/1606]	
15:23:44	OH[0E:1523	444239][. 3444240]	2A:AA81 2A:AA7	169T][2D:2	224][167A	83][264	8A:AIA][1	38B:15]	139A:ZH	±0M] IU][139B:	:36][336	A:I][149A:EOM]						
15:23:45 15:23:49 [142A:.W	15;23:45 CK(0E:1523444241][149A:EOM] 15;23:49 AH[0E:1523494242][24:H013]9][20:249][167A:97][3C:C650][3E:L][4A:2451][5A:460][6A:KH0U][7D:D1524][8A:360][10A:KH0U,WYLSN7.GIFFA.]R0AM.L0ADS3.KTK/1604][141A:IAESS] [1424: WYLSN7.GIFFA.]R0AM.L0ADS3.][6088:S][909C:M][910C:DGVWR]4][910D:S][9188:KZHU1524 KZFW1542][918D:N5585E][918K:1FANS2PDC][918Q:0009DE][918X:A1B2C2D2L102S1] [2424:WYLSN7.GIFFA.]R0AM.L0ADS3.][6088:S][909C:M][910C:DGVWR]4][910D:S][9188:KZHU1524 KZFW1542][918D:N5585E][918K:1FANS2PDC][918Q:0009DE][918X:A1B2C2D2L102S1]																	
15:23:49 15:23:50 15:23:50 [908A:1][15:23:50 15:23:50 15:23:50 15:23:51	HX[0E:1523 DH[0E:1523 AH[0E:1523 908B:S][909 HX[0E:1523 DH[0E:1523 AH[0E:1523	2001[923] [3494243] [3494245] [3494245] [0:M][9100 [494246] [3494247] [3494248]	2A:FU1 2A:FU1 2A:AA9 2A:AA9 2A:AA9 2A:AA9 2A:AA9	1393;200 0139][2D: 0139][2D: 1571][2D: 1571][2D: 1571][2D: 1571][2D: 0931][2D:	249][167A 249][167A 250][167A 55][918B:K 250][167A 250][167A 250][167A	297][68 297][30 298][30 2HU152 2HU152 298][68 298][68 298][30 299][30	C:KHOU/1 :C650][3 :C650][3 24 KZFW1 C:KHOU/1 :C650][3 :C650][3	.524][68 E:L][26A: E:L][4A:2 [542][91 524][68 E:L][26A: E:L][26A:	C:WYLSN/ KHOU] [7 452] [5A: BD:N1 89 C:RENNK/ KHOU] [7 453] [5A:	/1532][68 D:D1524 451][6A: 9W][918 /1531][68 D:D1524] 451][6A:	BC:MONN][27A:KTH KHOU][7[K:1PDC][9 BC:COLET]][27A:KT) KHOU][7[T/1533][68C:BUMC (J][28A:1604][149 D:D1524][8A:360] 9180:000103][918 (T533][68C:SUSH] (K][28A:1610][149 D:D1524][8A:360]	CO/1535][68C:GIF A:EOM] [10A:KHOU.INDIE 3X:A182C2D2L10 (1535][68C:WWE A:EOM] [10A:KHOU.ELOCC	FA/1542][149A:EOM] 7.INDIEKTXK/1610][1 251][925A:0100][92 IL/1541][68C:INDIE/1 94.ILATRADRVARRE	41A:INDN 5B:0200] 544][149	IN] [142A: .IN [925D: 0100 A:EOM] 537] [141B: [IDIE7.INDIE]][149A:EOM] ELO02]	
15:23:51	HX[0E:1523	494249][20111404	2A:AA90	RJ4][910D 093T][2D::	251][167A	2H0152 :99][68	24 KZJX16 C:KHOU/1	524][680	C:ELOCO/	F][918K:] 1527][68	BC:CHPEE	#Q:000104][918X /1529][68C:GRIPY	(1532][68C:YOKE	M/1534][68C:SBI/153	6][68C:LL	A/1549][68	C:TRADR/	

Figure 81. TFMS Tab – CMS



5.2.24. WMSCR Tab

The WMSCR tab allows viewing and sending WMSCR messages in the SDRR interface.



Figure 82. WMSCR Tab

Status	Sensors	STARS	CCU	Avionics	CMU	CSP	DCNS	IPOP	SSRV	TFDM	NADIN Service	e NADIN U	sers E	external Facilities	TFMS	WMSCR	Nexrad	Dynamic	
5.0838										zhu								_ #	×
SendMe	ssage																		
device w SST ZHU SST KMS SST ZHU SST KMS SST ZHU SST KMS SST ZHU	mscr://stpl: C C C	3:51872 co	onnecte	d			SDR	sel	nd WMS(CR Messa	age to zhu	+ = ×							•
SST KMS SST ZHU SST KMS SST ZHU SST KMS SST ZHU SST KMS							T	ext			Send	Cancel							

Figure 83. Send WMSCR Message



5.2.25. Nexrad Tab

The Nexrad tab allows the ability see precipitation data on the SDRR interface.

Status	Sensors	STARS	CCU	DCNS	IPOP	SSRV	NADIN Service	NADIN Users	External Facilities	TFMS	WMSCR	Nexrad
SDRR											ZLC	
23:59:59	Started list	tening for t	cp conne	ections on	:47678							
23:59:59	23:59:59 Nexrad client disconnected											
23:59:59			lected									
23:59:59	Nexrad clie	ent disconn	ected									
13:42:10				ile). 256								
13:42:10	Sent 256 n											
13:42:40												
13:43:10												
13:43:40												
13:44:10			sages to									
13:44:40	Sent 256 n											
13:45:10	Sent 256 n											
13:45:40												
13:46:10												

Figure 84. NEXRAD Tab

5.2.26. Dynamic Input Tab

The Dynamic Input tab displays Dynamic Precip Status, Dynamic Target Status, and Dynamic Message Status. These windows all display port statistics: whether the connection is active, down and the packet count

SDRR			simdriver-regre	ession-13.0.2-mike1			• ē			
Windows Start Start At Abort	Start At Pause <u>H</u> elp <u>C</u> lose	1				(00:04:36) 06/09/2022 19:25:				
Status Sensors STARS C	CU DCNS TIMS TDLS	IPOP SSRV NADIN Service	NADIN Users	External Facilities	TFMS WMSCR	Nexrad CMU CSP Dyr	namicInput			
1008	Dynamic Precip S	atus				Dynamic Target St	atus 💶 🗆 🗶			
Port Statistics				Port Statistic	5					
Receive Device	Status	Packet Count		Receive De	vice	Status	Packet Count			
				tcp://:10	580?serverMode	Up	0			
				Target Statis	tics					
				Active		Terminated	Simulation Total			
				0		0	0			
				Target Statu	5					
				Id	 ACID 	Equip Mode 3A	ICAO Status Last Update			
tcp://:10694?serverMode	Up	1		108A		Dynamic Message S	Status 💷 🗆 🗶			
				Port Statistic	s					
				Receive De	vice	Status	Packet Count			
				tcp://:10	590?serverMode	Up	41			
				Dynamic Me	Dynamic Message Statistics					
				info		devctl	ssrvmsg			

Figure 85. Dynamic Input Tab



6. Log Files

SDRR log files provide a record of the status of each run and the messages exchanged with the live and simulated systems. This file contains details from the run including the configuration file(s), scenario, start time, any special feature that was enabled, and all the message transactions that took place with timestamps. The figure below is a screenshot of an SDRR log file. By default, the log file is located in the directory specified by the environment variable $SDRR_LOG_PATH$. The log files include a timestamp in the file name so they are not overwritten.

Session Edit View Bookmarks Settings Help	
🛃 🖲 Shell	6
27xml version="1.0" encoding="ISO-8859-1" ?>	•
<sintog></sintog>	
<pre><scemarioinfo auto1a="10" config="/usr/local/ctg/ZNY-PPP.xml" glstart="0" rsi="1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,</td><td></td></tr><tr><td>1,1,1" scemario="/usr/local/scemarios/TROY/my-new-scemario/sdrr.xml" starttime="00:00:00.00" utc="1"></scemarioinfo> </pre>	
<status -="" time="1/:50:40.00">yystem lime: (v0/20/2000 1):50:40). or manual start: user vate (v0/20/2000 1/:50:40) RUC node: v</status>	
A ling the 1.50.51.25 Amerization of the second state of the secon	
valmag tame 17.56.51.50 ret zny znuč zja vodotr ten por testvalmage	
cimag time="17-56-51-30" ref="jiv" wit="jow" >N000 ··DT 1000 [JW] TEST··*/Imag/	
cfinag time="17-56-13-53" whte"://white:"//white:"//white:"//white:"//white:"//white:"//white:"//white:"//white:"//white:"//white:"//white:"//white:"//white:"//white:"//white:"//white:"//white:"	
zimsg tame="17:56:53.53" rcv="znv" xmt="zbw" >8000 ::TR ZCN JVN TEST::*	
<ifmsg rcv="zbw" time="17:56:53.53" xmt="zny">N000 ::DT B000 JVN TEST::*</ifmsg>	
<ifmsg rcv="zbw" time="17:56:53.53" xmt="znv">N000 ::DT B000 JVN TEST::*</ifmsg>	
<ifmsg acid="TEST05" rcv="rrr" time="17:56:53.71" xmt="zny">ZCN1756000 ::FP 100TEST05 1/B721 1240 LRP A1807 050 RDG ::*</ifmsg>	
<ifmsg acid="TEST05" rcv="ppp" time="17:56:53.71" xmt="zny">ZCN1756000 ::FP 100TEST05 PHL/B721 1240 MXE P1801 050 ::*</ifmsg>	
<pre><ifmsg acid="TEST04" rcv="ppp" time="17:56:53.72" xmt="zny">ZCN1756001 ::FP 200TEST04 PHL/B721 1237 MXE P1800 050 ::*</ifmsg></pre>	
<ifmsg acid="TEST04" rcv="rrr" time="17:56:53.72" xmt="zny">ZCN1756001 ::FP 200TEST04 1/B721 1237 LRP A1806 050 RDG ::*</ifmsg>	
<ifmsg acid="TEST03" rcv="ppp" time="17:56:53.72" xmt="zny">ZCN1756002 ::FP 300TEST03 PHL/B721 1236 MXE P1759 050 ::*</ifmsg>	
<ifmsg acid="TEST03" rcv="rrr" time="17:56:53.72" xmt="zny">ZCN1756002 ::FP 300TEST03 1/B721 1236 LRP A1805 050 RDG ::*</ifmsg>	
<pre><ifmsg acid="TEST02" rcv="ppp" time="17:56:53.72" xmt="zny">ZCN1756003 ::FP 400TEST02 PHL/B721 1235 MXE P1758 050 ::*</ifmsg></pre>	
<ifmsg acid="TEST02" rcv="rrr" time="17:56:53.72" xmt="zny">ZCN1756003 ::FP 400TEST02 1/B721 1235 LRP A1804 050 RDG ::*</ifmsg>	
<ifmsg acid="TEST01" rcv="ppp" time="17:56:53.72" xmt="zny">ZCN1756004 ::FP 500TEST01 PHL/B721 1234 MXE P1757 050 ::*</ifmsg>	
<pre><ifmsg acid="TEST01" rcv="rrr" time="17:56:53.72" xmt="zny">ZCN1756004 ::FP 500TEST01 1/8721 1234 LRP A1803 050 RDG ::*</ifmsg></pre>	
<pre><ifmsg acid="TEST05" rcv="rrr" time="17:56:53.74" xmt="zny">ZCN1756000 ::FP 100TEST05 1/8/21 1240 LRP A1807 050 RDG ::*</ifmsg></pre>	
<pre><lifmsg acid="TEST05" rcv="zny" time="17:56:53.74" xmt="rrr">RRR1756001 ::0A 001 ZCN1756000 ::*</lifmsg></pre>	
<pre><1rmsg time="17:56:53.74" rCv="rrr" Xmt="2ny" acid="1ES104" >2CN1750601 ::P 2001ES104 1/8/21 1237 LRP A1806 050 RDG ::*</pre>	
<pre><1msg time="1/:50:53.14" xmt="rr" rCy="ZNy" acid="lesi04" >kmt/5002 ::00 002 Ctn/50001 ::<!--1msg5 </pre--></pre>	
<pre><1msg time="1/:50:53./4" rtv="rr" xmt="zny" addm="t5103" >2Un1/50002 ::rF J00125103 1/8/21 1236 LKF A1005 050 KU6 ::r</pre>	
XIIIISU LUNE ///JOIDSJ/4 AULT III IVE ZNY ALLE IEJIS /KRAIJSOODS ::// VOS ZURIJSOOZ ::///IIISU/ //imen time=/11/56.13 74/ reputry wei-yrep/ wei-yrep/alle/IESTON/ ZCNIJSEAD3ED ADDEC/11/2010 1/2021 1/326 IDD A1804 A5A DDC*//iferas/	
Almon time 11.56.53.74 where represent a start TESTO? ADDITISEAN ADDITISEAN ADDITISEAN ANTIME ADDITISEAN ADD	
Climage Line= 11.56.53.74 returns of the line and returns and r	
cimes time="11-56.53.74" wht="rr" rc"="nu" atd="TETA" > DRP175604Da 057.7074 #257.16" ACOS 050.00 <td></td>	
cifing time="17-55-53 75" rcu="2nv" xmt="rr" acid="TEST65" SRR175600 -:-DA 001 ZN1756000 -:-Y1mag	
imag tame="17:56:53.75" rcv="2nv" xmt="rr" acid="TEST04" >RR1756001 ::DA 002 ZCN175601 ::√2:mag	
<pre><ifmsg acid="TEST03" rcv="2nv" time="17:56:53.75" xmt="rrr">RR81756003 ::DA 003 ZCN1756002 ::*</ifmsg></pre>	
<ifmsg acid="TEST01" rcv="zny" time="17:56:53.75" xmt="rrr">RRR1756005 ::DA 005 ZCN1756004 ::*</ifmsg>	
<ifmsg rcv="zny" time="17:56:55.66" xmt="zdc">W000 ::TR ZCN JVN TEST::*</ifmsg>	
<ifmsg rcv="zny" time="17:56:55.67" xmt="zdc">W000 ::TR ZCN JVN TEST::*</ifmsg>	
1,1 Command	-

Figure 86. SDRR Log File



7. Surveillance Simulation, Recording, and Playback

SDRR has the capability to simulate surveillance data from several types of sources.

7.1. Automatic Dependent Surveillance – Broadcast (ADS-B)

SDRR has the capability to simulate ADS-B data when adapted in the configuration file. The 'svol' XML tag supports the generation of multiple streams of ADS-B data. Each stream represents the data on a different UDP port. The example SDRR configuration file (cfg.xml) below assumes a route has been configured on the processor. If a route has not been defined, an ethX device is added to the multicast address; e.g., "multi://224.1.1.100:59950?interface=eth3".

Example cfg.xml file:

This configuration can be used for both playback and recording, allowing ADS-B data to be recorded simultaneously with radar data without using separate programs such as wireshark, ethereal, or tcpdump. This recording can also be played back on the same individual streams. Wireshark recordings can be played back on individual streams also by running the pcap2jvn utility once for each stream specifying the UDP port and a unique file name. A scenario file can then be created with the converted stream files. The scenario file (sdrr.xml) below shows an example of ADS-B data exported from a scenario or created from recordings with each stream in a separate .ast file.



Example sdrr.xml file:

```
<sim>
<svol name="ppp-ads">
<stream file="ppp-ads-uat.ast" name="uat"/>
<stream file="ppp-ads-1090.ast" name="1090"/>
<stream file="ppp-ads-equip.ast" name="equip"/>
<stream file="ppp-ads-svol.ast" name="svol"/>
<stream file="ppp-ads-sdp.ast" name="sdp"/>
</svol>
```



7.2. Wide Area Multilateration (WAM)

SDRR has the capability to simulate and record WAM data when adapted in the config.xml file. The 'wam' XML tag supports the playback of multiple streams and each stream represents the data on a different UDP port. See below for cfg.xml and sdrr.xml examples: The example below assumes a route has been configured on the processor, if not defined, an ethX device is added to the multicast address; e.g., "multi://224.1.1.100:59970?interface=eth3".

Example cfg.xml file:

Example sdrr.xml file:



8. SDRR Configuration Files

The SDRR configuration file is an XML file which defines the facilities and sensors to be simulated or physically connected.

8.1. Configuration File Format

localhost

Defines a NAS En Route facility. This facility has one interfacility device per I/O thread.

Attributes:

name

Used as the title of the display window for this facility, and is matched with the "src" field in the scenario file format for messages (see Scenario File Format).

facName

Defines the 3-letter identifier to be used on the wire to identify this site. If not defined, it defaults to the first 3 characters of "name".

facID

Defines the 1-letter identifier to be used on the wire to identify this site. If not defined, defaults to the 3rd character of "facName".

autoTA

Enables the automatic TA response for this facility. Defines the number of seconds to wait before sending an automatic TA response to TI message (default is 0).

autoTR

Enables periodic transmission of TR message, defines the interval in seconds (default is 0).

Threads:

hostio

Defines an interface to a NAS host.

Attributes:

name

Used as the title of the display window for this facility, and is matched with the "dest" field in the scenario file format for messages (see Scenario File Format).



facName

Defines the 3-letter identifier to be used on the wire to identify this site. If not defined, it defaults to the first 3 characters of "name".

facID

Defines the 1-letter identifier to be used on the wire to identify this site. If not defined, defaults to the 3rd character of "facName".

device

Device or file name.

txclock

The baud rate of the transmit side of the assigned device. 0 means accept the transmit clock from the DCE (default is 2400).

rxclock

The baud rate of the receive side of the assigned device. 0 means accept the receive clock from the DCE (default is 0).

tangent

Lat/Long Point Of Tangency.

org

X/Y value used for dynamic interfacility messaging.

magdev

Magnetic deviation, in degrees.

starsio

Defines an interface to a Terminal facility.

Attributes:

name

Used as the title of the display window for this facility, and is matched with the "dest" field in the scenario file format for messages (see Scenario File Format).

facName

Defines the 3-letter identifier to be used on the wire to identify this site. If not defined, it defaults to the first 3 characters of "name".



facID

Defines the 1-letter identifier to be used on the wire to identify this site. If not defined, defaults to the 3rd character of "facName".

device

Device or file name.

txclock

The baud rate of the transmit side of the assigned device. 0 means accept the transmit clock from the DCE (default is 2400).

rxclock

The baud rate of the receive side of the assigned device. 0 means accept the receive clock from the DCE (default is 0).

tangent

Lat/Long Point Of Tangency.

org

X/Y value used for dynamic interfacility messaging.

magdev

Magnetic deviation, in degrees.

eramsim

Defines a simulated ERAM facility.

Attributes:

name

Used as the title of the display window for this facility.

Threads:

eddsServer

Defines the connection between the simulated ERAM and an external EDDS.

Attributes:

listenAddress

Defines the local address on which SDRR will listen for the EDDS connects. The EDDS must be configured with the same address.



port

Defines the port number for the EDDS connection. The EDDS must be configured with the same port number.

clientDevice

Defines the address and port which SDRR will use for CMS data feedback.

stars

Defines a terminal STARS facility within the boundaries of the simulated ERAM center.

Attributes:

name

Used as the title of the display window for this facility.

device

Physical device or file name.

txclock

The baud rate of the transmit side of the assigned device. 0 means accept the transmit clock from the DCE (default is 2400).

rxclock

The baud rate of the receive side of the assigned device. 0 means accept the receive clock from the DCE (default is 0).

tangent

Lat/Long Point Of Tangency.

magdev

Magnetic deviation, in degrees.

stars

Defines a terminal STARS facility. This facility has one interfacility device associated with it, with one or more I/O threads to handle communications to other facilities which are all routed through the single interfacility device.

Attributes:

device

Physical device or file name.



name

Used as the title of the display window for this facility, and is matched with the "src" field in the scenario file format for messages (see Scenario File Format).

facName

Defines the 3-letter identifier to be used on the wire to identify this site. If not defined, it defaults to the first 3 characters of "name".

facID

Defines the 1-letter identifier to be used on the wire to identify this site. If not defined, defaults to the 3rd character of "facName".

autoTA

Enables the automatic TA response for this facility. Defines the number of seconds to wait before sending an automatic TA response to TI message (default is 0).

autoTR

Enables periodic transmission of TR message, defines the interval in seconds (default is 0).

Threads:

hostio

Defines an interface to a NAS host.

Attributes:

name

Used as the title of the display window for this facility, and is matched with the "dest" field in the scenario file format for messages (see Scenario File Format).

facName

Defines the 3-letter identifier to be used on the wire to identify this site. If not defined, it defaults to the first 3 characters of "name".

facID

Defines the 1-letter identifier to be used on the wire to identify this site. If not defined, defaults to the 3rd character of "facName".

txclock

The baud rate of the transmit side of the assigned device. 0 means accept the transmit clock from the DCE (default is 2400).



rxclock

The baud rate of the receive side of the assigned device. 0 means accept the receive clock from the DCE (default is 0).

tangent

Lat/Long Point Of Tangency.

org

X/Y value used for dynamic interfacility messaging.

magdev

Magnetic deviation, in degrees.

artsio

Defines an interface to a Terminal facility.

Attributes:

name

Used as the title of the display window for this facility, and is matched with the "dest" field in the scenario file format for messages (see Scenario File Format).

facName

Defines the 3-letter identifier to be used on the wire to identify this site. If not defined, it defaults to the first 3 characters of "name".

facID

Defines the 1-letter identifier to be used on the wire to identify this site. If not defined, defaults to the 3rd character of "facName".

txclock

The baud rate of the transmit side of the assigned device. 0 means accept the transmit clock from the DCE (default is 2400).

rxclock

The baud rate of the receive side of the assigned device. 0 means accept the receive clock from the DCE (default is 0).

tangent

Lat/Long Point Of Tangency.

org

X/Y value used for dynamic interfacility messaging.



magdev

Magnetic deviation, in degrees.

radar

Defines a radar sensor.

Attributes:

name

Used as the title of the display window for this facility, and is matched with the "src" field in the scenario file format for messages (see Scenario File Format).

type

Radar type (defaults to LRR).

device

Device or file name.

chans

Number of channels (default is 0, which means auto-determine based on type).

magdev

Magnetic deviation of the radar, in degrees.

parrots

Defines the beacon code(s) squawked by parrot targets.

scantime

Amount of time the radar takes to complete one sweep, in seconds.

elev

Elevation of the radar, in feet above MSL.

pos

Lat/long position of the radar.



svol

Defines a service volume for ADS-B.

Attributes:

name

Used as the title of the display window for this facility, and is matched with the "src" field in the scenario file format for messages (see Scenario File Format).

pos

Lat/long position.

Threads:

stream

Defines the type(s) of message supported.

Attributes:

name

Used as the title of the display window, and is matched with the "src" field in the scenario file format for messages (see Scenario File Format). It must be one of: UAT, 1090, Equip, SVol, or SDP.

device

Device or file name.

wam

Defines a service volume for WAM.

Attributes:

name

Used as the title of the display window for this facility, and is matched with the "src" field in the scenario file format for messages (see Scenario File Format).

pos

Lat/long position.

Threads:

stream

Defines the type(s) of message supported.



Attributes:

name

Used as the title of the display window, and is matched with the "src" field in the scenario file format for messages (see Scenario File Format). It must be one of: UAT, 1090, Equip, SVol, or SDP.

device

Device or file name.

asdex

Defines an ASDEX Stream.

Attributes:

name

Used as the title of the display window for this facility, and is matched with the "src" field in the scenario file format for messages (see Scenario File Format).

tt/

Defines the time to live.

etms

Defines an ETMS facility.

Attributes:

starsid

Defines a three-letter ID for use by a STARS facility.

name

Used as the title of the display window for this facility, and is matched with the "src" field in the scenario file format for messages (see Scenario File Format).

device

Device or file name.

rate

Baud rate.



8.2. Example Configuration Files

8.2.1. ERAM Simulation in Direct Mode

To simulate ERAM, SDRR must be configured with an eramsim source and an eddserver definition with connection information for an EDDS server. To connect to an EDDS server, the SDRR configuration file needs to have the "listenAddress" set to the network interface address of the processor running SDRR. On the EDDS server, the configuration file \${HDDS_SSP}/hid_address.adp should have the same host/port pair configured.

```
<root>
<sources localhost="zla"
<eramsim name="zla">
<eddserver port="%{ZLA_EDDS_PORT}" listenAddress="${SDRR_HOSTNAME}"/>
<clientDevice>pipe:zla-cms-%{USER}</clientDevice>
<stars name="ttt" device="tcps:${SDRR_HOSTNAME}/%{AIG1_SCT_PORT}"
tangent="+33:47:30.41,-118:00:08.06" magdev="14.0"/>
</eramsim>
</sources>
</root>
```

8.2.2. ERAM Simulation in Mixed Mode

Except for the stars definition, the eramsim stanza should be configured the same way as for the Direct Mode simulation. To drive a live STARS system, the site should be added to the SDRR configuration file inside the eramsim stanza. The site should have the facility name as it is adapted in ERAM adaptation and the device should be configured for a physical IFDT card connected to the STARS system. For example, the physical card that connects to the STARS system is installed in an SDRR SIRS processor, such as sirs16@/dev/if0. Note that this interface may be configured differently for each STARS system.

```
<root>
<sources localhost="zdc"
<eramsim name="zdc">
<eddserver port="%{ZDC_EDDS_PORT}" listenAddress="${SDRR_HOSTNAME}"/>
<clientDevice>pipe:zdc-cms-%{USER}</clientDevice>
<stars name="acy" device="sirs16@/dev/if0" tangent="+39:27:10.00,-074:35:31.00"
magdev="-12.0" rxclock="2400" txclock="2400"/>
</eramsim>
</sources>
</root>
```



8.2.3. ERAM in a Box Interface

The configuration format is slightly different for ERAM in a Box (EIB), such as those running in the Virtual Test Lab (VTL), than it is for an ERAM Test Bed connected to an En Route Communications Gateway (ECG). Note that the examples below are only a sample of the most commonly used types of interfaces and devices; there are many more types and optional attributes that could be configured depending on the specific test need.

The local terminal facilities, CCUs, SSRV injection positions, and hgi interfaces (ECG emulation devices) are defined in the SDRR non-surveillance configuration file for each en route facility:

```
<root>
 <sources localhost="zdv">
   <stars name="ras" device="hgi://%{SDRR_ZDV}?eram=ZDV&amp;device=RAS" facName="ras"</pre>
autoTR="0">
     <hostio name="zdv" facName="zcd" magdev="9.00" tangent="+39:13:54.00,-106:52:59.00"/>
     <aig>
      <clientDevice>xmlstream://%{SIMDRIVER_IP}:%{SIMDRIVER_AIG_PORT}</clientDevice>
     </aig>
   </stars>
   <stars name="rdc" device="hgi://%{SDRR_ZDV}?eram=ZDV&amp;device=RDC" facName="rdc"</pre>
autoTR="0">
     <hostio name="zdv" facName="zcd" magdev="8.00" tangent="+39:51:17.00,-104:43:06.00"/>
     <starsio name="rco" magdev="9.00" tangent="+38:48:02.00,-104:40:42.00"/>
     <starsio name="rcy" magdev="9.00" tangent="+41:07:59.00,-104:52:01.00"/>
     <aig>
      <clientDevice>xmlstream://%{SIMDRIVER IP}:%{SIMDRIVER AIG PORT}</clientDevice>
     </aig>
   </stars>
. . .
   <ccu facility="zdv" id="1" indevice="hgi://%{SDRR_ZDV}?eram=ZDV&amp;device=CCU10"</pre>
outdevice="hgi://%{SDRR_ZDV}?eram=ZDV&device=CCU1I"/>
   <!--ssrvManager note: ZDV ssrv (k3.eab on mmp) is listening on port 48023.-->
   <ssrvinj facility="zdv" device="pipe:zdv-A-ssrvinj-user" active="1" channel="A"</pre>
exercise="15" maxMsgsPerSec="-1">
     <positions>
      <position>D03</position>
. . .
      <position>E9</position>
     </positions>
```



```
</ssrvinj>
 </sources>
 <hgi name="ZDV" clientInterface="%{SDRR_ZDV}" hgiInterface="%{ZDV_ERAM_INTERFACE}">
   <ccu name="CCU1I" id="1" lda="0x100" writeOnly="1"/>
   <ccu name="CCU10" id="1" lda="0x101" readOnly="1"/>
   <interfacility name="RAS" lda="0x102"/>
   <interfacility name="RCO" lda="0x103"/>
   <interfacility name="RCY" lda="0x104"/>
   <interfacility name="RDC" lda="0x105"/>
   <interfacility name="RKP" lda="0x106"/>
   <interfacility name="RRC" lda="0x107"/>
   <interfacility name="ZAB" lda="0x108"/>
   <interfacility name="ZKC" lda="0x109"/>
   <interfacility name="ZLA" lda="0x10a"/>
   <interfacility name="ZLC" lda="0x10b"/>
   <interfacility name="ZMP" lda="0x10c"/>
 </hgi>
</root>
```

8.2.4. ERAM Test Bed Interface

For the ERAM Test Bed, the local terminal facilities, CCUs, and SSRV injection positions are defined in the SDRR non-surveillance configuration file for each En Route facility:



```
<starsio name="rco" magdev="9.00" tangent="+38:48:02.00,</pre>
-104:40:42.00"/>
   </stars>
. . .
   <ccu facility="zdv" id="1"
indevice="(ecggpo://pipa?device=CCU10+ecggpo://pipb?device=CCU10)"
outdevice="(ecggpi://pipa?device=CCU1I+ecggpi://pipb?device=CCU1I)"/>
   <ssrvinj facility="zdv" device="mhp:24000/localhost" active="1" channel="A"</pre>
exercise="13" maxMsgsPerSec="-1">
     <positions>
      <position>D03</position>
      <position>R03</position>
. . .
      <position>E9</position>
     </positions>
   </ssrvinj>
 </sources>
</root>
```

8.2.5. National Configuration for EIB

For the EIB, all of the neighboring EnRroute facilities, ATOP, non-US, NADIN, TFMS, and WMSCR interfaces are defined in one SDRR national file for the entire configuration:

```
<root>
</sources>
</externalFacility name="zoa" isHost="1" srcATS="kzoa">
</eramInterface name="zla" destATS="kzla">
</eramInterface name="zla" destATS="kzla">
</eramInterfacility device="hgi://%{SDRR_ZLA}?eram=ZLA&amp;device=ZOA" org="-468.56,-
339.00" tangent="+34:58:41.00,-116:07:07.00"/>
<//eramInterface>
</eramInterface name="zlc" destATS="kzlc">
</eramInterface
</eramInterface name="zlc" destATS="kzlc">
</eramInterface name="zlc" destATS="kzlc">
</eramInterface name="zlc" destATS="kzlc">
</eramInterface>
</eramInterface name="zlc" destATS="kzlc">
</eramInterface>
</eramInterface>
</eramInterface/
</eramInterface>
<//eramInterface>
<//eramInterface<//eramInterface>
<//eramInterface<//eramInterface>
<//eramInterface<//eramInterface>
<//eramInterface<//eramInterface>
<//eramInterface>
```



```
<nadin device="nadin://%{NMR_IP}:12017" destAddress="KZCPZQZX"</pre>
srcAddress="CZYZZTON"/>
     </eramInterface>
   </externalFacility>
. . .
   <nadinService>
     <eramServer listenAddress="%{NATIONAL_INTERFACE}" port="20047"/>
     <externalServer listenAddress="%{SDRR NATIONAL}">
      <interface caatsAddress="CZYZZTON"</pre>
                                            eramAddress="KZCPZQZX">12017</interface>
      <interface caatsAddress="MMTYZRZX"</pre>
eramAddress="KZCAZQZX">%{MTY TO ZAB NADIN PORT}</interface>
      <interface caatsAddress="CZEGZGGG"</pre>
                                            eramAddress="KZCUZQZX">12024</interface>
      <interface caatsAddress="CZWGZPEG"</pre>
                                             eramAddress="KZCUZQZX">12022</interface>
      <interface caatsAddress="CZWGZPPP"</pre>
                                             eramAddress="KZCPZQZX">12014</interface>
      <interface caatsAddress="MMZTZRZX"</pre>
eramAddress="KZCLZQZX">%{MZT_TO_ZLA_NADIN_PORT}</interface>
      <interface caatsAddress="MMZTZRZX"</pre>
eramAddress="KZCAZQZX">%{MZT TO ZAB NADIN PORT}</interface>
     </externalServer>
   </nadinService>
   <tfms>
     <asdiServer listenAddress="%{NATIONAL_INTERFACE}" port="9092"/>
     <eramInterface name="zdv">
      <esas url="http://localhost:8080/zdv/ERAMFlightInfoService"/>
      <cmsInput device="pipe:swim-cms-zdv-user"/>
     </eramInterface>
. . .
   </tfms>
   <wmscr listenAddress="%{NATIONAL INTERFACE}">
     <eramServer name="zdv" port="50055"/>
     <eramServer name="zla"</pre>
                              port="50061"/>
     <eramServer name="zkc" port="50060"/>
     <eramServer name="zab" port="50050"/>
     <eramServer name="zlc" port="50062"/>
     <eramServer name="zmp" port="50065"/>
   </wmscr>
 </sources>
</root>
```



8.2.6. National Configuration for ERAM Test Bed

For the ERAM Test Bed, all of the neighboring En Route facilities, ATOP, non-US, NADIN, TFMS, and WMSCR interfaces are defined in the SDRR national file for each en route facility:

```
<root>
 <sources>
   <externalFacility name="zmp" isHost="1" srcATS="kzmp">
     <eramInterface name="zdv" destATS="kzdv">
      <interfacility device="(ecgif://pipa?device=ZMP+</pre>
ecgif://pipb?device=ZMP)" org="-381.94,-476.82" tangent="+41:11:51.00,-106:27:55.00"/>
    </eramInterface>
   </externalFacility>
   <externalFacility name="zab" isHost="1" srcATS="kzab">
     <eramInterface name="zdv" destATS="kzdv">
      <interfacility device="(ecgif://pipa?device=ZAB+</pre>
ecgif://pipb?device=ZAB)" org="-381.94,-476.82" tangent="+41:11:51.00,-106:27:55.00"/>
    </eramInterface>
   </externalFacility>
. . .
   <nadinService>
    <eramServer listenAddress="%{NATIONAL INTERFACE}" port="20047"/>
     <externalServer listenAddress="%{SDRR_NATIONAL}"/>
   </nadinService>
   <tfms>
     <asdiServer listenAddress="%{NATIONAL_INTERFACE}" port="9092"/>
    <eramInterface name="zdv">
      <esas url="http://localhost:8080/zdv/ERAMFlightInfoService"/>
      <cmsInput device="pipe:swim-cms-zdv-sdrr"/>
    </eramInterface>
   </tfms>
   <wmscr listenAddress="%{NATIONAL_INTERFACE}">
     <eramServer name="zdv" port="50055"/>
   </wmscr>
 </sources>
</root>
```

8.2.7. STARS Simulation in Direct Mode

To simulate STARS and inject AIG messages directly into TBFM, each STARS site should be added to the SDRR configuration file inside the eramsim stanza and also as a stars stanza. The sites should have the



facility name as it is adapted in ERAM, and the TBFM name. The multicast addresses and ports defined in the TBFM customization should be added as tsas datasets inside the stars stanzas. These data sets define the devices that will be the interfaces for the various categories of AIG message.

8.2.8. TFMS Emulation

SDRR can emulate the Traffic Flow Management System (TFMS) and generate Aircraft Situation Display to Industry (ASDI) data.



8.2.9. Terminal Radar

SDRR will need configuration files for the Terminal radar sites and static messages to generate radar data. The radar sites should be configured with physical radar interface cards connected to the STARS system. For example, the physical cards that connect to the STARS system are often installed in an SDRR SIRS slave processor, such as sirs16s1@/dev/srr0. Note that this could be configured differently for each STARS system. The radar configuration files should be specified on the SDRR command line.

Terminal sensors file including status message definitions:

```
<radar name="acy" device="sirs16s1@/dev/srr0" type="asr9-modes" elev="165.00"
psrMaxRange="60" scantime="4.69" spos="+39:27:09.80,
-074:35:31.10" ssrMaxRange="60">
 <brtqc acps="2102" alt="-1000" bcn="7770" range="59.1"/>
 <srtqc acps="10" range="55.1" runlength="24"/>
 <parrot acps="977" mode3a="1274" modec="730" range="50"/>
 <permanentEcho acps="879" modec="0" range="1.6" runlength="24"/>
</radar>
. . .
<svol name="acy-ads" sac="0xac" sic="0x1e" svType="1">
 <stream name="uat" device="(sirs16@multi://239.161.7.30/59950?interface=2,3)"/>
 <stream name="1090" device="(sirs16@multi://239.161.7.30/59951?interface=2,3)"/>
 <stream name="equip" device="(sirs16@multi://239.161.7.30/59952?interface=2,3)"/>
 <stream name="svol" device="(sirs16@multi://239.161.7.30/59953?interface=2,3)"/>
 <stream name="sdp" device="(sirs16@multi://239.161.7.30/59954?interface=2,3)"/>
 <radio_station name="TTNGS" lid="3000" maxRange="60.00" spos="+40:16:40.11,</pre>
-074:49:10.16">
   <receiver id="0xd0260" icao="0xfaafaa" period="10.0" spos="+40:16:40.11,
-074:49:10.16" uat="0"/>
   <receiver id="0xd0261"
                           icao="0xfaafaa"
                                            period="10.0" spos="+40:16:40.11,
-074:49:10.16" uat="0"/>
   <receiver id="0xd0262" icao="0xfaafaa"
                                            period="10.0" spos="+40:16:40.11,
-074:49:10.16" uat="0"/>
   <receiver id="0xd0263" icao="0xfaafaa"
                                            period="10.0" spos="+40:16:40.11,
-074:49:10.16" uat="0"/>
   <receiver id="0x90260" icao="0xfaafaa"
                                            period="5.0" spos="+40:16:40.11,
-074:49:10.16" uat="1"/>
 </radio_station>
. . .
</svol>
```



8.2.10. En Route Radar for EIB

For the EIB, En Route and Terminal radar sites and static messages are defined in the SDRR surveillance configuration file for each En Route facility:

```
<sources>
   <radar name="cdc-eram" device="ecgp://zdvserver?artcc=ZDV&amp;radar=CDC" type="arsr2"</pre>
elev="10786.21" genStaticMsgs="0" psrMaxRange="225" scantime="12.00"
spos="+37:35:35.48,-112:51:49.20" ssrMaxRange="225">
    <brtqc acps="2080" alt="-12" bcn="0000" range="1"/>
    <srtqc acps="32" range="1" runlength="64"/>
    <parrot acps="887" mode3a="1274" modec="10" range="111.5"/>
    <parrot acps="3149" mode3a="1275" modec="4087" range="97.125"/>
   </radar>
   <radar name="dbl-eram" device="ecgp://zdvserver?artcc=ZDV&amp;radar=DBL"
type="atcbi6" elev="11786.68" genStaticMsgs="0" psrMaxRange="225" scantime="12.12"
spos="+39:26:39.41,-106:54:10.21" ssrMaxRange="225">
    <brtqc acps="2080" alt="839" bcn="7777" range="1"/>
    <srtqc acps="32" range="1" runlength="64"/>
    <parrot acps="1442" mode3a="1274" modec="990" range="37"/>
    <parrot acps="1907" mode3a="1275" modec="800" range="17.875"/>
   </radar>
   <radar name="cos-term" device="sirs16s1:/dev/asr11-5" type="asr11" elev="6280.00"
genStaticMsgs="0" magdev="9.00" psrMaxRange="60" psrRangeUnits="64.00" scantime="4.84"
spos="+38:48:02.10,-104:40:42.50" ssrMaxRange="60" ssrRangeUnits="64.00">
    <brtqc acps="2104" alt="0" bcn="7777" range="59.1"/>
    <srtqc acps="175" range="56" runlength="24"/>
    <parrot acps="3473" mode3a="1274" modec="600" range="46.2"/>
   </radar>
   <radar name="dbl-term" device="sirs16s1:/dev/lrr8" type="lrr" elev="11779.00"
psrMaxRange="1" scantime="12.00" spos="+39:26:39.40,
-106:54:10.20" ssrMaxRange="250">
    <brtqc acps="2080" alt="839" bcn="7777" range="1"/>
    <srtqc acps="32" range="1" runlength="24"/>
    <parrot acps="1442" mode3a="1274" modec="990" range="36.9"/>
    <parrot acps="1907" mode3a="1275" modec="800" range="17.9"/>
   </radar>
   <radar name="den-term" device="sirs16s1:/dev/srr0" type="asr9-modes" elev="5441.00"
magdev="8.00" psrMaxRange="60" scantime="4.62" spos="+39:51:16.80,-104:43:05.90"
ssrMaxRange="60">
    <brtqc acps="2102" alt="-10" bcn="7770" range="59.1"/>
```



```
<srtqc acps="1036" range="45" runlength="24"/>
    <parrot acps="1679" mode3a="0305" modec="-2" range="27.7"/>
     <parrot acps="3496" mode3a="0306" modec="-2" range="11.6"/>
   </radar>
. . .
   <svol name="zdvasv" genStaticMsgs="0" sac="0xc1" sic="0x11" svType="0">
    <stream name="uat" device="multi://239.161.17.32:48040"/>
    <stream name="1090" device="multi://239.161.17.32:48041"/>
    <stream name="equip" device="multi://239.161.17.32:48042"/>
    <stream name="svol" device="multi://239.161.17.32:48043"/>
     <stream name="sdp" device="multi://239.161.17.32:48044"/>
    <radio_station name="RSXXZDV" lid="4170" maxRange="150.00" spos="+44:49:08.71,-</pre>
110:33:28.45">
      <receiver id="0xdf7e0" icao="0xfaafaa" period="10.0" spos="+44:49:08.71,-</pre>
110:33:28.45" uat="0"/>
      <receiver id="0xdf7e1" icao="0xfaafaa"</pre>
                                                period="10.0" spos="+44:49:08.71,-
110:33:28.45" uat="0"/>
      <receiver id="0xdf7e2" icao="0xfaafaa" period="10.0" spos="+44:49:08.71,-
110:33:28.45" uat="0"/>
      <receiver id="0xdf7e3" icao="0xfaafaa" period="10.0" spos="+44:49:08.71,-</pre>
110:33:28.45" uat="0"/>
      <receiver id="0x9f7e0" icao="0xfaafaa" period="5.0" spos="+44:49:08.71,-</pre>
110:33:28.45" uat="1"/>
    </radio_station>
. . .
   </svol>
   <svol name="rdc-ads" genStaticMsgs="0" sac="0xc2" sic="0x19" svType="1">
     <stream name="uat" device="(sirs16@multi:eth2:239.162.25.32/59950+</pre>
sirs16@multi:eth3:239.162.25.32/59950)"/>
     <stream name="1090" device="(sirs16@multi:eth2:239.162.25.32/59951+</pre>
sirs16@multi:eth3:239.162.25.32/59951)"/>
     <stream name="equip" device="(sirs16@multi:eth2:239.162.25.32/59952+</pre>
sirs16@multi:eth3:239.162.25.32/59952)"/>
     <stream name="svol" device="(sirs16@multi:eth2:239.162.25.32/59953+</pre>
sirs16@multi:eth3:239.162.25.32/59953)"/>
     <stream name="sdp" device="(sirs16@multi:eth2:239.162.25.32/59954+</pre>
sirs16@multi:eth3:239.162.25.32/59954)"/>
     <radio_station name="38A" disabled="0" lid="2500" maxRange="60.00"
spos="+37:54:42.87,-103:59:04.28">
      <receiver id="0xd0650" icao="0xfaafaa" period="10.0" spos="+37:54:42.87,-</pre>
103:59:04.28" uat="0"/>
```



```
<receiver id="0xd0651" icao="0xfaafaa"
                                                period="10.0" spos="+37:54:42.87,-
103:59:04.28" uat="0"/>
      <receiver id="0xd0652" icao="0xfaafaa" period="10.0" spos="+37:54:42.87,-</pre>
103:59:04.28" uat="0"/>
                                                period="10.0" spos="+37:54:42.87,-
      <receiver id="0xd0653" icao="0xfaafaa"
103:59:04.28" uat="0"/>
      <receiver id="0x90650" icao="0xfaafaa"
                                               period="5.0" spos="+37:54:42.87,-
103:59:04.28" uat="1"/>
    </radio station>
. . .
   </svol>
   <nexradServer name="zdv" nexradOrigin="+33:00:00.00,-114:00:00.00"</pre>
port="%{ZDV_NEXRAD_SERVER_PORT}" tangent="+41:11:51.00,-106:27:55.00"/>
 </sources>
 <ecgp name="zdvserver" device="multi://239.255.1.50:48020">
   <artcc name="ZDV">
    <radar name="CDC" id="2" ecgpType="1"/>
    <radar name="DBL" id="12" ecgpType="1"/>
   </artcc>
 </ecgp>
```

8.2.11. En Route Radar for ERAM Test Bed

For the ERAM Test Bed, En Route and terminal radar sites and static messages are defined in the SDRR surveillance configuration file for each En Rroute facility:



```
<radar name="dbl-eram" device="(ecgrdr://pipa?device=DBL-1&amp;device=DBL-2
&device=DBL-3+ecgrdr://pipb?device=DBL-1&device=DBL-2&
device=DBL-3)" type="atcbi6" elev="11786.68" psrMaxRange="225" scantime="12.12"
spos="+39:26:39.41, -106:54:10.21" ssrMaxRange="225">
    <brtqc acps="2080" alt="839" bcn="7777" range="1"/>
    <srtqc acps="32" range="1" runlength="64"/>
    <parrot acps="1442" mode3a="1274" modec="990" range="37"/>
    <parrot acps="1907" mode3a="1275" modec="800" range="17.875"/>
   </radar>
. . .
   <radar name="cos-term" device="sirs16s1:/dev/asr11-5" type="asr11" elev="6280.00"
magdev="9.00" psrMaxRange="60" psrRangeUnits="64.00" scantime="4.84"
spos="+38:48:02.10,-104:40:42.50" ssrMaxRange="60" ssrRangeUnits="64.00">
    <brtqc acps="2104" alt="0" bcn="7777" range="59.1"/>
    <srtqc acps="175" range="56" runlength="24"/>
    <parrot acps="3473" mode3a="1274" modec="600" range="46.2"/>
   </radar>
   <radar name="dbl-term" device="sirs16s1@/dev/lrr8" type="lrr" elev="11779.00"
psrMaxRange="1" scantime="12.00" spos="+39:26:39.40,
-106:54:10.20" ssrMaxRange="250">
    <brtqc acps="2080" alt="839" bcn="7777" range="1"/>
    <srtgc acps="32" range="1" runlength="24"/>
    <parrot acps="1442" mode3a="1274" modec="990" range="36.9"/>
    <parrot acps="1907" mode3a="1275" modec="800" range="17.9"/>
   </radar>
   <radar name="den-term" device="sirs16s1@/dev/srr0" type="asr9-modes" elev="5441.00"
magdev="8.00" psrMaxRange="60" scantime="4.62" spos="+39:51:16.80,-104:43:05.90"
ssrMaxRange="60">
    <brtqc acps="2102" alt="-10" bcn="7770" range="59.1"/>
    <srtqc acps="1036" range="45" runlength="24"/>
    <parrot acps="1679" mode3a="0305" modec="-2" range="27.7"/>
    <parrot acps="3496" mode3a="0306" modec="-2" range="11.6"/>
   </radar>
. . .
   <svol name="zdvasv" pos="+44:49:08.71,-110:33:28.45" sac="0xc1" sic="0x11"</pre>
svType="0">
    <stream name="uat" device="multi://239.161.17.32:59950"/>
    <stream name="1090" device="multi://239.161.17.32:59951"/>
    <stream name="equip" device="multi://239.161.17.32:59952"/>
    <stream name="svol" device="multi://239.161.17.32:59953"/>
    <stream name="sdp" device="multi://239.161.17.32:59954"/>
```



```
<radio_station name="RSXXZDV" lid="4170"
                                                maxRange="150.00" spos="+44:49:08.71,-
110:33:28.45">
      <receiver id="0xdf7e0" icao="0xfaafaa"
                                                period="10.0" spos="+44:49:08.71,-
110:33:28.45" uat="0"/>
                                                period="10.0" spos="+44:49:08.71,-
      <receiver id="0xdf7e1" icao="0xfaafaa"</pre>
110:33:28.45" uat="0"/>
      <receiver id="0xdf7e2" icao="0xfaafaa"
                                                period="10.0" spos="+44:49:08.71,-
110:33:28.45" uat="0"/>
      <receiver id="0xdf7e3" icao="0xfaafaa"
                                                period="10.0" spos="+44:49:08.71,-
110:33:28.45" uat="0"/>
      <receiver id="0x9f7e0" icao="0xfaafaa"
                                                period="5.0" spos="+44:49:08.71,-
110:33:28.45" uat="1"/>
    </radio station>
. . .
   </svol>
   <svol name="rdc-ads" sac="0xc2" sic="0x19" svType="1">
     <stream name="uat" device="(sirs16@multi:eth2:239.162.25.32/59950+</pre>
sirs16@multi:eth3:239.162.25.32/59950)"/>
     <stream name="1090" device="(sirs16@multi:eth2:239.162.25.32/59951+</pre>
sirs16@multi:eth3:239.162.25.32/59951)"/>
     <stream name="equip" device="(sirs16@multi:eth2:239.162.25.32/59952+</pre>
sirs16@multi:eth3:239.162.25.32/59952)"/>
     <stream name="svol" device="(sirs16@multi:eth2:239.162.25.32/59953+
sirs16@multi:eth3:239.162.25.32/59953)"/>
     <stream name="sdp" device="(sirs16@multi:eth2:239.162.25.32/59954+</pre>
sirs16@multi:eth3:239.162.25.32/59954)"/>
     <radio_station name="38A" lid="2500" maxRange="60.00" spos="+37:54:42.87,-</pre>
103:59:04.28">
      <receiver id="0xd0650" icao="0xfaafaa"
                                                period="10.0" spos="+37:54:42.87,-
103:59:04.28" uat="0"/>
      <receiver id="0xd0651" icao="0xfaafaa"
                                                period="10.0" spos="+37:54:42.87,-
103:59:04.28" uat="0"/>
      <receiver id="0xd0652"
                               icao="0xfaafaa"
                                                period="10.0" spos="+37:54:42.87,-
103:59:04.28" uat="0"/>
      <receiver id="0xd0653"
                               icao="0xfaafaa"
                                                period="10.0" spos="+37:54:42.87,-
103:59:04.28" uat="0"/>
      <receiver id="0x90650" icao="0xfaafaa"
                                                period="5.0" spos="+37:54:42.87,-
103:59:04.28" uat="1"/>
    </radio_station>
   </svol>
```



8.2.12. Connections File for EIB

For the EIB, a connections file is used to allow SDRR to relay the IFDT messages from ERAM to the STARS system:

```
<connections>
<connection>
<interfacility device="hgi://%{SDRR_ZDV}?eram=ZDV&amp;device=RDC" txclock="2400"
rxclock="2400"/>
<interfacility device="sirs16@/dev/if0" txclock="2400" rxclock="2400"/>
</connection>
</connections>
```

8.2.13. Connections File for ERAM Test Bed

For the ERAM Test Bed, a connections file is used to allow SDRR to relay the IFDT messages from ERAM to the STARS system:

<connections> <connection></connection></connections>				
<pre><interfacility <="" <interfacility="" connection=""> </interfacility></pre>	<pre>device="(ecgif:pipa/RDC+e device="sirs16@/dev/if0"</pre>	cgif:pipb/RDC)" txclock="2400"	txclock="0" rxclock="240	rxclock="0" /> 0" />



8.2.14. TFDM Emulation

SDRR can simulate other data sent to TBFM in all simulation modes. This includes Terminal Flight Data Manager (TFDM) Release Time Coordination Service (RTCS) and Terminal Publication (TTP) and Metering Information Service (MIS) via System-Wide Information Management (SWIM) NAS Enterprise Messaging System (NEMS). Note that the "tfdm" configuration attribute "cmsInput" must match the "clientDevice" value in the "eramsim" stanza.

8.2.14.1. RTCS

```
<tfdm artcc="ZLA" cmsInput="pipe:zla-cms-%{USER}">
 <rtcs name="klax"
   publishDevice="solace://tbfmsolacedev01:55003?queueName=
RTCSPublish_08&compressed&userName=solace&passwd=solace1&
vpn=TBFM_SW_IS_DEPLOYMENT"
   requestDevice="solace://tbfmsolacedev01:55003?queueName=
RTCSRequest_08&compressed&userName=solace&passwd=solace1&
vpn=TBFM SW IS DEPLOYMENT"
   retransmitTimeout="5"
                                      <!-- specified in seconds -->
   maxRetries="5"
   delayReceiptAck="1"
                                      <!-- specified in seconds -->
   unsolicitedReconWaitTime="10"
                                      <!-- specified in seconds -->
   disableReceiptAck="1"
   hbPeriod="6"
                                      <!-- specified in seconds -->
   disableHBs="0"
   userName="TFDM"
   version="2.0.0"
   dpt="KLAX"/>
</tfdm>
```



8.2.14.2. TTP

```
<tfdm artcc="ZLA" cmsInput="pipe:zla-cms-%{USER}">
 <ttp name="klax"
 device="solace://tbfmsolacedev01:55003?compressed&username=solace&passwd=solace1
 &vpn=TBFM_SW_IS_DEPLOYMENT_DMR_2"
 cmsInput="pipe:klax-cms-%{USER}"
 hbPeriod="6"
                                       <!-- specified in seconds -->
 disableHBs="0"
 resyncPeriod="00:05:00"
 disableResync="0"
 version="2.0.1"
 resyncInterval="10.0"
                                       <!-- specified in seconds -->
 resyncMsgsPerLoop="100"
 startDelay="00:00:00"
 departureRunway="RW24L"
                                       <!-- Only if defined in activeRunways.xml -->
 fcdtOffset="00:00:00"
 flightAddDelay="6"
                                       <!-- specified in seconds -->
 initialGateTodOffset="00:12:00"/>
</tfdm>
```

8.2.14.3. MIS

```
<tfdm artcc="ZLA" cmsInput="pipe:zla-cms-%{USER}">
  <mis device="solace://tbfmsolacedev01:55003?queueName=MIS_08
&compressed&userName=solace&passwd=solace1&
  vpn=TBFM_SW_IS_DEPLOYMENT"/>
  </tfdm>
```



9. Exported SDRR Scenario

Exported scenarios are custom user created scenario that have been scripted in the Graphic Simulation Generation Tool (GSGT) and exported for SDRR injection.

9.1. Scenario File

The primary component of an exported scenario is called the scenario file and is typically named sdrr.xml. This file defines parameters for the scenario and all of the other components of the scenario to be read by SDRR.

9.1.1. Scenario File Format

sim

Defines options for running SDRR.

Required Attributes: **name**

Name of the scenario.

Optional Attributes:

starttime

Specifies scenario start time.

earlyFPMargin

Specifies the time flight plans are going to be injected.

sysSetupDelay

Specifies the time when system commands will be injected. Specifies the time when system commands will be injected.

tgtIntraMsgDelay

Specifies the time when messages between HOST to HOST will be injected.

rsiList

Specifies a list of RSI-tagged messages to be injected.

logfile

Specifies the location of the SDRR log file.



comments

Freeform scenario comments.

radar

Defines radar file inputs.

Required Attributes:

name

Name of the radar.

srv

Specifies the location of the binary radar file.

svol

Defines ADSB file inputs.

Required Attributes:

name

Name of the radio station.

ast

Specifies the location of the binary ads file.

wam

Defines radar file inputs.

Required Attributes:

name

Name of the wam radio station.

ast

Specifies the location of the binary wam file.



msgs

Defines message file inputs.

Required Attributes:

file

Specifies the location of the msgs file.

Optional Attributes:

facility

Specifies the facility used in the msgs file.

tracks

Defines an SDRR track file. The track file is normally generated by GSGT and is used by SDRR in generating TU messages. If no file is specified, SDRR will extrapolate the position information from the TI message.

Required Attributes:

file

Specifies the location of the tracks file.

tgtctl

Defines customized responses to specified messages.

Required Attributes:

file

Specifies the location of the tgtctl file.



9.1.2. Example Scenario File

```
<sim earlyFPMargin="00:05:00" name="example" starttime="00:00:00" sysSetupDelay="00:00:05"</pre>
tgtIntraMsgDelay="00:00:00">
   <radar file="terminalSrv/dov.srv" name="dov"/>
   <radar file="terminalSrv/dox.ast" name="dox"/>
   <radar file="terminalSrv/nxy.srv" name="nxy"/>
   <radar file="terminalSrv/phl.srv" name="phl"/>
   <radar file="terminalSrv/qie.srv" name="qie"/>
   <radar file="terminalSrv/wri.srv" name="wri"/>
   <mlat file="terminalSrv/mlt.ast" name="mlt"/>
   <svol name="ppp-ads">
      <stream file="terminalADSB/ppp-ads-uat.ast" name="uat"/>
      <stream file="terminalADSB/ppp-ads-1090.ast" name="1090"/>
      <stream file="terminalADSB/ppp-ads-equip.ast" name="equip"/>
      <stream file="terminalADSB/ppp-ads-svol.ast" name="svol"/>
      <stream file="terminalADSB/ppp-ads-sdp.ast" name="sdp"/>
   </svol>
   <wam name="wamsvg">
      <stream file="wam/wamsvg-modeS.ast" name="modeS"/>
      <stream file="wam/wamsvg-1090.ast" name="1090"/>
      <stream file="wam/wamsvg-uat.ast" name="uat"/>
      <stream file="wam/wamsvg-atcrbs.ast" name="atcrbs"/>
      <stream file="wam/wamsvg-svol.ast" name="svol"/>
      <stream file="wam/wamsvg-sdp.ast" name="sdp"/>
   </wam>
   <tracks file="tracks.xml"/>
   <msgs file="nonRadar/msgs.xml"/>
   <scriptDefinitions file="nonRadar/scriptDefinitions.xml"/>
</sim>
```


9.2. Messages File

The messages file is an XML file which defines the messages to be injected during the scenario playback.

9.2.1. Messages File Format

ifmsg

Defines an interfacility message.

Required Attributes:

src

Specifies the source facility of the message.

dest

Specifies the destination facility of the message.

time

Specifies the injection time of the message.

Optional Attributes:

acid

Specifies the target aircraft ID for the message. Any target-specific substitutions will be based on the acid. Messages with an acid will be retried up to 5 times.

literalMode

When enabled, message text will be injected exactly as it appears (no token substitution).

doField23

When set on a TI message, field23 will be auto-generated based on data in the tracks file.

Value:

text

Specifies the text of the message (varies according to message type).

fdiomsg

Defines a FDIO message.

Required Attributes:

src

Specifies the source facility of the message.



dest

Specifies the destination facility of the message.

time

Specifies the injection time of the message.

Optional Attributes:

acid

Specifies the target acid for the message. Any target-specific substitutions will be based on the acid. Messages with an acid will be retried up to 5 times.

literalMode

When enabled, message text will be injected exactly as it appears (no token substitution).

Value:

text

Specifies the text of the message (varies according to message type).

tcwMsg

Defines a TCW injector message.

Required Attributes:

fac

Specifies the facility of the message.

time

Specifies the injection time of the message.

position

Specifies the TCW position the message will be sent to.

Optional Attributes:

id

Specifies a target ACID on the TCW.

In all flight data message types, SDRR performs substitution of special tokens.

Special token substitutions in message text processed by SDRR: @@@ Remote CID.



###

Local CID.

\$hhmm\$

Time substitution relative to scenario start time.

%hhmm%

Time substitution relative to current simulation time.

{TOD+hh:mm:ss}

Time substitution relative to flight plan time of departure.

9.2.2. Example Messages File



9.3. Response Control File

The response control file is an xml file which customizes SDRR behavior in response to real-time simulated events.

9.3.1. Response Control File Format

response

Defines a custom message response.

Required Attributes:

facility

Specifies the facility that will be affected by the response control statement.

acid

Specifies the target acid for the statement.

mode

Specifies the message response for SDRR to take. One of the following must be specified: "NO_REPLY", "DX", "DR", "LRM", or "LAM".

Optional Attributes:

time

Specifies the start time of the statement. Default is 0.

msgtype

Specifies the message type for which this response control is to be used. Examples are "FP", "TI", etc. Default is all message types.

cnt

Specifies the number of times this response control will be active. Specify -1 for "forever". Zero is invalid. Default is 1.

rejcode

Specifies an optional code to be included in the DR message generated by SDRR. (Only used when **mode**="DR").



taCtl

Defines a customized TA response time.

Required Attributes:

facility

Specifies the facility that will be affected by the response control statement.

acid

Specifies the target acid for the statement.

Optional Attributes:

delta

Specifies the time in seconds for an auto-TA response. Zero means immediate. -1 means never. Default is 0 (immediate).

relayCtl

Defines custom relay (HNH) behavior when a TI is received with an "00" in field 16.

Required Attributes:

facility

Specifies the facility that will be affected by the response control statement.

acid

Specifies the target acid for the statement.

Optional Attributes (At least 1 of the following must be specified):

destFac

Specifies the facility to relay this message to.

initialController

The controller to be specified in field 71 of the DA to the TI (SDRR defaults to "22").

finalController

Used for field 48 of the TA (SDRR defaults to "22").



vfrCtl

Customizes the FP sent in response to a received VFR FP.

Required Attributes:

facility

Specifies the facility that will be affected by the response control statement.

acid

Specifies the target acid for the statement.

Optional Attributes (At least 1 of the following must be specified):

coordFix

Specifies field 6 of the return FP. (SDRR defaults to using the last fix of field 10 in the VFR FP).

bcn

Specifies field 4 of the return FP. (SDRR will auto-assign by default).

9.3.2. Example Response Control File

```
<tcrs><!-- one DX to FP --><response facility="zdc" acid="DPT01" msgType="FP" mode="DX" /><! - NO response to all msgs forever --><response facility="zdc" time="00:02:19.00" acid="DPT01" mode="NO_REPLY" cnt="-1" /><!-- auto-TA after 5 seconds --><tactl facility="zdc" time="00:10:00.00" acid="TEST01" delta="5" /></tactl facility="zdc" time="00:10:00.00" acid="TEST02" delta="0" /><!-- do an immediate TA --><tactl facility="zdc" time="00:10:00.00" acid="TEST02" delta="0" /><! - relay a flight to ZOB --><
```



Appendix A. Acronyms

ACID	Aircraft Identification
ADS-B	Automatic Dependent Surveillance – Broadcast
ARSR	Air Route Surveillance Radar
ARTCC	Air Route Traffic Control Center
ARTS	Automated Radar Terminal System
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
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
FDIO	Flight Data Input/Output
GSGT	Graphic Simulation Generation Tool



GUI	Graphical User Interface
IFDT	Interfacility Flight Data Transfer
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
RAPPI	Random Access Plan Position Indicator
RSI	Record Select Indicator
RTQC	Real Time Quality Control
SAC	System Area Code
SDRR	Simulation Driver Radar Recorder
SIC	System Identity Code
SIRS	STARS Interfacility and Radar Simulator
SSRV	Simulation Services
STARS	Standard Terminal Automation Replacement System
SWIM	System-Wide Information Management
TARP	Time-based Archive Recording Player
TBFM	Time Based Flow Management
TSIM	TBFM Simulation
TRACON	Terminal Radar Approach Control
WAM	Wide Area Multilateration
WJHTC	William J. Hughes Technical Center