



XSIM

User Reference Guide

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JVN Tool Suite v15.2.3 Volume 9

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TABLE OF CONTENTS

Overview	6
1. Starting XSIM	7
1.1. Starting from the Command Line	7
1.2. Starting XSIM in a Container	9
1.3. Starting VT102 VOID	10
2. XSIM Configuration Files	11
2.1. Connecting to an External CASS Appliance	11
2.2. Connecting to a CMHP Gateway	12
2.3. Connecting to a Message Broker	14
2.4. Emulation of National SWIM Services	16
3. XSIM User Interface	17
3.1. User Interface Components	17
3.1.1. Menu Bar	18
3.1.1.1. Main Menu	18
3.1.1.2. Page Buttons	19
3.1.1.3. Scenario Clock	23
3.1.1.4. Close XSIM	23
3.1.2. Status, Log, and File Pages	24
3.1.2.1. Status Page	24
3.1.2.2. Log View Page	26
3.1.2.3. Files Page	27
3.2. Main Menu Options	29
3.2.1. Syslog Page	29
3.2.2. Scenario Start	30
3.2.3. Restart XSIM	33
3.2.4. Upload Scenario	34
3.2.5. Open Scenario	37
3.2.6. Clear Scenario	40
3.2.7. Upload Configuration	42
3.2.8. Open Configuration	45
4. Messages	49
4.1. Weather Station Message Editors	52
4.1.1. METAR Data Editor	53
4.1.2. SWS-S/SAWS Editor	56
4.1.3. DASI Editor	60

4.1.4. ASOS/AWOS ACEIDS Editor	62
4.1.5. IDS4 Editor	68
4.1.6. SWS-W/WME Editor	73
4.1.7. RBDT (ITWS, WSP, or LLWAS) Editor	76
4.2. RVR Message Editors	80
4.2.1. New Runway	81
4.2.2. Edit Runway	84
4.2.3. Delete Runway	87
5. XSIM Scenario	88
5.1. General Syntax	88
5.1.1. Repetition Period	89
5.1.2. Variable Sensor Data	90
5.1.3. Clear Data Field	90
5.1.4. Date and Time Substitution	91
5.1.5. Example Scenario	92
5.2. METAR Message Format	95
5.3. SWS-S/SAWS Message Format	96
5.4. DASI Message Format	98
5.5. ASOS/AWOS-C ACEIDS Message Format	99
5.6. IDS4 Message Format	101
5.7. SWS-W/WME Message Format	102
5.8. RBDT Message Format	103
5.9. FDIO Message Format	105
5.10. RVR Message Format	106
5.11. NOTAM Messages	107
5.12. SAA Messages	114
5.13. CSS-Wx Messages	116
6. Scenario Generation Utilities	120
6.1. Weather Station Scenario Utility	120
6.2. FDIO Scenario Utility	120
6.3. National Scenario for SWIM Interfaces	120
7. Logging	121
Appendix A. Acronyms	122
Appendix B. METAR Messages	124

TABLE OF FIGURES

Figure 1. XSIM User Interface	17
Figure 2. Main Menu.....	18
Figure 3. Main Menu Options	19
Figure 4. Menu Bar Files Button	20
Figure 5. All Pages Displayed	20
Figure 6. Closing the Status Page.....	21
Figure 7. Status Button Added to the Menu Bar	21
Figure 8. Closing the Log View/Syslog Page.....	22
Figure 9. Log View Button Added to Menu Bar	22
Figure 10. Scenario Runtime Clock	23
Figure 11. Close XSIM.....	23
Figure 12. Exit Application Warning	24
Figure 13. Status Page.....	25
Figure 14. Selecting an Interface	26
Figure 15. Interface Messages Log.....	27
Figure 16. Files Page.....	28
Figure 17. Syslog Page Menu Option	29
Figure 18. Log View Page Displays the System Log	30
Figure 19. System Log with Manual Scenario Start	31
Figure 20. Start Scenario Menu Option	32
Figure 21. Scenario Manually Started.....	33
Figure 22. Restart XSIM Menu Option	34
Figure 23. Upload Scenario Menu Option	35
Figure 24. Upload Scenario Window	36
Figure 25. Scenario Upload Message Logged	37
Figure 26. Open Scenario Menu Option	38
Figure 27. Open Scenario Dialog.....	39
Figure 28. Scenario Opened Message Logged	40
Figure 29. Clear Scenario Menu Option.....	41
Figure 30. Scenario Cleared Message Logged	42
Figure 31. Upload Configuration Menu Option	43
Figure 32. Upload Configuration Window	44
Figure 33. Configuration Upload Message Logged	45
Figure 34. Open Configuration Menu Option	46
Figure 35. Open Configuration Dialog	47
Figure 36. Restart Required Warning	48
Figure 37. Selecting an Interface	49
Figure 38. Weather Station Messages	50

Figure 39. FDIO Messages	51
Figure 40. RVR SWIM Messages	51
Figure 41. Edit Menu Options	52
Figure 42. Edit METAR Option	53
Figure 43. METAR Data Editor	54
Figure 44. METAR Data Changes Applied	55
Figure 45. Edit SAWS Option	56
Figure 46. SAWS Message Editor	57
Figure 47. Edit DASI Option	60
Figure 48. DASI Message Editor	61
Figure 49. Edit ASOS Option	62
Figure 50. ASOS Message Editor	63
Figure 51. ASOS Message Editor (continued)	64
Figure 51. Edit IDS4 Option	68
Figure 53. IDS4 Message Editor	69
Figure 54. IDS4 Message Editor (continued)	70
Figure 53. Edit WME Option	73
Figure 54. WME Message Editor	74
Figure 55. Edit RBDT Option	76
Figure 56. RBDT Editor	77
Figure 57. RVR Menu Options	80
Figure 58. New Runway Option	81
Figure 60. New Runway Editor	82
Figure 61. Edit Runway Option	84
Figure 62. Edit Runway Editor	85
Figure 63. Delete Runway	87

Overview

The JVN XSIM application provides simulated weather data for testing the Enterprise Information Display System (E-IDS). XSIM can be configured in several ways: 1) to send weather sensor data over a serial connection to Conversion Appliance System Service (CASS) equipment, 2) to send weather data in Common Message Handling Protocol (CMHP) format to a CMHP Gateway, 3) to send data in JavaScript Object Notation (JSON) format to a message broker, or 4) emulation of national System-Wide Information Management (SWIM) services. Scenarios containing weather messages can be pre-scripted and loaded dynamically at runtime. Some weather data can also be manually entered in the XSIM User Interface (UI).

Supported weather data interfaces include:

- Digital Altimeter Settings Indicator (DASI)
- Stand-Alone Weather Sensors (SAWS) / Surface Weather System (SWS) – SAWS (SWS-S)
- Wind Measuring Equipment (WME) / Surface Weather System (SWS) – WME (SWS-W)
- Automated Surface Observing System (ASOS)
- Automated Weather Observing System Model-C (AWOS-C)
- Integrated Terminal Weather System (ITWS), Low Level Windshear Alert System (LLWAS), and Weather Sensor Processor (WSP) via the Ribbon Display Terminal (RBDT)
- Flight Data Input Output (FDIO)
- Runway Visual Range (RVR) SWIM Service
- Notice to Airmen (NOTAM) SWIM Service
- Special Activity Airspace (SAA) SWIM Service
- Common Support Services-Weather (CSS-Wx) SWIM Service

1. Starting XSIM

XSIM may be installed on a local simulation server or it may be launched within a virtual machine (VM), depending on test needs and environment.

1.1. Starting from the Command Line

If installed locally, XSIM can be started by entering xsim at the command line:

```
> xsim
```

If no other parameters are specified on the command line, configuration and scenario files may be loaded within the XSIM user interface.

XSIM can also be started with configuration and scenario files and other optional parameters specified on the command line:

```
> xsim /usr/local/cfg/XSIMconfig.xml --scenarioFile=XSIMscen.xml --start
```

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

```
> /usr/local/jvn.x.x.x/bin/xsim /usr/local/cfg/XSIMcfg.xml --scenarioFile=XSIMscen.xml
```

where jvn.x.x.x specifies the desired software version.

XSIM uses optional command line parameters to control its operation.

Table 1. Program Parameters

Parameter	Description
<cfgFile>	One or more configuration files may be specified.
--scenarioFile=<scenario.xml>	Specify the name of the scenario file.
--inputDevice=<device>	Device for input data.
--logFile=<log.xml>	Specify a path and name for the log file.
--port=<port#>	Specify a port for the user interface.
--ssl	Specify security protocol.
--startTime=<hh:mm:ss>	Specify the scenario start time.
--start	Immediately start the scenario once XSIM is launched.
--enableCMHPGWLogging	Enable logging of CMHP Gateway messages.
--maxLogLines=n	Specify the number of lines displayed in each message log.

1.2. Starting XSIM in a Container

For the E-IDS program, XSIM may be started in a Docker or Podman container VM. In the description below, it is assumed that XSIM has been pre-configured for E-IDS testing and the configuration and scenario files are included in the expected locations.

- Login to a server where XSIM will be launched.
- Ensure that either Docker or Podman is installed and that the userid for XSIM has been added to the docker users' group.
- Login to the container registry:

```
> docker login container.reg.address
```

where container.reg.address is the location of the container registry.

- Launch the XSIM container(s):

```
> docker compose up -d
```

NOTE: the *-d* option runs the containers in the background.

- Verify that containers are running:

```
> docker ps
```

- After testing is complete, shutdown containers:

```
> docker compose down
```

1.3. Starting VT102 VOID

To launch a VT102 terminal as an ASOS Virtual Operator Interface Device (VOID), enter the following in a separate terminal window prior to starting XSIM:

```
> /usr/local/jvn.15.2.3/bin/vt102 tcp://${hostIP}:${port}?serverMode
```

NOTE: *The XSIM configuration file must include the complementary VT102 device as an attribute of the ASOS sensor.*

2. XSIM Configuration Files

XSIM can be configured in several different ways:

- Weather sensor data sent over a serial connection to a CASS appliance.
- Weather sensor data in CMHP format sent to a CMHP Gateway; XSIM emulates the CASS device.
- Weather sensor data in JSON format sent to a message broker; XSIM emulates the CASS device and the CMHP Gateway.
- Emulation of national SWIM Services including RVR, NOTAM, SAA, and CSS-Wx.

Examples of XSIM configuration files are included below.

2.1. Connecting to an External CASS Appliance

Sensor data is sent over a serial connection.

```
<sources>

  <wxStation name="ACY" recordDir="/tmp/acy" >
    <dasi period="10" device="dasi:/dev/ttyS0" />
    <saws period="10" device="saws:/dev/ttyS1" />
    <wme period="10" device="wme:/dev/ttyS2" />
    <llwas period="10" device="rbdt:/dev/ttyS3" />
    <asos period="10" timePeriod="00:00:01" device="asos:/dev/ttyS4"
vt102Device="tcp://${hostIP}:${port}" />
  </wxStation>

</sources>
```

NOTE: The period and timePeriod attributes may be specified as hours, minutes, and seconds in the format hh:mm:ss or simply as the number of seconds.

2.2. Connecting to a CMHP Gateway

Messages are published in CMHP format.

```
<sources>

  <wxStation name="PHL" emulateCASS="1" >
    <dasi period="10" device="cmhp://${gwIP}:50000?siteId=phl&primaryId=dasi" />
    <asos period="00:00:01" timePeriod="00:00:01"
device="cmhp://${gwIP}:50002?siteId=phl&primaryId=aceids&secondaryId=asos"
vt102Device="tcp://localhost:${port}" />
    <saws period="10"
device="cmhp://${gwIP}:50003?siteId=phl&primaryId=saws&secondaryId=saws" />
    <wme period="10"
device="cmhp://${gwIP}:50004?siteId=phl&primaryId=swswme&secondaryId=sws_w" />
    <llwas-1 period="10"
device="cmhp://${gwIP}:50005?siteId=phl&primaryId=rbd&secondaryId=1" />
    <llwas-2 period="10"
device="cmhp://${gwIP}:50005?siteId=phl&primaryId=rbd&secondaryId=2" />
  </wxStation>

  <wxStation name="ACY" emulateCASS="1" >
    <dasi period="10" device="cmhp://${gwIP}:50000?siteId=acy&primaryId=dasi" />
    <ids4 period="00:00:01" timePeriod="00:00:01"
device="cmhp://${gwIP}:50001?siteId=acy&primaryId=ids4&secondaryId=awos_c" />
    <sws-s period="10"
device="cmhp://${gwIP}:50003?siteId=acy&primaryId=saws&secondaryId=sws_s" />
    <sws-w period="10"
device="cmhp://${gwIP}:50004?siteId=acy&primaryId=swswme&secondaryId=sws_w" />
    <itws period="10"
device="cmhp://${gwIP}:50005?siteId=acy&primaryId=rbd&secondaryId=0" />
    <wsp period="10"
device="cmhp://${gwIP}:50005?siteId=acy&primaryId=rbd&secondaryId=1" />
  </wxStation>
```

```
<ccuApp name="ZNY" device="cmhp://{FDIOgwIP}:51000?siteId=zny&primaryId=fdio">
  <fdio>PHL</fdio>
  <fdio>EWR</fdio>
  <fdio>JFK</fdio>
</ccuApp>

<ccuApp name="ZDC" device="cmhp://{FDIOgwIP}:51000?siteId=zdc&primaryId=fdio">
  <fdio>ACY</fdio>
  <fdio>DCA</fdio>
  <fdio>BWI</fdio>
</ccuApp>

</sources>
```

NOTE: The *secondaryId* attribute for RBDT, LLWAS, ITWS, and WSP devices should be set to the desired chain ID.

2.3. Connecting to a Message Broker

Messages are published in JSON format.

```
<sources>

  <cmhpGateway listenPort="50000"
broker="mqtt://userid:passwd@${msgBrokerIP}:1883?publish=eids/sensor/${siteId}/${primaryId}" name="DASI" recordDir="/tmp/cmhpGateway" debug="1" />

  <cmhpGateway listenPort="50001"
broker="mqtt://userid:passwd@${msgBrokerIP}:1883?publish=eids/sensor/${siteId}/${primaryId}/${secondaryId}" name="IDS4" recordDir="/tmp/cmhpGateway" debug="1" />

  <cmhpGateway listenPort="50002"
broker="mqtt://userid:passwd@${msgBrokerIP}:1883?publish=eids/sensor/${siteId}/${primaryId}/${secondaryId}" name="ACEIDS" recordDir="/tmp/cmhpGateway" debug="1" />

  <cmhpGateway listenPort="50003"
broker="mqtt://userid:passwd@${msgBrokerIP}:1883?publish=eids/sensor/${siteId}/${primaryId}/${secondaryId}" name="SAWS" recordDir="/tmp/cmhpGateway" debug="1" />

  <cmhpGateway listenPort="50004"
broker="mqtt://userid:passwd@${msgBrokerIP}:1883?publish=eids/sensor/${siteId}/${primaryId}/${secondaryId}" name="WME" recordDir="/tmp/cmhpGateway" debug="1" />

  <cmhpGateway listenPort="50005"
broker="mqtt://userid:passwd@${msgBrokerIP}:1883?publish=eids/sensor/${siteId}/${primaryId}" name="RBDT" recordDir="/tmp/cmhpGateway" debug="1" />

  <cmhpGateway listenPort="51000"
broker="mqtt://userid:passwd@${msgBrokerIP}:1883?publish=eids/sensor/${siteId}/${primaryId}" name="FDIO" recordDir="/tmp/cmhpGateway" debug="1" />

  <wxStation name="PHL" emulateCASS="1" >

    <dasi period="10" device="cmhp://localhost:50000?siteId=phl&primaryId=dasi" />

    <asos period="00:00:10" timePeriod="00:00:01"
device="cmhp://localhost:50002?siteId=phl&primaryId=aceids&secondaryId=asos" />

    <saws period="10"
device="cmhp://localhost:50003?siteId=phl&primaryId=saws&secondaryId=saws" />

    <wme period="10"
device="cmhp://localhost:50004?siteId=phl&primaryId=swswme&secondaryId=sws_w"/>
```

```

    <llwas period="10"
device="cmhp://localhost:50005?siteId=phl&primaryId=rbd&secondaryId=0" />
  </wxStation>

  <wxStation name="ACY" emulateCASS="1" >
    <dasi period="10" device="cmhp://localhost:50000?siteId=acy&primaryId=dasi" />
    <ids4 period="00:00:01" timePeriod="00:00:01"
device="cmhp://localhost:50001?siteId=acy&primaryId=ids4&secondaryId=awos_c" />
    <sws-s period="10"
device="cmhp://localhost:50003?siteId=acy&primaryId=saws&secondaryId=sws_s" />
    <sws-w period="10"
device="cmhp://localhost:50004?siteId=acy&primaryId=swswme&secondaryId=sws_w"/>
    <itws period="10"
device="cmhp://localhost:50005?siteId=acy&primaryId=rbd&secondaryId=0" />
  </wxStation>

  <ccuApp name="ZNY" device="cmhp://localhost:51000?siteId=zny&primaryId=fdio">
    <fdio>PHL</fdio>
    <fdio>EWR</fdio>
    <fdio>JFK</fdio>
  </ccuApp>

  <ccuApp name="ZDC" device="cmhp://localhost:51000?siteId=zdc&primaryId=fdio">
    <fdio>ACY</fdio>
    <fdio>DCA</fdio>
    <fdio>BWI</fdio>
  </ccuApp>

</sources>

```

2.4. Emulation of National SWIM Services

RVR, NOTAM, SAA, and CSS-Wx data are published in XML format according to a Java Message Service Description Document (JMSDD) to a virtual host. A SWIM consumer can then relay the data to the message broker.

```
<sources>

  <rvr broker="amqp://userid:passwd@${msgBrokerIP}:5672?vhost=xsim&publish=xsim-
swim:eids.sensor.${airport}.rvr" />

  <notams broker="amqp://userid:passwd@${msgBrokerIP}:5672?vhost=xsim&publish=xsim-
swim:eids.notam.${icaoId}.${function}" />

  <saa broker="amqp://userid:passwd@${msgBrokerIP}:5672?vhost=xsim&publish=xsim-
swim:eids.saa" />

  <csswx broker="amqp://userid:passwd@${msgBrokerIP}:5672?vhost=xsim&publish=xsim-
swim:eids.csswx.${product}" />

</sources>
```

To publish RVR SWIM messages directly to the message broker, XSIM can emulate the output of the SWIM consumer. Messages are published in JSON format.

```
<sources>

  <rvr emulateSwimGateway="1"
broker="mqtt://userid:passwd@${msgBrokerIP}:1883?publish=eids/sensor/<site>/rvr" />

</sources>
```

3. XSIM User Interface

3.1. User Interface Components

The XSIM UI can be viewed from a web browser by entering a Uniform Resource Locator (URL) and port number associated with an XSIM instance. The UI displays XSIM status, system and message logs, and available files. In the example below, XSIM was launched on the same machine as the browser (localhost) and port 40001 was specified as a command line option. If XSIM is running on a remote machine, the IP address or hostname of that machine is used in the URL. When no port is specified for the XSIM command, the default port is 40000. This instance of XSIM was also launched with the --start parameter option resulting in scenario messages being immediately sent upon launch.

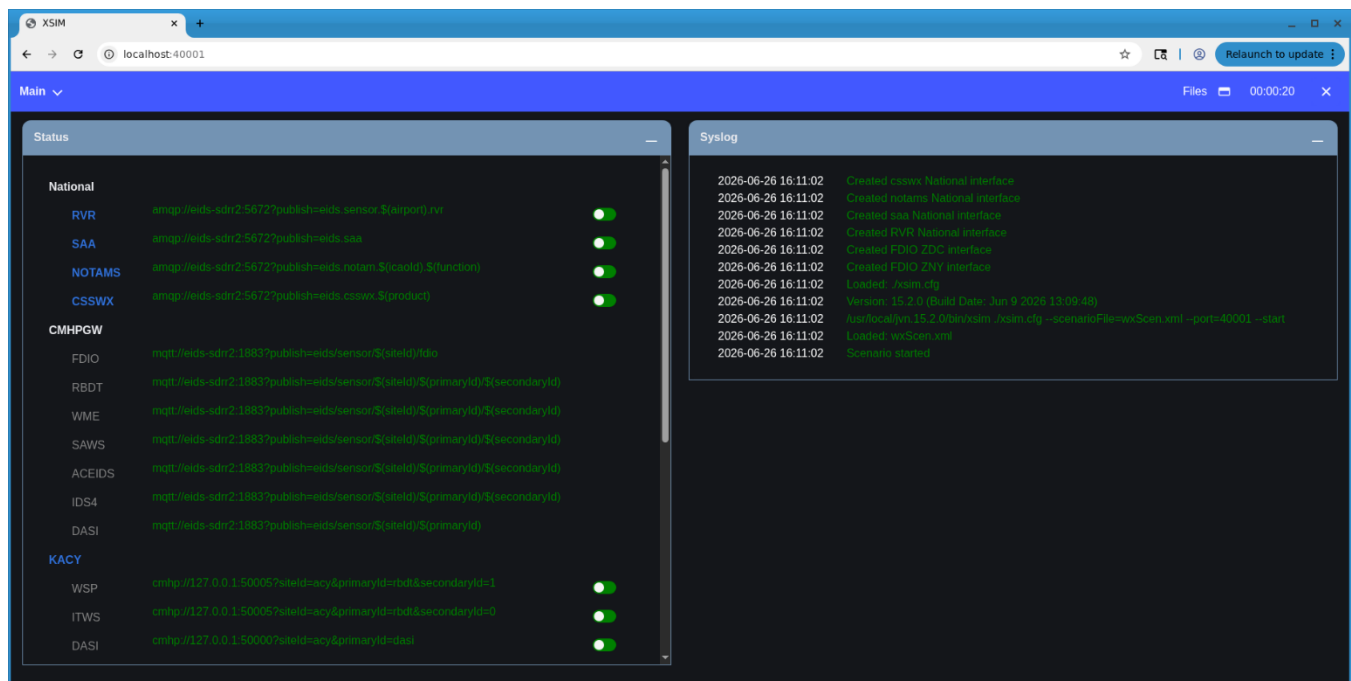


Figure 1. XSIM User Interface

A menu bar is displayed across the top; pages for status, logs, and files may be displayed below.

3.1.1. Menu Bar

The menu bar includes a Main menu dropdown, buttons for launching pages not currently displayed, the scenario runtime clock, and an X to exit and close XSIM.

3.1.1.1. Main Menu

Users can click on the Main menu for scenario and configuration options.

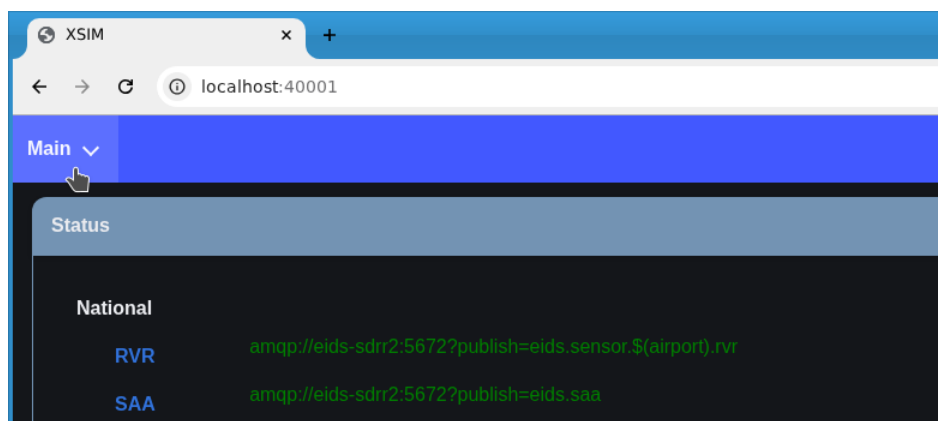


Figure 2. Main Menu

Main menu options include: Syslog Page, Start Scenario, Restart XSIM, Open Scenario, Upload Scenario, Clear Scenario, Open Configuration, and Upload Configuration.

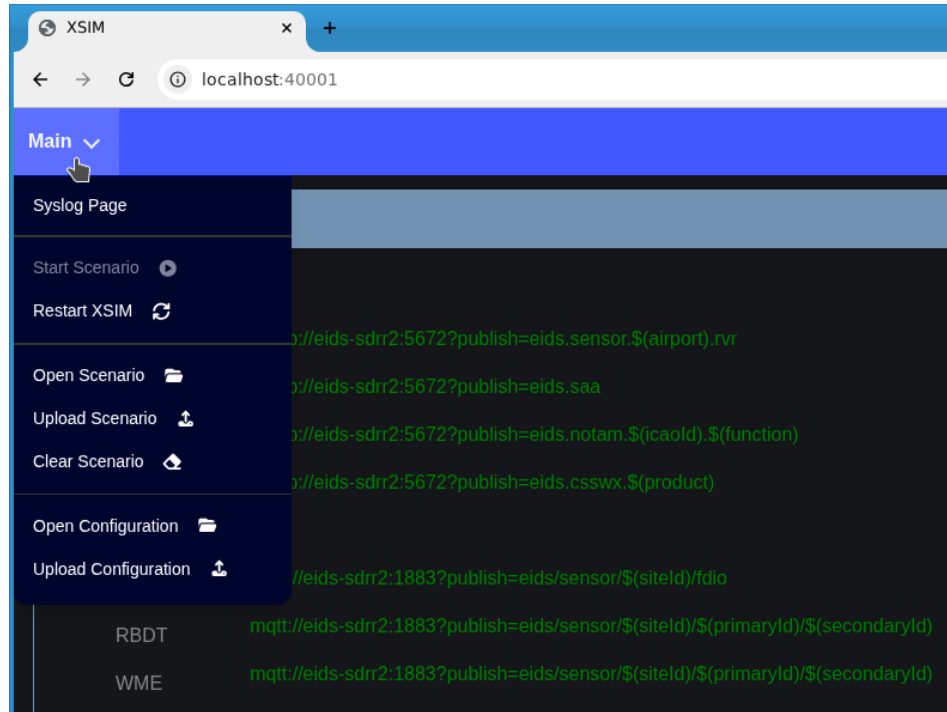


Figure 3. Main Menu Options

3.1.1.2. Page Buttons

The menu bar includes buttons for pages not already displayed. When XSIM is initially launched, the Status page and the Log View page (showing the System Log) are displayed and the Files page is not displayed. The Files page can be displayed by clicking on the Files button on the menu bar.

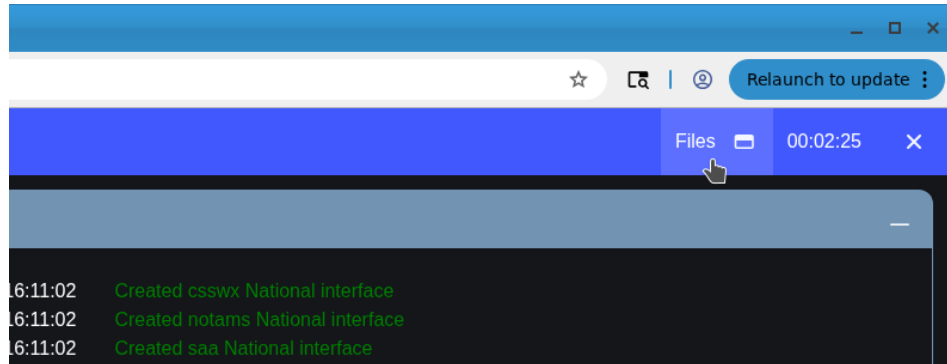


Figure 4. Menu Bar Files Button

Clicking on the Files menu bar button displays the Files page showing the currently loaded configuration and scenario files.

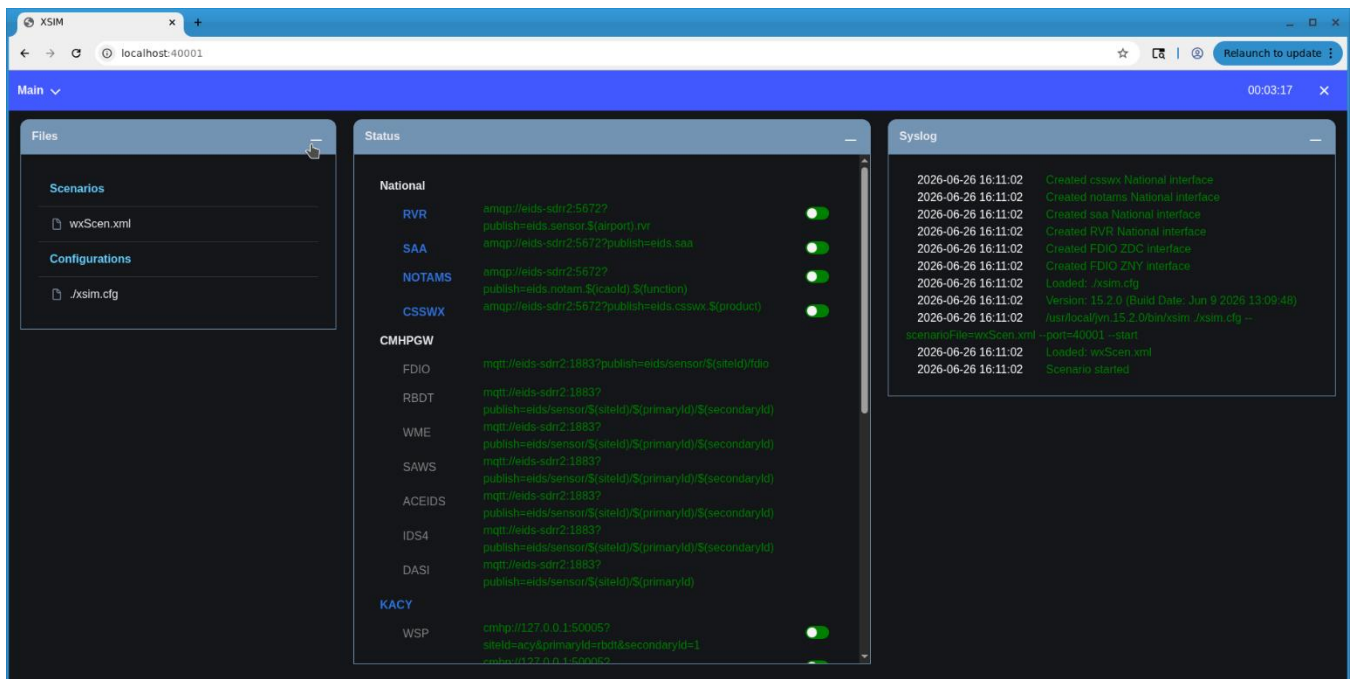


Figure 5. All Pages Displayed

Clicking on the dash in the upper right corner of the Status page closes the page, expands the remaining pages, and adds a Status button to the menu bar.

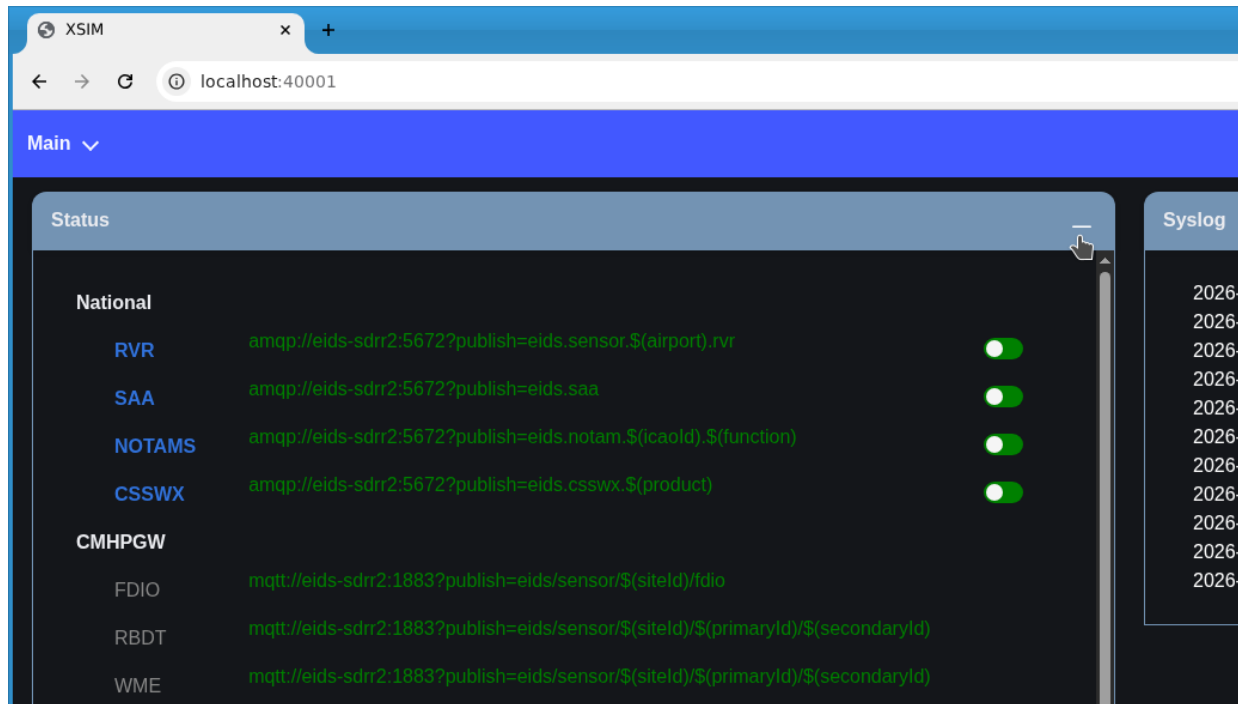


Figure 6. Closing the Status Page

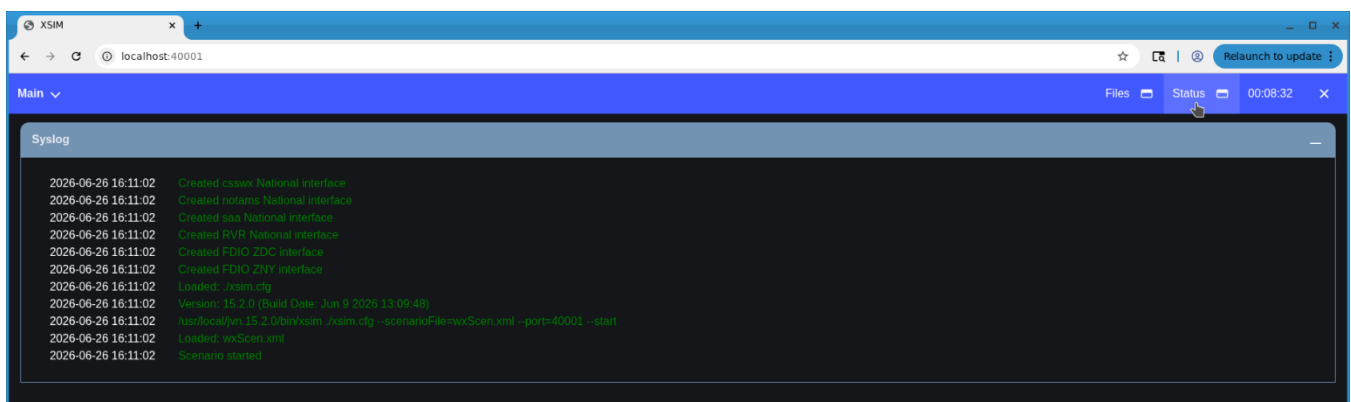


Figure 7. Status Button Added to the Menu Bar

Similarly, clicking on the dash in the upper right corner of the Log View/Syslog page closes the page, expands the remaining viewing pages, and adds a Log View button to the menu bar.

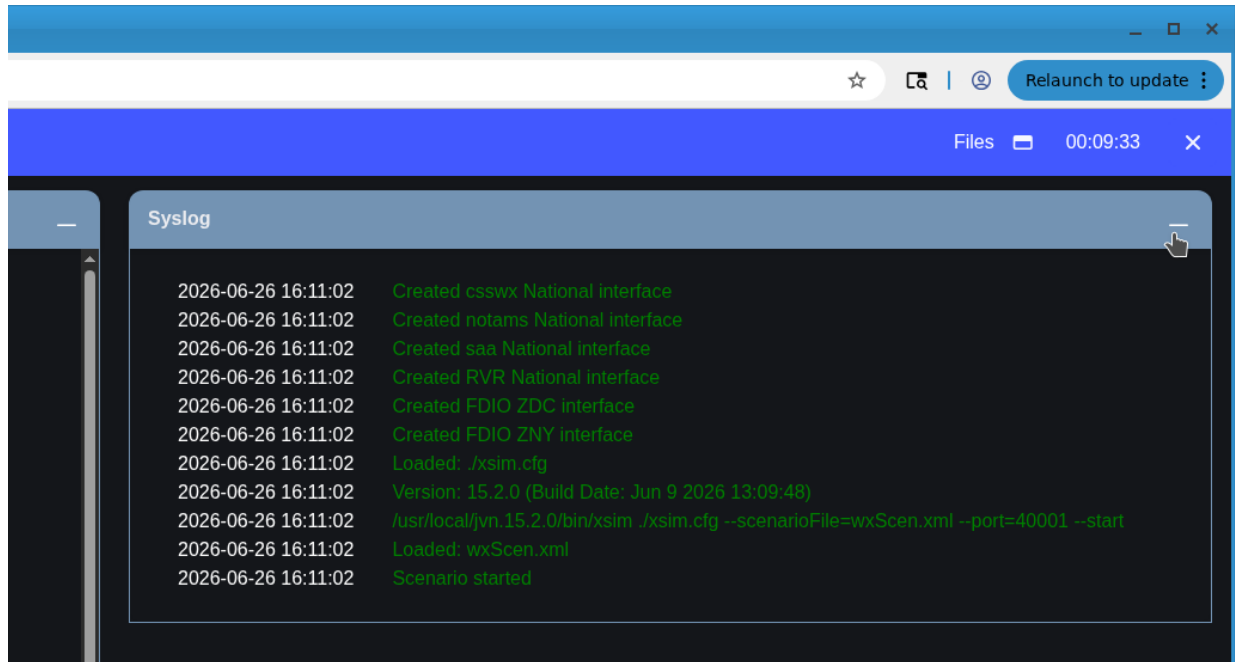


Figure 8. Closing the Log View/Syslog Page

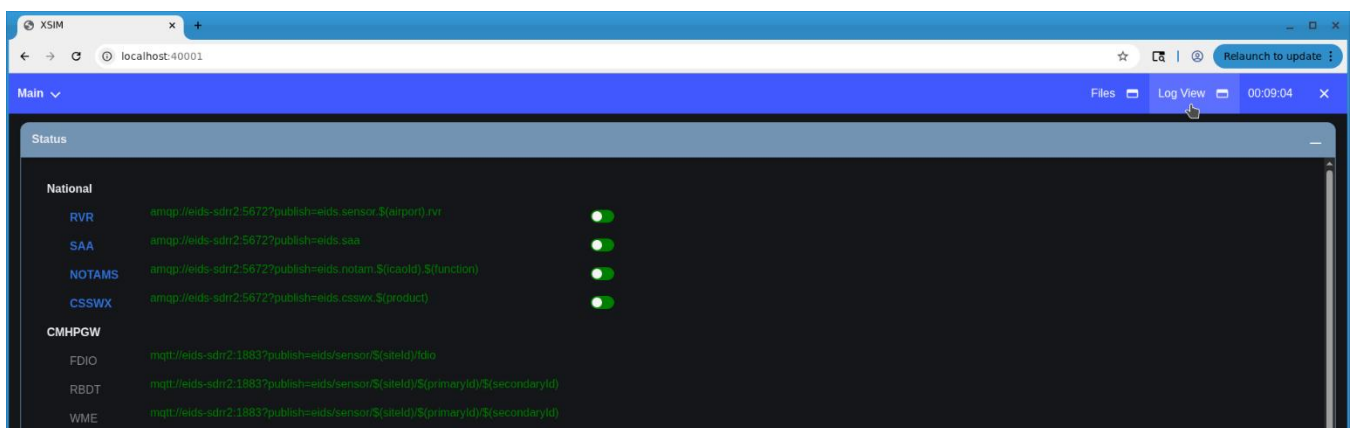


Figure 9. Log View Button Added to Menu Bar

3.1.1.3. Scenario Clock

The scenario runtime clock indicates the amount of time that has passed since the scenario was started.

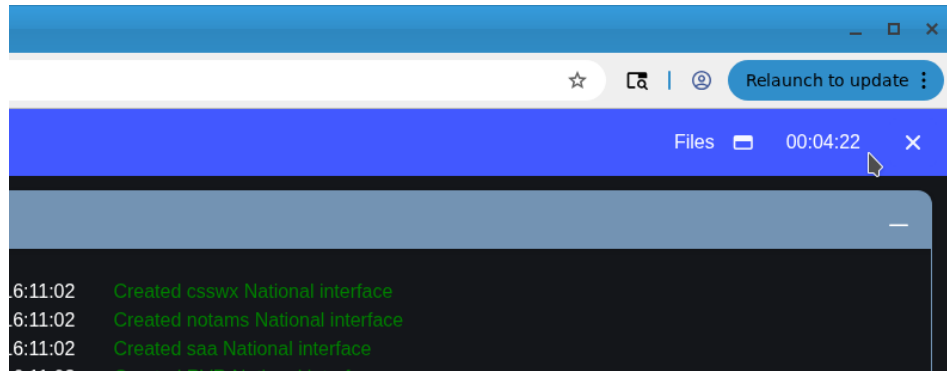


Figure 10. Scenario Runtime Clock

3.1.1.4. Close XSIM

Users can close and exit XSIM by clicking the X on the far right of the menu bar.

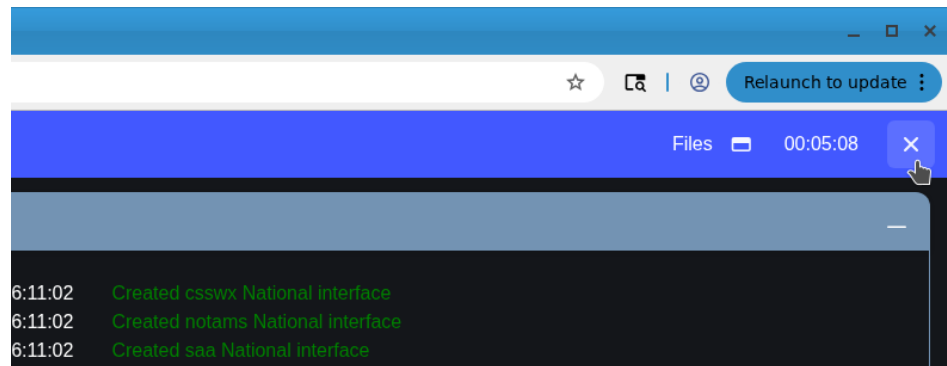


Figure 11. Close XSIM

A warning is displayed to confirm exit.

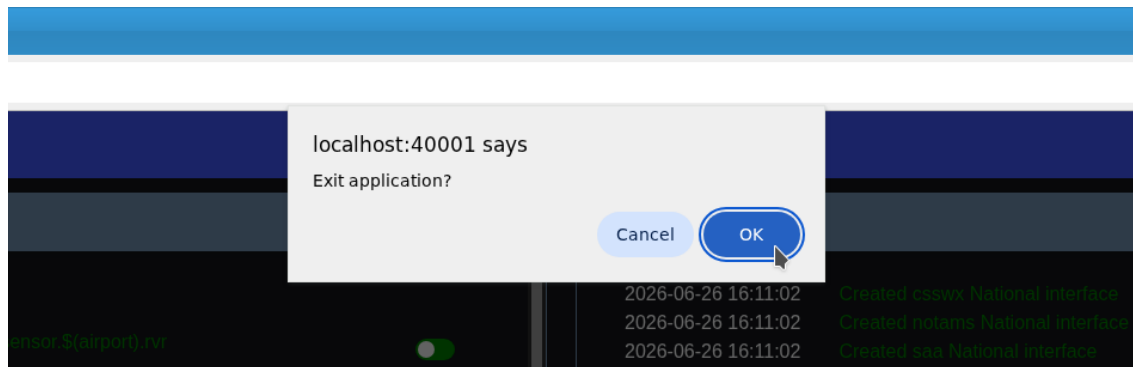


Figure 12. Exit Application Warning

3.1.2. Status, Log, and File Pages

Pages can be closed by clicking on the dash in the upper right corner of the page and restored by clicking on the page button on the menu bar.

NOTE: The Log View page displays the Syslog when no configured interface is selected from the Status page. Once an interface (such as a weather station, an FDIO facility, or a national SWIM service) is selected, the Syslog is replaced by the Message Log for the selected interface.

3.1.2.1. Status Page

The Status page displays the configured interfaces. These items vary depending on the weather stations, facilities, and types of connections that are defined in the currently loaded configuration files. The image below shows a Status page with configured weather station sensors, FDIO facilities, and National SWIM services.

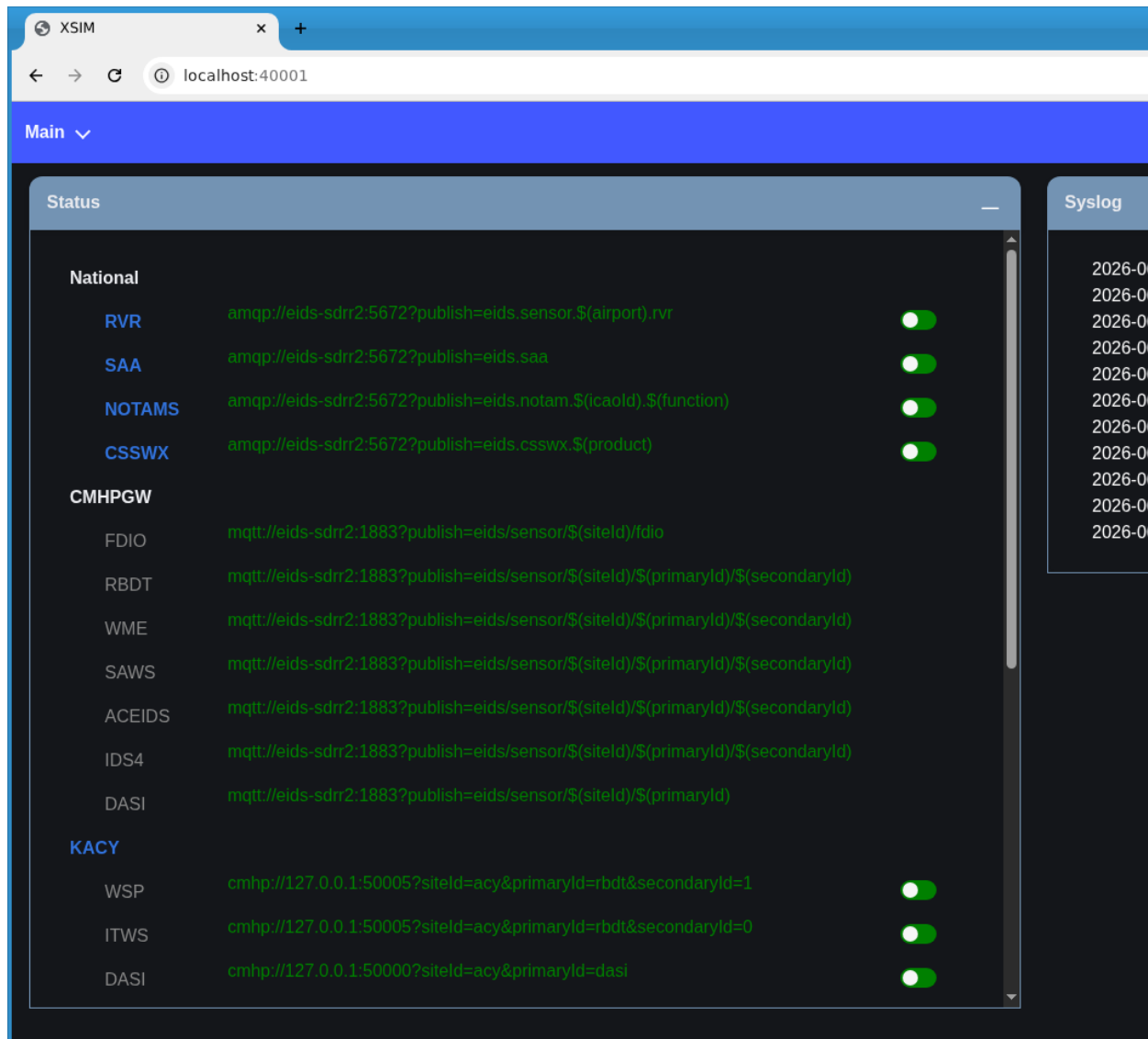


Figure 13. Status Page

Clicking on a weather station, facility, or SWIM service identifier (in blue text) opens the message log for that interface in the Log View page.

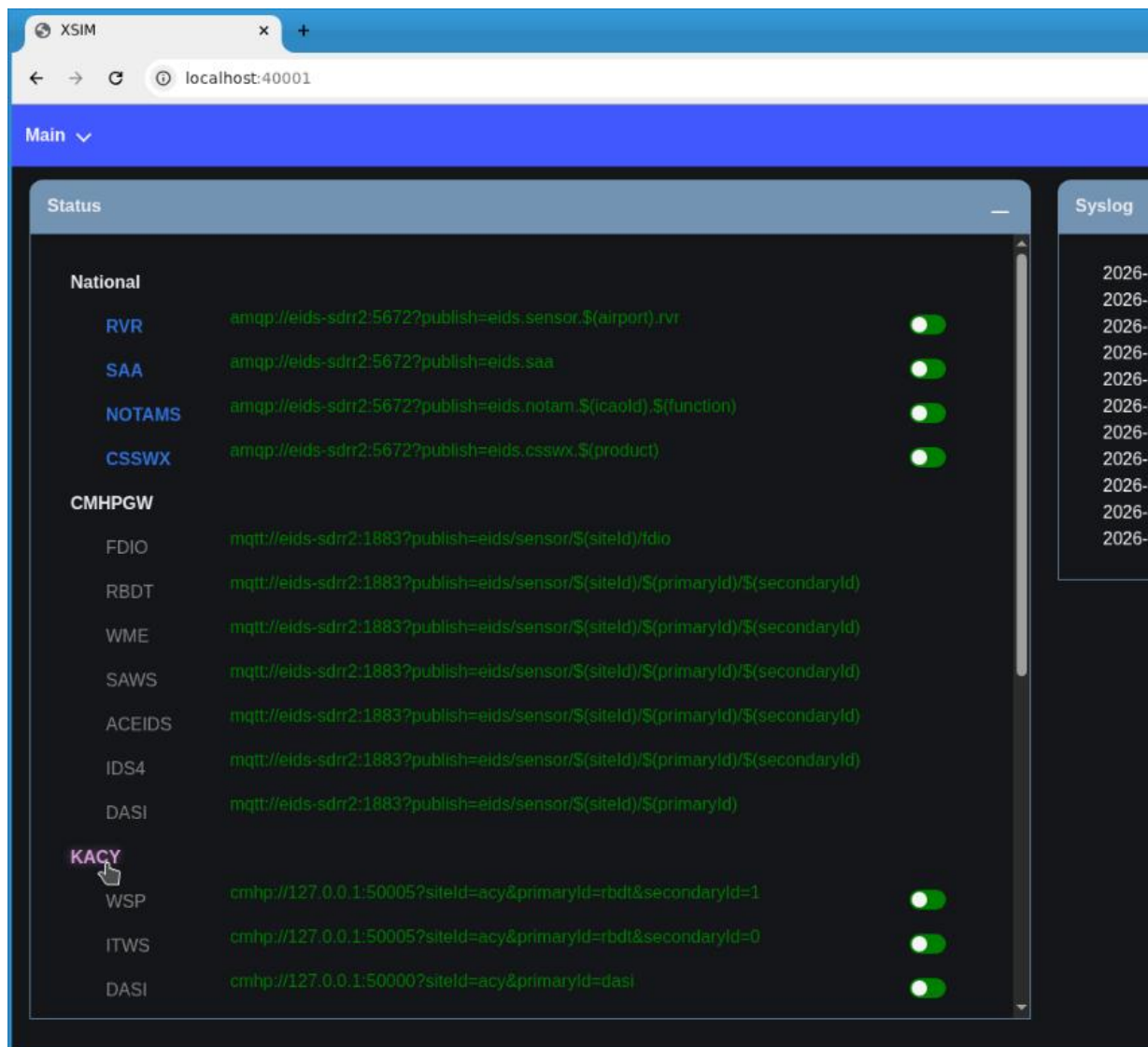


Figure 14. Selecting an Interface

3.1.2.2. Log View Page

When a weather station, facility, or SWIM service is selected on the Status page, the messages for that interface are displayed in the Log View page.

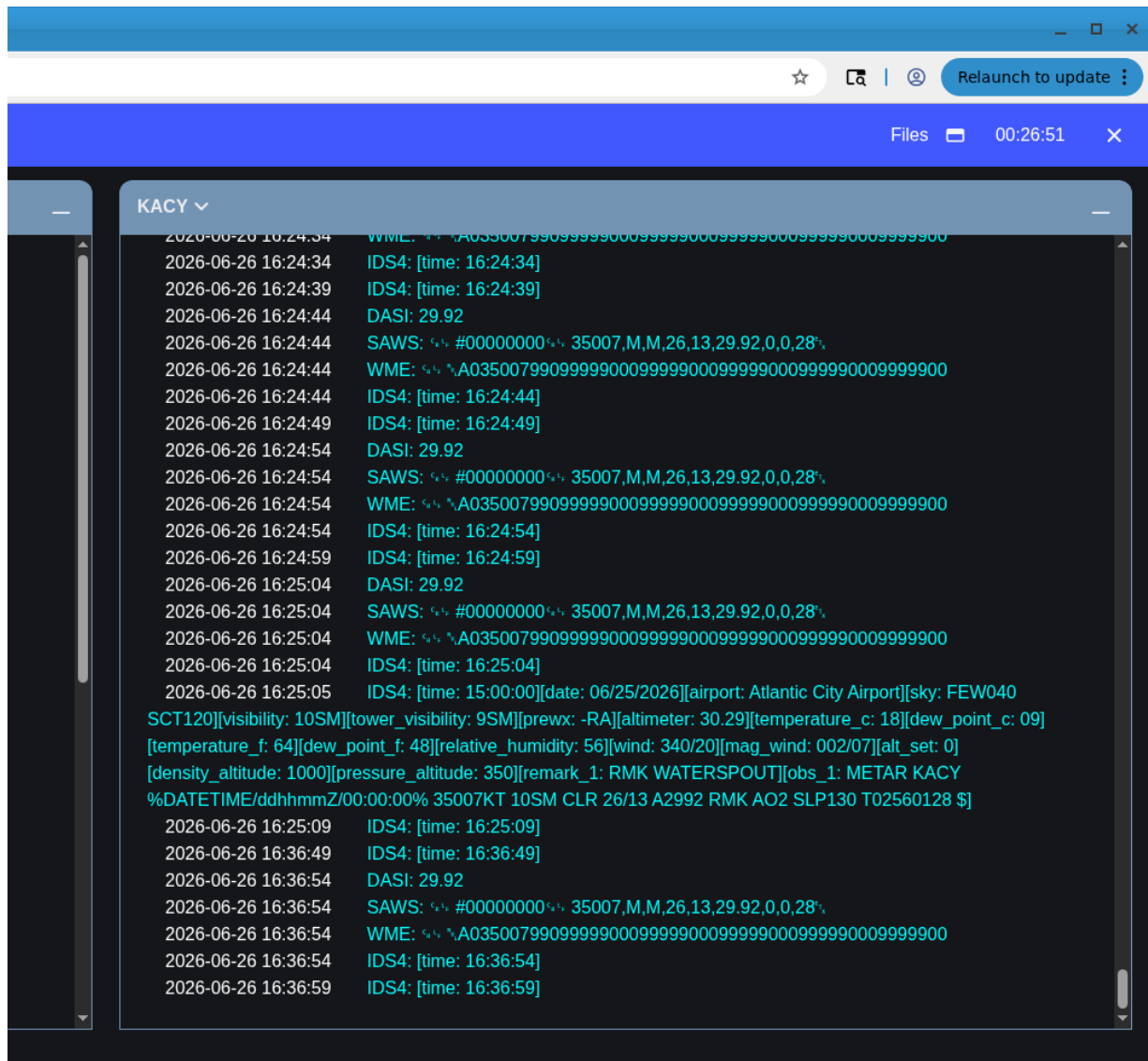


Figure 15. Interface Messages Log

To re-display the System Log, click on the Syslog Page option from the Main menu.

3.1.2.3. Files Page

Clicking on the Files menu bar button displays the Files page showing the currently loaded configuration and scenario files.

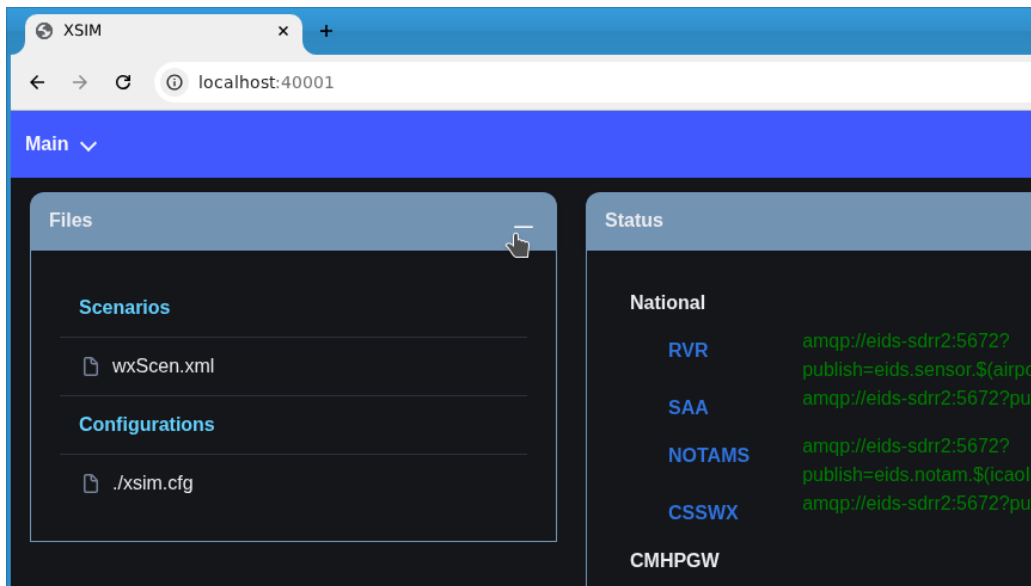


Figure 16. Files Page

3.2. Main Menu Options

3.2.1. Syslog Page

To display the System Log when the Log Viewer is showing an interface message log, click on the Syslog Page option from the Main menu.

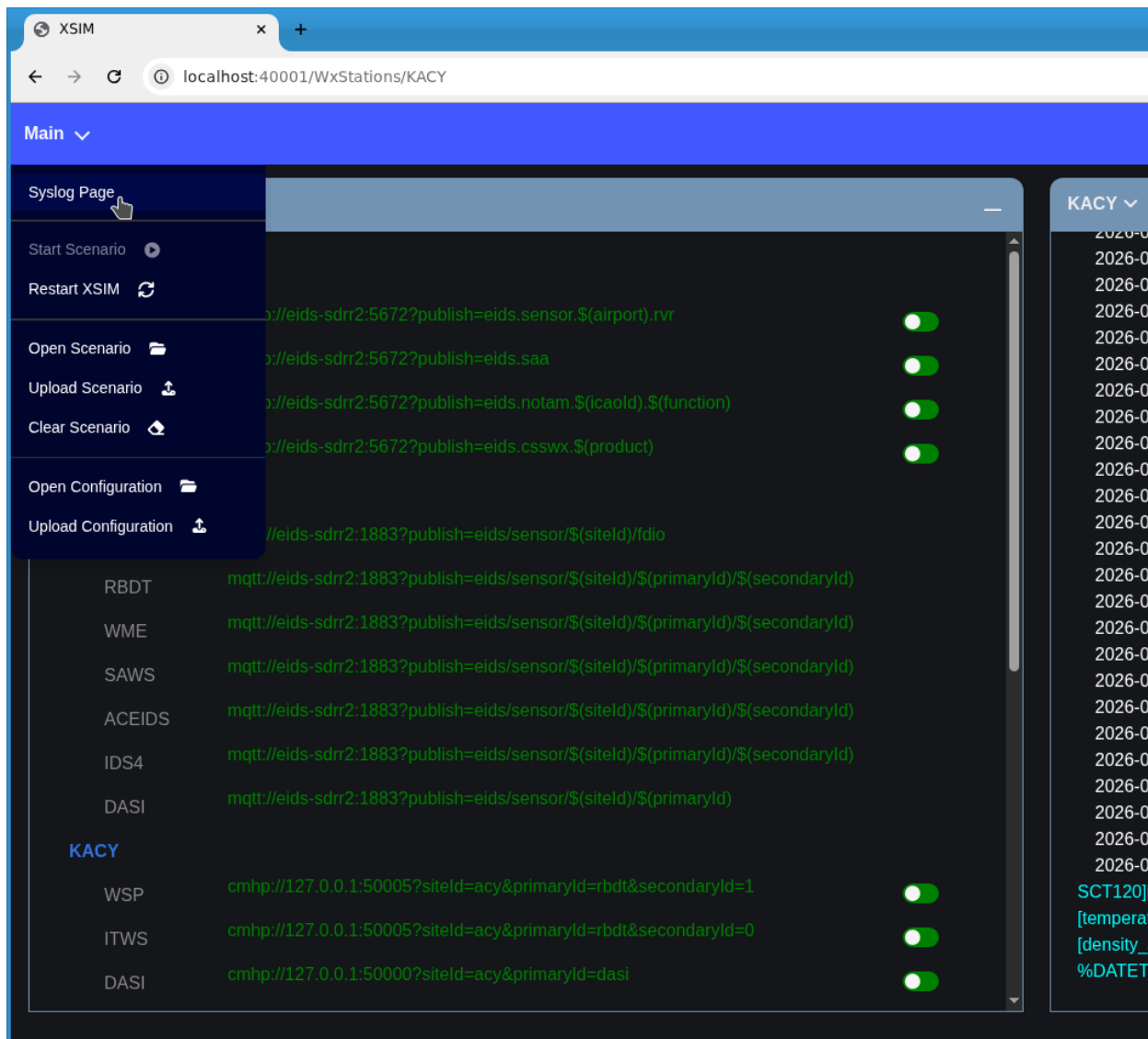


Figure 17. Syslog Page Menu Option

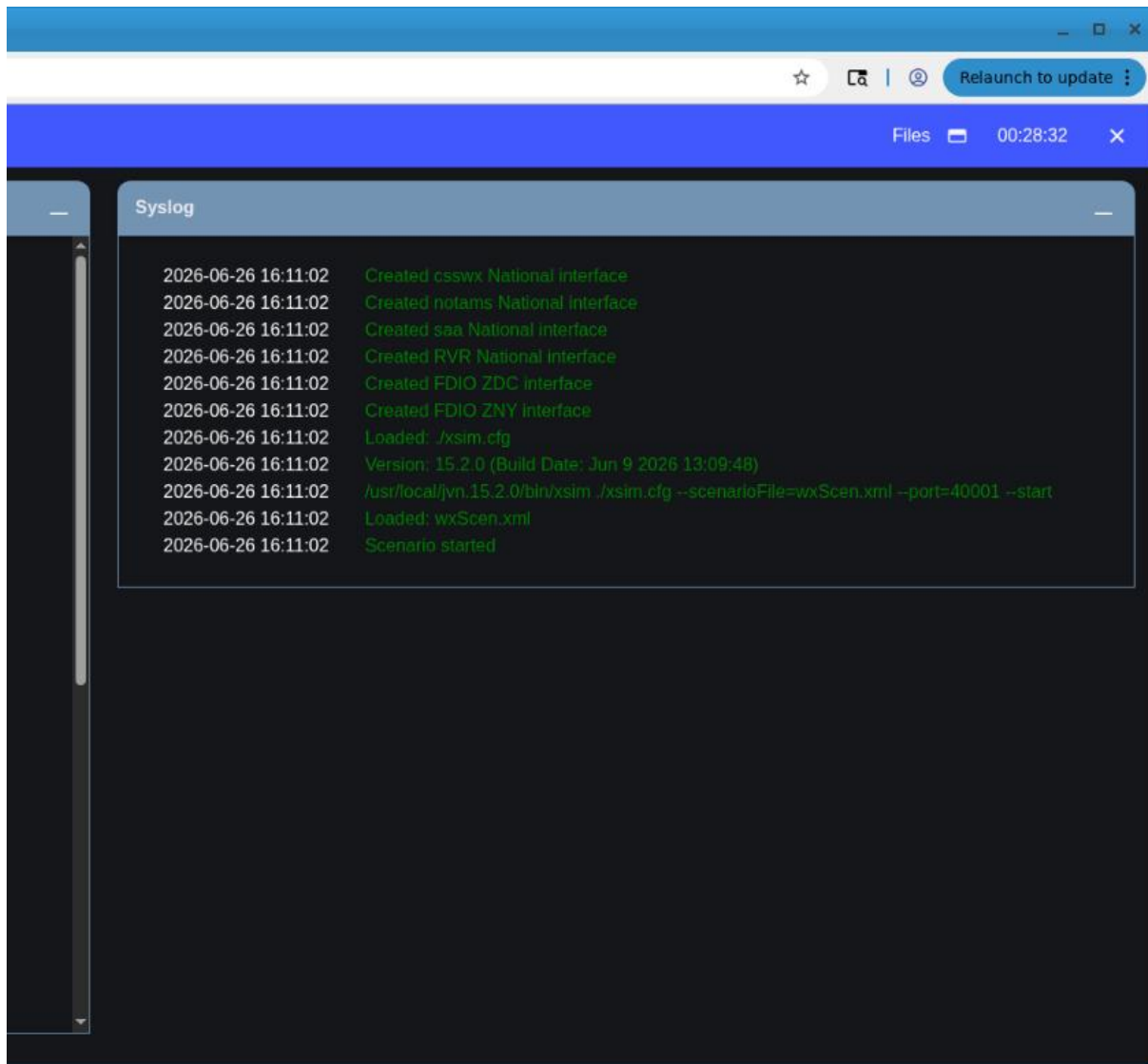


Figure 18. Log View Page Displays the System Log

3.2.2. Scenario Start

When XSIM is launched without the `--start` parameter specified, the scenario must be manually started. The System Log displays the message "Waiting for scenario start..." in orange text.

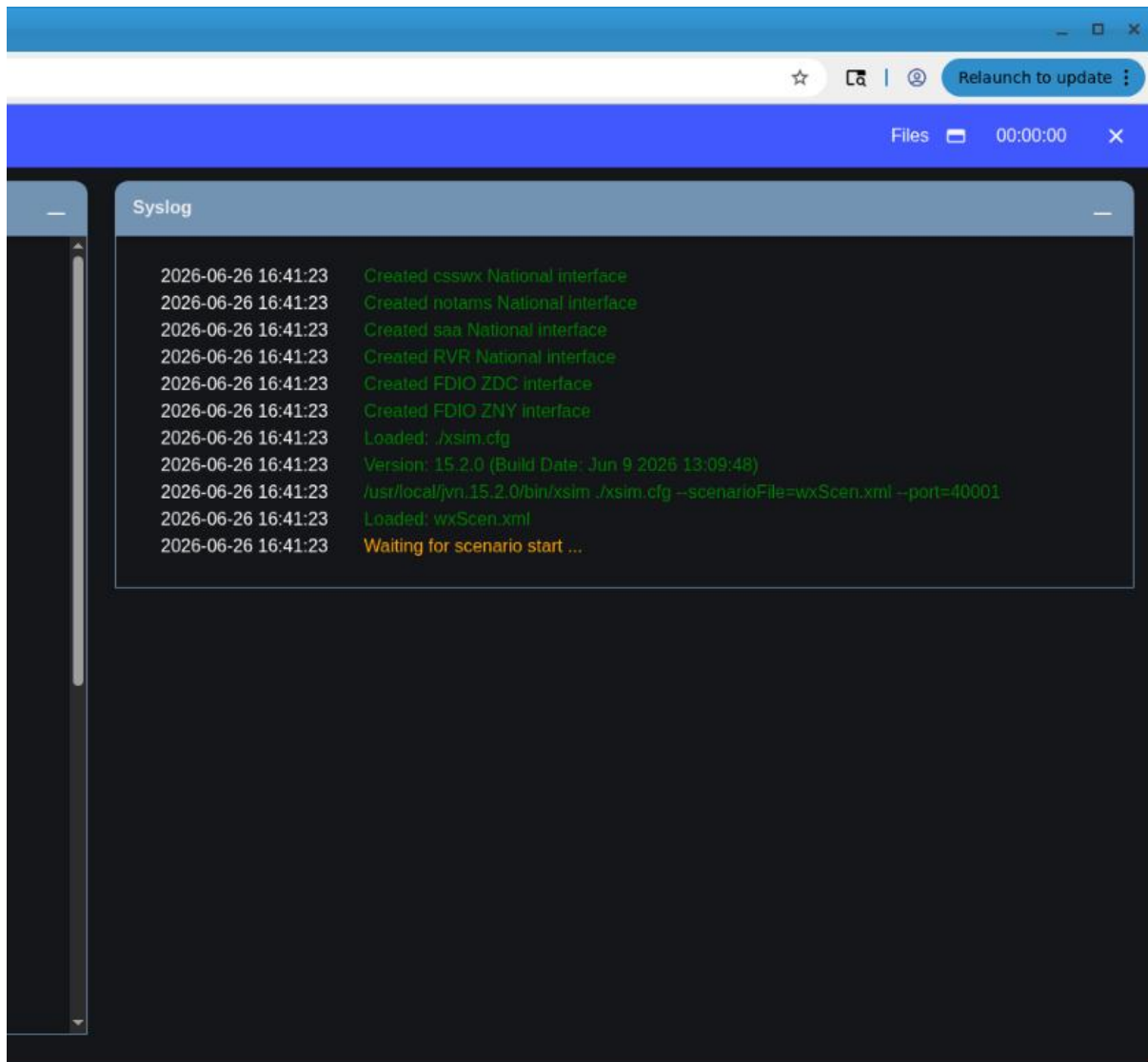


Figure 19. System Log with Manual Scenario Start

To manually start the scenario, select the Start Scenario option from the Main menu.

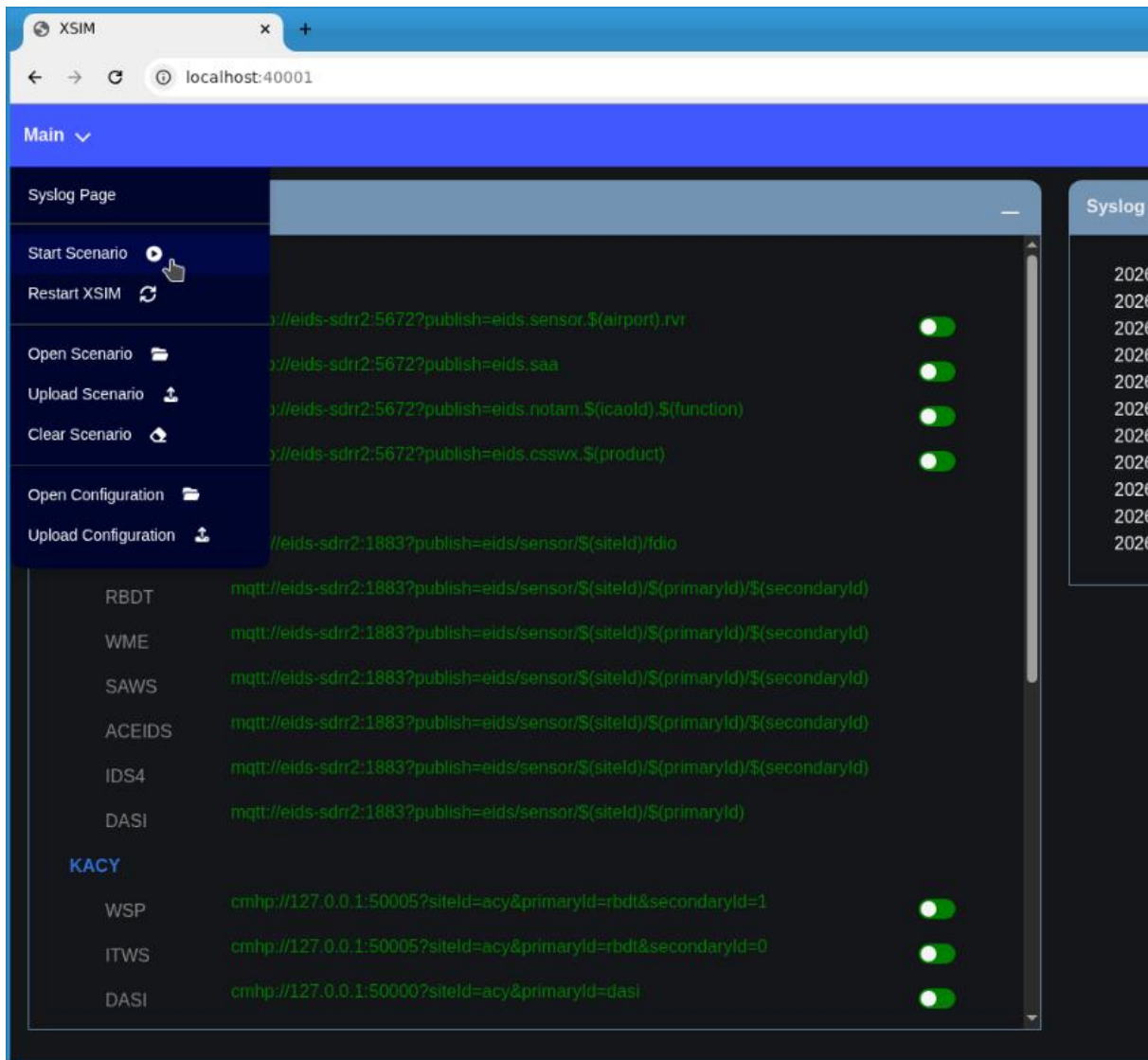


Figure 20. Start Scenario Menu Option

The time when the scenario was manually started is added to the System Log and the scenario runtime clock begins running.

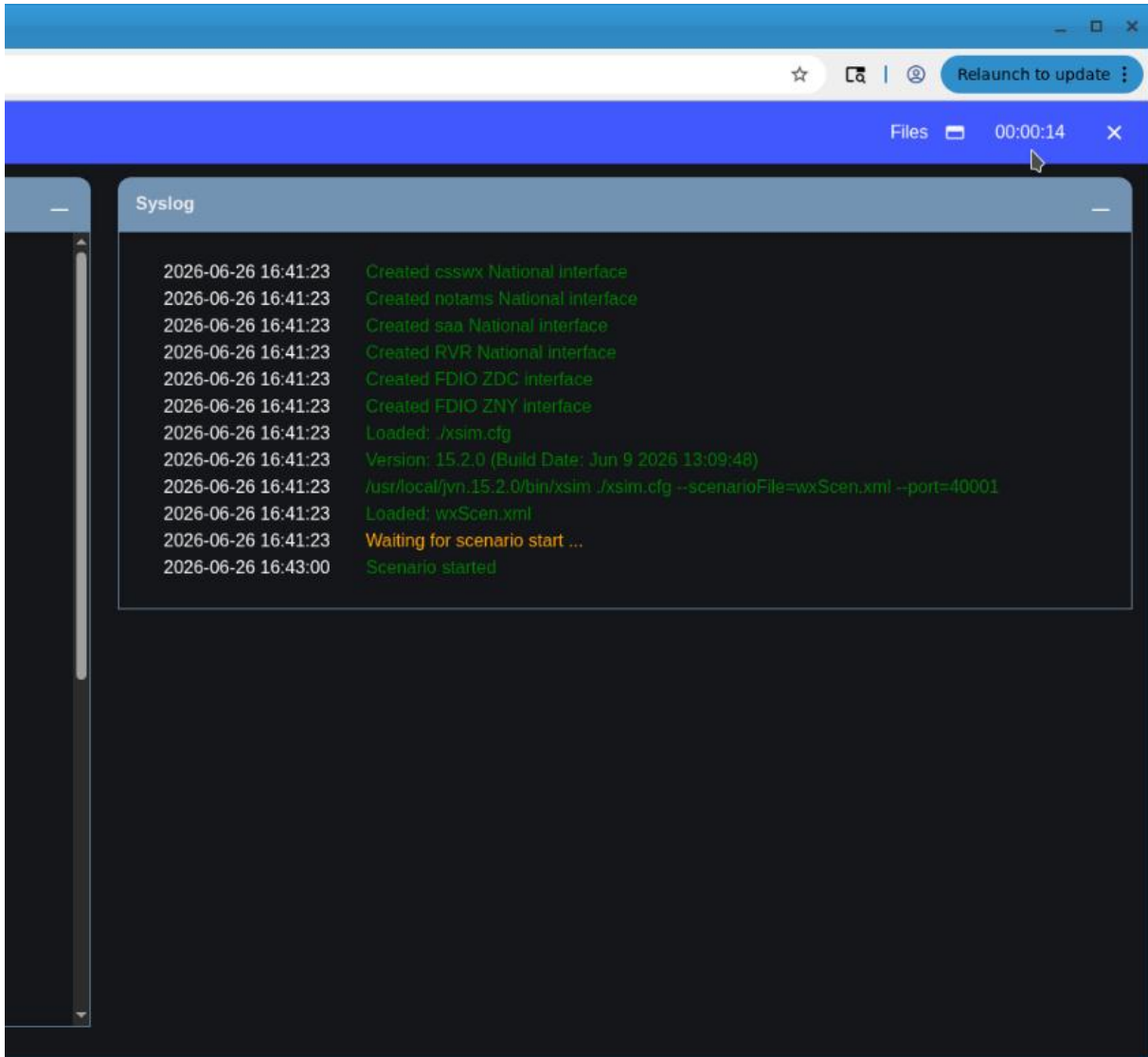


Figure 21. Scenario Manually Started

3.2.3. Restart XSIM

Selecting the Restart XSIM option from the Main menu, closes XSIM and re-launches it with the same configuration and scenario(s).

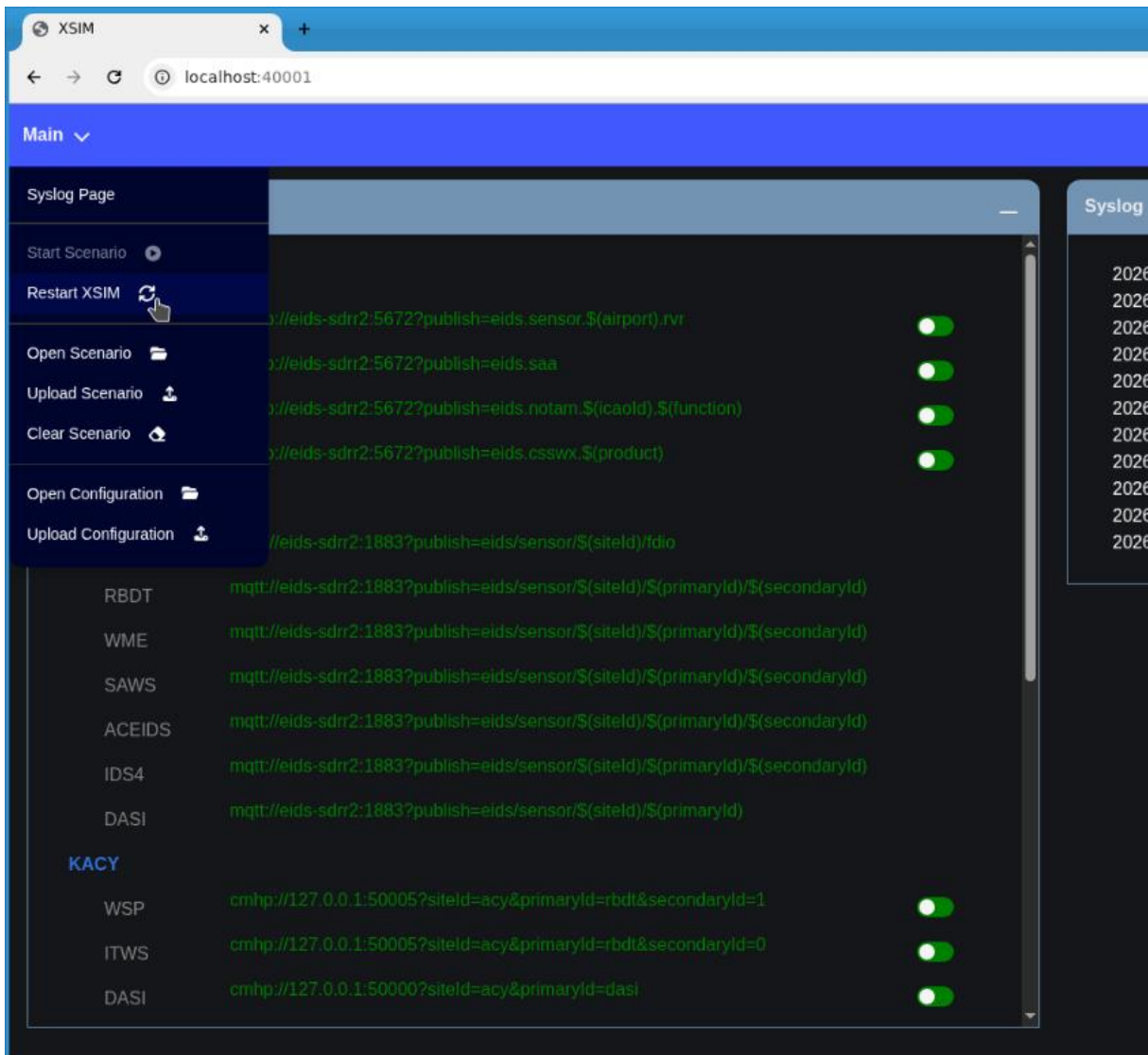


Figure 22. Restart XSIM Menu Option

3.2.4. Upload Scenario

Users have options for selecting new scenario data without stopping XSIM. A new scenario can be uploaded into XSIM from the Main menu Upload Scenario option.

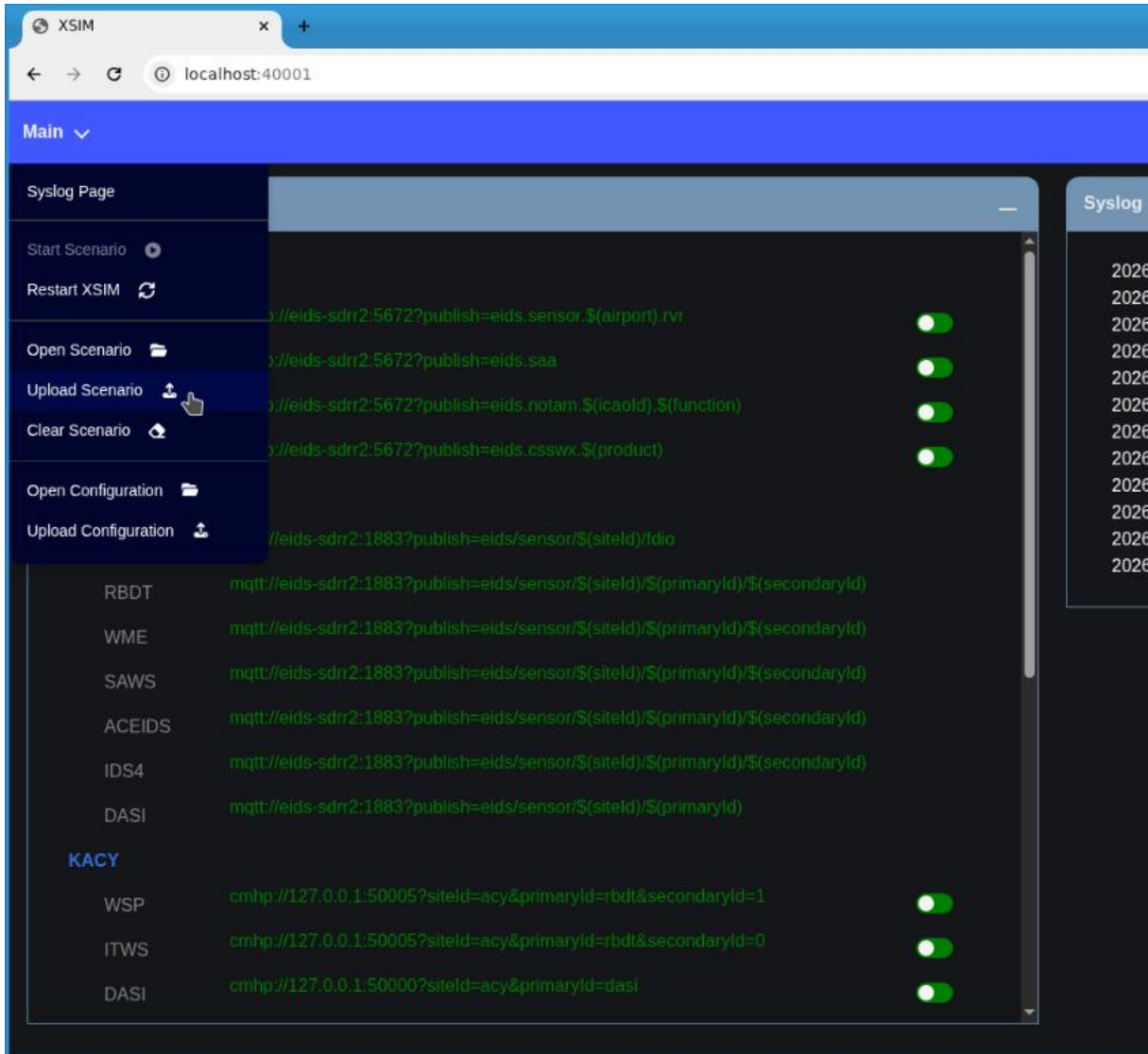


Figure 23. Upload Scenario Menu Option

When the upload option is selected, a window is displayed allowing users to select new scenario files from the user's local workstation. Clicking on the Open button copies the selected files to XSIM's scenario directory. The XSIM scenario directory is either the file location where XSIM was launched or a subdirectory named scenarios, if one exists.

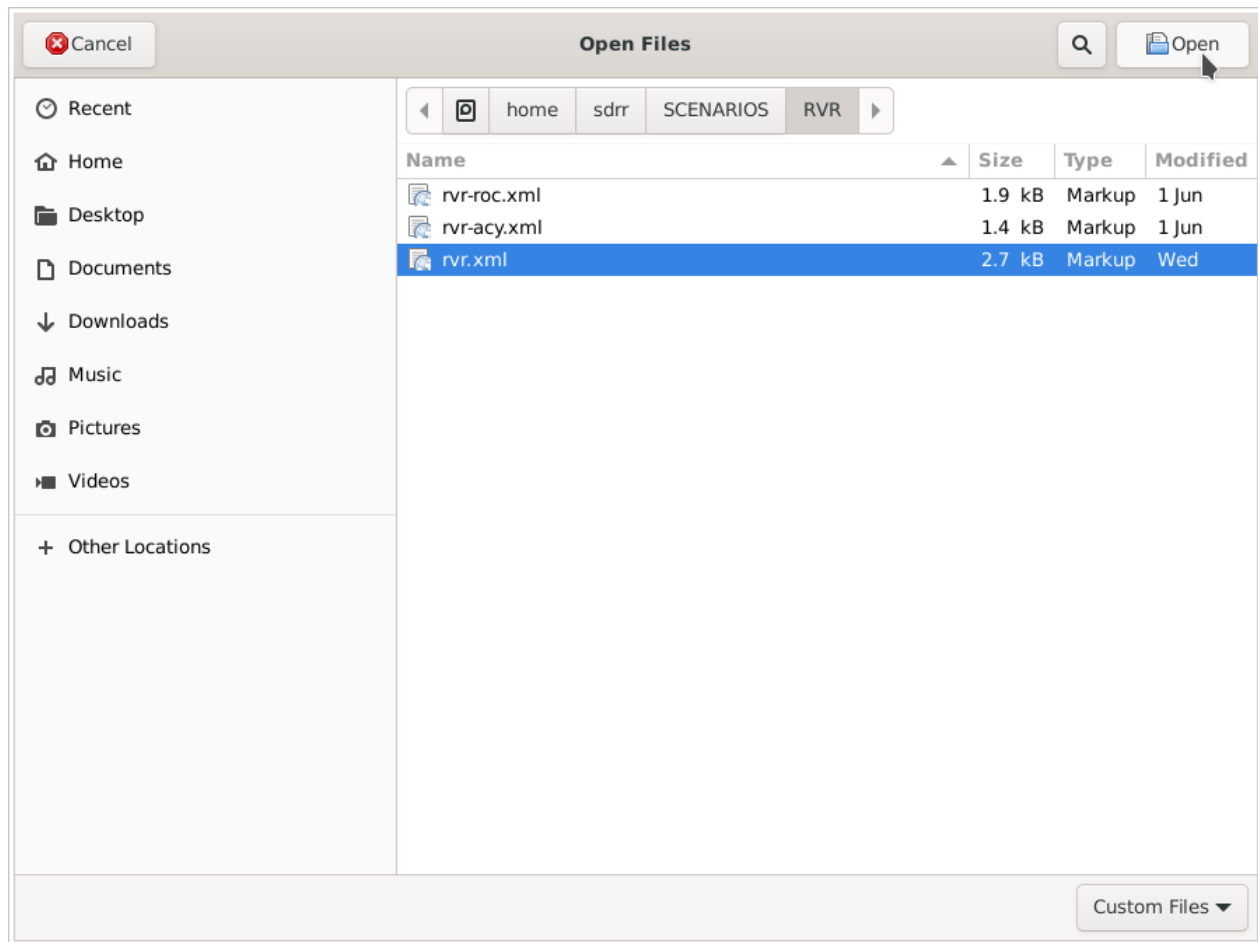


Figure 24. Upload Scenario Window

A message indicating the new scenario was uploaded is added to the System Log.

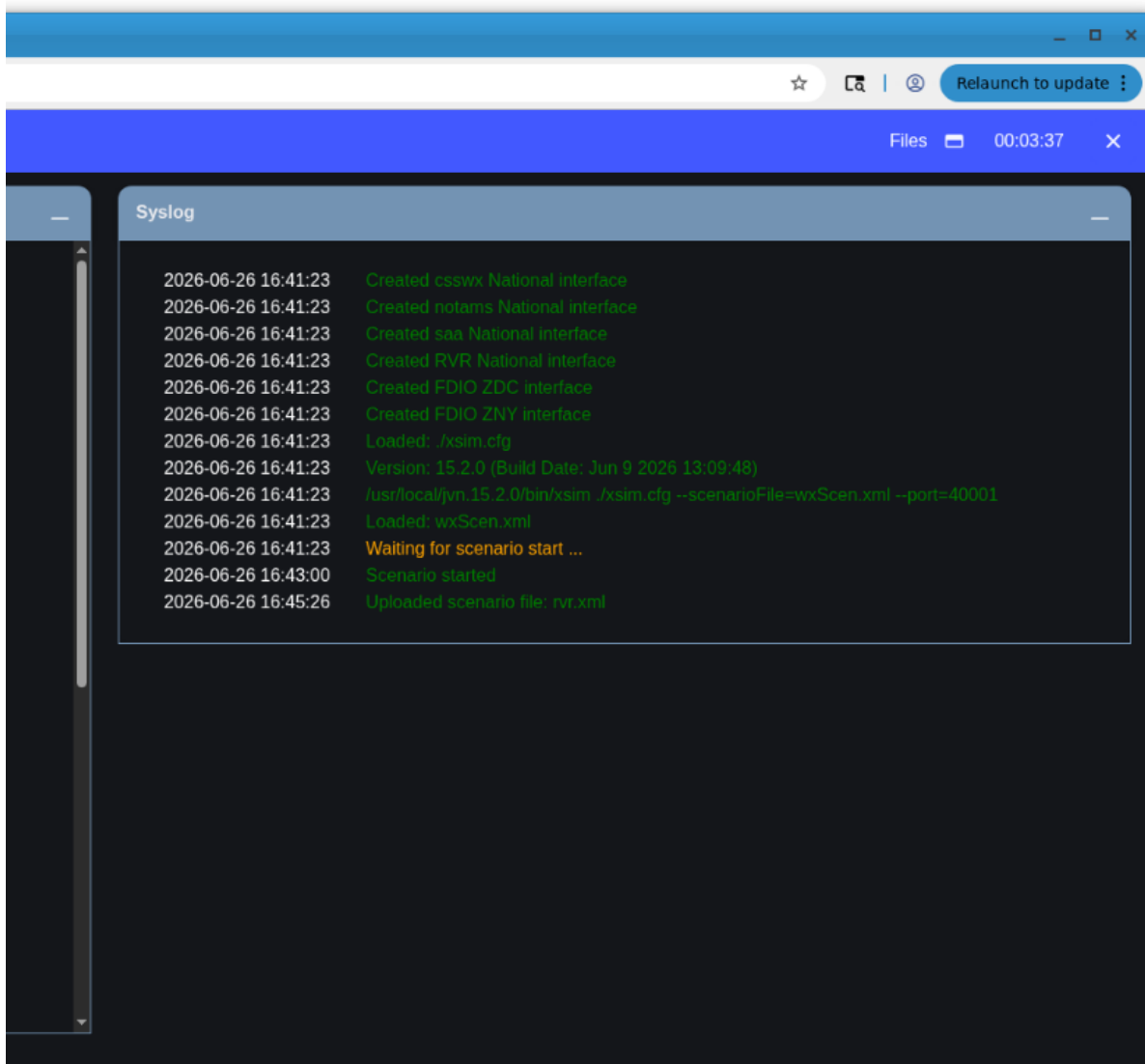


Figure 25. Scenario Upload Message Logged

3.2.5. Open Scenario

Uploaded scenarios can be opened in XSIM using the Open Scenario option from the Main menu. When the open option is selected, an Open Scenario dialog is displayed allowing users to open a scenario from the XSIM scenario directory. The XSIM scenario directory is either the file location where XSIM was launched or a subdirectory named scenarios, if it exists.

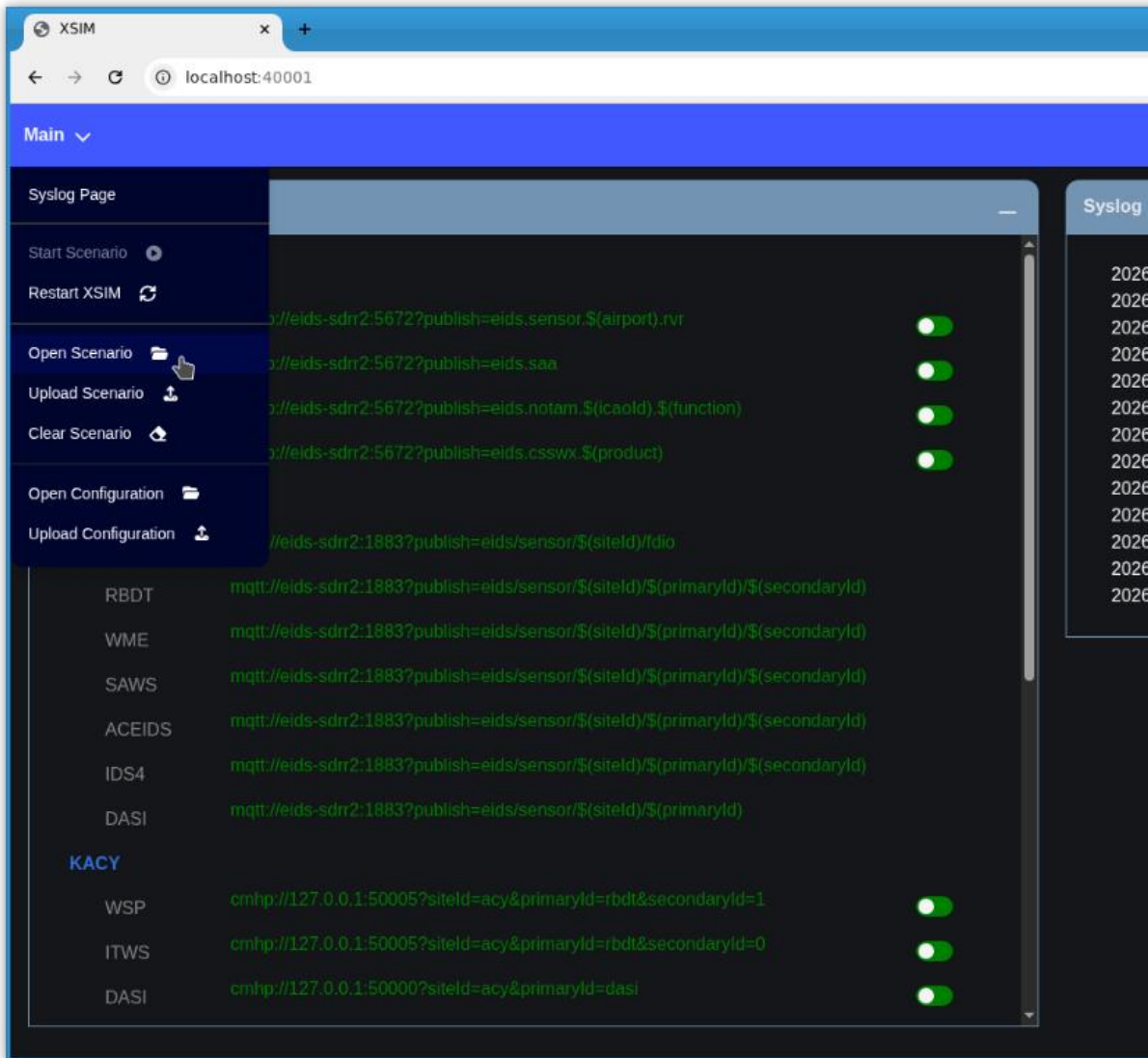


Figure 26. Open Scenario Menu Option

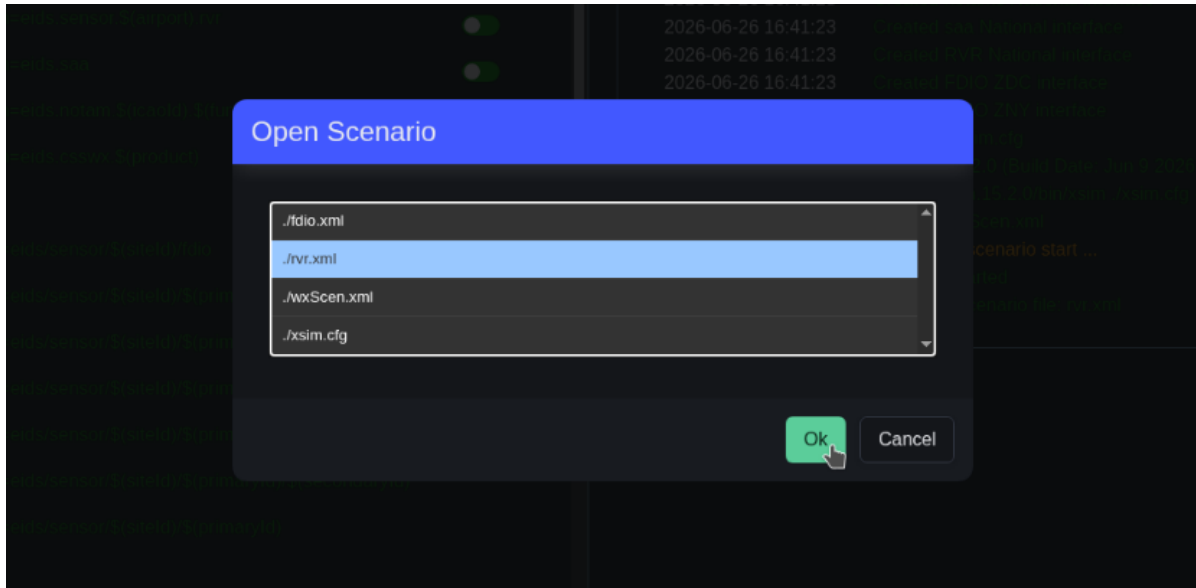


Figure 27. Open Scenario Dialog

A message with the time when the new scenario was opened is added to the System Log. The new scenario data is loaded into XSIM along with existing scenario data. If the intent is to replace the current scenario data with new scenario data, the Clear Scenario option should be used first before the Open Scenario option.

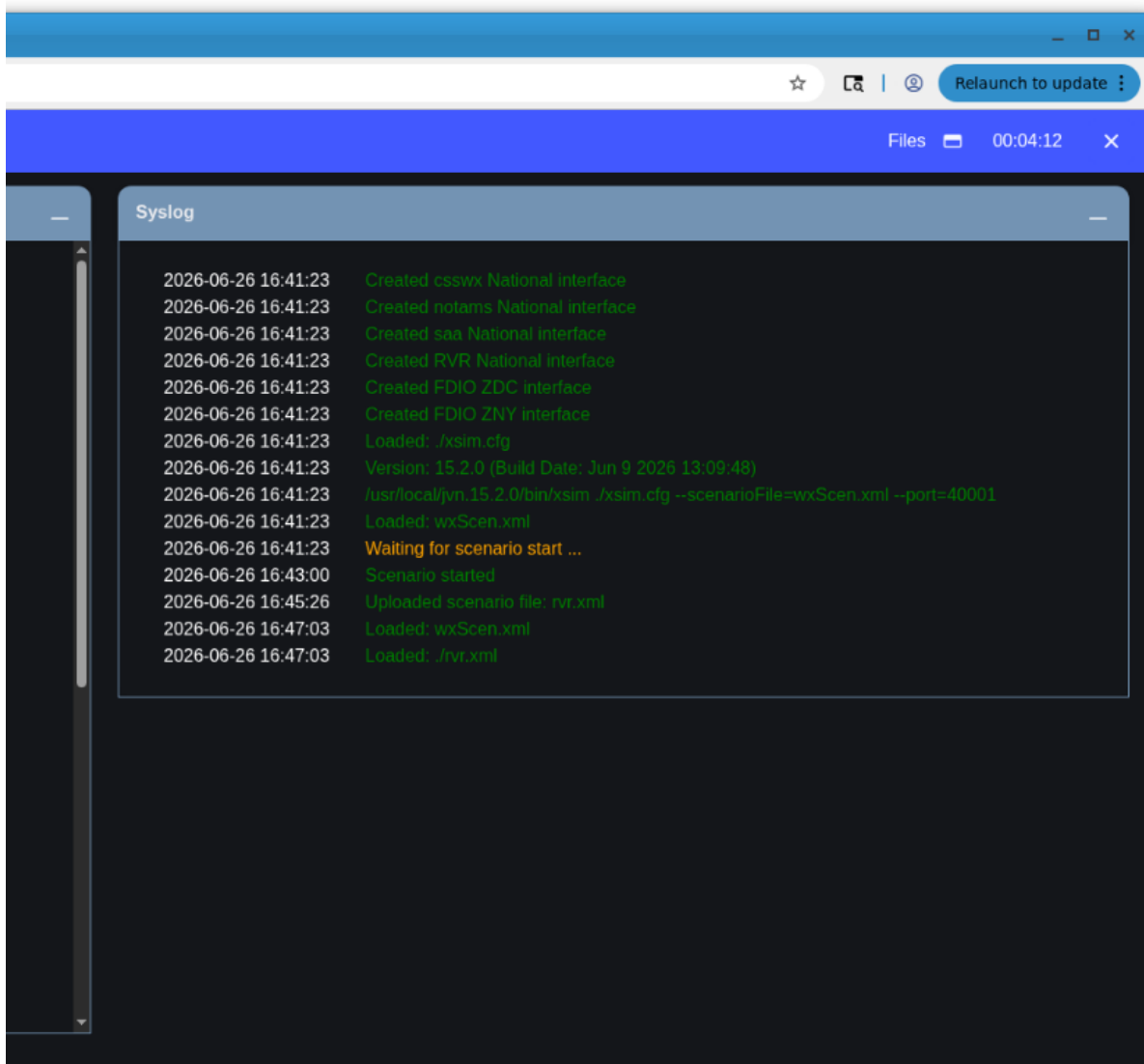


Figure 28. Scenario Opened Message Logged

3.2.6. Clear Scenario

The Clear Scenario option from the Main menu can be used to remove all scenario data from the current XSIM instance. The scenario files will remain in the scenario directory and can be re-opened.

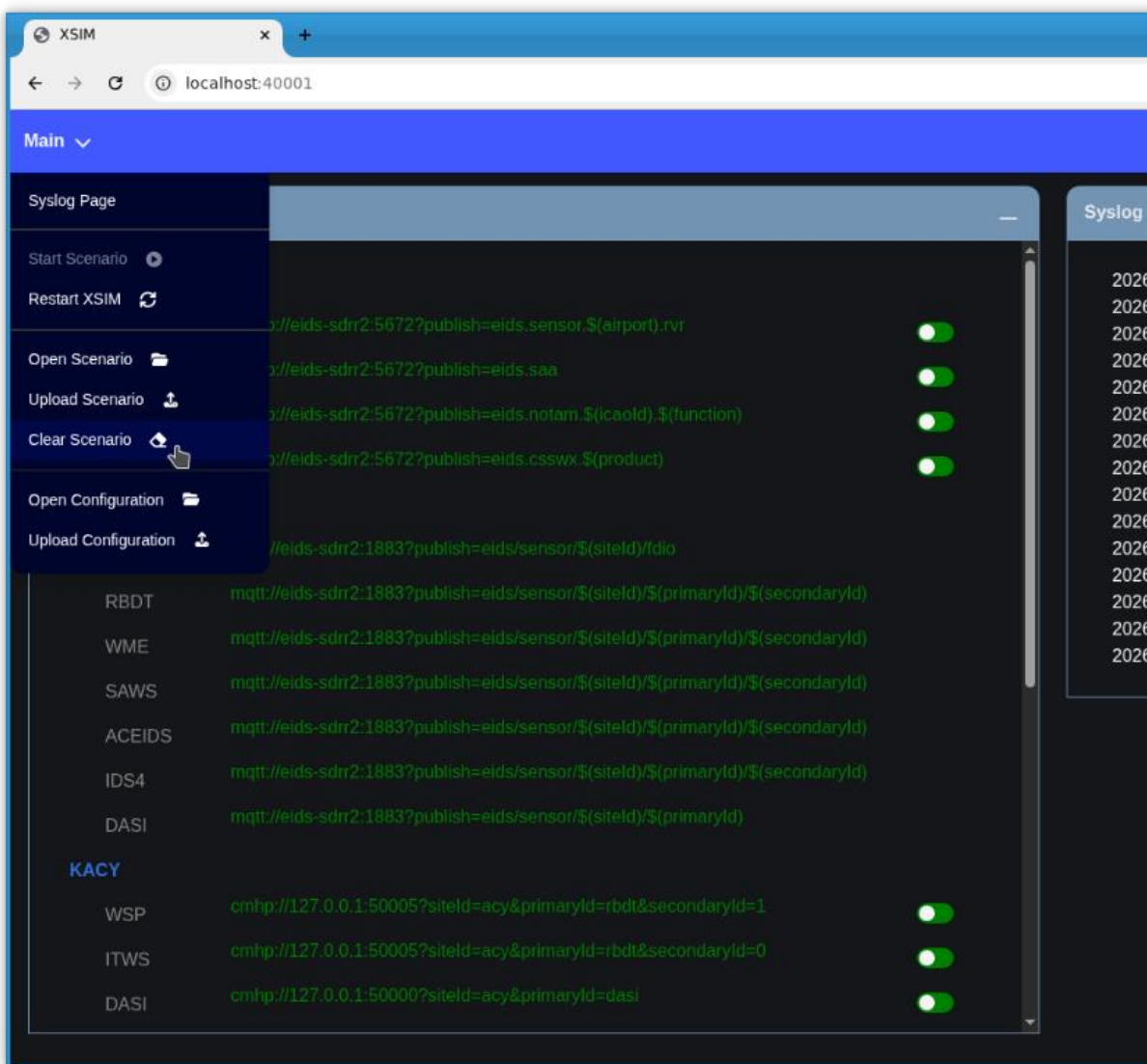


Figure 29. Clear Scenario Menu Option

A message indicating the scenario data have been cleared is added to the System Log.

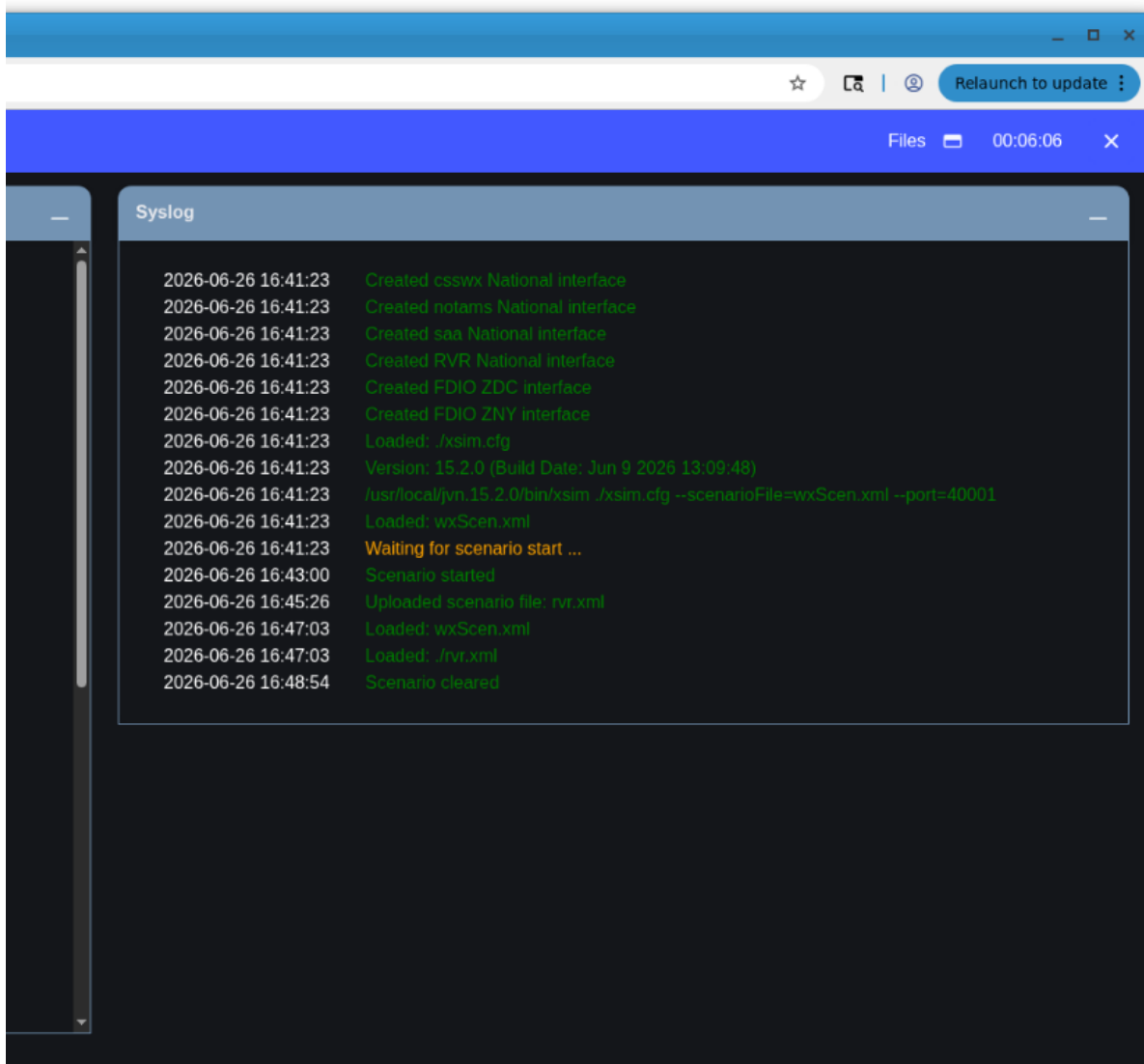


Figure 30. Scenario Cleared Message Logged

3.2.7. Upload Configuration

Users have options for selecting configuration files without stopping XSIM. A new configuration can be uploaded into XSIM from the Main menu Upload Configuration option.

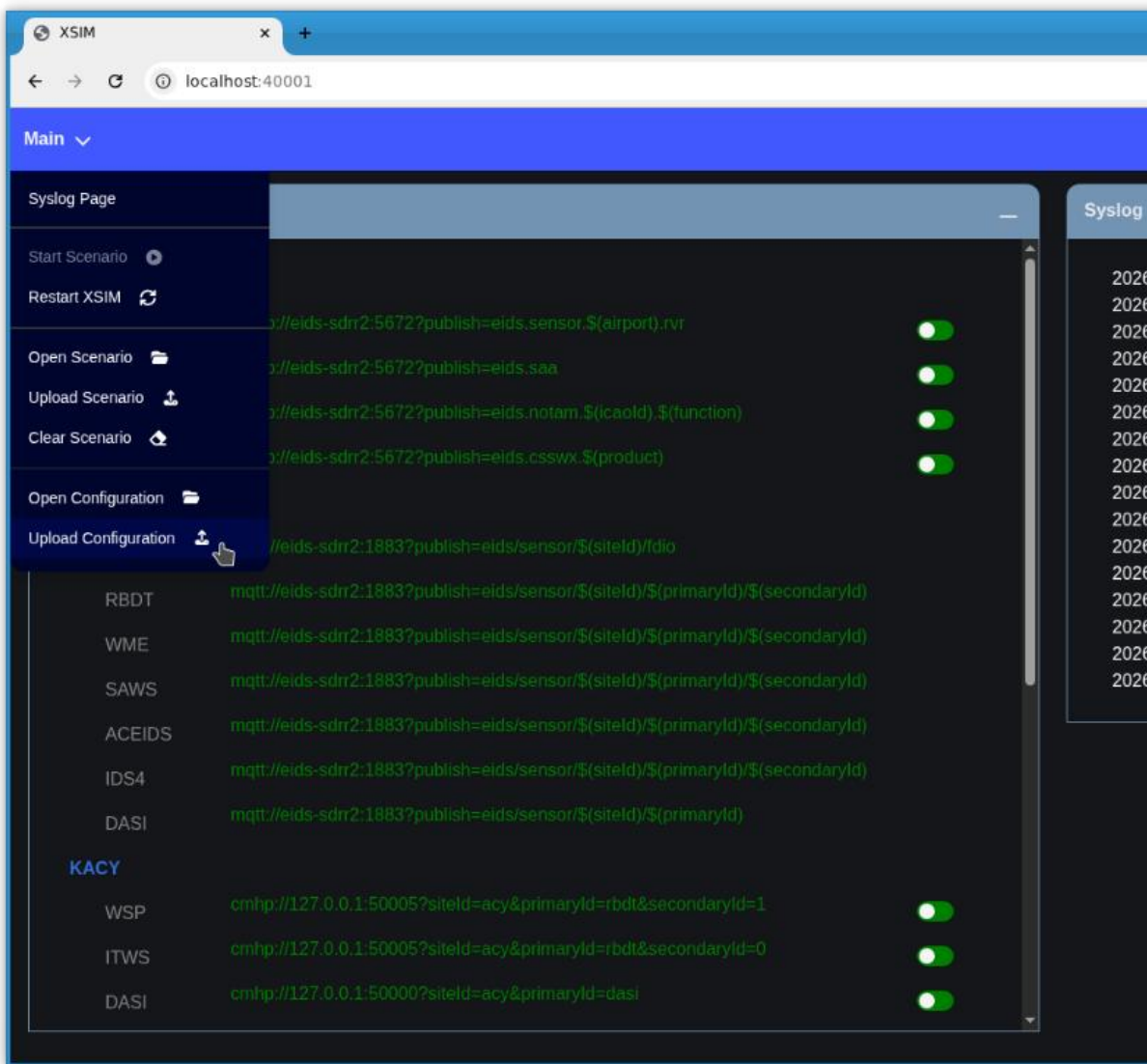


Figure 31. Upload Configuration Menu Option

When the Upload Configuration option is selected, a window is displayed allowing users to select the new configuration file from the user's local workstation. Clicking on the Open button copies the selected files to XSIM's configuration directory. The XSIM configuration directory is either the file location where XSIM was launched or a subdirectory named cfs, configs, or configuration, if one exists.

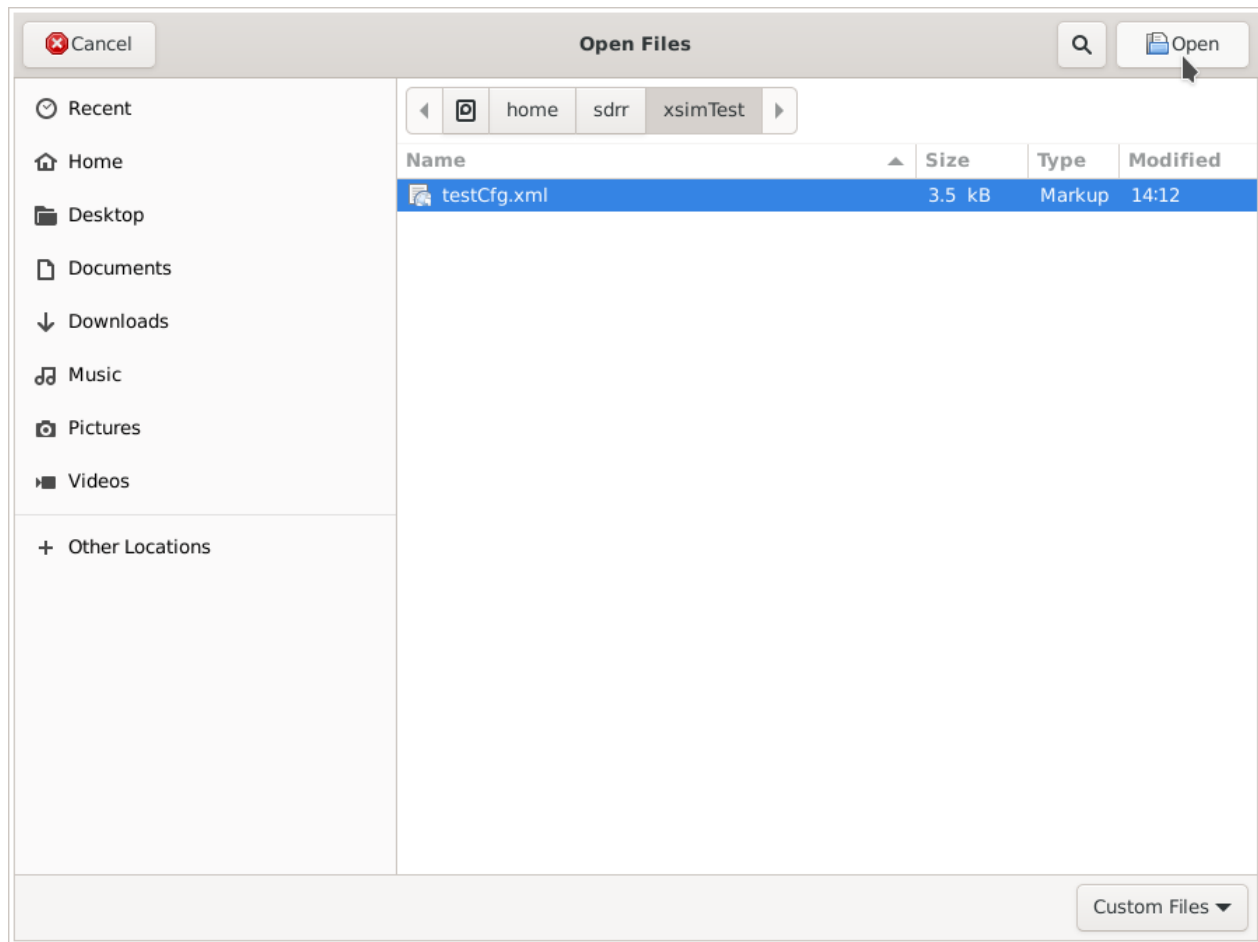


Figure 32. Upload Configuration Window

A message indicating the new configuration was uploaded is added to the System Log.

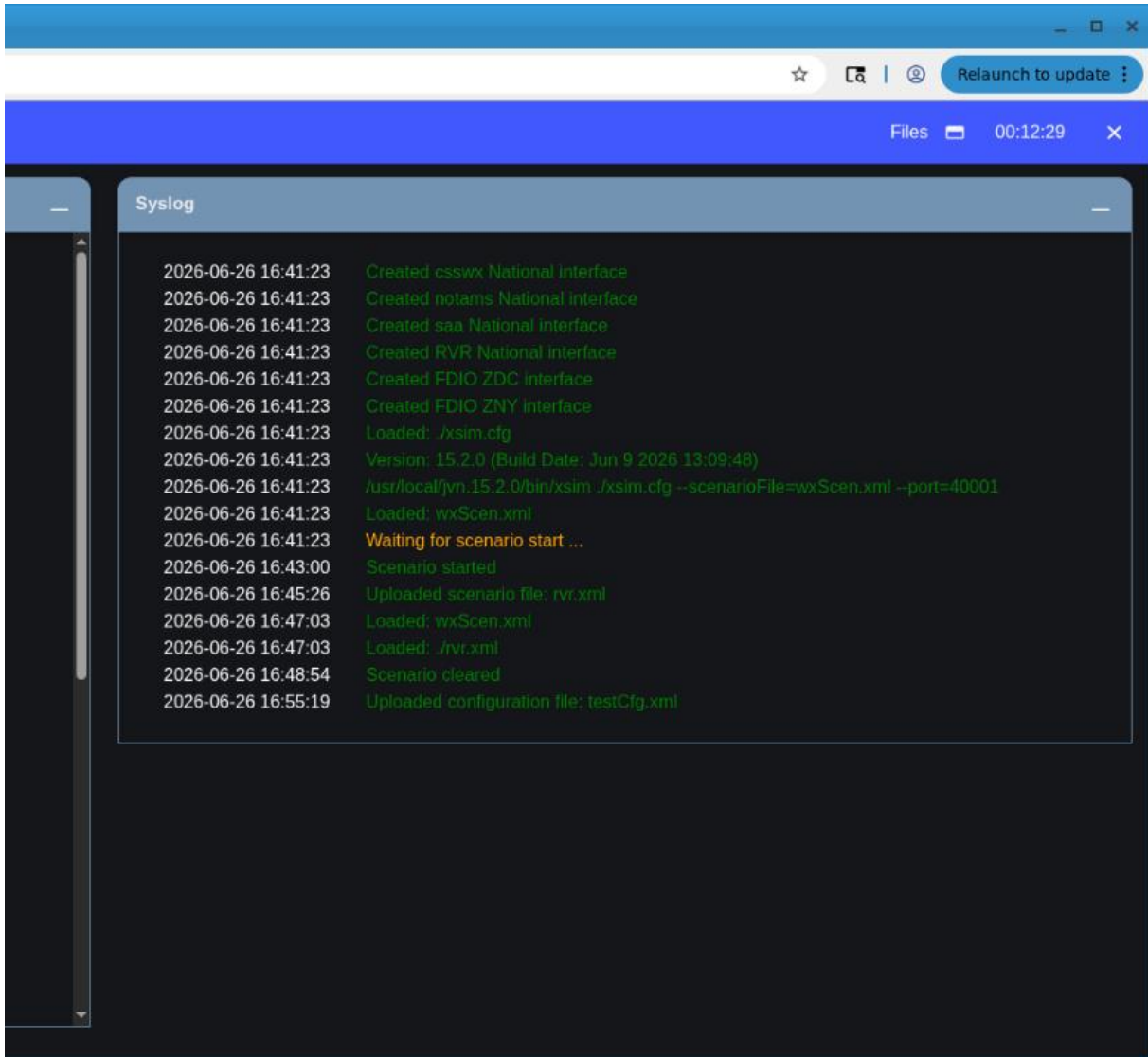


Figure 33. Configuration Upload Message Logged

3.2.8. Open Configuration

When the Open Configuration option is selected, an Open Configuration dialog is displayed allowing users to open a configuration file from the XSIM configuration directory. The XSIM configuration directory is either the file location where XSIM was launched or a subdirectory named `cfgs`, `configs`, or `configuration`, if one exists.

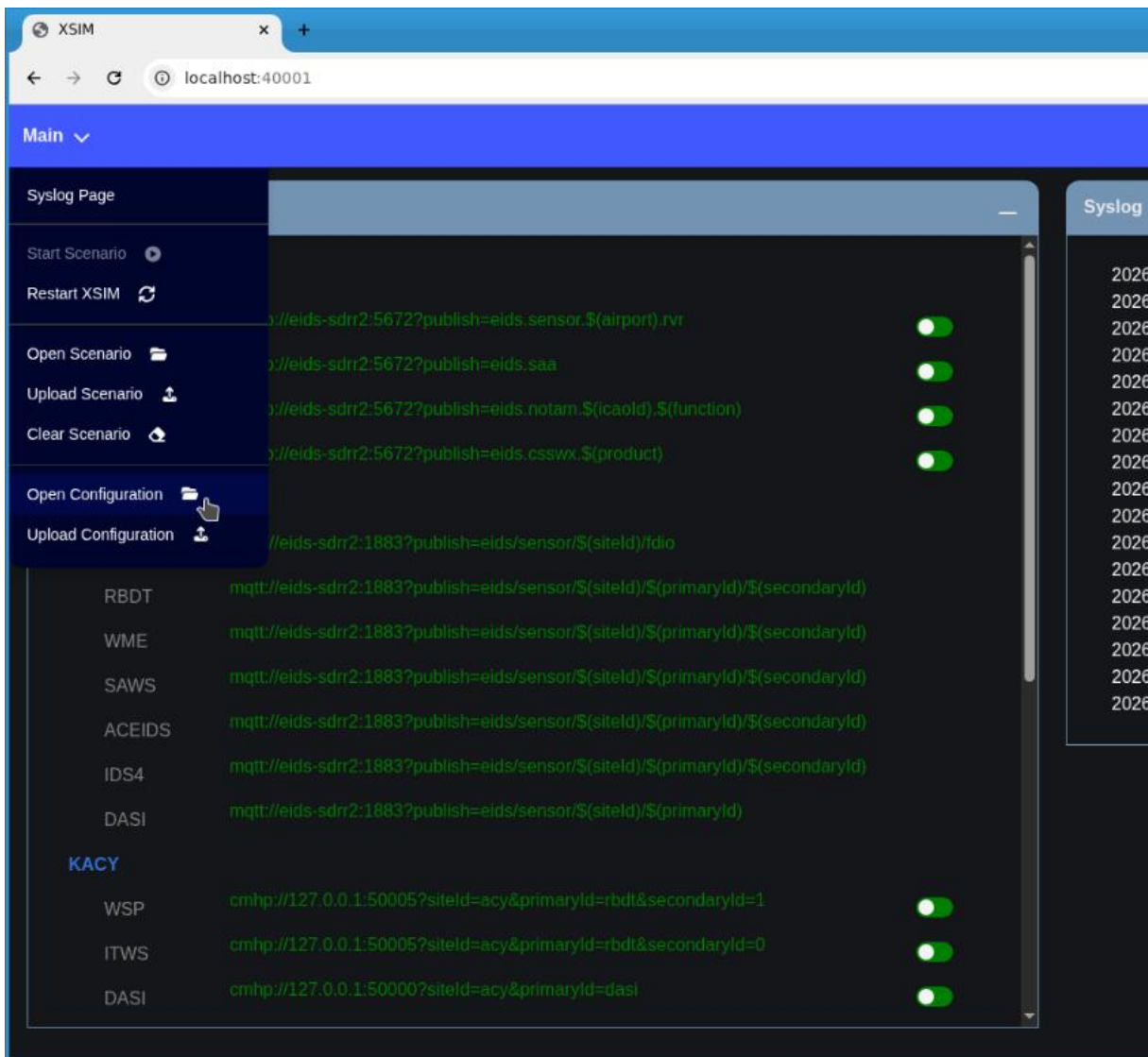


Figure 34. Open Configuration Menu Option

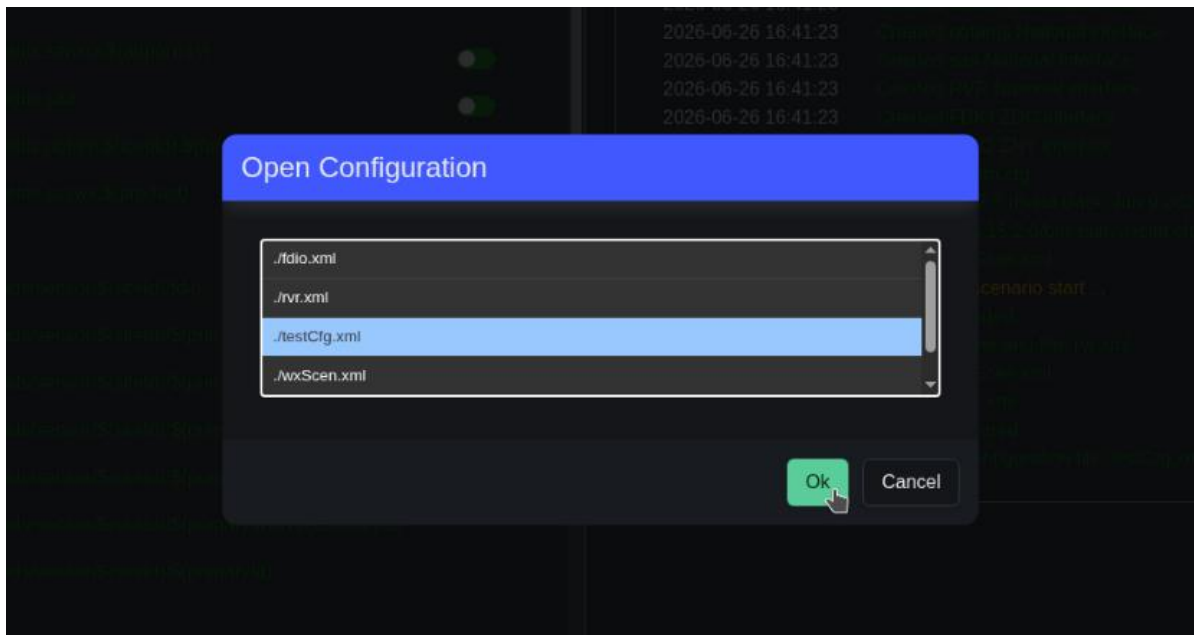


Figure 35. Open Configuration Dialog

When the configuration is changed, XSIM is required to restart. A warning dialog is displayed.

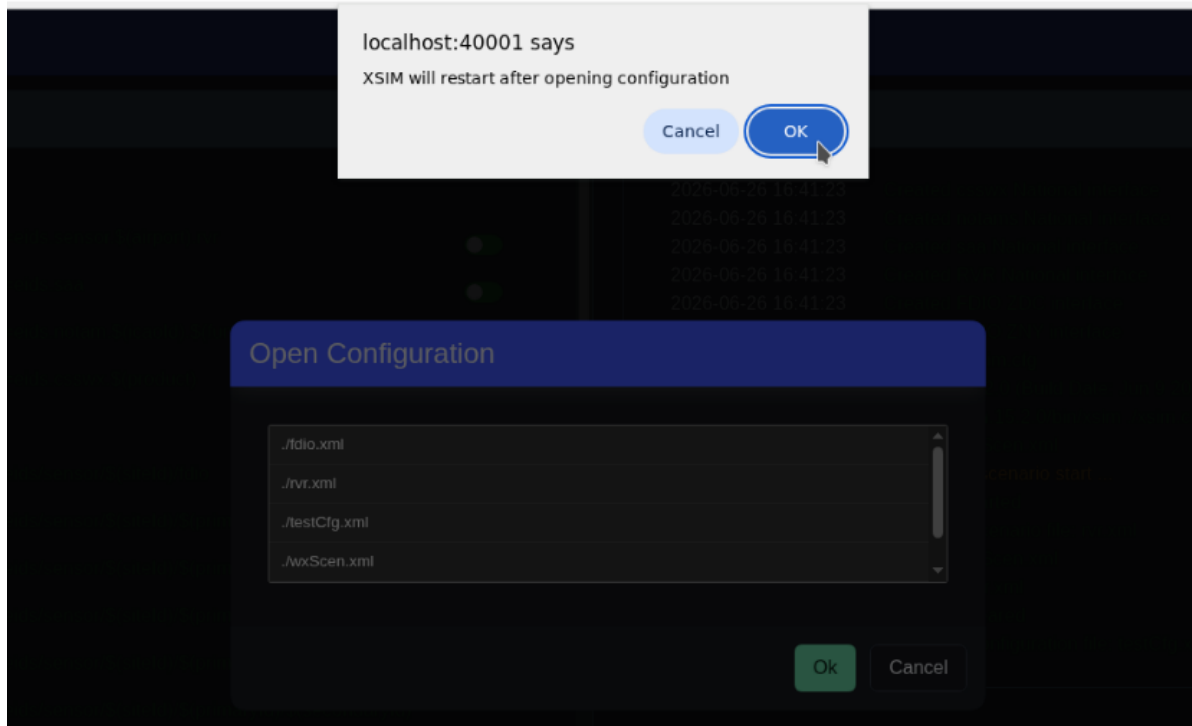


Figure 36. Restart Required Warning

4. Messages

In the Status page, click on a weather station, FDIO facility, or SWIM interface identifier (in blue text) to see the message log for that interface.

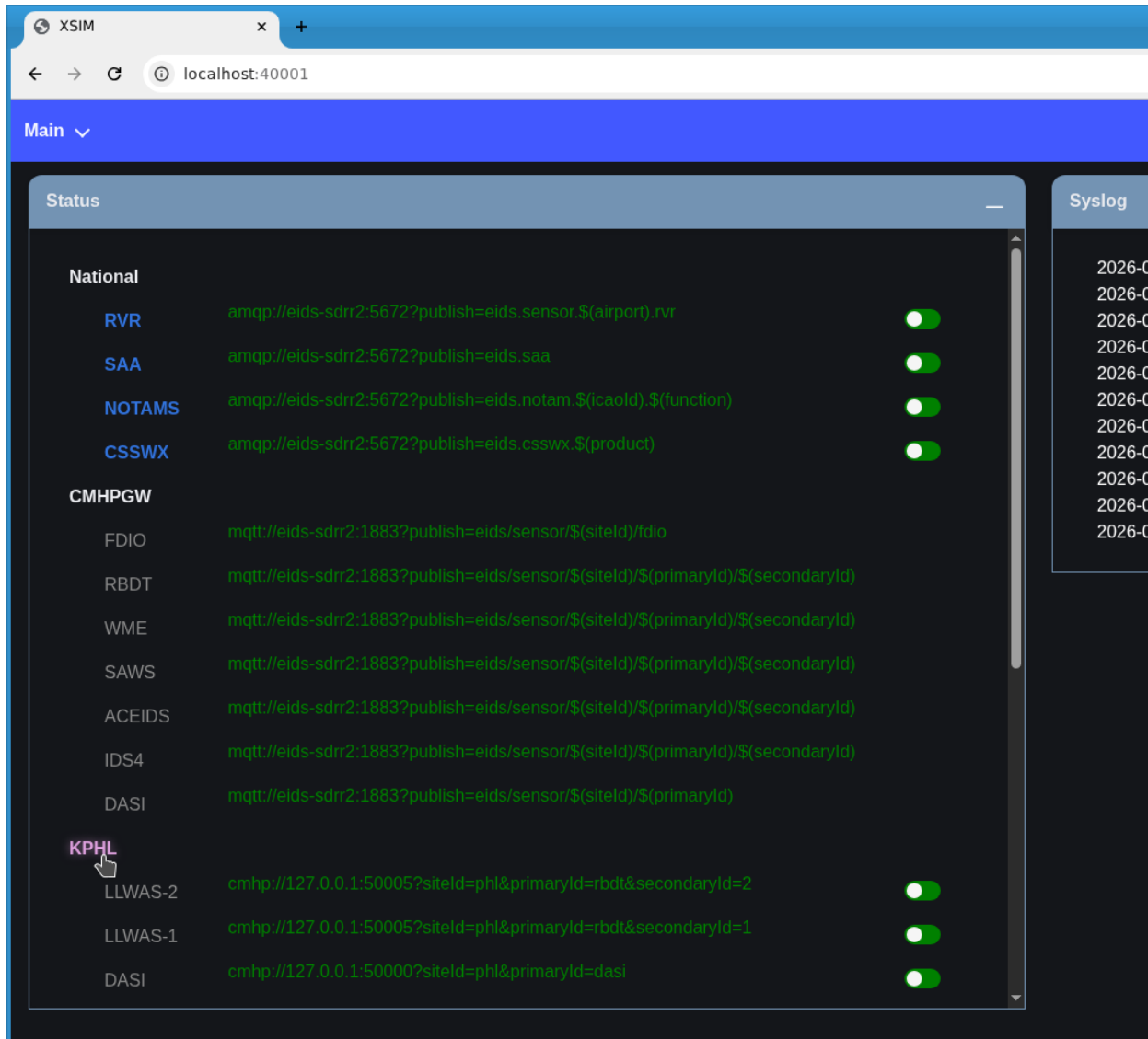


Figure 37. Selecting an Interface

The images below show examples of weather station, FDIO, and RVR SWIM message logs displayed in the Log View page.

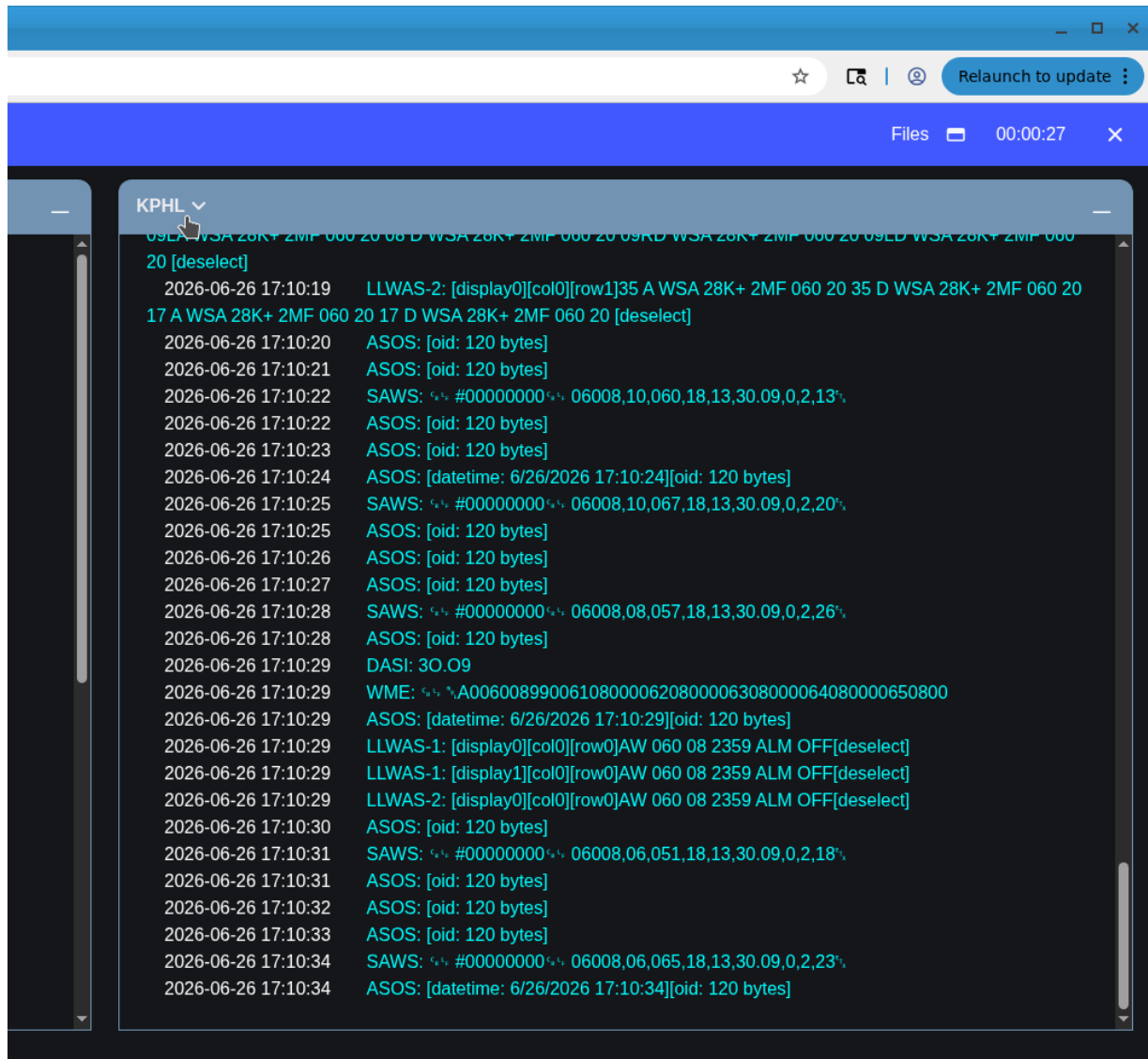


Figure 38. Weather Station Messages

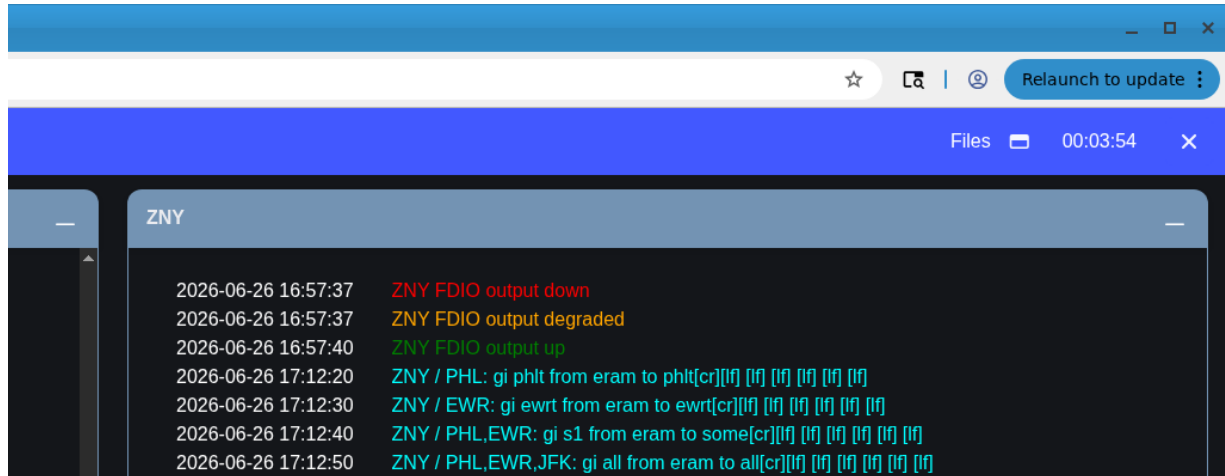


Figure 39. FDIO Messages

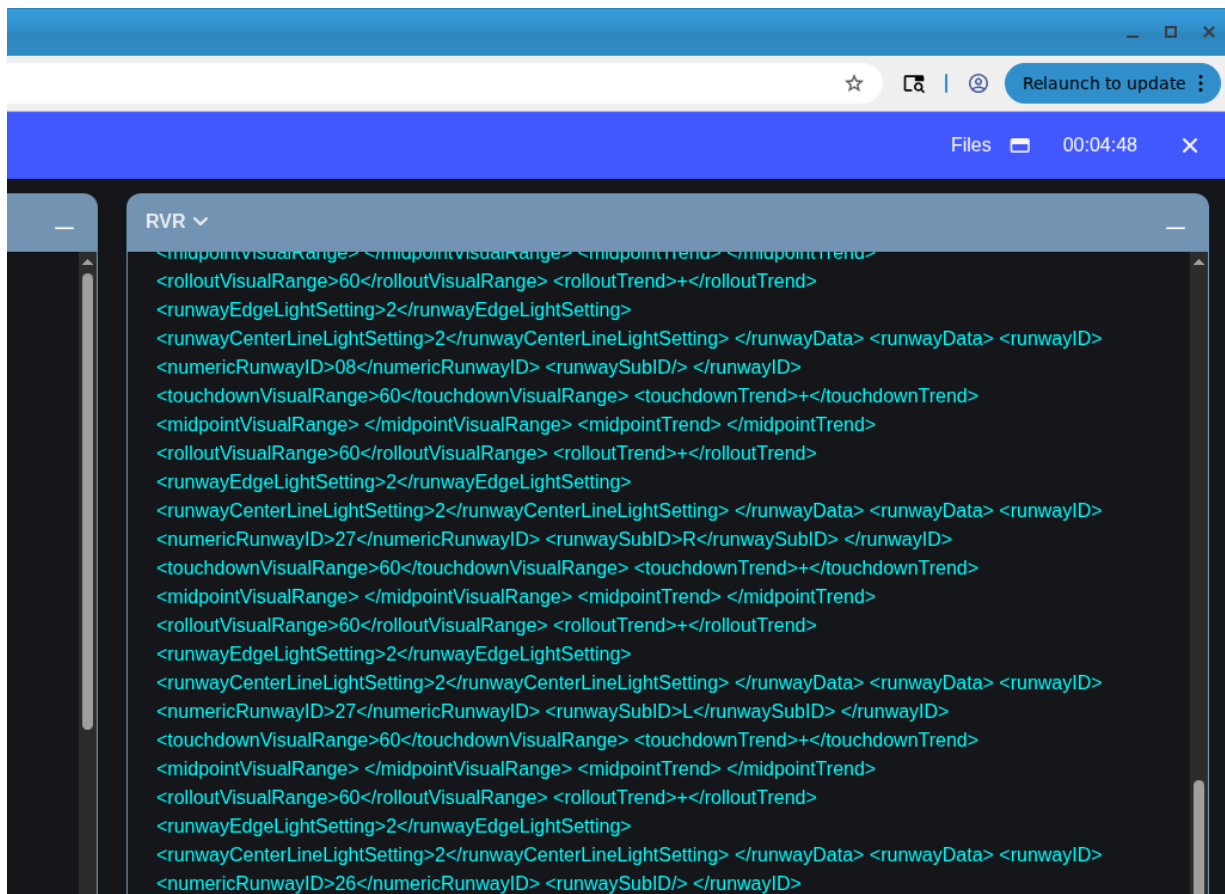


Figure 40. RVR SWIM Messages

4.1. Weather Station Message Editors

For weather stations, the Log View includes a menu in the upper left corner of the page. The menu includes editors for configured sensor messages: METAR, DASI, SAWS, WME, ASOS, AWOS, IDS4, ITWS, WSP, LLWAS, and RBDT.

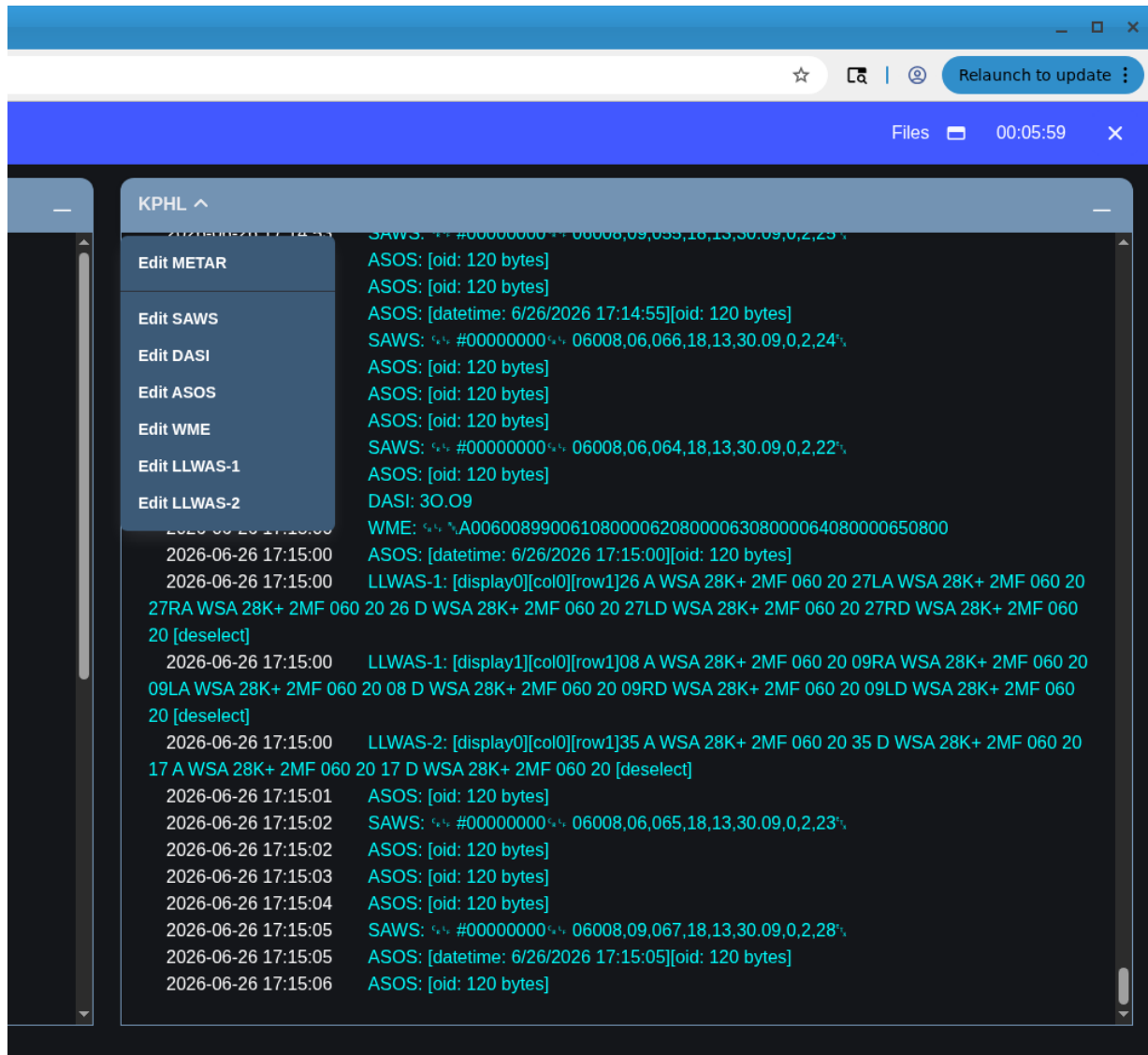


Figure 41. Edit Menu Options

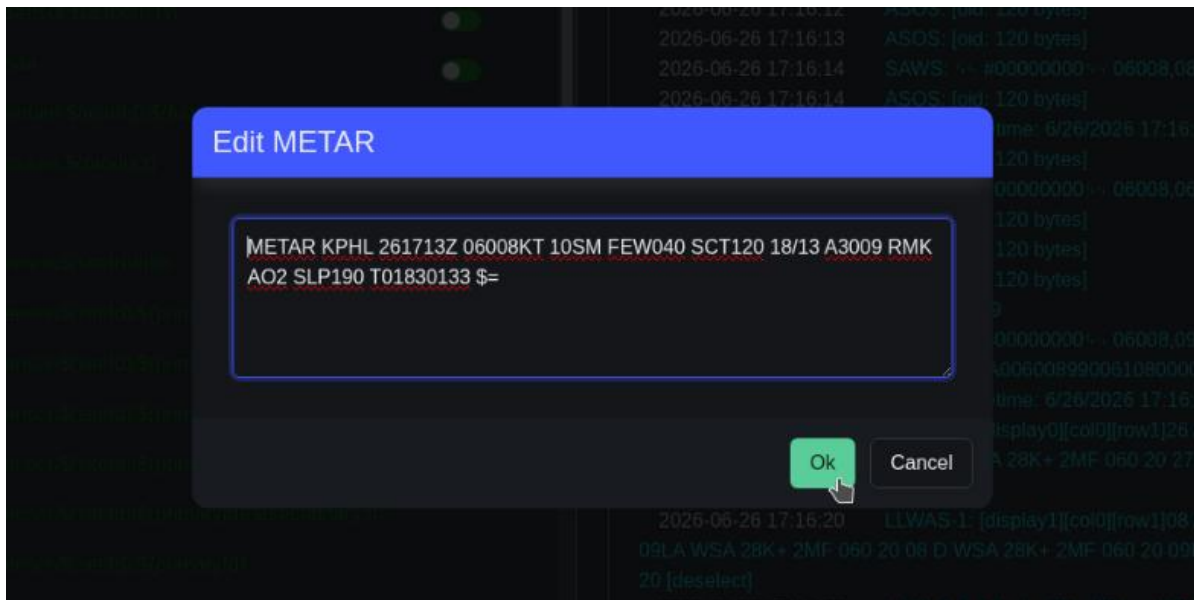


Figure 43. METAR Data Editor

textbox

A freeform text box allowing users to enter METAR messages. Refer to Appendix B. for the format of METAR messages text.

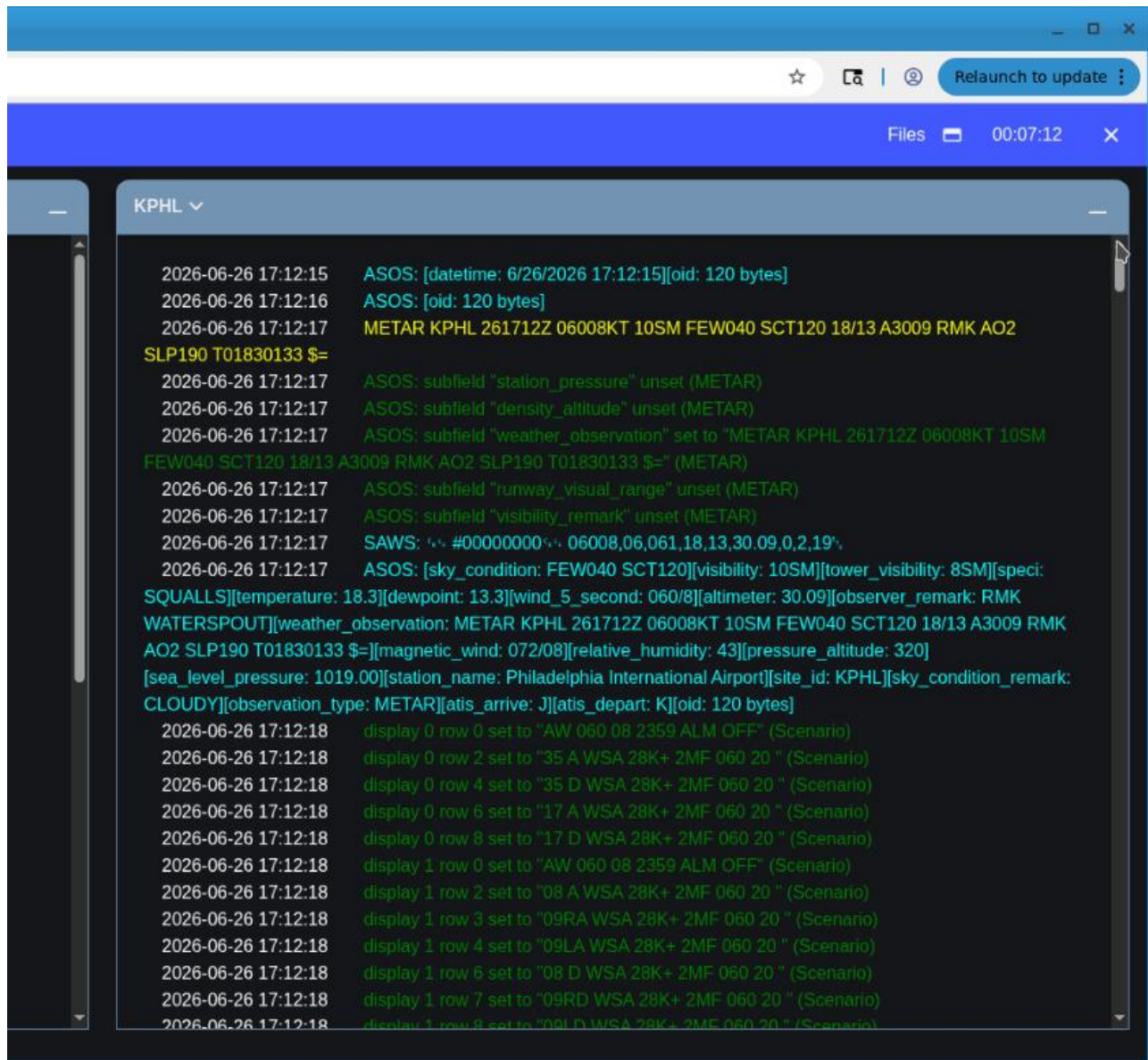
OK

Accepts the changes to the METAR message and applies new values to other sensors configured for the same weather station.

Cancel

Closes the editor dialog without sending any data.

The new METAR data is listed in the sensor message log in yellow text. The data fields of other sensor messages that are affected by the new METAR data are displayed in green text.



```

KPHL ▾
2026-06-26 17:12:15 ASOS: [datetime: 6/26/2026 17:12:15][oid: 120 bytes]
2026-06-26 17:12:16 ASOS: [oid: 120 bytes]
2026-06-26 17:12:17 METAR KPHL 261712Z 06008KT 10SM FEW040 SCT120 18/13 A3009 RMK AO2
SLP190 T01830133 $=
2026-06-26 17:12:17 ASOS: subfield "station_pressure" unset (METAR)
2026-06-26 17:12:17 ASOS: subfield "density_altitude" unset (METAR)
2026-06-26 17:12:17 ASOS: subfield "weather_observation" set to "METAR KPHL 261712Z 06008KT 10SM
FEW040 SCT120 18/13 A3009 RMK AO2 SLP190 T01830133 $=" (METAR)
2026-06-26 17:12:17 ASOS: subfield "runway_visual_range" unset (METAR)
2026-06-26 17:12:17 ASOS: subfield "visibility_remark" unset (METAR)
2026-06-26 17:12:17 SAWS: %00000000% 06008,06,061,18,13,30.09,0,2,19%.
2026-06-26 17:12:17 ASOS: [sky_condition: FEW040 SCT120][visibility: 10SM][tower_visibility: 8SM][speci:
SQUALLS][temperature: 18.3][dewpoint: 13.3][wind_5_second: 060/8][altimeter: 30.09][observer_remark: RMK
WATERSPOUT][weather_observation: METAR KPHL 261712Z 06008KT 10SM FEW040 SCT120 18/13 A3009 RMK
AO2 SLP190 T01830133 $=][magnetic_wind: 072/08][relative_humidity: 43][pressure_altitude: 320]
[sea_level_pressure: 1019.00][station_name: Philadelphia International Airport][site_id: KPHL][sky_condition_remark:
CLOUDY][observation_type: METAR][atis_arrive: J][atis_depart: K][oid: 120 bytes]
2026-06-26 17:12:18 display 0 row 0 set to "AW 060 08 2359 ALM OFF" (Scenario)
2026-06-26 17:12:18 display 0 row 2 set to "35 A WSA 28K+ 2MF 060 20 " (Scenario)
2026-06-26 17:12:18 display 0 row 4 set to "35 D WSA 28K+ 2MF 060 20 " (Scenario)
2026-06-26 17:12:18 display 0 row 6 set to "17 A WSA 28K+ 2MF 060 20 " (Scenario)
2026-06-26 17:12:18 display 0 row 8 set to "17 D WSA 28K+ 2MF 060 20 " (Scenario)
2026-06-26 17:12:18 display 1 row 0 set to "AW 060 08 2359 ALM OFF" (Scenario)
2026-06-26 17:12:18 display 1 row 2 set to "08 A WSA 28K+ 2MF 060 20 " (Scenario)
2026-06-26 17:12:18 display 1 row 3 set to "09RA WSA 28K+ 2MF 060 20 " (Scenario)
2026-06-26 17:12:18 display 1 row 4 set to "09LA WSA 28K+ 2MF 060 20 " (Scenario)
2026-06-26 17:12:18 display 1 row 6 set to "08 D WSA 28K+ 2MF 060 20 " (Scenario)
2026-06-26 17:12:18 display 1 row 7 set to "09RD WSA 28K+ 2MF 060 20 " (Scenario)
2026-06-26 17:12:18 display 1 row 8 set to "09LD WSA 28K+ 2MF 060 20 " (Scenario)

```

Figure 44. METAR Data Changes Applied

NOTE: Entering METAR data in this editor does not send a METAR message; it only updates the fields of sensors configured for the current weather station. METAR messages can be sent from the ASOS and AWOS editors.

4.1.2. SWS-S/SAWS Editor

Click on Edit SAWS to open the SWS-S/SAWS editor dialog. The SAWS editor includes Transmit Period, wind, direction, speed, temperature, dewpoint, altimeter, CDU_status, and period_avg fields and OK and Cancel buttons.

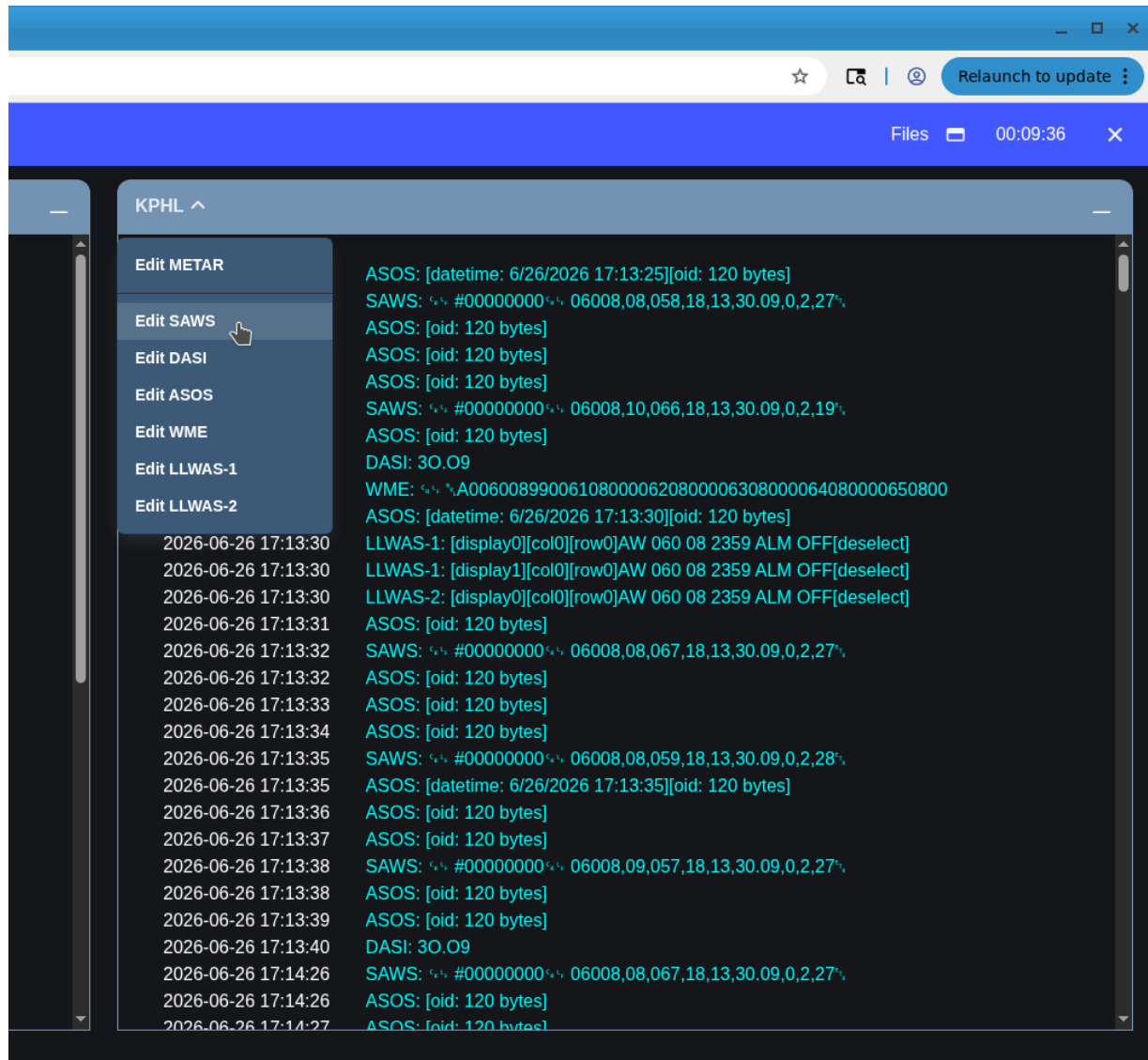
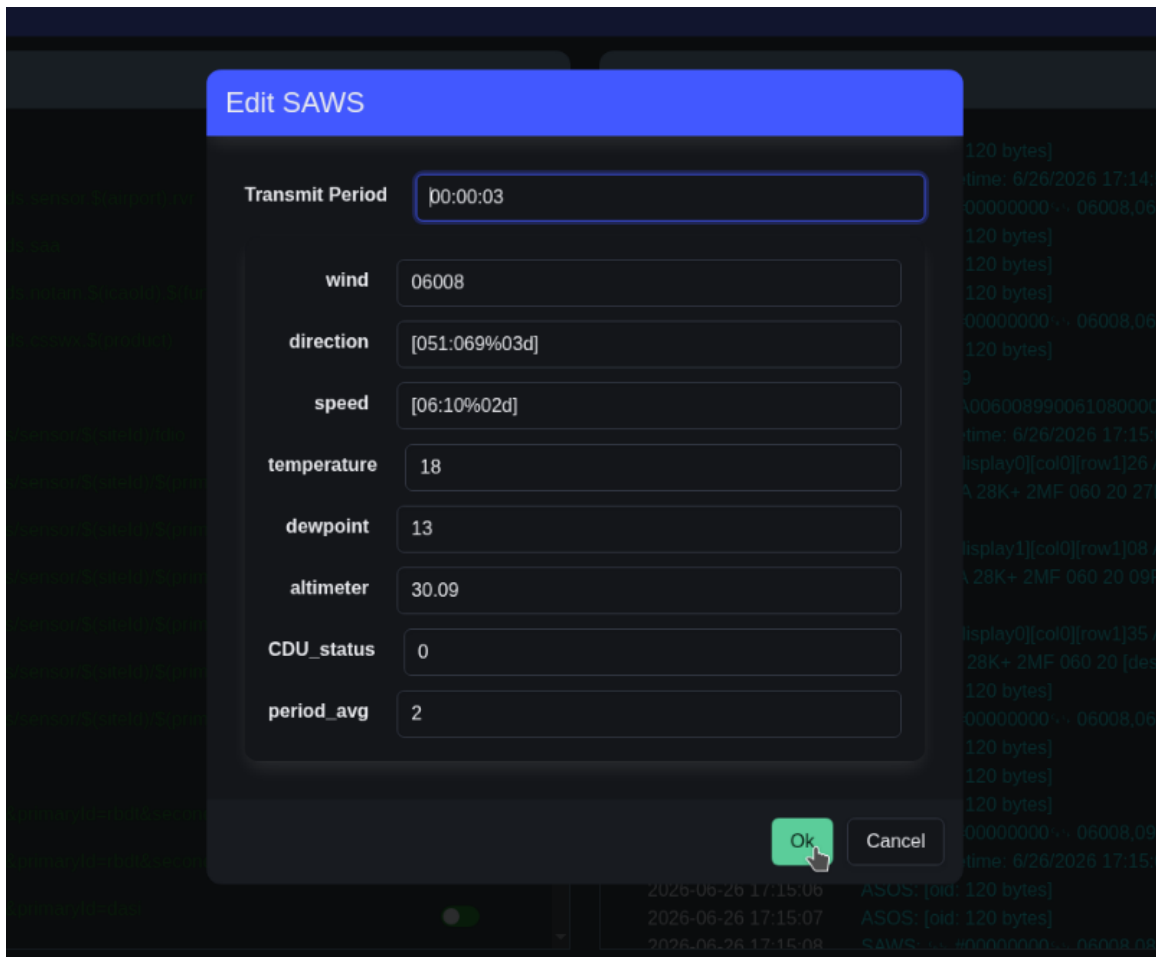


Figure 45. Edit SAWS Option



Edit SAWS

Transmit Period: 00:00:03

wind: 06008

direction: [051:069%03d]

speed: [06:10%02d]

temperature: 18

dewpoint: 13

altimeter: 30.09

CDU_status: 0

period_avg: 2

Ok Cancel

2026-06-26 17:15:06 ASOS: [old: 120 bytes]
 2026-06-26 17:15:07 ASOS: [old: 120 bytes]
 2026-06-26 17:15:08 SAWS: [old: 120 bytes]

Figure 46. SAWS Message Editor

Transmit Period

Message transmission period – the time in seconds between SAWS sensor messages.

wind

Wind data including three characters for wind direction followed by two characters for wind speed. When wind gust data is available, this is followed by the letter “G” and the wind gust speed. This field can also be “CALM” for winds below 3 knots or “M” to indicate that data is unavailable.

NOTE: *Changing the wind data in the main body of the METAR message editor also updates this wind field value sent by the simulated SWS-S sensor.*

direction

Instantaneous wind direction. May be “M” to indicate that data is unavailable.

speed

Instantaneous wind speed. May be “M” to indicate that data is unavailable.

temperature

Air temperature in degrees Celsius. May be “M” to indicate that data is unavailable.

NOTE: *Changing the temperature in the remarks section of the METAR message editor also updates this temperature field value sent by the simulated SWS-S sensor. If the temperature data is not present in the METAR remarks, changing the temperature in the main body of the METAR message also updates this temperature field value sent by the simulated SWS-S sensor.*

dewpoint

Dew point in degrees Celsius. May be “M” to indicate that data is unavailable.

NOTE: *Changing the dew point in the remarks section of the METAR message editor also updates this dewpoint field value sent by the simulated SWS-S sensor. If the dew point data is not present in the METAR remarks, changing the dew point in the main body of the METAR message also updates this dewpoint field value sent by the simulated SWS-S sensor.*

altimeter

Altimeter setting value in inches of mercury (Hg), dd.dd. Any value up to two digits and two decimal places is allowed. Realistic values are in the 29.84 – 30.44 in. Hg range. May be “M” to indicate that data is unavailable.

NOTE: *Changing the altimeter value in the METAR message editor also updates the altimeter value sent by the simulated SWS-S sensor.*

CDU_status

An integer between 0 – 65,536. The integer represents a 16-bit Binary number, with each nibble indicating that status of one of the sensors. Nibbles from right to left correspond to Wind, Temperature, Dew Point, and Altimeter:

```
---- ---- ---- XXXX = Wind
---- ---- XXXX ---- = Temperature
---- XXXX ---- ---- = Dew Point
XXXX ---- ---- ---- = Altimeter
```

Each bit represents a different status:

```
0000 = O.K.
0001 = INVALID AVG
0010 = OUT OF RANGE
0100 = STATIC
1000 = ERROR
```

period_avg

The wind averaging period. Valid values are 0, 1, 2, and 3 corresponding to 15, 30, 60, and 120 seconds, respectively.

OK

Accepts the changes to the SAWS message.

Cancel

Closes the editor dialog without sending any data.

NOTE: *The SAWS message checksum value is automatically calculated and displayed in the facility message log.*

4.1.3. DASI Editor

Click on Edit DASI to open the DASI editor dialog. The DASI editor includes Transmit Period and altimeter fields and OK and Cancel buttons.

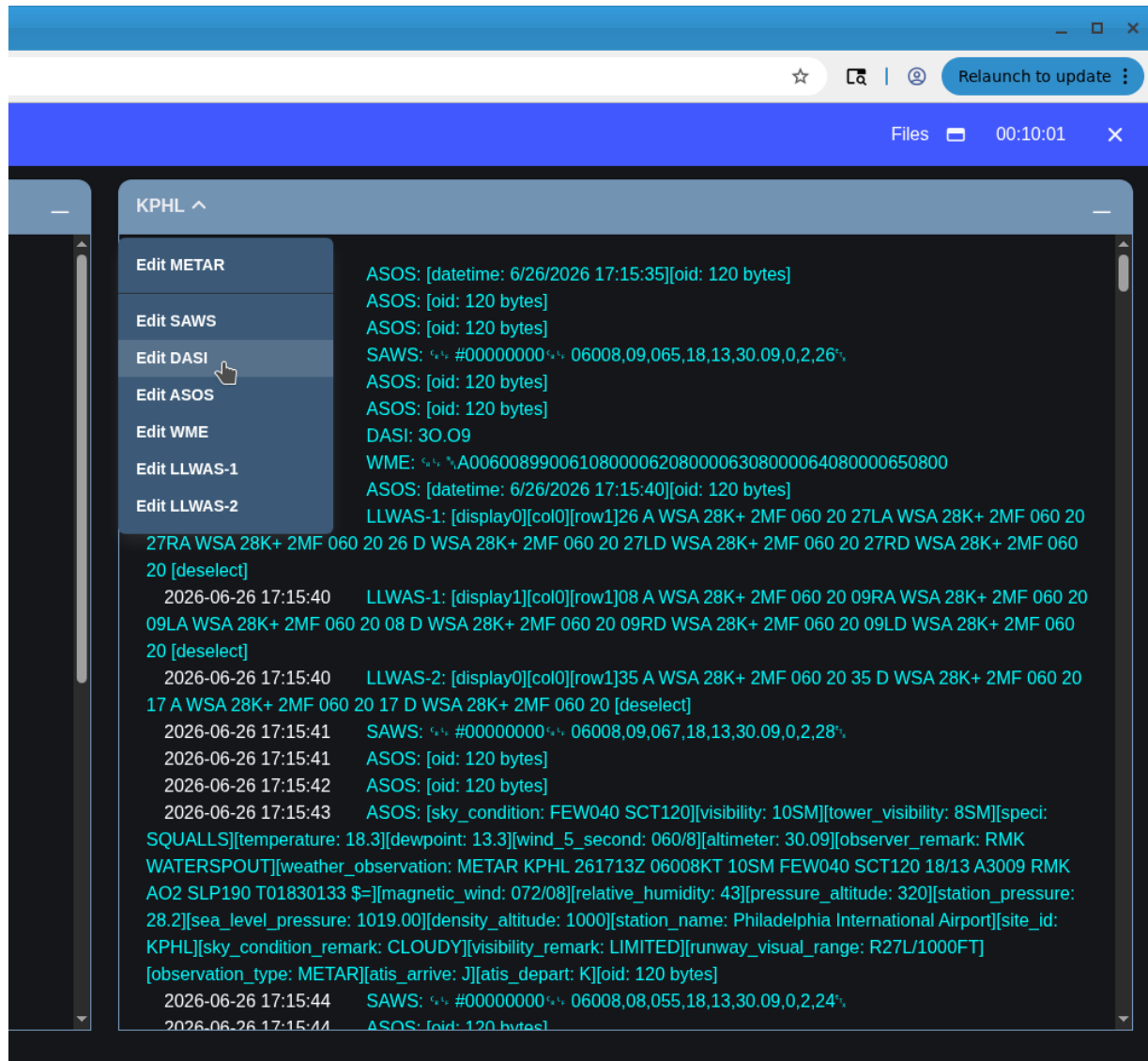


Figure 47. Edit DASI Option

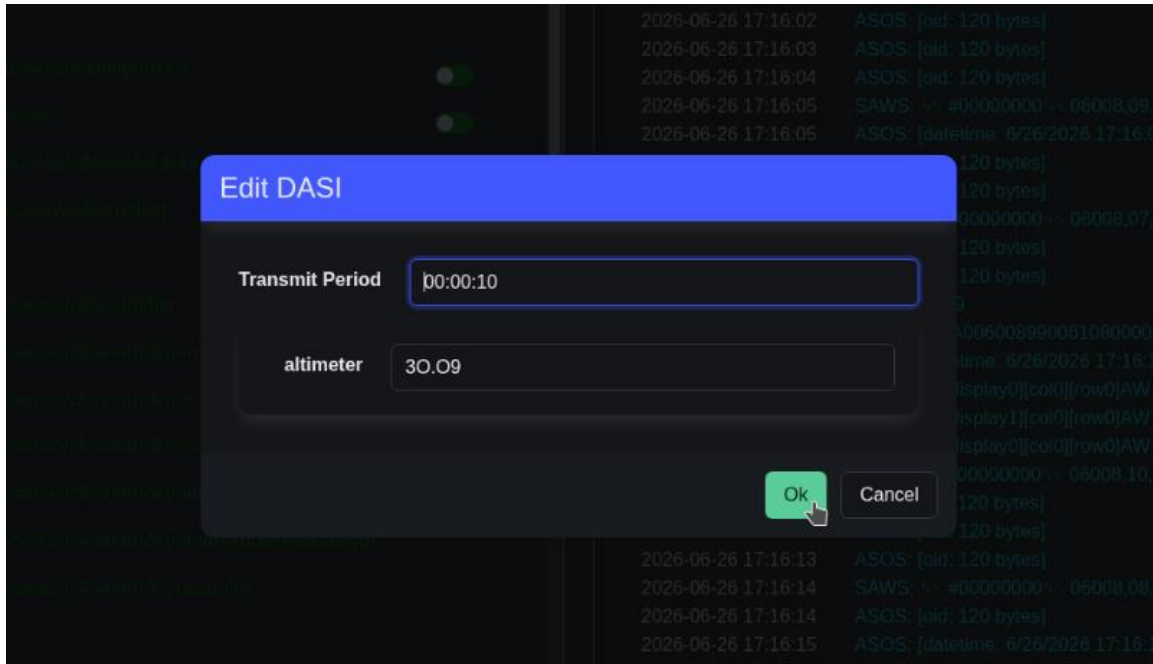


Figure 48. DASI Message Editor

Transmit Period

Message transmission period – the time in seconds between DASI sensor messages.

altimeter

Altimeter setting value in inches of mercury, dd.dd, or the text “ERROR”. Any value up to two digits and two decimal places is allowed. Realistic values are in the 29.84 – 30.44 range.

NOTE: Changing the altimeter value in the METAR message editor also updates the altimeter value sent by the simulated DASI sensor.

OK

Accepts the changes to the DASI message.

Cancel

Closes the editor dialog without sending any data.

4.1.4. ASOS/AWOS ACEIDS Editor

Click on Edit ASOS (or Edit AWOS, if configured) to open the ASOS/AWOS ACEIDS editor dialog. The editor includes Transmit Period, sky conditions, visibility, tower visibility, present weather, speci, temperature, dewpoint, wind 5 second, altimeter, observer remark, weather observation, magnetic wind, relative humidity, pressure altitude, station pressure, sea level pressure, density altitude, station name, site id, sky condition remark, visibility remark, runway visual range, observation type, atis arrive, atis depart fields and OK and Cancel buttons.

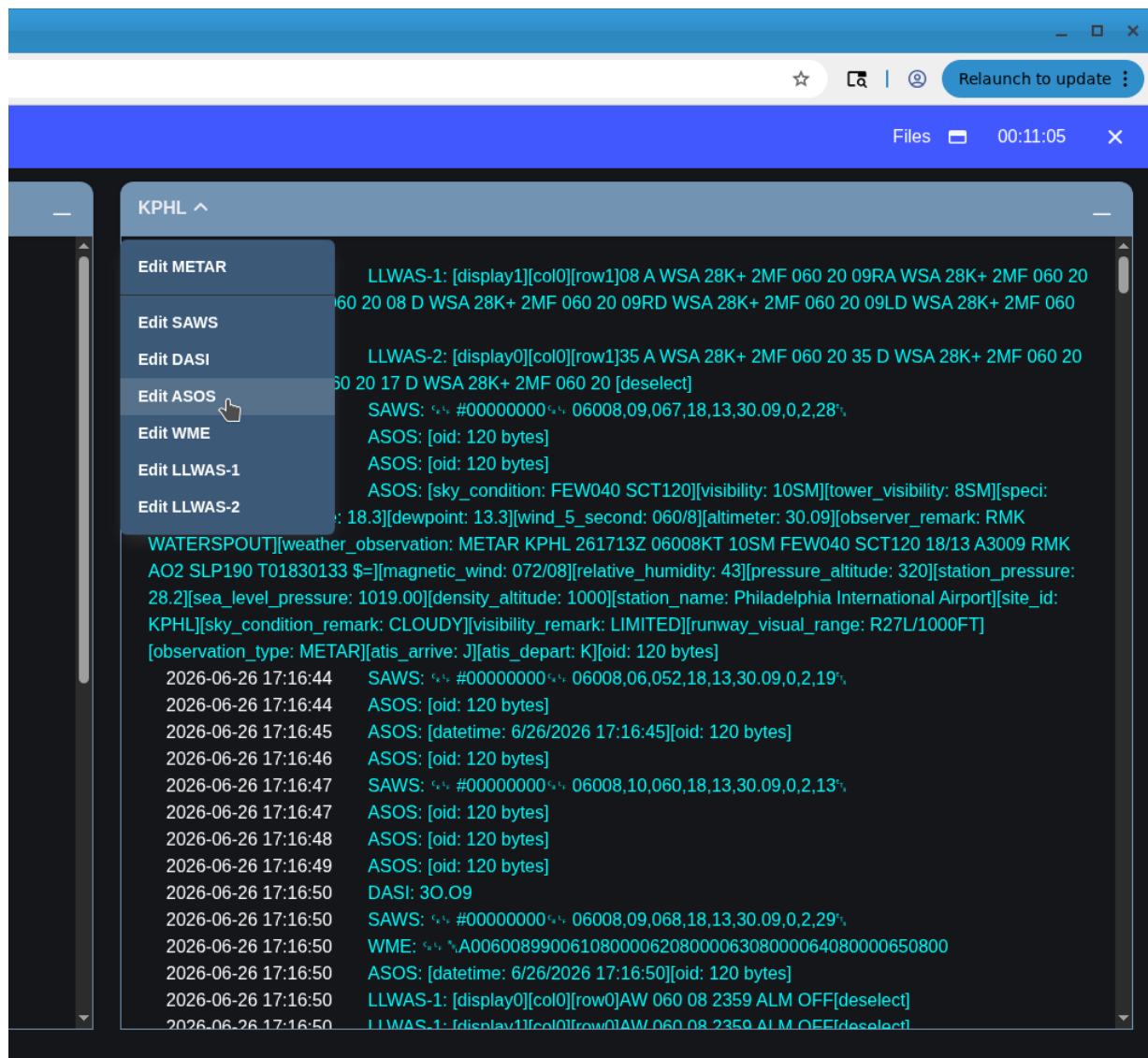


Figure 49. Edit ASOS Option

Edit ASOS

Transmit Period

sky_condition

visibility

tower_visibility

present_weather

speci

temperature

dewpoint

wind_5_second

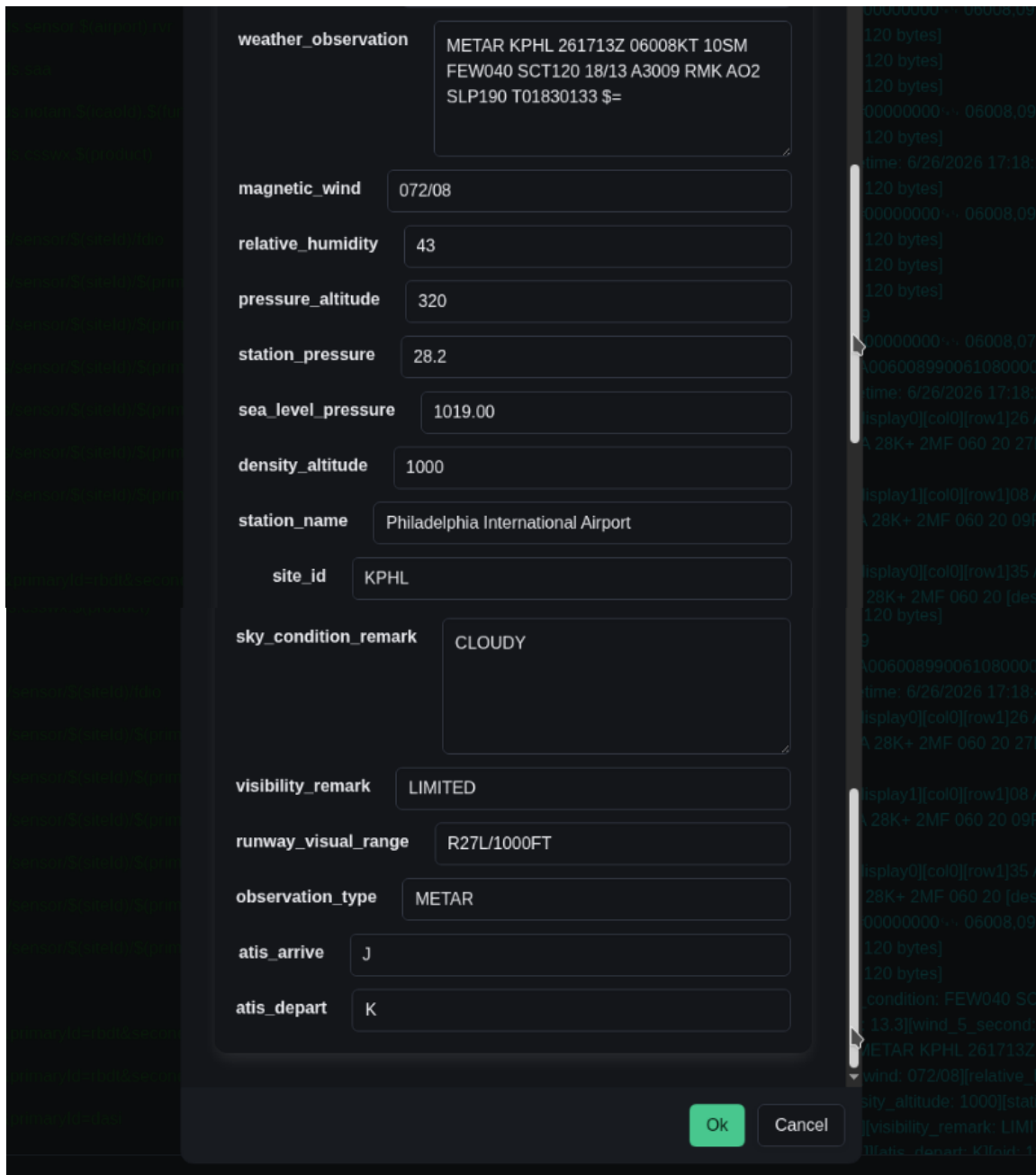
altimeter

observer_remark

120 bytes]
condition: FEW040 SC
13.3][wind_5_second:
METAR KPHL 261713Z
wind: 072/08][relative_h
city_altitude: 1000][stat
[visibility_remark: LIM
]][atis_depart: K][oid: 1
00000000 · · 06008,07
120 bytes]
time: 6/26/2026 17:17:3
120 bytes]
00000000 · · 06008,09
120 bytes]
120 bytes]
120 bytes]
9
00000000 · · 06008,08
A006008990061080000
time: 6/26/2026 17:17:3
display0][col0][row0]AW
display1][col0][row0]AW
display0][col0][row0]AW
120 bytes]
120 bytes]
00000000 · · 06008,06
120 bytes]
120 bytes]
time: 6/26/2026 17:17:3

Ok
Cancel

Figure 50. ASOS Message Editor



weather_observation METAR KPHL 261713Z 06008KT 10SM
FEW040 SCT120 18/13 A3009 RMK AO2
SLP190 T01830133 \$=

magnetic_wind 072/08

relative_humidity 43

pressure_altitude 320

station_pressure 28.2

sea_level_pressure 1019.00

density_altitude 1000

station_name Philadelphia International Airport

site_id KPHL

sky_condition_remark CLOUDY

visibility_remark LIMITED

runway_visual_range R27L/1000FT

observation_type METAR

atis_arrive J

atis_depart K

Ok Cancel

Figure 51. ASOS Message Editor (continued)

Transmit Period

Message transmission period – the time in seconds between sensor messages.

sky conditions

Amount of cloud cover or vertical visibility and the three-digit height in hundreds of feet: e.g., "BKN075"

NOTE: Changing the sky conditions data in the main body of the METAR message editor also updates this sky conditions field value sent by the simulated ASOS or AWOS.

visibility

Distance of visibility, in statute miles: e.g., "2 1/2SM"

NOTE: Changing the visibility data in the main body of the METAR message editor also updates this visibility field value sent by the simulated ASOS or AWOS.

tower visibility

Distance of visibility from the tower, in statute miles: e.g., "3SM"

present weather

Current weather phenomena: e.g., "HZ"

NOTE: Changing the present weather data in the main body of the METAR message editor also updates this present weather field value sent by the simulated ASOS or AWOS.

speci

Indicates the reason that a SPECI (special report) was generated: e.g., "SQUALLS"

temperature

Temperature data as -62.2 to +54.4 degrees Celsius: e.g., "20"

NOTE: Changing the temperature in the remarks section of the METAR message editor also updates this temperature field value sent by the simulated ASOS or AWOS. If the temperature data is not present in the METAR remarks, changing the temperature in the main body of the METAR message also updates this temperature field value sent by the simulated ASOS or AWOS.

dewpoint

Dewpoint data as -62.2 to +30 degrees Celsius: e.g., "17"

NOTE: Changing the dew point in the remarks section of the METAR message editor also updates this dew point field value sent by the simulated ASOS or AWOS. If the dew point data is not present in the METAR remarks, changing the dew point in the main body of the METAR message also updates this dew point field value sent by the simulated ASOS or AWOS.

wind 5 second

Wind data, including wind direction (relative to true north), separator "/", wind speed as 0 to 125 knots to the nearest knot, and variability, when applicable: e.g., "090/07 040V120"

NOTE: Changing the wind data in the main body of the METAR message editor also updates this wind 5 second field value sent by the simulated ASOS or AWOS.

altimeter

Altimeter setting data as 26.0 to 31.0 inches of mercury: e.g., "30.15"

NOTE: Changing the altimeter data in the main body of the METAR message editor also updates this altimeter field value sent by the simulated ASOS or AWOS.

observer remark

Observer remarks: e.g., "RMK AO2 TWR VIS 3 VIS 13/4V4"

weather observation

Weather observation in the form of a METAR or SPECI: e.g., "SPECI KPHL 121220Z 09007KT 040V120 2 1/2SM HZ BKN075 20/17 A3015 RMK AO2 TWR VIS 3 VIS 1 3/4V4"

NOTE: Changing the data in the METAR message editor also updates this weather observation field value sent by the simulated ASOS or AWOS.

magnetic wind

Wind data, including wind direction (relative to magnetic north), separator "/", wind speed as 0 to 125 knots to the nearest knot, and variability, when applicable: e.g., "110/07 060V140"

relative humidity

Humidity as 0 to 100% to the nearest percent: e.g., "43"

pressure altitude

Measure of height in feet relative to the standard datum plane of 1013.2 hectopascals, e.g., "320"

station pressure

Pressure at the reporting station, as 16.9 to 31.5 inches of mercury.

sea level pressure

Pressure at sea level in hectopascals: e.g., "1024.7"

NOTE: Changing the sea level pressure data in the METAR message editor also updates this sea level pressure field value sent by the simulated ASOS or AWOS.

density altitude

Pressure altitude, in feet, corrected for nonstandard temperature: e.g., "1000"

station name

Name of the reporting station: e.g., "Philadelphia International Airport"

site id

ICAO identifier of the reporting station: e.g., "KPHL"

sky condition remark

Remark on sky condition.

visibility remark

Remark on visibility.

runway visual range

Runway visual range data from 100 to 6000 feet: e.g., "R27L/1000FT"

observation type

Either routine weather observation, "METAR", or special report, "SPECI".

atis arrive

Automatic Terminal Information Service (ATIS) Arrive Data, indicated by an ASCII character.

atis depart

ATIS Depart Data, indicated by an ASCII character.

OK

Accepts the changes to the message.

Cancel

Closes the editor dialog without sending any data.

4.1.5. IDS4 Editor

Click on Edit IDS4 to open the ASOS/AWOS IDS4 editor dialog. The editor includes Transmit Period, time, date, airport name, sky conditions, visibility, tower visibility, present weather, altimeter, temperature in °C, dewpoint in °C, temperature in °F, dewpoint in °F, relative humidity, wind, magnetic wind, altitude set, density altitude, pressure altitude, remarks, weather observation fields and OK and Cancel buttons.

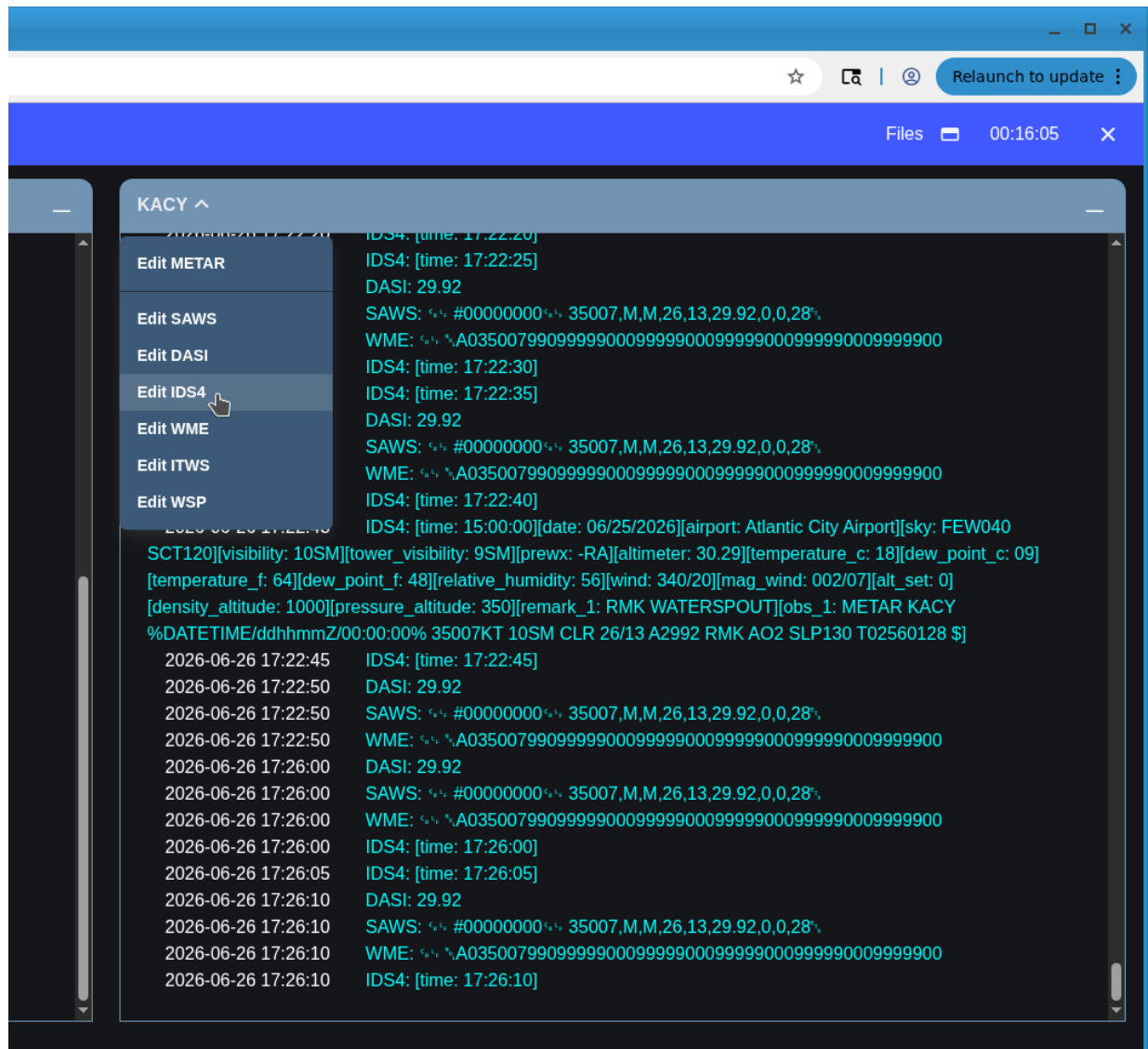


Figure 52. Edit IDS4 Option

Edit IDS4

Transmit Period

visibility

obs_1

pressure_altitude

alt_set

temperature_f

sky

airport

altimeter

dew_point_c

prewx

tower_visibility

```

METAR 10SM CLR 2012
17:22:45]
00000000 -- 35007,M,1
A035007990999990009
00000000 -- 35007,M,1
A0350079909999990009
17:26:00]
17:26:05]
00000000 -- 35007,M,1
A0350079909999990009
17:26:10]
17:26:15]
00000000 -- 35007,M,1
A0350079909999990009
17:26:20]
17:26:25]
00000000 -- 35007,M,1
A0350079909999990009
17:26:30]
17:26:35]
00000000 -- 35007,M,1
A0350079909999990009
17:26:40]

```

Ok
Cancel

Figure 53. IDS4 Message Editor

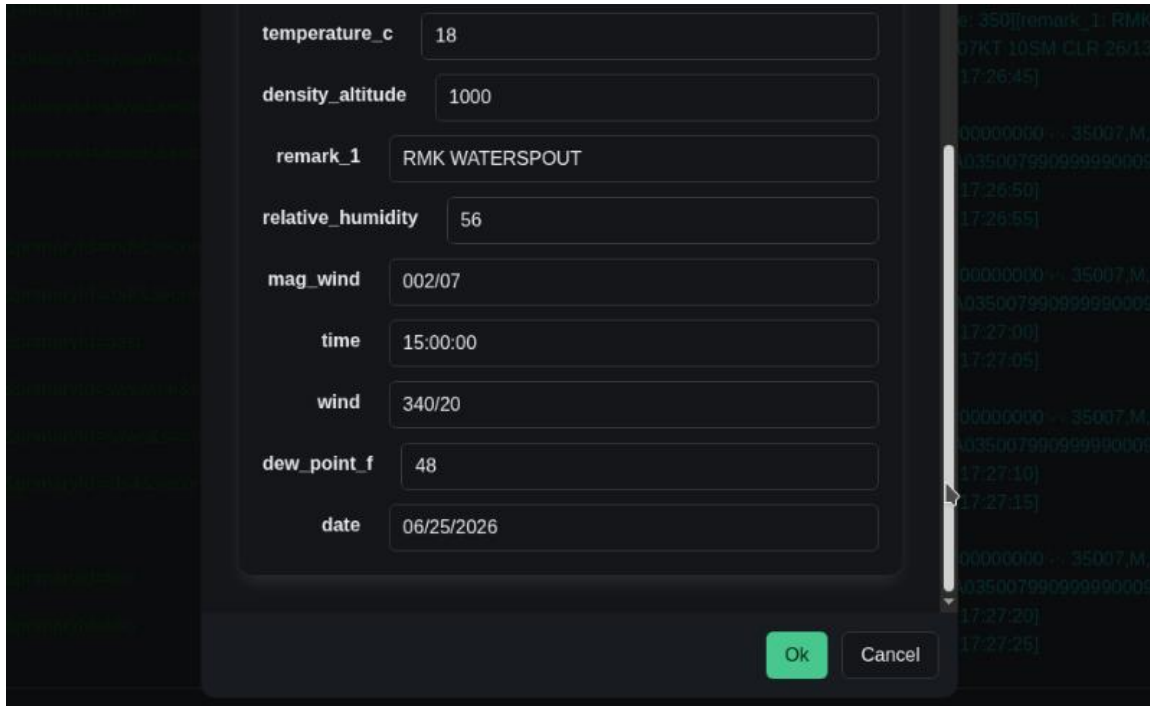


Figure 54. IDS4 Message Editor (continued)

Transmit Period

Message transmission period – the time in seconds between sensor messages.

time

Message time.

date

Message date.

airport

Name of the reporting station: e.g., “Atlantic City Airport”

sky

Amount of cloud cover or vertical visibility and the three-digit height in hundreds of feet: e.g., “BKN075”

NOTE: Changing the sky conditions data in the main body of the METAR message editor also updates this sky conditions field value sent by the simulated ASOS or AWOS.

visibility

Distance of visibility, in statute miles: e.g., “2 1/2SM”

NOTE: Changing the visibility data in the main body of the METAR message editor also updates this visibility field value sent by the simulated ASOS or AWOS.

tower visibility

Distance of visibility from the tower, in statute miles: e.g., "3SM"

prewx (present weather)

Current weather phenomena: e.g., "HZ"

NOTE: Changing the present weather data in the main body of the METAR message editor also updates this present weather field value sent by the simulated ASOS or AWOS.

altimeter

Altimeter setting data as 26.0 to 31.0 inches of mercury: e.g., "30.15"

NOTE: Changing the altimeter data in the main body of the METAR message editor also updates this altimeter field value sent by the simulated ASOS or AWOS.

temperature C

Temperature data in degrees Celsius: e.g., "20"

NOTE: Changing the temperature in the remarks section of the METAR message editor also updates this temperature field value sent by the simulated ASOS or AWOS. If the temperature data is not present in the METAR remarks, changing the temperature in the main body of the METAR message also updates this temperature field value sent by the simulated ASOS or AWOS.

dewpoint C

Dewpoint data in degrees Celsius: e.g., "09"

NOTE: Changing the dew point in the remarks section of the METAR message editor also updates this dew point field value sent by the simulated ASOS or AWOS. If the dew point data is not present in the METAR remarks, changing the dew point in the main body of the METAR message also updates this dew point field value sent by the simulated ASOS or AWOS.

temperature F

Temperature data in degrees Fahrenheit: e.g., "68"

NOTE: Changing the temperature in the remarks section of the METAR message editor also updates this temperature field value sent by the simulated ASOS or AWOS. If the temperature data is not present in the METAR remarks, changing the temperature in the main body of the METAR message also updates this temperature field value sent by the simulated ASOS or AWOS.

dewpoint F

Dewpoint data in degrees Fahrenheit: e.g., "48"

NOTE: Changing the dew point in the remarks section of the METAR message editor also updates this dew point field value sent by the simulated ASOS or AWOS. If the dew point data is not present in the METAR remarks, changing the dew point in the main body of the METAR message also updates this dew point field value sent by the simulated ASOS or AWOS.

relative humidity

Humidity as 0 to 100% to the nearest percent: e.g., "53"

wind

Wind data, including wind direction (relative to true north), separator “/”, wind speed as 0 to 125 knots to the nearest knot, and variability, when applicable: e.g., “090/07 040V120”

NOTE: Changing the wind data in the main body of the METAR message editor also updates this wind 5 second field value sent by the simulated ASOS or AWOS.

magnetic wind

Wind data, including wind direction (relative to magnetic north), separator “/”, wind speed as 0 to 125 knots to the nearest knot, and variability, when applicable: e.g., “110/07 060V140”

alt set

Alt set.

density altitude

Pressure altitude, in feet, corrected for nonstandard temperature: e.g., “1000”

pressure altitude

Measure of height in feet relative to the standard datum plane of 1013.2 hectopascals, e.g., “320”

remark 1

Observer remarks: e.g., “RMK AO2 TWR VIS 3 VIS 13/4V4”

obs 1

Weather observation in the form of a METAR or SPECI: e.g., “SPECI KPHL 121220Z 09007KT 040V120 2 1/2SM HZ BKN075 20/17 A3015 RMK AO2 TWR VIS 3 VIS 1 3/4V4”

NOTE: Changing the data in the METAR message editor also updates this weather observation field value sent by the simulated ASOS or AWOS.

OK

Accepts the changes to the message.

Cancel

Closes the editor dialog without sending any data.

4.1.6. SWS-W/WME Editor

Click on Edit WME to open the SWS-W/WME editor dialog. The WME editor includes Transmit Period, arptWind, avgWind1, avgWind2, avgWind3, avgWind4, avgWind5 fields and OK and Cancel buttons.

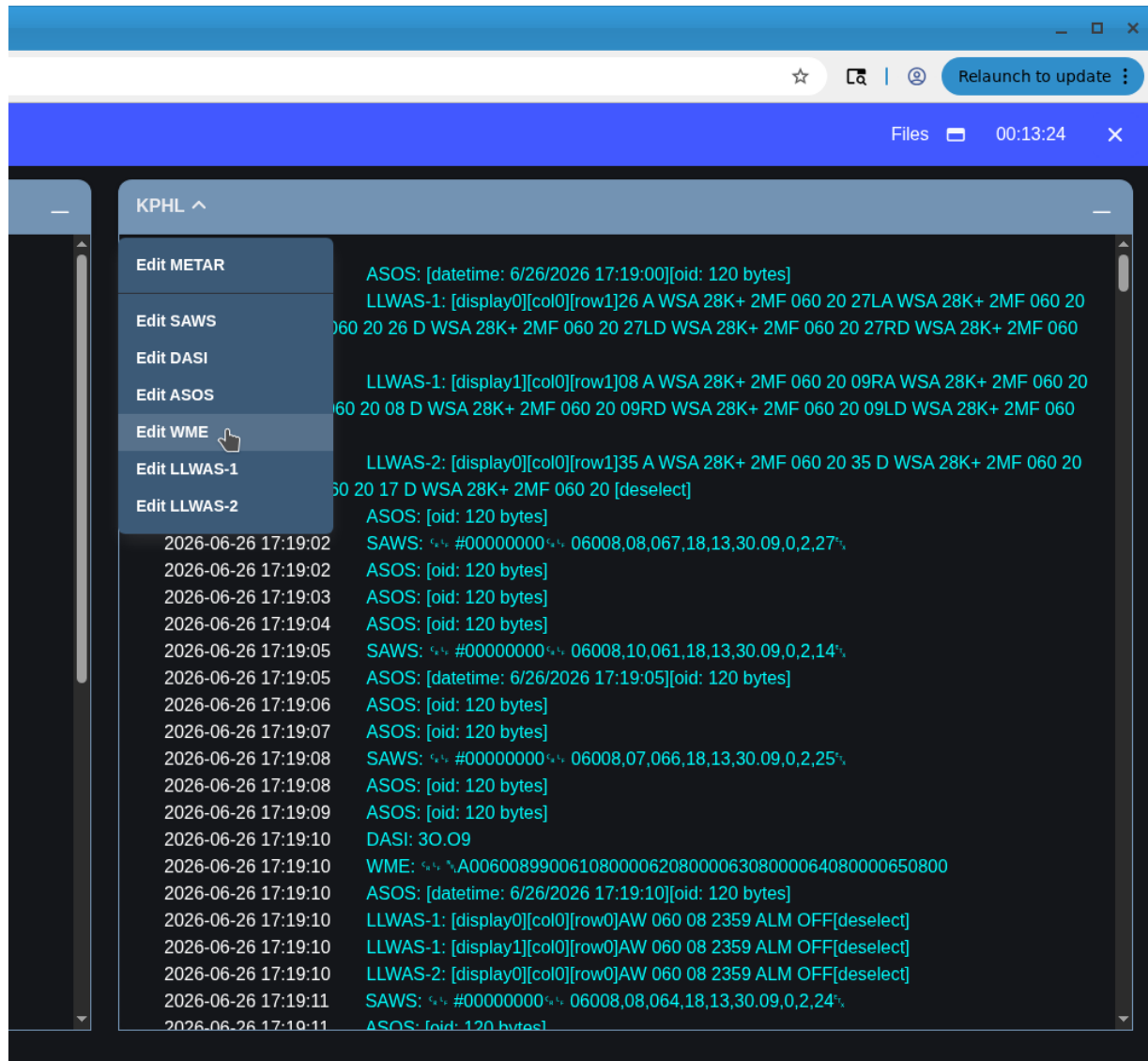


Figure 55. Edit WME Option

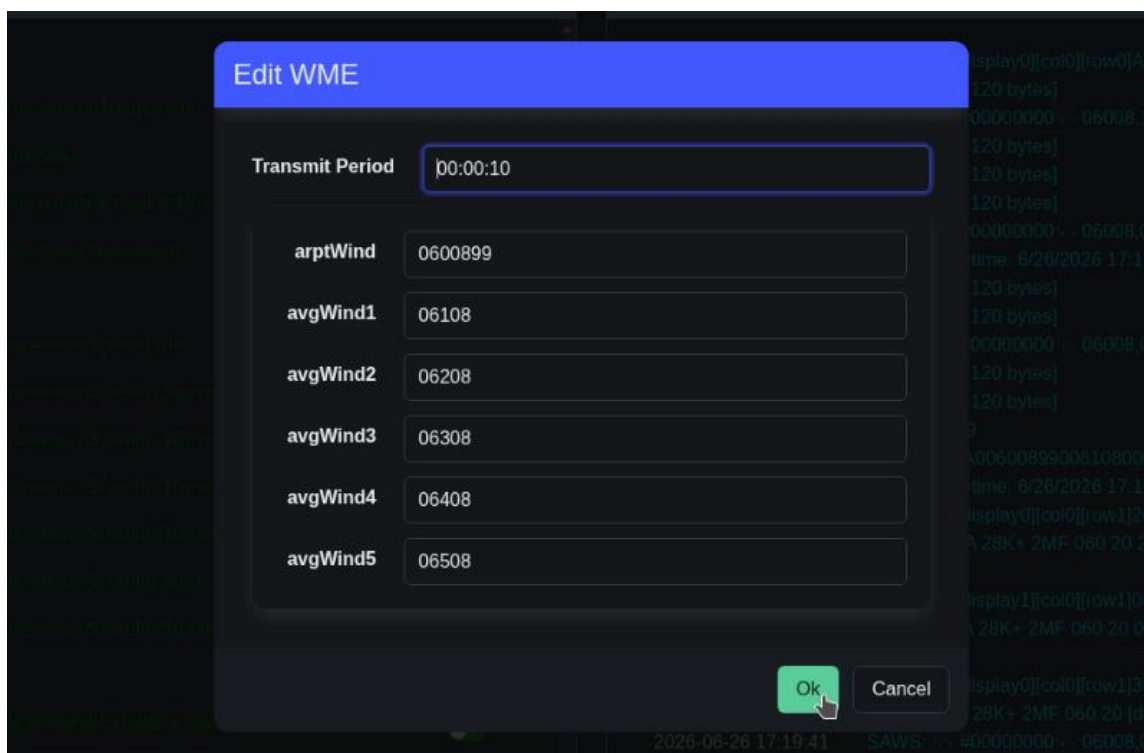


Figure 56. WME Message Editor

Transmit Period

Message transmission period – the time in seconds between WME sensor messages.

arptWind

Instantaneous airport wind data including three characters for wind direction followed by two characters for wind speed and two characters for wind gust speed. This field can also be 991 99 99 to indicate that data is unavailable.

NOTE: *Changing the wind data in the main body of the METAR message editor also updates this arptWind field value sent by the simulated SWS-W sensor.*

avgWind1

A 30-second average of wind data including three characters for wind direction followed by two characters for wind speed. This field can also be 999 99 to indicate that data is unavailable.

avgWind2

A 30-second average of wind data including three characters for wind direction followed by two characters for wind speed. This field can also be 999 99 to indicate that data is unavailable.
(Optional)

avgWind3

A 30-second average of wind data including three characters for wind direction followed by two characters for wind speed. This field can also be 999 99 to indicate that data is unavailable.
(Optional)

avgWind4

A 30-second average of wind data including three characters for wind direction followed by two characters for wind speed. This field can also be 999 99 to indicate that data is unavailable.
(Optional)

avgWind5

A 30-second average of wind data including three characters for wind direction followed by two characters for wind speed. This field can also be 999 99 to indicate that data is unavailable.
(Optional)

OK

Accepts the changes to the WME message.

Cancel

Closes the editor dialog without sending any data.

4.1.7. RBDT (ITWS, WSP, or LLWAS) Editor

Click on Edit ITWS, WSP, LLWAS, or RBDT to open the RBDT message editor dialog. The editor includes Display, Transmit Period, and Row fields and OK and Cancel buttons.

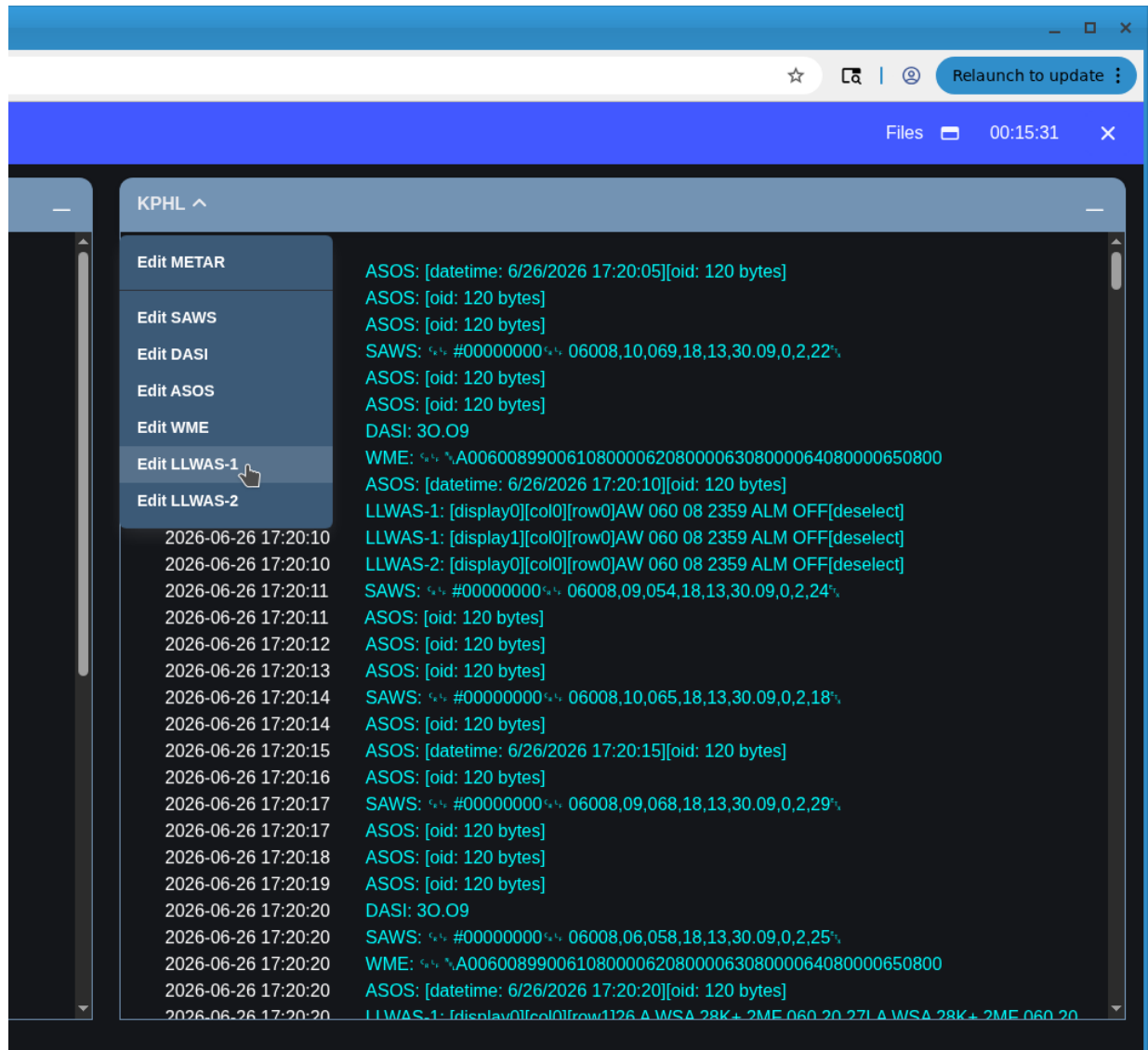


Figure 57. Edit RBDT Option

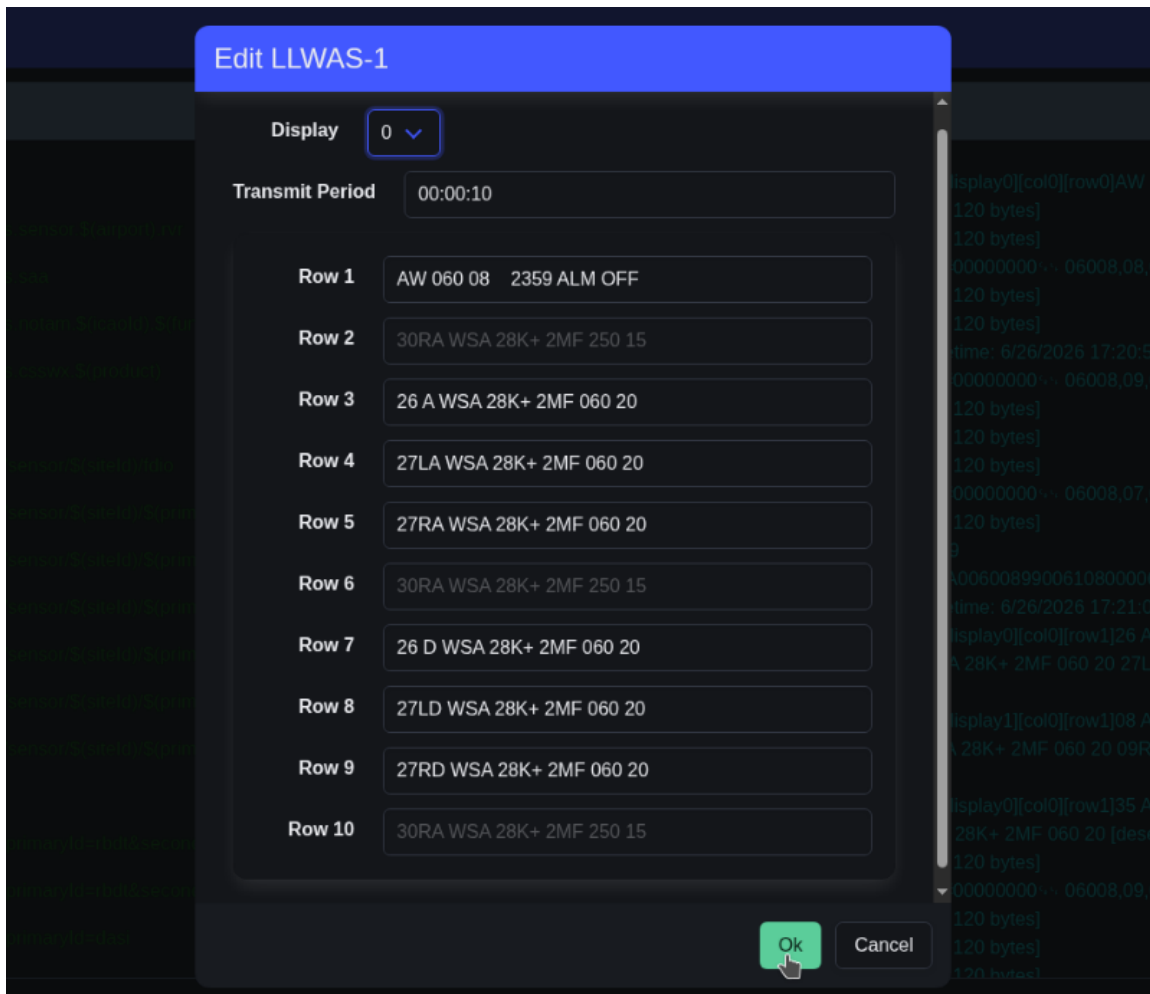


Figure 58. RBDT Editor

Display

Display number, 0 through 7.

Transmit Period

Message transmission period – the time in seconds between sensor messages.

Row-1 through Row-10

The first row consists of wind values measured from the most centrally located wind sensor of the airport (wind direction, speed, and gust), time, and alarm volume control indication. Subsequent rows may contain runway-specific wind information, including runway identifier, runway threshold winds (direction and speed), and alerts for wind shear and microbursts, when available.

To send RBDT control codes, the row fields allow special hexadecimal codes and keywords to be entered, enclosed in brackets. The following control codes may be included:

[0x00] or [nop]	No operation.
[0x07] or [bel]	BELL - Turns on the audible alarm for one warble cycle.
[0x08] or [left]	CURSOR LEFT - Moves cursor one position to the left. When the cursor reaches the first character in a line, it will then move to the right-most position of the next line up. In the case of the first line on the display, the cursor will wrap around to the last position of the bottom row.
[0x09] or [right]	CURSOR RIGHT – Moves cursor one position to the right. When the cursor reaches the last character in a line, it will then move to the left-most position of the next line down. In the case of the last line on the display, the cursor will wrap around to the first (home) position of the top row.
[0x0a] or [down]	CURSOR DOWN/LINE FEED - Moves cursor vertically down one line on the display, maintaining the same column character position. When the bottom line is reached, the cursor wraps around to the top line of the display.
[0x0b] or [up]	CURSOR UP - Moves cursor vertically up one line on the display, maintaining the same column character position. When the top line is reached, the cursor wraps around to the bottom line of the display.
[0x0c] or [cls]	CLEAR SCREEN & CURSOR HOME - Erases display contents and positions cursor in the upper leftmost position of the display.
[0x0d] or [cr]	CARRIAGE RETURN - Places the cursor in the left-most position of the line in which the cursor is presently residing.
[0x0e] or [home]	CURSOR HOME - Places the cursor in the upper left-most position of the display.
[0x0f] or [ins]	CHARACTER INSERT - All characters on the line to the right of the cursor are shifted one position to right and the character at the present cursor is replaced with a "space" character. The character at the right-most position will be shifted off the display.
[0x10] or [del]	CHARACTER DELETE - The character at the present cursor is eliminated, and all characters on the line to the right of the cursor are shifted one position to the left. A "space" character is placed on the rightmost position of that line.
[0x12] or [curson]	CURSOR ON - Makes the cursor position visible by alternately blinking the character contained at the cursor location with a fully illuminated 7x9 dot matrix.
[0x14] or [cursoff]	CURSOR OFF - Turns the visual cursor off.

[0x15] or [blinkon]	START OF BLINK FIELD - Characters following this command will blink at a 1 Hz rate.
[0x16] or [insline]	LINE INSERT - The line that the cursor is on is filled with "space" characters and any lines below the cursor line are shifted down one-line position. The last line is shifted off the display.
[0x17] or [delline]	LINE DELETE - The line that the cursor is on is eliminated and all lines below the cursor line are pulled up one-line position. The last line of the display is filled with "space" characters.
[0x18] or [blinkoff]	END OF BLINK FIELD - Characters following this command will not blink assuming that a START OF BLINK FIELD command was previously executed.
[0x19] or [alarmon]	ENABLE ALARM - Activates the audible alarm and lights acknowledge push button light.
[0x1a] or [alarmoff]	DISABLE ALARM - Deactivates the audible alarm and turns off acknowledge push button light.
[0x1c] or [poll]	POLL - The selected display/s will return a status byte.
[0x1d] or [broadcast]	BROADCAST TO ALL DISPLAYS - All displays on the daisy chain will act on following commands or data.
[0x1f] or [deselect]	DESELECT ALL DISPLAYS - No displays on the daisy chain will act on following commands or data.
[0x1b] or [esc]	Escape character. Used in combination with other control characters.

For example, the following control characters will cause the line to be highlighted in E-IDS:

[blinkon]AW 300 10 2359 ALM OFF [blinkoff]

OK

Accepts the changes to the RBDT message.

Cancel

Closes the editor dialog without sending any data.

4.2. RVR Message Editors

For the RVR SWIM service, the menu includes options for New Runway, Edit Runway, and Delete Runway.

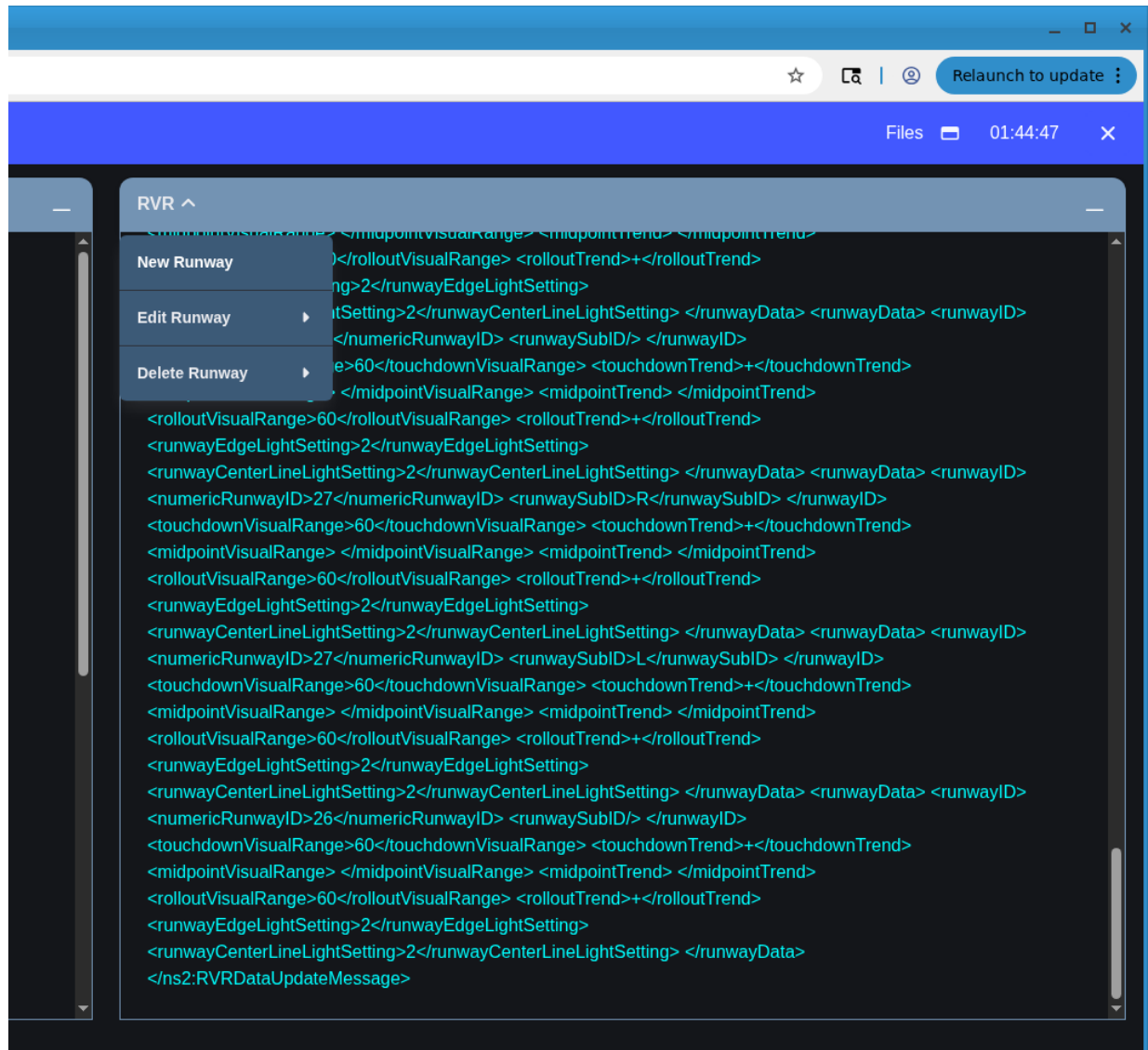


Figure 59. RVR Menu Options

4.2.1. New Runway

Click on New Runway to display the New Runway editor dialog.

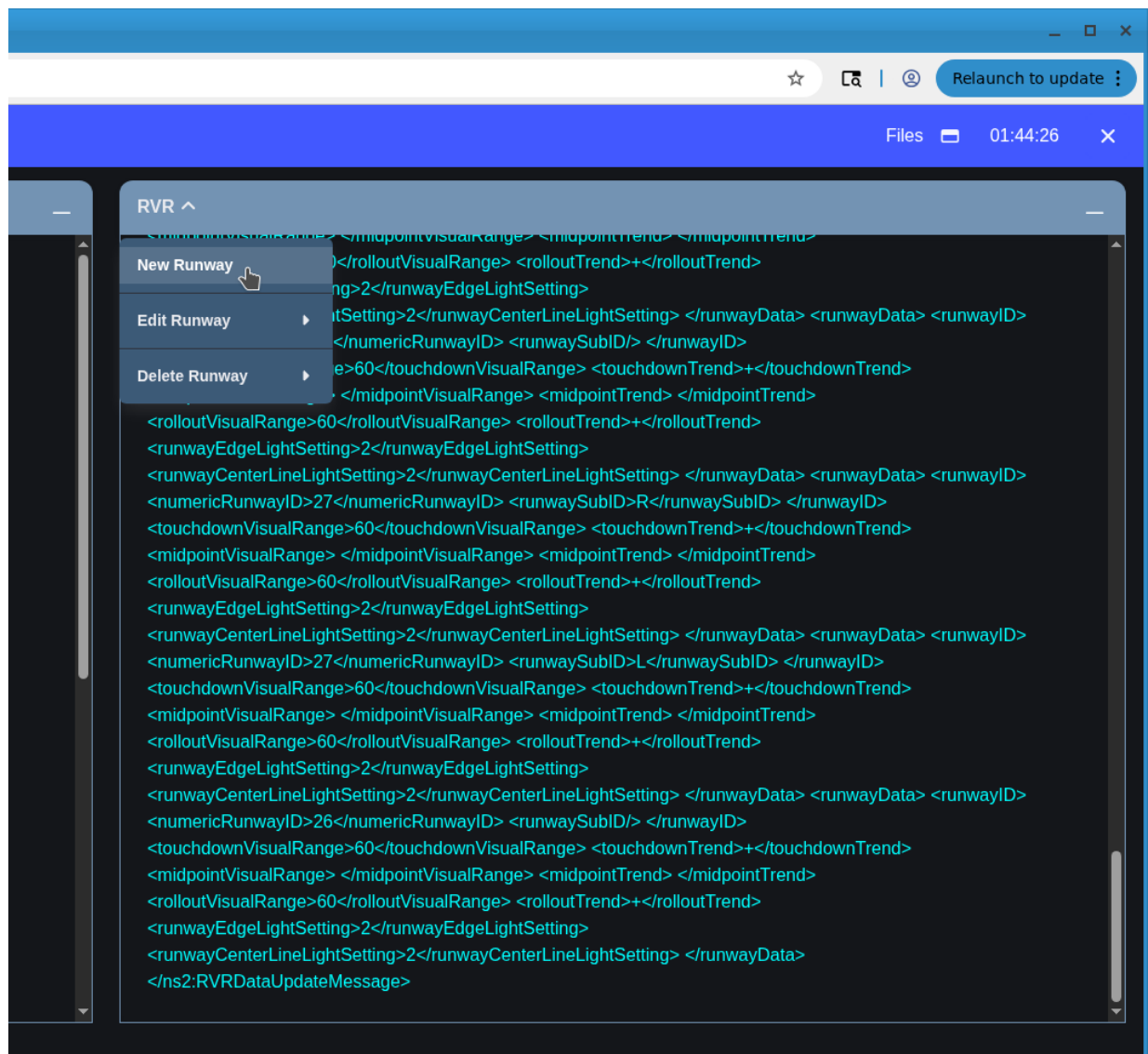


Figure 60. New Runway Option

The New Runway editor consists of Name, Transmit Period, and RVR data fields (including touchdownVisualRange, touchdownTrend, midpointVisualRange, midpointTrend, rolloutVisualRange, rolloutTrend, edgeLightSetting, and centerLineLightSetting), and OK and Cancel buttons.

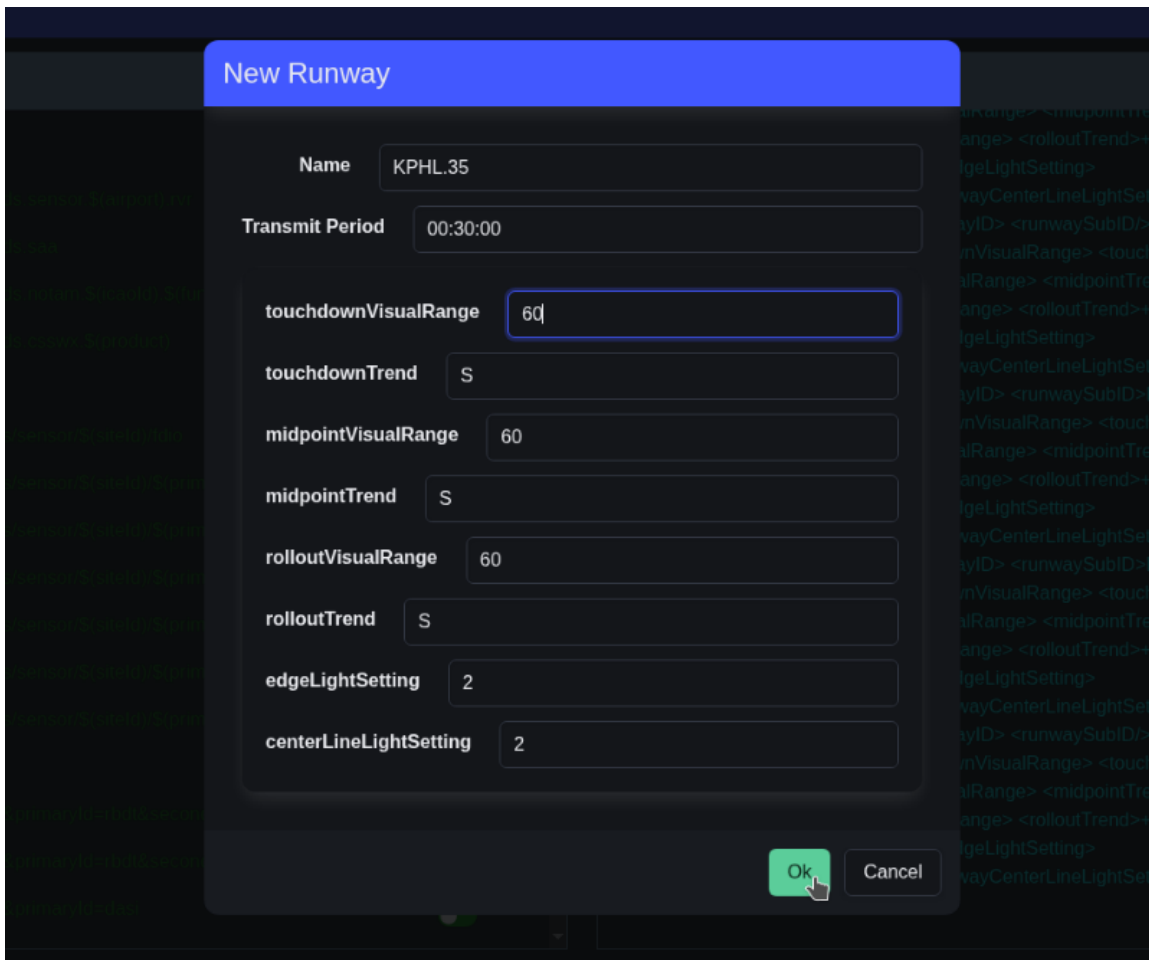


Figure 61. New Runway Editor

Name

Runway name, consisting of the four letter ICAO name of the airport followed by period and the runway identifier to be manually added.

Transmit Period

Message transmission period – the time between RVR messages for this runway.

touchdownVisualRange

The visibility distance at the touchdown point of the runway.

touchdownTrend

Indicates if the visibility distance is increasing, decreasing, or steady.

midpointVisualRange

The visibility distance at the midpoint of the runway.

midpointTrend

Indicates if the visibility distance is increasing, decreasing, or steady.

rolloutVisualRange

The visibility distance at the rollout point of the runway.

rolloutTrend

Indicates if the visibility distance is increasing, decreasing, or steady.

edgeLightSetting

Edge light intensity setting – 1, 2, 3, 4, or 5.

centerLineLightSetting

Centerline light intensity setting – 1, 2, 3, 4, or 5.

OK

Accepts the changes and sends the RVR message.

Cancel

Closes the editor dialog without sending any data.

4.2.2. Edit Runway

Click on the Edit Runway option and select a runway from the list of runways (which already have RVR messages) to display the runway editor. The runway editor consists of Transmit Period and RVR data fields (including touchdownVisualRange, touchdownTrend, midpointVisualRange, midpointTrend, rolloutVisualRange, rolloutTrend, edgeLightSetting, and centerLineLightSetting), and OK and Cancel buttons.

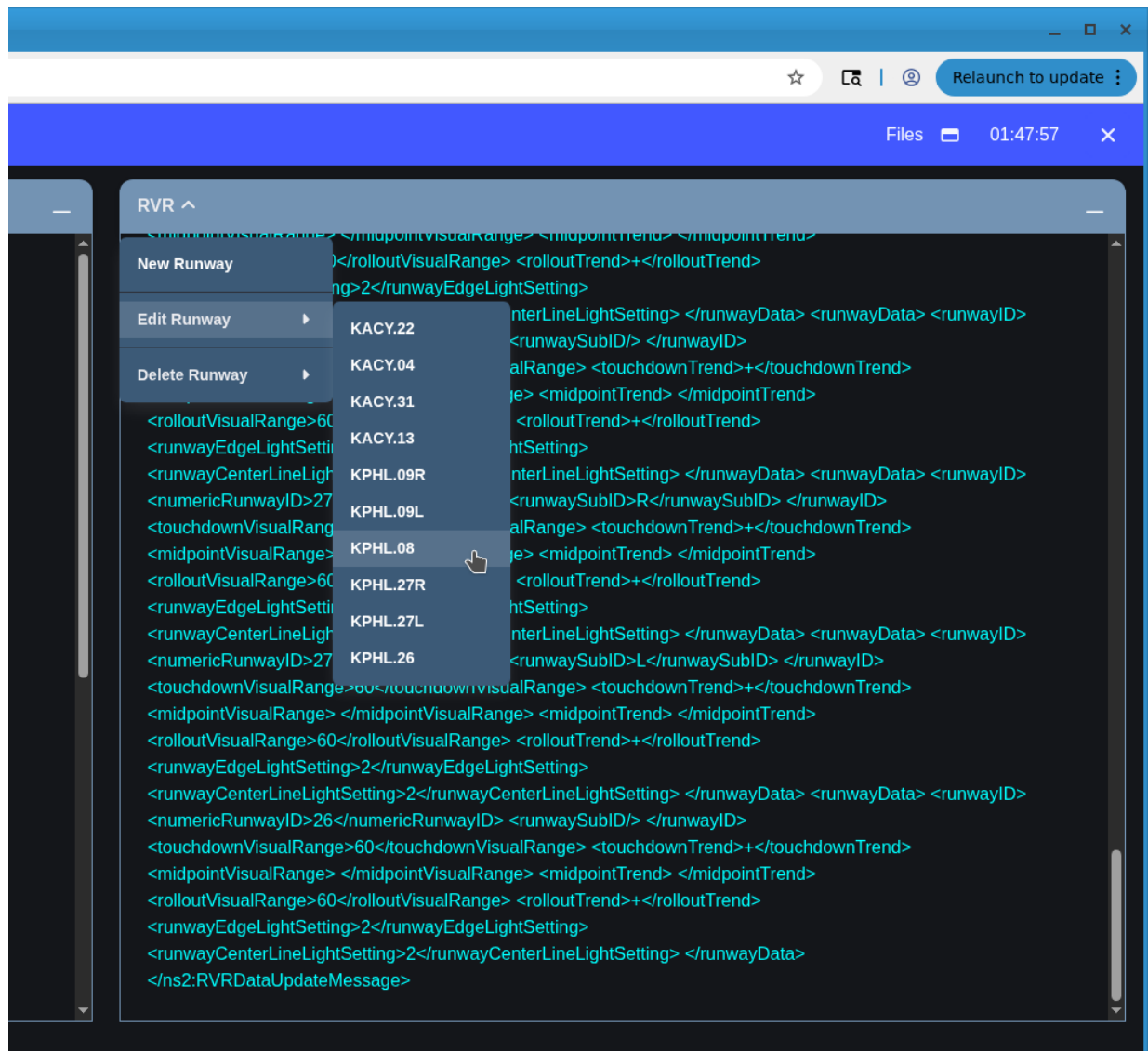


Figure 62. Edit Runway Option

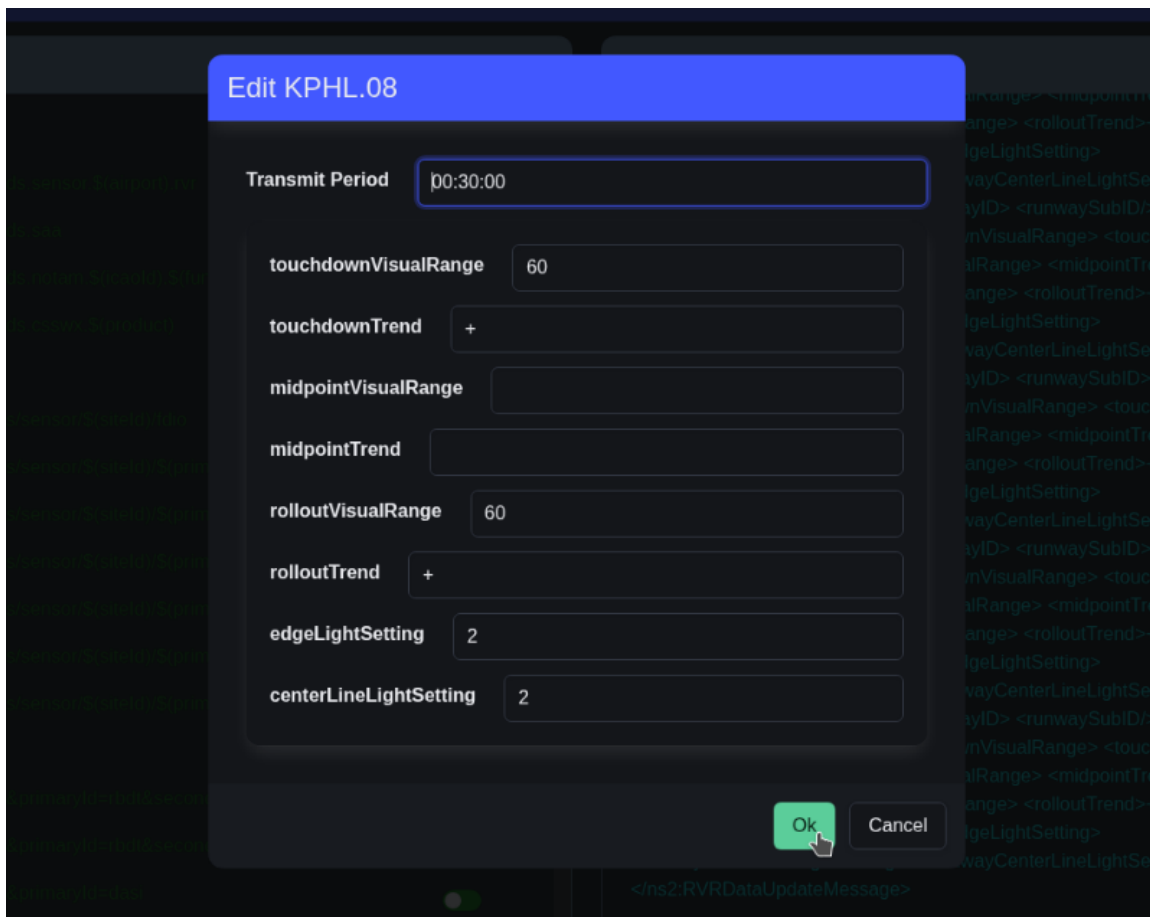


Figure 63. Edit Runway Editor

Transmit Period

Time between repetitions of the RVR message.

touchdownVisualRange

The visibility distance at the touchdown point of the runway.

touchdownTrend

Indicates if the visibility distance is increasing, decreasing, or steady.

midpointVisualRange

The visibility distance at the midpoint of the runway.

midpointTrend

Indicates if the visibility distance is increasing, decreasing, or steady.

rolloutVisualRange

The visibility distance at the rollout point of the runway.

rolloutTrend

Indicates if the visibility distance is increasing, decreasing, or steady.

edgeLightSetting

Edge light intensity setting – 1, 2, 3, 4, or 5.

centerLineLightSetting

Centerline light intensity setting – 1, 2, 3, 4, or 5.

OK

Accepts the changes and sends the RVR message.

Cancel

Closes the editor dialog without sending any data.

4.2.3. Delete Runway

Click on the Delete Runway option and select a runway from the list of runways (which already have RVR messages) to stop RVR messages from being sent.

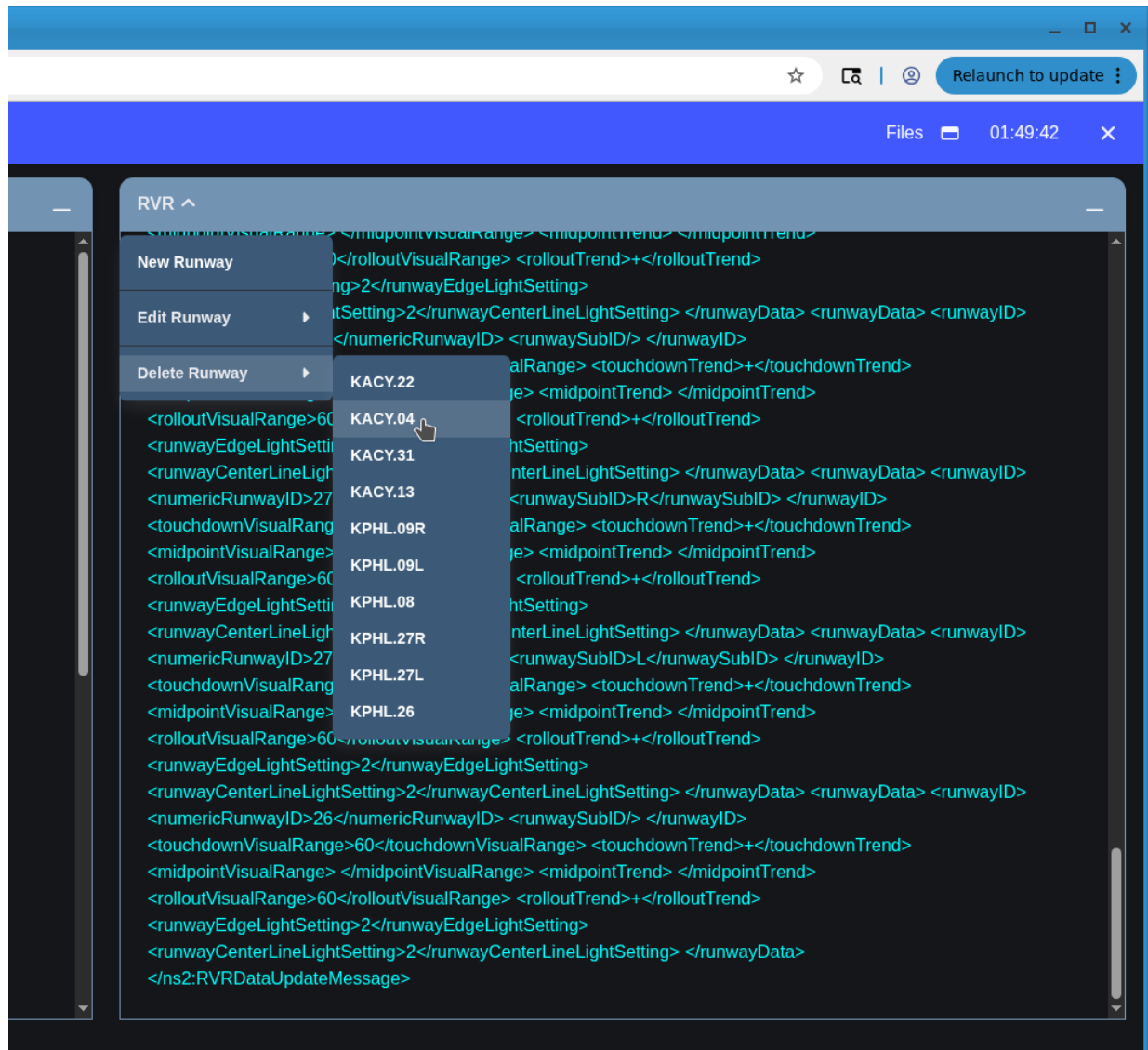


Figure 64. Delete Runway

5. XSIM Scenario

Various weather data types can be scripted for timed injection by XSIM, including DASI, SAWS/SWS-S, WME/SWS-W, ASOS/AWOS-C ACEIDS, IDS4, RBDT (ITWS, LLWAS, WSP), FDIO, RVR, NOTAM, SAA, and CSS-Wx.

5.1. General Syntax

Scenario messages, at a minimum, consist of the message data type, the weather station or facility, the injection time, and message data fields applicable to the message type. In the examples below, a SWS-S message is scripted for the weather station ACY, to be injected 10 seconds after scenario start and an FDIO message is scripted for source PHL in facility ZNY at one second.

```
<sws-s wxStation="ACY" time="00:00:10">
  <wind>34025G12</wind>
  <temperature>18</ temperature >
  <dewpoint>15</dewpoint>
</sws-s>
```

```
<fdio time="00:00:01" facility="ZNY">
  <msg lowerCase="1" source="phl" msgType="0x401">gi s2 phl ua/ov phl/tm
%0000%/f1170/tp crj7/ic lgt rime[crlf]
[lf]
[lf]
[lf]
[lf]
[lf]</msg>
```

NOTE: Attributes may be specified in any order.

5.1.1. Repetition Period

Some data types can be set for repeated periodic injection. When specified in the scenario message, the period will override the period specified in the configuration file. In the examples below, the DASI message from weather station PHL will repeat every thirty seconds and the message from ACY will repeat at 90 second intervals.

```
<dasi wxStation="PHL" time="00:00:10" period="00:00:30">  
  <altimeter>29.99</altimeter>  
</dasi>
```

```
<dasi wxStation="ACY" time="00:00:45" period="90">  
  <altimeter>30.03</altimeter>  
</dasi>
```

NOTE: The period may be specified as hours, minutes, and seconds in the format *hh:mm:ss* or simply as the number of seconds.

For FDIO messages, the period is specified inside the msg tag.

```
<fdio time="00:00:01" facility="ZNY">  
  <msg period="10" lowerCase="1" source="phl" msgType="0x403">
```

For national SWIM messages, the period is specified inside the jmsMsg tag.

```
<saa time="00:00:01" >  
  <jmsMsg period="00:00:20" >
```

5.1.2. Variable Sensor Data

Sensor data values can be configured to vary automatically. Variation can be configured within square brackets either as a range or as a list of comma-separated values. Specifying a range by minimum and maximum numerical value, separated by a colon, will automatically generate a random value within the range upon each update. A comma-separated list will inject each listed value on subsequent updates until the end of the list is reached and will then go back to the first value in the list.

Numerical values can include optional formatting in the standard C syntax for floating point and integers. If omitted, floating point format will default to two decimal places, %.2f, and integers will default to %d.

In the example below, wind direction will cycle through the list of values. After six updates, the first value will be used again. Wind direction will display three digits. The wind speed will be a random value between 13 knots and 15 knots. The gust value will be consistently 29 knots.

```
<wind>[340,360,350,10,360,340%03d][13:15][29]</wind>
```

Altimeter values can be specified with two decimal places:

```
<altimeter>[28:31%.2f]</altimeter>
```

Text can also be included in lists or combined with varying numbers:

```
<present_weather>[-RA,TS,BR,+SN]</present_weather>
```

```
<visibility>[2:5]SM</visibility>
```

5.1.3. Clear Data Field

To clear data from a field, the field can be scripted with no value specified or the field can include the attribute clear="1". In the example below, both the dewpoint and altimeter fields will be cleared of data.

```
<dewpoint></dewpoint>  
<altimeter clear="1"/>
```

5.1.4. Date and Time Substitution

The DATETIME token may be used in scenario messages to represent a date and time relative to when the scenario message is injected. The token is surrounded by percent signs and consists of three parts separated by slashes: the token label DATETIME, the time format, and the offset. In the example below, the METAR message will be displayed with the two-digit day, two-digit hour, two-digit minutes that are 30 minutes prior to the start of the scenario and will be followed by the letter “Z” to indicate Zulu or UTC time.

```
<metar facility="PHL" time="00:00:00">METAR KPHL %DATETIME/ddhhmmZ/-00:30:00%  
34025G45KT 310V010 1SM -TSRAGR BR SCT022 BKN028CB OVC048 18/17 A3005 RMK AO2 PK WND  
32045/0858 GRB00 GR 1 CONS LTGICCCCG OHD TS OHD MOV E P0000 T01830167 RVRNO $</metar>
```

In this SWIM message example, the date and time will correspond to 10 minutes and 12 seconds prior to the time the message is injected. The format will be four-digit year, dash, two-digit month, dash, two-digit day, the letter “T”, two-digit hour, colon, two-digit minutes, colon, two-digit seconds, period, three-digit milliseconds, and the letter “Z”.

```
<ns9:lastUpdated>%DATETIME/yyyy-MM-ddThh:mm:ss.zzzZ/-00:10:12%</ns9:lastUpdated>
```

In messages where only hours and minutes are required, an alternative time substitution specifies a time offset between percent signs. In the example below, the SIGMET is issued with a time that the message is inject and is valid for two hours.

```
<fdio time="00:00:03" facility="ZDC">  
  <msg period="10" lowerCase="1" source="acy" msgType="0x407">sige mkce wst  
%DATETIME/ddhhmm/-00:00:00% convective sigmet 35e valid until %0200%z nc sc[crLf]
```

5.1.5. Example Scenario

```
<root>

  <metar facility="PHL" time="00:00:00">KPHL 040900Z 34025G45KT 310V010 1SM -TSRAGR BR
SCT022 BKN028CB OVC048 18/17 A3005 RMK A02 PK WND 32045/0858 GRB00 GR 1 CONS LTGICCCCG
OHD TS OHD MOV E P0000 T01830167 RVRNO $</metar>

  <dasi facility="PHL" time="00:00:10" >
    <altimeter>30.21</altimeter>
  </dasi>

  <saws facility="PHL" time="00:00:10">
    <wind>34025G12</wind>
    <altimeter clear="1"/>
    <dewpoint>15</dewpoint>
  </saws>

  <asos facility="PHL" time="00:00:10">
    <sky_condition>SCT022</sky_condition>
    <visibility>6SM</visibility>
    <tower_visibility>7SM</tower_visibility>
    <present_weather>-RA</present_weather>
    <speci>SQUALLS</speci>
    <temperature>13</temperature>
    <dewpoint>07</dewpoint>
    <wind_5_second>340/20</wind_5_second>
    <altimeter>30.05</altimeter>
    <observer_remark>RMK WATERSPOUT</observer_remark>
    <weather_observation>METAR KPHL 040900Z 34025G45KT 310V010 1SM -TSRAGR BR SCT022
BKN028CB OVC048 18/17 A3005 RMK A02 PK WND 32045/0858 GRB00 GR 1 CONS LTGICCCCG OHD TS
OHD MOV E P0000 T01830167 RVRNO $</weather_observation>
    <magnetic_wind>352/20</magnetic_wind>
    <relative_humidity>43</relative_humidity>
```

```

    <pressure_altitude>320</pressure_altitude>
    <station_pressure>28.2</station_pressure>
    <sea_level_pressure>1024.7</sea_level_pressure>
    <density_altitude>1000</density_altitude>
    <station_name>Philadelphia</station_name>
    <site_id>KPHL</site_id>
    <sky_condition_remark>CLOUDY</sky_condition_remark>
    <visibility_remark>LIMITED</visibility_remark>
    <runway_visual_range>R27L/1000FT</runway_visual_range>
    <observation_type>METAR</observation_type>
    <atis_arrive>J</atis_arrive>
    <atis_depart>K</atis_depart>
  </asos>

  <wme facility="PHL" time="00:00:02">
    <arptWind>3402512</arptWind>
    <avgWind1>01010</avgWind1>
    <avgWind2>02020</avgWind2>
    <avgWind3>03030</avgWind3>
    <avgWind4>04040</avgWind4>
    <avgWind5>05050</avgWind5>
  </wme>

  <llwas wxStation="PHL" time="00:00:00" display="0" >
    <row1>AW 300 20    2359 ALM OFF</row1>
    <row2>09LA WSA 28K+ 2MF 250 30 </row2>
    <row3>27RA WSA 28K+ 2MF 250 30 </row3>
    <row4>17LA WSA 28K+ 2MF 250 30 </row4>
    <row5>35LA WSA 28K+ 2MF 250 30 </row5>
    <row6>08LA WSA 28K+ 2MF 250 30 </row6>
  </llwas>

```

</root>

5.2. METAR Message Format

METAR messages are METEorological Aerodrome Reports containing routine weather observations at airports. In an XSIM scenario, a scripted METAR consists of the message type (metar), facility, injection time, and the METAR text. See Appendix B. for additional details on the contents of METAR messages.

Example scenario METAR message:

```
<metar facility="PHL" time="00:00:00">METAR KPHL 040900Z 34025G45KT 310V010 1SM
-TSRAGR BR SCT022 BKN028CB OVC048 18/17 A3005 RMK AO2 PK WND 32045/0858 GRB00 GR 1
CONS LTGICCCCG OHD TS OHD MOV E P0000 T01830167 RVRNO $</metar>
```

Example METAR text:

```
METAR KPHL 040900Z 34025G45KT 310V010 1SM -TSRAGR BR SCT022 BKN028CB OVC048 18/17
A3005 RMK AO2 PK WND 32045/0858 GRB00 GR 1 CONS LTGICCCCG OHD TS OHD MOV E P0000
T01830167 RVRNO $
```

```
KPHL 040900Z 34025G45KT 310V010 1SM -TSRAGR BR SCT022 BKN028CB OVC048 18/17
A3005 RMK AO2 PK WND 32045/0858 GRB00 GR 1 CONS LTGICCCCG OHD TS OHD MOV E
P0000 T01830167 RVRNO $
```

```
Station id Day|Hour|Min(Zulu) WindGroup:WindDir|WindSpd|Gust(Knots)
WindDirGroup(Range):WindDir_V_WindDir Visibility:SatuteMiles Weather(uses code)
SkyConditions:(FEW, SCT, BKN, OVC) Temperature|Dewpoint Altimeter(inHg)
Remarks|Automated Stations|PeakWind(dddff(f)/(hh)mm)|HailstormB(begins)|Hailstone
size(GR #) Frequency Lightning Location ThunderStorm|Location|Movement_Dir
Preciptiation(Prrrr)|Hourly_Temperature/DewPoint Sensor status $(Maintenance indicator)
```

5.3. SWS-S/SAWS Message Format

XSIM scenario messages from both SAWS and SWS-S sources use the SAWS message format. Messages consist of the message type (saws or sws-s), facility, injection time, and weather sensor data. The weather sensor data may include wind data, temperature, dewpoint, altimeter setting, and sensor status. The wind data includes wind direction (3 char), wind speed (2 char), and optional wind gust ("G" followed by value). The letter "M" is used to indicate that data is not available. The text "CALM" may be entered to indicate speed less than 3 knots.

NOTE: The CDU Status is an integer between 0 and 65,536. A value of 0 indicates normal operation, values other than 0 provide information about each system: wind, temperature, dew point, and altimeter. Each nibble of the binary representation relates to one of the sensors:

```

---- ---- ---- XXXX = Wind
---- ---- XXXX ---- = Temperature
---- XXXX ---- ---- = Dew Point
XXXX ---- ---- ---- = Altimeter

```

Each bit indicates the status for that sensor:

```

0000 = O.K.
0001 = INVALID AVG
0010 = OUT OF RANGE
0100 = STATIC
1000 = ERROR

```

NOTE: Valid values for the wind averaging period are '0', '1', '2' or '3' corresponding to averaging periods of 15, 30, 60, or 120 seconds, respectively.

Examples:

```

<saws facility="PHL" time="00:00:10">
  <wind>34012G22</wind>
  <speed>20</speed>
  <direction>330</direction>
  <temperature>18</temperature>
  <dewpoint>15</dewpoint>
  <altimeter>30.03</altimeter>
  <CDU_status>0</CDU_status>

```

```
<periodavg>2</periodavg>
</saws>

<sws-s facility="ACY" time="00:00:10">
  <wind>[320,340,350,330,340,310][13:15][29]</wind>
  <gust>[27:32]</gust>
  <direction>[310:350]</direction>
  <temperature>M</temperature>
  <dewpoint></dewpoint>
  <altimeter clear="1"/>
</sws-s>
```

5.4. DASI Message Format

DASI messages consist of the message type (dasi), facility, injection time, and altimeter setting value. To simulate a sensor error, the text "ERROR" can be entered in place of the altimeter setting value.

Example DASI message:

```
<dasi facility="PHL" time="00:00:10" >  
  <altimeter>30.21</altimeter>  
</dasi>
```

Note: Any value may be entered. Actual altimeter operating low end may be 22.00 in Hg and high end may be 31.50 in Hg, depending on the standard required. For realistic values, a typical range may be 29.84-30.44 in Hg.

5.5. ASOS/AWOS-C ACEIDS Message Format

ASOS and AWOS-C ACEIDS messages consist of the message type (asos or awos), facility, injection time, and weather observation data that may include the fields: sky condition, visibility, tower visibility, present weather, reason for SPECI, temperature, dewpoint, 5 second wind measurement, altimeter, observer remark, weather observation, magnetic wind, relative humidity, pressure altitude, station pressure, sea level pressure, density altitude, station name, site ID, sky condition remark, visibility remark, runway visual range, observation type (METAR or SPECI), ATIS arrive, and ATIS depart.

Example:

```
<asos facility="PHL" time="00:00:10">
  <sky_condition>SCT022</sky_condition>
  <visibility>6SM</visibility>
  <tower_visibility>7SM</tower_visibility>
  <present_weather>-RA</present_weather>
  <speci>SQUALLS</speci>
  <temperature>13</temperature>
  <dewpoint>07</dewpoint>
  <wind_5_second>340/10</wind_5_second>
  <altimeter>29.99</altimeter>
  <observer_remark></observer_remark>
  <weather_observation>METAR KPHL 040900Z 34025G45KT 310V010 1SM -TSRAGR BR SCT022
BKN028CB OVC048 18/17 A3005 RMK A02 PK WND 32045/0858 GRB00 GR 1 CONS LTGICCCCG OHD TS
OHD MOV E P0000 T01830167 RVRNO $</weather_observation>
  <magnetic_wind>352/20</magnetic_wind>
  <relative_humidity>43</relative_humidity>
  <pressure_altitude>320</pressure_altitude>
  <station_pressure>28.2</station_pressure>
  <sea_level_pressure>1024.7</sea_level_pressure>
  <density_altitude>1000</density_altitude>
  <station_name>Philadelphia</station_name>
  <site_id>KPHL</site_id>
```

```
<sky_condition_remark>CLOUDY</sky_condition_remark>  
<visibility_remark>LIMITED</visibility_remark>  
<runway_visual_range>R27L/1000FT</runway_visual_range>  
<observation_type>METAR</observation_type>  
<atis_arrive>J</atis_arrive>  
<atis_depart>K</atis_depart>  
</asos>
```

5.6. IDS4 Message Format

IDS4 messages consist of the message type (ids4), facility, injection time, and weather observation data that may include the fields: time, date, airport name, sky conditions, visibility, tower visibility, present weather, altimeter, temperature in °C, dewpoint in °C, temperature in °F, dewpoint in °F, relative humidity, wind, magnetic wind, altitude set, density altitude, pressure altitude, remarks, weather observation.

Example:

```
<ids4 facility="KACY" time="00:00:01" period="60" >
  <time>15:00:00</time>
  <date>06/25/2026</date>
  <airport>Atlantic City Airport</airport>
  <sky>FEW040 SCT120</sky>
  <visibility>10SM</visibility>
  <tower_visibility>9SM</tower_visibility>
  <prewx>-RA</prewx>
  <altimeter>1013</altimeter>
  <temperature_c>18</temperature_c>
  <dew_point_c>09</dew_point_c>
  <temperature_f>64</temperature_f>
  <dew_point_f>48</dew_point_f>
  <relative_humidity>56</relative_humidity>
  <wind>340/20</wind>
  <mag_wind>002/07</mag_wind>
  <alt_set>29.92</alt_set>
  <density_altitude>1000</density_altitude>
  <pressure_altitude>350</pressure_altitude>
  <remark_1>RMK WATERSPOUT</remark_1>
  <obs_1>METAR KACY %DATETIME/ddhhmmZ/00:00:00% 35007KT 10SM CLR 26/13 A2992 RMK
A02 SLP130 T02560128 $</obs_1>
</ids4>
```

5.7. SWS-W/WME Message Format

XSIM scenario messages from both WME and SWS-W sources use the WME message format. Messages include the message type (wme or sws-w), facility, injection time, and the period of message frequency followed by five sets of wind data. The first set of wind data consists of wind direction, wind speed, and wind gust. The four additional sets of wind data consist of 30 second average wind direction and wind speed.

Examples:

```
<wme facility="PHL" time="00:00:02" period="2">
  <arptWind>34012G22</arptWind>
  <avgWind1>01010</avgWind1>
  <avgWind2>02020</avgWind2>
  <avgWind3>03030</avgWind3>
  <avgWind4>04040</avgWind4>
  <avgWind5>05050</avgWind5>
</wme>

<sws-w facility="ACY" time="00:00:05" period="5">
  <arptWind>[320,340,350,330,340,310][13:15][29]</arptWind>
  <avgWind1>01015</avgWind1>
  <avgWind2>02025</avgWind2>
  <avgWind3>03035</avgWind3>
  <avgWind4>04045</avgWind4>
  <avgWind5>05055</avgWind5>
</sws-w>
```

5.8. RBDT Message Format

ITWS, LLWAS, and WSP send weather sensor data via RBDT. RBDT messages consist of scenario message type (itws, llwas, wsp, or rbd), facility, injection time, display position, and message text.

Examples:

```
<llwas-0 wxStation="PHL" time="00:00:00" display="0" >
  <row1>AW 300 10    2359 ALM OFF</row1>
  <row2></row2>
  <row3>09RA CALM</row3>
  <row4>09RD CALM</row4>
  <row5>09LA 290 05</row5>
  <row6>09LD 290 06</row6>
  <row7></row7>
  <row8>08 D WSA 28K+ 2MF 250 30</row8>
  <row9>17 A WSA 28K+ 2MF 250 30</row9>
  <row10>17 D WSA 28K+ 2MF 250 30</row10>
</llwas-0>

<llwas-1 wxStation="PHL" time="00:00:00" display="2" >
  <row1>AW 300 20    2359 ALM OFF</row1>
  <row2></row2>
  <row3>27RA WSA 28K+ 2MF 250 30</row3>
  <row4>27RD WSA 28K+ 2MF 250 30</row4>
  <row5>27LA WSA 28K+ 2MF 250 30</row5>
  <row6>27LD WSA 28K+ 2MF 250 30</row6>
  <row7></row7>
  <row8>26 D WSA 28K+ 2MF 250 30</row8>
  <row9>35 A WSA 28K+ 2MF 250 30</row9>
  <row10>35 D WSA 28K+ 2MF 250 30</row10>
</llwas-1>
```

```
<itws wxStation="ACY" time="00:00:00" display="1" >  
  <row1>AW 260 30      2359 ALM ON </row1>  
  <row2></row2>  
  <row3>13 D WSA 28K+ RWY 250 31*</row3>  
  <row4>31 D MBA 28K+ 2MF 250 32*</row4>  
  <row5></row5>  
  <row6>04 D MBA 28K+ 2MF 250 33</row6>  
  <row7>22 D WSA 28K+ RWY 250 34</row7>  
</itws>
```

5.9. FDIO Message Format

FDIO messages consist of scenario message type (fdio), facility, injection time, and message text. Message text categories include:

- General Information (GI)
 - Pilot Report (PIREP)
 - Airmen's Meteorological Information (AIRMET)
 - Traffic Management Unit (TMU)
- Significant Meteorological Information (SIGMET)
- Center Weather Advisory (CWA)

Example:

```
<fdio time="00:00:01" facility="ZNY">
  <msg period="10" lowerCase="1" source="PHL" msgType="0x403">
zny1 cwa 041445 zny cwa 101 valid until 041455 from totow-hoopa-zigie-[crlf]
fites-totow embd ts with tops to fl400 obs wi mov nw 20kt. conds expd[crlf]
to end by 1838z.[crlf]
[lf]
[lf]
[lf]
  </msg>
</fdio>

<fdio time="00:00:03" facility="ZDC">
  <msg period="10" lowerCase="1" source="ACY" msgType="0x407">sige mkce wst 131455
convective sigmet 35e valid until 1655z nc sc[crlf]
and de nj ny md nc va sc ga cstl wtrs from 140ese sie-190sse[crlf]
hto-140se chs-30ssw chs-140ese sie area embd ts mov from 21015kt.[crlf]
tops abv fl450. ref intl sigmet hotel series.[crlf]
[lf]
[lf]
  </msg>
</fdio>
```

5.10. RVR Message Format

RVR messages consist of scenario message type (rvr), injection time, and runway visual range data. The runway visual range data consists of airport and runway identification, and values for midpoint trend, midpoint visual range, rollout trend, rollout visual range, touchdown trend, touchdown visual range, runway centerline light setting, and runway edge light setting.

Example:

```
<rvr period="00:30:00" time="00:00:00">  
  <rw airport="KPHL" name="09R" midpointTrend=" " midpointVisualRange=" "  
  rolloutTrend="+" rolloutVisualRange="60" runwayCenterLineLightSetting="2"  
  runwayEdgeLightSetting="2" touchdownTrend="+" touchdownVisualRange="60"/>  
</rvr>  
  
<rvr period="00:30:00" time="00:00:00">  
  <rw airport="KACY" name="13" midpointTrend=" " midpointVisualRange=" "  
  rolloutTrend="+" rolloutVisualRange="60" runwayCenterLineLightSetting="2"  
  runwayEdgeLightSetting="2" touchdownTrend="+" touchdownVisualRange="60"/>  
</rvr>
```

5.11. NOTAM Messages

NOTAM messages consist of scenario message type (notams), injection time, and NOTAM data, including JMS properties and the NOTAM payload.

Example NOTAM message:

```
<notams time="00:00:20">
  <jmsMsg>
    <properties>
      <property name="DEX_SOURCE_TYPE">AIM_FNS</property>
      <property
name="Forum_Source_JMS_Message_ID">ID:&lt;957781.1758781497827.0&gt;</property>
      <property name="req_method">POST</property>
      <property
name="solace_routing_dest_name">AIM_FNS/D/ACTIVE/NOTAMN/OBST/us_gov_dot_faa_aim_fns_nds
_AirspaceUsage</property>
      <property name="uri">Persistent-Queue-Module!INBOUND.AIM_FNS_TEXT</property>
      <property name="us_gov_dot_faa_aim_fns_nds_CorrelationID">34639674</property>
      <property name="us_gov_dot_faa_aim_fns_nds_ICAOId">KPIT</property>
      <property name="us_gov_dot_faa_aim_fns_nds_LocationDesignator">PIT</property>
      <property name="us_gov_dot_faa_aim_fns_nds_NOTAMFunction">NOTAMN</property>
      <property name="us_gov_dot_faa_aim_fns_nds_NOTAMKeyword">OBST</property>
      <property name="us_gov_dot_faa_aim_fns_nds_NOTAMNumber">254</property>
      <property name="us_gov_dot_faa_aim_fns_nds_NOTAMStatus">ACTIVE</property>
      <property name="us_gov_dot_faa_aim_fns_nds_SourceType">D</property>
    </properties>
    <payload>
      <ns10:AIXMBasicMessage ns1:id="FNS_ID_78047242"
xmlns:ns1="http://www.opengis.net/gml/3.2"
xmlns:ns10="http://www.aixm.aero/schema/5.1/message"
xmlns:ns2="http://www.w3.org/1999/xlink" xmlns:ns3="http://www.aixm.aero/schema/5.1"
xmlns:ns4="http://www.isotc211.org/2005/gco"
xmlns:ns5="http://www.isotc211.org/2005/gmd"
xmlns:ns6="http://www.isotc211.org/2005/gts" xmlns:ns7="urn:us.gov.dot.faa.aim.fns"
xmlns:ns8="http://www.aixm.aero/schema/5.1/event"
xmlns:ns9="http://www.aixm.aero/schema/5.1/extensions/FAA/FNSE">
      <ns1:boundedBy xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:nil="true"/>
      <ns10:hasMember>
        <ns3:ObstacleArea ns1:id="0A01_78047242">
```

```

        <ns1:boundedBy xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:nil="true"/>
        <ns3:timeSlice>
            <ns3:ObstacleAreaTimeSlice ns1:id="OA01_TS01_78047242">
                <ns1:validTime>
                    <ns1:TimePeriod ns1:id="OA01_TS01_TP01_78047242">
                        <ns1:beginPosition>%DATETIME/yyyy-MM-ddThh:mm:ss.zzzZ/-
00:10:12%</ns1:beginPosition>
                        <ns1:endPosition>%DATETIME/yyyy-MM-
ddThh:mm:ss.zzzZ/41:24:48%</ns1:endPosition>
                    </ns1:TimePeriod>
                </ns1:validTime>
                <ns3:interpretation>TEMPDELTA</ns3:interpretation>
                <ns3:reference_ownerAirport ns2:href="#Airport_1_78047242"/>
                <ns3:obstacle ns2:href="#VerticalStructureType_9_78047242"/>
                <ns3:extension>
                    <ns8:ObstacleAreaExtension ns1:id="OAE_1_78047242">
                        <ns8:theEvent ns2:href="#Event_1_78047242"/>
                    </ns8:ObstacleAreaExtension>
                </ns3:extension>
            </ns3:ObstacleAreaTimeSlice>
        </ns3:timeSlice>
    </ns3:ObstacleArea>
</ns10:hasMember>
<ns10:hasMember>
    <ns3:VerticalStructure ns1:id="VerticalStructureType_9_78047242">
        <ns1:boundedBy xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:nil="true"/>
        <ns3:timeSlice>
            <ns3:VerticalStructureTimeSlice
ns1:id="VerticalStructureTimeSliceType_10_78047242">
                <ns1:validTime>
                    <ns1:TimePeriod ns1:id="TimePeriodType_11_78047242">
                        <ns1:beginPosition>%DATETIME/yyyy-MM-ddThh:mm:ss.zzzZ/-
00:10:12%</ns1:beginPosition>
                        <ns1:endPosition>%DATETIME/yyyy-MM-
ddThh:mm:ss.zzzZ/41:24:48%</ns1:endPosition>
                    </ns1:TimePeriod>
                </ns1:validTime>
                <ns3:interpretation>TEMPDELTA</ns3:interpretation>
                <ns3:annotation>
                    <ns3:Note ns1:id="NOTES_1_78047242">

```

```

    <ns3:propertyName>operationalStatus</ns3:propertyName>
    <ns3:purpose>DESCRIPTION</ns3:purpose>
    <ns3:translatedNote>
      <ns3:LinguisticNote ns1:id="NOTES_LN_1_78047242">
        <ns3:note>APCH END RWY 14</ns3:note>
      </ns3:LinguisticNote>
    </ns3:translatedNote>
  </ns3>Note>
</ns3:annotation>
<ns3:annotation>
  <ns3>Note ns1:id="NOTES_2_78047242">
    <ns3:propertyName>operationalStatus</ns3:propertyName>
    <ns3:purpose>DESCRIPTION</ns3:purpose>
    <ns3:translatedNote>
      <ns3:LinguisticNote ns1:id="NOTES_LN_2_78047242">
        <ns3:note>0.2085 NM</ns3:note>
      </ns3:LinguisticNote>
    </ns3:translatedNote>
  </ns3>Note>
</ns3:annotation>
<ns3:annotation>
  <ns3>Note ns1:id="NOTES_3_78047242">
    <ns3:propertyName>operationalStatus</ns3:propertyName>
    <ns3:purpose>DESCRIPTION</ns3:purpose>
    <ns3:translatedNote>
      <ns3:LinguisticNote ns1:id="NOTES_LN_3_78047242">
        <ns3:note>SE_SIDE</ns3:note>
      </ns3:LinguisticNote>
    </ns3:translatedNote>
  </ns3>Note>
</ns3:annotation>
<ns3:lightingAvailability>
  <ns3:VerticalStructureLightingStatus
ns1:id="VerticalStructureLightingStatusType_12_78047242">
    <ns3:status>OTHER:UNLGTD</ns3:status>
  </ns3:VerticalStructureLightingStatus>
</ns3:lightingAvailability>
<ns3:extension>
  <ns8:VerticalStructureExtension ns1:id="VSE_1_78047242">
    <ns8:theEvent ns2:href="#Event_1_78047242"/>
  </ns8:VerticalStructureExtension>
</ns3:extension>

```

```

        </ns3:VerticalStructureTimeSlice>
    </ns3:timeSlice>
    <ns3:timeSlice>
        <ns3:VerticalStructureTimeSlice
ns1:id="VerticalStructureTimeSliceType_13_78047242">
            <ns1:validTime>
                <ns1:TimeInstant ns1:id="TimeInstantType_14_78047242">
                    <ns1:timePosition>%DATETIME/yyyy-MM-ddThh:mm:ss.zzzZ/-
00:09:15%</ns1:timePosition>
                </ns1:TimeInstant>
            </ns1:validTime>
            <ns3:interpretation>SNAPSHOT</ns3:interpretation>
            <ns3:type>OTHER:AIRCRAFT</ns3:type>
            <ns3:part>
                <ns3:VerticalStructurePart
ns1:id="VerticalStructurePartType_15_78047242">
                    <ns3:verticalExtent uom="FT">41.25</ns3:verticalExtent>
                    <ns3:horizontalProjection_location>
                        <ns3:ElevatedPoint
ns1:id="ElevatedPointType_16_78047242" srsDimension="2"
srsName="urn:ogc:def:crs:EPSG::4326">
                            <ns1:pos>40.4915 -80.2329</ns1:pos>
                            <ns3:elevation uom="FT">1187.6</ns3:elevation>
                        </ns3:ElevatedPoint>
                    </ns3:horizontalProjection_location>
                </ns3:VerticalStructurePart>
            </ns3:part>
        </ns3:VerticalStructureTimeSlice>
    </ns3:timeSlice>
</ns3:VerticalStructure>
</ns10:hasMember>
<ns10:hasMember>
    <ns3:AirportHeliport ns1:id="Airport_1_78047242">
        <ns1:boundedBy xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:nil="true"/>
        <ns3:timeSlice>
            <ns3:AirportHeliportTimeSlice ns1:id="Airport_TS_1_78047242">
                <ns1:validTime>
                    <ns1:TimeInstant ns1:id="Airport_TS_TI_1_78047242">
                        <ns1:timePosition>%DATETIME/yyyy-MM-ddThh:mm:ss.zzzZ/-
00:09:15%</ns1:timePosition>
                    </ns1:TimeInstant>
                </ns1:validTime>
            </ns3:AirportHeliportTimeSlice>
        </ns3:timeSlice>
    </ns3:AirportHeliport>
</ns10:hasMember>

```

```

</ns1:validTime>
<ns3:interpretation>SNAPSHOT</ns3:interpretation>
<ns3:designator>PIT</ns3:designator>
<ns3:name>PITTSBURGH INTL</ns3:name>
<ns3:locationIndicatorICA0>KPIT</ns3:locationIndicatorICA0>
<ns3:ARP>
  <ns3:ElevatedPoint ns1:id="EP01_78047242" srsDimension="2"
srsName="urn:ogc:def:crs:EPSG::4326">
    <ns1:pos>40.49141666666667 -80.23269444444444</ns1:pos>
  </ns3:ElevatedPoint>
</ns3:ARP>
<ns3:extension>
  <ns8:AirportHeliportExtension ns1:id="AHE_EVENT_1_78047242">
    <ns8:theEvent ns2:href="#Event_1_78047242"/>
  </ns8:AirportHeliportExtension>
</ns3:extension>
</ns3:AirportHeliportTimeSlice>
</ns3:timeSlice>
</ns3:AirportHeliport>
</ns10:hasMember>
<ns10:hasMember>
  <ns8:Event ns1:id="Event_1_78047242">
    <ns1:boundedBy xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:nil="true"/>
    <ns8:timeSlice>
      <ns8:EventTimeSlice ns1:id="Event_TS_1_78047242">
        <ns1:validTime>
          <ns1:TimePeriod ns1:id="Event_TS_TP_1_78047242">
            <ns1:beginPosition>%DATETIME/yyyy-MM-ddThh:mm:ss.zzzZ/-
00:10:12%</ns1:beginPosition>
            <ns1:endPosition>%DATETIME/yyyy-MM-
ddThh:mm:ss.zzzZ/41:24:48%</ns1:endPosition>
          </ns1:TimePeriod>
        </ns1:validTime>
        <ns3:interpretation>BASELINE</ns3:interpretation>
        <ns8:scenario>1006</ns8:scenario>
        <ns8:textNOTAM>
          <ns8:NOTAM ns1:id="NOTAM_1_78047242">
            <ns8:number>254</ns8:number>
            <ns8:year>2025</ns8:year>
            <ns8:type>N</ns8:type>
            <ns8:issued>2025-09-25T06:24:00.000Z</ns8:issued>

```

```

<ns8:affectedFIR>ZOB</ns8:affectedFIR>
<ns8:minimumFL>000</ns8:minimumFL>
<ns8:maximumFL>999</ns8:maximumFL>
<ns8:radius>5</ns8:radius>
<ns8:location>PIT</ns8:location>
<ns8:effectiveStart>202509250624</ns8:effectiveStart>
<ns8:effectiveEnd>202509262359</ns8:effectiveEnd>
<ns8:text>OBST PARKED ACFT (ASN UNKNOWN) 402942N0801314W
(0.2085NM SE APCH END RWY 14)
1187.6FT (41.25FT AGL) NOT LGTD</ns8:text>
<ns8:translation>
  <ns8:NOTAMTranslation ns1:id="NT01_78047242">
    <ns8:type>LOCAL_FORMAT</ns8:type>
    <ns8:simpleText>!PIT 09/254 PIT OBST PARKED ACFT
(ASN UNKNOWN) 402942N0801314W (0.2085NM SE APCH END RWY 14)
1187.6FT (41.25FT AGL) NOT LGTD 2509250624-2509262359</ns8:simpleText>
  </ns8:NOTAMTranslation>
</ns8:translation>
<ns8:translation>
  <ns8:NOTAMTranslation ns1:id="NT02_78047242">
    <ns8:type>OTHER:ICAO</ns8:type>
    <ns8:formattedText>
      <html:div
xmlns="http://www.aixm.aero/schema/5.1/message"
xmlns:aixm="http://www.aixm.aero/schema/5.1"
xmlns:event="http://www.aixm.aero/schema/5.1/event"
xmlns:fns="urn:us.gov.dot.faa.aim.fns"
xmlns:fns="http://www.aixm.aero/schema/5.1/extensions/FAA/FNSE"
xmlns:gco="http://www.isotc211.org/2005/gco"
xmlns:gmd="http://www.isotc211.org/2005/gmd" xmlns:gml="http://www.opengis.net/gml/3.2"
xmlns:gsr="http://www.isotc211.org/2005/gsr"
xmlns:gss="http://www.isotc211.org/2005/gss"
xmlns:gts="http://www.isotc211.org/2005/gts" xmlns:html="http://www.w3.org/1999/xhtml"
xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance">09/254 NOTAMN
Q) KZOB//IV/M//000//4029N08013W005
A) KPIT
B) 2509250624
C) 2509262359
E) PARKED ACFT LGT (ASN UNKNOWN) 402942N0801314W ( 0.2085NM SE ( APCH END RWY 14)) (
1187.6FT) ( 41.25FT AGL) NOT LGTD</html:div>
    </ns8:formattedText>
  </ns8:translation>
</ns8:translation>

```

```

        </ns8:NOTAMTranslation>
        </ns8:translation>
    </ns8:NOTAM>
</ns8:textNOTAM>
<ns8:extension>
    <ns9:EventExtension ns1:id="ext_01_78047242">
        <ns9:classification>DOM</ns9:classification>
        <ns9:accountId>PIT</ns9:accountId>
        <ns9:airportname>PITTSBURGH INTL</ns9:airportname>
        <ns9:lastUpdated>%DATETIME/yyyy-MM-ddThh:mm:ss.zzzZ/-
00:10:12%</ns9:lastUpdated>
        <ns9:icaoLocation>KPIT</ns9:icaoLocation>
    </ns9:EventExtension>
</ns8:extension>
</ns8:EventTimeSlice>
</ns8:timeSlice>
</ns8:Event>
</ns10:hasMember>
</ns10:AIXMBasicMessage>
</payload>
</jmsMsg>
</notams>

```

5.12. SAA Messages

SAA messages consist of scenario message type (saa), injection time, and SAA data, including JMS properties and the SAA payload.

Example SAA message:

```
<saa time="00:41:45">
  <jmsMsg>
    <properties>
      <property name="CEP_LOAD_BALANCE_HEADER">fdps -
activemq:topic:TOPIC.FDPS.ZHU.FlightData.001.0</property>
      <property name="DEX_SOURCE_TYPE">FDPS</property>
      <property name="FDPS_Authoritative">true</property>
      <property name="FDPS_DataType">AirspaceAIXM</property>
      <property name="FDPS_MessageType">HR_AIXM</property>
      <property name="FDPS_RcvdTime">2025-11-21T17:24:46.110Z</property>
      <property name="FDPS_RcvdTimeEpoch">1763745886.110268</property>
      <property name="FDPS_Restricted">A</property>
      <property name="FDPS_Sensitive">false</property>
      <property name="FDPS_SentTime">%DATETIME/yyyy-MM-
ddThh:mm:ss.zzzZ/00:00:00%</property>
      <property name="FDPS_SentTimeEpoch">1763745886.420000</property>
      <property name="FDPS_SequenceNo">35198463</property>
      <property name="FDPS_SourceFacility">ZHU</property>
      <property name="FDPS_SourceSystem">SLC</property>
      <property name="breadcrumbId">ID-zlcartcc1033-36637-1758209732409-29-
185437395</property>
      <property name="destination">TOPIC.FDPS.ZHU.FlightData.001</property>
      <property
name="solace_routing_dest_name">FDPS/AirspaceAIXM/HR_AIXM/FDPS_OneMinFreq/FDPS_Recon/ZH
U/true/false/FDPS_FlightOperator/FDPS-Origin/FDPS_DestId/A/FDPS_BlockAtFAA</property>
    </properties>
    <payload>
      <ns7:AIXMBasicMessage xmlns:ns1="http://www.opengis.net/gml/3.2"
xmlns:ns2="http://www.w3.org/1999/xlink" xmlns:ns3="http://www.aixm.aero/schema/5.1"
xmlns:ns4="http://www.isotc211.org/2005/gco"
xmlns:ns5="http://www.isotc211.org/2005/gmd"
xmlns:ns6="http://www.isotc211.org/2005/gts"
xmlns:ns7="http://www.aixm.aero/schema/5.1/message" ns1:id="HR_aixmBasicMessage">
        <ns1:name>HR_AIXM</ns1:name>
```

```

    <ns1:boundedBy xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:nil="true"/>
    <ns7:hasMember>
      <ns3:RouteSegment ns1:id="HR_routeSegment_0">
        <ns1:name>CRDFS</ns1:name>
        <ns1:boundedBy xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:nil="true"/>
        <ns3:timeSlice>
          <ns3:RouteSegmentTimeSlice ns1:id="HR_routeSegmentTimeSlice_0">
            <ns1:validTime/>
            <ns3:interpretation>SNAPSHOT</ns3:interpretation>
            <ns3:availability>
              <ns3:RouteAvailability ns1:id="HR_routeAvailability_0">
                <ns3:status>CLSD</ns3:status>
              </ns3:RouteAvailability>
            </ns3:availability>
          </ns3:RouteSegmentTimeSlice>
        </ns3:timeSlice>
      </ns3:RouteSegment>
    </ns7:hasMember>
  </ns7:AIXMBasicMessage>
</payload>
</jmsMsg>
</saa>

```

5.13. CSS-Wx Messages

CSS-Wx messages consist of scenario message type (css-wx), injection time, and CSS-Wx data, including JMS properties and the CSS-Wx product payload.

Example CSS-Wx message:

```
<csswx time="01:05:15">
  <jmsMsg>
    <properties>
      <property name="Consumer">nems_wmscr_slc</property>
      <property name="DEX_SOURCE_TYPE">CNODE_CONSUMER</property>
      <property
name="DestinationQueue">CNODE_CONSUMER/nems_wmscr_slc/ConusPlus/PIREP/0/STATION_ID/ICAO
_ID/RadarSite/09/00</property>
      <property name="FormatType">ALPHANUMERIC</property>
      <property name="GdaUrl">https://inf-
elb.slc.csswx.nas.faa.gov/gda/wfs</property>
      <property name="IssueMinute">09</property>
      <property name="IssueSecond">00</property>
      <property name="IssueTime">%DATETIME/yyyy-MM-
ddThh:mm:ss.zzzZ/00:00:00%</property>
      <property name="JMSXUserID">csswx_cnode</property>
      <property name="LocationId">ConusPlus</property>
      <property name="MessageAuthor">CSS-Wx</property>
      <property name="Owner">nems_wmscr_slc</property>
      <property name="ProductID">iwxm-us:PilotReport</property>
      <property name="ProductName">PIREP</property>
      <property name="Query">https://inf-
elb:443/gda/wfs?service=WFS&version=2.0.0&request=GETFEATURE&srsName=urn:og
c:def:crs:EPSG::4326&typeNames=iwxm-us:PilotReport&filter=<fes:Filter
xmlns:fes="http://www.opengis.net/fes/2.0"
xmlns:faawx="http://www.faa.gov/wx/3.0"
xmlns:gml="http://www.opengis.net/gml/3.2"
xmlns:iwxm-us="http://nws.weather.gov/schemas/IWXXM-US/1.0/Release"
xmlns:om="http://www.opengis.net/om/2.0"
xmlns:uswx="http://nws.weather.gov/schemas/USWX/1.0"
xmlns:wfs="http://www.opengis.net/wfs/2.0"
xmlns:wxxm="http://www.wxxm.aero/wxxm/2.0"
xmlns:xlink="http://www.w3.org/1999/xlink"><fes:PropertyIsEqualTo
matchAction="Any"><fes:ValueReference>iwxm-
us:PilotReport</fes:ValueReference><fes:Literal>pirep.b0206103-22d3-4ee3-
```

```

8321-
09b2bcfd6322</fes:Literal></fes:PropertyIsEqualTo></fes:Filter></prop
erty>
    <property name="SubscriptionAlias">WFS_IWXXM_US_PIREP</property>
    <property name="SubscriptionID">87</property>
    <property name="Tilt"/>
    <property name="TmpFileLocation">/opt/harris/share/srp/tmp/:cd5b95e5-8157-
4871-a7ea-749c7c223b9e</property>
    <property name="UUID">cd5b95e5-8157-4871-a7ea-749c7c223b9e</property>
  </properties>
  <payload solaceBinaryFormat="1">
    <wfs:FeatureCollection numberMatched="1" numberReturned="1" timeStamp="2025-
12-11T20:09:40.316Z" xmlns:aixm="http://www.aixm.aero/schema/5.1"
xmlns:gml="http://www.opengis.net/gml/3.2" xmlns:iwxxm-
us="http://nws.weather.gov/schemas/IWXXM-US/1.0/Release"
xmlns:metce="http://def.wmo.int/metce/2013" xmlns:om="http://www.opengis.net/om/2.0"
xmlns:wfs="http://www.opengis.net/wfs/2.0" xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.opengis.net/wfs/2.0
http://schemas.opengis.net/wfs/2.0/wfs.xsd http://www.opengis.net/gml/3.2
http://schemas.opengis.net/gml/3.2.1/gml.xsd http://nws.weather.gov/schemas/IWXXM-
US/1.0/Release http://nws.weather.gov/schemas/IWXXM-US/1.0/Release/iwxxm-us.xsd">
    <wfs:member>
      <iwxxm-us:PilotReport gml:id="pirep.b0206103-22d3-4ee3-8321-09b2bcfd6322">
        <iwxxm-us:flightLevelUnknownFlag>false</iwxxm-us:flightLevelUnknownFlag>
        <iwxxm-us:observation>
          <om:OM_Observation gml:id="omid.pirep.b0206103-22d3-4ee3-8321-09b2bcfd6322">
            <om:type xlink:href="http://codes.wmo.int/49-2/observation-
type/IWXXM/1.0/PilotReportObservation"/>
            <om:phenomenonTime>
              <gml:TimeInstant gml:id="ti.pirep.b0206103-22d3-4ee3-8321-09b2bcfd6322">
                <gml:timePosition>%DATETIME/yyyy-MM-ddThh:mm:ss.zzzZ/-
00:54:00%</gml:timePosition>
              </gml:TimeInstant>
            </om:phenomenonTime>
            <om:resultTime xlink:href="#pirep.b0206103-22d3-4ee3-8321-
09b2bcfd6322.ti"/>
            <om:procedure>
              <metce:Process gml:id="fmh12-pirep.pirep.b0206103-22d3-4ee3-8321-
09b2bcfd6322"/>
            </om:procedure>
          </om:OM_Observation>
        </iwxxm-us:observation>
      </iwxxm-us:PilotReport>
    </wfs:member>
  </wfs:FeatureCollection>
</payload>

```

```

    <om:observedProperty
xlink:href="http://www.ofcm.gov/fmh12/fmh12.htm" xlink:title="Federal Meteorological
Handbook No.12 United States Meteorological Codes and Coding Practices, Chapter 1"/>
    <om:featureOfInterest>
      <gml:DynamicFeature gml:id="df.pirep.b0206103-22d3-4ee3-8321-
09b2bcfd6322">
        <gml:description>Aircraft observation of meteorological phenomena at
a given time and location</gml:description>
        <gml:location>
          <gml:Point
axisLabels="latitude&#10;&#9;&#9;&#9;&#9;&#9;&#9;&#9;longitude"
gml:id="shape.pirep.b0206103-22d3-4ee3-8321-09b2bcfd6322" srsDimension="2"
srsName="http://www.opengis.net/def/crs/EPSSG/0/4326"
uomLabels="deg&#10;&#9;&#9;&#9;&#9;&#9;&#9;&#9;deg">
          <gml:pos>41.9877 -87.6569</gml:pos>
          </gml:Point>
        </gml:location>
      </gml:DynamicFeature>
    </om:featureOfInterest>
    <om:resultQuality/>
    <om:result>
      <iwxxm-us:AircraftMeteorologicalObservationRecord
gml:id="amor.pirep.b0206103-22d3-4ee3-8321-09b2bcfd6322">
        <iwxxm-us:turbulence>
          <iwxxm-us:Turbulence gml:id="turb.pirep.b0206103-22d3-4ee3-8321-
09b2bcfd6322">
            <iwxxm-us:turbRangeStart/>
            </iwxxm-us:Turbulence>
          </iwxxm-us:turbulence>
          <iwxxm-us:cloudCover>
            <iwxxm-us:Clouds gml:id="pirep_clouds_latest.99253">
              <iwxxm-us:geometry>
                <aixm:AirspaceVolume gml:id="vol.pirep_clouds_latest.99253">
                  <aixm:lowerLimit uom="FT">3500</aixm:lowerLimit>
                </aixm:AirspaceVolume>
              </iwxxm-us:geometry>
              <iwxxm-us:amount
xlink:href="http://codes.wmo.int/49-2/CloudAmountReportedAtAerodrome/BKN"/>
            </iwxxm-us:Clouds>
          </iwxxm-us:cloudCover>
        </iwxxm-us:Turbulence>
      </i

```

```

        </iwxxm-us:AircraftMeteorologicalObservationRecord>
      </om:result>
    </om:OM_Observation>
  </iwxxm-us:observation>
  <iwxxm-us:aircraftReference>CRJ7</iwxxm-us:aircraftReference>
  <iwxxm-us:flightLevel>
    <iwxxm-us:VerticalLevel gml:id="vl.pirep.b0206103-22d3-4ee3-8321-
09b2bcfd6322">
      <iwxxm-us:verticalLevelReference>MSL</iwxxm-us:verticalLevelReference>
      <iwxxm-us:verticalLevel uom="FT">3600.0</iwxxm-
us:verticalLevel>
        </iwxxm-us:VerticalLevel>
      </iwxxm-us:flightLevel>
      <iwxxm-us:reportType xlink:href="http://nws.weather.gov/codes/FMH-
12/ReportType/ROUTINE"/>
      <iwxxm-us:location>ORD090011</iwxxm-us:location>
      <iwxxm-us:encoderSite>ORD</iwxxm-us:encoderSite>
    </iwxxm-us:PilotReport>
  </wfs:member>
</wfs:FeatureCollection>
</payload>
</jmsMsg>
</csswx>

```

6. Scenario Generation Utilities

Several utilities have been developed to assist with scenario generation.

6.1. Weather Station Scenario Utility

The **createWxStationScenario** utility downloads hourly METAR messages and converts them into the XSIM scenario format for the specified weather reporting station (four letter ICAO name). Optionally, start and stop dates may be provided. If no dates are provided, all available METARs for the current date are downloaded.

```
$ createWxStationScenario --help
```

```
Usage: createWxStationScenario station [--start="MM/dd/yyyy"] [--stop="MM/dd/yyyy"]
```

6.2. FDIO Scenario Utility

The **createFdioScenario** utility extracts FDIO messages from recorded data in JVN file format and converts them into the XSIM scenario format for the specified enroute facility.

```
$ createFdioScenario --help
```

```
Usage: jvnFile [--noCMHP=facName]
```

6.3. National Scenario for SWIM Interfaces

The **createSwimScenario** utility extracts RVR, NOTAM, SAA, and CSS-Wx SWIM messages from recorded data in XML format and converts them into the XSIM scenario format.

```
$ createSwimScenario --help
```

```
Usage: createSwimScenario inputFile (--notams || --rvr || --saa || --csswx)
[--dateTimeOffset="MM/dd/yyyy hh:mm:ss"] [--useCurrentDate] [--rsi="desc"]
```

7. Logging

Logging can be enabled for an instance of XSIM by including the --logFile parameter on the command line.

```
> xsim /usr/local/cfg/XSIMcfg.xml --scenarioFile=XSIMscen.xml --logFile=log.xml>
```

Additionally, a recording directory can be specified within a configuration file to capture output messages.

```
<wxStation name="ACY" recordDir="/tmp/acy" >
```

Appendix A. Acronyms

ACE-IDS	ASOS Controller Equipment – Information Display System
AIRMET	Airmen's Meteorological Information
ASOS	Automated Surface Observing System
AWOS-C	Automated Weather Observing System Model-C
CASS	Conversion Appliance System Service
CFA	Center Field Anemometer
CMHP	Common Message Handling Protocol
CSS-Wx	Common Support Services-Weather
CWA	Center Weather Advisory
DASI	Digital Altimeter Setting Indicator
DB	Database
E-IDS	Enterprise Information Display System
FAA	Federal Aviation Administration
FDIO	Flight Data Input Output
FNTB	Federal Telecommunications Infrastructure National Test Bed
GI	General Information
IDS	Information Display System
IESP	Integrated Enterprise Services Platform
IP	Internet Protocol
ITWS	Integrated Terminal Weather Systems
JMS	Java Message Service
JMSDD	Java Message Service Description Document
JSON	JavaScript Object Notation
LLWAS	Low-Level Windshear Alert System
METAR	Meteorological Aerodrome Reports
NAS	National Airspace System
NOTAM	Notice to Airmen

OID	Operator Interface Device
OpIP	Operational IP
RBDT	Ribbon Display Terminal
RVR	Runway Visual Range
SAA	Special Activity Airspace
SAWS	Stand Alone Weather Sensors
SDRR	Simulation Driver Radar Recorder
SIGMET	Significant Meteorological Information
SWIM	System-Wide Information Management
SWS-S	Surface Weather System – SAWS
SWS-W	Surface Weather System – WME
TCP/IP	Transmission Control Protocol/Internet Protocol
TDWR	Terminal Doppler Weather Radar
TMU	Traffic Management Unit
UI	Graphical User Interface
URL	Uniform Resource Locator
VM	Virtual Machine
VOID	Virtual Operator Interface Device
WJHTC	William J. Hughes Technical Center
WME	Wind Measuring Equipment
WSP	Weather Systems Processor

Appendix B. METAR Messages

METAR messages are routine weather observations reported hourly by automated systems and/or human observers. SPECI messages are unscheduled weather observations reported as needed using the same message format.

The METAR message text may include the following fields:

- Report type: METAR or SPECI
- ICAO station identifier, e.g., “KMSY”
- Issuance time – two-digit date, two-digit hour, two-digit minute, and “Z” to indicate UTC: e.g., “261353Z” if the report was issued on the 26th of the month at 13:53 UTC.
- Report modifier – “AUTO” to indicate a fully automated message (not present when the message includes human observations) or “COR” to indicate a correction.
- Wind data, including:
 - Direction – three-digit direction to the nearest 10 degrees or VRB to indicate variable wind direction, when speed is 6kts or less. Variable wind direction is specified as a range when wind speed is greater than 6kts: e.g., “21010KT 180V240” would indicate that the wind is variable from 180 to 240 degrees at 10 knots.
 - Speed – two or three-digit wind speed in knots.
 - Gust – “G” followed by two or three-digit wind gust speed.
 - Units – “KT” indicating knots.
 - Or, clam/no wind – “00000KT”
- Visibility – in statute miles, e.g., “1 1/2SM”. Note the space between the whole number and the fraction. An “M” is used to indicate a visibility less than the given distance, e.g., “M1/4SM”.
- Runway visual range, including:
 - Runway – “R” followed by the two-digit runway designator and “L”, “C”, or “R”, if applicable.
 - Separator – “/”
 - Distance – four-digit distance in feet (in 100ft increments up to 1000ft, increments of 200ft from 1000ft to 3000ft, and increments of 500ft from 3000ft to 6000ft). Variable conditions may be specified by the lower and higher value separated by a “V”, e.g., “R27L/0600V1000FT”. An “M” is used to indicate a value less than the lowest reportable value, e.g., “R27L/M0600FT”. A “P” is used to indicate a value greater than the highest reportable value, e.g., “R27L/P6000FT”.
 - Units – “FT”

- Present weather – specified by up to three space-separated groups comprised from the elements in the table below: e.g., “+TSRA BR” indicates heavy rain associated with thunderstorms, mist.

QUALIFIER		WEATHER PHENOMENA			
Intensity or Proximity	Descriptor	Precipitation	Obscuration	Other	
- Light	MI Shallow	DZ Drizzle	BR Mist	PO	Dust/Sand Swirls
+ Heavy	PR Partial	RA Rain	FG Fog	SQ	Squalls
VC Vicinity	BC Patches	SN Snow	FU Smoke	FC	Funnel Cloud
	DR Low Drifting	SG Snow Grains	VA Volcanic Ash	+FC	Tornado, or Waterspout
	BL Blowing	IC Ice Crystals	DU Widespread Dust	SS	Sandstorm
	SH Showers	PL Ice Pellets	SA Sand	DS	Dust Storm
	TS Thunderstorms	GR Hail	HZ Haze		
	FZ Freezing	GS Snow Pellets	PY Spray		
		UP Unknown Precipitation			

- Sky conditions – the amount of cloud cover or vertical visibility and the three-digit height in hundreds of feet. Clear skies are reported alone with no height: “SKC” or “CLR”. Otherwise, multiple layers may be reported in ascending order: e.g.: “FEW020 SCT160 BKN190”

Descriptor definitions are:

- SKC – Clear sky; observer indicates no layers are present.
- CLR – Clear; the automated system detects no layers below 12000ft.
- FEW – Few clouds; one to two eighths of the sky are covered by clouds.
- SCT – Scattered clouds; three to four eighths of the sky are covered by clouds.
- BKN – Broken clouds; five to seven eighths of the sky are covered by clouds.
- OVC – Overcast; the sky is completely covered by clouds.
- VV – Vertical visibility.
- Temperature and dew point:
 - Air temperature – two digits rounded to nearest degree Celsius.
 - Separator – “/”
 - Dew point – two digits rounded to nearest degree Celsius. Negative temperatures are preceded by “M”: e.g., “04/M02” indicates a temperature of 4°C with a dewpoint of -2°C.

- Altimeter setting value – “A” followed by four digits representing tens, ones, tenths, and hundredths of inches of mercury: e.g., “A2997” indicates an altimeter setting of 29.97 in Hg.
- Remarks, when present, follow the text “RMK” and may include:
 - Volcanic eruption alert – the name of the volcano, location, time, description and movement of the ash cloud, and any other pertinent information.
 - Funnel clouds – “TORNADO”, “FUNNEL CLOUD”, or “WATERSPOUT” followed by beginning and ending times, location, and direction of movement.
 - Type of automated station – “AO1” or “AO2” to indicate an automated station without or with a precipitation discriminator, respectively.
 - Peak wind or wind shift:
 - “PK WND” followed by three-digit direction in tens of degrees, two or three-digit wind speed in knots, separator “/”, time of occurrence as (hh)mm.
 - “WSHFT” followed by the time wind shift began as (hh)mm. May also be followed by “FROPA” to indicate shift was the result of a frontal passage.
 - Visibility:
 - Tower visibility – “TWR VIS” followed by observed visibility in statute miles: e.g., “TWR VIS 2”
 - Surface visibility – “SFC VIS” followed by observed visibility in statute miles: e.g., “SFC VIS 1 1/2”
 - Variable visibility – “VIS” followed by lowest visibility, “V”, and highest visibility. Reported when prevailing visibility is less than three miles and variable: e.g., “VIS 3/4V 1 1/2”
 - Sector visibility – “VIS” followed by direction and visibility in statute miles: e.g., “VIS NE 2”
 - Visibility at second location – “VIS” followed by visibility and location: e.g., “VIS 2 3/4 RWY17”
 - Lightning:
 - Manual station:
 - Frequency – “OCNL”, “FRQ”, “CONS” indicating occasional, frequent, or continuous.
 - Identifier – “LTG”
 - Type – “CG”, “IC”, “CC”, “CA” indicating cloud to ground, in cloud, cloud to cloud, or cloud to air. More than one may be specified: e.g., “OCNL LTGICCG OHD OCNL LTGICCA DSNT SE-SW-NW-NE”
 - Location
 - Automated system:
 - Within 5nm of airport: Reported as “TS” in the body of the report with no remarks.
 - Between 5 and 10nm: Reported as “VCTS” in the body of the report with no remarks.
 - More than 10 but less than 30nm: Reported in remarks only as “LTG DSNT” followed by the direction from the airport.
 - Precipitation timing:
 - Precipitation type – two-letter precipitation code: e.g., “RA” or “SN”
 - Beginning time – “B” followed by time as (hh)mm
 - Ending time – “E” followed by time as (hh)mm

- Additional precipitation type may follow: e.g., “RAB05E30SNB20E55” indicates rain began at 0005, ended at 0030, and snow began at 0020, and ended at 0055.
- Thunderstorm timing (e.g., “TSE13B20”):
 - Identifier – “TS”
 - Beginning time – “B” followed by time as (hh)mm
 - Ending time – “E” followed by time as (hh)mm
- Thunderstorm location and movement (e.g., “TS SE MOV NE”):
 - Identifier – “TS”
 - Location
 - “MOV”
 - Direction
- Hail size (e.g., “GR 1 3/4” indicates hailstones with 1 ¾ in. diameter):
 - Identifier – “GR”
 - Hailstone size, in inches.
- Snow pellet intensity:
 - Identifier – “GS”
 - Intensity – “LGT”, “MOD”, or “HVY” indicating light, moderate, or heavy.
- Clouds:
 - “VIRGA” followed by direction indicates precipitation not reaching the ground.
 - Variable ceiling height – “CIG” followed by lowest height, “V”, highest ceiling height.
 - Obscurations – “FEW”, “SCT”, “BKN”, or “OVC” followed by the height in hundreds of feet.
 - Variable conditions – two sky conditions separated by “V”: e.g., “BKN014 V OVC” indicates a layer at 1400ft that varies between broken and overcast.
 - Significant cloud types:
 - Cumulonimbus – “CB” or “CBMAM” followed by location and moving direction.
 - Towering cumulus – “TCU” followed by direction.
 - Altocumulus Castellanus – “ACC” followed by direction.
 - Stratocumulus – “SCSL” followed by direction.
 - Altocumulus – “ACSL” followed by direction.
 - Cirrocumulus – “CCSL” followed by direction.
 - Ceiling height at second location – “CIG” followed by height in hundreds of feet and the location.
- Pressure:
 - Pressure rising rapidly – “PRESRR”
 - Pressure falling rapidly – “PRESFR”
 - Sea-level pressure – “SLP” followed by tens, ones, and tenths of pressure value in hectopascals, or “SLPNO” when unavailable.
- Aircraft mishap – “ACFT MSHP”
- No SPECI report – “NOSPECI”
- Other significant information in plain language.

- Snow:
 - Increasing rapidly – “SNINCR” followed by the inches of snow in the last hour, separator “/”, and the inches of snow on the ground.
 - Total depth – “4” followed by separator “/” and the 3-digit amount in inches. Reported in the 00, 06, 12, and 18UTC METARs.
 - Water equivalent – “933” followed by the 3-digit amount in tens, ones, tenths, and hundredths of inches.
- Precipitation:
 - Hourly amount – “P” followed by the amount of rain in hundredths of an inch.
 - Three- or six-hour report – “6” followed by the amount of rain in the time frame. The 00, 06, 12, and 18UTC METARs report the six-hour amount. The 03, 09, 15, and 21UTC METARs report the three-hour amount. The amount is specified in tens, ones, tenths, and hundredths of an inch or //// if unknown.
 - 24-hour report – “7” followed by the amount of rain in the last 24 hours. The amount is specified in tens, ones, tenths, and hundredths of an inch or //// if unknown.
- Cloud types consisting of “8” followed by separator “/” and the predominant low cloud, middle cloud, and high cloud WMO identifiers. A zero indicates no clouds and a “/” is used for layers above overcast layer. See WMO Cloud Atlas for coding instructions.
- Duration of sunshine consisting of “98” followed by four-digit total minutes of sunshine.
- Temperature:
 - Hourly temperature and dew point:
 - Group indicator – “T”
 - Sign – “1” if temperature is below 0°C or “0” if temperature is above 0°C
 - Temperature – three-digit temperature in tenths degrees Celsius.
 - Sign – “1” if dew point is below 0°C or “0” if dew point is above 0°C
 - Dew point – three-digit dew point in tenths degrees Celsius.
 - Six-hour maximum (00, 06, 12, and 18UTC METARs):
 - Group indicator – “1”
 - Sign – “1” if temperature is below 0°C or “0” if temperature is above 0°C
 - Maximum temperature – three-digit temperature in tenths degrees Celsius.
 - Six-hour minimum (00, 06, 12, and 18UTC METARs):
 - Group indicator – “2”
 - Sign – “1” if temperature is below 0°C or “0” if temperature is above 0°C
 - Minimum temperature – three-digit temperature in tenths degrees Celsius.
 - 24-hour maximum and minimum:
 - Group indicator – “4”
 - Sign – “1” if temperature is below 0°C or “0” if temperature is above 0°C
 - Maximum temperature – three-digit temperature in tenths degrees Celsius.
 - Sign – “1” if dew point is below 0°C or “0” if dew point is above 0°C

- Minimum temperature – three-digit temperature in tenths degrees Celsius.
- Three-hour Pressure tendency consisting of “5” followed by pressure tendency characteristic and the pressure change in tenths of hectopascals: e.g., “53015” indicates 1.5hPa change in pressure with pressure tendency characteristic of three.
- Ice accretion consisting of “I” followed by “1”, “3”, or “6” hours reported and the amount of ice in hundredths of an inch: e.g., “I3012” indicates 12/100 in of ice accretion in the past three hours.
- Sensor status indicators:
 - “RVRNO” – Runway visual range is not reported.
 - “PWINO” – Present weather identifier is not operating.
 - “PNO” – Rain gauge is not operating.
 - “FZRANO” – Freezing rain sensor is not operating.
 - “TSNO” – Lightning detection system is not operating.
 - VISNO_LOC – Secondary visibility sensor not operating.
 - CHINO_LOC – Secondary ceiling height sensor not operating.
- Maintenance needed indicator, “\$”.