

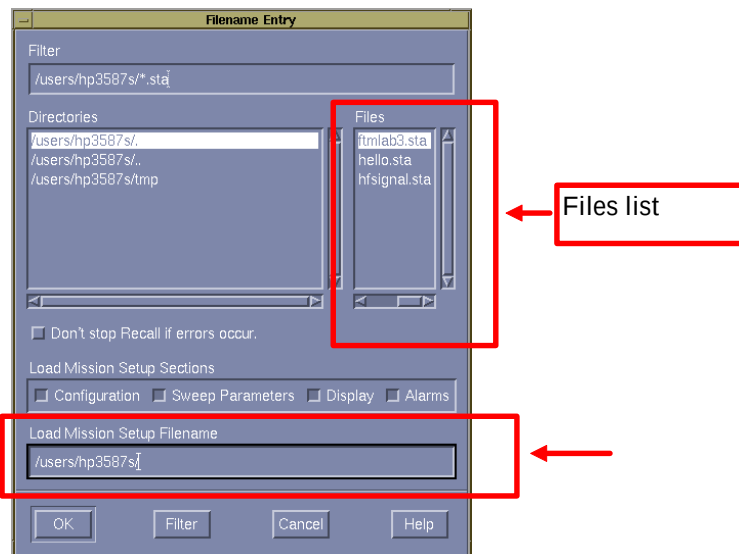
LAB #4 Alarms

Scenario: Life in the Navy is never simple. The admiral wants that info on the cellular traffic but your captain has promised you a quick trip off the gang plank if you don't report every time that marine radio traffic occurs. You, however, have the fabulous E3238S scanning signal analysis system, with software option AS8 automatic alarms. Thus you are sure you can handle both problems, and do it without interfering with "Miller Time".

The scenario requires us to monitor three spectrum segments, gather signal statistics on two and alarm on one. To do this we will add setting alarms to our set up process. It now becomes: set the search parameters, format the display, select the threshold and signal detection, set the alarm.

1.0 Set search parameters

- The set up for Lab #3 should still be in place. If it is not, recall this set up from the menu bar by clicking on: File, Load Mission Setup.
- In the Files list click on lab3.sta to highlight it. /users/hp3587s/lab.sta should appear in the Load Mission Setup Filename box.
- Click on OK to close the menu and recall the setup.



- Add the Marine band to the search parameters from the menu bar by clicking on: Search, Setup.
- In the Directed Search Setup menu, click Descriptions in the Display box.
- Highlight the Marine band segment.
- Click on Modify Single Band.
- Click the Status box to toggle status to Active.
- Click OK to close the Directed Search Band Setup menu.

- Click OK to apply the new search parameters and close the Directed Search Setup menu.

2.0 Format the Display:

- Autoscale the display (frequency and amplitude). The Marine band will be a very small segment at the extreme left of the trace.
- Add the alarm log and the visual alarm to the display from the menu bar by clicking on: Display, Layout.
- Select the Alarm Log for pane 4.
- Select Visual Alarms for pane 5.
- Click on Apply and look at the display (the menu will still be active). If the display is too crowded turn off pane 1, the toolbar.
- Click on OK to close this menu.

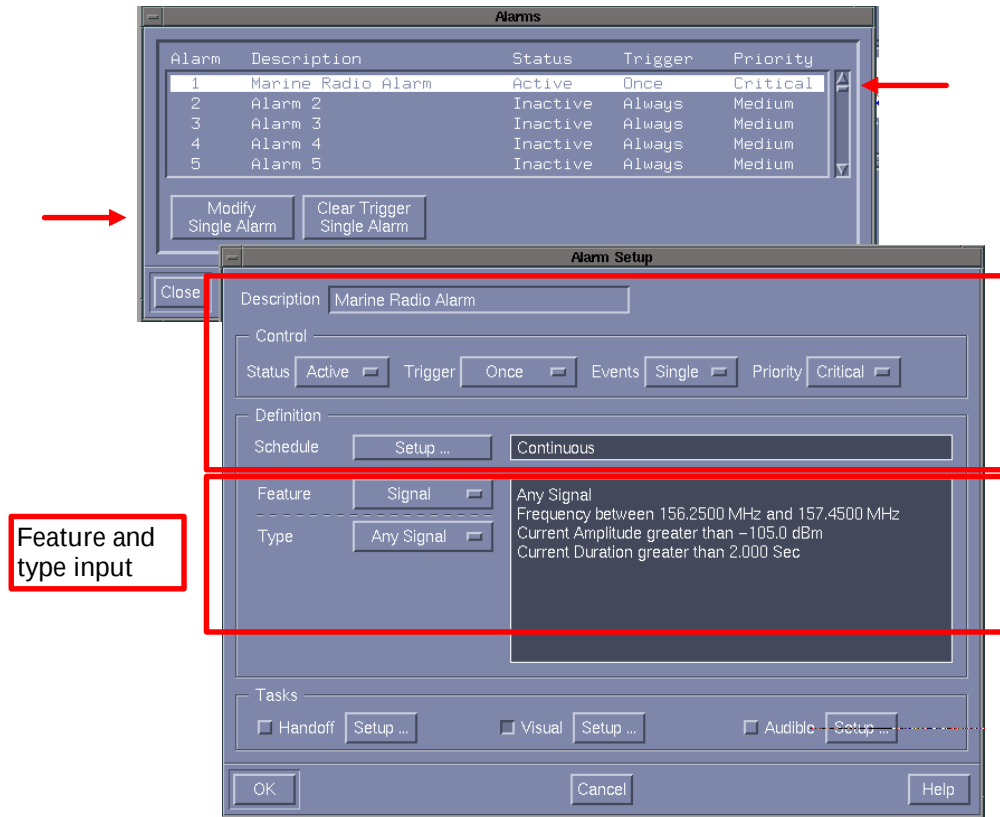
3.0 Select threshold and signal detection

The auto threshold is already set. It is a particularly good threshold to use when dealing with the disconnected segments of a directed search. However, for the purposes of this lab we are going to set the peak signal criteria much higher than usual.

- From the menu bar access the peak signal criteria control by clicking on Search, Signal Detection.
- Grab the peak signal criteria slider with the cursor and set it to 20 dBm
- Click Close to close this menu

4.0 Set alarm

- Input the alarm condition from the menu bar by clicking on: Search, Alarm Setup.
- Click on Alarm 1 to highlight it.
- Click on Modify Single Alarm.



- In the Alarm Set up menu set the following conditions:

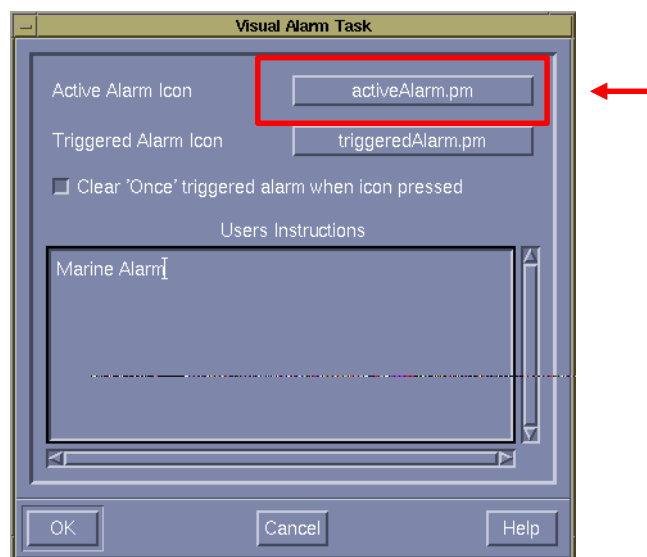
<i>Description</i>	<i>Events</i>
Marine Alarm	Single
<i>Status</i>	<i>Priority</i>
Active	Critical
<i>Trigger</i>	<i>Schedule</i>
Always	Continuous

- For Feature and Type, set the following by:
Clicking on Feature and selecting the feature from the list.
Clicking on Type and selecting the type from the list.
Clicking on Criteria and selecting the criteria from the list.
Clicking on the Boundary and entering the value with units.

Feature	Type	Criteria	Boundary 1	Boundary 2
Signal	Any Signal			
Frequency		Between	156.25 MHz	157.45 MHz
Amplitude	Current	Greater Than	-90 dBm	
Duration	Current	Greater Than	1 sec	

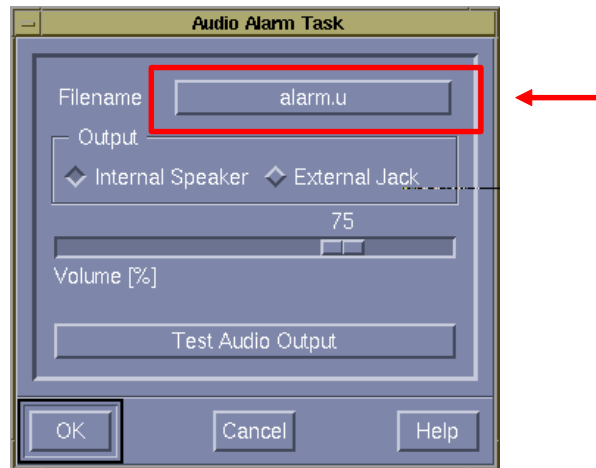
We want to be notified with both an visual icon in the monitor and a audio sound when a signal is sensed in the Marine Band.

- To select an icon as a visual alarm response click the Visual Setup button in the Alarm Setup menu.
- The icon will have two states: Active and Triggered. To select the active state click on the Active Alarm Icon button.



- Highlight Meyer.pm by clicking on it. /users/hp3587s/meyer.pm should appear in the Active Alarm Icon filename box.
- Click OK to make the selection and close this menu.
- To select the Triggered state click on the Trigger Alarm Icon.
- Highlight Meyer_hair.pm by clicking on it. /users/hp3587s/meyer_hair.pm should appear in the filename box.
- Click OK to make the selection and close this menu.
- Put the cursor in the Users Instruction box. Type "Marine Alarm" in the box.
- Click on OK to close the Visual Alarm Task menu.
- Click the square to the left of the Visual task to activate the parameters.

- To select a signal as an audio alarm response click the Audible Setup button.
- Click on the Filename box.



- Highlight Laugh.wav by clicking on it. /users/hp3587s/laugh.wav should appear in the filename box.
- Click OK to make the selection and close this menu.
- In the Audio Alarm Task menu click on the INTERNAL (NOT external) Jack diamond.
- Click on Test Audio Output and adjust the volume of the alarm with the Volume (%) slider. (Make sure the speaker is turned on).
- Click OK to close the menu
- Click the square to the left of the Audible task to activate the parameters.
- Click on OK to close the Alarm Setup menu and activate the alarm parameters. A picture should appear in the visual alarm pane.
- Click on Close to close the Alarms menu.

The alarm for the marine radio is set. The lab instructor will activate the radio so you can test the alarm. Note that you can zoom on the cellular bands, and continue analysis of that activity and let the system tell you when the instructor turns transmits.

- Once the alarm is triggered the Alarm icon will change and the audio alarm will sound. Click on the icon to reset the alarm. Note that the alarm message also appears.

Question:

At what time did the alarm occur? _____

What was the signal frequency? _____

E3238S Features shown in Lab #4

- Alarms setup
- Load mission set up
- Multi band modification for Directed Search
- Alarm Log
- Visual Alarm
- Audible Alarms