NWRWAVES

(NOAA Weather Radio With All-Hazards VTEC Enhanced Software)

User's Manual & Documentation

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1. SOFTWARE SPECIFICS

Version	OB9
Programming Language	Tcl/Tk
Design Team	Evan Bookbinder – WFO Pleasant Hill, MO
	Brian Walawender – Central Region Headquarters Kansas City, MO
	Michael Hudson – Central Region Headquarters Kansas City, MO
	Peter Browning – Central Region Headquarters Kansas City, MO
Maintenance Lead	Warrick Moran – NWR Headquarter Silver Spring, MD
Maintenance Support	Nancy Helderman – NWR Headquarter Silver Spring, MD
Maintenance Programmers	NWRWAVES: Sung Vo and Peter Wu (OPS23) 301 713-0191

2. INTRODUCTION

NWRWAVES is a comprehensive formatter for NOAA Weather Radio (NWR) products. Its purpose is three fold. First, it is designed to replace all existing formatter capabilities found in the AWIPS WWA program and also the capabilities found in CAFÉ. Second, NWRWAVES utilizes VTEC coding found in an increasing suite of NWS products to better identify, produce and manage outbound CRS Weather Messages. The use of the Message Reference Descriptor (MRD) number will allow sites to better automate their CRS Broadcast Cycle management. Third, NWRWAVES is designed for better sustainability over the numerous scripts used in the CAFÉ approach.

As a new site preparing to use NWRWAVES, there are three basic steps necessary to configure the software for your local area after installation (**Section 2 – INSTALLATION OF NWRWAVES).**

A) The first is to configure your local settings in NWRWAVES. These include your transmitters or broadcast programs, the products that can be processed through NWRWAVES, summary message settings and marine/tropical product settings. NWRWAVES has powerful local configuration tools for product-by-product settings, adding local Listening Area Codes (LACs) and local products, and a customizable word/phrase replacement capability (similar to CAFÉ). Instructions on how to configure these settings can be found in **Section 3 – NWRWAVES SETUP UTILITY**.

B) The second step is to establish triggers from the AWIPS database, which will send products through NWRWAVES. NWRWAVES does feature a test mode, allowing the formatter program to run in conjunction with existing CAFÉ formatters in order to facilitate side-by-side comparisons of output prior to formal activation (by product) of NWRWAVES. Instructions on how to establish AWIPS text database triggers are located in **Section 4 – SETTING AWIPS TEXT DATABASE TRIGGERS**.

C) The third step (and a necessary one before you transition NWRWAVES to operational mode) is to ensure that your CRS database is structured to accept inbound Weather Messages from NWRWAVES. NWRWAVES uses an approach where each transmitter/broadcast program receives a unique Message Type naming scheme. An explanation of how NWRWAVES generates Weather Messages, along with suggestions on an approach to the structure of the local CRS database, is located in **Section 5 – NWRWAVES AND YOUR CRS DATABASE**.

3. INSTALLATION OF NWRWAVES

If your site has never installed and configured NWRWAVES prior to the installation of OB9, you must first grant permission for users in your office to access the NWRWAVES Setup Utility. This will allow you to configure the software in your office. In the /awips/adapt/NWRWAVES/browser directory, there is a file called "admin.list". You will need to edit this file and add any AWIPS user accounts that you want to have access to the setup utility. All other users will be blocked.

To edit this file from any AWIPS workstation:

- Open a shell with a user account that has fxalpha group privileges. In this shell, change directories into the NWRWAVES Browser directory:

  cd /awips/adapt/NWRWAVES/browser

- Edit the "admin.list" file:

  nedit admin.list

- Add your local AWIPS user accounts as needed, and delete any existing entries from the default list. Make sure there is only one user account on each line.

- When you are done, save the file and then exit from the editor. Exit from the shell.

You are now ready to run the NWRWAVES setup utility. This utility will allow you to configure NWRWAVES for your local site.

4. NWRWAVES SETUP UTILITY

The next two steps require that you are an AWIPS user whose AWIPS user account is listed in the "admin.list" file as described above.

A) Open the NWRBrowser on any AWIPS workstation. You will be greeted by the NWRWAVES Browser (Figure 1).

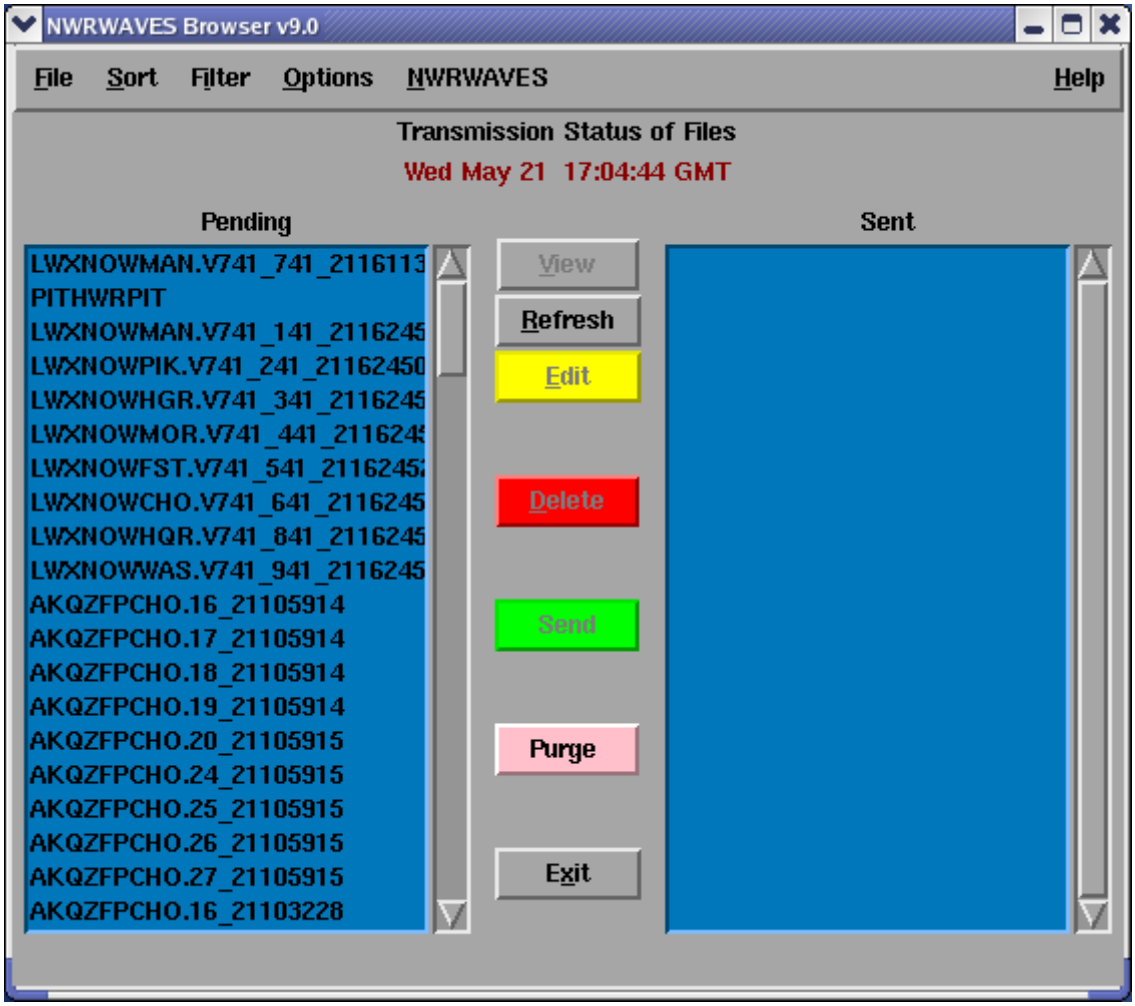


Figure 1 – NWRWAVES Browser

The NWRWAVES Browser functionality mirrors that of the NWR Browser, and there are also added capabilities. Details on NWRWAVES Browser operation can be found in **Section 6 – NWRWAVES OPERATION**.

B) From the "NWRWAVES" pull-down menu, select the option "NWRWAVES Setup". You will see the NWRWAVES Setup GUI pop-up on your AWIPS screen (Figure 2). The initial display will start on the first of four tabs, which is the transmitter/broadcast program configuration tab

NOTE: If you get an error message that a version is already open somewhere else, but you are confident that there is not a version open anywhere on your AWIPS, perform the following steps:

- Open a shell on any AWIPS workstation as a user with 'fxalpha' group privileges.
- Type **cd /awips/adapt/NWRWAVES**
- Type **rm –f setup.lock**
- Exit from the shell

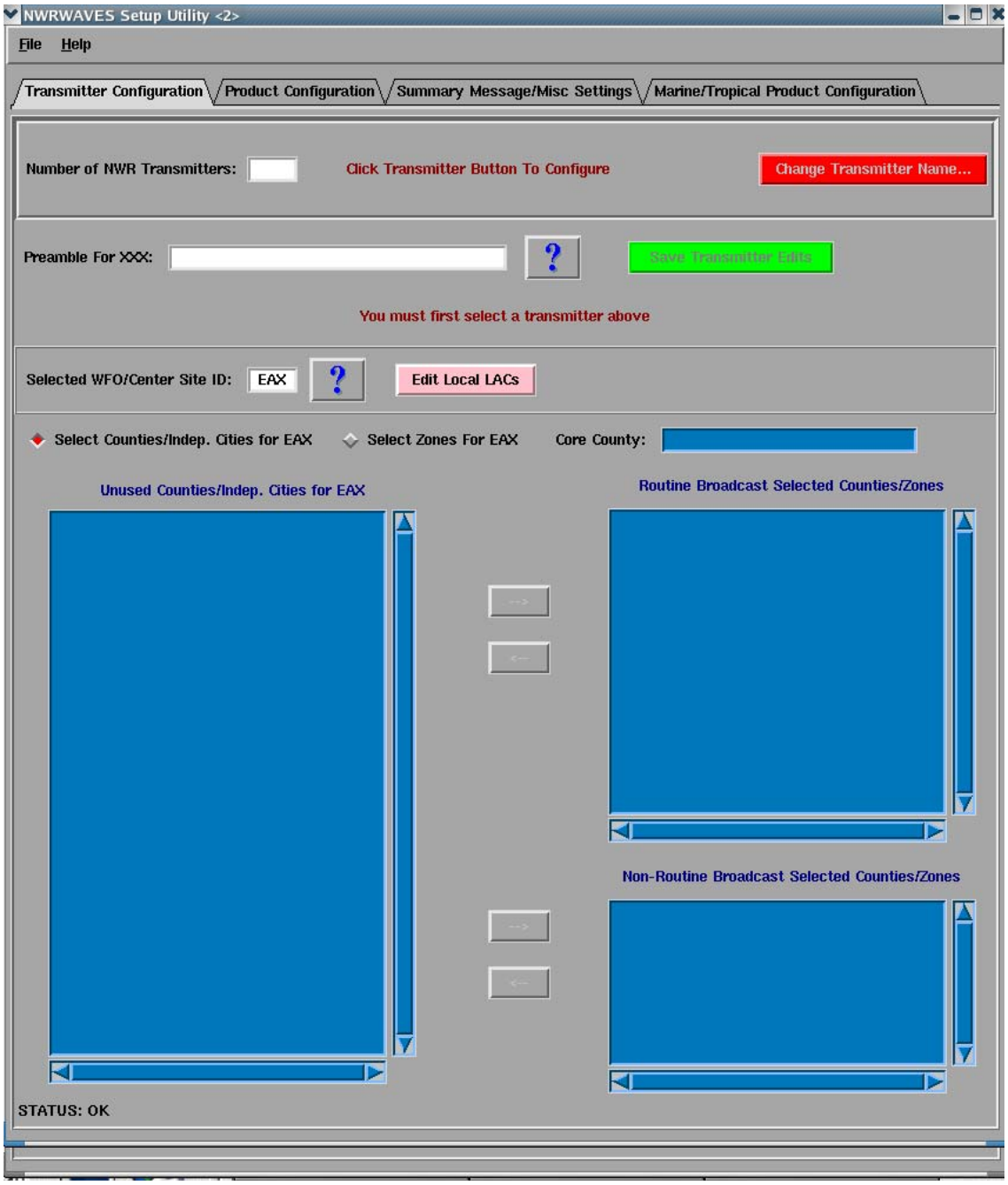


Figure 2 – NWRWAVES Setup GUI

There are four tabs on the NWRWAVES Setup GUI. Each one governs a unique section of NWRWAVES configuration. You can cycle to each one by simply clicking on the tab label located at the top of the interface. There is a pull-down menu, “File”, which will allow you to ‘Save and Exit’ or simply ‘EXIT WITHOUT SAVING’ the program. The “Help” pull-down menu contains information on the product version.

On each tab, there are buttons labeled with question marks. Each of these buttons contains information on what you need to do for that particular configuration item. Be sure to make liberal use of these question boxes for hints and help.

NOTE: When you make adjustments to NWRWAVES configuration data, the current version of your configuration files are saved off into the /awips/adapt/NWRWAVES/BACKUP directory. Details on these file names are in the different 'Tab' sections below. When they are saved off into the /BACKUP directory, the naming scheme used is the file name, followed by a date/time stamp. This will allow you to quickly restore from any mistakes made in configuring different components of NWRWAVES.

To configure NWRWAVES, you will work from left to right on these tabs to establish your office configuration. The first tab is our first tab – establishing your transmitter information.

Tab 1 – Transmitter Configuration

To configure your transmitter (broadcast program) information, complete the following steps:

1) At the top of the interface there is a box for you to enter the number of transmitters (number of broadcast programs) you have in your office. Left click in this box, enter in the number of transmitters in your CWA and press the "Enter" key. NWRWAVES will create a list of transmitters (over several rows) for your use. By default, the names of these transmitters will be a default ID of *NWx* (where x is 1 to the number of transmitters). For transmitters over 10, the naming scheme is *Nxx*.
2) Select a transmitter by clicking on the radio button by its label "**NWx**" with the left mouse button. For the first transmitter, this will be the one labeled "NW1".
3) Click the "**Change Transmitter Name**" button to set a 3-letter ID for that transmitter. NOTE: the 3-letter ID will be used to create the PIL when generating CRS messages (a transmitter called MCI would produce products like STLNOWMCI, STLSVAMCI, etc). The first three letters of the CRS message is your legacy state AFOS identifier. **NOTE:** Be sure to make note of the three letter mnemonic used for each transmitter. This will be important as the naming scheme must match how your CRS database is configured (see **Section 5** for information on CRS Database configuration).
4) If you desire to assign a preamble phrase for your transmitter, enter in a preamble for that transmitter (if desired) in the appropriate box. **NOTE:** Clicking on the "**?**" button located past the "Preamble For XXX" data entry box provides a good example of preamble text.
5) Repeat steps 2 through 4 for each transmitter. Each transmitter must have a unique three letter mnemonic, and this three letter mnemonic will be used for the creation of unique Weather Messages for each transmitter. The preamble phrase is strictly optional.

The next step is to create the list of counties (parishes)/independent cities, and public zones/marine zones/fire weather zones which represent the service area for each transmitter.

6) Click on the radio button representing the first transmitter. Left-click in the box to the right of the label "Selected WFO/Center Site ID". Your office ID should default as the entry for this box. If it is missing for any reason, enter in your office's three letter identifier into this box, then hit the 'Enter' key.
7) You will see a list of county/parish/independent cities appear in the left hand column. There are two radio buttons next to the box you entered your site ID into in (6) above. The default radio button set is "Select Counties/Independent Cities for XXX", where "XXX" is your site ID. You will assign county (FIPS)

codes and zone (Z) codes separately for each transmitter. This will allow maximum flexibility for unique circumstances in managing your service area.

8) The list of county (parish)/independent cities and zones is kept in a default distribution file in the /awips/adapt/NWRWAVES/bin directory and is called "UGClookup.table". This file was derived from AWIPS shape files and is as complete as possible. Sites will not modify the UGClookup.table file! If you note errors in the names of your counties (parishes) or zones, please post them to the NWRWAVES listserver, so they can be fixed in the baseline file and re-distributed in the next AWIPS build upgrade. Sites with marine zones may want to pay close attention, as some of the marine zone names are somewhat verbose in the default file.

Your transmitter configuration tab will initialize with your WFO identifier's list of counties (parishes)/zones.

There may be instances where a county/zone is missing, or where your office uses a local "dummy" county or zone code on your transmitters. You can add any missing or custom listening area Codes (LAC's) into NWRWAVES. Likewise, you can also edit or delete any existing local LAC's. To do this:

a) Click on the pink button labeled, "Edit Local LAC".
b) A pop-up GUI will appear, and you will be prompted to enter data into it (Figure 2a).

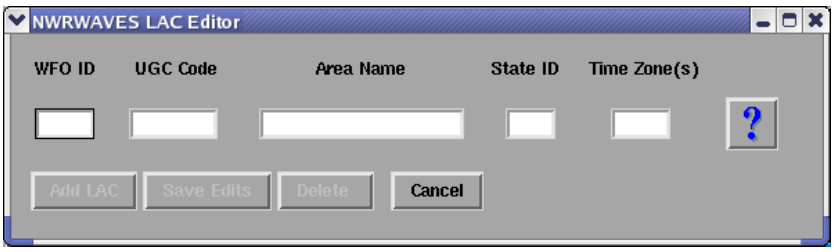


Figure 2a – Add a local listening area code (LAC)

c) From left to right, enter the associated WFO (likely yours), the six-character UGC code (i.e., MOC998, KSZ999), the name of your new LAC (i.e., Generic County), a two-letter state ID (i.e., KS) and the time zone of this new LAC. Note that in the Help Message of this LAC Editor, the word "MARINE" is suggested to be used to specify a marine zone. This feature is now available in version OB9.

For the time zone, the primary option is a capital letter for the appropriate time zone (**E**-Eastern, **C**-Central, **M**-Mountain, **P**-Pacific, **A**-Alaskan, **H**-Hawaiian, **g**-Guam, **a**-Virgin Islands/Atlantic Time). If an LAC doesn't observe Daylight Savings Time, use a lower case letter from the ones listed above in lieu of the capital letter. For example, an entry of "**c**" represents that this LAC observes Central Time and does not observe Daylight Time.

If an LAC is large enough to encompass two time zones, the use of a two-letter code is appropriate. For example, "**eC**" would be used for an LAC that covers part of the Eastern Time zone that doesn't observe DST, but also one that covers part of an area in the Central Time zone that does observe DST).

If you enter the same data as an existing local LAC, you will see the buttons for '**Save Edits**' and '**Delete**' become usable. If the data is new, you will only be given the option to '**Add LAC**'.

d) Click the appropriate button for the action needed when you have finished entering in your local LAC.

Repeat step 8 as necessary to add all local FIPS and zone codes for this transmitter. Any local LAC's will be added into the /awips/adapt/NWRWAVES/bin directory in the file "localUGClookup.table".

9) To select counties (zones) for inclusion in a transmitter's service area, left-click on any applicable county names in the left blue list box. This list will include all baseline counties (zones) as well as any local entries you have entered. You can select multiple counties all at once simply by clicking on the county names (there is no need to hold the "SHIFT" or "CTRL" buttons to multi-select counties). Once you have them selected, you can assign them to either the Routine Broadcast Service Area (BSA) or the Non-Routine Broadcast Service Area (NBSA) by clicking the appropriate → button. Likewise, you can remove counties back to the master list by highlighting them in the right blue list boxes and clicking the ← button.

SPECIAL NOTE ABOUT ROUTINE VS. NON-ROUTINE BSA'S
Each transmitter has a separate list for Routine Counties/Zones and Non-Routine Counties/Zones. In the context of NWRWAVES, this is **not** necessarily a one-to-one relationship with the routine service area of your CRS transmitters. Establish your lists by using any county/zone for which you routinely broadcast information (tone alerts for warnings, etc.) in your Routine BSA. Users would then include county/zone entries that reside outside a normal reception area in the Non-Routine BSA. This is useful as you can include counties in your Non-Routine BSA for which you do unique tone-alert settings by product, counties that are out of your transmitter's coverage area but for which you carry WRSAME bursts for an area radio station, or to set a county from a distant office to carry a product such as an HLS (where you are an inland office but wish to broadcast information about a land falling tropical system from a nearby coast).

Once you have selected all the counties within your CWA, you can select county/counties from other CWA's if your transmitter overlaps another office's CWA. To do this, go back to step (6), and change the office ID from yours to the other office, then hit "ENTER". **NOTE**: to access counties (parishes)/zones from another office, type that office's 3-letter ID into the box next to the label "Select WFO/Center Site ID" to populate that office's list. To enable a list of off-shore marine zones, type "OPC" into this box to access the off-shore zones that the Ocean Prediction Center uses for the OFF products.

10) Repeat steps 7, 8 and 9 for counties from that office. Repeat step (10) for all offices that affect the service area of this transmitter.

11) **CORE COUNTY SETTINGS (NEW):** Once you have established your set of routine/non-routine counties (parishes/independent cities), you may assign one of these to the transmitter's core county. To do this, right click on the label of one of your counties/parishes/independent cities (in either the Routine or Non-Routine BSA lists), and you will see its appropriate LAC code listing appear in the box above labeled "Core County". This is your core county for this transmitter.

12) Once you have assigned the county (parish)/independent cities for this transmitter, click on the radio button labeled "Select Zones for XXX'. This will allow you to assign the "Z" or zone codes for this transmitter.
13) Repeat steps (6) through (10) to select all zones applicable to this transmitter. The zone listings are inclusive to all forecast, marine and fire weather zones.
14) **CORE ZONE SETTINGS (NEW):** Once you have established your set of routine/non-routine zones, you may assign one of these are the transmitter's core zone. To do this, right click on the label of one of your selected zones (Routine or Non-Routine), and you will see the appropriate LAC code listing appear in the box labeled "Core Zone". This is your core zone for this transmitter.
15) Click the green "Save Transmitter Edits" button to save off the configuration data for this transmitter.
16) Left-click on the radio button for the next transmitter in your configuration list.
17) Repeat steps (6) through (15) for each transmitter.

Once you complete these steps, you will have selected county (parish)/independent cities and zones listings for all of your transmitters. Each transmitter will have a unique three-letter mnemonic, and (if applicable), you will have assigned each transmitter with an optional preamble phrase **and an optional core county (parish)/independent city and core zone.**

The transmitter configuration settings are stored in the /awips/adapt/NWRWAVES directory in the file "**transmitter_cfg.XXX**", where 'XXX' is your AWIPS site identifier. **You should not hand-edit this file!** Any changes required must be made through the NWRWAVES Setup GUI.

Once you have configured the transmitters, your "Transmitter Configuration" tab should look similar in format to Figure (3). The next step is to configure products for processing through NWRWAVES.

Figure 3 – an example of a complete Transmitter Configuration tab

SPECIAL NOTE ABOUT CORE COUNTY/CORE ZONE LOGIC

Sites have the ability to assign a core county and/or a core zone to each of their individual transmitters. The logic behind a "core county/core zone" is that for certain products, only the segment which contains this core LAC will be processed and sent to that transmitter. Furthermore, only the core LAC will be used in message assembly; therefore, Identical Message Type/Identical LAC replace will occur dependably. Most sites will use core county/core zone for legacy products such as the ZFP, NOW, HWO, etc. **Use of the core county/core zone is <u>not appropriate</u> for watch/warning products.**

The core county and core zone are global by transmitter. In other words, you only have one of each for every unique transmitter. You do not have the ability to use one 'core zone' for the ZFP, and a second for the NOW. If you followed instructions in v2.4 to assign counties/zones to the Routine vs. Non-Routine BSA's to replicate a core county/zone functionality, you should reassign these lists to take advantage of process/no process and unique tone alert capabilities.

Tab 2 – Product Configuration

After you are done configuring your transmitters, click the **Product Configuration** tab (Figure 4)

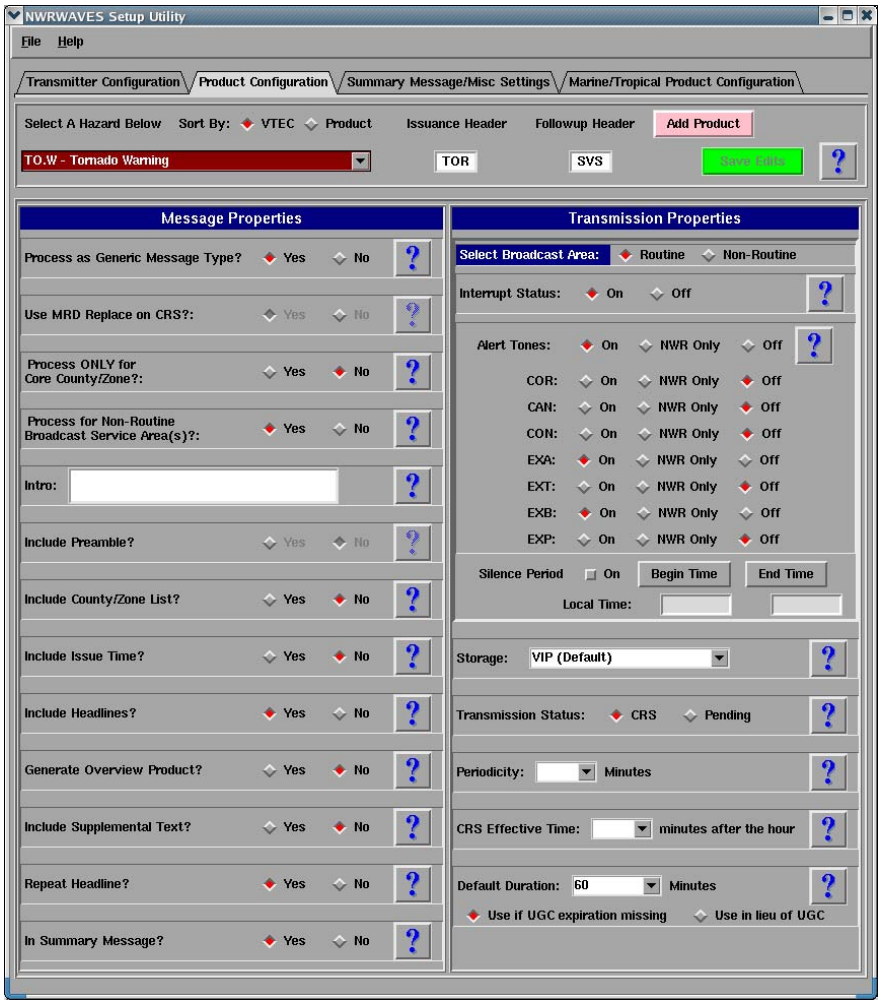


Figure 4 – Product configuration GUI

This tab is used to set all the configuration items for each NWRWAVES product type. Those used to WWA or CAFÉ formatters should note some similarities, but many new features will also allow for extensive customization of CRS messages.

In the top left corner you will see a red pull-down menu which contains a list of all of the baseline product types that can be formatted to CRS using this software. The list is arranged alphabetically by a leading three letter identifier. Some of these products have a period in them (i.e., **SV.W**) which indicates a VTEC product code. Others do not (i.e., **LEW**) which indicate a non-VTEC product.

VTEC products listed do not at times correspond directly to their AWIPS product identifier (i.e., HS.W is issued in AWIPS as a WSW). *When you think about products and configuring them for NWRWAVES, think of them in terms of their VTEC code and not their AWIPS product identifier.* There are legacy AWIPS product identifiers in

the product configuration list (i.e., **SV.W** is there for a Severe Thunderstorm Warning, and **SVR** is also listed as a Severe Thunderstorm Warning). NWRWAVES will use the VTEC phenomena and significance codes as its primary lookup, so the entry for SVR is redundant and only used if for any reason the VTEC line was somehow corrupt or missing from a Severe Thunderstorm Warning.

Both product types (VTEC and non-VTEC) share many common configuration settings. VTEC products have additional unique configuration settings for alert tone settings, based on the VTEC action code. VTEC products are also tracked internally by NWRWAVES, and the advanced feature of MRD Replace is used to facilitate better automation of information replacement in the CRS Broadcast Cycle. **In the NWRWAVES distribution file, all these configuration settings are set to "No" and the product dissemination is set to the "Pending" side of the NWRWAVES Browser (as they are shown in Figure 4 above).** Sites will need to adjust these settings *by product* to meet their local needs.

SPECIAL NOTES ABOUT VTEC & SHORT-FUSE WATCHES/WARNINGS

In the VTEC sense, a tornado watch is defined as a TO.A, a severe thunderstorm watch a SV.A, a tornado warning as a TO.W, and a severe thunderstorm warning as an SV.W. When you begin to configure products in NWRWAVES, you must think of these products as their VTEC hazard, and not their AWIPS product. For example, you would configure all options for tornado warnings under the "TO.W" option in the product list in NWRWAVES. If you wish to have the follow-up SVS statement's headlines read, you will need to turn the "Include Headlines" option to "On" under the "TO.W". Why? The AWIPS product does come out as an SVS, but it has the "TO.W" VTEC code in it, which is what NWRWAVES will use to determine what to do with the inbound tornado warning follow-up.

There are legacy AWIPS product identifiers in the NWRWAVES product list (e.g. TOR, SVR, NPW, etc…), just in case a product is inadvertently sent without VTEC coding. You should also configure these just in case.

VTEC coded short fuse watch and warning products are as follows:
SV.A – Severe Thunderstorm Watch
TO.A – Tornado Watch
TO.W – Tornado Warning
SV.W – Severe Thunderstorm Warning

SPECIAL NOTES FOR SITES WITH MARINE RESPONSIBILITIES

Marine products such as the Near Shore Forecast (NSF) and Coastal Waters Forecast (CWF) (and soon by directive to include the Offshore Forecast (OFF) and Great Lakes Forecast (GLF)) have numerous VTEC possibilities. You have the option in NWRWAVES to enable/disable VTEC use for these products (settings are established in Section 3 – Tab 4 below), as VTEC can lead to some complicated processing of segments and messages on the air.

If you decide to have NWRWAVES track VTEC, you will need to configure NWRWAVES for each of these VTEC event and significance codes (each is considered a unique product). You will be able to tone alert (by VTEC phenomenon). You will not be able to set a default under the NWRWAVES product types of NSH and CWF (as appropriate) and see the products process. These VTEC event codes are as follows:

CF.A – Coastal Flood Watch
CF.S – Coastal Flood Statement

CF.W – Coastal Flood Warning
CF.Y – Coastal Flood Advisory
GL.W – Gale Warning
HF.W – Hurricane Force Wind Warning
LO.Y – Low Water Advisory
LS.A – Lakeshore Flood Watch
LS.W – Lakeshore Flood Warning
LS.S – Lakeshore Flood Statement
LS.Y – Lakeshore Flood Advisory
MA.F – Routine Marine Forecast
MA.S – Special Marine Statement
MA.W – Special Marine Warning
RB.Y – Small Craft Advisory for Rough Bar
SC.Y – Small Craft Advisory
SE.Y – Hazardous Seas Advisory
SI.Y – Small Craft Advisory for Wind
SR.W – Storm Warning
SU.W – High Surf Warning
SU.Y – High Surf Advisory
SW.Y – Small Craft Advisory for Hazardous Seas
TS.A – Tsunami Watch
TS.W – Tsunami Warning

If you disable VTEC tracking for these marine products, NWRWAVES will treat them as non-VTEC products, and the settings under the NWRWAVES product types of "NSH" and "CWF" (also "OFF" and "GLF") will be used universally regardless of the VTEC hazards contained in each segment. You will **not** be able to assign tone alerts by VTEC phenomenon. You would only need to configure these four NWRWAVES product entries (as applicable to your office):

CWF – Coastal Waters Forecast
NSH – Near Shore Forecast
OFF – Offshore Waters Forecast
GLF – Great Lakes Forecast

Starting August 2007, many Weather Forecast Offices (WFO)s have started issuing experimental Marine Weather Warning (MWW) bulletins. The MWW is intended to better inform mariners of adverse marine weather hazards and serve as a dedicated long duration marine Watch, Warning and Advisory product. The MWW bulletin will provide the marine community with more specificity and vital marine hazard information, patterned after the winter weather watch/warning/advisory (WSW) bulletin and the non-precipitation watch/warning/advisory (NPW) bulletin. A complete VTECs support listing of MWW and sample instructions for implementing Small Craft Advisory (SC.Y) is included in Appendix D.

To begin modifying product parameters:

1) Select a product from the drop down menu. (**NOTE**: These items can be arranged alphabetically by VTEC phenomena or by product type by clicking the appropriate radio button).

2) The settings for this particular product are displayed.

3) Each configuration item on the GUI has a question mark box to its right. Click on that question mark box to see more information on what that particular item governs. Referencing Figure 4 above, here is a breakdown of the interface:

   a) Starting to the immediate right of the product drop-down list, there are two boxes labeled "Issuance Header" and "Followup Header". Assign the CRS product identifier (middle three letters) into these boxes. **These entries can differ from the VTEC phenomena/significance codes or the AWIPS product identifier!** For example, a Severe Thunderstorm Warning has a VTEC phenomena/significance code "**SV.W**", an EAS product issuance code of "**SVR**" and a follow-up code of "**SVS**". You want to ensure that the "Issuance Header" and "Followup Header" are consistent with EAS codes (and resultant CRS Weather Messages). You will see this with much of your winter weather, non-precipitation and severe weather product suite.

   NOTE: Where appropriate, the default NWRWAVES distribution file will contain EAS codes for various watch and warning as mandated by directive. Sites should not change the issuance or follow-up headers for warning or watch products without first checking the applicable directives.

   Down the left-hand side of the product configuration interface, you will see yes/no selectable options for the following items labeled "**Message Properties**":

   b) **Process as Generic Message Type**: This option, if selected "Yes", instructs NWRWAVES to assemble a single generic message for each VTEC line/product segment versus the default transmitter specific messages. CRS would then sort the generic weather message on the LAC list assigned to that message. Specific details regarding generic message versus transmitter specific message assembly is discussed in **Section 5 – NWRWAVES And Your CRS Database**.

   c) **Use MRD Replace on CRS**: This option is grayed out (not selectable) and set to "Yes" by default for all VTEC coded products. The option is also grayed out (non-selectable) for all non-VTEC products with the exception of those listed for exclusion from this rule in the file **/awips/adapt/NWRWAVES/NONVTECMRD.txt**. If a three letter non-VTEC product is listed in this file, then you can choose the option of using MRD Replace for those non-VTEC products.

      The content of the NONVTECMRD.txt file follows the following example:

      NOW,N
      SPS,Y
      HWO,N

      The NOW, SPS and HWO products can be configured by the local site to use non-VTEC product MRD Replace. Only the SPS will use the MRD Replace in the above configuration. The NOW,

SPS and HWO are the only products listed in the baseline distribution of NWRWAVES, due to somewhat unpredictable behavior that can occur in the absence of VTEC.

More information on what MRD replace is, and how it functions within NWRWAVES, can be found in **Section 6 – NWRWAVES OPERATION**.

d) **Process Only for Core County/Zone**: If "Yes" is selected, NWRWAVES will process only those product segments whose UGC listings contain the core county (parish/independent city) or core zone as established for each transmitter. This option would be effective for products such as the ZFP where an office may only want to broadcast a specific zone segment for each transmitter on NOAA Weather Radio. Core county/zone settings are global per transmitter, so the same core zone would be used on transmitter 'ABC' for the NOW as well as the ZFP.

e) **Process for Non-Routine Broadcast Service Area(s)**: If set to "No", then an inbound product/segment will not be processed if the UGC line contains only non-routine BSA counties/zones for a given transmitter. If set to "Yes", then the inbound product will be processed if it contains UGC codes found only in the non-routine BSA settings for that transmitter. Any alarm/alert settings used will be governed by the non-routine BSA alert settings (covered later).

f) **Intro**: An optional text box where you can type in an intro phrase for this product. For example, "NOW HERE IS YOUR SHORT TERM FORECAST" could be used for the "NOW" product. The intro phrase can be used in combination with the transmitter preamble phrase (set in Section 3 above) and also with a county (parish), zone and independent city listing to create lead-ins for your CRS products. **NOTE**: you must have an Intro phrase to include the county/zone list in (f) below. Otherwise, you would not get radio-ready text from NWRWAVES for these two sections.

g) **Include preamble**: If set to "Yes", the preamble you defined per transmitter in Section 3 will be used as part of the lead-in for this product. You will want to use this option with the Intro or County/Zone list, as the wording will not turn out very cleanly. An example preamble might read, "In the K I D 77 listening area".

h) **Include County/Zone list**: If set to "Yes", this will return a listing of counties, parishes, independent cities or zones affected on this transmitter by this product An example phrase might be, "for the following counties, in Missouri, Bates, Jackson and Johnson. This also includes the following Virginia independent cities, Alexandria and Richmond." **NOTE**: This feature will only work if you define in Intro in (d) above.

i) **Include Issue Time**: If set to yes, the time the product was run through NWRWAVES will be included. An example phrase would be, "Issued at 3:15 pm CDT".

If you have options (f) through (i) set to yes in these examples, an intro phrase for the Short Term Forecast (example given in f) might read as follows:

"HERE IS YOUR SHORT TERM FORECAST, for the following counties In the K I D 77 listening area, in Missouri, Bates, Jackson and Johnson".

j) **Include Headlines**: If set to "Yes", headlines contained in the inbound product will be formatted correctly and included in the CRS product, otherwise they will be omitted. You will likely want to set this feature to "Yes" for most products that could contain headlines. **NOTE**: You may wish to disable headlines for products produced from GHG, as they duplicate the headline in the attribution statement. This will give you two headlines on the air.

k) **Include Overview**: If set to "Yes", NWRWAVES will generate a separate overview product, containing the overview and any overview headlines contained in the product. This outbound message will be generated under the CRS ID -- CCCOVRXXX where CCC is the issuing office, OVR is literal, and XXX is the AWIPS Product ID. For example, if product STLWSWEAX contained an overview and this option is set to YES for any of the VTEC phenomena it contains, NWRWAVES would generate a separate overview product under the CRS ID EAXOVRWSW. Since the OVR is a separate message, offices can configure this product as well by modifying the settings in this section under the "OVR - Overview" product from the pull down list.

l) **Include Supplemental Text**: Offices can use the "&&" delimiter to separate the main body of text from a supplemental text section in products. If this is set to "Yes", then the CRS product will include any text below the "&&" and before the "$$" that signifies the end of the segment (product). Otherwise, anything below the "&&" will be omitted from the CRS product.

m) **Repeat Headline**: If set to "Yes", then the event headline will be repeated at the end of the text captured from the product. If set to "No", then the hazard headline will not be repeated. This is useful in the case of a Tornado Warning. The resultant text added would read like this example, "Repeating, a tornado warning has been issued for Jackson County, Missouri, effective until 4:45 PM CDT." **NOTE:** This functionality exists only for VTEC encoded products.

n) **In Summary Message**: If set to "Yes", then this particular product (hazard) will be tracked as a summarized hazard, depending on your Summary Message settings that you establish in Tab 3 later. For now, if you wish this hazard to be summarized on your transmitters, set it to "Yes", otherwise leave it set as "No".

The right hand side of the GUI interface contains the "Transmission Properties" section of settings (Figure 4a and 4b) for both VTEC and non-VTEC products.

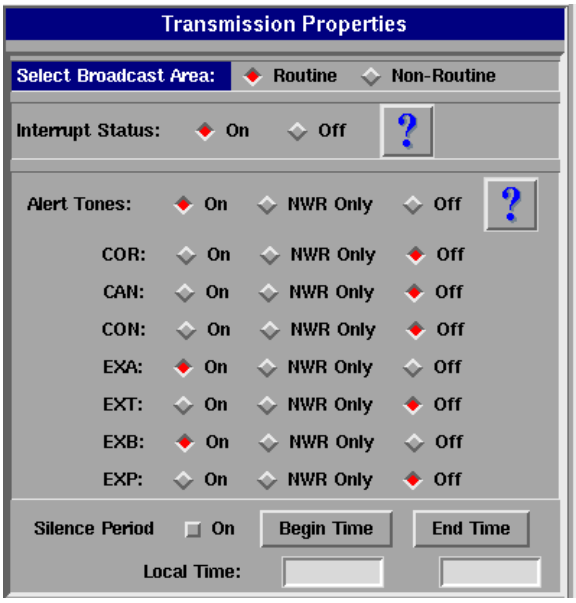


Figure 4a – VTEC transmission properties

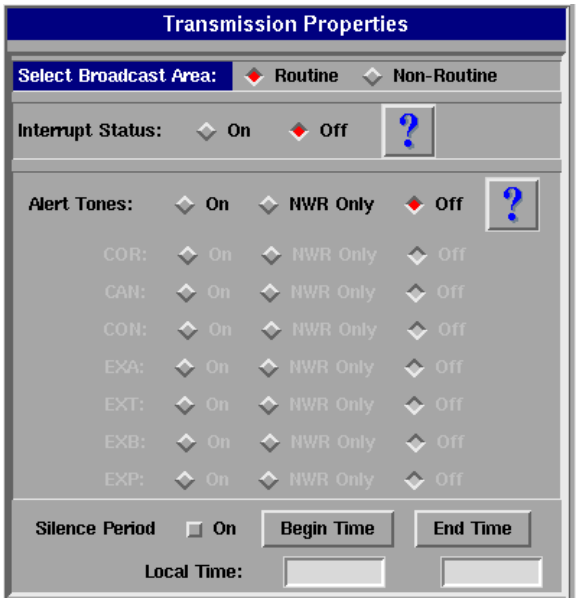


Figure 4b – non-VTEC transmission properties

o) For all products, you can toggle between the settings for your routine BSA and your non-routine BSA listening areas. Click the radio button between the two to switch between them. When you are configuring your non-routine BSA settings, the background of this section will switch from grey to an aqua-blue (Figure 4c on the following page).

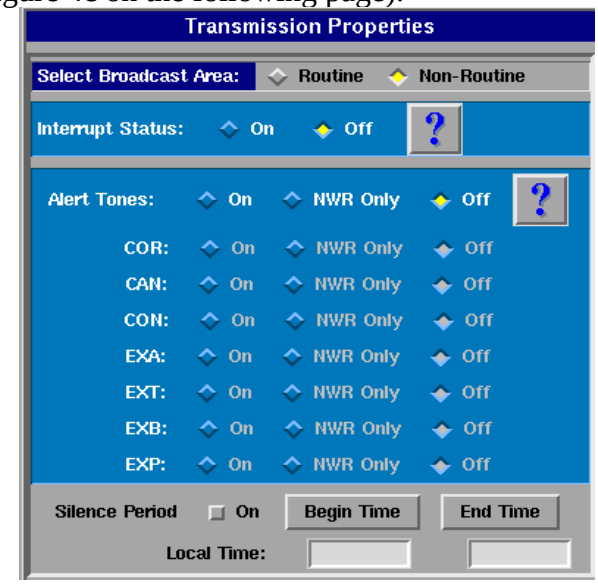


Figure 4c – non-routine BSA color background

p) For both VTEC and non-VTEC products, you can toggle 'Interrupt' status to "On" or "Off". If set to "On", all instances of this product that are sent to CRS will interrupt the routine broadcast.

For the **'Alert Tones'** setting for both product types, you have three options: "On", "NWR Only" and "Off". If set to "On", then the 1050Hz and WRSAME tones will be sent with this product. **IMPORTANT NOTE: For all short fuse watches and warnings, including Tornado Watches/Warnings, Severe Thunderstorm Watches/Warnings, and Flash Flood Warnings,**

leave the default settings of "On" for the "Alert Tones" option, and for the VTEC options of "EXA" and "EXB" as shown on the left-hand side of Figure 4a. By default, for all short-fuse warning products listed in Directive 10-1710, alert tones come in NWRWAVES set to **"On"** for initial issuance, as well as for extensions in area (EXA), and extensions in both area and time (EXB).

The "Off" setting will generate no tones at all.

The "NWR Only" setting will allow you to use your CRS Message Type settings to govern whether to include just the SAME tones and/or the 1050 Hz tone (if defined under unique properties).
IMPORTANT NOTE: Take special care when using the "NWR Only" option for alert tones. Unless you've specifically assigned the 1050 Hz tone *by transmitter* under the 'Transmitter Specific' blue button on the CRS Message Type GUI, the "NWR Only" option will simply check for any SAME settings in your Message Type to use. If you haven't done anything special to assign the 1050 Hz tone by product, you can think of the "NWR Only" option as a 'SAME-only (if configured)" option.

For the VTEC coded product, this setting only governs the **"NEW"** action code within the VTEC line. You can then set alert tones settings for additional VTEC action codes shown on the GUI interface. These can be quite powerful in configuring alert tones for your warning suite. For example, a "TO.W" Tornado Warning product would have the "Alert Tones" set to "On" for initial issuance. As follow-up SVS products are issued, you could set the "CON" action code to "NWR Only" (and your SVS Message Type set to WRSAME only in your CRS database) to send only SAME tones for follow-up SVS statements that continue the Tornado Warning. Your setting for "EXP" and "CAN" could be set to "No", so that no tones of any kind are sent for an expired or cancelled warning.

For non-VTEC products, the "Alert Tones" setting governs any issuance of the product (governed by AWIPS product identifier). An example of this is the "**FFW**" (non-VTEC coded product). While the follow-up product for an FFW is an FFS, "**FFS**" has its own product identifier listed in the NWRWAVES product database, therefore the alert tone settings of the FFW will not be used for the FFS. When this product becomes VTEC coded, the product identifier "**FF.W**" in the NWRWAVES product list will then be used, and the alert settings for follow-up statements will be those you assign.

q) **Silence period**: If this box is checked, you can override the "Alert Tones" settings for specific periods during the day. You set these by clicking on the boxes labeled "Begin Time" and "End Time". Figure 4d shows the GUI used to set these times.

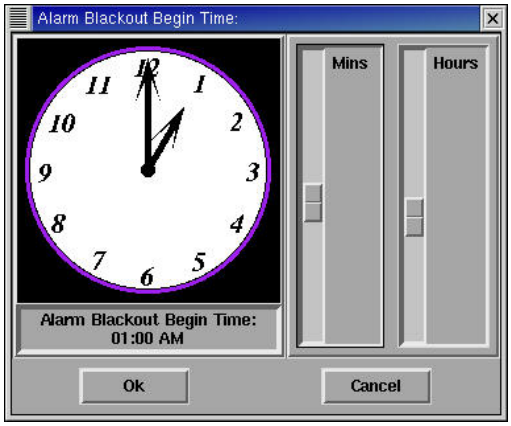


Figure 4d – Silence period time setting

If this **Silence period** box is selected and the silence period is specified, NWRWAVES will send a Red Banner (See Figure 4d.1) when the silence period is ended to alert the forecasters to use the CRS system to resend the product with Alert/Interrupt if required.

Figure 4d.1 – Red Banner when Blackout period has ended

The last section of the "Transmission Settings" GUI sets the disposition, periodicity and disposition of CRS messages (Figure 4e).

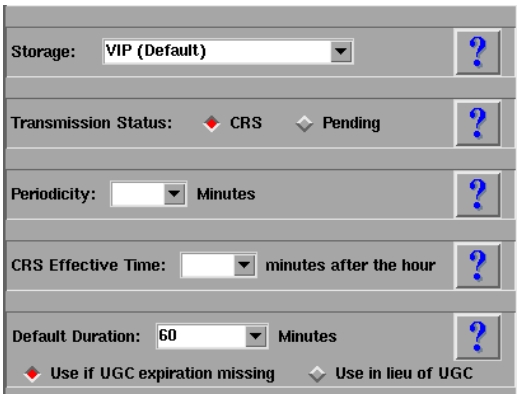


Figure 4e – final transmission settings

r) **Storage**: From the pull-down menu, you can select from 'Active', 'Inactive', 'Synthetic Speech Override', or 'VIP (Default)'. By default, every product in the baseline NWRWAVES distribution is set to 'VIP (Default)'.

s) **Transmission Status**: If set to 'CRS', this product will be sent directly to CRS for airplay. If set to 'Pending', the outbound product(s) will be placed in the Pending side of the NWRWAVES Browser. Every product in the NWRWAVES distribution is set to 'Pending'.

NOTE: Sites should leave the disposition of CRS products to 'Pending' for every product until they are ready to begin active use of NWRWAVES. At that time, products can be converted from 'Pending' to 'CRS' one-by-one to ensure a smooth transition.

t) **Periodicity**: You can type in a number (in minutes) or select a number from the drop-down menu, to assign to this product. If you wish to remove a periodicity setting, you can left-click in the text box next to the triangle, backspace over the number, then left-click in the gray area to reset it to a blank.

u) **CRS Effective Time**: This setting allows you to establish the minute (00-59) at which you'd like an outbound message to begin broadcast. From an automated standpoint, this feature is best used with the periodicity setting above to establish set times for message broadcasting. For example, setting a product's effective time to 00 and the periodicity to 15 minutes would cause that message to play with predictability "on the 15's" (provided the message is not in a Message Group in your Broadcast Suite on CRS).

v) **Default duration:** You can type in a number (in minutes) or select one from the drop-down menu to set a default duration for any product that is missing a UGC line. If you have a UGC coded product but do not wish to play it for an extended time, you can click the "Use in lieu of UGC" radio button to force the default duration time no matter what the UGC expiration time is in the product.

w) When all these settings have been configured for this product, click the green "Save Edits" button at the top of the interface.

4) Repeat steps 1, 2, and 3a through 3w for every product in the drop down list that your office processes for CRS.

5) You may find that a local product issued by your office is missing from the product configuration file, or that a regional/national product is also missing. You can also add products locally to your product configuration file. In the case of the regional/national product in scope, you will want to add it but also post it as a future addition for the baseline to the NWRWAVES list server.

   To add a local product to the Product Configuration list:

   a) Click on the pink "Add Product" button found towards the top right of the Product Configuration tab GUI.
   b) A pop-up GUI interface will display (Figure 4f). In the text boxes provided, fill in the basic information of the new product, similar to what is displayed below.

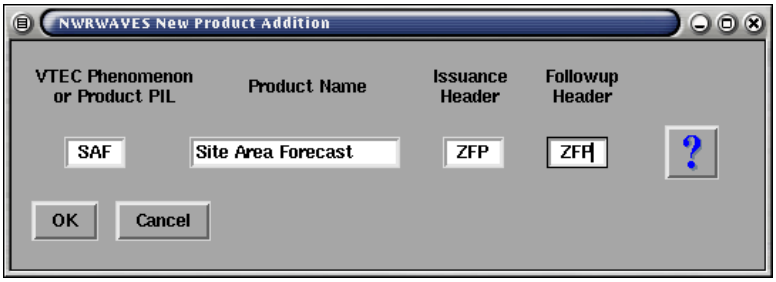


Figure 4f – Add a new product to NWRWAVES

   c) If the product is VTEC encoded, be sure to include a period between the second and third letter of the VTEC Phenomenon or Product PIL entry. Otherwise, just enter the three letter identifier of the CRS Product PIL.

   d) Click the 'OK' button once these entries are complete.

   e) You will be returned to the Product Configuration Tab GUI. Complete step 3 in its entirety to finish configuration of this new product. When done, click the green "Save Edits" button to save your new product. NWRWAVES will double-check to ask if you really want to save this new product to your product configuration list.

Product configuration data is stored in /awips/adapt/NWRWAVES in the file **product.cfg**. **Sites will not hand-edit this file!** It is comma delineated, and there is a significant risk of messing up critical NWRWAVES configuration data by hand-editing the file. Sites will use the NWRWAVES Setup GUI to make adjustments to product configuration. Your local product.cfg file will be restored every time you upgrade to a newer version of NWRWAVES.

SPECIAL NOTES ON CONVECTIVE WATCH PRODUCT PREPARATION

NWRWAVES functions similarly to CAFÉ with respect to convective watch message generation. CAFÉ would process either the WOU or WCN bulletins, and through the use of VTEC, CAFÉ would then generate an output message customized for NWR internally, using VTEC phenomenon/significance codes and VTEC action codes to govern tone alert settings (CAFÉ WBC4CRS formatter).

For CONUS sites, NWRWAVES begins with the WOU(x) issued by the SPC for all convective watches. The WOU(x) includes all affected land FIPS codes and marine zones (regardless of state and CWA), VTEC, with the VTEC phenomenon and significance codes, the VTEC action code (NEW, CON, CAN, etc.), and an event tracking number. The WOU(x) product makes a perfect vehicle from which to prepare all convective watch bulletins. NWRWAVES will build a watch message from the decoded elements of the WOU (FIPS/marine zone codes, VTEC) through internal code and phrasing. No part of the actual WOU(x) bulletin is included in the outbound CRS Weather Message. WOU update and cancellation products are ignored. **NOTE**: For OCONUS sites where the SPC does not issue convective watches, NWRWAVES will use the initial WCN for tone alerting purposes. This setting is governed by your OCONUS global variable sourced from the AWIPS operating environment.

For both CONUS and OCONUS sites, NWRWAVES will then use any *followup* WCNxxx messages to track the status of a convective watch. NWRWAVES will internally create a message/call-to-action for all affected areas, with CRS Weather Message attributes (SVA, TOA) based on the hazard. No part of the actual WCN bulletin is included in the outbound CRS Weather Message.

Alert tones will be sent/not-sent based on the VTEC action code customized by each office under Tab 2 above. By default settings (per directive 10-1710), the only VTEC action codes that would trigger a new tone alerted SV.A/TO.A product from a WCN would be the codes “EXA” and “EXB”, which add new counties to a watch through the WCN.

NOTE: You will need text database triggers for all WOU statements (WOU0 through WOU9), your local office WCN, and any other surrounding office’s WCN’s that apply to areas covered by your transmitters. Text database triggers are covered in Section 4.

SPECIAL NOTES ON NON-WEATHER EMERGENCY MESSAGES (NWEM)

NWRWAVES will be fully compatible with the new HazCollect system slated for operational status in 2006. NWRWAVES will replace the NWEM CAFÉ formatter formally in OB8. In anticipation of this switch in 2007, all the NWEM CRS Weather Messages are included in the default product configuration, with EAS PILS (issuance header and followup header) that are consistent with 10-1710. Until OB8, HazCollect will be calling the legacy NWEM CAFÉ formatter**.** **NOTE:** In the pre and post-OB8 environment, sites will **not** establish text database triggers for any NWEM messages! HazCollect calls its NWR formatter internally, so there is no need to duplicate the call in a separate trigger. No action is required prior to OB8 to configure NWRWAVES for NWEM messages, unless a site wants to get a jump on their OB8 setup.

After OB8 is fielded and NWRWAVES becomes the default NWR formatter for NWEM messages, an enhanced capability of NWRWAVES is that a site can change the EAS PILS (issuance header and followup header) if state or local broadcaster policy is to not use the new EAS PILS. For example, the Missouri Broadcasters Association

has asked the NWS to use the EAS PIL "**CEM**" for all these new hazards until further notice, as many member stations have not upgraded their EAS equipment. All these NWEM hazards can be set to convert their AWIPS product identifier to a "**CEM**" CRS Weather Message.

Once all products have been configured for your site as needed, you are ready to move on to the Summary Message Configuration tab.

Tab 3 – Summary Message/Miscellaneous Settings Configuration

After you have set properties for all your products, the next step is to configure summary message settings. The summary message can be a powerful addition to your CRS product suite. Generating a summary of active hazards was a function of the WWA NWR formatters.

The basic function of the NWRWAVES summary message function is as follows: sites can configure their product configuration settings to select which (if any) product types are tracked by NWRWAVES for summarization purposes. Once a local threshold is exceeded, NWRWAVES will generate a message summarizing any applicable hazards. The summary message can be used within a regular Broadcast Suite to bring a periodic short summary of these hazards, or the summary message can itself be used to trigger a higher suite on your CRS, thus shortening a lengthy broadcast if many hazards are in effect.

In the NWRWAVES Setup GUI, click on the third tab, which is labeled **Summary Message/Misc. Settings**

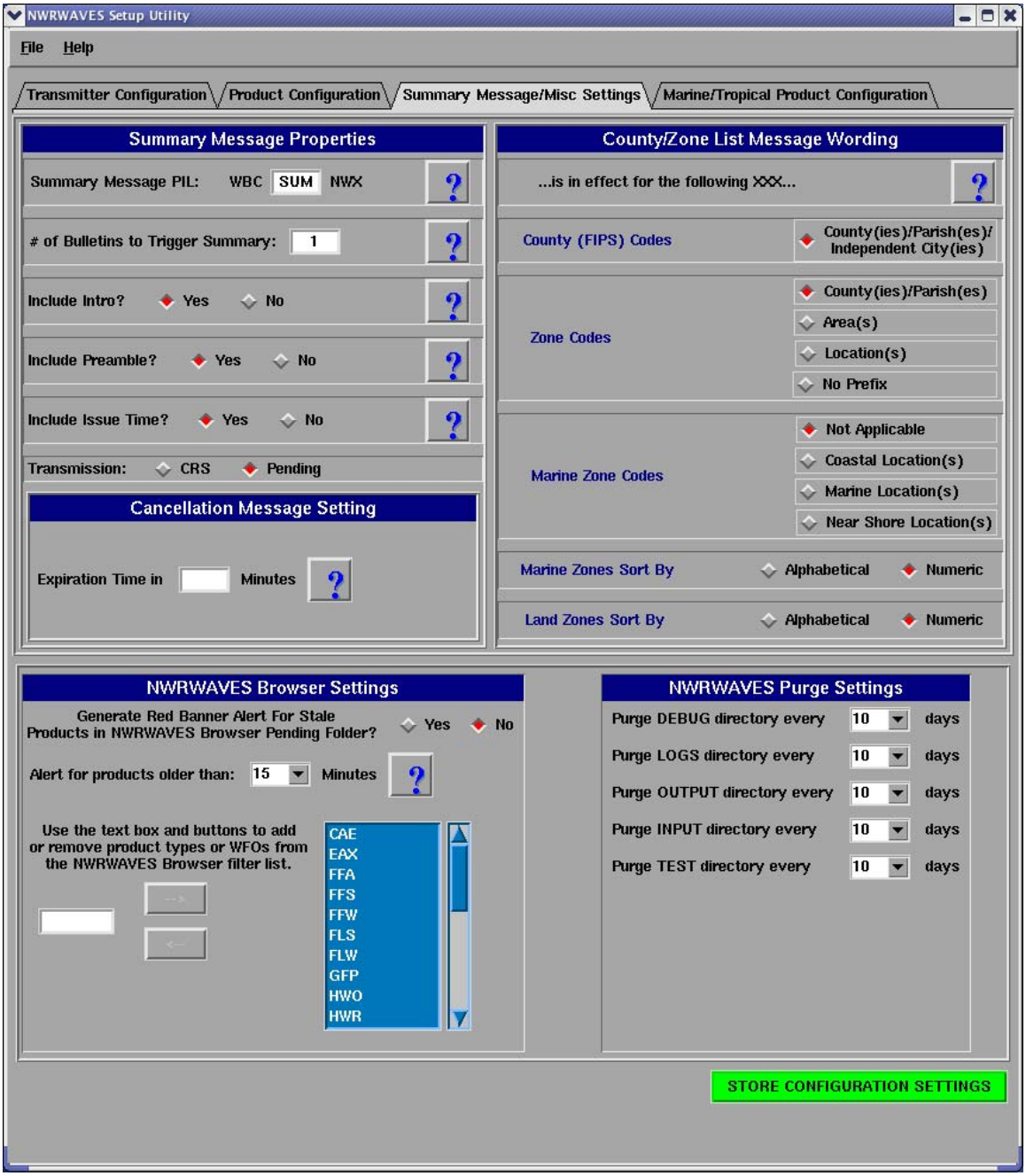


Figure 5 – Summary Message Configuration Tab

Under this tab you can select the following options:

1) **Summary Message PIL:** Your AWIPS legacy state node will make up the first three letters of the summary PIL, and the last three letters (labeled 'NWX' on the GUI) will be the unique three-letter mnemonic that you gave each of your transmitters. You can select the middle three letters of the summary message. For example, for transmitter MCI for the Kansas City office (state node is STL), the summary message type (from the GUI above) would be 'STLSUMMCI'.

2) **# of Bulletins to Trigger Summary:** This is the minimum number of active hazards (with the summary message option set to "YES" in the product configuration) that are required before NWRWAVES begins to generate a summary message.
3) **Include intro (yes/no):** If "Yes" is selected, NWRWAVES will include the text, "The following watches (warnings) (and advisories) is/are in effect" as an intro phrase for its summary of active hazards.
4) **Include Preamble (yes/no):** The same as the Product Configuration setting, if this is set to "Yes", then NWRWAVES will include the preamble in its intro phrase for the summary message.
5) **Include Issue Time? (yes/no):** Identical to the Product Configuration setting, if this is set to "Yes", then NWRWAVES will include the time the summary message was prepared in the intro phrase of the summary message.
6) **Transmission:** You can set whether the summary message is sent directly to CRS for airplay, or whether it gets placed in the 'Pending' side of the NWRWAVES Browser. The default setting is set to 'Pending'.

The top right hand side of the GUI contains settings that affect the wording of the summary message, as well as the wording of the optional lead-in and county/zone listing phrases by transmitter (that you established under Tab 1 earlier):

7) **County (FIPS) Codes**: If this radio button is selected, NWRWAVES will include the words 'county', 'parish', 'counties', 'parishes', or 'independent city(ies)' after its summary phrase "for the following". Proper wording will be used for whether the FIPS code is for a county, a parish, or an independent city.
8) **Zone codes:** You can govern (by selecting the appropriate option) whether for UGZ codes NWRWAVES follows its summary phrase "for the following" with the word 'county (parish), counties (parishes)', 'area(s)', 'location(s)', or simply nothing at all.
9) **Marine zones codes**: Functions like #8 but for marine zones. Options are to follow the phrase "for the following" with nothing, 'coastal location(s)', or 'marine location(s)'.
10) **Marine Zones Sort By**: Options are Alphabetical or Numeric.
11) **Land Zones Sort By**: Options are Alphabetical or Numeric.

The bottom left hand side of the GUI contains settings that affect the NWRWAVES Browser:

12) **Generate Red Banner Alert for Stale Products in NWRWAVES Browser Pending Folder**: the NWRWAVES Browser provides an optional D2D red banner alert when products have become stale in the Pending side of the browser. This option is designed to prompt the forecaster/HMT to take an action on these messages -- transmit or delete them. To turn this feature on, simply check the "Yes" option box and then set the time duration at which products in the Pending side of the browser will become "stale" and generate the red banner alert.

13) The NWRWAVES Browser also provides a means of allowing a user to filter the Sent list by one or more products. Previously the default list of available products could be modified by editing a text file. This has been integrated into the GUI. To Add/Remove product types from the NWRWAVES Browser filter list, simply use the GUI provided. To Add a product, enter its ID into the text box and click the right arrow. The Remove a product, select it with the left mouse from the list and click the left arrow button.

The bottom right hand side of the GUI contains settings that affect NWRWAVES purging capabilities.

14) On the bottom right hand side of the GUI, you can change the number of days that NWRWAVES will store output and debug related files in the following directories: DEBUG, LOGS, OUTPUT, INPUT and TEST. It is recommended that you keep this number at least 10 days for troubleshooting purposes, but not more than 15 days. A cron task will automatically purge files older than the number of days established in this section.

When you are satisfied with the summary settings, click the green **"STORE CONFIGURATION SETTINGS"** to save them.

You have now configured the first three tabs of the NWRWAVES Setup GUI. If your site is not a coastal site, and you have no marine responsibilities, you have completed the software configuration, and you may exit the NWRWAVES Setup GUI (File pull-down menu, click "Save and Exit"). You may proceed directly to Section 4 – Setting AWIPS Text Database Triggers, to configure AWIPS to send products through NWRWAVES.

If you do have marine responsibilities or are a coastal office, you must complete Tab 4 – Marine/Tropical Product Configuration before you are done.

Tab 4 – Marine/Tropical Product Configuration

Most marine products will play through NWRWAVES with little customization needed for the individual products. Extensive work in the word replacement dictionary (Section 6) or VIP will be needed to replace acronyms and abbreviations with full word phrases, to render a quality NWR product.

There are four main sections under the Marine/Tropical Product Configuration Tab (Figure 6**), Marine VTEC Processing, Hurricane Local Statement, Tropical Storm Product** and **Great Lakes Forecast**.

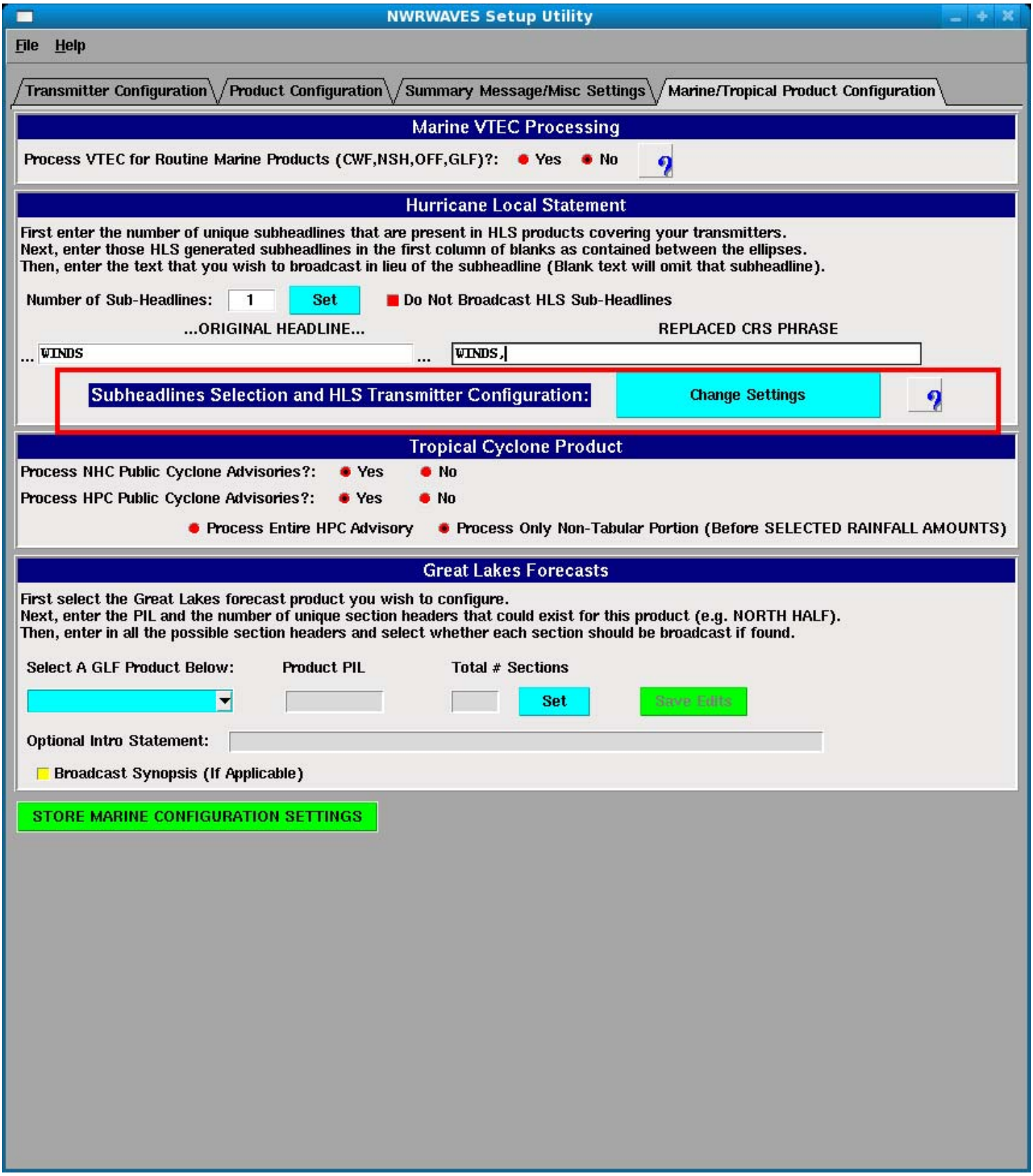


Figure 6 – Marine/Tropical Product Configuration GUI

Marine VTEC Processing

Next to the label "Process VTEC for Routine Marine Products (CWF, NSH, OFF, GLF)?" is a 'yes/no' option. Check 'yes' to enable VTEC usage in your marine products. Check 'no', and NWRWAVES will process all marine products but ignore any VTEC lines. **NOTE**: see pages 11 and 12 of NWRWAVES documentation for details on whether you choose to use or not use VTEC with your marine product suite.

Hurricane Local Statement

The Hurricane Local Statement (HLS) Section is used to configure how the HLS is formatted for airplay. NWRWAVES can be configured to replace the section headlines form the HLS with more radio friendly text. An example of this can be seen in figure 6. You can also omit a section headline individually by leaving the **REPLACED CRS PHRASE** section blank.

To configure this section:

1) If you do not want any of the sub-headlines broadcast from your office's (or an adjacent office's) HLS, simply check the box next to the label "Do Not Broadcast HLS Sub-headlines".
2) If you do wish to broadcast these sub-headlines, left-click in the box labeled, "Number of sub-headlines", enter the number of sub-headlines your office (or an adjacent office) uses as their standard HLS format, and then left-click the blue 'Set' button. Sub-headlines are those phrases within the HLS that look like this: "…WATCHES/WARNINGS…"
3) A number of boxes will appear in the HLS section, which will match the number you just entered.
4) For each sub-headline, enter its original text from the HLS product, and then list its CRS replacement phrase to the right of the original phrase. For example, you might want to replace the phrase "…WATCHES/WARNINGS" with "watches and warnings in effect" to enhance airplay.

In OB9, a couple of new features related to the processing of the HLS products have been introduced. Please refer to the Appendix- F for details.

Tropical Cyclone Product (TCP)

There are two options you can configure in this section that affect processing of the TCP product from TPC and HPC.

5) Process NHC Public Cyclone Advisories? (yes/no): if this is set to 'No', then NWRWAVES will **not** process the TCPAT(x) bulletins issued by the Tropical Prediction Center, even if you have the text database trigger set to send the TCPAT(x) bulletin to NWRWAVES.
6) Process HPC Public Cyclone Advisories? (yes/no): this flag tells the software whether to ignore or process the TCPAT(x) issued by the HPC once a tropical system has made landfall. If the answer is set to "Yes", you also have additional flags to either read the entire advisory as written, or to filter out any tabular data (such as inland rainfall totals) that HPC may include in the product.

SPECIAL NOTES ON TROPICAL CYCLONE PRODUCT PREPARATION

NWRWAVES functions much differently than CAFÉ with respect to its tropical cyclone message generation. CAFÉ would process the TPC TCPAT(x) bulletins, and through the use of phrase searches and key wording, CAFÉ would then generate an output message customized by a latitude/longitude box, and where the storm was with respect to this box. If it met certain phrase and location criteria, the inbound CRS Weather Message would be assigned the proper EAS code (TRA, TRW, HUA, HUW) for alert on NWR.

NWRWAVES treats the TCP just like the HLS, as a regular product that contains information on the storm. **NOTE**: A strong recommendation for sites is that they should invoke Generic Message Type assembly for the TCP product in NWRWAVES, so as to minimize the delay of producing transmitter specific output. The product suite needed to process hurricane watch/warning and tropical storm watch/warning bulletins is the new HLS instead of the TCV or TCVAT(x) suite issued by the TPC since the HLS is carrying the same VTEC. If a site has both HLS and TCV, there will be failures of the HLS.

NOTE: You will need text database triggers for HLS to properly prepare and disseminate tropical watches and warnings. Text database triggers are covered in Section 4.

Great Lakes Forecasts

The Great Lakes Forecast (GLF) section is used to configure how the GLF is formatted for airplay. These capabilities replace the customized settings found in the CAFÉ GLF formatter. Effectively October 2007, all GLF would change from the non-segmented format to a new segmented format that would allow WFOs issuing the GLF products to be more area-specific. For example, the geographic divisions used in the GLF such as "NORTH HALF" will be replaced by smaller marine zones grouped in segments by similar weather conditions. The old non-segmented format will be completely removed in OB9 release.

To configure (if needed) the Great Lakes Forecast options, complete these steps:

2) Choose a Great Lake from the **Select a GLF Product Below** dropdown list.
3) Enter the AWIPS product identifier for the GLF (example CHIGLFLM).
4) Enter total number of possible breakpoint sections in the GLF (usually, this is denoted within the text of the product such as "NORTH HALF", "SOUTH HALF", etc.) This should include all possible breakpoints.
5) Click the **Set** button
6) Edit the **Optional Intro Statement** if desired. Any text entered will be used as an intro phrase for the GLF output.
7) Click the **Broadcast Synopsis (If Applicable)** button if desired. If this is checked, the ".SYNPOSIS" section of the GLF will be included in the CRS output, otherwise it will be omitted.
8) Fill in the **SECTION HEADERS** entry boxes to reflect the break points used in the GLF. Again, an example would be phrases such as "NORTH HALF" and "SOUTH HALF".
9) For each SECTION HEADER, click each transmitter checkbox that you wish to have formatted for airplay. (This feature allows WFO's to assign certain GLF sections to certain transmitters).

In Figure 6 above, the configuration settings for the GLF are as follows:

- Process the AWIPS product (if triggered) CLEGLFLE for Lake Erie
- Do not include any intro statement
- Broadcast the ".SYNOPSIS" section within the output of the CRS GLF forecast

- Section headers (as defined) would only play for those transmitters checked for each header. .

When you have completed all applicable sections of this tab, click the green **STORE MARINE CONFIGURATION SETTINGS** button to save your settings. You can also establish periodicity and/or effective time settings for the GLF under the product configuration tab. **NOTE:** if you checked the option "No" for using VTEC for marine products, the "GLF" entry is the option you'll need to configure. Otherwise, you will need to configure for each individual VTEC header to accomplish this task.

You have now completed customization of NWRWAVES for your office. Proceed to **Section 4 – Setting AWIPS Text Database Triggers**, to configure AWIPS to send products through NWRWAVES.

5. SETTING AWIPS TEXT DATABASE TRIGGERS

NWRWAVES software is executed as an automated response to an AWIPS text database trigger (Informix OB5 and earlier, Postgres after OB6). Offices that have used CAFÉ will notice some degree of familiarity in the establishment of database triggers.

You can, and should, run triggers for both your CAFÉ and NWRWAVES formatters during the transition period between CAFÉ and NWRWAVES. You can run NWRWAVES in a test mode, which is what you will need to do in this transition period to ensure a smooth switch between the two formatters. Once you decide to switch a product/products over to NWRWAVES in an operational mode, you would need to remove the legacy CAFÉ triggers. To establish a suite of triggers needed for NWRWAVES operation, perform the following steps:

1) Log into an AWIPS workstation with a user account that has fxalpha group privileges and open up a terminal window.

2) Change directories to the trigger directory.

   cd /data/fxa/siteConfig/textApps

3) Make a backup copy of your site trigger information, in case you need to revert back to it.

   cp siteTrigger.template siteTrigger.template.mmddyyyy

   where '**mmddyyyy**' is the numeric current date

4) Edit your site trigger configuration.

   gedit siteTrigger.template &

When you view this file, you will see a listing of AWIPS product identifiers, along with an action that is to be completed upon receipt of that product identifier into the text database. If you are a CAFÉ site, there will be several entries that call CAFÉ scripts to format data. An example of a CAFÉ entry in your site trigger configuration will look something like the following:

STLSVREAX /home/CRS/SVR/nwrsvr.csh STLSVREAX

Do not change or remove these CAFÉ text database triggers! Your initial configuration will be to set NWRWAVES into test mode, so you can monitor its performance and ensure that it will work successfully with your CRS database prior to making the switch over to operational mode. The WWA NWR formatters do not use text database triggers.

5) For each text product that you wish to be formatted by NWRWAVES, you will need to add a line to the siteTrigger.template file using the following syntax (CCCNNNXXX is the 8/9 letter product PIL):

CCCNNNXXX /awips/adapt/NWRWAVES/nwrwavestest.csh

The script '*nwrwavestest.csh*' is used by NWRWAVES to execute the formatter in TEST mode.

You will need an entry for each product that you wish to send through NWRWAVES. This entry (the CCCNNNXX field) is the exact AWIPS product identifier for each product you wish to process! **An example of text database triggers set at WFO Pleasant Hill for NWRWAVES execution can be found in Appendix B**.

SPECIAL NOTES REGARDING TEXT DATBASE TRIGGERS

NWEM messages:
Sites **do not need** to add any triggers for their NWEM messages. NWEM messages, effective in mid-2006, are formatted out of HazCollect, and HazCollect will call its own formatter internally. This will be the CAFÉ NWEM formatter in OB6 and OB7, switching to NWRWAVES in OB8.

Convective watches:
CONUS sites will need to include all ten WOU(x) products issued by the Storm Prediction Center, along with all WCN products that apply to your CRS broadcast service areas. OCONUS sites only need the WCN products. For the WCN products, these will include your WCN, and any WCN's issued by surrounding offices. For the WOU(x) products, a section of your siteTrigger.template will need to include these entries:

CCCWOU0 /awips/adapt/NWRWAVES/nwrwavestest.csh
CCCWOU1 /awips/adapt/NWRWAVES/nwrwavestest.csh
CCCWOU2 /awips/adapt/NWRWAVES/nwrwavestest.csh
CCCWOU3 /awips/adapt/NWRWAVES/nwrwavestest.csh
CCCWOU4 /awips/adapt/NWRWAVES/nwrwavestest.csh
CCCWOU5 /awips/adapt/NWRWAVES/nwrwavestest.csh
CCCWOU6 /awips/adapt/NWRWAVES/nwrwavestest.csh
CCCWOU7 /awips/adapt/NWRWAVES/nwrwavestest.csh
CCCWOU8 /awips/adapt/NWRWAVES/nwrwavestest.csh
CCCWOU9 /awips/adapt/NWRWAVES/nwrwavestest.csh
CCCWCNXXX /awips/adapt/NWRWAVES/nwrwavestest.csh

CCC should be set to your legacy state node for all WOU products and for your **WCNXXX** product. **CCC** should be set to the legacy state node for all other office **WCNXXX** products that you need to cover your broadcast service areas.

For tropical cyclone products needed to generate Tropical Storm Watches/Warnings, and Hurricane Watches/Warnings, you will need to include HLS products issued by theWFOs. If your site is a coastal office, for the HLS product, a section of your siteTrigger.template file will need to include these entries:

CCCHLSXXX /awips/adapt/NWRWAVES/nwrwaves.csh

NOTE: The current OB9 version does not support the TEST mode for HLS product.

6) After you have finished adding in the suite of triggers, we will need to save the file and re-localize for these new text database triggers.

7) If your site is on OB5 or earlier versions of software, log onto DS1. If you are an OB6 – Phase 3 site or later (using Postgres), log onto the DX1.

   Save and exit out of the text editor
   ssh ds1 (**ssh dx1** if you are on Postgres)

8) Change user to fxa and type the following commands:

   su – fxa
   cd /awips/fxa/data/localization/scripts
   ./mainScript.csh –trigger

The end result of completing steps (1) through (8) is that NWRWAVES will begin to process products in TEST mode for your site. In TEST mode, generated CRS output will be placed in the /awips/adapt/NWRWAVES/TEST directory instead of being sent to CRS or the 'Pending' side of the NWRWAVES Browser. You can use your favorite editor, viewer or browser to review the output over time, to ensure that NWRWAVES is processing inbound data and producing correctly formatted outbound CRS products.

The end result of completing steps (1) through (8) is that NWRWAVES will begin to process products in TEST mode for your site. In TEST mode, generated CRS output will be placed in the **/awips/adapt/NWRWAVES/TEST** directory instead of being sent to CRS or the 'Pending' side of the NWRWAVES Browser. You can use your favorite editor, viewer or browser to review the output over time, to ensure that NWRWAVES is processing inbound data and producing correctly formatted outbound CRS products.

Having completed Sections 1 through 4 through this point, you have successfully configured NWRWAVES for your local site. You have established transmitters (broadcast programs) with the appropriate listing of county (parish), independent cities and zone codes. You have customized your product list for processing, and you have established the AWIPS products from your text database that are to be processed through NWRWAVES.

NWRWAVES is now running on your AWIPS in TEST mode.

The end result of your work to date will be visible in the **/awips/adapt/NWRWAVES/TEST** directory, where NWRWAVES will place its output for your review. You will need to run in TEST mode until you have the opportunity to properly configure your CRS database in Section 5, and you also have the chance to review

NWRWAVES output and validate that it is working properly. Do not plan to transition to an operational mode until both of these have been accomplished and the results are acceptable to you.

Perform steps 9 through 15 below only when you are ready to begin operational use of NWRWAVES.
TRANSITIONING PRODUCTS TO OPERATIONAL MODE
When you are ready to begin transitioning NWRWAVES to operational status, you can do this on a product-by-product basis. **Do not plan to move from TEST to OPERATIONAL mode in NWRWAVES** until you ensure your CRS is correctly configured to accept the format of Weather Messages from NWRWAVES.
Section (5) – NWRWAVES AND YOUR CRS DATABASE gives you the information you need to ensure your CRS is ready to accept NWRWAVES output.

The steps necessary to transition a product or products to operational mode are as follows:

9) Repeat step (1) through step (7) above in Section 4. For all instances of a product in step (5) that you wish to transition to operational status, replace the call:

   /awips/adapt/NWRWAVES/nwrwavestest.csh
   with
   /awips/adapt/NWRWAVES/nwrwaves.csh

10) Remove the associated CAFÉ trigger for this product.
   NOTE: There may be multiple AWIPS product identifiers for this product if you format other WFO AWIPS products for this CRS product type. Be sure to remove all applicable CAFÉ product triggers for this product or you will see duplicate CRS Weather Messages!

   NOTE: If you are a site that uses the WWA NWR formatters, you will need to go into the WWA Admin GUI and disable NWR formatting for this product type. Alternatively, you can use GHG in lieu of WWA, as the WWA NWR formatter only works for products actually prepared through WWA.
11) Repeat steps (7) and (8) to re-localize your new triggers to establish this set of new products to operational mode.

Once you have set the products to process operationally, the resultant CRS output will (by default) be placed in the 'Pending' side of the NWRWAVES Browser. This is because your Product Configuration was set to place the output there in your original configuration. To facilitate automated transmission to CRS:

12) Go back to Section 3 – Tab 2.
13) Repeat steps (1), (2) and (3r) under the 'Product Configuration' tab. You will be switching the "Transmission Status" section from 'Pending' to 'CRS' (Figure 7).
14) Click the green "**SAVE EDITS**" button to save the product configuration
15) Repeat steps (13) and (14) above for all products you are transitioning to operational mode and automated CRS broadcast.

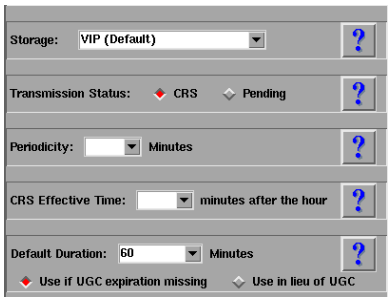


Figure 7 – example of Transmission Status set to automated relay to CRS

Selectively specify transmission status based on issuing WFO in OB9:
In OB9, The local WFO will have the capability to place specified products particularly for other offices' products to go to the Pending window for further review/editing if necessary. A new input argument (e.g. –EXTERNAL with 2 dashes) can be passed to the nwrwaves.csh to redirect the output to the Pending directory as follow:

CCCZFPXXX /awips/adapt/NWRWAVES/nwrwaves.csh -- EXTERNAL

The example CCCZFPXXX product will appear in the 'Pending' side of the NWRWAVES Browser. Manual intervention through the browser will be required to send the output to CRS.

6. NWRWAVES AND YOUR CRS DATABASE

NWRWAVES was initially designed to produce transmitter (broadcast program) specific output, to best focus the content of Weather Messages on the listening area of that transmitter. In this paradigm, unique CRS Weather Messages would be produced for each product, or each segment within a segmented product, using a standardized naming scheme.

After NWRWAVES deployment, issues were noted regarding the volume of messages produced by NWRWAVES, and the subsequent affect that multiple transmitter-specific messages were having on the CRS architecture (specifically the VIP processor). As a result of these issues, **NWRWAVES allows an office to opt for transmitter specific –OR- "generic" message assembly**. If a site opts for generic Message Type assembly, only one Weather Message will be produced for CRS per each valid product segment; its ultimate destination on your CRS Broadcast Cycles will be governed by the LAC's assigned to the message.
NOTE: Generic message type assembly is **STRONGLY** recommended for all short-fuse warning products (**SV.W, TO.W, FFW, FFS, FF.W**) so as to minimize delays in VIP processing and subsequent alert tone broadcast. Generic message type assembly should also be invoked for products that yield identical output on each transmitter (i.e., RWS/SWS, PNS type products) and anything else that an office feels comfortable in switching.

The assembly of both types of messages is as follows:

TRANSMITTER SPECIFIC MESSAGE TYPES
The standard nomenclature for a CRS Message Type is **CCCNNNXXX**. This format is very similar to AWIPS product identifiers. NWRWAVES prepares its transmitter specific Weather Messages for the three components (CCC, NNN, XXX) using the following logic:

CCC – derived from your AWIPS legacy state node environmental variable. This is sourced from the file /awips/fxa/data/localizationDataSets/XXX/AFOS_CCC_Name.txt. 'XXX' is your AWIPS site identifier.

NNN – the middle three letters will come from your settings for each product in the Product Configuration settings. Remember, the term 'product' is not just inclusive as a one-to-one relationship to an AWIPS product identifier. 'Product' refers to the combination of VTEC phenomenon and significance code when appropriate (several AWIPS product identifiers can have multiple VTEC phenomenon/significance code combinations such as the AWIPS WSW product). The middle three letters are either the "Initial Header" or "Followup Header" entries (based upon VTEC and follow-up statements) as you assigned back in Section 3 – Tab 2 (Figure 8).

Figure 8 – an example of NWRWAVES product SV.W and it's unique NNN codes assigned by this product type

XXX – the last three letters used in Weather Message assembly are the three-character mnemonics you assigned unique to each transmitter back in Section 3 – Tab 2.

In the case of the Kansas City/Pleasant Hill office, our AFOS state node identifier is STL. We have eight transmitters (MCI, STJ, IRK, MIA, CRL, CLN, MYV, TTN). Therefore, for the NWRWAVES product SV.W (Severe Thunderstorm Warning) as shown above in Figure 8, an inbound AWIPS product of STLSVREAX for all of our CWA would yield the following Weather Messages (depending on the VTEC action code):

Initial Issuance (/O.NEW.KEAX.SV.W)	**Follow-up Issuance (/O.CON.KEAX.SV.W)**
STLSVRMCI	STLSVSMCI
STLSVRSTJ	STLSVSSTJ
STLSVRIRK	STLSVSIRK
STLSVRMIA	STLSVSMIA
STLSVRCRL	STLSVSCRL
STLSVRCLN	STLSVSCLN
STLSVRMYV	STLSVSMYV
STLSVRTTN	STLSVSTTN

For non-VTEC coded products, the only header that will be used by NWRWAVES will be the "Issuance Header" entry, as there is no way to accurately determine if the product is an initial issuance or a follow-up. Thus, you will only need to ensure the presence of the list under the "Issuance Header" in your CRS database.

Therefore, in your CRS database, you will need to ensure that for every product you produce through NWRWAVES, you have a unique Message Type defined that matches this naming scheme, for both VTEC and non-VTEC products. In the case of the Pleasant Hill office where we have eight (8) transmitters, every VTEC encoded product will yield a maximum of **16 unique Message Types**, and a **maximum of eight unique Message** Types for every non-VTEC product (or VTEC product where the two headers are the same).

GENERIC MESSAGE TYPES

In generic message type assembly, NWRWAVES makes extensive use of the inbound AWIPS product identifier (PID) for assembling its equivalent Message Type). **For all inbound AWIPS PID's that are nine characters in length (i.e., "STLRWSEAX"), the resulting outbound CRS Message Type used will match the inbound product's identifier <u>exactly</u> (STLRWSEAX). If the inbound AWIPS PID is an eight character identifier (i.e., "STLRWSMO"), NWRWAVES will yield a nine character Message Type using the logic below (in this case, STLRWSSMO.**

NWRWAVES prepares its transmitter specific Weather Messages for the three components (CCC, NNN, XXX) using the following logic:

CCC – derived from the first three letters of the AWIPS Product Identifier (PID) from the inbound product.

NNN – the middle three letters will come from your settings for each product in the Product Configuration settings. Remember, the term 'product' is not just inclusive as a one-to-one relationship to an AWIPS product identifier. 'Product' refers to the combination of VTEC phenomenon and significance code when appropriate (several AWIPS product identifiers can have multiple VTEC phenomenon/significance code combinations such as the AWIPS WSW product). The middle three letters are either the "Initial Header" or "Followup Header" entries (based upon VTEC and follow-up statements) as you assigned in Section 3 – Tab 2 above (Figure 8).

XXX – the last three letters used in Weather Message assembly are the last three characters of the AWIPS PID.

In the case of the Kansas City/Pleasant Hill office, our AFOS state node identifier is STL. We have eight transmitters (MCI, STJ, IRK, MIA, CRL, CLN, MYV, TTN). Therefore, for the NWRWAVES product SV.W (Severe Thunderstorm Warning) issued from Pleasant Hill, an inbound AWIPS product of STLSVREAX for all of our CWA would yield the following Weather Messages (depending on the VTEC action code):

Initial Issuance (/O.NEW.KEAX.SV.W)	**Follow-up Issuance (/O.CON.KEAX.SV.W)**
STLSVREAX	STLSVSEAX

For the NWRWAVES product SV.W (Severe Thunderstorm Warning) issued from Des Moines, an inbound AWIPS product of DSMSVRDMX would yield the following Weather Messages (depending on the VTEC action code):

Initial Issuance (/O.NEW.KDMX.SV.W)	**Follow-up Issuance (/O.CON.KDMX.SV.W)**
DSMSVRDMX	DSMSVSDMX

For the NWRWAVES product RWS (Regional Weather Synopsis) issued from Wichita, an inbound AWIPS product of TOPRWSKS would yield the following Weather Message:

Any Issuance (non-VTEC coded product)
TOPRWSSKS

NOTE: since the inbound AWIPS PID was only eight characters, NWRWAVES assembles its last three characters of the Generic Message Type from the last three characters (SKS) of the AWIPS PID.

For non-VTEC coded products, the only header that will be used by NWRWAVES will be the "Issuance Header" entry, as there is no way to accurately determine if the product is an initial issuance or a follow-up. Thus, you will only need to ensure the presence of the list under the "Issuance Header" in your CRS database.

Therefore, in your CRS database, you will need to ensure that for every product you produce through NWRWAVES using Generic Message Type, you have a unique Message Type defined that matches this naming scheme, for both VTEC and non-VTEC products. In the case of the Pleasant Hill office where we cover seven (7) different offices and ourselves, we would have **8 unique Message Types per NWRWAVES product (16 for each product if the Issuance/Follow-Up headers are different like the TOR/SVS);** one for each office's AWIPS PID of their issuing product.

SETTING UP MESSAGE TYPES IN YOUR CRS DATABASE

The preferred method to adjust and configure your CRS database is through the GUI system on your CRS MP workstation. Sites are discouraged from hand-editing a copy of their ASCII database, unless the site focal point has a thorough knowledge of its structure. Sites that have run the WWA NWR formatters in the past will already have many of these unique Message Types defined in their database, as WWA produced transmitter-specific output. CAFÉ users will likely find a mix of unique and global Message Types depending on the AWIPS product identifier type.

The following is a recommended methodology to use in ensuring your CRS database is ready to accept output from NWRWAVES. It will work well in preparing CRS for NWRWAVES on a product-by-product basis. **NOTE: Before you begin making any changes to your CRS database, use the 0MP Database backup utility to make a good backup copy of your existing database before you begin! This way, if you need to revert back to the original database, you can do so.**

1) Choose a unique product that you wish to prepare and/or ensure your CRS database to accept.
2) Make note of the "Issuance Header" and "Followup Header" of that product in the NWRWAVES Product Configuration GUI (Section 3 – Tab 2). **NOTE**: If this is a non-VTEC product such as the HWO, NOW, etc., you only need to note the "Issuance Header".
3) In the CRS Message Type GUI (on your MP), you can find the "Message Types" GUI under the 'Messages' pull-down menu. You have <u>two options</u> on how to proceed, preparing place holders for either transmitter specific or generic message types. **NOTE:** If you already have transmitter-specific message types, you are advised to leave them be and only add those generic message types you need on a case basis.

   SETTING UP TRANSMITTER SPECIFIC MESSAGE TYPES
   For those that will involve tone alerts (WRSAME, or WRSAME and 1050Hz), you want to be sure that the **<u>only transmitter</u>** that has a red 'check mark' next to its label in the "SAME Transmitters" column is **the one that matches the last three letters of the Message Type**. If all the boxes are checked, then the inbound NWRWAVES product will tone alert multiple times, on multiple transmitters, in instances where an LAC overlaps multiple transmitters. Ensure that only one "SAME Transmitters" option is selected for each Message Type to prevent this from occurring.

   Also, you will likely also want to ***not*** include these unique Message Types (if they are applicable

watch/warning/advisory type products) in your Emergency Override product list. The list in Emergency Override can get quite lengthy, and the process of initiating multiple EO sessions can lead to too much work and a delay in getting a broadcast completed for multiple transmitters.

a) If you already have unique CRS Message Types defined per transmitter, and these Message Types begin with your state node CCC and end in the three-character combinations you have set in your NWRWAVES transmitter configuration, you have the correct naming scheme for transmitter-specific products, and you can complete this step (3a). Otherwise, proceed to step (3b) below.

Ensure that **only one** 'SAME Transmitters' transmitter is checked as described above, if this Message Type is one that involved alert tones of any type. Make sure the 'Emergency Override' checkbox is not selected for this unique Message Type. Your Message Groups, Broadcast Suites (and triggers) will already contain these Message Types, and no additional work will be needed to facilitate NWRWAVES output from being scheduled on your CRS. Save the Message Type and proceed to step (4).

b) If you already have unique CRS Message Types defined per transmitter, and these Message Types begin with your state node CCC but ***do not*** end in the three-character combinations you have set in your NWRWAVES transmitter configuration (say you have a scheme such as "NW1, NW2", etc., and you wish to change these last three letters), complete this step (3b). Otherwise, proceed to step (3c) below.

Perform the following steps:

1. Call each Message Type up through the GUI.
2. Edit the Message Type XXX for each individual product (in the CCCNNNXXX format), and change the last three characters to match that of your transmitter.
3. Ensure that only one 'SAME Transmitters' transmitter is checked as described above, if this Message Type is one that involved alert tones of any type.
4. Make sure the 'Emergency Override' checkbox is not selected for this unique Message Type.
5. Save the Message Type.
6. Repeat (1.), (2.), and (3.) for all other existing Message Types of this particular product category.

The CRS software will take your changes to these existing Message Types and will propagate the adjusted Message Type identifiers through all existing Message Groups and Broadcast Suites (including triggers). Proceed to step (4).

c) If you do not have unique CRS Message Types defined for each transmitter (say you have a global Message Type such as CCCSVRXXX such as in CAFÉ), you will need to add them to your CRS database. To do this:

1. Through the CRS Message Type GUI, create a new Message Type for a transmitter.
2. Establish its baseline attributes.

3. Ensure that only one 'SAME Transmitters' transmitter is checked as described above, if this Message Type is one that involved alert tones of any type.
4. Save the Message Type.
5. Repeat (1.), (2.), (3.) and (4.) to create Message Types of this particular product category for all transmitters.
6. You will then need to add these Message Types to any applicable Message Groups and/or Broadcast Suites for each transmitter.
7. Once the new Message Types have been assigned to a Broadcast Suite in some fashion, be sure to re-download the applicable Broadcast Programs to each transmitter. Proceed to step (4) below.

SETTING UP GENERIC MESSAGE TYPES

For those that will involve tone alerts (WRSAME, or WRSAME and 1050Hz), you want to be sure that **all applicable transmitters** have a red 'check mark' next to their labels in the "SAME Transmitters" column. Since you're opting to use Generic Message Type, LAC's assigned to the product will govern which transmitter(s) are affected. Unlike the transmitter-specific product assembly, there is no danger of the inbound NWRWAVES product tone alerting multiple times, on multiple transmitters, in instances where an LAC overlaps multiple transmitters.

You will likely ***want*** to include only one of these Generic Message Types (if they are applicable watch/warning/advisory type products) in your Emergency Override product list. The one you'll likely want to include will be the one for the product issued from your office (as it will be included in every transmitter's Broadcast Suites).

d) If you already have generic CRS Message Types defined in your database, and these Message Types mirror the issuing office's AWIPS PID for those particular products (i.e., the old CAFÉ configuration for much of your short-fuse warning products), you have the correct naming scheme for generic products, so you can complete this step (3d). Otherwise, proceed to step (3e) below.

Ensure that **all applicable** 'SAME Transmitters' transmitter buttons are checked as described above, if this Message Type is one that involved alert tones of any type. Make sure the 'Emergency Override' checkbox is not selected for this unique Message Type. Your Message Groups, Broadcast Suites (and triggers) will already contain these Message Types, and no additional work will be needed to facilitate NWRWAVES output from being scheduled on your CRS. Save the Message Type and proceed to step (4).

e) If you already have generic CRS Message Types defined in your database, but these Message Types do not match the naming scheme invoked by NWRWAVES, complete this step (3e). Otherwise, proceed to step (3f) below.

Perform the following steps:

1. Call each Message Type up through the GUI.

2. Edit the Message Type XXX for each individual product (in the CCCNNNXXX format), and change the first and/or last three characters to match the naming scheme used by NWRWAVES.
3. Ensure that all applicable 'SAME Transmitters' transmitters are checked as described above, if this Message Type is one that involved alert tones of any type.
4. Make sure the 'Emergency Override' checkbox is <u>not</u> selected for this unique Message Type.
5. Save the Message Type.
6. Repeat (1.), (2.), and (3.) for all other existing Message Types of this particular product category.

The CRS software will take your changes to these existing Message Types and will propagate the adjusted Message Type identifiers through all existing Message Groups and Broadcast Suites (including triggers). Proceed to step (4).

f) If you do not have global CRS Message Types defined, you will need to add them to your CRS database. To do this:

1. Through the CRS Message Type GUI, create a new Message Type for a transmitter. Remember that the naming scheme will mirror the AWIPS PID of the inbound office's product if it is nine characters in length; if it is eight characters, the last three characters of the CRS Message Type will be the right three characters of the AWIPS PID.
2. Establish its baseline attributes.
3. Ensure that all applicable 'SAME Transmitters' transmitters are checked as described above, if this Message Type is one that involved alert tones of any type.
4. Save the Message Type.
5. Repeat (1.), (2.), (3.) and (4.) to create Message Types of this particular product category for all transmitters.
6. You will then need to add these Message Types to any applicable Message Groups and/or Broadcast Suites for each transmitter.

Once the new Message Types have been assigned to a Broadcast Suite in some fashion, be sure to re-download the applicable Broadcast Programs to each transmitter. Proceed to step (4) below

4) Once you have established any needed Message Types for this particular hazard, it is recommended that you also create (if you don't have one already as in the generic message type assembly) a generic Message Type for this NWRWAVES product. The generic Message Type would have the format CCCNNNXXX, where the 'XXX' in this case would be your office AWIPS identifier. At Pleasant Hill, we used the format **STLNNNEAX** for all our generic Message Types. **NOTE:** if you have defined generic message types in steps 3(d) through 3(f), you can simply use the one for your office's product for your manual recording needs.

For the generic message type that matches your offices issuing AWIPS PID, ensure that **<u>all applicable</u>** 'SAME Transmitters' transmitters are checked as described above, if this Message Type is one that involved alert tones of any type. Also, **use this one (if needed) as the ONLY one set to appear in your Emergency Override GUI (this is a check box on the Message Type GUI).**

In addition to CRS/VIP loading issues through NWRWAVES, the generic Message Type is quite useful for manual recordings, should NWRWAVES fail for any reason. Since the Message Type is assigned to all transmitters and can be scheduled for any transmitters, if an office has to send a warning via EO, the operator only has to make the one 'live' broadcast and then have the message go into all applicable transmitter programs. If a site uses the specific Message Types for their EO entries, the NWR Operator will have to send the 'live' warning multiple times, once for each specific Message Type.

5) Repeat steps (1) through (4) for the "Followup Header" settings if the AWIPS product for this hazard is a VTEC product, and this entry is different from the "Issuance Header". If both are the same, you can skip step (5).

6) Repeat steps (1) through (5) for NWRWAVES products as you are ready, to ensure they are ready for transition into an operational NWRWAVES environment.

IMPORTANT NOTES ABOUT CRS MESSAGE TYPES AND YOUR CRS DATABASE

Some helpful hints as you transition from existing NWR formatters (WWA NWR, CAFÉ) to NWRWAVES:

a) If you opt to use the approach of having transmitter-specific Message Types in your database for NWRWAVES, also have a generic Message Type for that same NWRWAVES product to create an optimal CRS operating environment. For the NWRWAVES product WS.W (Winter Storm Warning) in the Pleasant Hill CRS database (we have eight transmitters), we have nine different Message Types. We include the generic STLWSWEAX Message Type in our Emergency Override GUI for manual recording purposes. Any warning or update for any transmitter can be broadcast through EO; then it can be scheduled on any applicable transmitter with nominal work.

b) Utilize the generic Message Type for all short-fuse warning products (SV.W, TO.W, FFW, FFS, FF.W) so as to minimize the amount of time it takes to process a warning through VIP and ultimately to the air on CRS. Sites should also look to maximize the use of generic Message Type wherever possible for messages that will feature the same content regardless of approach (RWS, PNS, RER).

c) **Do not delete, change or remove any existing Message Types that are used by your operational NWR formatter until you have fully switched that product to operational status in NWRWAVES!** Once you make the full transition to NWRWAVES for this particular product, you can safely remove any legacy Message Types through the CRS GUI interface.

d) Make sure that for any transmitter-specific Message Type that is used for tone-alert products, that the only 'SAME Transmitter' checked in the list is the one whose three-character mnemonic matches that of the last three letters of the Message Type. This will prevent multiple alerts being sent for products that involved LAC(s) shared amongst more than one transmitter. Make sure any generic Message Type used for alert purposes has all applicable 'SAME Transmitters' checked on the Message Type GUI.

e) A suggested transition is to make the switch on a product-by-product basis. This will avoid wholesale changes to your CRS database at one time. Also, after each NWRWAVES product is configured with the Message Types needed in your CRS database (or a small subset of products), make a backup copy of that CRS database (through the 0MP database backup utility) in case you need to revert back to a previous version.

f) Remember, if you add new Message Types to your CRS database, you also need to add them to any applicable Broadcast Suites, and adjust any triggers as necessary to ensure proper broadcast of information.

7. NWRWAVES OPERATIONS

This section of documentation will describe the NWRWAVES Browser, NWRWAVES program execution, and detail the logging performed by NWRWAVES to assist in troubleshooting procedures.

NWRWAVES BROWSER

The main interface that users will notice as they use NWRWAVES is the NWRWAVES Browser. This new browser will be linked during the install such that it can be launched using the standard **"NWRBrowser"** entry in the AWIPS workstation applications menu. The overall look and feel of the NWRWAVES Browser is similar to the original NWRBrowser, however there are a number of new features and enhancements that are noted below.

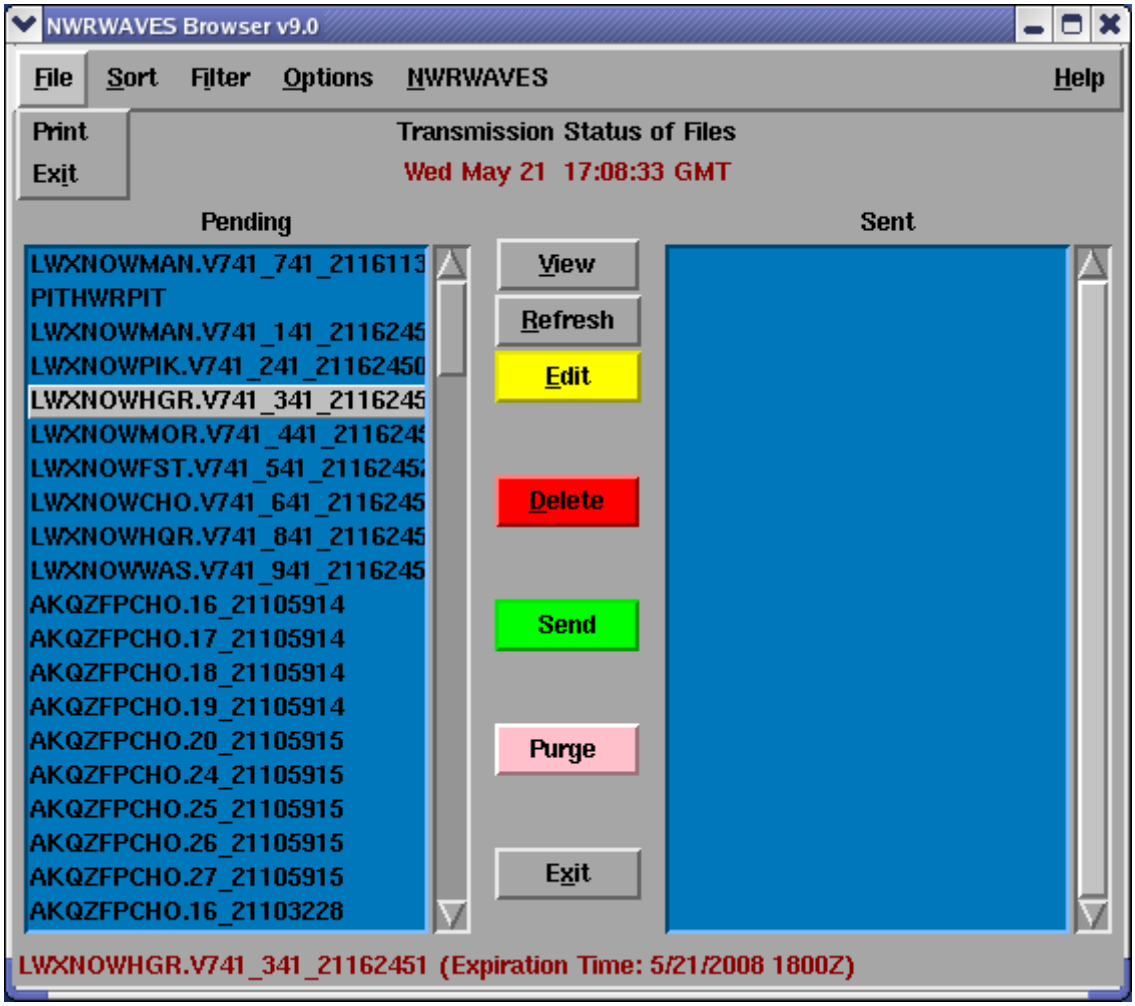


Figure 9 – NWRWAVES Browser (front-end application to NWRWAVES)

There are a series of pull-down menus across the top of the NWRWAVES interface:

1) **File** Menu (Keyboard Shortcut Alt-F)
   a. Print – Print highlighted items from Pending/Sent lists (see Figure 9)
   b. Exit – Used to close the browser

2) **Sort** Menu (Keyboard Shortcut Alt-S) – Because the number of items in the browser list boxes can become quite lengthy, a number of sorting capabilities were added to allow users to quickly locate outbound or transmitted CRS messages.
   a. None – No sorting is done and the browser will function similar to the old NWR Browser.
   b. Alphabetical (Default) – Files in the Pending and Sent list boxes will be sorted in alphabetical order.
   c. Expiration Time – Files in the Pending and Sent list boxes will be sorted in the order in which CRS messages are scheduled to expire.
   d. Applying the **"Decreasing Sort"** checkbox will sort the list boxes in either reverse alphabetical order (alphabetical sort applied) or in the reserve order in which CRS messages are scheduled to expire (Expiration Time sort).

3) **Filter** Menu (Keyboard Shortcut Alt-i) – The ability to filter items in the NWR Browser was added as another means to quickly located products in the Pending and Sent list boxes
   a. **Filter by Transmitter** – If you have configured your transmitters as in Section 1, you should see your list of transmitters present. Clicking any of the transmitter mnemonic radio buttons will cause the NWRWAVES browser to display only those outbound/transmitted products which are applicable to the selected transmitter.
   b. **Filter by Product Type/WFO** – The NWRWAVES Browser filter function for products contains a vast list of the most widely used products. This list can be modified under the Summary Message/Miscellaneous Configuration Tab back in Section 3, Item 11. Clicking on any product type radio button will filter the display to only show those product types.

   NOTE: The "output" item is used to filter the AWIPS climate program CRS messages
   NOTE: You can apply a "combined" filter by selecting an item under both the Filter by Transmitter and Filter by Product Type menus.

4) **Options** Menu (Keyboard Shortcut Alt-O)
   a. **Clear Old Products** (and its equivalent **Purge** button on the main browser display) will allow a user to delete files whose CRS message expiration time has expired. The user will be prompted to remove products from both the Pending and Sent directories. This feature can be quite helpful in eliminating dead products from an extensive file listing, but be wary that there may be instances when a user may want to maintain an expired product for later retransmission.
   b. **Update Expiration Time –** This option will become selectable once a user highlights a product in the Sent list box with the left mouse button. This feature allows a user to modify the expiration time of a product and retransmit it to CRS. This method is a great way to allow a forecaster/HMT to remove a product from the CRS broadcast cycle without having to physically remove it at the CRS console.
   c. **Auto Refresh (Default On) –** This selection tells the NWRWAVES browser to auto update the Pending and Sent list boxes.
   d. **Set Refresh Interval…** - The refresh interval can be changed from the default of 30 seconds by clicking on this menu item and entering a new number (in seconds) into the box.
   e. **Highlight Warnings (Default On) –** This selection will cause the NWRWAVES browser list boxes to briefly change from a blue to a purple/pink background color when a short-fuse warning has been issued.

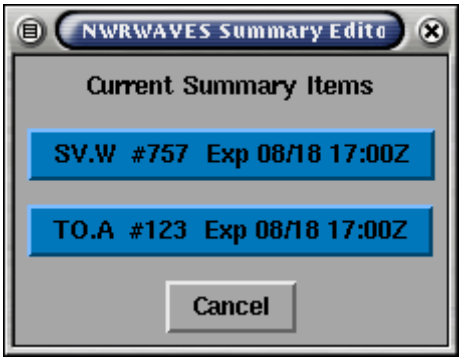
   NOTE: Previous versions of NWRWAVES allowed sites to switch between three other LINUX editors available for use. After complications of sites using other editors and having corrupt CRS output, the baseline NWR Browser editor is now the only editor called by NWRWAVES.

5) **NWRWAVES** Menu (Keyboard Shortcut Alt-N)
   a. **NWRWAVES Setup –** Refer to Section 3 for launching the NWRWAVES Setup Utility. This option is administratively restricted by AWIPS user accounts. Most NWRWAVES users will not have access to the Setup Utility.
   NOTE: You will only be allowed to open one version of the Setup GUI on your AWIPS at one time. This is controlled by a lock file which is created when the Setup GUI is launched, and is removed when you exit the Setup GUI.

If you get an error message that a version is already open somewhere else, but you are confident that there is not a version open anywhere on your AWIPS, perform the following steps:

- Open a shell on any AWIPS workstation as a user with 'fxalpha' group privileges.
- Type **cd /awips/adapt/NWRWAVES**
- Type **rm –f setup.lock**
- Exit from the shell

b. **View/Edit VTEC_Summary File –** For offices using the summary message capabilities described in Section 3 – Tab 3 (page 17), users can manually edit/delete specific product summary messages should the automated VTEC replacement method fail. The pop-up GUI which appears when there are active hazards being track for summarization (Figure 10) is a simple interface. You select the hazard you which to modify from a list of buttons, and then you can either clear all LAC(s) at once or selected LAC(s) through their individual radio buttons. Sites will rarely (if ever) need to use this interface, since active hazards are tracked through VTEC action codes in follow-up statements. This will be a useful interface though, if you track a non-VTEC hazard such as an FFW in the interim period before full VTEC implementation.



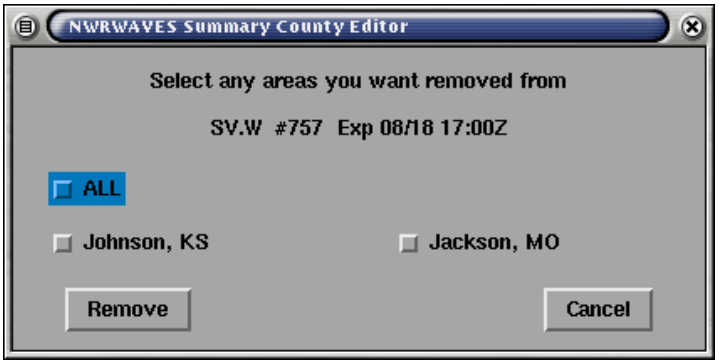


Figure 10 – NWRWAVES summary message editing GUI interfaces

c. **Regenerate a CRS message –** Allows a user to call an AWIPS PIL from the text database and reprocess the product through the NWRWAVES formatter. When this option is selected, the user is prompted to enter an AWIPS product identifier then click 'OK'. The latest version of the product will appear in the 'Regenerate Product' GUI (Figure 11). Sites can toggle between database versions of the product type by using the "Previous Version" or "Latest Version" buttons. Once you have the product you wish to re-transmit in the viewer, click the "Send to NWRWAVES" button to re-process this product.

NOTE: If you use the "Include Issue Time" lead-in option for a product, the time that will be used is the time that the AWIPS product is processed by NWRWAVES, and not the time it was issued in its Mass Media header (MND date/time line). If you re-transmit a product, the time mentioned as the issuance time on the air will be the time you requested its retransmission.

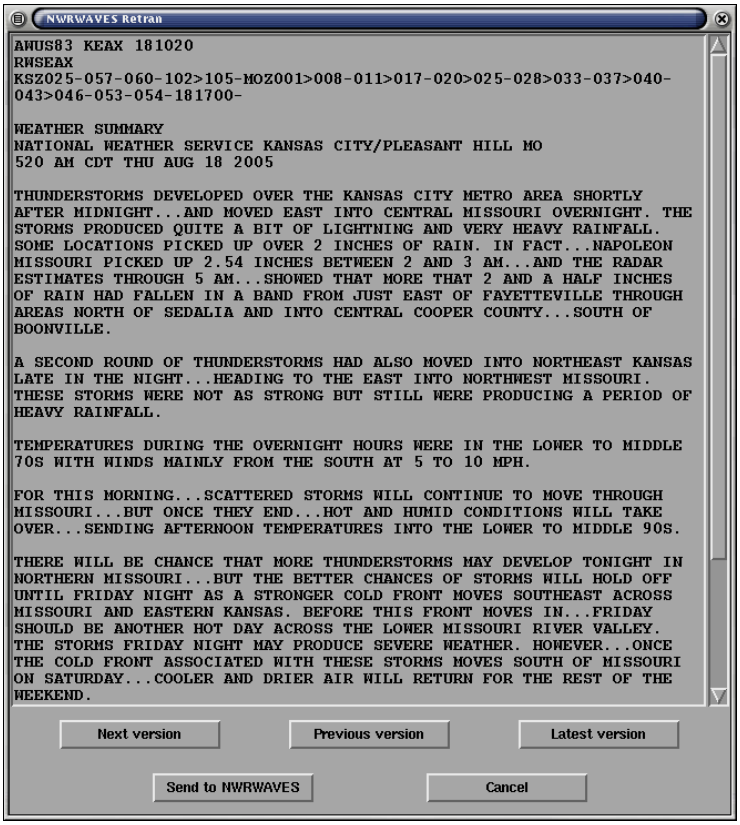


Figure 11 – NWRWAVES Retransmit product GUI interface

There are also a series of buttons down the middle of the interface. Some have been mentioned above, and there are a few additional buttons as well:

d. **View button**: If a user left-clicks on a product (in either the 'Pending' or 'Sent' side of the NWRWAVES browser) and clicks this button, it will bring up the product in a viewer. This function is identical to the legacy NWRBrowser. Starting in version OB8.3, the user can also print the product in the viewer via the pull-down menus across the top left (under File->Print option).
e. **Refresh button**: If clicked, it will force a manual auto-refresh of the NWRWAVES Browser.
f. **Delete button**: If a user left-clicks on a product or products on either side of the browser and then clicks this button, these NWRWAVES products will be deleted from the browser. The user is prompted to confirm the delete (yes/no/yes to all). An improvement over the NWRBrowser is that a user can select multiple products at the same time.
g. **Send button**: If a user left-clicks on a product or products on either side of the browser and clicks the 'Send' button, these product(s) will be sent to CRS. An improvement over the NWRBrowser is that a user can select multiple products at the same time.
h. **Exit button**: This button exits the NWRWAVES Browser.

8. NWRWAVES PROGRAM EXECUTION (LOGGING, TROUBLESHOOTING)

NWRWAVES is called through the use of AWIPS text database triggers. You can call for NWRWAVES to run manually two different ways: you can 'Regenerate a CRS Message' or edit the summary message. Both of these methods are detailed above.

Here is a breakdown of the execution of NWRWAVES for the receipt of a product:

1) An inbound product is received into the AWIPS database.
2) A text database trigger is executed to initiate NWRWAVES for the inbound AWIPS product. Depending on your settings in your siteTrigger.template file, you will either call the c-shell script that runs NWRWAVES in TEST mode (/awips/adapt/NWRWAVES/nwrwavestest.csh) or the c-shell script that runs NWRWAVES in operational mode (/awips/adapt/NWRWAVES/nwrwaves.csh).
3) These c-shell scripts perform the following functions:
   a) The script takes the inbound product and 'cleans' it up for use.
   b) The inbound product is moved from /data/fxa/trigger to the /awips/adapt/NWRWAVES/QUEUE directory for processing.
   c) A check is performed to ensure that only one version of NWRWAVES is running. If one is currently active, this iteration will sleep for 30 seconds before checking again. If the same version is still running after 30 seconds, these scripts will assume a hung process, kill the original one so that this one can begin. Thorough testing has indicated that a time period much less than 30 seconds is all that NWRWAVES requires for proper execution.
   d) These scripts perform a 'checksum' on the main program (nwrwaves.tcl) and write this checksum to the product's debug file.

   NOTE: The 'checksum' value is a fixed value of the nwrwaves.tcl code as prepared and released into AWIPS baseline software. If your site has trouble with NWRWAVES, support staff will ask for this value. If it is anything other than the baseline value, it is an indication that someone at your site has made edits to the baseline software. **SITES WILL NOT MAKE ANY LOCAL CHANGES TO THE NWRWAVES SCRIPTS AS DELIVERED!!** Making local changes to the baseline software may introduce unintended instability to the program, and it will be impossible to troubleshoot your problem if you have made local changes. Off-site troubleshooting will likely be denied until you restore the baseline version of 'nwrwaves.tcl', and the debug log file reflects the same 'checksum' value as the baseline value.

   NOTE: An extensive debug and operational logging scheme is used in NWRWAVES, to assist in local and off-site troubleshooting. This scheme is detailed in (5) below.

   e) These scripts call the main formatter program 'nwrwaves.tcl'. The 'TEST' argument is the only difference between the two c-shell scripts. The AWIPS PID (file name) of the product being processed is also passed as an argument.

4) The main file 'nwrwaves.tcl' is executed next. All processing related to product preparation, assembling and formatting is performed by this script. This script does utilize three additional scripts at different points during message preparation and assembly. These are located in the /awips/adapt/NWRWAVES/bin directory and are as follows:

a) **UGC_VTEC_Decoder.tcl**: This module is called by nwrwaves.tcl to decode the UGC and VTEC lines (as appropriate) from an inbound AWIPS product. If there is no UGC (UGZ) line in the inbound product (such as an RER), then this module will assign the product a 'dummy list' which is one county from each transmitter. NWRWAVES will use the first county (alphabetically) from each transmitter. There is no way to control a non-UGC (UGZ) coded product by transmitter. Every transmitter will receive a copy of the product, with an assigned default expiration time of 360 minutes.

b) **UGCLookup.table**: This is the master baseline lookup table for all counties/parishes/independent cities and zones/fire weather zones/marine zones. Sites will not modify this file! If an area is missing, you do have the ability to add it manually through the Transmitter Configuration GUI (Section 3 – Tab 1: Page 7). Any local LAC's added will be placed in the file localUGCLookup.table in this same /bin directory. NWRWAVES will source both lookup tables (if applicable) when it searches for UGC/UGZ codes.

NOTE: If you do find missing counties/zones that should be in the baseline file, please post them to the NWRWAVES list server (Section 7) to ensure they do get added in a future build release of NWRWAVES.

c) **WordFile.txt**: This file is a legacy from CAFÉ, and you can add words, phrases or wild card entries. NWRWAVES will make substitutions from the AWIPS product to the outbound CRS products as needed. The WordFile.txt file is detailed below.

d) **WordFile_SPN.txt**: This optional file operations exactly in the same manner as the WordFile.txt above, but allows offices that broadcast separate Spanish products to develop a separate word/phrase replace file for Spanish phrases.

5) Debugging and logging information: NWRWAVES makes extensive use of logging to assist in troubleshooting. Unless mentioned specifically, the files below are placed in the directory listed which can be found under the root NWRWAVES directory (/awips/adapt/NWRWAVES).

Here is a breakdown of available resources to you:

a) INPUT directory: NWRWAVES will archive every AWIPS product that is sent through NWRWAVES. The product will be named with the 8-9 letter AWIPS Product Identifier, followed by the date/time stamp of the product when it was processed. This date/time stamp will match the stamp assigned to its associated 'debug' and 'output' files, so that you have the input and output that can be easily matched, along with additional debug information.

b) OUTPUT directory: Similar to (a) above, but this directory contains all the output (CRS Weather Messages) prepared by NWRWAVES from the files stored in the INPUT directory.

c) LOGS directory: NWRWAVES keeps a daily log of all its activity. These log files are named using this scheme: nwrwaves.mmddyy.log. These daily logs will track the major processing

points of NWRWAVES for every product processed on that day. The 'checksum' value is also written here.

d) DEBUG directory: NWRWAVES will create a unique 'debug' file for each product processed in this directory. The debug file naming scheme is: CCCNNNXXX_yymmddhhmmssdebug.txt where the CCCNNNXXX is the inbound AWIPS product identifier. You will be able to match this file with its corresponding entries in the INPUT and OUTPUT directories. The debug file contains a log of the major and minor processing points of NWRWAVES execution for this particular product.

e) SUMMARY directory: Any summary messages generated by NWRWAVES are kept in this directory.

f) ERROR directory: If NWRWAVES crashes for any reason, the core dump of the tcl/tk interpreter, along with a copy of the inbound AWIPS product are placed in this directory. There is also a file kept in the /awips/adapt/NWRWAVES directory called 'errorout.txt'. This file will exist, and its size will be zero, if NWRWAVES has run successfully for any product.

NOTE: The contents of these directories are scoured by an automated cron at the intervals established under Section 3, item 12 of this document under the Summary Message/Miscellaneous Configuration settings. These files contain activity logs of everything sent into, and that comes out of, NWRWAVES.

NOTE: NWRWAVES has robust error trapping capabilities built into the software. Should NWRWAVES fail, the operational staff will be alerted by a red-banner message (fxaAnnounce) that the program failed, and they will be directed as to why it failed. Examples of some common failure conditions include: expired UGC time in a product, corrupt product configuration file (hand editing), and corrupt VTEC or UGC lines (hand editing). If a product fails to transmit, sites will at least be able to recognize what didn't process, then take appropriate action to ensure that the data is broadcast.

6) When 'nwrwaves.tcl' has finished, it will take appropriate action with its output file(s) for CRS. If you called this file with the 'nwrwavestest.csh' file, all output files will be copied to the /awips/adapt/NWRWAVES/TEST directory. If you used the 'nwrwaves.csh' file, then the output will be copied to one of two locations:

   a) If your transmission status is set to "CRS" for this NWRWAVES product type, the output will be copied to the '/data/fxa/workFiles/nwr/ready' directory. Baseline AWIPS processes that monitor this directory will then take the output files and send them to CRS.
   b) If your transmission status is set to "Pending" for this NWRWAVES product type, the output will be copied to the '/data/fxa/workFiles/nwr/pending' directory. They will appear in the 'Pending' side of the NWRWAVES Browser. Manual intervention through the browser will be required to send the output to CRS.

A complete listing of the NWRWAVES file structure is included in Appendix A.

9. WORD/PHRASE REPLACEMENT CAPABILITY

The use of the Voice Improvement Processor (VIP) pre-processor and dictionary capabilities is encouraged to handle most word replacements, but there are some instances where you may want to make corrections before a product is transmitted to CRS. A number of such features are already built into NWRWAVES, including the correction of punctuation, removal of ellipses, etc. However a **WordFile(_SPN).txt** file is provided with NWRWAVES. Instructions are provided at the top of this file, along with a number of examples within. There are two word replacement files: WordFile.txt (used for all but inbound AWIPS products that end in "SPN"), and WordFile_SPN.txt (used for Spanish inbound products that have an AWIPS PID that ends in "SPN").

To modify the word replacement file:

1) Open a shell on any AWIPS workstation, with a user account that has 'fxalpha' group privileges.
2) Type **cd /awips/adapt/NWRWAVES/bin**.
3) Type **gedit /awips/adapt/NWRWAVES/bin/WordFile.txt**.
4) Add any words or phrases that you want in the prescribed format.
5) **Save** and **exit** from the editor when you are done
6) Close the active shell.

Some hints and guidelines as to the structure of this file (**NOTE:** It is similar to the CAFÉ WordFile.txt file. You should be able to easily port any local changes you have made there into NWRWAVES):

a) Use a double pipe (||) to separate the original string from the replacement string.
b) All white space will be ignored.
c) Do not use punctuation in the original phrase. NWRWAVES will automatically replace the original phrase even if it is followed by a comma, period, dash, new line or space.
d) Phone numbers do not require any special entries for replacement, if they are included in your AWIPS text products in a traditional phone number format #-###-#### or ###-###-####. These formats will be handled correctly in NWRWAVES. If a site formats phone numbers differently in their actual text products, it may not be necessary to do so anymore, as they might get unexpected results.
e) Related to (d), sites that typically use ranges with a dash (NORTH WINDS 7-11 MPH, HIGHS 77-82) will not get correct wording in an outbound CRS product. These ranges will need to be coded up differently in AWIPS text products.
f) For advanced users, the use of regular expressions is allowed and encouraged. Do not surround any regular expressions with quotes or braces {}.

   An excellent reference to how regular expressions can be crafted can be found in the black Tcl/Tk Welch Book, "Practical Programming in Tcl and Tk". Pages 121-126 are most insightful. Examples of some common regular expressions are:

   [0-9][0-9][0-9][0-9]Z ||

   Replaces UGC time references in products such as '1200Z'

   [HPMCEA][DS]T ||

For time zone replacement, you can use this regular expression to take out time zone references in a product. In the baseline WordFile.txt, this line is commented out. Uncomment the line (take out the leading # symbol) if you want to filter out all time zones. If your office has multiple time zones, you may want to modify this to take out the most common one (i.e., take out C in the first bracketed area to mention Central Daylight/Standard Time but mention Mountain Time.

SEE LAKE ONTARIO OPEN LAKES FORECAST FOR [^/n]+ ||

This is an example of how to code up a replacement for a common phrase, where wording may vary at the end such as the end of the week. The following phrase might be commonly found in a Near Shore Forecast: SEE LAKE ONTARIO OPEN LAKES FORECAST FOR FRIDAY THROUGH THURSDAY.

g) Do not duplicate entries here with those that already exist in your VIP dictionary. This file is ideal for overriding CRS generalities such as:
   - FT to be read as FEET
   - Stripping the time zones off of time stamps in products (see (d) above)
   - Pausing long phrases

10. SWAPS Capability

SWAPS capability is another level of word replacement within the lead-in's for different NWRWAVES products. This feature allows the forecasters to substitute/replace the wordings for 2 or more or a group of counties by a simple phrase. See example in the `localSWAPS.txt` of how to use the SWAPS option.

11. OPTIONS TO PARSE CALL-TO-ACTION IN NWS ALERT MESSAGES

In OB9 release, AWIPS warning generation tools such as WarnGen, GFE/GHG, and RiverPro will add a pair of unique markers between the Call-To-Action (CTA) Statements in many of the text products (see Appendix-E). It is part of the capabilities specified in OSIP #07-024 project - Formatting NWS Alert Messages in CAP. The current proposed solution for the CTA markers is:

(blank line)
PRECAUTIONARY/PREPAREDNESS ACTIONS...
(blank line)
(single- or multi-line text content of call-to-action, instructions, etc. here)
(blank line)
&&
(blank line)

In OB9 release, AWIPS warning generation tools such as WarnGen, GFE/GHG, and RiverPro will add a pair of unique markers between the Call-To-Action (CTA) Statements in many of the text products (see Appendix-E). It is part of the capabilities specified in OSIP #07-024 project - Formatting NWS Alert Messages in CAP. The current proposed solution for the CTA markers is:

For the NWR purpose, NWRWAVES will remove the markers. Also, based on the particular hazard, NWRWAVES will provide the WFOs the option to either broadcast the corresponding CTAs or not (i.e., turn on/off the broadcast of the CTAs). In AWIPS OB8.3 release, an experimental option was added in the

NWRWAVES GUI to allow the WFOs to turn on/off the CTAs for all the Marine Weather Warnings (MWW) products. The option applied globally for all the MWW products but not the individual VTEC phenomena/significance. In OB9 release, this MWW CTA GUI selection has been removed and a site-level (non-GUI base) configuration file would be used to control the CTA statements.

In OB9, all CTAs will NOT be removed by default unless the WFO NWRWAVES focal point would enter an entry or entries of configuration data in a newly created ASCII configuration file /awips/adapt/NWRWAVES/bin/NO_CTA.ini. The only way to filter out the CTA is to enter both the Product Type AND the corresponding VTEC entry or a VTEC entry with action codes separate by a comma.

The following is an example of the CTA configuration file:

```
#################################################################
#### NWRWAVES Call-To-Action related config FILE: NO_CTA.ini ###
####                                                         ###
#### By default, all the CTA statements will be part of      ###
#### the warning products. The only way to remove the CTA    ###
#### statements is by creating the following entries:        ###
####                                                         ###
#### (1) Product type e.g. NPW AND (2) either a VTEC event   ###
####     code e.g. TO.W (apply for all action codes)         ###
####     or a VTEC phenomena/significance plus action codes  ###
####     separate by a comma.                                ###
####                                                         ###
#### The following are two examples of removing the CTA      ###
#### statements associate with wind advisory and Lake wind   ###
#### in the NPW product type:                                ###
#### NPW                                                     ###
#### WI.Y                                                    ###
#### LW.Y,NEW,CON                                            ###
####                                                         ###
#### These three entries combination will instruct the       ###
#### NWRWAVES to remove the CTA statements from the NPW      ###
#### product output.                                         ###
#### In the case of mutiple VTECs within a given segment, if ###
#### one or more VTEC(s) is not specified in this file, then ###
#### all the CTA statements will be output automatically for ###
#### that particular segment.                                ###
####                                                         ###
#### There are 2 exceptions that user can turn off the OVR   ###
#### overview products without CTA by entering the following ###
#### entry(ies):                                             ###
#### FLWOVR                                                  ###
#### FLSOVR                                                  ###
#### The FLW or FLS (hydro) products are the only two with   ###
#### the CTA in the overview section being removed from the  ###
#### OVR product.                                            ###
#################################################################
#
```

Base on product type and VTEC phenomena/significance e.g. NPW and WI.

```
NPW
WI.Y

# Base on product type and VTEC phenomena/significances plus selected actions
MWW
SC.Y,CON,EXA

**EndOfFile**
```

To completely remove all the CTAs for the VTEC phenomena/significance such as "SV.W" for example, the user needs to enter two product types (e.g. SVR and SVS) in the configuration file-
SVR
SVS
SV.W,NEW,CON,EXP,CAN

or

SVR
SV.W,NEW
SVS
SV.W,CON,EXP,CAN

Say if the user removes the "SVR" line from the configuration file:
SVS
SV.W,NEW,CON,EXP,CAN

Then, the CTA associates with the action code of "NEW" will never be removed from the output since only the "SVR" products can have the "NEW" action. Or specifically, NWRWAVES skips the code to process CTA since the product type "SVR" is not specified in the configuration file.

When there are multiple VTEC events described within the same product or product segment, there may be more than one CTA. If one or more of the VTEC events are not specified in the CTA configuration file in a given product or product segment, then the entire CTA section between the CTA markers shall be broadcast. In other words, more than one CTA may be broadcast. If only the start CTA marker exists in a product without the end CTA marker (&&), NWRWAVES would broadcast the text that follows the start CTA marker regardless of any WFO-level CTA option configuration.

12. LESSONS LEARNED AND RESOURCES AVAILABLE

An NWRWAVES resource web site has been created for support purposes. This site is located under the CRS web site maintained by NWS Headquarters (http://www.weather.gov/ops2/crs/nwrwaves.htm). This web site contains an FAQ list, various documentation for NWRWAVES, and a link to the NWRWAVES listserver.

NWRWAVES support is administered through the NCF. Sites experiencing difficulties with NWRWAVES should call the NCF and open a trouble ticket. The NCF will provide Tier 1 support for offices using NWRWAVES. If the NCF believes that Tier 2 support is necessary, they will contact the appropriate Tier 2 support group. Tier 2 support is now the CRS Operations Group at NWSHQ.

General support questions can and should be referred to the NWRWAVES Listserver. If you're in need of general support or just have a question regarding NWRWAVES (no imminent problem or NCF support needed for a failure), the best mechanism for support is as follows:

a. If the problem you're experiencing is impacting operational use, contact the NCF and open a trouble ticket.
b. If it is not an imminent issue, check your question against the FAQ list on the NWRWAVES web site. If your question has been encountered before, you will find the solution posted here.
c. If the question is not readily visible on the FAQ list, post it to the list server. This way, everyone who has been working with the software can see your situation, and you can get help from other NWRWAVES users. Operational questions, configuration issues and questions should be submitted to the NWRWAVES list server to ensure the quickest response possible.

To sign up for the NWRWAVES list server, go to the following URL: http://infolist.nws.noaa.gov/read/login/ Input your e-mail address and e-mail password, then select the All Forums Tab. Scroll down to NWRWAVES and click on subscribe. You will receive information back from the listserver concerning use of the forum

APPENDIX A – COMPLETE NWRWAVES FILE LISTING

```
MAIN INSTALL DIRECTORY LISTING
drwxrwxrwx    2 fxa      fxalpha     28672 Apr 27 16:47 BACKUP
drwxrwxrwx    2 fxa      fxalpha      4096 Apr 23 11:29 bin
drwxrwxrwx    2 fxa      fxalpha      4096 Apr 24 13:35 browser
drwxrwxrwx    2 fxa      fxalpha    139264 Apr 28 21:14 DEBUG
drwxrwxrwx    2 fxa      fxalpha      4096 Apr 15 22:10 ERROR
-rw-rw-r--    1 fxa      fxalpha         0 Apr 28 21:14 errorout.txt
-rw-rw-r--    1 fxa      fxalpha        37 Apr 28 21:14 FILENAME.LAST
drwxrwxrwx    2 fxa      fxalpha     73728 Apr 28 21:14 INPUT
drwxrwxrwx    2 fxa      fxalpha      4096 Apr 28 01:40 LOGS
-rw-rw-rw-    1 fxa      fxalpha        18 Apr  5 19:49 NONVTECMRD.txt
-rwxrwxr-x    1 fxa      fxalpha      4265 Apr  9 17:47 nwrwaves.csh
-rwxrwxrwx    1 fxa      fxalpha      1026 Feb 23 18:48 NWRWAVESpurge.sh
-rw-rw-r--    1 fxa      fxalpha         4 Apr  2 16:22 NWRWAVES_RELEASE_ID
-rwxrwxr-x    1 fxa      fxalpha    212320 Mar 24 23:45 nwrwaves_setup.tcl
-rwxrwxr-x    1 fxa      fxalpha    160858 Apr  9 18:10 nwrwaves.tcl
-rwxrwxr-x    1 fxa      fxalpha      4270 Apr  9 18:21 nwrwavestest.csh
drwxrwxrwx    2 fxa      fxalpha     49152 Apr 28 21:14 OUTPUT
-rwxrwxrwx    1 fxa      fxalpha       788 Feb 18 15:16 pendingDirCheck
-rw-rw-r--    1 fxa      fxalpha     14738 Apr 26 19:37 product.cfg
-rw-rw-r--    1 fxa      fxalpha     14375 Apr  2 16:22 product.cfg.V2.4
-rw-rw-rw-    1 fxa      fxalpha        15 Apr 27 17:01 purge.cfg
drwxrwxrwx    2 fxa      fxalpha      4096 Apr 28 21:14 QUEUE
-rwxrwxrwx    1 fxa      fxalpha      1467 Feb 23 18:48 removeExpiredNWR.sh
drwxrwxrwx    2 fxa      fxalpha      4096 Apr 16 01:21 SUMMARY
drwxrwxrwx    2 fxa      fxalpha      4096 Mar 24 16:32 TEST
-rw-rw-rw-    1 fxa      fxalpha      4704 Mar 25 00:03 UGClookup_changes.txt
-rwxrwxr-x    1 fxa      fxalpha      2941 Feb 18 15:17 updateSUMMARY.csh


NWRWAVES bin DIRECTORY LISTING
-rwxrwxr-x    1 fxa      fxalpha      9039 Feb 18 15:17 clocktime.tcl
-rwxrwxr-x    1 fxa      fxalpha     15098 Feb 18 15:17 color_msgbox.tcl
-rwxrwxr-x    1 fxa      fxalpha     64430 Feb 18 15:17 combobox.tcl
-rwxrwxr-x    1 fxa      fxalpha      2211 Feb 18 15:17 dialog.tcl
-rw-rw-rw-    1 fxa      fxalpha        44 Dec  2 08:52 localUGClookup.table
-rwxrwxr-x    1 fxa      fxalpha      5104 Feb 18 15:17 notebook.tcl
-rwxrwxr-x    1 fxa      fxalpha       923 Feb 18 15:17 pkgIndex.tcl
-rwxrwxrwx    1 fxa      fxalpha      1545 Feb 18 15:17 relinkNWRWAVESBrowser.sh
-rw-rw-rw-    1 fxa      fxalpha    230042 Mar 25 00:06 UGClookup.table
-rwxrwxr-x    1 fxa      fxalpha     27118 Mar 14 16:51 UGC_VTEC_Decoder.tcl
-rw-rw-rw-    1 fxa      fxalpha       751 Feb 18 15:17 VTECrank.ini
-rw-rw-rw-    1 fxa      fxalpha      1715 Feb 15 19:32 WordFile_SPN.txt
-rwxrwxrwx    1 fxa      fxalpha      3315 Jan 24 19:47 WordFile.txt
-rw-rw-rw-    1 fxa      fxalpha       717 DEC 13 13:01 localSWAPS.txt
-rw-rw-rw-    1 fxa      fxalpha       717 Apr 13 13:01 NO_CTA.ini
-rw-rw-rw-    1 fxa      fxalpha       717 Apr 13 13:01 NWEM.cfg
```

```
NWRWAVES BROWSER DIRECTORY LISTING
-rw-r--r--    1 fxa      fxalpha        57 Apr 24 13:33 admin.list
-rw-rw-rw-    1 fxa      fxalpha      1118 Mar 24 22:36 browser.cfg
-rw-rw-rw-    1 fxa      fxalpha       267 Mar 24 22:36 browser.ini
-rwxrwxr-x    1 fxa      fxalpha     66988 Mar 24 23:42 browser.tcl
-rw-rw-rw-    1 fxa      fxalpha         5 Apr 27 17:01 pending.cfg
-rw-rw-rw-    1 fxa      fxalpha        95 Apr 27 17:01 pils.list
-rwxrwxr-x    1 fxa      fxalpha     12788 Mar 24 22:36 update.tcl
```

APPENDIX B – EXAMPLE OF EAX siteTrigger.template FILE FOR NWRWAVES

```
STLSVREAX   /awips/adapt/NWRWAVES/nwrwaves.csh
STLSVRLSX   /awips/adapt/NWRWAVES/nwrwaves.csh
STLSVRSGF   /awips/adapt/NWRWAVES/nwrwaves.csh
TOPSVRTOP   /awips/adapt/NWRWAVES/nwrwaves.csh
DSMSVRDMX   /awips/adapt/NWRWAVES/nwrwaves.csh
CHISVRDVN   /awips/adapt/NWRWAVES/nwrwaves.csh
OMASVROAX   /awips/adapt/NWRWAVES/nwrwaves.csh
STLTOREAX   /awips/adapt/NWRWAVES/nwrwaves.csh
STLTORLSX   /awips/adapt/NWRWAVES/nwrwaves.csh
STLTORSGF   /awips/adapt/NWRWAVES/nwrwaves.csh
TOPTORTOP   /awips/adapt/NWRWAVES/nwrwaves.csh
DSMTORDMX   /awips/adapt/NWRWAVES/nwrwaves.csh
CHITORDVN   /awips/adapt/NWRWAVES/nwrwaves.csh
OMATOROAX   /awips/adapt/NWRWAVES/nwrwaves.csh
STLFFWEAX   /awips/adapt/NWRWAVES/nwrwaves.csh
STLFFWLSX   /awips/adapt/NWRWAVES/nwrwaves.csh
STLFFWSGF   /awips/adapt/NWRWAVES/nwrwaves.csh
TOPFFWTOP   /awips/adapt/NWRWAVES/nwrwaves.csh
DSMFFWDMX   /awips/adapt/NWRWAVES/nwrwaves.csh
CHIFFWDVN   /awips/adapt/NWRWAVES/nwrwaves.csh
OMAFFWOAX   /awips/adapt/NWRWAVES/nwrwaves.csh
STLFFAEAX   /awips/adapt/NWRWAVES/nwrwaves.csh
STLFFALSX   /awips/adapt/NWRWAVES/nwrwaves.csh
STLFFASGF   /awips/adapt/NWRWAVES/nwrwaves.csh
TOPFFATOP   /awips/adapt/NWRWAVES/nwrwaves.csh
DSMFFADMX   /awips/adapt/NWRWAVES/nwrwaves.csh
CHIFFADVN   /awips/adapt/NWRWAVES/nwrwaves.csh
OMAFFAOAX   /awips/adapt/NWRWAVES/nwrwaves.csh
STLFFSEAX   /awips/adapt/NWRWAVES/nwrwaves.csh
STLFFSLSX   /awips/adapt/NWRWAVES/nwrwaves.csh
STLFFSSGF   /awips/adapt/NWRWAVES/nwrwaves.csh
CHIFFSDVN   /awips/adapt/NWRWAVES/nwrwaves.csh
DSMFFSDMX   /awips/adapt/NWRWAVES/nwrwaves.csh
TOPFFSTOP   /awips/adapt/NWRWAVES/nwrwaves.csh
OMAFFSOAX   /awips/adapt/NWRWAVES/nwrwaves.csh
STLFLWEAX   /awips/adapt/NWRWAVES/nwrwaves.csh
STLFLWLSX   /awips/adapt/NWRWAVES/nwrwaves.csh
STLFLWSGF   /awips/adapt/NWRWAVES/nwrwaves.csh
CHIFLWDVN   /awips/adapt/NWRWAVES/nwrwaves.csh
TOPFLWTOP   /awips/adapt/NWRWAVES/nwrwaves.csh
OMAFLWOAX   /awips/adapt/NWRWAVES/nwrwaves.csh
STLFLSEAX   /awips/adapt/NWRWAVES/nwrwaves.csh
STLFLSLSX   /awips/adapt/NWRWAVES/nwrwaves.csh
STLFLSSGF   /awips/adapt/NWRWAVES/nwrwaves.csh
CHIFLSDVN   /awips/adapt/NWRWAVES/nwrwaves.csh
TOPFLSTOP   /awips/adapt/NWRWAVES/nwrwaves.csh
OMAFLSOAX   /awips/adapt/NWRWAVES/nwrwaves.csh
STLWSWEAX   /awips/adapt/NWRWAVES/nwrwaves.csh
STLWSWLSX   /awips/adapt/NWRWAVES/nwrwaves.csh
TOPWSWTOP   /awips/adapt/NWRWAVES/nwrwaves.csh
OMAWSWOAX   /awips/adapt/NWRWAVES/nwrwaves.csh
```

```
CHIWSWDVN   /awips/adapt/NWRWAVES/nwrwaves.csh
DSMWSWDMX   /awips/adapt/NWRWAVES/nwrwaves.csh
STLWSWSGF   /awips/adapt/NWRWAVES/nwrwaves.csh
STLNOWEAX   /awips/adapt/NWRWAVES/nwrwaves.csh
STLNOWLSX   /awips/adapt/NWRWAVES/nwrwaves.csh
STLNOWSGF   /awips/adapt/NWRWAVES/nwrwaves.csh
CHINOWDVN   /awips/adapt/NWRWAVES/nwrwaves.csh
DSMNOWDMX   /awips/adapt/NWRWAVES/nwrwaves.csh
TOPNOWTOP   /awips/adapt/NWRWAVES/nwrwaves.csh
OMANOWOAX   /awips/adapt/NWRWAVES/nwrwaves.csh
STLNPWEAX   /awips/adapt/NWRWAVES/nwrwaves.csh
STLNPWLSX   /awips/adapt/NWRWAVES/nwrwaves.csh
CHINPWDVN   /awips/adapt/NWRWAVES/nwrwaves.csh
DSMNPWDMX   /awips/adapt/NWRWAVES/nwrwaves.csh
OMANPWOAX   /awips/adapt/NWRWAVES/nwrwaves.csh
TOPNPWTOP   /awips/adapt/NWRWAVES/nwrwaves.csh
STLNPWSGF   /awips/adapt/NWRWAVES/nwrwaves.csh
STLPNSEAX   /awips/adapt/NWRWAVES/nwrwaves.csh
STLHWOEAX   /awips/adapt/NWRWAVES/nwrwaves.csh
STLSPSEAX   /awips/adapt/NWRWAVES/nwrwaves.csh
STLRWSEAX   /awips/adapt/NWRWAVES/nwrwaves.csh
```

APPENDIX C – NWRWAVES Cron Jobs

NWRWAVES has four background cron jobs. All the cron jobs run on dx2 as user fxa, except during a failover when they will run on dx1. The cron jobs are listed below:

```
# Crontab file for starting dx2apps NWRWAVES purge processes.

# Any entry that needs to use ${FXA_HOME} or ${FXA_DATA} should use "csh -c"
# to run the command. The command and any output redirection to a file must
# all be include in single quotes after the "-c". The output redirection
# will then be done by the csh so it must use csh syntax.

# PURGER/SCOUR...
# Run NWRWAVESpurge.sh daily to clean DEBUG LOGS OUTPUT INPUT
# and TEST Directories
45 0 * * * csh -c '/awips/adapt/NWRWAVES/NWRWAVESpurge.sh >& /dev/null'

# Run removeExpiredNWR.sh twice an hour to remove any expired or
# corrupt files from pending and sent side of NWRWAVESBrowser
20,40 * * * * csh -c '/awips/adapt/NWRWAVES/removeExpiredNWR.sh >& /dev/null'

# OTHER NWRWAVES Cron jobs
# Summary Update Script, updateSUMMARY.csh, four times an hour to
# update the summary message
00,15,30,45 * * * * csh -c '/awips/adapt/NWRWAVES/updateSUMMARY.csh >& /dev/null'

# Run the Pending Directory Check Script, pendingDirCheck, every ten minutes
# to check for old messages in the pending directory
00,10,20,30,40,50 * * * * csh -c '/awips/adapt/NWRWAVES/pendingDirCheck >& /dev/null'
```

NWRWAVESpurge.sh – Runs once a day 00:45Z. It purges files in the DEBUG, LOGS, INPUT, OUTPUT and TEST directories. Purge settings are contained in the file /awips/adapt/NWRWAVES/purge.cfg and are modified by using the NWRWAVES Setup GUI.

removeExpiredNWR.sh – Runs twice an hour at 20 and 40 minutes past. It removed expired and corrupt messages from the /data/fxa/workFiles/nwr/pending and /data/fxa/workFiles/nwr/sent directories.

updateSUMMARY.csh – Runs four times an hour at 00, 15, 30, and 45 minutes past. It forces an update of any active NWRWAVES Summary messages.

pendingDirCheck – Runs six times an hour at 00, 10, 20, 30, 40, and 50 minutes past. It checks for stale messages in the /data/fxa/workFiles/nwr/pending directory. If a stale message is detected, then an fxaAnnounce Red Banner message is sent. The time a messages needs to sit in the pending directory before it is considered stale is configured in the NWRWAVES Setup GUI. This script can also be disabled in the NWRWAVES Setup GUI.

APPENDIX D – Instructions for implementing MWW Watch/Warnings/Advisories

The following is a list of the applicable Watches, Warnings and Advisories that can be issued with the Marine Weather product (MWW) along with the associated V-TEC code, Issuance and Followup headers.

Marine Watches			
Products	**VTEC**	**Issuance Header**	**Followup Header**
Hurricane Force Wind Watch	HF.A	MWW	MWW
Storm Watch	SR.A	MWW	MWW
Gale Watch	GL.A	MWW	MWW
Hazardous Seas Watch	SE.A	MWW	MWW
Heavy Freezing Spray Watch	UP.A	MWW	MWW

Marine Warnings			
Products	**VTEC**	**Issuance Header**	**Followup Header**
Hurricane Force Wind Warning	HF.W	HUW	HUW
Storm Warning	SR.W	MWW	MWW
Gale Warning	GL.W	MWW	MWW
Hazardous Seas Warning	SE.W	MWW	MWW
Heavy Freezing Spray Warning	UP.W	MWW	MWW

Marine Advisories			
Products	**VTEC**	**Issuance Header**	**Followup Header**
Ashfall Advisory	AF.Y	NPW	NPW
Brisk Wind Advisory	BW.Y	MWW	MWW
Dense Fog Advisory	FG.Y	NPW	NPW
Dense Smoke Advisory	SM.Y	NPW	NPW
Freezing Spray Advisory	UP.Y	MWW	MWW
Low Water Advisory	LO.Y	MWW	MWW
Small Craft Advisory	SC.Y	MWW	MWW
Small Craft Advisory for Hazardous Seas	SW.Y	MWW	MWW
Small Craft Advisory for Rough Bar	RB.Y	MWW	MWW
Small Craft Advisory for Winds	SI.Y	MWW	MWW

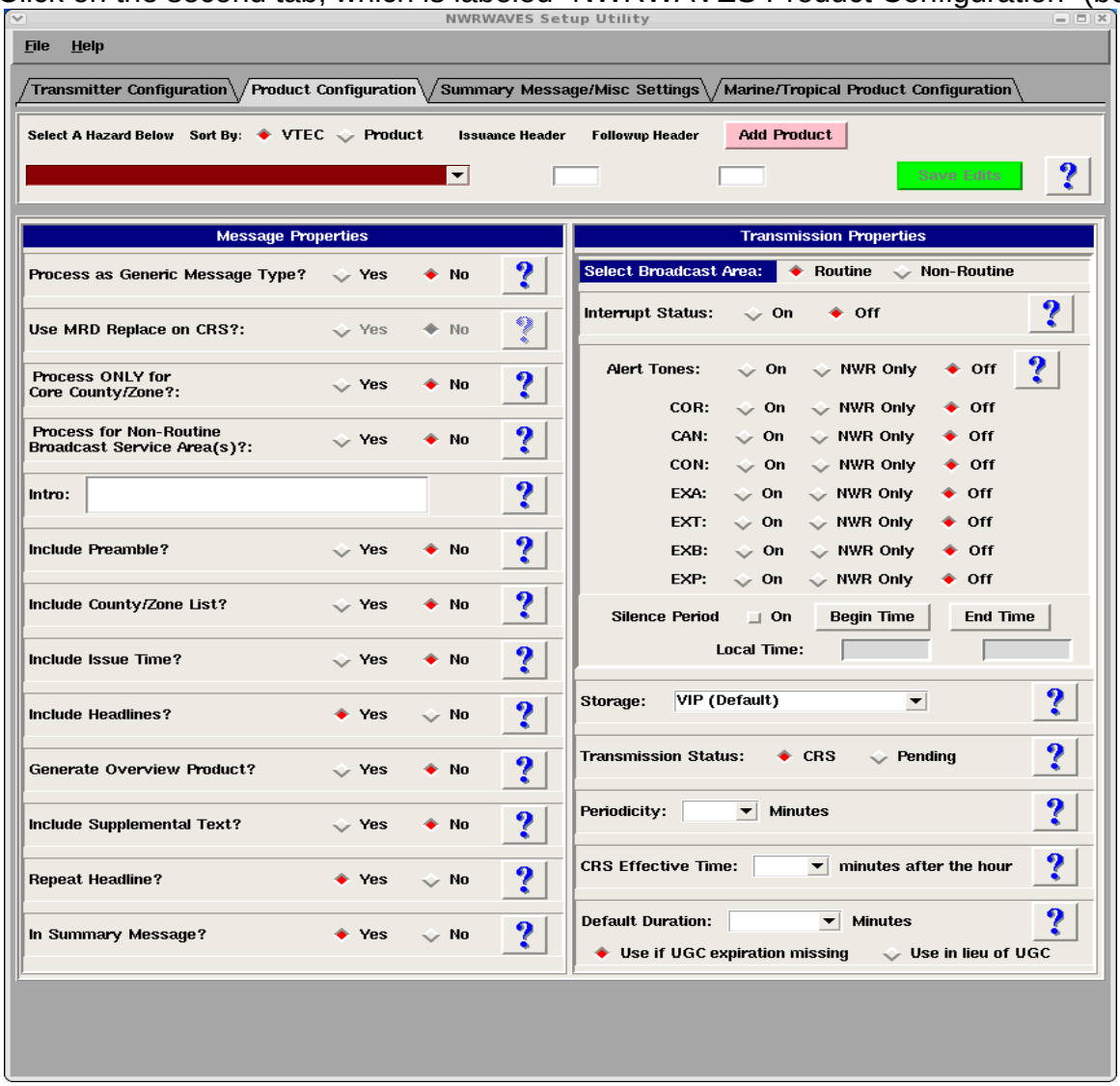
Each of the marine sites will have to configure the MWW entries according to their needs. The following is an example of how to configure an MWW for Small Craft Advisory (SC.Y).

Instructions for implementing Small Craft Advisory (SC.Y)

NWRWAVES (OB8.2 and older)

There are two basic steps needed to implement SC.Y products into NWRWAVES. The first is to create the product and configure it within NWRWAVES, and the second is to create the textdb trigger for the new MWW AWIPS product.

1. Create the SC.Y product within NWRWAVES
   a) From the NWRBrowser on AWIPS, launch the NWRWAVES Setup GUI.
   b) Click on the second tab, which is labeled “NWRWAVES Product Configuration” (below).

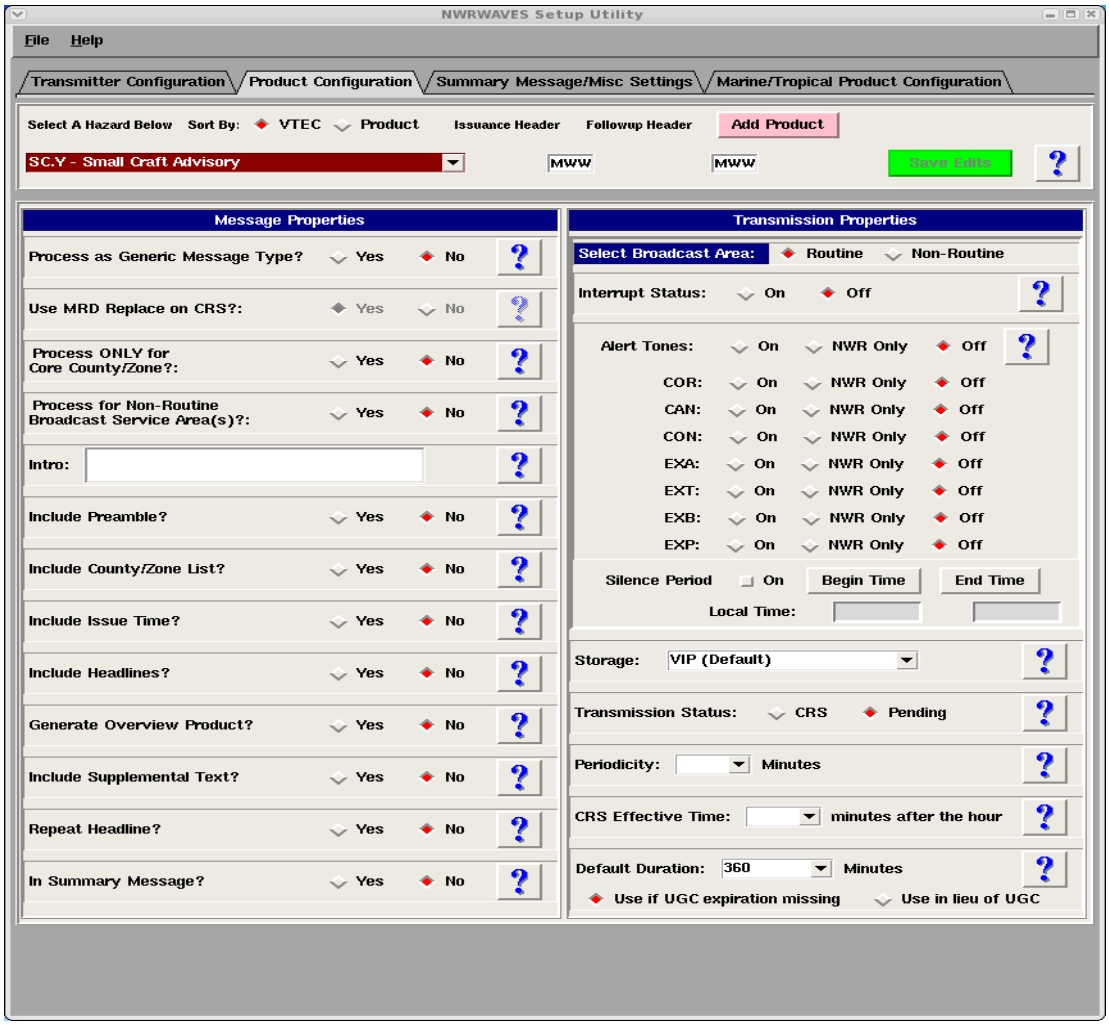


   c) Click the pink ‘Add Product’ button.

d) In the new GUI that pops up, enter in the text boxes exactly what you see in the example below.

e) Click OK, then click the green 'Save Edits' button in the NWRWAVES Setup GUI.

f) Confirm your settings: from the NWRWAVES product dropdown menu, select the product "SC.Y – Small Craft Advisory". Your GUI should match the one below; if it doesn't make adjustments to the appropriate fields and then save those changes. Don't forget to ensure your alert settings for the Non-Routine Broadcast Area!



You are done configuring the SC.Y product in NWRWAVES. Since the SC.Y uses the CWF code for

EAS activation (and for simplicity sake we'll use the MWW follow-up header), your CRS database is already configured to accept the new SC.Y products.

2. Configuring your textdb triggers to execute NWRWAVES for the new MWW product(s). For a complete explanation of setting up text database triggers for NWRWAVES, please refer to the NWRWAVES User Documentation, pages 28-29:

a. Log into an AWIPS workstation with a user account that has fxalpha group privileges and open up a terminal window.
b. Change directories to the trigger directory.

cd /data/fxa/siteConfig/textApps

c. Make a backup copy of your site trigger information, in case you need to revert back to it.

cp siteTrigger.template siteTrigger.template.mmddyyyy
where '**mmddyyyy**' is the numeric current date

d. Edit your site trigger configuration.

gedit siteTrigger.template &

When you view this file, you will see a listing of AWIPS product identifiers, along with an action that is to be completed upon receipt of that product identifier into the text database. Enter the following line into your trigger
a. file:

CCCMWWXXX /awips/adapt/NWRWAVES/nwrwaves.csh

Be sure to include every local office MWW product that you need for your NWR coverage areas. "CCC" refers to the legacy state node, while "XXX" is the 3-character WFO identifier.

e. Save and exit your siteTrigger.template file
f. Log onto dx1

ssh dx1

g. Change user to fxa and type the following commands:

su – fxa
cd /awips/fxa/data/localization/scripts
./mainScript.csh

APPENDIX E – A List of Product Identifier in OB9 with the new Instruction (CTA) Markers

AVA, AVW, CAE, CDW, CEM, CWF, EQW, EVI, FFA, FRW, HLS, HMW, LAE, LEW, MWS, MWW, NPW, NUW, RFW, RHW, SPW, TOE, VOW, WSW, FFA, FLS, FLW, EWW, FFS, FFW, SMW, SVR, SVS, TOR

NOTE: Some products, namely the stand-alone MWS (MWS that does not follow-up a SMW) and Non-Weather Emergency Message (NWEM) products that originate in HazCollect, initially will not contain CTA Markers.

APPENDIX F – New features to support HLS products and operations

In June 2008, the HLS products issued by the sites would be a segmented product with VTEC containing the Tropical Storm/Hurricane Watch/Warnings. During the 2008 tropical season, NWRWAVES created HLS radio products that were essentially unreadable on NWR. The resulting radio products made cycles upwards of 30 minutes long which is unacceptable for a severe weather event. In OB9 release, when a new HLS text product arrives, the NWRWAVES is now required to notify the users to run the HLS Setup GUI to make a sub-headlines selection each time. In addition, the NWRWAVES is required to support two separate roles - one for administrators and the other for the HLS users.

Administrator's Role:
An administrative user at the site will need to setup and create any additional sub-headlines that will appear for the users to select. This will occur well in advance of the event or after the software installation completed. From the "NWRWAVES" pull-down menu, select the option "NWRWAVES Setup" (Figure-1). You will see the NWRWAVES Setup GUI pop-up on your AWIPS screen.

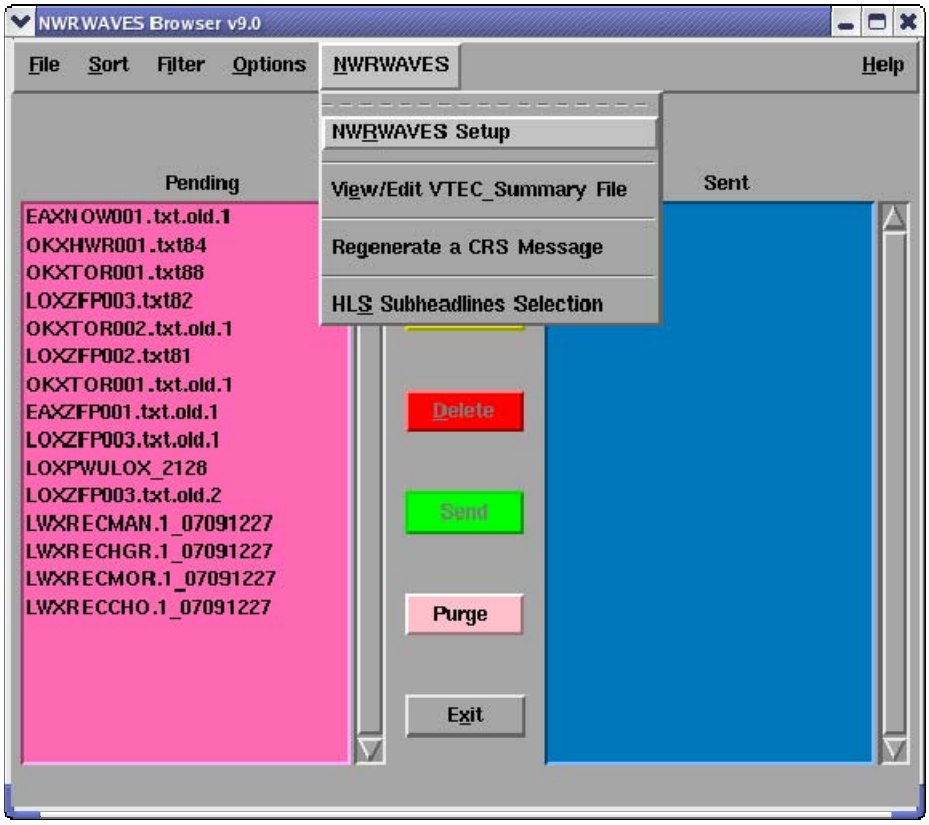


Figure 1- Launching the HLS Setup GUI for admin users via NWRBrowser

Select the 4th "Marine/Tropical Product Configuration" tab (see Figure 2). Under the "Hurricane Local Statement" section, you should see the label "Subheadlines Selection and HLS Transmitter Configuration" and click on the new "Change Settings" button (cyan color) to activate the HLS Setup GUI.

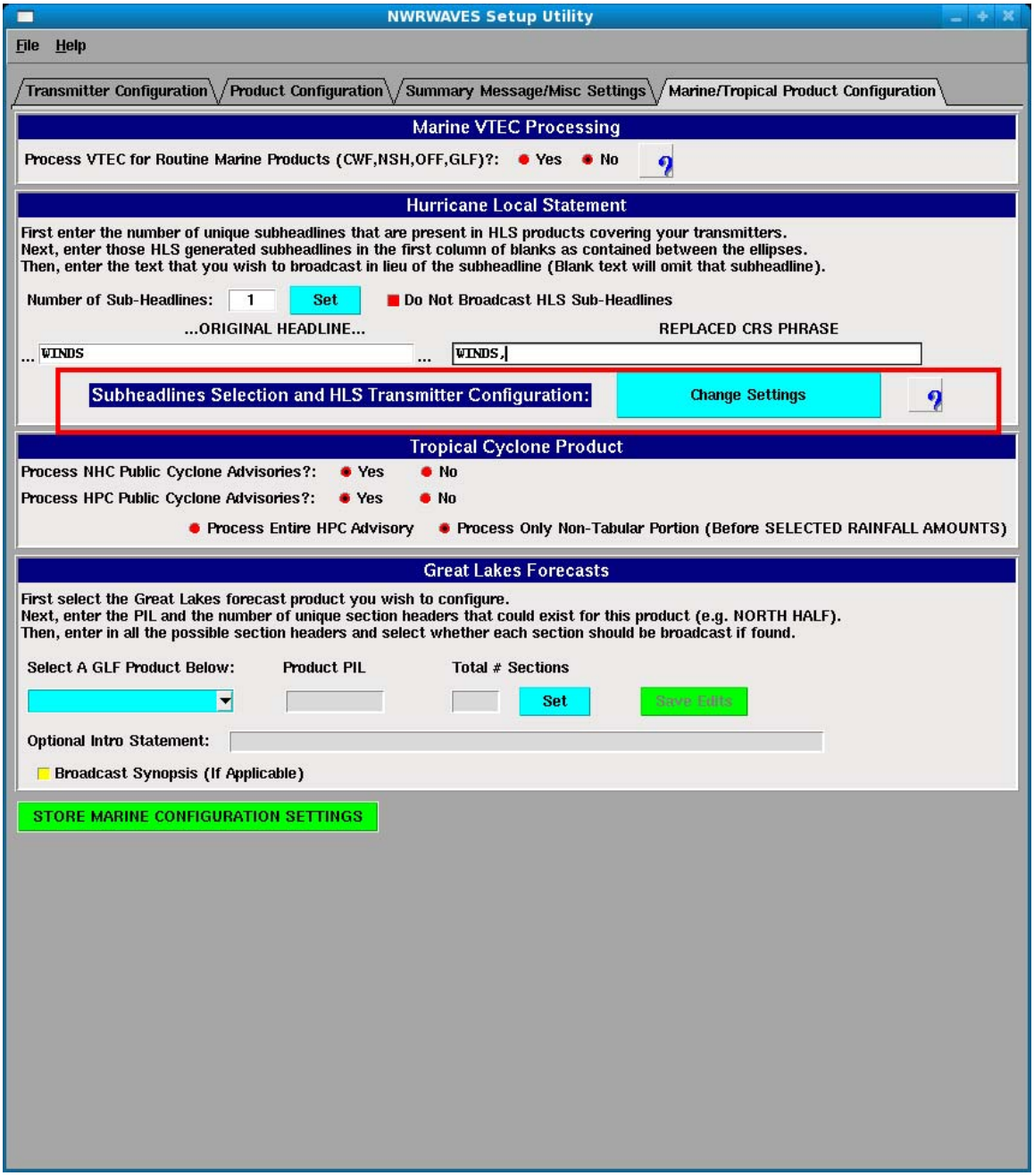


Figure 2- A new button is added to run HLS Setup from the NWRWAVES Setup GUI

Upon the selection of “Change Settings” button, the new HLS Setup Utility GUI would pop up as shown in Figure 3.

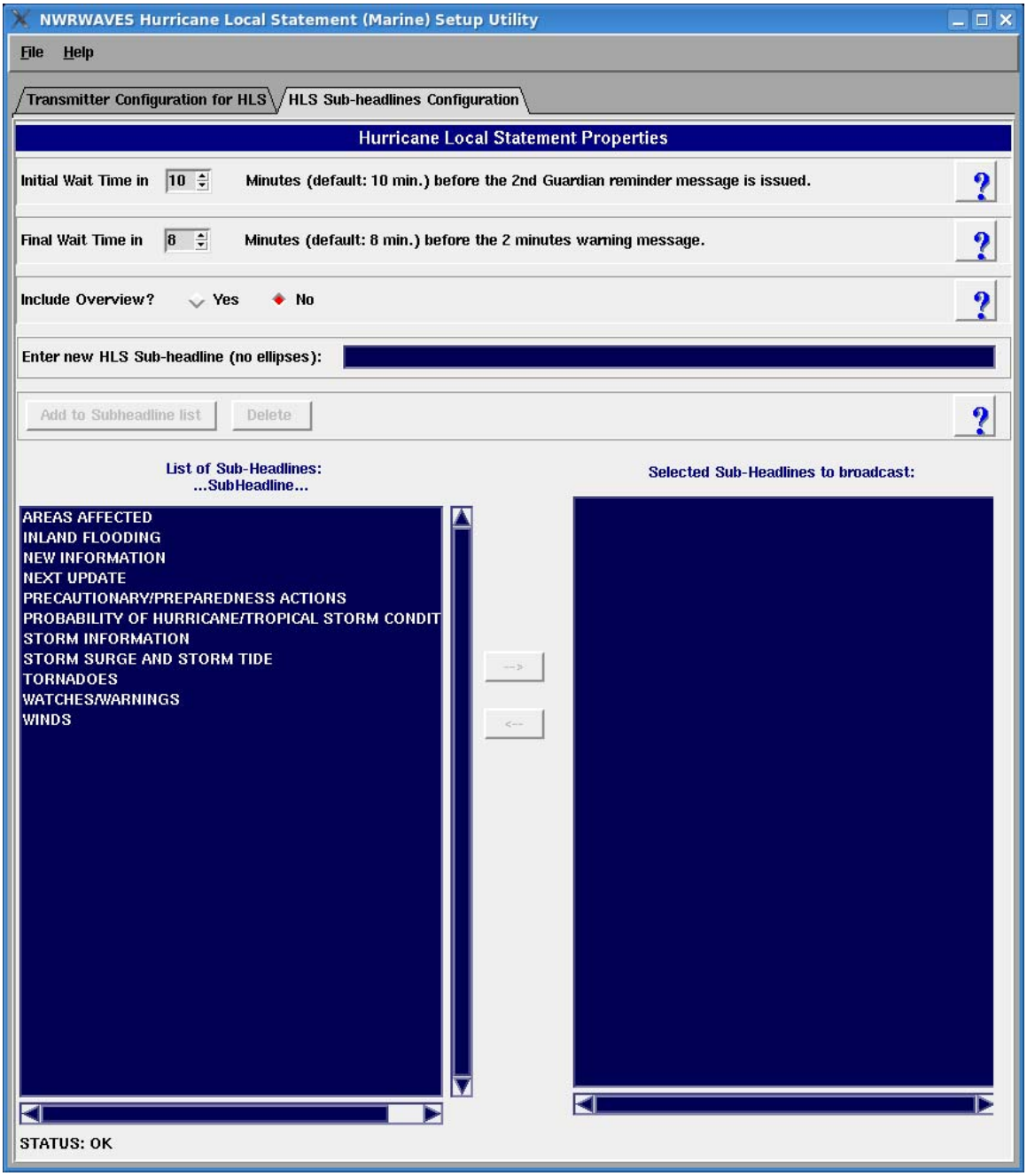


Figure 3 – A new HLS Setup GUI for Subheadlines configuration.

By default, the following 11 standard sub-headlines will be created in alphabetical order:

```
...NEW INFORMATION...

...AREAS AFFECTED...

...WATCHES/WARNINGS...

...STORM INFORMATION...

...PRECAUTIONARY/PREPAREDNESS ACTIONS...

...STORM SURGE AND STORM TIDE...

...WINDS...

...PROBABILITY OF HURRICANE/TROPICAL STORM CONDITIONS...

...INLAND FLOODING...

...TORNADOES...

...NEXT UPDATE...
```

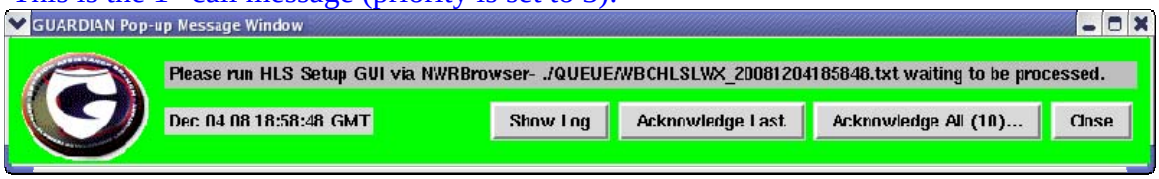
The next step for the administrator to do is to enter or populate any additional sub-headlines via the “Enter new Sub-headlines (no ellipses):” entry. After completing a new sub-headline entry, then clicks on the “Add to Subheadline list” button, the new sub-headline entry will show up as a new sub-headline on the left scroll window. Likewise, to delete the entry, just highlight the entry on the left scroll window and click on the “Delete” button to remove the selected sub-headline(s). Notice that you cannot remove those eleven standard sub-headlines.

User’s Role:

HLS users or forecasters at the site will need to select which sub-headlines to be used. This will occur after the administrator has populated a complete sub-headlines list for the site. From the “NWRWAVES” pull-down menu, select 4th option entry “HLS Subheadlines Selection” (Figure-1). You will see the HLS Setup GUI pop-up on your AWIPS screen. If you don’t see this option, this means that the administrator has not activated or populated the sub-headlines in the HLS Setup GUI yet.

During the normal operation, the forecasters will be reminded to launch this HLS Setup GUI to change the Sub-headlines selections via the Guardian messages (at most 3 times when a new HLS product is triggered from the text database). Therefore, it is up to the users to configure what should the Initial Wait Time (default to 10 minutes) in minutes and the second Final Wait Time (default to 8 minutes) before the NWRWAVES script starts to process the HLS products. There will also be a 3rd Guardian message served as a 2 Minutes warning if the user has not run the HLS Setup GUI. Figure 4 illustrates a sample of the three Guardian messages send to the AWIPS workstations. Once the user has been accessing the HLS Setup GUI and detected by the NWRWAVES timer script, the subsequent message(s) will not pop up and the NWRWAVES script will process the HLS product immediately.

This is the 1st call message (priority is set to 3):



This 2nd message sends with an audio alarm (priority is set to 2):

This is the 3rd or last call or 2 minutes warning (priority is set to 1):

Figure 4 – The 3 Guardian messages send to AWIPS workstation to remind forecasters to launch the HLS GUI.

In addition to the timing control of the popup messages, the forecasters or users can also select the option to include the overview section in the output message or not. But most important of all, it is the forecaster's responsibility to select the sub-headlines to be used when a new HLS product arrives each time. By highlighting the sub-headline(s) on the left scroll window, the user then clicks on the "→" button to select the desired sub-headline(s). This select sub-headline(s) would show up on the right scroll window and eventually will be used by the NWRWAVES script. Note that the NWRWAVES script does not process the sub-headlines in alphabetical order as shown on the right scroll window as indicated. The HLS output ordering should match the pre-fix order of the input HLS product. Likewise, you can unselect the sub-headlines by highlight the items on the right scroll window for broadcast and click on the "←" button to unselect the sub-headlines. Notice that foresters (only administrators can) do not have the role to add any new sub-headlines (all the associated buttons or entry are disabled). The last important step is to save the new configuration by selecting the "File" menu-> "Save & Exit" option to save the changes.

In addition to the new sub-headlines selection, an experimental feature is introduced for this HLS product based on the requirement. By selecting the 1st tab of "Transmitter Configuration for HLS" in the HLS Setup GUI (see Figure 5), forecasters can select the transmitters' counties/zones relationship for only the HLS product without impacting all other products. This GUI is identical and operated the same way as to the old familiar NWRWAVES Setup GUI with the exception of the new "Excluding marine zones" radio buttons. For the first time when the administrator brings up this HLS Setup GUI, an exact duplicate of the NWRWAVES transmitters configuration data file would be copied for this newly created HLS transmitters' configuration. It is important to know that whatever the changes made here would only impact the HLS product but not any other products.

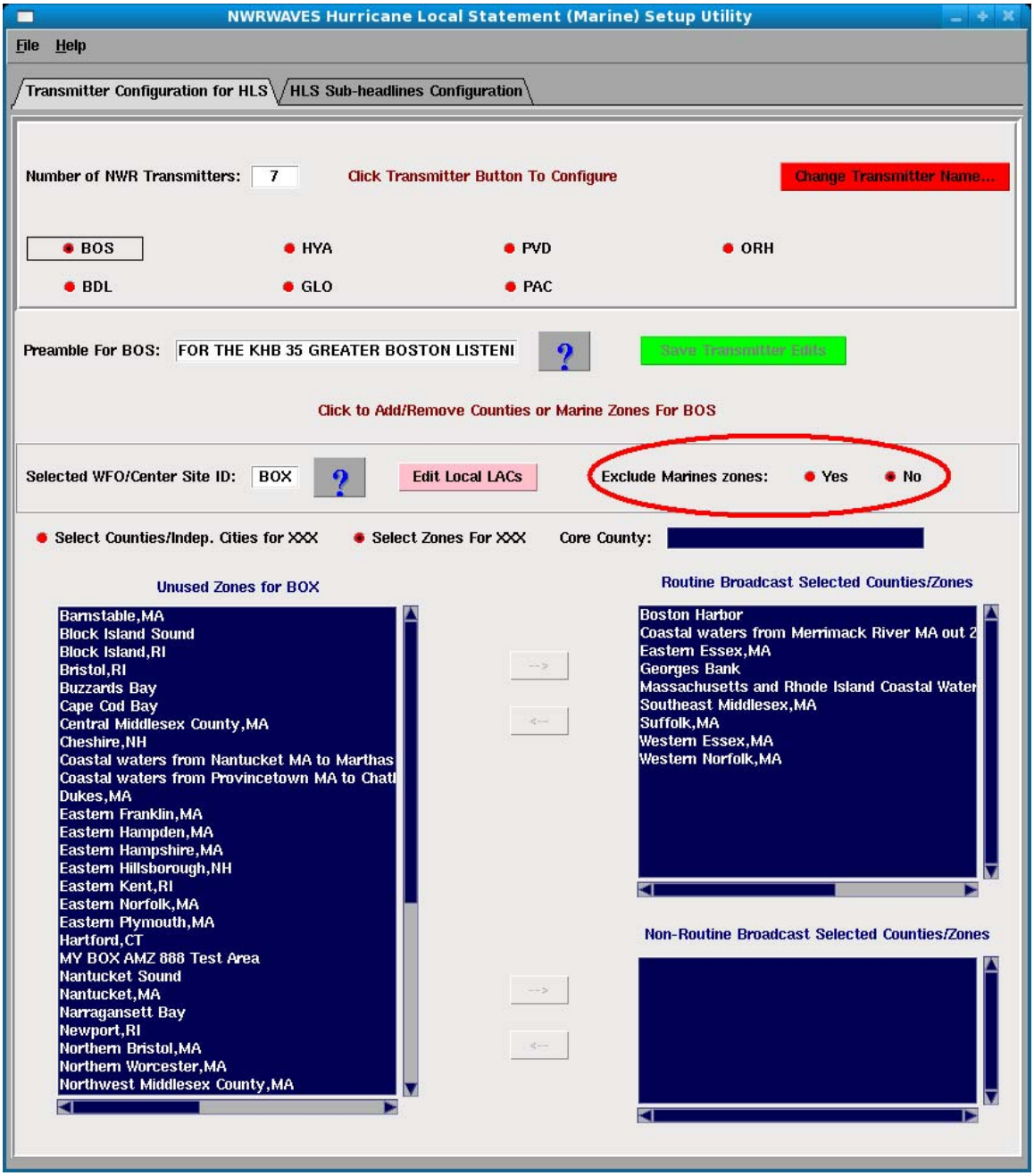


Figure 5- A new GUI to configure transmitters for HLS product.