

Nautel Software Bulletin

August 7, 2013

Nautel NV Series 4.0.2 Release Notes

Nautel **strongly** recommends upgrading to NV SW 4.0.2 if you are currently running NV SW 4.0.1.

This release addresses the following issues:

- Autochangeover works correctly with SC-1 system
- Multiple power cycles while in an unsaved preset (Current Settings) no longer affect transmitter settings

The most significant improvements with the previous versions include: <u>Version 4.0.1 – Released June 10, 2013</u>

If you have been advised by our customer service department to upgrade or if you have experienced problems addressed in this software release please proceed with the download.

- Incorporates a new OS (Operating System) which requires a new Compact Flash card. See IS13004 for details on the appropriate Compact Flash card to acquire and programming instructions.
- Allows customers to enter a Call Sign/ID that appears as an identifier at the top of the AUI banner (in brackets next to the word "Transmitter"). See "User Settings -> Call Sign/ID" and enter the desired identifier text in the sub-menu field and press the "Apply" button. A blank field yields no identifier (or brackets).
- Allows the server port (3501) to be remapped (see "User Settings -> Network Setup -> Port Number"); which facilitates the use of port forwarding on the firewall/router at the transmitter site. This allows the transmitter to be set to listen to a specific port that is open in the firewall,

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- Improved the "Logs" menu to eliminate the need to press "Get Logs", it
 automatically retrieves logs upon entering the menu. The layout was also
 updated to include page # indexing that improves search-ability, and the
 updated Log Manager feature allows users to filter logs, copy logs (to
 remote computer clipboard), delete specific logs or all logs (based on
 permissions), and get statistics of the frequency of occurrence of each
 logged event. See manual for more details on available features in the
 "Logs" menu
- This release accounts for users that attempt to enable an unlicensed power boost preset by reducing the injection level by 4dB and activating an "Injection Level Over-ridden" alarm to inform the user, as opposed to disabling digital carriers completely.
- Added a number of new alarms. See manual for more details.
- Allows Remote AUI Administrators to create custom users with varying permission settings that include activating/modifying presets, power control, deleting logs, RF on/off control and all other settings. Custom users can have any combination of these permissions. Other fixed permission users include "View Only", "Administrator", and "Full Control". See manual for more details on creating users and setting permissions.
- Remote Inputs can be configured for Level Triggering (in addition to Edge Triggering). An example of its use is when transmitters switch to generator power and must change to a lower power preset in order to stay within generator power capability limits. An edge triggered input would miss the event; a level triggered input would see the steady state "generator active" indication upon recovery and change presets accordingly.

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- Allows email notifications to be sent via secure SMTP mail servers.
- Enables the customer to use either the standard FCC mask, European (ETSI) mask, or none. See "User Settings -> Spectrum Mask" for configuring which mask is desired.
- This release allows the user to configure a Remote Input to assert a watchdog reset to the AUI, thus rebooting the AUI via a hardware parallel remote input (controlled by a third party remote control unit).
- Enables the user to save Critical Parameter data by capturing and then copying it to a remote computers clipboard (see "User Settings -> Critical Parameters" menu - Remote access only), and then dumping it to an appropriate software application (Excel, Word, Notepad, etc...). Available parameters include meters, current alarms, current preset settings, and transmitter settings (configurations, scale factors, thresholds, etc...). See manual for more details.
- Users can setup their transmitter time based on a UTC (Coordinated Universal Time) offset (specifying Timezone, Region, Country, Zone). See "User Settings -> Time Setup".
- Enables users to configure the remote analog output full scale voltage for the available (not configurable) analog output meters.
- This release automatically sets specific transmitter default values based on transmitter type (e.g. Exciter Power).
- Changed the "Other Audio" tab in the preset menu to read "Other Settings". See manual for more details on functions that reside in the "Other Settings" tab within the preset.

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- Changed the Spectrum Analyzer Source name for "Internal (Hybrid)" to "Internal (Post EQ)" to be more intuitive.
- This release changes the "System Settings -> Miscellaneous" menu name to "System Settings -> External 10MHz" (as it is more relevant), and then moves this menu to "User Settings -> External 10MHz" as it pertains more to a user desired configuration (use of external 10MHz source or not)
- Changed the preset RDS "PI" code keypad to a hexidecimal vs. numeric only keypad.
- Allows users without NVE exciters to complete a software upgrade without halting at the exciter stage due to a missing NVE exciter.
- This release allows users to add up to 256 alarms to any given email notification.
- Improved the IBOC mode ramp-up behaviour to prevent false RF Module "Output Network Fault" alarms.
- Incorporated a new "Injection Level Over-ridden" alarm for when a requested injection level for a given analog TPO (licensed power level) cannot be achieved. The transmitter will automatically reduce the injection level to maintain spectral compliance, while issuing the alarm to notify the user of that fact.
- This release allows the customer to configure Asymmetrical Sidebands (different upper and lower IBOC sideband injection levels) via the AUI preset when FM+HD or HD modes are selected.

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- Corrected a number of meter limits to more accurately relate to the actual alarm thresholds [color transition values for low critical (red), low warning (amber), normal (green), high warning (yellow), and high critical (red)].
 Impact is considered minor.
- This release corrected the permissions that remote users had with respect to updating specific network settings; critical configuration changes can only be made by an Administrator.
- Corrected the presets Internal RDS and Internal RBDS "PTY" lists to have more consistent character/text font sizes. It also fixes various implementation errors (e.g. missing an item in the list, blank spaces, dashes, etc...).
- Resolves an issue where the RF Module "High IPA Power" alarm would fill the events log due to an IPA output power meter reading that was allowed to be set extremely close to the threshold. The improved IPA Bias Balance routine should prevent this.
- Supports NTP (Network Time Protocol). See "User Settings -> NTP Servers" and the manual for more details on configuring the transmitter to use NTP to synchronize its time reference.
- Updated the preset structure and user interface to be more consistent with other Nautel products. The home page (main screen) also allows users to select (activate) stored presets from a drop down list located just below the top banner power meter. See manual for more details on layout and user interface for preset configuration and selection (e.g. updating, creating, saving, deleting, activating, etc...).

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- Corrected a number of alarm severity levels to be consistent with other products and be a more accurate representation of the actual severity level of the associated fault.
- This release corrects an error with the NV3.5 Analog Sample #1 (Forward Power) full scale value; was using 4.2kW, but now uses 4.5kW. This affects the analog output voltage as it relates to the full scale value as follows: Analog Vout = 6V * Current Power/Full Scale Power.
- Enables the customer to delay RF turn-on post the recovery from an ac loss or transfer to generator. Typical applications would involve multiple transmitters on a single generator that did not have the power capacity to deal with the load resulting from multiple transmitters turning on at the same time post a transfer. This function would allow staggering of the transmitter turn on sequence to prevent overloading the generator. Available in the "System Settings -> Turn-On Delay" menu. See manual for more details.
- Improved the software upgrade process to make it more robust.
- This release has made numerous improvements to the responsiveness of the local and remote AUI.
- This release has the ability to measure the multiplex (MPX) power from the stereo coder pursuant to European rules. See exciter meter "MPX RMS Deviation".
- Implemented an MPX over AES (DMPX) function in the preset. See manual for more details.
- Improved the Preset menu case/context sensitivity feature; where only applicable options appear when a specific mode/configuration is selected.

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- Improved the Factory Settings "Scaling" and "Thresholds" menu by displaying the data in a table/tab format versus a list.
- This release improves the IPA Bias Balance routine function in a number of ways. It helps to prevent pre-mature exiting of the routine due to known temporary fault conditions while the routine is in progress and it allows the user to stop the function and save intermediate results if they feel acceptable results have been achieved (as opposed to being forced to wait for the routine to complete its function).
- Improved the SWR protection to deal with conditions of very low forward power while operating into an open circuit; new protection is more sensitive to this type of fault.
- This release improves the ramp-up behaviour to prevent false alarms from filling the events log.
- Included additional alarms in the remote alarm list. See manual for list of additional alarms and their causes.
- This release includes a new "Defaults" menu under System Settings which stores the Factory Default settings for RF module IPA bias and PA bias as a function of mode; it also stores the default Exciter power level based on transmitter type and default IPA output power level (at 98MHz). These settings are no longer stored in the preset, as they are fixed and require no adjustment by the user.
- Included a new Exciter meter "10 MHz Delta", which measures the difference between the internal and external 10MHz signals.

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- Incorporated DRM+ as an available mode in the preset. Contact Nautel for further information on operating in DRM+ mode.
- This release incorporates a L/R Limiter function in the preset. See "Presets
 -> Other Settings -> L/R Limiter" and manual for more details on
 configuring this feature.
- Incorporated a new "Auto Changeover Action" function in the preset (under "Other Settings" tab), so that if an Auto Exciter Changeover occurs, the user can select which preset they want the transmitter to switch to. This will facilitate dual exciter systems that have a requirement for independent HD PA Volts settings depending upon which exciter is active.
- This release incorporates a new "PA Field Bias" menu for updating replacement power amplifiers (PAs or IPAs) within RF modules; allowing the user to easily set the applicable bias values from the control tag provided with the replacement PA (data provided by the factory). See manual for more details on using this menu.
- This release incorporates a number of minor string/text changes in various menus.
- This release incorporates an "HD Summary" alarm in the remote output alarm list; activated by any applicable HD fault. See manual for list of applicable HD faults.
- Incorporated an MPX (Composite) Power Limiter function in the preset. See "Presets -> Other Settings -> MPX Power Limiter" and manual for more details on configuring this feature.
- Improvements made to the Changeover menu, so that the user no longer has to navigate to another menu to restart the AUI post a change to the "Standby Exciter" configuration. Post a "Standby Exciter" configuration update; the user will be prompted to press the "Restart AUI" button that now appears on the active Changeover menu screen.

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- This release incorporates the MER (Modulation Error Ratio) measurement feature as a function of the Constellation instrument panel. See the transmitter manual for more details.
- Incorporated the Power Boost function into the AUI preset menu (available under license only). See manual for more details on configuring Power Boost presets when licensed.
- Increased the number of allowable simultaneous remote AUI users from 5 to 10.
- Limits the Transmitter SWR Shutback Threshold to no more than 2:1.
- Made a number of improvements to the "Upgrade Software" menu in System Settings. The user can get details on the current installed version (including all sub-component version numbers), review upgrade history (and save to disk), manage files (delete old versions, browse and upload new versions) and start an upgrade. It will also indicate the remaining space on the compact flash card, and the AUI will now automatically reboot post an upgrade; no manual "Reboot AUI" button needs to be pressed.
- Allows users to save a set of desired meters that will be displayed on the right hand side of the main page. The user will select meters via the "Meter List View" menu and then save them in the "Meter List Save" menu. It also allows users to select a default set of meters that will automatically appear upon login (non-volatile). See manual for more details on "Meter List View" and "Meter List Save" menus.
- This release allows RDS over IP support. New list of RDS Data Sources available in Preset (Internal, Ext. ASCII, Ext. UECP, ASCII Over IP, or UECP Over IP). Note: for ASCII or UECP over IP data, send RDS information to the IP address of the NV transmitter, TCP port number 7005.

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- Included adjustable "Audio Low Thresholds" for the Main audio source and SCA audio source (configurable timeout and trip level). These thresholds determine the limit for an associated low audio alarm to be activated. To disable the alarm, set the Trip Level to -100dB. This menu is found in "User Settings". See manual for more detail
- This release now logs an AUI Watchdog reset.
- Shows both Exciter A and Exciter B (separate tabs) "IBOC Settings" in the System Settings as opposed to only the active exciter.
- Supports both 2.x and 3.x series software upgrades (previous release NAE100* and NAE101* exciters were limited to 2.x software and created conflicts while operating in a 3.x version transmitter, when attempting to upgrade the transmitter software).
- Provides user error feedback when attempting to select a power level in the preset that falls outside of the minimum or maximum allowable power limit based on mode and transmitter type.
- Resolved an issue where RF module PA currents would read a false current when the associated power supplies were removed.
- This release resolved an issue where specific transmitter type alarms appeared incorrectly in the remote alarm list for other (inapplicable) transmitter types.
- Resolved an issue where the Remote Input Channel name field incorrectly displayed "No Action" as opposed to "Not Assigned" (when input was not assigned).
- This release resolves a few bugs associated to User Accounts where erratic behaviour would occur if certain permission users attempted to delete their account.

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- This release resolves a number of Internet browser conflicts.
- Resolved a number of SNMP related bugs and supports SNMP traps (see "User Settings -> SNMP Configuration" menu; Enable Traps and see Traps tab to configure). "Get" functions are significantly more responsive, which should also resolve a number of timing related erroneous alrams.
- This release resolves an issue where RF module "External Inhibit (Switch)" alarms were occurring erroneously.
- This release resolves an issue where an erroneous exciter changeover would occur after 7-8 RF off-RF on cycles would occur.
- This release resolves an issue where enabling the Audio Loss Timeout function and setting its action to inhibit the transmitter would cause erroneous reject fan failures when the transmitter was inhibited.
- This release resolves an issue where erroneous RF module fan failure alarms would occur at high altitude sites. The previous work around was to reduce the fan voltage from 48V to 45V; post this upgrade, the fan volts can be increased back to 48V.
- Resolves an issue where erroneous alarm events were being displayed in the events log with incorrect dates.
- This release resolves an issue where low fan RPM readings were not activating the appropriate fan failure alarms.
- This release resolves an issue where presets would appear as "unidentified preset 0x#####" in the Remote Input or Output screens.
- Resolves an issue where the Optical input could not be selected as the Primary or Secondary Digital input on previous release exciters (NAE100* and NAE101*).

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- This release resolves an issue where the RDS PTY field in the presets would default back to "-" (dash) post an AUI reboot.
- This release resolves an issue where the RF Module Inhibit (Switch) function was misbehaving if the RF module was disabled prior to RF On being activated (RF Module would not remain latched off when enabled via the switch; it normally requires a RESET command, but it wasn't waiting for it); it functioned properly if disabled/enabled post the setpoint being achieved.
- Corrected issue where the Spectrum Analyzer marker was not tracking properly based on the location the user would press on the touch screen.
- Resolves an issue where the audio loss detection delay counter was not being cleared properly when a preset change occurred.
- This release resolves an issue where the default SNMP Configuration was incorrectly set to the Nautel NX transmitter configuration instead of the correct NV transmitter configuration.
- Resolves an issue where the events log "Get Logs" function was displaying an inconsistent number of logs based on the filter settings.
- This release resolves an issue where the events log time stamp for "seconds" was being dropped during the Copy Logs function.
- Resolves an issue where the exciter PA temperature read +256°C when the temperature was less than 0°C.
- This release resolves an issue where the exciter power would temporarily drop out post a preset change even though the preset frequency and mode remained constant (all other parameters should not cause an exciter reset); this would result in a negligible <1ms drop out of air time.

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- This release resolves an issue where the streaming data was coming from the incorrect exciter (non-active) and being displayed post an ac cycle (i.e. Exciter B active and displaying Exciter B data; cycle ac; Exciter B still active but displaying Exciter A data).
- This release resolves an issue where the transmitter output power would overshoot when switching the preset injection level from -10dBc to -14dBc PB while the transmitter was RF on.
- This release resolves an issue with the email configuration menu where the "client name" field wouldn't allow for editing.
- This release restructured the main menu to segregate user specific functions into a "User Settings" sub-menu; where system and factory related functions are located in a "System Settings" and "Factory Settings" sub-menu. See the manual for more details on which functions apply to which sub-menus.
- This release updated the "Notification" menu in the User Settings to display the applicable device name (Controller, Exciter #, RF Module #) in conjunction with the selected alarm.
- This release updates the "System Settings -> Exciter TCXO" menu to display a +/- offset value in ppm as opposed to a 16-bit value that was difficult to interpret.
- This release updates the top banner Frequency resolution from 100kHz to 10kHz.
- This release updates the units of the Power Set-point keypad that appears when the top banner forward power field is pressed; the units are now fixed to "kW" (previously they were optionally W or kW).

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- NV 4.0 is available in English and Spanish. Turkish and Simplified Chinese are not available as language choices for NV 4.0. These languages will readded in a future release.
- This release removes the "LUT Storage" function (under Hardware Configuration menu in previous release software) as it is no longer considered necessary post improvements made to the Nautel adaptive precorrection function. Presets no longer reference the LUT Index field and users no longer have access to any LUT-related activities (they are now handled internally).
- All summary alarms are now available in the Remote Output channel list.
- Deleting user notifications now requires confirmation from the operator.
- Deleting users now requires confirmation from the operator.
- Performing a software upgrade now requires a confirmation by the operator.
- The "Reject B Fan 2 Fail" alarm is now available in the remote alarms list for NV30 and NV40.
- The Exgine Interface page under User Settings has been renamed to "Exgine Settings".
- The Maintenance menu under System Settings has been renamed to "Reset".
- The Remote I/O tab on the Remote I/O menu has been renamed to "Digital I/O".
- The list of available software upgrade files is now sorted. Also, there is an "available space" indicator on the Manage Files window.
- The list of user accounts is now sorted alphabetically.
- The maximum audio delay has been increased from 10,000ms to 12,000ms.

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