Nautel Software Bulletin

January 22, 2016

Nautel GV Series V4.3.2 Release Notes

Nautel highly recommends that customers upgrade to GV version 4.3.2 or higher as soon as possible.

- Resolved intermittent issue which could prevent an exciter from initializing properly, resulting in extended off-air time after a reboot.

The most significant improvements with previous versions include:

Version 4.3.1 – Released November 4, 2015

- Resolves issue with 3.5kW/5kW transmitters where removal of a redundant LVPS would cause a false activation of the Low Ac Operation mode, where the transmitter output would be limited to 1/3 of nameplate for approx. 4 seconds and then recover.
- Resolves RDS issue where all letters are capitals when using ASCII over IP or ASCII over Serial data sources.
- The Mod Loss Timeout - Change Preset function now changes presets as desired.
- The Mod Loss Timeout - RF Inhibit function now works post an ac cycle.
- Exciter changeovers no longer falsely occur post an ac cycle.
- Improved RF On ramp up alarm masking to prevent erroneous "Exciter Fan Volts Fail" alarms from appearing, as it was too sensitive.
- Resolved issue where transmitter would repeatedly shutback and recover without any alarms logged when specific combinations of RF power modules were disabled.
- Resolved issue where the exciter control state would get stuck in such a way where it would take no action, would not pre-correct, and would not

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adjust power until the next time it was muted. Over time it would recover on its own; however, it would have potentially negative effects on transmitter operation until that time.

Version 4.3 – Released September 21, 2015
- Nameplate power capability to -16dBc injection
- Addition of closed-loop IBOC injection level control
- Increased reliability of fast ac interruption detection and recovery
- Further improvements in AUI performance, results of an on-going effort to improve customer experience.
- Resolved issue where transmitter RF output spectrum in IBOC modes would fail if the MPX Spectrum Analyzer was active.
- The "Audio Processor Output Fail" alarm should now activate and clear correctly.
- Resolved an issue where L&R audio inputs were disabled if the Orban processor was enabled in the associated preset.
- Forward power set-point limit for -16dBc injection increased to equal the limit for -20dBc injection; this way, -20dBc through -16dBc injections have the same power limit.
- Improved accuracy of injection level measurement and regulation at desired setting.
- MPX SCA meter will now read as "N/A" whenever MPX is used as the main audio source to prevent erroneous level readings.
- Resolved an issue where the transmitter did not always achieve the minimum power set-point (typically in low power transmitters), due to a limit in the minimum allowable exciter output power level. That limit has now been reduced to allow further reduction in the transmitter output power level while in RF drive power control.
- Added "Exciter Fan Volts Fail" alarm.
- The appearance of Pilot Level, Pilot 1 PPS Sync, Orban Processor and L/R Limiter fields in the Preset "Other Settings" tab, no longer depends upon what audio source is selected.
- Horizontal lines removed from the MER display in the Constellation instrument; this has been shown to improve AUI performance and the lines are not necessary.
- This release resolves an issue where the exciter can produce an undesirable wideband FM output signal

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when the Hard Limiter function is enabled in the preset.

Version 4.2.1 – Released January 30, 2015

- This release resolves an issue where the exciter can produce an undesirable wideband FM output signal when the Hard Limiter function is enabled in the preset.

Version 4.2 – Released January 19, 2015

GV software version 4.2 provides support for Nautel's newly released GV30N. It also features the following bug fixes and improvements:

- Updated bash shell to address the linux Shellshocker security vulnerability, as well fixed several other minor security concerns.
- Local and remote AUI's will now display a progress bar on the blue page before the login screen is displayed; this will provide user feedback on AUI loading progress.
- Adjustable preset frequency range is now 87.0 to 108.0 MHz, versus 87.5 to 108.0 MHz.
- Resolved issue where the Analog Left or Right Low alarm would be present in the Status screen when the audio source was Mono Right or Left, respectively.
- Corrected the Controller - RF Drive Power meter full scale values for each transmitter type to prevent meter reading (arrow) from operating "normally" in the full scale region.
- The transmitter PA Bias routine will now provide feedback in the Status screen to any PA that failed the routine (i.e. was not able to be biased properly). The routine is performed while RF is off and the alarm will remain active until RF is turned on, at which point the alarm will clear, but return if the PA itself is not functioning properly.
- Resolved an issue where GV20 transmitter's 10kW Reject Load Fan 1 and Fan 2 Speed meters (along with associated alarms) were reversed, as well as the Splitter Fan 1 Speed meter being mapped in error to the 5kW Reject Load Fan 1 Speed tach circuitry reading, making these meters read the same. Each meter now agrees with their respective fan.
- Tapping the Nautel logo on the AUI (top left corner) will now reload the AUI.
- Created new remote status outputs to indicate which audio path is active (MPX, AES 1, AES 2 and Left/Right). Left/Right applies to Stereo or Mono operation.

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- Removed various alarms that appeared in error from the available Notifications list.
- Allowable "VSWR Shutdown" threshold range limited to 1.5 to 3.0 instead of 1.5 to 6.0, in order to agree with the transmitter specification.
- Resolved issue where Scheduler "Cancel" and "Save" buttons were not functioning as intended.
- "RF Output Return Loss" meter added to compliment the VSWR meter; for those who appreciate return loss as a unit of measure in place of VSWR.
- Resolved issue with Exciter Standby Test function where the standby exciter would not be enabled if the transmitter interlock circuit was opened or RF was off.
- Resolved erroneous behavior with Audio Backup function within the preset while MPX was selected as the main audio source; transfer to the backup source would not occur as long as MPX SCA was enabled, as it would satisfy the MPX main audio source input low threshold and prevent transfer.
- Resolved an issue where captured Critical Parameter Settings were being shown in the incorrect state.
- Resolved issue where Preset field updates were not being accepted if the MPX SCA input was enabled.
- The HD PA Voltage target now resets to the preset value correctly upon recovery from ac loss while on UPS; thus preventing a lower HD PA Voltage value from being used in error, causing spectrum mask failure for a short period of time until the Spectrum/Efficiency Optimizer has a chance to increase the voltage (slowly) to pass the mask. The desired behaviour is that the higher HD PA Voltage be used to start, in order to ensure mask compliance, and then the optimizer reduces the voltage to save on efficiency, bringing the spectrum up to the mask limits; not the other way around.
- Corrected minimum power limit "error message" in Preset forward power set-point field; it was showing 0W in place of the correct value.
- Resolved RF Module fan power supply erroneous behaviour and alarm post an RF On, during ramp-up.
- Resolved issue where Remote Inputs/Outputs list were not updating immediately when Custom Inputs or Outputs were created/deleted.
- Corrected an issue where Site Control "Virtual Inputs" that did not actually exist were appearing in the Site Control Add/Edit "Inputs" list in error.
- "Remote Output Enabled" remote output control logic has been corrected to be Output Low When True (Remote Enabled) or False (Remote Disabled/Local only).
- Corrected Remote Input controls for Main Exciter select; they were reverse logic to what the naming

suggested.
- A number of naming issues were addressed in this release:
  - The more appropriate term "Host" will now be used in various menus, functions, alarms, meters, etc. to signify the single board computer (SBC) within the Controller module. In some cases, "Host" has replaced the term "AUI", as the actions available within these menus are actually being performed against the Host.
  - Renamed "PS 48V A Low Line" and "PS 48V B Low Line" Rack alarms to "LVPS A Low Line" and "LVPS B Low Line" to be more consistent with the use of "LVPS" in place of "PS 48V" (which would suggest it's a fixed 48V supply, when it actually isn't).
  - Remote Input "Main Exciter" control logic terminology changed from "Turn On/Off" to "Set to A/B" to be more intuitive.
  - Remote Input "Auto Changeover Enabled" name is now "Auto Changeover Enable/Disable". The related Rising/Falling control logic options have been renamed to "Enable" and "Disable" (changed from "Turn On" and "Turn Off").
  - Remote Input "Preset" related control logic terminology has been renamed to "Activate" (changed from "Turn On") to be more appropriate.
  - Remote Input "Force SBC Reset" name has been changed to "Force Host Reboot".

Version 4.1 – Released September 22, 2014
GV Software version 4.1 adds a number of exciting new features. These include:
- Site control, with user-definable remote inputs and outputs
- SNMP support for GV transmitters.
- a backup audio source for presets, along with the capability to auto-return to the original source upon recovery.
- an Oscilloscope tool for the AUI.
- PS Scrolling functionality as part of RDS.

This release changes the Local/Remote control philosophy to allow for enabling/disabling of Remote control without disabling Local control. Transmitter control can be placed in "Local" only, whereby Remote control is

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disabled or "Local/Remote" control (Remote enabled), whereby both Local and Remote control are enabled. For more information, see the manual or **Local-remote Functionality.pdf**.

Please note that Livewire streaming is not supported in this release. This feature will return in a future update.

Other improvements and bug fixes include:

- Implemented Alarm Reconciliation function to ensure Phone Home alarm status is accurate.
- The polarity setting field is now no longer displayed for Remote Inputs on the Controller UI that are set to 'Not Assigned'.
- Resolved an issue on the Controller UI where the default polarity would display 'Config: 0/0x00' when a custom input was assigned to a Remote Input.
- Resolved an issue where some of the polarity setting descriptions were not fully displayed on the Controller UI. The descriptions have now been shortened in order to be fully displayed.
- Resolved an issue where the scroll speed when editing the Audio Delay field (increasing or decreasing value with arrow buttons) through the Controller UI was very slow.
- Improved the ramp-up behaviour in FM mode. Halted the RF Drive from increasing too quickly, allowing time for the power supplies to ramp up their output voltage and prevent false power supply failure alarms due to the power supplies current limiting.
- Implemented discharge bias voltage increase (to a limit) on PAs if PA voltage is not discharging fast enough.
- Resolved an issue where upper and lower sidebands were swapped for MER and constellation measurements.
- Resolved an issue where the Controller UI would show the 'First Time Setup' screen after an ac power cycle to the transmitter.
- GV 30kW/40kW transmitter's Controller meter names for "RF Drive Power A" and "..B" are now "RF Drive 1-8 Power" and "RF Drive 9-16 Power", respectively.
- Resolved an issue where the settable range for the audio delay was different between the Controller UI and the AUI.
- Resolved an issue where the RDS Baud Rate options were not the same between the AUI and UI.

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- Resolved an issue where the Audio Low Trip Level and level at which an MPX Audio Low alarm occurred did not agree.
- Resolved an issue where the minimum power set-point was undershot while in RF-drive control (low power in FM mode).
- Resolved an issue where a preset was not being created through the Controller UI when settings were left as default.
- HD-only mode now uses PowerBoost, increasing efficiency, as well as adding asymmetrical sidebands capability.
- Resolved an issue on 3/4 power transmitters where the Remote I/O Power Increase / Decrease was adjusting power by 1% of full power transmitters (vs. 3/4 power transmitters).
- Implemented a transmitter final stage PA bias routine. Previously, a single bias value was used for all PAs for each operating mode. This new routine allows the transmitter to determine the optimal bias value for each PA, accounting for individual FET characteristic differences. For transmitters previously in the field that are upgrading to this software release, no action is required.
- Exciter Fan RPM meter reading now reads correctly vs. applied fan voltage.
- Removed unneeded fields from Remote Inputs channel selection when 'Not Assigned' is chosen.
- Removed unneeded fields from Remote Outputs channel selection when 'Not Assigned' is chosen.
- Resolved an issue where modulation loss actions were not functioning.
- Resolved an issue where the stereo/mono setting within the preset audio settings on the Controller UI were modifying a different value.
- Resolved an issue where creating a Remote Input with a lower pin number results in Remote Inputs with higher pin numbers listed above it to become inactive.
- Resolved an issue where the displayed settable HD PA Voltage range was incorrect.
- Improved Spectrum/Efficiency Optimizer performance in IBOC modes, and reduces power overshoot when a loss of HD data occurs.
- Added valid ranges to IBOC settings fields.
- Resolved an issue where when two or more related remote inputs were asserted, the lower pin number was not taking priority, and the asserted remotes were toggling back and forth.
- Resolved an issue where the 'Arm Network Down' alarm was erroneously showing in the Status screen.

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Alarm has now been removed, as it is not applicable for GV transmitters.

- Resolved erroneous "Door Open" and "Monitor Fan Fail" alarms due to RFI by increasing the margins on the voltage thresholds.
- Resolved an issue where Network Settings fields were not being properly populated on Controller UI.
- Resolved an issue where the RDS Phase and the Pilot Sync Phase values were not properly transferring between the AUI and the Controller UI.
- Resolved an issue where the User Thresholds sub-menu on the AUI was not properly displaying it's own settings.
- Resolves Preset & RDS settings naming differences between the AUI and Controller UI.
- Resolved an issue where the software upgrade process was skipping over upgrading Exciter B.
- Resolved an issues with the DHCP settings in Network Settings between the local AUI, remote AUI, and Controller UI.
- Resolved an issue where some RDS related channels were different between the UI and AUI.
- Resolved an issue where Remote Analog Output parameters were missing / not updating on AUI page.
- Resolved an issue where Playlist / Stream options were not shown in the presets when the audio player was selected as the audio source.
- Exgine Settings on AUI now shows tabs for both Exciter A & B (if installed), instead of only the active exciter.
- Naming of Preset fields is now consistent between the AUI and UI.
- Added functionality in IBOC modes for Exciter auto changeover to take action on drive loss.
- Changed main audio and SCA audio low timeout range to be 0-300 sec on AUI, to be consistent with the Controller UI.
- Resolved an issue where a change to the Full Scale Voltage field in the Analog Outputs screen on the AUI would not save.
- Resolved an issue where IBOC settings fields would increment by 0.0001 when a new value was set.
- Added additional RDS settings to the presets.
- IBOC Settings, Exgine Settings and Network Setup values are now added to the Critical Parameters "Settings" capture feature.

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- Corrected "Door Open" alarm severity from "Medium" to "Low".
- Resolved an issue where the Orban Inside would show up as "Not Installed" on the software versions screen, even if one was installed.
- A 'User Thresholds' screen has now been added within the User Settings menu on the AUI and contains the Low Audio and Low Forward Power threshold settings.
- Resolved an issue where the Power Distribution (CCDF) instrument values were incorrect.
- The Oscilloscope tool is now one of the default 4 tools to display on the AUI, in place of the AM-AM correction curve tool.
- Resolved an issue where the RF Off lettering was not consistent between the local AUI and remote AUI.
- Resolved an issue where some AUI settings were being overridden by the settings already set through the UI.
- Resolved an issue where fields were able to be changed for User Thresholds and Hardware Configuration on remote AUI when remote was disabled.
- Resolved an issue where the Cancel button on some screens was always active (able to be pressed), even before any field had been pressed or modified.
- Resolved an issue where when a field was changed for a selected Remote Output, the screen would refresh and show settings for Remote Output 1.
- Resolved an issue where the click point for the power set point shortcut was not in the correct location on the main AUI page.
- Resolved an issue where the chosen and displayed Mod Loss Action preset was offset by one from the preset that was actually activated.
- Changed naming of "Digital Inputs" and "Digital Outputs" tab to "Remote Inputs" and "Remote Outputs" to be consistent with the names used within the menu.
- Resolved an issue where when a saved meter list is loaded and the Meter List Save menu is closed out, the meters showing up in the meter display revert back to the group of meters that were originally selected.
- Resolved an issue where fields were blank in the Traps tab of SNMP Configuration on the AUI.
- Resolved an issue where a number pad was not being displayed for the delay field within the exciter changeover menu on the local AUI.

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- Resolved an issue where the 'Apply' and 'Cancel' buttons did not become active after a field was changed in SNMP Configuration screen on the AUI.
- Resolved an issue where upgrading software caused playlists to be deleted.
- Resolved various permission issues with user accounts.
- Resolved an issue where Presets currently in use or used in remote I/O could be deleted. There is now an error message displayed if a user attempts to delete these Presets.
- Changed 'Playlist' and 'Playlist Manger' names to 'Audio Player' on the AUI.
- Resolved an issue where the AUI Reset button was enabled with all Custom user permissions. It is now only enabled based on the permissions set up for the user.
- Resolved an issue where the 'Installed Exciters' setting on the AUI was unable to be changed.
- Resolved an issue where 'Audio Player -> AES1' and 'Audio Player -> AES2' did not show up as an available source in the presets of the AUI.
- Added a 'clear' button for the keypads on the local AUI.
- Remote Output "Local/Remote" relabeled to "Remote Enabled"
- Resolved an issue where keypads were remaining on the AUI screen while navigating through menus.
- Resolved an issue where the Remote Outputs page was not loading on the AUI.
- Resolved an issue where the RF Off button was disabled when RF On is amber (in an inhibited state), on the AUI.
- Resolved an issue where the Remote Output Channel list appeared blank on the AUI.
- Resolved an issue where multiple 'null' values were shown on AUI Remote Output Channel List.
- Resolved an issue where with NTP enabled, after certain events the Time/Date fields could be modified.
- Replaced full pop up keyboard with number pad on local AUI for fields within Hardware Configuration.
- Resolved an issue where the column width for meter names within the Racks Summary page was not wide enough to avoid wrapping the text to 2 lines.
- The admin user is now required to enter their old password before entering a new one, but is not required to enter an old password when changing a password for another user.
- Created Hardware Configuration page on the AUI within System Settings. Contains settings for Installed Exciter(s), LVPS Hardware, LVPS Voltage, Fan Speed, UPS Installed, and Audio Processor.

- Resolved an issue on AUI where Alt. Freq. 25 within the RDS settings in the preset was not able to be changed and was not in the proper range.
- Resolved an issue in the Event Logs of the Remote AUI, whereby when sorting, the columns sort used the time string rather than the actual date.
- Resolved an issue where exciter information was not being displayed on the Exciter TXCO and IBOC Settings pages of the AUI.
- Resolved an issue where error messages within the Network Setup screen of the local AUI would not be fully shown.
- Resolved an issue where the displayed MAC address was changing and was invalid when changes were made within the Network Settings screen.
- Resolved an issue where the 'Apply' button would not be available to be pressed when changes were made in the LVPS Voltage or Fan Speed fields.
- Resolved an issue where Exgine Settings could be changed on the remote AUI when set to local-only mode.
- Resolved an issue where a pop-up keyboard did not appear when editing Custom Remote Input name on the local AUI.
- Resolved an issue where the Total PA Current meter full scale value was incorrect on the GV20 AUI.
- Resolved an issue where Remote Outputs within the channel list on the AUI would disappear when set to 'Not Assigned'.
- Updated AUI Mod Loss Timeout range to match the Controller UI at 239 minutes and 59.9 seconds.
- Resolved an issue where Event Names were not being displayed for Rack related alarms within the Log Manager of the Events Log on the AUI.
- Resolved an issue where the L/R Limiter - Max Gain range did not agree between the Controller UI and the AUI.
- The Analog Outputs function is now available through the AUI Remote I/O menu (was originally only available through the UI).
- Resolved an issue where some drop-down menu fields within the Hardware Configuration page were not responding correctly to changes.
- Resolved an issue where 'Reboot AUI' was not available through remote AUI while in local only.

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- Resolved an issue where two 'Not Assigned' options were shown in the channel list for remote inputs on the AUI.
- Resolved an issue where a notification could be named the same as an existing one, but would not be created and no errors would be shown. An error message is now displayed if a notification with a duplicate name is attempted to be created.
- Resolved an issue where similar function alarms for different sub-assemblies were showing up with the same name on the Remote Output channel list.
- Resolved an issue where "unassigned alarms" were shown in the list of available alarms in the notifications page.
- Resolved an issue where the text boxes were too wide on the Controller Summary screen, causing a horizontal scroll bar to be used.
- Resolved an issue where 'Audio Player -> AES1' and 'Audio Player -> AES2' did not show up as an available source in the presets of the AUI.
- Resolved an issue where the Remote Output screen was not being populated on the remote AUI.
- Changed setting names within the Spectrum/Efficiency Optimizer menu to be more intuitive.
- User is now asked for confirmation when attempting to change the main exciter setting.
- Added Remote I/O - Analog Outputs tab with improvements in user interface.
- Resolved an issue where system clock was not updating every second; it would pause and skip 2-3 seconds; keeping time accurately, just not updating consistently.

Version 4.0.4 – Released August 21, 2014
This software version has implemented a transmitter final stage PA bias routine. (Previously, a single bias value was used for all PAs for each operating mode.) This allows the transmitter to determine the proper bias value for each PA, accounting for individual FET characteristic differences.

- Other improvements with this release include:
- Improved the ramp-up behaviour in FM mode. Halted the RF Drive from increasing too quickly, allowing time for the power supplies to ramp up their output voltage and prevent false power supply failure alarms due to the power supplies current limiting.

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- Implemented a discharge bias voltage increase (to a limit) on PAs if PA voltage is not discharging fast enough.

Version 4.0.3 – Released July 9, 2014
- Resolved an issue where "No Reverse Path" alarm would never clear once set, causing erratic behaviour and potential overshoots; specifically when ac mains quickly switched over to generator power.
- Resolved erroneous exciter changeovers in FM mode at minimum power (was due to error between exciter power measurement and transmitter RF drive power measurement).

Version 4.0.2 – Released June 2, 2014
- Resolved an erroneous Monitor Fan Fail alarm condition.

Version 4.0.1 – Released April 14, 2014
- Reduced transmitter output power overshoot behaviour when HD data is lost.
- Fixed SBC Watchdog Reset function.
- Prevented transmitter output power from overshooting if the Spectrum/Efficiency Optimizer function is disabled after the system has been optimized.

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