



# Nautel Software Bulletin

April 16, 2015

**Note:** Once a transmitter has been upgraded with VS4.0 or higher, downgrading to any release earlier than 4.0 is not recommended under any circumstances. Please contact Nautel if you feel it is necessary to return to a release earlier than VS4.0.

## Nautel VS Series 4.1.4 Release Notes

- Resolved an issue where the ARM processor would not boot up upon recovery from power loss and the DSP would not attempt to reset it. This resulted in an "ARM Not Booted" alarm and no remote AUI accessibility until a manual ARM reset took place; however, this reset state remained volatile.

The most significant improvements with previous versions include:

### Version 4.1.3 – Released January 6, 2015

- Resolved an issue where transmitter fan(s) would cycle on and off while RF OFF for transmitters using UG69E power supplies.

### Version 4.1.2 – Released September 10, 2014

- Resolved issue with IBOC Auto Find Gain routine; it was yielding an invalid result.
- Added additional reduction to 119MHz spur in FM+HD mode.

### Version 4.1.1 – Released May 26, 2014

- Resolved an internal DSP/DMA engine issue whereby if operating with "MPX over AES" as the main audio source, the exciter PWB output would produce wideband noise that translated to the transmitter RF output spectrum (having the potential to fail power amplifiers and would sound unlistenable).
- Resolved allowable maximum power set-point limits for VSHD systems.

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- VS-TC Transfer Controller now supports VS300 transmitters.
- Corrected "AES Chg Lvl" and "AES Ret Lvl" functions; they were not functioning as expected.

## Version 4.1 – Released March 18, 2014

- Added support for the VS150C

## Version 4.0 – Released November 4, 2013

Welcome to the latest software upgrade for the VS family of transmitters! Some of the features which are added in this upgrade include:

- Phone Home (an opt-in option to help Nautel keep your VS working properly)
- Omnia Direct (MPX over AES) Depending on the age of your unit, this may require replacement of your controller/exciter card
- SNMP Traps
- AUI Meter memory
- Port forwarding
- Secured SMTP Password
- Icecast support
- New Scheduler
- NTP
- MER Meters (In HD-Radio applications)
- AUI Callsign Display

This is a big change, and an involved upgrade, so please read this document and the upgrade Information Sheet (IS13009 - VS Series 4.x Software Upgrade Procedure) thoroughly and make sure you have about an hour and all the required

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items before you begin. We also **highly recommend** watching our webinar on upgrading your VS to version 4.0 ([available here](#)).

A more complete list of issues follows:

- This release significantly improves the clock, where by it would typically run fast when using the internal oscillator (unless NTP or GPS synch was used). Deviation over time has been greatly reduced.
- Preset functionality has been completely overhauled to create consistency between product lines. New functionality is as follows:
  - The active preset is shown in the top banner. Presets are activated by choosing the desired preset from the drop-down menu in the top banner.
  - When the presets page is opened from the menu, the 'Current Settings' of the transmitter are displayed, which define the current operational state of the transmitter. 'Current Settings' can be adjusted and then immediately activated by pressing the 'Save' button.
  - To adjust a saved preset, that preset must be loaded from the Presets page. If the adjusted preset was active before it was changed, saving the preset will update the preset, but the 'Current Settings' will remain unchanged. In order to update the operation of the transmitter, the preset must be re-activated through the top banner.
  - An asterisk next to the preset name in the top banner indicates the 'Current Settings' have changed from the last loaded preset. 'Current Settings' are not saved through a power cycle; when recovering from an AC power loss event, the transmitter will load the preset that was last activated.

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- On the presets page, an asterisk next to the preset name in the header indicates there are unsaved changes to the preset.
- An MPX (Composite) Power Limiter function has been incorporated in the preset. See "Presets -> Other Settings -> MPX Power Limiter" and manual for more details on configuring this feature.
- The Local/Remote control philosophy has changed. Local control is always enabled, while remote control can be enabled or disabled from the local UI. From the Main Menu, transmitter control can be placed in Local only, whereby Remote control is disabled (the local UI indicates "Local Only" and the Remote AUI indicates "Local"), or Local/Remote control, whereby Remote control is enabled (the local UI indicates "Remote Enabled" and the Remote AUI indicates "Remote").
- This release includes the ability to indicate an 'Invalid Preset' condition with a digital output on the remote I/O. This condition indicates that an unsaved change has been made to a preset, changing the current settings of the transmitter. This is the same condition that adds an asterisk to the beginning of the active preset name in the top banner of the AUI.
- VS 4.0 uses a new OS. This will result in a number of settings being deleted; see manual and upgrade Information Sheet for details.
- This release 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.
- Customers can now configure Asymmetrical Sidebands (different upper and lower IBOC sideband injection levels) via the AUI preset when FM+HD or HD modes are selected.
- The server port (3501) can 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, if it is different from the

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default. This also enables connections to multiple transmitters behind a single firewall. Note that the port number for external connections to the firewall and the port number the transmitter is mapped to MUST be the same. See manual for more details. NOTE: Changes to this port are reset to 3501 after a software upgrade and must be reconfigured as required post the upgrade.

- Users now have the ability 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 adds support for MPX over AES (Omnia Direct) with appropriate Omnia 11 (or later) processor and necessary version of transmitter related hardware which includes PWB NAPE87A or later.
- This release adds support for Level Triggered Remote Inputs.
- Summary alarms have been added to VS, which can be used to drive individual remote outputs on the remote I/O interface. Summary alarms are used to capture multiple alarm conditions with a single remote output. For example, the 'High Reflected Power Summary' alarm will occur when one or more of the following alarms are preset: 'SWR Shutback', 'SWR Foldback', 'Cutback'.
- The VS scheduler has received a major overhaul. Instead of being event driven, the scheduler is now rule driven. See manual for more details.
- This release introduces Nautel's Phone Home feature. See manual for further details on activating this feature.
- SNMP support has been greatly enhanced. SNMP requests can still only include one command per packet.
- Email notifications can now be sent via secure SMTP mail servers. Users

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- can connect to TLS-encrypted email servers (eg, gmail) for sending email.
- The menu in the AUI has been reorganized into the following groups: Presets, System Settings, Audio Processor (with Orban Inside), User Accounts, User Settings, Remote I/O, Scheduler and Playlist. For more information on each option, see the updated operations section of the VS manual.
- This release improves 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.
- Users can now 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.
- Customers can 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). The Call Sign/ID text is also shown as a header in the Critical Parameters.
- This release includes the ability to use SNMP traps. A trap is an unsolicited message sent by an SNMP agent when an alarm changes state (turns on or

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off). The message is an SNMP packet that can be interpreted and displayed by an SNMP client application.

- Some device meter ranges were updated to account for corrected typical values and alarm thresholds.
- Additional meters were added to each device and the sorting was rearranged accordingly.
- This release allows users to add up to 256 alarms to any given email notification.
- A new "DSP Audio Reset" alarm was added to indicate the exciter DSP was reset due to an audio related issue, such as a loss of audio capture synchronization, which could be caused by excessive DSP usage.
- A L/R Limiter function has been incorporated into the preset. See "Presets -> Other Settings -> L/R Limiter" and manual for more details on configuring this feature.
- Preset deletion management has been improved; presets cannot be deleted if they are currently active, used in the scheduler, used as an audio loss fallback preset or used in the remote I/O.
- Customers can now use either the standard FCC mask, European (ETSI) mask, or none. See "User Settings -> Spectrum Mask" for configuring which mask is desired.
- VS 4.0 has the ability to measure the multiplex (MPX) power from the stereo coder pursuant to European rules. See exciter meter "MPX RMS Deviation".
- This release incorporates the HD PowerBoost function into the AUI preset menu (available under license only). See manual for more details on configuring HD PowerBoost presets when licensed.
- This release incorporates the MER (Modulation Error Ratio) measurement feature as a function of the Constellation instrument panel. See manual for more details.
- There has been a new "Unsupported Audio Configuration" alarm added to

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indicate the Audio Source selected is not supported by the hardware available; e.g. NAPE87A PWB is required to support Omnia Direct (MPX over AES) - older hardware versions will issue this alarm if this source is selected.

- Performing a software upgrade now requires confirmation from the operator.
- Deleting user notifications now requires confirmation from the operator.
- Deleting users now requires confirmation from the operator.
- Deletion of a stream or playlist now requires confirmation from the operator.
- This release corrects 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.
- Remote AUI connections can now timeout. If a connection to the remote AUI is not used for more than 30 minutes, that user will be disconnected, which will open up a slot for another user to log in.
- The maximum number of logged-in users has been increased to 10.
- Users can now 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).
- There are now 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 details.
- This release accounts for users that attempt to enable an unlicensed HD PowerBoost 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.
- Additional permissions functionality has been added to user accounts control. Administrators can grant users the ability to activate/modify presets,

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adjust power levels, manage power lockouts, delete logs, and turn RF on/off.

- 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.
- Users can setup their transmitter time based on a UTC (Coordinated Universal Time) offset (specifying Timezone, Region, Country, Zone). See "User Settings -> Time Setup".
- Users can configure the remote analog output full scale voltage for the available (not configurable) analog output meters.
- Analog Outputs are now configurable.
- This release resolves an issue where some audio files would not appear in the playlist file list if their extensions were not lower case.
- This release resolves an issue where the audio player might not resume when the source of a Direct Shoutcast stream was paused for more than 5 seconds.
- Resolves issue with Engine Misconfiguration alarm not being displayed when conditions made it necessary to display (e.g. version conflict).
- The list of available software upgrade files is now sorted. Also, there is an "available space" indicator on the Manage Files window.
- Additional alarms have been added to the remote alarm list. See manual for list of additional alarms and their causes.
- The list of user accounts is now sorted alphabetically.
- Users are now provided a warning when attempting to upload upgrade .tgz file to a drive that has insufficient space; the upload will fail and a warning informs user to free up space before attempting an upload.
- This release corrects the permissions that remote users had with respect to updating specific network settings; critical configuration changes can only be made by an Administrator.

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- Users will now receive 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.
- Some user account management improvements have been made, including preventing a user from deleting the account they are logged into, and allowing administrators to change their own passwords.
- Erroneous alarm events with incorrect dates should no longer be displayed in the events log.
- This release resolves a number of Internet browser conflicts.
- Robustness improvements have been made to the software upgrade process.
- This release 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.
- The AUI will now automatically reboot after an upgrade; no manual "Reboot AUI" button needs to be pressed.
- The "Waterfall Graph" instrument renamed to "Power Distribution".
- The IBOC Settings page in VSHD has been moved to the System Settings menu.
- SNMP monitoring via Zabbix has been significantly improved.
- The reliability of Shoutcast/Icecast streaming has been greatly improved.
- The Software Details page now refers to the "HD Exciter" to eliminate confusion when that element was not installed in a non-HD system.
- This release resolves an issue where the audio may drop out for approx. 3 seconds after the time was set remotely.
- There is now an indication of audio loss when Secondary AES is the source.
- Logs are now sortable by column.

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- From the Local UI, "Change Preset" is now a selectable Mod Loss action (it was always available in the AUI).
- Re-labeled the Remote Power INC/DEC controls to make it more clear that they are edge triggered.
- This release includes some usability improvements in the Playlist Manager.
- A new "Injection Level Over-ridden" alarm has been added 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 incorporates DRM+ as an available mode in the preset. Contact Nautel for further information on operating in DRM+ mode.
- The "LUT Storage" function (under Hardware Configuration menu in previous release software) has been removed, as it is no longer considered necessary post improvements made to the Nautel adaptive pre-correction 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).

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