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Omnia.11 Version 3.0.2 Update

This update is for Omnia.11's currently running version 1.5, 1.6 or 3.0 ONLY!

If your unit is running ANY EARLIER VERSION and you have not installed the version 1.5(85) compact flash card, please go to the URL below and order the free v1.5 update first:

http://www.telosalliance.com/support/Omnia11-v15-Software

Please also see the changelog starting on Page 4 of this booklet which covers all of the new features included in this version 3.0.2 update and the **Introduction to G-Force** manual addendum. The full User Manual will also be updated and available online soon by clicking on the "Manual" link to the right of the Omnia.11 product page here:

 http://www.telosalliance.com/Omnia/Omnia11

If you have questions or find that you require assistance with this upgrade, you may call Customer Support at 216.242.0225 during normal business hours or email us at support@omniaaudio.com. Please have the serial number of your unit handy if you need to contact us. The serial number can be found on a small barcode sticker on the rear panel that looks like this: 0279xyyyy, 0314xyyyy or 0382xyyyy.

*IMPORTANT NOTES:

- This software update requires that version 1.5 or later is installed in both software banks before updating. It checks that the proper software is installed in the running bank, but it is not possible to check the alternate bank. If the 1.5 update card was used (as it should have been), it will always have the proper software in both banks. If it was not, please see above and follow the link to order one.
- Once version 3.0 or higher is installed, you will not be able to go back to previous 1.x versions. Please contact Omnia Support for help if this is needed.
- This update requires the use of the built-in webpage remote control interface. Be sure that your Omnia.11 is properly configured for and connected to your network (or computer) per Appendix C in the user manual before updating.
- Your network parameters and Livewire Input settings will be carried over and activated automatically after the update. In some cases, Livewire Output settings may not re-populate so be sure to jot your Livewire output channel numbers down.

- Any existing custom user processing and I/O configuration presets will also be carried over but not loaded automatically. That said, please be sure to save your user presets to a computer before you update!
- Due to re-calibration of the composite MPX output level controls in v1.6, the MPX output levels may be slightly higher than in versions 1.5 or earlier for the same control setting, even after loading a previously saved I/O Config. So be sure to check your modulation level on the device following the Omnia after the update if you are updating from v1.5.
- Due to improvements in the clipping system, existing presets from older versions (1.5 and earlier) may be louder in version 1.6 and higher. If this is not desired, we recommend reducing the clipper drive by approximately 1dB.

Software Update Procedure

Below is the step-by-step procedure for uploading the new firmware to your Omnia.11. Note that this will involve removing the unit from the air for several minutes so be sure to have a backup processor ready or perform he update at a time when the station can be down. Note that steps 1 through 10 can be performed while the unit is still on the air.

1. From the Setup menu, verify that the currently running version as shown in the System icon button is 1.5(85), 1.6(115), 3.0(78) or 3.0.1(11). If it is, proceed to Step 2.
   If the currently running version is 1.4 or below, you must order the free version 1.5 update compact flash card first. See http://www.telosalliance.com/support/Omnia11-v15-Software to do so.
2. If you are using the Livewire outputs, make a note of your output channel numbers in the Setup menu/Livewire icon button as these may be lost after the upgrade.
3. Download the version 3.0.2 update file (.oup) from the Omnia.11 product page: http://www.telosalliance.com/Omnia/Omnia11 by clicking on the "Software" link to the right of the Omnia.11 product page and choosing "Omnia.11 v3.0.2 Software Upgrade".
4. Connect to the Omnia.11 via Ethernet using a web browser and login. (Default password is "omnia")
5. Navigate to the Configuration menu and in the "Software Bank Selection and Update" section, click on the word "Update" inside the gray button. (it will become underlined when the mouse is properly positioned over it)
6. Read the confirmation text and click the "Continue" button to confirm that you want to continue the update process. Note that on-air audio will not be interrupted during this upload phase of the update.
7. Click the "Browse" button and find the v3.0.2 update file (.oup) that you downloaded from the Omnia website. Highlight it, click "Open" and it should appear in the "Update file:" box. Click the "Update" button to begin.

8. *******IMPORTANT:** Do not disturb or remove power from the Omnia until the update is complete. Any power interruption will result in a corrupted upload and the Omnia may have to be sent in for repair.

9. Click on the link: "**Click here to monitor the progress of the update**." You will need to manually move the scroll bar on the right-hand edge of the update monitor box down periodically (you can also use the mouse wheel) to see all of the text. When you see the following message at the bottom, the upload of the file is complete: Update successful. [stderr test]
   If you do not see this, contact Omnia Support for assistance.

10. Click the "Select New Software (Configuration Page)." link at the bottom of the page. (Or the "Configuration" button at the top). In the "Software Bank Selection and Update:" section, you should now see Version 3.0.2 loaded into the currently inactive software bank. At this point, your Omnia.11 is still running the previous version as you can see next to "Running Software:"

11. To select and activate the new version, click the radio button for the bank where the new version is located and then click the "Apply" button. (Be sure not to click the "Update" button again instead!) You will now see this message: **"Software bank (0 or 1) selected. The newly selected software will be active after reboot. To use the new meters and remote control applet, your web browser's Java(TM) cache must be flushed. Typically, this requires shutting down the browser and restarting it."**

12. At this point the Omnia.11 must be rebooted via power-cycle. Please remove power from the unit for about 20 seconds and then restore power to the unit. **Note that this will take you off the air for several minutes!** So be sure you have a backup processor online or are prepared to be off for the next few minutes. Note also that the unit may reboot on its own more than once powered back up.

13. After the Omnia logo screen appears, you will see text messages on the screen as the unit boots and is configured to run the new software for the first time. Please note that the time required to boot *this time only* will be much longer than a normal boot up (except when updating from v3.0.x). After about a minute or so you should see the message "Updating I/O Board…This will take a few minutes." The screen will remain like this for about the next couple of minutes. This is normal and the update is not stuck! After it is finished with the I/O board update, you should see the message "Done with Update...Rebooting". The unit will now reboot (perhaps twice) and the normal touch screen interface will finally appear.

14. Touch the Input or Output icon button and then the "I/O Config" tab. Now touch the padlock icon to unlock the I/O config preset list and then select your desired I/O Config preset from the list. If you do not have one, select "default".

15. Touch any of the processing icon buttons and then the "Preset" tab. Now touch the padlock icon to unlock the preset list and then select your desired processing preset from the list.

16. If you were using the Livewire outputs you may need to go into the Setup menu to re-enter your output channel numbers and re-enable the Livewire outputs. Please note that for proper

sync, the LiveWire inputs should not be used unless at least one of the LiveWire outputs is enabled.

The update procedure is completed. You may now return the Omnia.11 to normal service.

NOTE: If you are using the composite MPX outputs and are updating from v1.5, check your modulation since the MPX output levels may be higher for a given setting after the update.

The next section contains the changelog and manual addendum so be sure to read-on for information about the new features and bug fixes in this update!

Omnia.11 Version 3.0.2 Changelog

(Applicable to Software v3.0.2, May 2017)

Also see the Introduction to G-Force manual addendum later in this document for more details on using the new (optional) G-Force plugin features.

- Corrected operation of BS-412 power limiter in G-Force mode. Prior to this update, it did not provide proper conformance to the regulations.
- Updated signature on Java remote applet, using a certificate that is not expired.
- Corrected version compatibility check on stand-alone Java remote application.

Omnia.11 Version 3.0.1 Changelog

(Applicable to Software v3.0.1, July 2016)

Also see the Introduction to G-Force manual addendum later in this document for more details on using the new (optional) G-Force plugin features.

Release 3.0.1 is the first 3.x release available to all customers as a field update file. Previously, some new units were shipped with version 3.0. In this 3.0.1 release, a number of bugs were addressed, and the processing controls and presets received some tweaks based on in-field experience.

Additions and Enhancements

G-Force Plugin Only:
- New G-Force presets added: CGSmooth series, ModernRock, Azimuth_Rock, EventHorizon_CHR, VinylSmooth_Brite, Cosmic_Natural_NSE (see Note 7 below) and GlideSlope2.
- G-Force presets modified since v3.0: AC_Punch, Azimuth, VinylSmooth, GForce. "GlideSlope" renamed as GlideSlope1.
- Dynamic Bass Enhancement and Solar Plexus controls moved to "Bass EFX" tab
    - New (advanced) clipper option: **Clipper Silk**
    - New Bass Clipper Options added: **Bass Clipper Drive**, **Bass Clip Tight** and **Bass Punch**

- GUI help text added to many controls.
- RDS Configuration added to web interface, allowing remote adjustment. (See Note 6 below.)

Notes and Known Issues:

- If Processing restart is underway, and the front panel is "woken-up" prematurely (before the restart wakes it up) by touching it, the FP may become stuck and display strange graphics. The workaround is to perform the restart again, and not touch the front panel until it completes.
- We recommend disconnection of all remote control sessions before performing a style change or processing restart. The restart will complete correctly if a remote is left connected, but it will take longer before a new remote session can be initiated, and the front panel will have some "false starts" when coming up, which will require the touchscreen to be tapped several times.
- Some browsers may display the update status with black text on a gray background, making it difficult to read. This is browser dependent.
- When connecting with the stand alone remote for the traditional (Orange) style, a warning is given stating that the remote version is incorrect and to download the correct version. This warning can be safely ignored, and the remote will work correctly with 3.0.1 (11).
- After entering RDS information on the front panel, the "RDS" block on the "Setup" screen will not immediately update. The workaround is to go to the "ADJ" screen and then return to the "Setup" screen.
- Updating the RDS data from the web page interface will cause the new data to be saved, but will not update the on-air transmission. Only pressing apply on the front panel will update the on-air data.
- The new G-Force "Cosmic_Natural_NSE" preset has an issue where the limiter thresholds are set too high for the Omnia.11's clipper. If you are interested in this preset, please download Cosmic_Natural_NSE2 from our website.

Omnia.11 Version 3.0 Changelog

(Applicable to Software v3.0r78, June 2016 – shipped in new units only)

Also see the **Introduction to G-Force** manual addendum in the next section for more details on using the new (optional) G-Force plugin features.

Software version 3.0 is a significant and important update that, when running the optional new G-Force plugin, completely overhauls the dynamics processing engine of the Omnia.11 and adds some new features that you have been asking about since the Omnia.11's debut in 2010!

It is very much like getting a completely new and improved audio processor without the need or expense of a new box. Think of this as like getting a new, more powerful engine upgrade in your car!

Additions and Enhancements

Both Original Mode (orange) and G-Force Mode (blue):

- Mode switching between the original (orange) mode and the optional G-Force (blue) mode can be done from the Configuration page in the remote control web interface. For your convenience you may evaluate the G-Force engine plugin by switching to it in the webpage remote interface.
- ENHANCED: Voltair-aware insert (patch) point now optimized for use with watermark encoders and the Voltair. This is based on C. Gould's research on the effects of audio processing on watermarking technologies. The net effect is more consistent watermark performance over a broader range of material when compared to simple wideband processing in front of the watermark encoder (and definitely better than no processing at all in front of the watermark encoder).
- Safety limiter added to patch point output.
- Patch point output level control added
- Patch point input and output meters added. These are available in the Input → Detail meter panel.
- Patch point calibration tone added.
- Patch output level control added. This is intended to be used only if necessary to increase headroom in the patch point output.
- Patch point send can now be output on analog or AES/EBU outputs as well as LiveWire.
- NEW: For the HD processing chain, a parametric EQ including lo and hi shelf equalizers replaces the limiter mixer section. This is for compatibility with the new patch point location.
- Option added to select whether the HD processing is fed with the signal that goes through the patch point or not.
- ENHANCED: For Solar Plexus, added "Upper Subharmonic" control to change the tonal balance of the enhancement. Setting this to "off" will give an effect similar to the previous "Thunder Bass" enhancement.
- NEW: (static) RDS generator added.

G-Force plugin (blue) mode Only:

- NEW: Five Band dynamic equalizer -> Assists in source to source consistency without the use of more compression. Uses unique "ratio based" control method to maintain source to source equalization without "smashing" the audio more. Can be adjusted to operate as a cut – only mode, boost-only mode, or any combination in between.

- ENHANCED: Next Generation wideband AGC whose control characteristics model how we perceive the actual levels & loudness of the program mix. This takes into account the new

production techniques being used to record and master today's music. For example, it is designed to handle and pass the EDM-style bass found in today's popular music where bass response has to be managed in an entirely different way.

- NEW and ENHANCED: Next Generation "Chameleon AI" dynamics control. This version of the Omnia.11 features full smart control of all of the multiband processing stages. This AI system constantly monitors the characteristics of the audio in terms of density, long term and short term loudness, and intelligently controls the gain state to insure minimal artifacts, and to maintain consistent "base loudness levels". For the first time, these advanced chameleon dynamics work throughout the infrastructure of the entire processing chain, not just a segment. This represents a major structural reworking resulting in a complete makeover of the omnia.11's capabilities. It is like getting a whole new processor!

- NEW: Suite of tools in the multiband AGC processing including multiband windowing, user adjustable thresholds, and intelligent gating modes.

- ENHANCED: Chameleon dynamics control has also been extended to the multiband limiter system. The limiters have the ability to greatly (and actively) reduce induced intermodulation distortion under fast & heavy limiting conditions. The new limiters have also allowed for the removal of the clipper Auto Sense control in the "FM" menu.

- ENHANCED: More powerful Quick Setup menu. With 7 simple controls, you can totally alter & tailor any preset to your tastes. NEW: "Bass" control allows you to easily and effortlessly dial in the amount of bass you want without having to tweak other "expert level" parameters.   Quick setup also works in conjunction with expert level controls giving even more power and flexibility. This makes quick adjustments much easier and more intuitive without the necessity of entering the full adjustment menu.

- NEW: Optional Perfect De-Clipper module by Hans Van Zutphen.

Bug Fixes:

Reduced the range of the Solar Plexus level control and increased its resolution.

Here's what was new in version v1.6:

(For those updating from v1.5)

- CHANGE: Selecting a processing block on the GUI will now always bring up the Preset tab. Pressing it again will bring up the controls specific to that block. This is for compatibility with operation of protected presets.
- NEW: Solar Plexus bass enhancement. (Wide Band → ENH → Advanced tab) This is a sub-harmonic bass enhancement that, unlike earlier attempts, preserves the dynamics of the original bass. Warning! A little goes a long way so use sparingly. Too much will overdrive the low-band limiters and can muddy the sound.

- NEW: Bass enhancer "Mode B". (Wide Band → ENH → Basic tab) This gives a fuller, more "rounded", warmer bass tone. (It is useful for Jazz, Country and AC formats)
- NEW: Pilot Embedder buries the 19kHz stereo pilot tone within the program audio rather than adding it on top, creating 1dB additional loudness. If you aren't using the Omnia.11's built in MPX stereo generator now, you may want to give it a try!
- NEW: Additional processing presets: "CGSmooth_V2" is a much louder version of CGSmooth that is optimized for that greater loudness and the new bass features. It can also be used at reduced loudness by simply reducing the main "FM" clipper drive.
- The other new presets have an "_splx" extension and are the same as their namesake except that they have the Solar Plexus bass enhancer turned on.
- NEW: "Day event" scheduling support (accessible on the "GPIO / Events" web page).
- NEW: Support for setting time from an NTP server. (accessible from Setup → Network on the front panel).
- ENHANCED: Added "BYPASS MODE" watermark indication on front panel when unit is in bypass mode.
- ENHANCED: Livewire Sync indicator on front panel screen and remote. (in Setup → Livewire)
- ENHANCED: Added "Primary Audio Failure" watermark indication on front panel when the failover logic has switched to the secondary input.
- ENHANCED: Better reporting of error conditions, particularly those occurring during startup. These will now display in the "Fault:" indication in the top line of the front panel.
- ENHANCED: Added GPI disable setting to "GPIO / Events" web page.
- ENHANCED: Bootup time decreased.
- NEW: Added gain-reduction meter for BS-412 processing.
- NEW: Reverse remote connection. Because the remote is entirely web-based, this works by allowing the Omnia 11 to connect to a remote relay server. The user can then point a web browser at the relay server to get the remote connection.
- NEW: FM test tone can be sent to the stereo generator as L+R, L-only, R-only, or L-R (Output → Advanced).

Bug Fixes:

- FIXED: Problem where booting up an O11 or enabling its LiveWire outputs on a LiveWire network could cause a brief network-wide audio dropout.
- FIXED: A variety of issues that could, under certain conditions, cause the front panel and web server to become inaccessible after the O11 had been running for an extended period.
- FIXED: Issue that would occasionally cause the O11 to boot up not passing audio, requiring a reboot to correct.

- FIXED: Bugs that could cause problems obtaining the unit's HWID. Symptoms of this are problems with the activation checks, resulting in failure of DSP processes, or problems communicating with the I/O board.

- FIXED: GPI bug where the IN 1 HI preset, if present, was always selected at boot time.

- FIXED: Leading zeros in the network configuration values will no longer cause problems (these are now just stripped off). Previously, they could lead to an infinite crash and reboot cycle.

- FIXED: Bug where LiveWire outputs would come up partially disabled after reboot.

- FIXED: Bug where changing the password from the front panel would not work.

Security:

- NEW: Additional preset security modes. Any protected preset can now have view/modify (and, separately, unprotect) permissions allowed or denied as part of the preset authorization. If denied, the permission can be gained by an individual user (i.e. front panel or one remote connection) by entering the original passphrase used to create the preset authorization. Note that encrypted presets created with release 1.6 cannot be read with previous releases, in order to prevent those without view/modify permission from being viewed on an older release. Older presets can be read by 1.6, and will be automatically converted to the new format.
- Any potential "Shellshock" vulnerability removed by removing bash shell.

- Verified that the O11 is not vulnerable to GHOST (CVE-2015-0235) vulnerability. Here is our statement regarding this: The Omnia 11 uses glibc 2.7 and is potentially vulnerable. However, the only open network ports are for our custom remote control server, the boa webserver and sshd. Our remote control server does not use gethostbyname*(), and is thus not vulnerable. boa only uses gethostbyname*() on values supplied in its configuration file, and only after syntax checks. Modfying this file requires pre-existing root access to the unit, thus boa is not vulnerable. OpenSSH sshd uses getaddrinfo() instead of gethostbyname() (except in some really obscure configurations, not including ours), and is not considered vulnerable.
- See http://seclists.org/oss-sec/2015/q1/283 and the answer (not the comments to the question) at http://security.stackexchange.com/questions/80217/ghost-which-services-are-vulnerable-ssh-web-server.
- Thus, Omnia 11 is not vulnerable to GHOST.

New Setup Features

RDS Setup

RDS is available in both Original Mode (orange) and G-Force Mode (blue). G-Force mode shown:

Omnia.11 v3.0 adds static built-in RDS to its onboard stereo generator. By "static" we mean that dynamic metadata is not supported. You'll need to enter your PS and RT messages in this front panel screen (only) and these messages will be transmitted continuously.

Your PI code (in Hex) can be automatically generated from your call letters entered into the "Call Sign" box.

Manually enter your desired static PS text (maximum 8 characters) in the "PS" box.

Manually enter your desired static RT text in the "RT" box.

Touch "RDS" for the European RDS standard or "RDBS" for the USA standard.

Enter your alternate frequency list (if any) in the following format: 98.7,100.2,106.4, etc.

To turn the internal RDS generator on, advance the "RDS Level" control above 0.0% (which is OFF). Typically RDS injection level should be 4.0%.

The rest of the switches on the right-hand portion of the screen set the features being transmitted on your station as seen on RDS capable radios. Turn on only the options featured on your station.

***Note that Updating the RDS data from the web page interface will cause the new data to be saved, but will not update the on-air transmission. Only pressing "Apply" on the front panel will update the on-air data.

NTP Configuration

The Omnia.11 real-time clock used for the new "Day Events" feature can be set via NTP only (configured in the Network setup menu) and cannot be set manually.

***Note that network setup can only be done from the front panel of the unit.

Enter the numeric IP address of the desired NTP server in the NTP Server box and choose your time zone from the NTP Time Zone dropdown list. Then touch "APPLY"

Reverse Remote Configuration

Allows you to point the Omnia at a server and make an outbound SSH remote control and diagnostic connection. This can be used to tunnel through a firewall and allow support access. Contact Omnia Support for more information.

Day Events

Day events (found at the bottom of the GPIO / Events page in the remote webpage interface) can be used to automatically select a Preset, I/O Config, or both at a specified time on a given day or days. The event will repeat weekly on all days that are checked

To add another day event, click the "Add Event" button. Once your day events are as you like them, click "Apply" to activate them.

Individual day events can be deleted by clicking the "Delete" button to the right of each day event line.