

Omnia.11 Version 3.5 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>

In addition to the update instructions below, please also see the changelog starting on Page 5 of this booklet which lists all of the new features and fixes included in this update and the “G-Force Improvements and New Controls in v3.5” section starting on Page 14 for all the details. The full User Manual and updated “Introduction to G-Force” addendum are also available online 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.x 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. Note that v3.x can run in traditional (orange) mode if desired. The processing in that mode is functionally equivalent to version 1.6.
- 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!

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- 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 the 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), 3.0.1(11) or 3.0.2(114). 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, write down your output channel numbers** in the Setup menu/Livewire icon button as these may be lost after the upgrade.
3. Any custom user processing and I/O configuration presets will also be carried over but **will not load automatically** after the update. They will be set to the defaults possibly causing a no-audio condition. So **be sure to save your current I/O settings as an I/O Preset from with the Input or Output menu before proceeding** so it can be easily selected after the update! We also strongly suggest saving your user presets to a computer as well to have as a backup.
4. Download the version 3.5 update file (.oup) from the Omnia.11 product page: <http://www.telosalliance.com/Omnia/Omnia11> by clicking on the link under the “Software” heading to the right of the Omnia.11 product page: “Omnia.11 v3.5 Software Upgrade”.
5. Connect to the Omnia.11 via Ethernet using a web browser and login. (Default password is “omnia”)
6. 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)
7. 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.

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- Click the “Browse” button and find the v3.5 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.

*******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.

- 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.

- 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 3.5 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:”
- 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.**”
- 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 when powered back up.
- 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 for the **first time only** will be much longer than a normal boot up since an I/O board update will take place. (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 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. In some cases, a hard power cycle may be required.

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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 3.5 Changelog

(Applicable to Software v3.5.x, March 2018)

G-Force Only: (the traditional “orange” version is unchanged)

- [NEW] “Pepino” Clipper! The latest FM final clipper from Frank Foti, custom engineered to take G-Force Dynamics to the next level. Features improved high frequency handling and more consistent bass response!
- G-Force processing improvements. Please see **G-Force Improvements and New Controls in v3.5** on Page 14 of this document for full details.
- Switching between presets is now much smoother.
- Improved sound in the low-delay DJ section. Note: The De-Clipper option, if present, must be turned off to use the DJ section for live headphone monitoring.
- [NEW] Greatly improved HD lookahead limiter.
- [NEW] Unified FM /HD Bass Clipper. Improves audio consistency between the FM & HD channels.
- In G-Force Demo mode, the silence “reminders” now grow in duration:
 - The length of the silent period is now 4 seconds instead of 1.6 seconds
 - The first silence will still occur about 4 hours after boot. The next one after that will be 2 hours later, then 1 hour, and so forth until there is 4 seconds of silence every 2 minutes.

Bug Fixes:

- Fixed: The Internal static RDS that was broken in v3.0.2.
- Fixed: The incomplete bootup and hang that could occur in v3.0.x after a soft reboot.
- Fixed: An issue with Livewire GPIO 0.0.0.0.
- Fixed: A DSP resource issue that could, in rare cases, cause a unit to reboot when certain combinations of bass enhancer settings were being used. (applicable to both the Orange and Blue versions)
- Fixed: A rare issue that could cause file corruption in the graphics system at boot up.
- Fixed: An issue with the input failover feature where an audio dropout could occur when the following was true: Failover Time was on (set to anything except 0.0), Analog was selected as the primary audio source with AES as the secondary (failover) source and that AES signal was interrupted.

Omnia.11 Version 3.0.2 Changelog

(Applicable to Software v3.0.2, May 2017)

- 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)

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.



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, G-Force. "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:

1. 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.
2. 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.
3. Some browsers may display the update status with black text on a gray background, making it difficult to read. This is browser dependent.
4. 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).
5. 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.
6. 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.
7. The 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)

Software version 3.0 was 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!





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. Modifying 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.





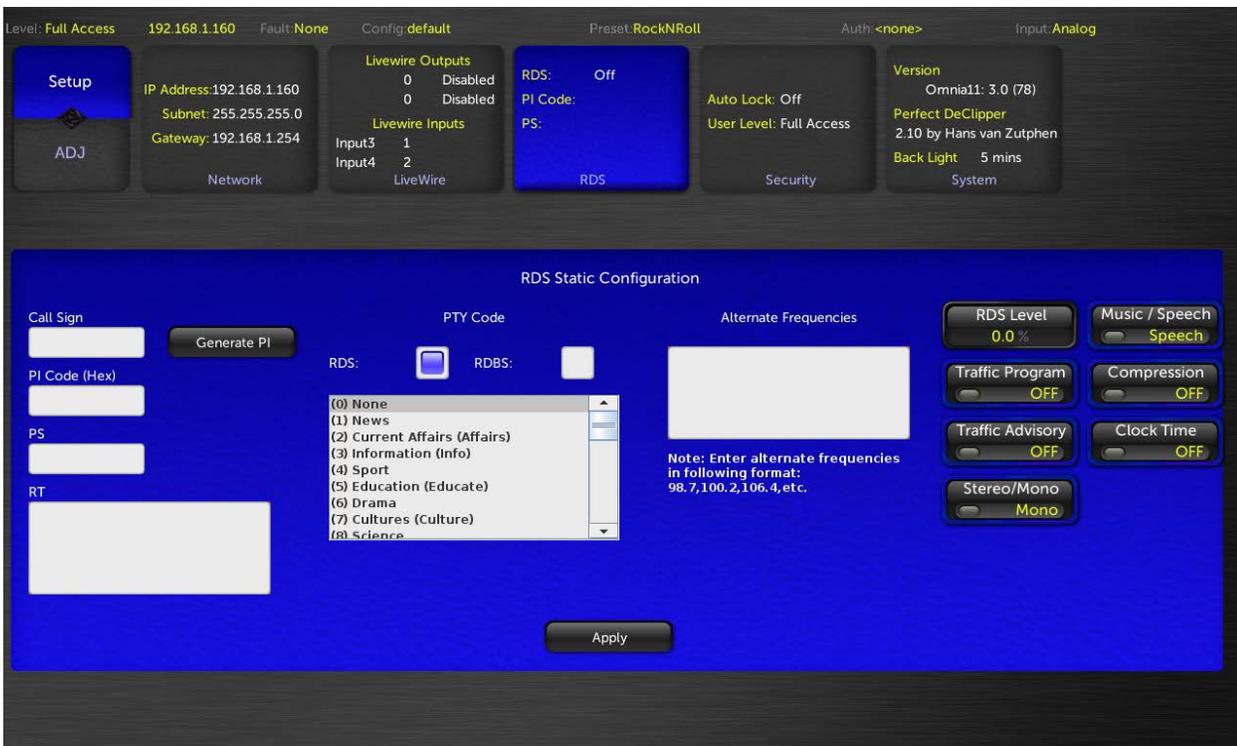
New Setup Features in v3.x

If you're updating from v3.0.x, you can skip to the next section starting on Page 14.

For those updating from v1.x: If you're new to G-Force (or would like an updated refresher) please also see the "INTRODUCTION to G-Force" document located here:

https://www.telosalliance.com/images/Omnia%20Products/Omnia%2011/O11_Intro%20To%20GForce_B.pdf

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.

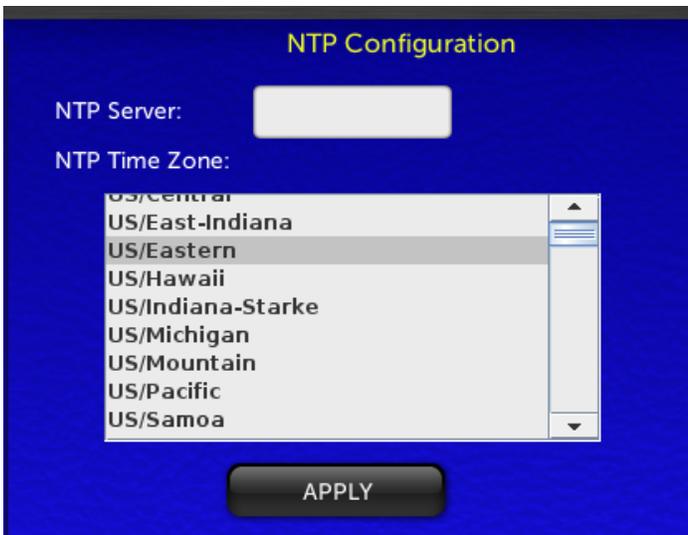
Enter your alternate frequency list (if any) in the following format: 98.7,100.2,106.4, etc.

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”.

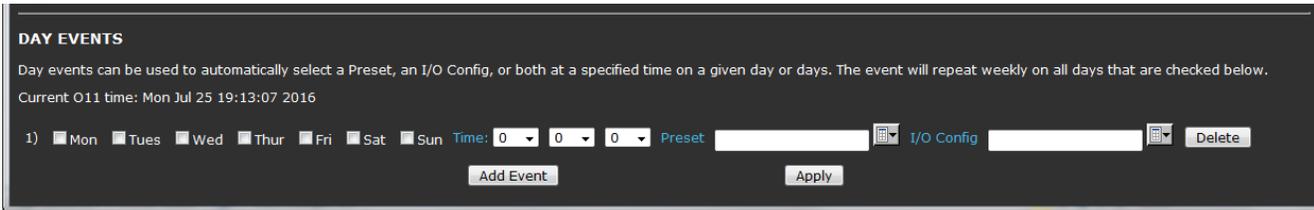


Reverse Remote Configuration



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.



G-Force Improvements and New Controls in v3.5

Cornelius and Frank have been working hard since the version 3.0.x release to improve G-Force even more and this version 3.5 update features three key elements that make it a “must have” for any Omnia.11 user!

First is Frank’s new “Pepino” Clipper! The latest FM final clipper from Frank Foti now features improved high frequency handling and more / more consistent bass response!

Second are improvements to Corney’s dynamics sections, optimizing them for the new clipper, including a new unified FM /HD Bass Clipper that not only improves overall bass response, but also improves audio consistency between the FM & HD channels (on HD equipped units).

Third, for HD enabled units, is a greatly improved new HD lookahead limiter.

If you’re new to G-Force (or if you’d like a more complete refresher on all of its features, please also see the updated “ INTRODUCTION to G-Force” document located here:

https://www.telosalliance.com/images/Omnia%20Products/Omnia%2011/O11_Intro%20To%20GForce_B.pdf

Here’s what’s new in v3.5:

In G-Force Demo mode, the silence "reminders" now grow in duration:

- The length of the silent period is now 4 seconds instead of 1.6 seconds
- The first silence will still occur about 4 hours after boot. The next one after that will be 2 hours later, and then 1 hour, and so forth until there is 4 seconds of silence every 2 minutes.

The “Quick Setup” tab has been renamed “Quick Tweak”

The “Ratio” controls in the Wide Band / Advanced tab and AGC / Advanced tabs have been renamed “Min Ratio”. This is more accurate since the compression ratios are not fixed and vary with the dynamics of the program material. If you desire a more traditional, tighter AGC sound, you can turn these up to restrict the compression to using higher ratios.

A word about the AGC metering: You may notice that there is a “faster” component to the movement of the 5-Band AGC gain reduction meters that may look different from previous versions. This is a result of improvements to the AGC algorithm and do not indicate an added fast gain reduction component. It is merely an effect of newly added “special sauce”! ☺

Now onto descriptions of all the new controls:

New Quick Tweak controls



Mid Location: (Quick Tweak -> Mid) This new control gives the ability to emphasize, or slightly de-emphasize the amount of midrange audio energy heard through any selected preset.

New Bass EFX Controls

The Bass EFX tab is where the exact type of bass you are enhancing in the quick setup menu is defined. See the full manual for descriptions of previous controls.

The following controls have been added to the Bass EFX menu in version 3.5

Phat Harmonics Location: (Bass EFX -> Phat Harmonics) This new function is a very powerful addition to the Phat Bass system. It is capable of generating bass harmonics that add the sense of “warmth” and “detail” to deep bass notes and bass percussion. It is capable of doing this without creating muddy sounding audio.

This is a major advantage in processing in that the only way to attempt attempting such a thing before was with various EQ curves...which typically made some things sound good, and others muddy.

If your preset is using lots of equalization to add warmth, see our tips and tricks section for hints on how to use this control to give cleaner not muddy warm audio!

Punch Mode Location: (Bass EFX -> Punch Mode) This control determines what type of “bass thump” you are enhancing when adjusting the “Bass Thump” control in the quick setup tab. Low settings produce a “low impact” thump (the default mode in previous G-Force versions). Higher settings produce a higher impact “punch”, or -if you wish- bass punch with authority!

New WBAGC Controls

Accelerated Release Location: (Wide Band -> Accelerated Rel) Some programmers have wanted to have the ability to modify the default behaviour of the Wideband AGC to handle extreme audio level differences in program content, and to modify how fade-outs are handled. Previously, this function was just part of how the algorithm worked, and there was no option to change it. Now we’ve brought out this function.

By default, the control is at 1 (algorithm default). By advancing the control higher, you will observe the wideband AGC tracking “fade-outs” and overall differences in level more aggressively. As the level differences increase, the wideband will begin dramatically increasing its release rate to “chase the level drop”. Note that this may allow you to use lower “regular” Release settings than you otherwise would have.

New Multiband AGC Controls

Transient Detail Location: (AGC -> Basic -> Trans Detail) This control allows you to be VERY creative with the sound of the multiband AGC system. With it all the way up, it creates a very open sound while maintaining loudness. It helps to bring forward drums and other transients in the program content. Especially so if you are using DeClipper.



Transient Offset (Lo and ML bands) Location: (AGC -> Advanced -> Lo [or ML] -> Trans Offset) These controls allow you to add to or subtract from the amount of Transient detail enhancement in these bands. Lowering ML Transient Offset can cure any muddiness that may build up. Adding more to the low band can emphasize kick drum effect.

Accelerated Release (all bands) Location: (AGC -> Advanced -> [LO, ML, MH, HI, SH]) This control allows control over how each of the multiband AGCs respond to drastically changing program levels in program content.

Previously, this function was just part of how the algorithm worked in each of the multiband AGCs, and there was no option to change it. Now we've brought out this function. By default, the control is at 1 (algorithm default). By advancing the control higher, you will observe the wideband AGC tracking "fade-outs" and overall differences in level more aggressively. As the level differences increase, the wideband will begin dramatically increasing its release rate to "chase the level drop".

Dynamic EQ Changes & Improvements

Location: (AGC -> Dyn EQ) The "Out" controls for each band have been replaced by new "Target" controls. Note that the previous Output controls were redundant with the AGC XO controls. Also Note that the ML band acts as a reference band so is not adjustable. Separate mode references only the ML band. Interactive mode also looks at adjacent bands.

DynEQ Target: (LO, MH, HI & SH bands): You can raise or lower the target output level of each adjustable band to boost or restrict its maximum amount of boost.

The "**Cut Ratio**" controls are now active. When raised from 0%, these will allow the Dynamic EQ to reduce the level of a band below the 0dB line, similar to the way the Boost Ratio controls allow the bands to raise the level. For example, using some Cut Ratio on the LO and /or SH band can smoothly reduce any excessively boomy or bright material that may come along ahead of the AGC, reducing the load on the LO & SH band AGCs.

Be careful not to use too much Cut Ratio though as too much can cause some audible artifacts. A setting of about 30% would be a good start if you want to try it. Watch its behavior on lots of program material to ensure it is doing what you expect.

Main FM Clipper

New Ultra - Low IMD clipper: The version 3.5 release features Frank Foti's most advanced Lo-IMD clipper yet! This new clipper allows for much cleaner / smoother high frequency sound than before - and allows for rich powerful bass response. Older presets will immediately benefit from the new clipper, and the new control set in the dynamics sections let you take full advantage of the power available in the new clipper!

HF Silk Location: (FM -> Advanced) The HF Silk control allows the end user to adjust the characteristic sound of the new FM clipper. Higher settings engages the full power of the clipper on high frequencies, producing the smoothest less fatiguing sound. Lower settings will mimic the high end response of the previous clipper. We recommend using the highest settings. Older presets will default to minimal amounts of smoothing.





Clipper Silk Location: (FM -> Advanced) The clipper silk control determines the overall texture of the clipper sound, especially at low frequencies. Lower settings give more of a “solid” kick to bass percussion, higher settings provide a softer “padded kick”.

HD Lookahead Limiter

The HD channel’s lookahead limiter has been greatly improved in version 3.5. For full information about the HD section, please see the document “INTRODUCTION to G-Force”. The URL can be found on Page 14.

G-Force Preset Descriptions

Note: New presets that take full advantage of the new features in this release are denoted by an asterisk (*) before their name.

Below is the complete list of G-Force presets included in this release. Note that they don’t all have descriptions as many are fairly self-explanatory and some are variations on an overall “theme”. Some do not have format names at all. Some may recognize a few “rocketry” terms thrown in not set in stone! You should listen to as many as possible with your program material (preferably offline at first) and pick one or two to start with.

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AC: The **AC** group could be a good place to start for you if you are interested in a more “laid-back” sound.

AC_Punch_New / AC_Punch_Open: Open sounding presets useful for AC / Hot AC, or any other music format where higher TSL is desired.

***CG_RockNRoll:** A nice preset that can be used for artistic rock formats such as “AAA”, and Classic Rock. Also see the family of “Cosmic” presets for other options you can use!

***CG_Smooth:** This is an updated version of Cornelius’ signature preset that uses all of the new tools in version 3.5. This replaces not only the original CGSmooth preset, but the older “Chameleon” family of presets in previous versions as well.

CG_Smooth_Wrm: A warmer sounding version of the CG_Smooth preset. This replaces the family of “Analog” presets in previous versions.

Classical1 thru 4 / ClassicalPure1 / ClassicalPure2: Excellent starting points for Classical or Jazz formats. Pick the one you like best to start with.

***Classical_5:** An updated Classical preset that takes advantage of the improved RMS power of the AGC system as well as transient enhancement.

***Classical_6:** Another updated Classical preset that takes advantage of the improved RMS power of the AGC system as well as transient enhancement.





***ClassicalPower:** A classical preset that does NOT use the multiband AGCs for less spectral coloration, and takes advantage of the higher RMS capabilities of the updated front end Wideband AGC.

CleanMuscle / CleanPower: Bass oomph vs. extra loudness. Take your pick!

Cosmic_DEQ: A good starting point to use if you don't like the "smile" curve and want a more natural presentation with good, solid but not overdone bass and nice midrange warmth. "DEQ" means that it uses the Dynamic EQ feature rather than relying on

Cosmic_DEQ_NSE: The same as above with the stereo EFX enhancer disabled. Unlike earlier processors, you may find (like I did) that G-Force lets the stereo image come through clearly without additional enhancement!

Cosmic_Natural_NSE: This is a variation on the above with even more natural mids! NOTE: This preset has an issue where the limiter thresholds may be set too high for the Omnia.11's clipper.

***CosmicNew / CosmicNew_NSE / CosmicNew_Natural / CosmicNew_Lite:** New version of the above Cosmic presets updated to take full advantage of the improvements in the version 3.5 release!

EastWind: Named after a certain steam engine, EastWind is a preset that brings the sound signature of the "traditional" (orange) mode to G-Force.

Elevation: A cool sound without a target.

EventHorizon: A good starting point for pop music formats.

EventHorizon_CHR: This is a more aggressive version of the "EventHorizon" preset. This was created with the input of several big market CHR / Hot AC programmers. It has a more refined, sculpted bass sound.

GForce: GForce preset is all about the bass! 3.0.1: add more dial presence and clarity. Utilizes advanced clipper options.

GlideSlope1 / GlideSlope2: One of the favorite presets from the G-Force beta test program. 1 is the original, 2 & 3 feature controls that weren't available during beta testing and Open & Open3 are more open sounding variants.

HitCityRadio / *Hot_AC / HotMix / HotMix_v2 / Mighty80s: These are G-Force versions of the popular "orange" mode presets. HotAC has been improved for version 3.5!

***HotBeat:** A variant of the HotMix preset that emphasizes low end "beat" frequencies. When you want a bit of low end. Also has all of the new features turned on and adjusted.

***ModernRock:** Derivative of the CG Smooth base presets, tweaked around the format indicated in the preset name. Now improved for version 3.5!





Nashville_1 / Nashville_2 / Nashville_3: Great starting points for country music or contemporary Christian formats. Each variant has a different sound based on real field experience.

***Nashville_4:** A variation of the Nashville series of presets with “all the new toys” in version 3.5 activated and tuned.

***NoMBAGCs:** This is an interesting “building block” preset to experiment with. It turns off the multiband AGC’s. The dynamic EQ section is still active so it could make a fun project for those looking for the most dynamic sounding audio with spectrum control. Or if you prefer a less processed sound while retaining loudness.

***OhioValley:** Warm, less harsh sound signature from the Ohio Valley. Suggested formats: Contemporary Christian or Urban.

OrbitalElements: Another “sound without a target” that could make a great starting point.

PhaseAngle / PhaseAngle_Brite: Another favorite from the beta testers.

Proof: For making measurements. Be careful not to select this by accident!

***ReallyHotAC:** A preset for HotAC / CHR / Pop Music formats that pushes the limits a bit in terms of loudness vs. distortion.

Revibe: A unique blend of bass and highs to provide your Hot Music station a unique signature on the dial!

***Revibe Loud:** A louder version of "Revibe" for the more demanding markets.

***RockNRoll:** The default preset made to have a similar sound signature to its namesake in the previous “orange” mode 11’s and improved for version 3.5!

***RockNRoll_Punch:** Same as above but takes advantage of the new IM distortion reduction in G-Force including tuning with a little more transient “punch”.

***Singularity preset family:** These are divided into two types. Ones for “hot” formats, ones for everyone else. The “Singularity” presets are not overly bright, and are “tuned” for a “warmer audio tone”. Great for Urban formats too!

***Singularity / *SingularityBig:** Singularity presets for “hot formats”. These presets that are just as loud and bold as Event Horizon, only much warmer & less bright. For markets that need the “power sound”, but not all the treble and brightness! “Singularity Big” emphasizes bass frequencies more. Great for music where bass is important!

***SingularityRock / *SingularityWarm:** Singularity Presets for stations who do not need to be “over the top”. These have the “warmer tone” of the other “Singularity” presets, but are not “cranked loud”.

SubOrbital: Another “sound without a target” that could make a great starting point.





Talk_Smooth1 / Talk_Smooth2 / Talk_Warm1 / Talk_Warm2 / Talk_Warm3: Try one of these as a starting point for a primarily talk format.

ThrustVector: Another favorite of the beta testers that uses the clipper more for texture.

***Latin Format Presets (New in v3.5)** *Made in cooperation with Juan Punyed, our Latin American sales specialist:

BACHATA_1, BACHATA_2, CALIENTE, CUMBIAS, RANCHERO_1, RANCHERO_2, SALSA, SALSA_Open.