



Element Software Package 2.5.0.9 Installation Instructions

Revised 16 August 2012, Cleveland, Ohio USA

Software version compatibility

- Engine: v2.5.4e or higher
- Livewire Nodes: v2.5.2g or higher

Element sub-module firmware:

- Fader and Navigation Modules: 4.24
- User and Accessory Modules: 4.25
- GPIO: 4.0

New features in this release

- Support for SoftSurface remote control software
- Support for Telos VX phone systems
- Enhanced control of Telos Nx and TWOx12 phone systems

Preparation for Update

NOTE: If you are using a call controller to control a Telos NX-series, 2x12, or 2101 products, you will need to make changes to your configuration in order to operate the call controller after doing this upgrade. Please contact support and request documentation on configuring Element with your Telos model, refer to Appendix D of the Element manual (version 1.7), or read the document “Configuring Element consoles for use with Telos Nx12”, available from www.AxiaAudio.com/manuals/.

Note: If you are upgrading from a version earlier than v1.1.13.7, please contact Axia support before proceeding with this update. You will need to perform an intermediary update before applying this software. See the instructions in the Support section at www.axiaaudio.com.

Before updating it is highly recommended to back up your entire Element configuration including your show and source profiles from the Element Maintenance or Customize page (version dependent). For older software versions, these backup files may be specific to the version of Element software you have been running. Be sure to perform a new backup after upgrading.

Download the file **1601-00499-017-element-2.5.0.9.zip** from www.AxiaAudio.com/downloads/ and save it to your hard drive. **Do not unzip this file.**

Installation of New Software

Using the Web browser of the computer on which you downloaded the update package, enter the IP Address of the Element you wish to update. When the Element Control Center screen appears, choose “Setup” from the left-hand menu and enter your password if prompted.

Scroll to the bottom of the page to the section shown in the screenshot below and click the “Browse” button. Navigate to the directory where you saved the update package and select the file named **1601-00499-017-element-2.5.0.9.zip**. Choose the “Upload Image” button and the new

file will upload. When the screen refreshes, you will see **[element-2-5-0-9.zip]** added to the Software Versions list. Select this update using the radio button, and click the “Set Current Image” button. The square brackets will move to “surround” your choice and display **[element-2.5.0.9.zip]**. This indicates your selection was accepted and will be the version the Element will load on a reboot or power up.

Software update:

 To upgrade base filesystem follow [this link](#).

Software versions:			
	2.42 MB	<input type="radio"/> element-2.1.0.21.zip	2.1.0.21 (04-Nov-2008)
	2.41 MB	<input type="radio"/> element-2.2.0.9.zip	2.2.0.9 (16-Oct-2009)
	2.42 MB	<input checked="" type="radio"/> [element-2.3.0.1.zip]	2.3.0.1 (18-May-2010)
	7.25 MB	Total	

Upload new image:

Note: you should never need more than 3 software versions loaded in memory. Delete unneeded files by selecting them and clicking “Delete Selected Image.” (Make certain you are not trying to delete the active image!)

After setting the new software as the current image, choose the “**Reboot**” button. Your Element will reboot immediately and the Web screen will refresh automatically.

When Element has rebooted, return to the “Setup” screen and verify that the correct software version is active.

It should not be necessary to upgrade your Element base files. Contact Axia tech support if you are uncertain on this detail.

If you have trouble at any point during the upgrade process, please contact Axia Support via mail at support@AxiaAudio.com , or by telephone at +1 (216) 241-7225.



Element 2.5.0.9 Release Notes

New Features

Telos VX broadcast VoIP phone system support

Support is added for the Telos VX phone system. VX systems can be controlled directly from Element Call Controller modules. For details on software setup, please “Working with Phones” in v1.7 or higher of the Element 2.0 User Manual, which may be downloaded from www.AxiaAudio.com/manuals/ , or the App Note “Configuring Element consoles for use with the Telos VX”, available at the same link.

Enhanced control of Telos Nx and TWOx12 phone systems

Changes to way Element handles legacy AP-style phone system control protocol. Element now waits to confirm line seize before allowing dialing, and there is now a 100ms delay between DTMF keypresses for more reliable dialout on POTS lines.

Note that Nx6 / Nx12 system software must be updated to v1.5.19 or later for compatibility with this feature – visit www.Telos-Systems.com to obtain the latest software

Support for Axia SoftSurface

v2.5.0.9 is the inaugural Element software release which supports SoftSurface “virtual console” remote control software.

Changes

- Phone server IP field has been moved to Element Show Profile configuration screens, so that individual “shows” may better connect to different phone servers and shows.
- Fixed condition which resulted in line numbers appearing in Call Controller Status Symbol fields if line was present, but disabled. Numbers no longer appear if line is disabled.
- SmartSwitch user module LCD buttons now properly restore background color after CANBus restart.
- Loading a new source to a fader now indicates whether the Options Knob is set to affect post-fader gain or input gain, as specified by the “Knob Function” field in the Element Source Profile screen.

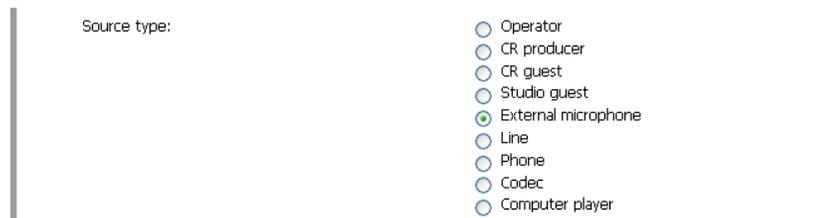
Element 2.3.0.1 Release Notes – New Features

IP-Intercom Support

Support is added for IP-Intercom modules. There are no visible changes to the Element web pages since all settings related to the Intercom modules are in the StudioEngine or PowerStation Mix Engine web pages. All IP-Intercom modules are CANBus modules. No Element configuration is required to enable the operation of the new IP-Intercom modules.

New “External Microphone” Source Type

This microphone has the same properties as any other microphone except that no monitors are muted when this type of microphone is turned ON. This source type has an associated Monitor2 backfeed.



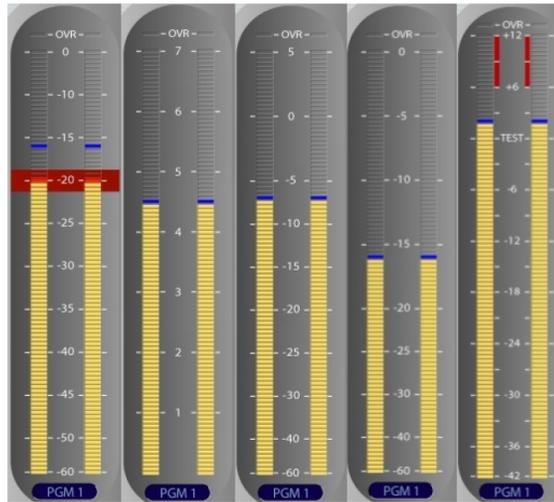
Element 2.2.0.9 Release Notes - New Features

Multi-Standard Meters

Pressing the **Meter Options** key now allows you to access **Meter Ballistics** options. This permits the selection of various international metering standards. Those selections are:

- Full Scale VU (default North American style VU meters).
- BBC Type PPM
- DIN Type PPM
- EBU Digital
- Nordic Type

The illustration below shows a quick comparison of these meter types.



Support for Record/Phone/Ext on 3rd Meter

The meter that has previously displayed only Program 3 can now be used for a variety of purposes. The Program 3 meter input may be selected and saved with your show profile (General Monitor Settings) or you may press the **Meter Options** key on the Element which allows you to select from the following options:

- Program 3
- Record
- Phone
- External 1
- External 2

Preview pre/post fader (solo feature)

You now have selectable routing for the Preview function. Each source profile can be individually configured for CUE (Pre-fade Listen) or SOLO (After-fader Listen).

“More Meters” screen with 2-Fader/Monitor Combo Module

In previous versions, the “More Meters” display was not available with the Combo 2-Fader Monitor module. You may now access this display by pushing the **Monitor2** knob while holding **Monitor Options** key.

Meter Options on Combo module

Since the 2-Fader/Monitor combo module does not have a Meter Options key, we have now provided a way to navigate to these meter options. A single press of the Monitor Options key will display the Monitor Options. A second press of the Monitor Options key will now display Meter Options where you can find new features such as Meter 3 Assign and Meter ballistics (described above)

Extended Pathfinder support

- Added features will allow PathfinderPC to play a more important role in controlling your Element console, such as the ability to change source profile on a fader channel using Pathfinder commands.

Support for rotary Options controls on Element fader modules

A new series of Element fader modules will feature a rotary-encoder SoftKnob in place of the Channel Options key. The function of this SoftKnob can be set in the source profile to allow adjustment of:

- Fader trim level – adjusts the Element fader trim gain to permit your operators to “ride the fader” in a comfortable operating range.
- Preamp gain adjust –adjusts input gain of the source audio on the Audio node.

Fader offset option

Some users have requested a global fader offset option that can be used to tweak the overall headroom on your console. This setting is found on the Customize web page. This adds a fixed value for all faders in a system and applies to all sources and all show profiles.

Changes

The following is a list of some other minor changes since release 2.1.0.21.

- Renamed MAKE-UP gain to POST-PROC gain
- Changed setting Studio Monitor Gain in show profile (low limit was -25dB instead of -85dB)
- Changed default for Post Processing trim gain in Show Profile to 'retain source setting'
- Separate Log setup web page from Customize page
- Moved clock configuration to Customize page
- Add emergency exit from test mode by pressing '0' on numpad. Fixes dead end scenario for Combo module in test mode.
- New VIA mainboard support

Element 2.1.0.21 Release Notes

New Features

Additional Metering

An expanded metering screen is now available for Monitor/Navigation Module users which allows up to 6 audio sources chosen by the user to be metered and displayed on demand. Configuration for this display is found in the Meter Section page of each Show Profile, and the display is invoked by the operator’s press of the Meter Options key, followed by the press of SoftKey #6.

Also, Element’s on-screen PGM3 meter may now be switched to meter and display the gain of the External 1 and External 2 monitor sources. This setting appears on the same Fader Options screen used to set the behavior of the PGM4 meter.

Mirrored motorized faders

Motorized faders may be “mirrored” so that when a Master fader is adjusted, its Slave follows suit.

Fader-Start “on the fly” Logic

In normal Fader Start operation, raising a fader also turns the channel ON and sends a “start” pulse to the associated audio device, when applicable. With new “on the fly” Fader Start logic, it’s possible for the operator to pull the fader up and pre-set the fader level without starting the source. With this change, faders in Fader Start mode now have three operating states: ON, OFF and ARMED.

- ARMED state is the default Fader Start operation. Channel is turned ON when fader is moved up from ∞ , and is turned OFF when moved back to ∞ .
- OFF state is entered whenever the fader's OFF key is pressed, and the fader exits the ARMED state. The fader may now be moved to the desired pre-set level without the ON state being automatically entered.
- ON state is entered whenever the fader's ON key is pressed. The channel is turned ON and the associated Start pulse (where applicable) is generated.
- ARMED state is re-entered by pressing the channel's ON key while the fader is at ∞ .

Headphone level "low limit" option

In previous versions of Element software, Talkback to an individual's headphones could be inadvertently turned off by lowering the headphone volume to zero. A new option allows for a solution to this problem.

- There is a pre-set Volume setting in each Show Profile for every individual headphones feed; this volume is applied whenever the profile is loaded or reloaded.
- When the Low Limit option is active, a guest may set their headphone volume at any level they wish. This setting is memorized by Element.
- If another user activates the Talkback channel to that guest's headphones, the headphone volume will be automatically reset to the value programmed in the Show Profile.
- When the Talkback function has ended, the guest's headphone volume returns to their previously memorized monitoring volume.

Fader Trim Gain

An additional trim control (-25db to +25dB) has been inserted prior to each fader's final output. Rather than a global function, this is enabled and trimmed on a per-source basis in each Source Profile using the "Fader Trim" option.

"A/B Switch" Function

At user request, a function that emulates the behavior of the "A/B" switch found on legacy consoles has been added.

Each Element Source Profile contains a "Source Availability" section that allows users to determine which console fader that source is allowed to be loaded onto. This setting determines what sources operators are able to choose when they open the Source List using the fader's Options key.

Then "A/B" function allows operators to quickly toggle through the sources available to be loaded on the desired fader by pressing and holding the fader's Options key, and then pressing the fader's OFF key. Each time the OFF key is pressed while the Options key is held, the fader will take the next source from that fader's list of available sources.

If the fader is ON while this key combination is executed, the fader will be turned OFF as normal, after which a new source may be assigned.

GPIO Shared Mode

Previously, Element allowed users to audition audio sources "owned" (assigned to an active fader) by other consoles without machine control of the source. Shared Mode allows more than one user to send on/off/start signals to a source via GPIO; the option to disable or enable this function on a per-source basis is found in the Source Profile setup page under the "Logic Port"

option.

Changes

GPIO control of Timer

Element timer may now be controlled remotely through GPIO interface.

Record Mode Enhancements

New options for Record Mode allow more choices for channel and Program bus assignments and the ability to lock channel ON/OFF keys while Record Mode is active.

Backfeed Trim Controls

Maximum mix-minus audio gain trim has been increased from -3dB to -6dB to allow adequate attenuation of summed dual-mono backfeeds.

Remote Monitor Change Lockout

Show Profiles now contain an option which allows lockout of the remote Monitor selection function from Studio Accessory Control Panels. Monitor, Headphone and Preview volume controls may also be disabled in this manner.

Aux “Feed-To-Source” Output Change

Previously, if AUX was selected in the “Feed-To-Source” selection menu, the contents of the AUX bus would be sent to the backfeed at the gain level of the individual AUX bus. Now, AUX is sent at the gain level set by the MASTER AUX control.

Element 2.0.0r12 Release Notes

New Features

Smart Source Sharing

The system now supports full sharing of sources, including those with backfeeds. An interlock prevents multiple consoles from sending simultaneous backfeeds or logic commands. Element shows the user the owner of the source in this case, so that it can be released.

When a source is selected and has Backfeed enabled or Logic port (GPIO) enabled and another user attempts to select the same source elsewhere with the same settings enabled, an ‘x’ will appear where the channel number is shown, indicating the source is in Listen Only mode. Listen Only Mode allows auditioning of source audio, but no backfeed or GPIO control is generated.

Important note: with Smart Source Sharing implemented within Element, it is no longer necessary to set audio sources as “Sharable” using the settings contained on the Audio Node HTTP pages. We recommend that you set all Node “Sharable” fields to “No” after upgrading to Element 2.0.

XML for Configuration

All configuration data is now stored in XML text files for easier back-up and restore operations. General configuration and specific profiles may now be easily exchanged between Element consoles. Advanced users may edit XML files manually with a text editor.

Support for Monitor + 2-Fader Module



This new Element module features a compact monitor section combined with two fader positions to facilitate designing smaller consoles with higher fader counts.

Compatibility with iProbe

Axia's new iProbe software application can be used to administer and upgrade Element and Engine software, and to save, restore, and copy configuration files.

Element/NX12 integration

The new Telos NX12 telephone interface is fully integrated into Element. The Call Controller + 2-Fader phone module or 4-Fader Phone module can be used for line selection, dialing can be done from the Element's keypad, and caller ID and status is displayed on the main screen. All audio and control is via the network and connected with a single RJ-45.

Split Phone Record Mode

Split-channel recording is implemented so that the announcer mic can be recorded on one channel and the phone caller on the other.

Player Display on Source Labels

Automation system vendors can send PAD info to show on the Element's alphanumeric channel LED displays.

Improved Meter Ballistics and Optional Peak Meter Display

Upon popular request, the main bar graph now has true VU meter ballistics, though with an expanded scale. The red line at -20dBFS corresponds to the 0dB mark on a traditional analog meter. Just as with a traditional analog meter, the 300ms time-constant filter specified in the VU standard means that peaks are much higher than the meter indicates. Depending upon the nature of the program material, transient peaks will be 9-15dB higher than the VU-filtered average. This is why modern consoles, including Element, have 20dB headroom above the nominal operating level. Some of this headroom is used to cover the peak transients the VU meter can't see, and some is used for operator error or surprise margin (i.e., the well-known "excited sportscaster scream").

Because the original Element meter was more peak-responding than a VU, operators will adjust levels higher with this new version than they did before to get a normal reading. Thus, you will find significantly higher levels on analog, AES, and Livewire outputs. You might have to reduce the input gain on devices connected to these outputs. Conversely, you might find the need to boost input levels to get a satisfactory reading on the Element meter with a normal fader position.

The optional peak meter bar shows the real peak value, so you can have the best of both worlds. The peak bar shows absolute peak, so it indicates like the usual level meter found in PC-based audio editors. Note that since the RMS average-to-peak value of a sine wave is $1.4 = 3\text{dB}$, a sine tone will cause the peak bar to be 3dB above the VU bar graph. The red warning illuminates when the peak reaches or exceeds 0dBFS.

With digital connections such as with the Livewire PC driver and AES3, the peak bar "tells you the truth." If you play a full-scale sine wave generated by a PC with the LW driver set to the default zero offset, the Windows audio mixer level set to maximum (which leaves the level unaltered), and the Element fader set to "0", you will see the peak bar at the topmost position and the red warning will be on. The VU meter will be at -3dBFS.

With Livewire analog Nodes set to the default gain position, a sine test signal at the Element -



20dB red line will deliver +4dBu into an analog audio circuit.

The peak bar is on by default, but it is possible to switch it off if you like. Simply press and hold the Timer Options key on the Monitor Module for 5 seconds; the Clock & Timer Options screen will display. Then, change the “Show Meter Peaks” option to “No.”

Motor Faders

The new motorized fader modules are supported as follows:

- Fader position can be set via show profiles. A value stored in the profile will move the fader to the chosen position upon profile loading. Used, for e.g., to be sure a fader is up for unattended automation play.
- Fader mirroring allows one channel to be defined as “master” and another as “slave.” Example application: A mini-console could be installed for the second person in a two-person show. The second person can control his mic and player channels from his position.
- Remote control of fader position. This could be used by PathfinderPC software, for example. Or eventually by an Element located at a remote site.

V-Mixer from Profiles to Global

The “Virtual Mixer” (VMix) function is now a global setting, and is not bound to an Element profile. It can also be operated stand-alone, such as with PathfinderPC software. Although provisions are made in the Element Control Center HTTP pages to operate VMix in the previous way, we recommend using the Engine-based web page controls instead.

VMode Mode Switching

The Engine now has a flexible function to select left and right channels from audio streams and compile new streams from them. This is called VMode and is accessible from the Engine’s VMIX HTTP pages. This function is also controllable from PathfinderPC for use in some router applications.

Phone Talk/Preview Latch

If an operator presses Talk on a fader to which a Phone source is assigned and, while holding it, presses the Preview button, both will latch on. Pushing either one clears both.

Pressing OFF Disables Fader Start

In fader-start mode, holding the Off button while moving the fader up disables the usual GPIO start command. The On button may be later used to issue the command.

Small Meters in the Source Select Screen

Both normal and backfeed audio are metered to enable operators to see if audio is present.

Remote Channel Control

Some channel functions are now remote-controllable. Some new Pathfinder applications need this. This function is accessible from 3rd-party applications, as well. New remote functions include channel ON/OFF button up/down indication, and channel MUTE control and indication.

2nd NTP Server

A back-up server for Network Time Protocol is now supported.



Remote Logging

Element's internal operations can now be logged to a PC attached to the network using the Linux "syslog" standard.

Duplex Mismatch Warning

Element now reports when the Ethernet switch port it is attached to is incorrectly configured.

Operator Headphone Dynamics Presets

Element v2.0 now includes Omnia dynamics processing for the CR Headphone channel, to allow operators who cannot listen to an actual air feed (typically due to STL and HD/DAB delay issues) an approximation of the familiar, processed "air sound." Its topology is wideband AGC, followed by a 3-band limiter.

There are three presets: Bypass, Smooth Headphones and Hot Headphones. These are selected from within the Engine web pages. Headphone Dynamics presets are a global function and are selected on the Program and Monitor Outputs page of the Engine HTTP pages. With subsequent releases, we will add a user control to the Element interface and expand the control options.

Fixes

Slow Profile Loading

In some cases (such as profiles containing unavailable audio sources, GPIO enabled on sources that didn't use it, or with large consoles), profile loading was slow. This is now less than two seconds in all cases.

Record Mode/Monitor 2

If the Monitor 2 source was other than PGM 1-4 or Aux 1-4, when Record Mode was activated and then de-activated, wrong source could appear on Monitor 2. The original source now always correctly returns.

EQ LF/HF Limit Check

At both maximum low and high EQ frequency ranges, there could be incorrect audio effects. This is now fixed with Engine support for expanded EQ ranges.

Record Mode Headphones Switching

When headphones were selected to Preview, Record Mode had incorrect switching. This now correctly works to switch the headphones to the record bus during Record Mode and back to the original selection after.

Backdoor to Locked Functions

In previous version, it was possible for an operator to access locked-down channel functions (press "Option"). The initial screen is EQ/PAN etc. Press the Source button and then select the new source. If you don't press the Source button and rotate the navigation knob, you can select through the different DSP functions and pressing Enter gives you access to that function and you can change it.) This "backdoor" is now closed.

Free Memory Number on Status Page was Misleading

Linux keeps data read from disks (or CF Cards) in RAM cache forever to optimize access. This resulted in the displayed free memory number going down over time. Showing this free memory number on the web status page was misleading. Some users who looked at the status page



thought that Element was about to run out of free memory and crash. The reported number now reflects actual application usage.

GPIO Start Command from Profile Change

When a source was maintained on a fader through a profile change, a new start command was issued. (This was fixed in Element version 1.1.13.11)

Small Audio Break from Profile Change

In some cases, there could be a very small (250ms) audio break during profile change. (This was fixed in Element Version 1.1.13.13)



Previous Release Notes

Element Version 2.2.0.9, 16-Oct-2009

Most significant features of the release:

- Multi-Standard meters
- Support for Record/Phone on extra meters
- Preview pre/after fader (solo feature)
- Allow to activate extra meter screen with Combo module by pushing Monitor2 knob while holding Monitor Options key
- Additional meter options on Combo module's Monitor Options 2 page
- New LWCP support: GET LwCH#xx ON_State, Asg_PGMx
- Support for rotary knobs on fader channels
- Hardware Pre-Amp gain change (in nodes, using LWRP protocol)
- Restore meter parameters after engine restart, correctly capture meter parameters
- Added FaCH object to LWCP. Ability to change source profile on fader channel from LWCP.

Other enhancements and fixes:

- Moved clock configuration to Customize page
- Added [Save] buttons to the top of Source and Show::Channel profile pages
- Added emergency exit from test mode by pressing '0' on numpad. Fixes dead end scenario for Combo module in test mode.
- Add fader offset option (on Customize web page). Adds fixed value for all faders in a system.
- Renamed MAKE-UP gain to POST-PROC gain
- Fixed setting AUX4 gain from production module
- Fixed setting Studio Monitor Gain in show profile (low limit was -25dB instead of -85dB)
- Fixed Nx12 connection after manual source loading (sometimes connection was not made)
- Fixed Phone SET button. Button now turns off properly on disconnect.
- Changed default for Post Processing trim gain in Show Profile to 'retain source setting'
- Separate Log setup web page from Customize page
- Reduce CAN-bus warnings, prevents log spam in case Element is used as a GPIO node without surface
- Fix accessory HP selector source locks (Monitor 2 was always locked)
- Numerous changes to improve efficiency and reduce network traffic
- New VIA mainboard support

Element Version 2.1.0.21, 04-Nov-2008

- UP/Down Timer control GPIO
- Show profile option to disable HP source change on accessory module
- High temperature warning in logs
- Implement A/B Switch
- New master control locks for monitor volume and mon2 source selection
- Fader Start is now per source Profile, not global
- new EURO phone line operation logic: Set button drops line (lights up when line is on air), when line is dropped turn Channel and preview OFF
- GUI: show source status and current owner on channel source selection page
- Added small confidence meter to monitor source selection screen
- Added Logic Port (GPIO) shared mode. Exclusive mode is default and corresponds to 2.0 s/w
- Record Mode: add ON/OFF lock while in record mode
- Added option to select PGM3 meter source, in show profile and from Meter Options screen



- Use input 4 (pin 14) for TALK TO EXT in CR Monitor GPIO
- Added Monitor DIM indicators for Mon1/Mon2 on the main screen
- Added feed to Source trim gain
- Added post-processing trim gain (Make-Up gain)
- Added fader trim gain
- Added AUX SENDS ON/OFF indicators to channel options AUX Sends page
- Added large digital clock option
- Add option to 'save as' source profile

Element Version 2.0.1r1, 02-April-2008

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- Full integration with Combo Modules
- Source label indication
- iProbe compatibility
- Syslog logging (controls on customize web page)
- Nx12 compatibility
- Talkback/Preview button latch
- Restore from legacy configuration files (ACL configuration)
- Console mode (STEREO/SURROUND) moved to Web (Engine page) from IP page