Installation Notes:

Axia StudioEngine v2.7.0k For Element Consoles

Revised March 2, 2015

Software Version Compatibility
- Element: 2.5.0.9 or later
- Livewire Nodes: 2.5.2g or later
- IP Audio Driver 2.4.8.12 or later

Summary of new features:
- CPU usage optimization, reduced control latency

Important Update Notice: Read before Proceeding!

This update requires that your StudioEngine have a certain level of software already installed prior to upgrading. You must have v2.6.4n (or higher) installed in order to upgrade to v2.7.0k. If your engine is already running version 2.5.4a or newer, then you may proceed with updating to 2.6.4n by following the links to the correct file for your hardware listed below. If your Engine is running a software version PRIOR to v2.5.4a, please contact Axia Support for help with your upgrade.

Please consult with Axia before installing any updates if you:
- have received pre-release samples or non-standard units,
- have modified them in any way, other than installing officially released software updates,
- are unclear on exactly what is needed.
.
Prior to performing any software update, you should always navigate to the Engine's *System* page and save your current configuration.

Determine Your StudioEngine Hardware Platform

There are several variations of StudioEngine hardware in the field. Check the information provided below to be certain you are applying the correct update. If you have any questions about which hardware you have, please contact Axia Support for help.

Update Instructions

If using Axia iProbe Network Management Software to update:
- Click the Engine you wish to update, and follow iProbe's instructions for updating. You may choose to apply the update to a single Engine, or to all Engines on your network.

If updating using a PC connected to your Livewire network and a Web browser:
1. For **Intel Pentium 4** StudioEngine running Engine software v2.5.4a or later: download 1601-00504-006-Engine_P4-2.7.0k.tar from ftp://ftp.zephyr.com/pub/Axia/Updates/Engine/. Save the file to an easily-accessed folder.
   Note that 2.7.0k requires 2.6.4n to be installed first. If needed you may download it from

ftp://beta.zephyr.com/~tlscorp/pub/Axia/Updates/Engine/SW_updates/CF_type2/Pentium4/1601-00504-005(engineP4_2-6-4n_upgrade).tar

2. For **all other StudioEngine hardware platforms** running Engine software v2.5.4a and later: download 1601-00534-006-Engine-2.7.0k.tar from ftp://ftp.zephyr.com/pub/Axia/Updates/Engine/. Save the file to an easily-accessed folder.

   Note that 2.7.0k requires 2.6.4n to be installed first. If needed you may download it from ftp://beta.zephyr.com/~tlscorp/pub/Axia/Updates/Engine/SW_updates/CF_type2/Core_Core2/1601-00510-005(engineCore_2-6-4n_upgrade).tar

3. Using your Web browser, type the IP address of your StudioEngine into the address bar and log in if necessary.

4. Once logged in, navigate to the **System** page.

5. **Commit** the existing software version if that option is available. Software may remain in Bank 1; however, you will get an empty entry field below Bank 1 where you can browse/select a new version for upload.

6. Locate the update package you saved in Step 1, and upload it. Any existing version in Bank 1 will be overwritten. When the software has been received by the Engine, check the "Version ID" line next to the Bank 1 bullet - you should see **[2.7.0k]** displayed there.

7. Select Bank 1, containing the new Version 2.7.0k software, and select "Apply selected bank".

8. After reboot, the engine should be operating from Bank 1 with the new software version installed.

If you have trouble at any point during the upgrade process, please contact Telos Alliance Support at www.telosalliance.com/support-request or by telephone at +1 (216) 241-7225.

Prior Version Release Notes

Engine version 2.7.0k release notes

Software version compatibility:
Element application   2.5.0.9
Nodes   2.5.2g
IP audio driver Windows   2.4.8.12

Functional improvements:

- Internal optimization to reduce control latency and CPU usage.
- Moves the RPL attributes page to the Diagnostics tab, and adds meter control data to RPL attributes page.

Bug Fixes

- Fixed possibility of incomplete source list on Intercom configuration page.
- Fixed possibility of slow routing/command execution time.
- Fixed a problem that resulted in V-Mixer and V-Mode stream advertisements not showing after restart.
- Fixed a condition that resulted in StudioEngine not sending IGMP membership reports for its own generated streams.
- Various other internal optimizations and bug fixes.

Engine version 2.6.1e release notes

Software version compatibility:
Element application   2.3.1.0
Nodes   2.5.2g
IP audio driver Windows   2.4.8.12

Functional improvements:

- Adds support for new fanless Engiine hardware platform
- Complete iProbe support - source info, software updates, configuration backup/restore
- Intercom service update installation

Bug Fixes

- Silence alarms and metering now work for all VMIX channels
- EQ - Mid Gain now correctly affects frequencies from 1.6kHz - 2kHz
- Setting the Element mixing mode to stereo no longer defeats VMODE surround
- Outputs disabled due to overload no longer appear available on the network
- Corrupted software banks now clear after application of software update

Engine version 2.5.4e release notes

Software version compatibility:
Element application   2.3.1
Nodes   2.5.2g
IP audio driver Windows   2.4.8.12

Fixed public release defects:

- Fixes instability and restart issues when number of outputs enabled exceeds 118 streams.
- CPU Resource monitoring now correctly tracks output streams and disallows overloading.

Engine version 2.5.4a release notes

Software version compatibility:
Element application   2.3.1
Nodes   2.5.2g
IP audio driver Windows   2.4.8.12

Functional improvements:

- Web - option to change the default buffer size for Standard streams
- Ping client and sshd enabled
- Multi-partition CF image for Intel and ASUS motherboards
- Improved software upload procedure - accepts packages in .tar format and works faster
- Automatically switches to second code bank in the event of primary bank boot failure
- Diagnostics enhancements - watchdog monitoring, software upload log, boot monitoring
- UDP packets can now be sent to hosts behind the router, allowing the engine trace log to be stored on a host outside the engine local network.

Fixed public release defects:

- Fader trim gain no longer has an effect on the Preview level.
- LWRP – Removed space padding in the NAME bracket.
- LWCP – Fixed consdition wherein, If LOGIN was not sent as the first command in a session, it would not work afterwards
- Fixed missing IGMP LEAVE request after a local audio loopback is disconnected
- VMode and VMix - Fixed a condition wherein some saved states were not retained after reboot.
- PLL state stabilized.
- SmartSurface mode – fixed Program and Monitor output configurations improperly retained after reboot.

Known issues:

- CPU load measurement is no longer accurately recorded. For safety, maintain a load limit between 70-75% on the load meter.

Engine version 2.5.1w release notes

Software version compatibility:
Element application   2.3.1
Nodes   2.5.2g
IP audio driver Windows   2.4.8.12

Functional improvements:

- VMODE – audio mode configuration now includes graphics to visualize the audio flow
- Doubled the number of VMIX/VMODE blocks
- Preview speakers - factory default stream mode is now "Live", not "Standard"
- Added Intercom application module - v 1.2

- Config backup/restore/reset now includes the Intercom settings

Fixed public release defects:

- Improved RFC host name compliance
- Event handling improved for Engine PING non-response when audio multicast is still working
- Ethernet driver - removed unneeded diagnostic output
- VMODE - standard stream in the second position of a pair: fixed meter function when for operations where the first output in this pair is disabled
- Added value limiting at stream output; fixes high aggregate gain in audio path which may lead to distortion caused by sample value overflow
- Removing a duplicate Livewire stream from an active output no longer disconnects a valid input stream.

Engine version 2.4.10k1 release notes

Software version compatibility:
Element application   2.2.0.9
SmartSurface application   2.5.0.59
Nodes   2.5.2g
IP audio driver Windows   2.4.8.12

Functional improvements:

Added: Multi-standard audio level meters

Changed: Web - modify the visual look to match the "Axia style" as defined by Element

Added: Supporting bigger consoles up to 64 faders

Added: LWRP - DST command is memorized in config data to support PF changes

Improved: Refinements to operative accounting and allocation of CPU resources

       - thresholds adjusted to prevent the CPU load exceeding 90%

       - resource availability check applied to basic fader channel source processing

       - resource availability check applied to source backfeeds

Added: Generates a syslog event when I/O stream is automatically disabled in result of switching the network port from 1G to 100M

Added: LWCP - memorizes all commands in the permanent configuration

Changed: Web - Move syslog configuration from the ID page to the Diagnostics page; engine and console ID pages become "Network"

Changed: LWRP - DST port numbering - append faders 29..64 at the end of the former numbering range (solves the PathFinder compatibility problem that emerged in the preliminary release 2.4.9)

Added: Full SmartSurface compatibility - build 2.4.10e3 approved

Added: Preview: Pre-fader listen / after-fader listen mode switching

Changed: New, more robust debug log control approach:

    - an active client configures the target IP and detail level via network link, and pulls the log without involving the configuration web page

    - debug level is now stored on CF, that allows to obtain the startup phase log in field as well

Changed: Factory netmask changed to 255.0.0.0

Changed: Automatic config backup file name - include two lower IP address bytes

Changed: CMsg supv polling - move responses to unicast, insert randomized response delay, adjust timers to polling interval 4sec

Added: Should a network driver crash occur, crash investigation info would be saved on a controlled unit shutdown:

Improved: Advertisement channel optimization, adv protocol version 3 - step 1

Added: Web - reset stream statistics counters

Changed: Move the pre-fader gain control CHxx.FATG to the point immediately after the CHxx.MODE switch

Fixed:

Changed: Front panel - if more than one error condition existed at a time, the second error message would never go away

Fixed: Source sharing - SmartSurface compatibility mode - fixed redundant SRC reports on port 93

Fixed: Source advertising - "To source" streams may be missing their names in adv messages

Fixed: Source advertising and console supervision did not work if the Gateway IP is left blank

Fixed: Eliminated the redundant manual Element/SmartSurface API mode switching

Fixed: VMIX - if a mixer's I/O was disconnected, after restarting the engine the former ON states of inputs would be lost in the DSP - although the controls are still displayed in the "ON" state, actually they will not pass audio.

Fixed: Web - "Omnia Processing" configuration

Fixed: LWRP - Stopping audio on PGM 4 causes a false silence report on VMIX1 sub

Fixed: Instability caused by insufficient buffer amount between network driver and standard Linux

Fixed: VMIX gain is interpreted incorrectly if more than one digit was entered after the point

Fixed: Channel numbers of disabled outputs were lost after restart

Engine version 2.4.9r6 (and previous) release notes

Software version compatibility:

Element application	2.1
SmartSurface application	2.5.0.59
Nodes	2.5.2
IP audio driver Windows	2.4.8.12

New: Major operation environment rework:
- Suse Linux with multi-core kernel, GRUB boot loader
- New multi-partition CF storage structure, OS moved into the dual code bank, software update installation by complete bank rewrite

Added: Omnia headphone processing can now be applied to either PGM1 or Mon1 Headphones.
Added: Users can now set a password for remote access via HTTP using a field on the Engine's Configuration pages (replacing previous versions' Telnet configuration for this option).
Added: Maximum mix-minus audio gain trim has been increased from -3dB to -6dB to allow adequate attenuation of summed dual-mono backfeeds.
Added: Gain control for Aux mix level compensation in mix-minus backfeeds
Added: Gain Control for Pre-fader gain trim
Added: Gain Control to trim Mic output levels after Omnia Mic processing is applied
Added: New metering capabilities providing 10 switchable full-resolution meters
Added: SmartSurface compatibility mode option for source sharing. Users can now switch all engine sources between freely sharable, (SmartSurface compatibility mode), and lockable (normal Element operation). Find the new option in the "Application Interface Options" section of the HTTP configuration pages.

Fixed: When operating in Surround mode, upmixes from L, R, L+R and stereo no longer send L and R to LFE channel.
Fixed: After moving the engine from a 1Gig to a 100Mbps switch port and restarting, the number of active outgoing audio streams is now properly limited to match available bandwidth.
Fixed: "Source is Busy" error that caused Engine sources to be unavailable for assignment on SmartSurface faders.
Fixed: Bug that might cause slow resumption of audio after connection to console.

Version 2.4.8w3

Software version compatibility:

Element application	2.0.0r12
SmartSurface application	not recommended
Nodes	2.3.3b2
IP audio driver Windows	2.4.8.12

Added: V-Mixer and V-Mode full local control via engine web page, destination routing control via LWRP, mixing control and mode selection via LWCP.
Added: Source sharing logic is now fully supported; source advertisement logic now allows creating backfeeds for engine outputs.
Added: Audio level meters now provide true peak value with hold function for the refresh period, and standard 300ms average RMS.
Fixed: Omnia headphone processing. New presets, tweaked parameters and eliminated processing bugs
Added: Extended EQ frequency ranges.
Added: Automatic upmixing to surround.
Fixed: LWRP server bugs.
Fixed: Slow show profile loading.
Fixed: A number of other minor and cosmetic enhancements and bug fixes.

Version 2.4.7e2

Software version compatibility

Element application	1.1.13.13a
SmartSurface application	2.50.59

| Nodes | 2.3.3b |
| IP audio driver Windows | 2.4.7.3 |

Added: Automatic updating of MAC address mapping for known IP
Added: Mon1 headphones - new "Hot HP" Omnia dynamics preset
Added: Syslog event reporting of stopped/resumed streams, unwanted streams, stream conflicts
Fixed: Mon1 headphones - Omnia - AGC drive and mixer - Mid and High bands appeared cross-connected

Version 2.4.7c5

Added: Mic and Headphones control accessory module - phase2: source name display on engine, presentation on web page and front panel.
Added: Logging unwanted multicast to detect flooding
Fixed: The stream number limit for 100 Mbps links is now correct
Fixed: Trace log defects in diagnostics logging routines
Fixed: Fixed: Source loading speed
Fixed: Individual headphones - volume control now works
Fixed: Individual headphones - external source selection now works

Version 2.4.6f1

Added: Mic and Headphones control accessory module - phase2: Implemented volume control. Must use Element ver 1.1.13x or higher (still in testing)
Added: Mon1 HP Omnia processing - meters - interface for enabling/disabling and setting the remote IP address
Known bug here: Wrong IP address range check causes meters to not work if the remote IP is set >= 128.x.x.x
Improvement: Advertising discipline - insert a delay before sending advert messages on source changes

Version 2.4.6d8

Added: Dynamics processing in headphones - Phase 1:
Enabled processing in the CR HP path
Full list of Omnia A/X presets is offered. factory-defined, currently selectable from Engine web page only
Added: Engine - SPLITTING the RECORD bus
Added: Health monitoring functions - support for motherboard
Added: Web - system status - show fan speed measurement
Improvement: Diagnostics interface improvements
Fixed: Front Panel - VMIX - Output page does not automatically follow value changes
Fixed: Source name for RECORD should be "Program 4 Record", not "Program 3 Record"
Fixed: VMIX outputs: Pathfinder sees them listed even if they are OFF
Fixed: V-Mixer - source name is shown only if the input was idle before
Fixed: Front panel - PGM and Monitor I/O, VMIX I/O screens - audio level indicators do not work
Fixed: Config backup, executed immediately after entering new output channel numbers, returns them to old values
Fixed: Fader channel - AUX SEND pre/post-fader - inconsistent startup defaults

Version 2.4.5b1

Fixed: Engine returns wrong backfeed presence status - "disconnected" for existing backfeeds
Version 2.4.5b
Added/Changed: Program 4 split to two streams, Stream Program 4 now follows Post ON/OFF, Post Fader. Stream called Program 4 Record replaces previous Program 4 functionality of Pre ON/OFF, Post Fader operation.
Improvement/Changes: PHONE and RECORD mixing buses in Element mode
Phone Bus- Follows Program 4 selection and is Pre ON/OFF, Pre Fader. Internal to Engine only.
Feed to source option PHONE changed from Program 1 feed to follow Phone buss now.
Feed to source option AUTO now follows rules for channel ON/OFF to feed Pgm 1/Phone Bus to backfeed of Phone and Codec sources
Changed: V-Mixer - default output channel numbers: main 201, Submix 1 faders 211-215, Submix 1 Out 1 216, Submix 2 faders 221-225, Submix 2 out 226,
Changed: Startup defaults for console type and output channels must be for Element console

Improvement: Phone and codec - feed to source - 3dB level compensation for mono sum
Added: Health monitoring functions for Motherboard
Changed: The "OFF" command (shut down and halt) is redundant as it results in restarting the engine

Version 2.4.5a1 and previous

Added: V-Mixer added to Engine. Requires Element version 1.1.11x and higher.
Fixed: glitching with Element's voice processing, Fixed code and made Compressor Attack faster
Fixed: Fader channel - PGM4 pre/post-ON - startup default must be post-ON
Fixed: Backward feed source select - Aux1..Aux4 do not work (Element can use these only starting from release 1.1.10)
Fixed: Headphone backfeed levels from the engine to any Mic Position are at reduced levels
Fixed: Mic processing - gain reduction meters not working if signal is present only in one of stereo channels
Added: Engine diagnostics interface improvements - new events in the trace log file
Added: New source type COMPUTER
Fixed: Wrong number of sources (NUMS) in adv messages after switching between different console types Fixed: On enabled outputs, the LW channel numbers cannot be changed
Fixed: At startup, engine does not detect- unplugged network cable and Half Duplex error
Fixed: Improper watchdog handling at application shutdown causes failures to install further software updates
Added: Surround PAN control on Aux returns
Added: Monitor source select - P1..P4, Aux1..Aux4, Ext1, Ext2
Added: Feed to source options added P3, P4, A1..A4
Added: Code to support new meter source select options - MET2/4.SRSW to RECORD
Added: Front panel passcode. Accessible from System Web Page
Added: Code to support new Mic and Headphones control accessory modules, Phase 1 Improvement: Improved Engine diagnostics options
Fixed: Fader channel's stereo PAN (SmartSurface mode)- wrong state when loaded by show profile