



Axia Mix Engine Upgrade v2.5.1w Installation Notes

7 June 2010, Cleveland Ohio, USA

Software Version Compatibility

- Element: 2.3.1.0 or later
- Livewire Nodes: 2.5.2g or later
- IP Audio Driver 2.4.8.12 or later

Summary of major new features in recent releases:

Release 2.5.1w

- Support added for Element IP-Intercom modules
- VMIX and VMODE blocks doubled.

Release 2.14.10k1

- New style GUI
- Multi-standard audio level meters
- Supporting bigger consoles up to 64 faders
- Refinements to operative accounting and allocation of CPU resources
- Button to reset stream statistics counters
- LWCP - memorize all commands in the permanent configuration
- Preview: Pre-fader listen / after-fader listen mode switching
- Full SmartSurface compatibility

Important Update Notice: Read before Proceeding!

At this time there are two types of Studio Mix Engine hardware in use. They require different software packages since the mainboard hardware is significantly different. This document will discuss the installation procedures for both types of hardware. Here is a summary of the two types as of June 2010.

Type 1 Studio Mix Engine – 2.5.1w UPDATE IS NOT YET AVAILABLE FOR TYPE 1

- Shipped until approximately January 2009
- Incorporates Intel or ASUS mainboard
- Uses 256MB compact flash card
- Originally shipped with 2.4.8 or lower software
- Must use CF Type 1 upgrades with TAR file extension

Type 2 Studio Mix Engine

- Shipped after approximately January 2009
- Incorporates support for AIMB mainboard, identified in Engine System web page as “Core Duo”
- Uses 1 GB compact flash card
- Originally shipped with 2.4.9 software (or later)
- Must use CF Type 2 upgrades with TBZ2 file extension



Type 2 Studio Mix Engine - Update Procedure

If you have a newer Studio Mix Engine purchased since approximately January 2009, you will require the Type 2 update. Check the information provided on the previous page to be certain you are applying the correct update.

Update Instructions

1. Download software updater package **engine_2-5-1w_upgrade.tbz2** from www.AxiaAudio.com/downloads/ to a PC connected to the Axia network.
2. Using a PC connected to the Livewire network, direct your web browser to the IP address of your Studio Mix Engine – navigate to the **System** page.
3. **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 bank1 where you can browse/select a new version for upload. Locate the update package and upload the TBZ2 file. Any existing version in Bank 1 will be overwritten if one exists. When the software has been received by the Engine, check the “Version ID” line next to the Bank 1 bullet - you should see **[2.5.1w]** displayed there.
4. Select Bank 1, containing the new Version 2.5.1w software, and select “Apply selected bank”.
5. 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 Axia Support via email at support@AxiaAudio.com or by telephone at +1 (216) 241-7225.

Type 1 Studio Mix Engine - Update Procedure

NOTE: The current version of software for Type 1 Engines is version 2.4.10k1. An updated Compact Flash image with version 2.5.x will be available in the near future to update Type 1 Mix Engines.

If you have an older Studio Mix Engine purchased prior to January 2009, you will probably require the Type 1 update. Check the information provided on the previous page to be certain you are applying the correct update.

This software is intended for installation on Mix Engines originally shipped with version 2.4.8 or lower. Updates for a Type 1 Engine will always have the ".tar" extension. The upgrade you are looking for is named **engine_2-4-10k1_upgrade.tar**.

Please consult with Telos/Omnia/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,
- simply do not know what exactly you need,

Prior to performing any software update, you should always navigate to the Engine's **System** page and save your current configuration file.

Important Pre-Installation Instructions for VMIX Users upgrading from v.2.4.7e2 or lower

Introduced in Engine v2.4.8w3 was a new approach to controlling VMix. The essence of the change is that a new control option is introduced - direct control from the Engine. Formerly VMix was controlled from Element. That option is still supported, but a new one is added - local VMix control in the Engine. The startup default is the new local Engine control, and that's why you originally do not see any settings in the Engine. However, if you have VMix configured for Element control, all your old settings still exist, where they have been living all the time - in your Element. You can switch control back to Element and revert to the former operation mode, with all your old settings.



Src Name:	Channel	In Stream	Status/	Enable:	Gain (dB):	Out Name:	Channel	Out Stream	Status/
(1..32766):	Type:	Audio:			(-80.0..10.0)	(1..32767):	Type:	Audio:	
VMIX Main						201	Disabled		
Apply									
Submix 1:						0.0	VMIX 1 Sub	216	Disabled
1-1			From source	<input type="checkbox"/> Off <input type="checkbox"/> On	0.0	VMIX 1 fader 1	211	Disabled	
						Fade time: .5 .5 (0.0..60.0 sec)			
1-2			From source	<input type="checkbox"/> Off <input type="checkbox"/> On	0.0	VMIX 1 fader 2	212	Disabled	
						Fade time: .5 .5 (0.0..60.0 sec)			
1-3			From source	<input type="checkbox"/> Off <input type="checkbox"/> On	0.0	VMIX 1 fader 3	213	Disabled	
						Fade time: .5 .5 (0.0..60.0 sec)			
1-4			From source	<input type="checkbox"/> Off <input type="checkbox"/> On	0.0	VMIX 1 fader 4	214	Disabled	
						Fade time: .5 .5 (0.0..60.0 sec)			
1-5			From source	<input type="checkbox"/> Off <input type="checkbox"/> On	0.0	VMIX 1 fader 5	215	Disabled	
						Fade time: .5 .5 (0.0..60.0 sec)			
Apply									

After the Engine reboots from the upgrade, VMix settings will be similar to what is seen above. To preserve your previous settings, you'll need to determine which of the following two approaches best suits you:

- *Option 1.* You already have VMix settings in use with Element control and prefer to continue controlling VMix with Element.
- *Option 2.* You already had VMix settings in use with Element control and want to migrate to local control using the Engine.

Option 1

1. View the "Engine ID" page of the Engine.
2. Enable "Controlling V-Mixer from Element".
3. Choose "Apply".
4. Reboot Element (not the Engine). This initiates transfer of VMIX settings from Element to the Engine. To do this, press and hold the Fader Options key on Element's Monitor Module and choose "Reboot."

Option 2

1. Follow the steps outlined in Option 1 above.
2. From the Engine's "Engine ID" page, select the "Save V-Mixer settings to config" option.
3. Disable the "Controlling V-Mixer from Element" option.



Type 1 Studio Mix Engine - Update Instructions

NOTE: The current version of software for Type 1 Engines is version 2.4.10k1. An updated Compact Flash image with version 2.5.x will be available in the near future to update Type 1 Mix Engines.

1. Download software updater package **engine_2-4-10k1_upgrade.tar** from www.AxiaAudio.com/downloads/ to a PC connected to the Axia network.
2. Using a PC connected to the Livewire network, direct your web browser to the IP address of your Studio Mix Engine – navigate to the **System** page.
3. Commit the existing software version to Bank 0. Locate the update package and upload the TAR file into Engine Bank 1. When the software has been received by the Engine, check the “Version ID” line next to the Bank 1 bullet - you should see **[2.4.10k1]** there.
4. Select Bank 1, containing the new Version 2.4.10k1 software, and select “Apply selected bank”.
5. 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 Axia Support via email at support@AxiaAudio.com or by telephone at +1 (216) 241-7225.



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