



# Horus Release Notes

## HORUS FIRMWARE

### Make sure that you are running the latest certified firmware:

<http://www.merging.com/horus/download>

Verify your Horus firmware version by going to the Horus Setup menu and open the *System info* page to verify the firmware version installed.

Refer to the Horus User Manual Firmware Update section in order to proceed with a Firmware update.

*Note: There are two types of Horus updates possible. Either the Horus Firmware update (frequent releases) or the Maintenance Mode update (un-frequent releases but mandatory for some firmware).*

## CURRENT LIMITATIONS (Firmware)

### Latest Firmware limitations:

- RAVENNA redundancy is not implemented
- MIDI/RS422/BiPhase/GPIO not implemented
- DSD (refer to Horus User Manual for precise details)
  - No VU meters

***The limitation list above will be progressively reduced with firmware updates.***

### Notes:

- *Supported sync: RAVENNA (PTP slave), Wordclock, Video sync, AES input and MADI input*
- *Sync Source known issue: LTC input is accurate up to 10x nominal speed (applies to early Horus production only)*

## FIRMWARE UPDATES HISTORY

### Fixed in Firmware version 23165:

- Fixed. Web Access: Meters page is broken/no longer working
- Fixed. Mic Pre Amps gain control accuracy

### Fixed in Firmware version 22862:

- Fixed. Horus TimeCode reading issue
- Improvement: DA filter options
  - Sharp roll-off filter: Offers a flat bandpass response up to 22kHz, within 0.2dB, at the cost of a higher latency (36 samples)
  - Slow roll-off filter: Offers a low latency of 9 samples, at the cost of a bandpass attenuation starting at 16kHz with a maximum of -2.5dB at 22kHz:

### Fixed in Firmware version 22777:

- Improvement: Page advanced: renamed System
- Improvement: PTP lock improvements when multiple Horus are connected to a Switch
- Improvement: Horus DSD headroom set to +6dB (details in Horus User Manual)
- Improvement: The Mic/Line gain range has been increased from +0dB/+60dB to +0dB/+66dB
- Improvement: Page Setup updates:
  - Cooling mode and Terminations have been moved to System Page
  - Button Advanced -> renamed System
  - Button System Info -> renamed Info

### Fixed in Firmware version 22527:

- Improvement: Screensaver Dark option
- Improvement: Horus Dim display option now applied to Horus Power Led
- Improvement: If a 48V short circuit or failure is detected, 48V is forced off on all A/D channels and the error message is displayed.

- Improvement: Horus RAVENNA support for different latency modes (samples)
  - Ultra Low (16 smp)
  - Extra low (32 smp)
  - (48smp) for AES67 support
  - Low (64 smp)
- Fixed. AD module small clicks in gain adjustment when Low Cut is enabled
- Fixed. Timestamp of the first sample of a frame was not correct causing a problem with the RAVENNA ASIO Driver
- Fixed. Horus MTC stream was not correct on minute changes, causing Third Party DAW (e.g. Live and Reaper) MTC chase to be inaccurate at each minute edge.
- Fixed. Horus Meters “Hot” and “Alignment” setting not applied
- Fixed. Potential “Application Failed” error at Horus launch or Ravenna reconnection

**Fixed in Firmware version 21673:**

*For Horus DXD & DSD support in RAVENNA. The Pyramix users must upgrade to Pyramix v8.1*

- Improvement: AD8D clarified 4FS limitation
- Improvement: Fixed digital wrap near fullscale in DSD64

**Fixed in Firmware version 21289:**

*For Horus DXD & DSD support in RAVENNA. The Pyramix users must upgrade to Pyramix v8.1*

- Fixed: RAVENNA ASIO, current sample rate report accuracy issue
- Improvement: New AD8D module support (with Direct Outs)
- Fixed: AD parameters accuracy with Pyramix Mixer and Web Access page
- Fixed: Potential DA glitch at RAVENNA start up in DSD
- Fixed: Potential glitch/mute in network configuration.
- Fixed: Further reduced clicks on AD PreAmp gain adjustment

**Fixed in Firmware version 20622:**

- Fixed: LTC output potential missing frame
- Fixed: Remove Error messages (Fifo and Buffering)
- Fixed: inaccurate power Supply error message when connected to secondary only
- Fixed. Horus not working with certain Hirschipsmann switches (MAR1140) due to too severe Ethernet preamble check

**Fixed in Firmware version 20417:**

*For Horus DXD & DSD support in RAVENNA. The Pyramix users must upgrade to Pyramix v8.1 Beta3*

- Improvement: AD Premium Mic pre-amp DSD gain range of 0dB to +60dB
- Improvement: Format page: DSD/DXD GUI clarification
- Improvement : Limiter added to avoid noise when overloading input in DSD
- Fixed. Horus monitor jack provides the same channel on both outputs (8FS only)
- Fixed. Phase invert now working in DSD

**Fixed in Firmware version 20084:**

*For Horus DXD & DSD support in RAVENNA. The Pyramix users must upgrade to Pyramix v8.1 Beta2*

- Improvement: DSD256 noise floor improvement
- Improvement: DSD256 removed DC offset
- Improvement: DSD64 and DSD128 support
- Improvement: Added support for 720p 23.98 video format
- Improvement: Display Audio Data Format in I/O & Sync page (A/D, D/A, Monitor Jack)
- Fixed. Remove inadequate warning about SSRC mismatch
- Fixed. Remove Inadequate warning about Power Supply redundancy
- Fixed. RAVENNA ALC i/o rename would make Horus crash
- Fixed. DSD / DXD indication discrepancy in "Format" page
- Fixed. Horus Web access: Not updating Pyramix PreAmps changes correctly

**Fixed in Firmware version 19802:**

*For Horus DXD support in RAVENNA. The Pyramix users must upgrade to Pyramix v8.1 Beta1*

- Improvement: 384kHz and DXD support

- Improvement: Horus Error report (on Horus TFT)
- Improvement: Pull Up / Pull Down support when locked to video reference
- Improvement: AD module Mic alignment selector
- Improvement: Horus Monitor module: Stereo channels routing selector (1-2/3-4/5-6/7-8)
- Improvement: Fan, cooling mode set to low at start up only (to avoid noise)
- Improvement: WebApp: At the browser opening we automatically open the latest page chosen by the user
- Fixed. Clicking noise on some AES input channels with long cabling at 96kHz
- Fixed. Horus: MADI input sync color display was not correct on the Web access page

**Fixed in Firmware version 19243:**

- Improvement: Added MADI "96k Frame" Option (High Speed) for MADI output. This option is only available at 88.2/96kHz sampling rate.
- Fixed. Web Access, MADI extension 2 not visible in routing

**Fixed in Firmware version 18935:**

- Fixed. Module serial number not readable from Horus TFT
- Fixed. RAVENNA i/o could end up muted due to video sync reference changes
- Fixed. Horus Web Access I/O & Sync page was showing a quick red led, misleading status
- Fixed. Horus: LTC out mute on stop, wrong last LTC decoded when stopping
- Fixed. Horus: Monitor Jack clicks when the sample rate is changed
- Fixed. Horus: Web Access faders optimization to the grouped PreAmps
- Fixed. Horus: DA8/DA8P modules clicks when the sample rate is changed

**Fixed in Firmware version 18725:**

*Warning: Users updating from a firmware < 18491 (RC1) will need to perform a second Shutdown of the Horus after the Firmware update (in order to initialize correctly the AD and DA modules)*

- Improvement: Metering support on the Web Access Page (see Horus user manual for details)
- Improvement: The Horus TFT Meter page will gray out all inactive MADI leds
- Improvement: WordClock output now supported at all sampling rates
- Improvement: Lock mechanism improved in case of high deviation
- Improvement: Discovery of connected Horus improved
- Improvement/Limitation: Support of "High speed mode" on MADI output was removed
- Fixed. AES and MADI input and lock accuracy at high sampling rates
- Fixed. WordClock input sync glitch
- Fixed. Horus potential audible clicks with a very large count of RAVENNA I/Os enabled
- Fixed. Prevent the Horus to stay stuck on 'Starting application' at start up
- Fixed: RAVENNA MADI i/o connections bug if toggling between Standard(56) & Extended (64)
- Fixed: Presets can now be recalled without muting signal

*Note: the Visible to RAVENNA module entries were removed to avoid confusion.*

**Fixed in Firmware version 18491:**

- Improvement: Metering support (refer to Horus user manual for all details)
- Improvement: Web Access offline status detection in browser
- Fixed. AES module noise at 4FS/2FS
- Fixed. Screensaver setting not properly reloaded
- Fixed. LTC output improved accuracy
- Fixed. Auto IP addressing issue (3rd byte of IP address now below 128)
- Fixed. Channel routing issue on MADI (muted banks)
- Fixed. Timecode missing half-bit on the first frame
- Fixed. DA module Output Attenuation range now (-12dB to 0dB)

**Fixed in Firmware version 18308:**

*\* For Horus LTC support in RAVENNA. The Pyramix users must upgrade to Pyramix v8 BETA 6 in order to have the LTC support.*

- Improvement: LTC support
- Improvement: Video clock robustness
- Fixed. Noise on first channel of MADI output when in standard mode (56 channels)
- Fixed. 4FS small noise introduced on random channels

**Fixed in Firmware version 17903:**

*\* Pyramix RAVENNA users must upgrade to Pyramix v8 BETA 5 in order to be compatible with this firmware 17903.*

- Improvement: Video sync now supported for all formats
- Improvement: PreAmps Low Cut filter now supported
- Improvement: Support for RAVENNA ASIO (refer to ASIO driver for download)
- Improvement: Less clicks in AD gain adjustment
- Fixed. Preset: save to disk does not work, leads to a 404 browser page
- Fixed. Mixup in internal routing, some banks assignment did not work
- Fixed. Horus channel output duplication in routing (RAVENNA>MADI)
- Fixed. 2 samples delay on AD modules between first channel and subsequent channels

**Fixed in Firmware version 17648:**

*Note: New firmware versioning to be able to track firmware and Pyramix versions*

- Improvement: PreAmps grouping is now saved
- Improvement: PreAmps remote web access page support of 8 groups
- Improvement: PreAmps remote web access faders interaction improved
- Improvement: PreAmps remote web access added PAD button
- Improvement: PreAmps remote web access added channel Naming and Gain typing
- Fixed. Horus Ethernet connection, detection robustness

- Fixed. Larger Wordclock range of deviation allowing some highly deviating clock sources (more than 100 ppm) to lock correctly
- Fixed. RAVENNA small mute on random streams
- Fixed. Some Horus were always rebooting in Maintenance Mode or hanging on “starting application” screen
- Fixed. Limit preamp fader moves to the group min and max for all members of the group
- Fixed. Horus being muted at times (needing extra reboot).

**Fixed in Firmware version 433\*:**

- *\*To upgrade to this firmware version and the ones above it is mandatory to first update your Maintenance Mode to v23*  
*Note: Users will have to manually shutdown their Horus after the maintenance mode successful install, as Horus will most probably not shutdown by itself that time only.*
- Improvement:: Added Sample Rate in I/O&Sync page (both TFT and WebApp)
- Improvement: Better communication with analog modules
- Improvement: Added preset page (support for 5 presets Save/Load)
- Improvement: New Auto-Save configuration option in Preset Page
- Improvements on RAVENNA audio streams (clicks removed)
- Improvements on external synchronization (devices with large deviation are supported i.e. RME and TC Electronics).
- Fixed: Screensaver disable touch can no longer affect the TFT button in the behind display
- Fixed: TFT + and – buttons now have pressing highlight state.
- Fixed. Horus: PreAmps, first gain increment can increase by +5dB instead of +0.5dB
- Fixed. PTP Slave sync locking robustness
- Fixed: Negative delta reference potential freeze
- Fixed. Missing UI update in TFT I/O&Sync page setting change
- Fixed: DA module, no more clicks when changing sampling rate
- Fixed: Web Access added confirmation pop up for reboot or shutdown confirmation
- Fixed: Module missing after firmware update.
- Fixed: Fan stopping issue at sampling rate change
- Fixed: RAVENNA stream address conflicts

**Fixed in Firmware version 323\*:**

- *\*To upgrade to this version and the ones above it is mandatory to first update your Maintenance Mode to v10*  
*Note: In such case a message “Wrong maintenance version, must be >= 10” will be displayed*  
*Once the Maintenance mode updated you will be able to install firmware's >= v323*
- Fixed: Bug on the Legacy mode the MADI input
- Fixed: Bug on the DA page web access
- Fixed: Mute correctly done when no signal on the input
- Fixed: Improved connections in RAVENNA mode when multiple connections are active
- Fixed: Improved MTDISCOVERY Horus entry display and detection
- Fixed: Horus Web Access : D/A Page visible to RAVENNA selection not working from Web access

**Fixed in Firmware version 296:**

- Improvements: WordClock and AES input sync support
- Fixed. Horus: PreAmps trim dB value not updated if clicking next to slider to increase the gain
- Fixed: MADI I/O now compatible with RME devices that apparently do not conform entirely to MADI standard (AES10-2008, section 4.3.2) and were rejecting Horus output due to some RME's own restrictions.
- Fixed: Improvements on Wordclock lock (at multiples of FS)
- Fixed. Correction on the AES input at 176.4 kHz
- Fixed. MADI auto switch to Extended mode when nFS is > 1

**Fixed in Firmware version 287:**

- Fixed: MADI signal level too high
- Fixed: Connection issue with RAVENNA

**Fixed in Firmware version 280:**

- Fixed: Corrupted noise in RAVENNA at 2FS and higher

- Fixed: WordClock support with phase alignment
- Fixed: The D/A Small fade in apply on source is now removed
- Fixed: TFT splashscreen option (Setup>Advanced)
- Fixed: Web Control access: PreAmps Metering range for Mics and Line
- Fixed: Web Control access: PreAmps Mic Pading range indication
- Fixed: Web Control access: PreAmps Mic/Line Coherency and relative group Gains support
- Fixed: Web Control access: Horus User Manual embedded (now working with Chrome)

**Fixed in Firmware version 262:**

- Fixed: Sampling rate changes instability
- Fixed: Added D/A output level calibration slider
- Fixed: Parameters reset to default
- Fixed: Mutes smalls audible clicks on the D/A and Headphones at initialization
- Fixed: Fan and Temperature issue (0)
- Fixed: Web Control access: Network page apply & reboot
- Fixed: Web Control access: PreAmps Grouping (4 groups now supported)
- Fixed: Web Control access: PreAmps page multiple bug fixes
- Fixed: Web Control access: Horus User Manual via the ? icon (not yet working with Chrome)
- Fixed: Auto disable +48V in Line mode
- Fixed: Horus will fall to inactive mode if the initialization failed (with a message on TFT)

Please refer to the Horus User Manual Firmware update section to proceed with update

## HORUS TROUBLESHOOTING

### Rollback Firmware

Users that need to rollback to a previous firmware version can do so, but will have to make sure that their Maintenance Mode version is also being rollback if doing so.

Firmware v427 and above go with Maintenance Mode v23

Firmware v323 and below go with Maintenance Mode v10

*Note: What might occur if your Firmware version is not in front of the Maintenance Mode version is that the Horus might always start up in Maintenance mode.*

*Also we recommend that if you rollback the Maintenance Mode that you also re-install the desired firmware version, as the version numbering indicated under the Horus system info page might be misleading.*

### Cannot access Horus remotely in Maintenance mode for Firmware update

Procedure:

1. First launch MTDDiscovery and open the Horus Maintenance Mode entry
2. If such entry does not show up, reboot your system and retry
3. If it still does not work, make sure that your Network card is set to Automatic IP addressing (see Horus User Manual)

In case none of the above works try to access the Horus directly from your Chrome browser

4. First make sure that the Horus is well connected to your system via Ethernet, be aware that the Port or Switch must be Gigabit.
5. Verify that you are using Ethernet cable category 5E or 6
6. On the Horus Maintenance TFT screen take note of the written IP Address
7. Type this address in your Chrome browser followed by :8080  
Example: 169.254.182.31:**8080**

*You should now have access to the Horus remote Maintenance page and be able to update your Horus firmware.*

### Firewall and Antivirus:

#### Windows Firewall:

The Windows Firewall can block communication between MassCore and Horus. We recommend users to disable the Public Network Firewall

Procedure:

1. Go in Windows Control Panel > Windows Firewall.
2. Click on "Turn Windows Firewall on or off"
3. Go to the Public Network section and select "Turn Off Windows Firewall"

#### Disable Antivirus:

*Merging also recommends users to disable their Antivirus, some Antivirus as Avast and Sophos have been known to block the Horus discovery and RAVENNA I/O Connections*

### RAVENNA

MassCore/RAVENNA NET-MS-C-GBEX1 PCIe Ethernet card users might have to wait up to 2 minutes after their system startup/login before the Horus shows up online and in MT Discovery