SSP-3801

HD/SD Solid State Playout Card

Release Notes

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grass valley

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Introducing the SSP-3801 v1.3

The Densité SSP-3801 is a single card, solid state HD/SD playout server that is housed in the Densité 3RU frame. It is fully integrated with the GV STRATUS Playout cloud-based automation and schedule management service and is equally suitable for deployment at a regional site or within a network operation center. The SSP-3801 card uses solid state storage and broadcast hardware technology, with no reliance on external databases, resulting in low cost of ownership, rock solid reliability, total frame accuracy, simple installation and very low power consumption.

New Features

SSP-2483: Support added for restarting the system from the front panel

A new front panel menu has been added to allow users to restart the software and hardware or to perform a safe shutdown.

SSP-2437: Added support for installer integrity checking

Support has been added for the SSP-3801 card to check the integrity of an installer before executing it. Previously, it would execute an installer regardless of its integrity and could leave the card in an unstartable state. This enhancement to Software Upgrade ensures that the card will always check the integrity of the installer prior to execution and will provide feedback in the logs and in the web interface if the installer fails its integrity check. Additionally, some fixes to improve the installer's robustness were made to ensure that the card is not left in an unstartable state if the extraction fails.

SSP-2431: Support added for big-endian WaveAudio audio tracks within clips

Previously only little-endian audio found in AES PCM audio tracks were supported. With this release both little and big endian are supported, which allows MXFs containing either types of audio track to be played.

SSP-2408: Added list of GV STRATUS Playout deployments to System Identity page

The process of registrating of the SSP-3801 card with the the GV STRATUS Playout service has now been simplified by offering a selectable list of common deployments on the Card Configuration > System Identity page in addition to providing a field to enter a custom URL address for the service.

SSP-2407: Added list of Master and Standby GV STRATUS Playout data centers to System Identity page

The Card Configuration > System Identity page now offers a selectable list of the Master and Standby data centers thereby enabling a rapid failover between data centers.

SSP-2384: Support added for non-IMX SD clips that don't contain VBI in the MPEG essence

The SSP-3801 card can now detect whether an SD clip contains VBI in the MPEG essence and can dynamically switch between SD clips with or without VBI in the MPEG essence. The SSP-3801 card officially supports only the Sony IMX camera profile for SD standards; however, it may also function with any SD picture with or without 16 lines of VBI encoded as an MPEG2 essence (Long GOP or I-Frame only up to 100Mbits/sec) wrapped in MXF OP1a.

SSP-2365: Support added for ATSC A/53 closed captions

ATSC A/53 closed captions within the MPEG2 elementary stream are now supported and, if present, are inserted into the vertical ancillary (VANC) data of the clip.

SSP-2039: Support added for HCO-3901

Support for using the HCO-3901 HD/SD/ASI Change Over with clean switch and ALC for HCO device control has been added to the SSP-3801. Given that only first and second inputs are supported on HCO devices connected to the SSP-3801 card, the third input available on the HCO-3901 is not supported. If the HCO device switches to the third input, both SSP-3801 cards will report their roles as Backup, which may result in off-air situation.

SSP-1767: GSM alarm added for HCO failover connection

A "Failover Connection Status" GSM alarm has been added to monitor the status of the connection with the configured HCO device. The alarm triggers if the OPT HCO license is enabled and HCO Control is configured, but the HCO device is not communicating with the SSP-3801 card (status: Disconnected).

Improvements

SSP-2473: Identified Shellshock security vulnerability (CVE-2014-7169)

A vulnerability to the Shellshock flaw (CVE-2014-7169) was identified in the SSP-3801. Although the risk would be negligable as exploiting it would require the user to be authenticated, a fix has been made in this release to fix the vulnerability.

SSP-2420: Added option to reset configuration settings to their defaults

A new button called "Reset Configuration" has been added to the Software Upgrade page to allow users to reset all the configuration settings, except the Card Configuration > System Identity settings and Card Options, to their default values.

SSP-2319: Rectified naming inconsistencies in the web interface and Densite front panel

A number of naming inconsistencies have been found in the the web interface and the Densite front panel. These minor name changes have been made to avoid any confusion and to clarify some settings. In particular:

- On the Playlist page the Path field, which is used to enter the URI for the media file for the event, has been renamed Asset URI.
- The Densite rear panel is now consistently referred to as the rear panel instead of the potentially confusing "backplane".

SSP-2267: Upgraded to OpenSSL v1.0.1h

OpenSSL upgraded to v1.0.1h in order to resolve the following vulnerabilities:

- SSL/TLS MITM vulnerability (CVE-2014-0224)
- DTLS recursion flaw (CVE-2014-0221)
- DTLS invalid fragment vulnerability (CVE-2014-0195)
- SSL_MODE_RELEASE_BUFFERS NULL pointer dereference (CVE-2014-0198)
- SSL_MODE_RELEASE_BUFFERS session injection or denial of service (CVE-2010-5298)
- Anonymous ECDH denial of service (CVE-2014-3470)

SSP-2197: Improved Device Control status display in status header

The states of GV STRATUS Playout service or the HCO device are now more clearly displayed in the web interface. If a connection error occurs, the associated tab highlights in red to bring immediate attention to the situation.

Fixes

SSP-2624: Recueing secondary events close to air causes a failure

If a secondary event was close (within five seconds) to air when recue was clicked, it would fail and not go to air correctly. A fix has been made that allows secondaries that are in the future (by any time) to recue and go to air correctly.

SSP-2616: Secondary events play out even though their associated primary event is skipped

When a primary event with associated secondary events was skipped in previous releases, the secondary events would still play out. A fix has been made to cascade the skip request on the primary event to all its associated secondary events so that they do not go to air.

SSP-2606: Events logged with incorrect "Partial" status

Some events would complete with "Partial" status even though they aired correctly. The As Run log would reflect that the event started one frame late and consequently finished with a partial status. The problem would only manifest itself with schedules that had event start times that were not frame aligned; for example, it could occur when a PAL schedule had been misconfigured as NTSC. The defect was due to a <0.0001 frame rounding error in the calculations used to convert between frames and time. A fix has been made to ensure that on air calculations are not subject to these rounding errors and consequently will ensure that the As Run log accurately reflects what went to air.

SSP-2588: Confidence monitor does not work in 720p/50

In 720p/50, the confidence monitor would not work correctly and would keep freezing or stuttering. A fix has been put in place to address the issue so that the confidence monitor output now mirrors the SDI output of the SSP-3801 card.

SSP-2552: The confidence monitor does not display 1080i59.94 content

When the SSP-3801 card's video standard was set to 1080i59.94, the output could not be reliably viewed in the Confidence Monitor page. The Confidence Monitor page has been fixed to allow monitoring of content in all the video standards supported by the SSP-3801 card.

SSP-2549: GPO events fail to import correctly

All playlist events should be serialised to disk periodically to allow playlist recovery when the SSP-3801 card restarts; however, the GPO events were failing to serialise to disk. When the card would restart, the GPO events would no longer be added to the playlist and any other event following the GPO would be discarded. This fix prevents this from happening. All GPO events will be serialised to disk correctly and deserialised when the card restarts.

SSP-2545: Replacing a held event with a short event fails

When an event that was placed on hold using Hold Next was replaced with an event with a duration of five seconds or shorter, then the event was immediately skipped. A fix has been made so events on hold can be replaced with short duration events and the event will go to air correctly.

SSP-2531: Website sometimes becomes unresponsive when performing a DNS Lookup from the Diagnostics page

When the SSP-3801 card is not configured with a valid network name server, the DNS lookup can take several seconds before failing. In the previous version this resulted in the website becoming unresponsive or restarting. The problem has been fixed by performing the DNS lookup as background task and adding a 10 second timeout, thus leaving the website running normally.

SSP-2528: Media providers sometimes generate a core dump when IMX clips finish

Some clips that contain D10 audio (Sony IMX) occasionally caused the media provider (file demuxer) to crash when the clip ended. Playout would not be affected; however, a new core dump would be created every time a media provider crashed. A fix has been implemented to prevent the media providers from crashing when the clip ends.

SSP-2527: Audio missing in SD standards

In SD standards, some units would fail to embed audio on their outputs. A fix has been made to ensure that the audio embedding will work correctly on all units in all video standards.

SSP-2503: When a fixed event hits the on-air threshold while a Manual (auto) event is on hold, both fail

When a playlist contained a manual auto time mode event followed by fixed time mode event, both events would fail if manual auto event was still on hold once the fixed event reached the on-air threshold. A fix has been made so that if an event is on hold at the on-air threshold when the next fixed event reaches the threshold, the hold is cancelled, the event on hold is skipped, and the fixed event goes to air.

SSP-2489: Editing a holding event doesn't work correctly

Editing an event on hold when there is more than one cued event often fails to work correctly and results in all the events attempting to go into a commit state. Once the hold was cancelled, it would then result in a number of events failing to go to air. A number of fixes have been implemented to ensure that editing events that are holding will work correctly.

SSP-2487: Logos sometimes fail after emptying playlist

If the playlist is emptied whilst a logo is loading, logos subsequently added to the playlist could fail to go to air. A fix was made to ensure that logo loads are aborted if the playlist is emptied whilst they are loading so that subsequently added events go to air correctly. Additionally, another fix was added to ensure logos that are stuck cueing (because another logo is already in use) are correctly loaded once the existing logo event is finished.

SSP-2486: Diagnostic and Log requests from GV STRATUS Playout do not work

When GV STRATUS Playout sent a request to the SSP-3801 card for diagnostic or log files, the SSP-3801 card would fail to correctly upload them to the service. A fix has been made to ensure that they can be reliably uploaded to GV STRATUS Playout.

SSP-2484: Clips sometimes stop and restart mid-event

An issue caused clips to stop and restart partway through playout. Several fixes have been made to not only resolve this issue with clips, but also with graphics and voiceovers.

SSP-2449: Media shorter than the duration of an event not marked as "Partial"

When a media file was scheduled and then finished before the event's total duration, the event was not marked as partial. A fix has been made to ensure that any event that goes off air during its scheduled duration is marked as partial to ensure that the logs accurately represent the playout of the event.

SSP-2415: Chroma becomes unstable during genlocking

An SSP-3801 card configured for an HD standard could exhibit unstable chroma on the SDI output for up to 10 seconds when presented with a bi-level sync. A fix has been implemented to speed up the rate of genlocking to prevent this issue.

SSP-2393: Time synchronization failure at startup

During initial startup the SSP-3801 card relies on NTP to obtain a valid date and time since it is not equipped with a CMOS clock. In rare cases, the card would fail to obtain a correct date even if it was configured to use two valid NTP servers, which resulted in it using the default year of 2000. A fix was made to address this issue so the card will startup with the correct date and time, provided the card is configured with valid NTP servers and the network is available. In addition, new alarms have been added to check both if the card is locked to an NTP server and the configured NTP servers can be contacted.

SSP-2386: Inaccessible events are not marked as failed at air time

Inaccessible events in the Playlist page were not being marked as Failed once they reached the on-air threshold. A fix has been made so an inaccessible event goes into a Cueing state before the on-air threshold as a last attempt to load the media file. If it remains inaccessible, its status will become Failed once it hits the on-air line.

SSP-2378: Cannot use Take Next to skip events containing inaccessible media

Although clicking Cue Next triggered the event following the inaccessible event to cue, the presence of the inaccessible event prevented Take Next from bringing the cued event to air. A fix has been made to remove this restriction; therefore allowing Take-Next to be used in this way.

SSP-2362: Playlist page sometimes does not display the media cache percentage

The percentage cached should be displayed on the Playlist page as media is cached. Because the notification messages used to broadcast the state of the media were incorrectly being processed at a much slower rate than required, the cache percentage was not being displayed. The rate of notification processing has now been increased to resolve this issue.

SSP-2298: Setting the Output Type of a REF-1801 card may spam SSP-3801 logs

Setting the Output Type of a REF-1801 card to a 48kHz word clock in a frame with an SSP-3801 card can result with the following message repeatedly appearing in the SSP-3801 card logs:

"09:59:40.369 ERROR DriverInterface Unable to perform IOCTL (ioctl3223383319, cmd1): Invalid argument (this message has been suppressed)"

A fix has been made so the extraneous logging will no longer occur. An update to the current release of REF-1801 firmware is also recommended.

SSP-2294: A breakaway failure due to failed route results in an unrecoverable state

A breakaway source sometimes reverted to Undefined after a page refresh, software restart or the opening of a second browser instance. If Breakaway or Breakaway & Hold were clicked while it was Undefined, then the SSP-3801 would enter a breakaway state but would be unable to return from it. A fix was made so if the breakaway source fails, the breakaway is cancelled and the event from the playlist is placed on air.

SSP-2293: Failed or Manual events are not correctly reported in the Asrun log

Some events that did not air were being reported as Done instead of Failed; and secondary events that were manually disabled from the playout on the Playlist page using the Manual Controls were also not reported correctly. The handling of failed events and manually disabled events has now been fixed so they are reported in the As Run logs with the correct state.

SSP-2193: A one bit drop in values occurs during fade between two events

Rounding errors were occurring in the AB mix fader which were causing a one bit error when performing a cross fade transition between same colour sources. The errors have been fixed to correctly mix the appropriate amounts of the two signals.

SSP-2029: Editing event paths from the web interface does not apply the edits correctly

When the Asset URI of an event was edited in the Playlist page, it was appended as an aditional path to the existing asset. This has been fixed by creating a new asset when a path is edited.

SSP-2028: Source events do not join in progress after restart

After a software restart, the SSP-3801 card was unable join in progress the source event on air. A fix has been made to resolve the issue so the join in progress is successful.

SSP-1993: Events are skipped if appended to a schedule after Cue Next, Take Next

When an event was added to the playlist and then cue next and take next were clicked, the subsequent event appended to the playlist would not go to air and would be marked as skipped. A fix has been made to prevent Take Next from affecting subsequent events.

SSP-1610: Logos stop working after a lot of logos are loaded

Two correlated issues resulted in the web interface becoming unresponsive. One issue occurred after numerous logos were repeatedly loaded, which caused the logos to stop working and triggered an alarm in the sspstorecontroller. The other issue resulted in the web interface randomly becoming unresponsive and displaying a grey screen. The problems were isolated to a bug in a system library. The system library has been upgraded to a version that fixes this issue which addresses both issues.

SSP-1577: Replacing an event on hold cancels the hold

When the playlist was in hold and the event marked to hold was replaced, the event would go on air (thereby annulling the hold). A fix has been made to ensure that the Hold state is not affected by replacing events.

SSP-1549: Overlapping Manual (fixed) events can cause both events to fail

When a playlist contained two overlapping Manual (fixed) events, both events would fail if first event was still on hold once the second event reached the on-air threshold. A fix has been made so that if a Manual (fixed) event is on hold at the on-air threshold when another Manual (fixed) event reaches the threshold, the first Manual (fixed) event is skipped and the second Manual (fixed) event is placed on hold at the on-air threshold.

SSP-1522: iControl "Time to next" text alarm when the playlist is on hold is incorrect

The iControl "Time to next" text alarm previously displayed incorrect times when the playlist was on hold. A fix has been made so it now correctly displays a static time showing the time to the next event. The displayed time will be 00:00:00 when the playlist is held using Hold Next since the next event is ready to go to air immediately when Take Next is clicked.

SSP-1466: Recued secondary events do not go to air

If a primary event containing multiple secondary events was recued, then some or all of those secondary events would not go to air. A fix has been made to ensure that the primary event and its secondary events will recue and go to air correctly.

SSP-1312: SMB downloads are incorrectly labelled as CIFS

References to CIFS in the web interface such as on the Channel Configuration > Media Cache page have been renamed to SMB.

SSP-614: The confidence monitor does not handle a video standard change

Previously, the video stream for the confidence monitor was unreliable and may become frozen when the video standard was changed. A fix has been made so the video stream for the confidence monitor is now disconnected and reconnected during a video standard change. This means that anything connected to the confidence monitor will have to reconnect when a video standard change is made.

Known Issues

SSP-2672: VANC Suppression does not work

The VANC suppression events and VANC suppression manual controls available on the Playlist page do not function correctly. The VANC suppression should suppress any secondary VANC events that are on air. Whilst the events are shown as suppressed on the playlist, a bug is preventing them from actually being suppressed on the output.

Workaround
No workaround is available for this issue.

SSP-2665: System Health Checks always show 'A input Timing' and 'A Input Vertical Timing Offset' alarms as triggered

The System Health Checks dialog box, which is accessed from the Diagnostics page by clicking the Run System Health Checks button, reports that alarms have been triggered for 'A input Timing' and 'A Input Vertical Timing Offset' even when no alarm conditions have been met.

Workaround
No workaround is available for this issue.

SSP-2664: Clicking Take Next to bring the next clip to air fails if next clip is on hold

When a cued clip is on hold but not at the on-air threshold, clicking Take Next should take the event to air; however, clicking Take Next only cancels the hold.

Workaround
When the cued clip is on hold, click either Take Next or Hold Next to cancel the hold and then click Take Next to take the event to air.

Installing the SSP-3801 card

The SSP-3801 rear connector panel must be installed in the Densité 3 frame before the card can be inserted. Once a matching rear connector panel has been installed, you can install the SSP-3801 card. For more information, please refer to the SSP-3801 Installation and Configuration Guide.

Note: All Densité 3 cards and rear panels can be installed with the frame power on. As a safety precaution however, we recommend turning off power to the Densité 3 frame during the installation of the rear connector panel.

To install the rear connector panel:

1. If a card is installed in the slot whose rear panel is being changed, remove it or slide it over by releasing the captive screw(s) at the bottom and then moving or removing the card.
2. Position the SSP-3801 rear connector panel with the connectors facing outwards and the captive screws at the bottom.

3. Secure the rear connector panel in place by tightening the captive screws at the bottom.

To install the SSP-3801 card:

1. Open the front panel of the frame.
2. Slide the SSP-3801 card into the slot and push gently on the Ejector handle to seat the connectors. The card should be inserted into the far left slot associated with the SSP-3801's 4-slot rear panel. If you insert the card into the wrong slot, the on-card status LED will flash red to indicate that there is no connection to the rear panel. Ensure that the card is in the correct slot to prevent damage to itself or other hardware in the frame.
3. Close the front panel of the frame.

Note: To remove an existing SSP-3801 card from the slot, tilt up the swivel handle on the front of the card to lever the connectors apart, then use the handle to pull the card straight out of the slot.

Supported Devices and Software

To be able to test, monitor, and diagnose a specific SSP-3801 card, you need to access the card directly. To do this, you need to access the card on your network using its IP address and login to it.

To access the SSP-3801 web interface, we recommend that you use a display with a minimum screen resolution of 1920 x 1080 pixels and the latest version of Google Chrome at 100% zoom in full-screen (F11) mode.

Supported Formats

The SSP-3801 cards support the following formats. If the media files that you want to use are not in a supported format, you can use the GV STRATUS Playout File Processing Node to convert the files. For more information on the File Processing Node, see the GV STRATUS Playout documentation.

- Off Air slide: Oxtel Still format (OXT)
- Still: Oxtel Still format (OXT)
- Voice-over: 48kHz multi-channel WAV file (8, 16, 24 or 32 bit) (WAV) Note: Floating point PCM data is not supported.
- Graphic: Transcoded by the GV STRATUS Playout File Processing Node (GMJ)
- Logo: Oxtel Still format (OXT) and Oxtel Animation format (OXA)
- Clip: Op1A XDCAM HD or Sony IMX (MXF)
- VANC: Created by csvanccreate.exe tool (VANC). For more information, see the SSP-3801 User Guide.

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