**Cambria Live Series 5.3**                    Release Notes (07/01/2024)

Release Build: 5.3.0.x

Release Notes covers Cambria Live, Broadcast Manager, Live Editor

*Important notes about the PostgreSQL upgrade (for Broadcast Manager users only):*

➢        Database migration between Postgres 9.3 and 14.3 is not automatic

➢        Installing BCM ver. 5.0 will come with a clean Database (Postgres 14.3)

➢        If you are upgrading from BCM version 4.8 (or lower) to BCM 5.0 then Postgres 9.3 will still be installed on the system, which will be used to migrate all of the information to Postgres 14.3

➢        Only migration from Postgres 9.3 (BCM versions 4.8 or lower) to Postgres 14.3 (BCM 5.0 and above) is supported.

➢        Please read the migration document below on how to migrate the database:

https://www.dropbox.com/s/qraoi0ye06f9t85/Postgres%2014.3%20Migration%20Document_BCM.pdf?dl=0

| System Requirements | |
| --- | --- |
| Required Operating System | Windows 10, Windows 11, Windows Server 2016/2019/2022 (**Windows should be updated through Microsoft Windows Update before installing the application**) |
| Motherboard | 1 USB port for the USB license key (optional for USB license method) 1 PCIe slot for each capture card (optional for capture input) 1 PCIe slot for the External Signal Input card (optional for source switching automation) |

| Cambria Live Benchmarks | |
| --- | --- |
| Real-time Performance Benchmarks: Cambria Live projects can be configured in very many ways, each with different requirements on resource usage.    The two benchmark configurations detailed in this section are run using the same hardware configuration and can provide some insight to if other configurations can be run successfully in real-time. | |

| Machine Configuration: HP Z4 | |
| --- | --- |
| Operating System | Windows 10 SP1 64-bit |
| Processor | Intel Core i7-7820X @ 3.60GHz (8-core Skylake X) |
| Memory | 16 GB |
| PCIe Slot for Capture Board | Slot 3 (https://www.aja.com/support/kona-pc-system-configuration) |

Benchmark Configuration 1: HD I/O no Source Switching
**H.264, CPU only**

Two types of projects were tested.   One includes one 1080p SDI input and one 1080p RTMP output stream.   The second project has one 1080p SDI input and one Adaptive Streaming output with 4 video layers (1080p/720p/480p/360p)

| HD I/O no Source Switching | |
|---|---|
| RTMP output stream (1080p) | 4 simultaneous projects on HP Z4 |
| Adaptive Streaming: 4 video layers (1080p/720p/480p/360p) | 2 simultaneous projects on HP Z4 *** "Use only physical CPU cores" must be disabled to maintain real-time speed |
| | |

Note: Testing was done without any source switching.   Each SDI input was mapped to a different target output through the target ISO stream setting.   Basic source properties and target settings such as frame size, frame rate, and aspect ratio are matched.   Fast encoding settings consistent with our Live Streaming presets were used.

**H.264 and HEVC, NVIDIA NVENC Accelerated**

| HD I/O no Source Switching | |
|---|---|
| RTMP output stream (1080p) | 4 simultaneous projects (HEVC or H.264) on HP Z4 |
| Adaptive Streaming: 4 video layers (1080p/720p/480p/360p) | 2 simultaneous projects (HEVC or H.264) on HP Z4 |
| | |

Note: Testing was done without any source switching.   Each SDI input was mapped to a different target output through the target ISO stream setting.   Basic source properties and target settings such as frame size, frame rate, and aspect ratio are matched.   Fast encoding settings consistent with our Live Streaming presets were used.

Benchmark Configuration 2: Mixed Source Composition Switching
**H.264, CPU only**

Project includes compositions created from 1080p Signal Input, Virtual Cameras, Picture-in-Picture, and Layer sources.  Real-time performance is maintained when switching between these compositions and the program output is encoded to a 1080p, 480p, 360p, 240p output.

| Mixed Source Composition Switching | |
|---|---|
| Capture Signal Input (1080p30) | 1 x HD input |
| Virtual Cameras | 5 |
| Picture-in-Pictures | 5 (2 using Videos with Alpha Layers) |
| Layers | 5 |
| Target Streams | 1 x HD and 3 x SD streams |
| Note: Fast encoding settings consistent with our Live Streaming presets were used. | |

**Performance Considerations**

Performance Indicators:
Adding additional targets or modifying encoding settings can affect the application's ability to maintain real-time performance. For every target, there are indicators for Processing Speed and Delivering Speed.  These indicators along with the CPU Usage (found in the lower left of the application) can be used to gauge Cambria Live's real-time performance.  We recommend that users configure and test their Cambria Live projects prior to streaming Live.  The indicators will be Green when the real-time speed is maintained, and will become yellow or red when real-time speed cannot be maintained.  When real-time speed is not maintained dropped frames or stream disconnect can occur.

Optimization:
Targets outputting to different destinations but using the same exact encoding settings as an already existing target will be able to share the same encoding mappings.  This will allow you to encode to more target destinations without increasing the CPU load by much.

Quad-Channel Memory Optimization:
We recommend that you use a Quad-Channel Memory configuration, if your computer supports it.  This will reduce the chances of running into memory bandwidth bottlenecks.

2560x1440 Resolution and 60fps Setting
Targets that are either 2560x1440 or 60fps will use more system resources than 1080p 30fps targets.    The benchmarks shown in the previous section are only for 1080p 30fps targets.

Staging Preview / Program Output Refresh Rate:
Performance of Live instances is affected by the staging preview / program output refresh rate.    The lower the refresh rate, the less processing power each Live instance will use on your machine.    You can lower the refresh rate to a lower level to increase performance.    You can set it to OFF if the preview is not important to your workflow.

Windows Virtual Memory Setting:
To prevent some memory allocation errors that can occur, we recommend changing a Windows Virtual Memory setting to allow for "System managed size".
   a. Open up to the Advanced tab in the System Properties panel
      (Control Panel>System and Security>System>Advanced system settings)
   b. Select Settings under Performance
   c. From the Advanced tab select Change under Virtual Memory
   d. Uncheck "Automatically manage paging file size for all drives", select "System managed size"


**Recommended System for Cambria Live and Broadcast Manager**


System Recommendation:
This is the recommended configuration for both a Cambria Live (only) system and also for a Broadcast Manager installation that includes Cambria Live on the same machine.    It is also recommended that the same Cambria build versions are for BCM and for Live.

| (Cambria Live only) or (Cambria Live + BCM) | |
| --- | --- |
| Model | HP Z4 |
| Operating System | Windows 10 SP1 64-bit |
| Processor | Intel Core i7-7820X @ 3.60GHz (8-core Skylake X) |
| Memory | 16 GB |
| Video Card | Supports Direct3D acceleration |
| Network Adapter | Gigabit Ethernet (Wired Connection) |
| System Hard Drive | SSD (256 GB) |

## Broadcast Manager Test Configuration

Testing Limits:
The table below shows the maximum number of machines and programs that we have tested for Broadcast Manager and Cambria Live configuration.

| BCM + Live; Configuration | |
|---|---|
| Number of BCM machines | 2 (Primary and Backup) |
| Number of Live machines | 5 |
| Number of concurrent programs | 22 SD (480p30) or 12 HD (720p30) programs |

## New Features and Major Changes:

| New Features/Changes for Live and BCM (For 5.3) | | |
|---|---|---|
| **Module** | **Feature** | **Capella Reference #** |
| Source | **Cambria Live RTMP MediaRouter Capture Source Added**<br><br>Cambria Live has a built-in media router that allows for all input streams to be sent to the same port (eg 1935) on the same machine.   The media router will then route the streams to a specific Cambria Live instance running on that machine using the Stream Name specified in the input.<br><br>Incoming RTP streams will have a port and stream name:<br>(eg rtmp://127.0.0.1:1935/live/[Stream Name])<br><br>Cambria Live projects can be configured to accept this stream via the Media Router.   In the project's RTMP (via Media Router) Capture Source settings you can configure it to take in the specified stream by configuring the RTMP Port and Stream Name settings. | 17024 |
| Source | **Restrict certain sources from being manually selected for streaming**<br><br>In Cambria Live, sources have a new right-click (context) checkbox, "Set as Streaming Restricted Source", which disables the source for being selected for streaming purposes. This way, users can avoid clicking or switching to this source accidently (when it is not meant to be used as a streaming source).   An example of this is a source to be used as an automated Ad Slate, Sponsor Slate, or Preroll Source.<br><br>*Notes:*<br>*- Enabling "Use Fail-over" or "Set as Default Source" will disable the "Set as Streaming Restricted Source" as the former options are for streaming sources.*<br>*- Multiple sources can be selected as "Set as Streaming Restricted Source".* | 19435 |
| Target (DRM) | **Axinom DRM Support Added**<br><br>Link to help documentation:<br>https://www.dropbox.com/scl/fi/vai90mc4ziw6n6vubz41m/Cambria-Axinom-Integration-User-Guide.pdf?rlkey=9dgyl0n9hyx5g1wnr2vcxrpnl&st=l6t28v8q&dl=0 | 19449 |
| Target (Generate Thumbnails) | **Generate Output Thumbnails of Program**<br><br>Thumbnail files can be generated from the Program output and written to an output folder location.   Settings can be found under the Option (tab) in Cambria Live. | 18903 |

| New Features/Changes for Live and BCM (For 5.2) | | |
|---|---|---|
| **Module** | **Feature** | **Capella Reference #** |
| Source | **Zixi capture support added**<br><br>Zixi input only works if input signal comes from a Zixi Broadcaster.<br><br>Note: Zixi capture support does not include receiving Zixi output from another Cambria Live. | 17921 |
| Target | **Embed ARIB STD B-37 in ARIB STD B-40 format to target**<br><br>Capturing ARIB STD B-37 data from SDI's VANC input and embed to TS-based streams based on ARIB STD B-40 spec. Target TS-based streams: TS File, RTP/TS, SRT/TS, Zixi/TS.   Configuration can be found under the options tab. | 18508 |
| Target (Unified Streaming) | **Enhancements for Unified Streaming targets**<br><br>- Adaptive Streaming targets HLS/DASH/CMAF are now able to have multiple audio tracks with the same bitrate.   This is mainly used for role-based cases where for example, 1 audio track is English and another audio track is Spanish, but both need to be on the same bitrate.<br><br>- For USP, we now support 'kind' box which is used for embedding audio roles in ABR streams.<br><br>- In the CMAF target under the Unified Streaming type, there is now a checkbox that allows sending an end of stream (EOS) signal to the Unified Streaming origin so as to stop the endpoint from being active. | 18051, 18037, 18036 |
| Target | **MPEG-1 Audio Layer II added to RTP target** | 18261 |
| Target | **Twitter notifications in Cambria Live UI removed** | 18582 |
| Module / components | **Skaarhoj integration enhancement**<br><br>Number of possible assigned sources increased from 9 to 16. | 18551 |

| New Features/Changes for Live and BCM (For 5.1) | | |
|---|---|---|
| Module | Feature | Capella Reference # |
| Source | **"Web" capture source added**<br><br>Added a new capture source called "Web" which allows the users to input an Address (URL) to display a website in Read-Only or to display a website template. | 17418 |
| Target (ABR) | **Unified Streaming added to 'Upload Target' setting for CMAF (Upload) targets** | 17973 |
| Target (Audio) | **HE-AAC audio added**<br><br>HE-AACv1 was added these targets (File, RTP, SRT, Zixi, CMAF/DASH/HLS). | 17581 |
| Target (Dolby Audio) | **Dolby Digital and Dolby Digital Plus Encoding** | 17151, 17075 |
| Target (YouTube) | **YouTube Live API in BCM**<br><br>Allows for removing YouTube Programs with BCM.   Can be done through the BCM Desktop GUI or through REST API (REST_API_BroadcastAndPackagerManager 1.7.pdf) | 16775 |
| Target (Icecast) | **Icecast Target added** | 17250 |
| Target | **EBP marker support**<br><br>Transport Stream EBP markers can be embedded into output TS streams.   This is enabled through the 'Options' tab setting, 'Embed EBP markers to Transport Stream'. | 17312 |
| Ad Insertion (GOP handling) | **Sustain GOP Structure with Splice Point**<br><br>Under 'Options' dropdown there is a new setting called "Sustain GOP Structure with Splice Point".   When this setting is ON, the output GOP structure will be sustained even if a key frame of ad start/end point is inserted. | 17336 |
| Ad Insertion (WebUI) | **Ad Break Controller (WebUI)**<br><br>A WebUI has been added for Ad Break Controller to allow users to use a web interface for manual add insertion workflows. | 17832 |
| Optimization | **Optimization for multiple processor machines**<br><br>Under 'Options' dropdown there is a new setting called "Use Multiple Processor Optimization".   When this is set to on, Cambria Live instances launched on the same machine will use alternating NUMA nodes.   This allows for a more reliable percentage of CPU resource to be dedicated to each instance. | 17457 |

| Plugin | **Linear Streaming Plugin**<br><br>This plugin supports 24/7 streaming with dynamic loop adjustment based on xml changes. Previously, with Program Loop workflow, users were restricted to a loop time specified prior to event time. This loop time could not be adjusted after streaming has started. Now with the Linear streaming plug in, users are able to specify the loop times on the go and adjust accordingly based on the incoming clips. | 17543, 17542 |

| New Features/Changes for Live and BCM (For 5.0) | | |
|---|---|---|
| Module | Feature | Capella Reference # |
| Source (RTP / SRT) | **Latency handling added to RTP and SRT Capture Sources**<br><br>RTP and SRT capture sources now have a dropdown under "Capture Settings" to specify the type of latency to apply to the capture source.<br><br>Options:<br>1. Low latency (reduce the latency between receiver and sender but packet receive strategy is stricter)<br>2. Normal latency (normal latency between receiver and sender based on network)<br>3. Prioritize Stability (increase latency between receiver and sender but stability of stream will be improved) | 17267 |
| Source | **Continue to use last available source frame when source signal is disconnected**<br><br>When the input source has no signal, due to disconnection etc., the default behavior is to use a black frame.   An option has been added to allow for the last source frame to be used instead.<br><br>Frame shown when capture signal lost can be found in Cambria Live App under the 'Target' settings dropdown. | 16965 |
| Source | **Rotation option added to flip/rotate Sources**<br><br>Rotation setting can be found in Video Control (tab).   Can be set for any source. | 17087 |
| Source / Target | **Support for subtitle handling (conversion) from RTP/SRT capture source to ABR target with WebVTT captions**<br><br>A checkbox that was added to the 'Option' drop down menu that allows for the user to capture the subtitle source using RTP/SRT inputs and ABR outputs. Recommended that 'Latency Mode' is set to "Prioritize Stability" to avoid any frame drops. | 17268 |
| Target | **Improved Encoder Sharing Optimization**<br><br>It is now possible for HLS interleave, RTP, RTMP, SRT, and File targets to share encoders. All targets must share encoding settings which include:<br>Frame rate, frame size, GOP size, bitrate, interlacing, aspect ratio, codec, etc.   Both video and audio encoding settings need to match between targets<br><br>To guarantee settings matches, use the preset import / export feature in the encoding settings to sync the encoding settings between different targets.<br><br>***Notes:** Encoding settings can be imported from HLS interleave to* | 16927 |

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|---|---|---|
| | *the other targets but not the other way around* | |
| Target (Audio) | **Target side audio channel mapper added for CMAF, MPEG-DASH, HLS.**<br><br>In the Target select the 'Specify audio channel to use' checkbox in the audio settings.   For CMAF, MPEG-DASH, HLS targets only.<br><br>***Note:*** *For HLS only non-interleave output supports multiple audio tracks.* | 17167 |
| Target (Audio) | **(Beta) 7.1 audio support**<br><br>A 7.1 option has been added in the 'Audio Stream Configuration' section under 'Number of Channels' for CMAF, MPEG-DASH, HLS targets.<br><br>***Note:*** *Inclusion of this feature is to allow for external testing, please do not use this in production.* | 17167,<br>17305 |
| Target (Audio) | **Multiple Audio Track Support for CMAF, MPEG-DASH, HLS**<br><br>Note:   Multiple Audio Tracks with HLS is not supported | 17168 |
| Module / components (BCM only) | **PostgreSQL version updated to 14.3**<br><br>Postgres is used by BCM has been updated to 14.3 from 9.3.2.<br><br>Notes:<br>- Installing Postgres 14.3 does not replace/remove old 9.3.2. Users can remove old version once they migrated.   However, make sure that old database information is migrated properly.<br><br>- New Postgres 14.3 is not a seamless upgrade and require user actions. User is expected to run "PostgreSQLUpdater" to clone old database to new database (migration).<br>Migration doc link:<br>https://www.dropbox.com/s/qraoi0ye06f9t85/Postgres%2014.3%20Migration%20Document_BCM.pdf?dl=0<br><br>- User may not setup Redundancy across different Postgres versions. | 16347,<br>16972 |
| Module / components | **Single project can support Multiple Skaarhoj controllers**<br><br>Multiple Skaarhoj controllers can be connected to a single project. Example use case: Each Skaarhoj switcher can be placed in a different studio locations but controlling the same live event. | 17118 |

| New Features/Changes for Live and BCM (For 4.8) | | |
|---|---|---|
| Module | Feature | Capella Reference # |
| Source | **Input stream syncing based on timecode**<br><br>A checkbox has been added in the 'Options' tab for "Use Sync Sources".   In addition, the user can adjust the Max Buffer size.<br><br>Input signals will also need to be marked as a "Automatic Synced Source", this is done through the right-click menu.<br><br>**Notes:**<br>- Timecode handling needs to be enabled to use this feature.<br>- Syncing will apply to both PiPs and VCs of the input source.<br>- Tested input source is RTMP but the feature can be used with any source that uses timecode.<br>- All incoming sources need to have the same frame rate.<br>- Frame rate of the project needs to match the incoming frame rate of the source.<br>- Optional purchase license required.<br><br>**Logic/Limitations:**<br>-All sources marked with Automatic Synced Source will be synced.<br>-Live will pick one source as "Master" (which is first come first serve basis)<br>-Then try to sync other sources against "Master" source based on timecode<br>-Since some source can be arrived later or earlier than "Master" source, some sources will synced to negative (make it faster) or positive (make it slower) direction<br>-In order to do so, Live will at first start buffering incoming signal from each sources (so each sources can be adjusted negative/positive direction) [initial buffering]<br>-The amount of initial buffering is the half size of Max Buffer (ms) setting, so when this feature is turned on, Automatic Synced Sources will be delayed that much.<br>-Since uncompressed video/audio will be cached, it can consume a noticeable amount of memory. | 16286 |
| Source | **Ignore option for 'No Signal' for Capture input**<br><br>In Cambria Live under Assets > Fail-over for lost Capture signal, there is now an option "Do Nothing" in which Cambria Live does not disable active capture sources / pips that have lost signal. | 16359 |
| Source | In Cambria Live, you can now designate one capture source to be a failover source. Similar to setting a regular failover source, a user can right click on a source and select "Use as failover source (capture)".<br><br>**Note:** *Hierarchy of sources: 1. Default Source 2. Failover Source (Capture) 3. Failover Source (Non-Capture). Switching should happen in that order.* | 16299 |

| Target | **GPU Acceleration for HEVC and H.264 Targets** | 16270, 16269 |
|---|---|---|
| | New video encoder option added for NVENC HEVC and H.264 | |
| | **Performance:** Quality, Speed, and Number of Concurrent encodes are limited by the type of Nvidia GPU used.   List of features that are influenced by GPU type: | |
| | 1: Number of GPUs supported on a single machine 2: Number of concurrent NVENC encodings 3: HEVC B Frame support (B frame in GOP structure) 4: Processing speed of a NVENC encode | |
| | 7th NVENC Generation (or newer) *Qualified* GPUs are recommended for better performance and least limitations.   For a list of GPUs, please visit https://developer.nvidia.com/videoencode-and-decode-gpu-support-matrix-new | |
| | **The only officially supported card (Capella tested):** **PNY NVIDIA Quadro RTX 4000** *Qualified* GPU | |
| | **Benchmark:** PNY NVIDIA Quadro RTX 4000 (Machine Spec: Intel Core i7-7820X @ 3.60GHz [8-core Skylake X]) | |
| | **Results:** 4 concurrent 1080p 30fps HEVC or H.264 projects | |
| Target | **CPU only HEVC Support** | 16272 |
| | HEVC (x265) codec support has been added to the following targets: - CMAF - DASH - RTP/UDP - SRT - Zixi - File | |
| | *Requirements: License purchase option needed.   Also, HEVC encoding is highly resource intensive, for realtime encoding of a single stream you will need at least a (Intel Core i9-7940X CPU @ 3.10GHz) CPU for HD.   HEVC also requires more RAM, 32GB RAM (or more) is recommended.* | |
| Target | **4K Support** | 16496 |
| | 4K frame size (3840x2160) was added to all Cambria Live targets. It is recommended to use levels of 6.0 and above when streaming in 4K. | |
| | *Requirements: CPU only 4K encoding is resource intensive, for realtime encoding of a single stream you will need at a minimum a (Intel Core i7-7820X @ 3.60GHz) CPU or faster.   4K also requires more RAM, 32GB RAM (or more) is recommended.* | |

| Target | **Use GOP boundary/PTS Sync Mode**<br><br>A new option has been added "Use GOP boundary/PTS Sync Mode" under Option at the top of Live.   This option allows users to GOP/PTS sync multiple targets streaming from a Live instance. This can be useful when streaming out to Live Packager when you have multiple layers that need to be in sync.<br><br>*Notes:*<br>*- All targets must have "Use fixed length GOP" enabled*<br>*- All targets must have the same Maximum GOP / Minimum GOP. The Maximum GOP and Minimum GOP need to be the same value*<br>*- All targets must have the same frame rate*<br>*- Targets known to work thus far: SRT, RTP, Zixi* | 16198 |
| BCM (Live Reboot) | A new enhancement was added to the machine reboot feature (for Cambria Live machines) in BCM. A new dropdown option allows users to specify a time interval to spread out when machines are rebooted. For example, if the user has two Live machines and the interval is set to 30 minutes, one machine will reboot first and the other machine will reboot 30 minutes after. | 16449 |

| New Features/Changes for Live and BCM (For 4.7) | | |
|---|---|---|
| Module | Feature | Capella Reference # |
| Live (Target: CMAF, MPEG-DASH, HLS) | **File output support from ABR target**<br><br>CMAF (Upload), MPEG-DASH (Upload), and HLS (Upload) targets have a new option under "Upload Target" called "File" which is dedicated to writing the output of the target to a file in the local / network filesystem. | 15687 |
| Live (AAC Audio) | **Higher target audio bitrates supported for AAC**<br><br>Live now supports audio bitrates of 256 kbps or more for AAC. This applies to all targets that support AAC audio.<br><br>*Notes:*<br>*- Other non-AAC audio formats have a cap of 192 kbps*<br>*- Audio bitrates at or above 448 kbps are not supported with the 32 kHz sampling rate*<br>*- MP2/MP3 and Mono do not support bitrates higher than 192 kbps* | 15977 |
| Live (Target Closed Captions) | **Convert ARIB B-37 to B-24 conversion (TS output)**<br><br>Cambria Live supports capturing ARIB B-37 data from SDI VANC input and converting it to B24 and embedding it into Transport Stream (i.e. RTP, TS, Zixi, SRT).<br><br>New feature checkbox "ARIB STD B-24 (Subtitle) Settings" is located inside the main Options tab in Live. | 15647 |
| Live (Target Closed Captions) | **Convert ARIB B-37 to WebVTT conversion (HLS or Dash output)**<br><br>Cambria Live supports capturing ARIB B-37 data from SDI VANC input and converting it to WebVTT (embedded).<br><br>Subtitle settings section added to HLS and Dash targets. | 15612 |
| Live (Skaarhoj Controller) | **Skaarhoj 'Live Fly' Controller Support**<br><br>Skaarhoj controller support has now been added to Cambria Live.<br><br>In Cambria Live Option tab, you can enable/disable Skaarhoj Controller Settings which allow you to connect to a Skaarhoj controller and assign specific buttons from the controller to do specific Cambria Live functions.<br><br>WebUI now includes a Cambria Live monitoring windows so that you can see changes made by the Skaarhoj controller. | 15611, 15740 |
| LiveEdit / Live Editor | **LiveEdit / Live Editor segment stitching mode**<br><br>A new mode allows multiple segments to be submitted at the same time to be stitched into one file.   Allows for quick removal | 15648 |

| | | |
|---|---|---|
| | of commercial content and produce the commercial free output file soon after the end of the program.<br><br>To enable the mode go to the 'Options' (dropdown) → 'Live Edit Options', check the "Use Segment Queue to submit multiple segments as single segment" checkbox.<br><br>In this mode, you can use the timeline and 'Set In' / 'Set Out' buttons at the bottom of the application to set your in-out points for your segment.   Use 'Add to Queue' to add the segment to the 'Segment Queue' list.   Finally, use the 'Submit' (button) in the 'Segment Queue' section to submit the segments to FTC to create a single output file.<br><br>***Note:*** *If you queue the segments to the Cambria Live Source List or Playlist, the output segments will be loaded in as separate segments, but arranged so that they can be played back-to-back easily.* | |
| Client Application (Live Editor) | **Use hi-resolution source files in Live Editor as a primary input for editing**<br><br>Video files can now be imported directly into Live Editor to edit with (without needing a live editor project).<br><br>There is an option in the File menu to "Open Video File".<br>Only one file is supported per project.   Here are the allowed formats:<br>- MPEG-4/.mp4/H.264/AAC<br>- MPEG-4/.mov/ProRes/PCM<br>- MPEG2-TS/.ts, .m2ts/H.264/AAC<br>- MXF/.MXF/MPEG Video(XDCAM HD422)/PCM<br><br>***Limitation:*** *Shared markers and waveform are not usable/viewable when this feature is used.* | 15649 |
| Live and BCM and Client Application (Live Editor) | **Added language settings to Live, BCM and Live Editor**<br><br>Settings can be found under the 'Window' dropdown --> 'Language Settings'.<br><br>Options are: Auto / English / Japanese | 15832, 15833, 15900 |
| BCM | **BCM Redundancy improved to support multiple active NICs** | 15802 |

| New Features/Changes for Live and BCM (For 4.6) | | |
|---|---|---|
| Module | Feature | Capella Reference # |
| Live (Target HLS/ DASH / CMAF) | **Performance optimization for ABR targets that share the same encoding settings**<br><br>Adaptive Streaming targets in Live now share encoder(s) if the targets have the same encoding settings (# of layers and layer configurations, frame rate, GOP size, etc).<br>Encoders are shared in the following cases:<br><br>1. Between 2+ DASH (Upload) targets<br>2. Between 2+ HLS (Upload) targets<br>3. Between 2+ CMAF (Upload) targets<br>4. Between 2+ CMAF CTE targets<br>5. Between 1+ DASH and 1+ CMAF/CMAF CTE targets<br><br>*Notes:*<br>*- If using HLS (Upload) with the "Interleave Video/Audio Stream" option enabled, all HLS (Upload) targets with the same encoding settings must also have that option enabled, if you want the encoder to be shared.*<br>*- Encoder sharing only occurs within the same Live instance. There is currently no sharing between Live instances.* | 14244 |
| Live (Target RTP) | **Added Flexible Forward Error Correction (FEC) option to RTP**<br><br>There is new configuration in the RTP/UDP target where you can specify if you want to stream RTP with FEC to help recover from the inconsistent nature of UDP.<br>You can choose the FEC option in the RTP/UDP target by checking the Use FEC checkbox and configuring a few attributes:<br><br>1. Whether you want to use 1D or 2D as the FEC type<br>2. If using 1D, you can configure the column number from 4 to 20<br>3. If using 2D, you can configure the column and row numbers from 4 to 20 (Note: column x row must be less than or equal to 100)<br>4. Normally, 1D uses one extra port (default is original port + 2) and 2D uses two extra ports (default is original port + 2 and original port + 4)<br>5. You can change the extra ports that FEC uses by checking the "Specify FEC port(s)" checkbox and configuring your desired ports | 15520 |
| Live (Target Closed Captions) | **Support embedding ARIB B-37 Closed Caption (ARIB CC) to TS stream**<br><br>Cambria Live supports capturing ARIB B-37 data from SDI VANC input and embed it into Transport Stream (i.e. RTP, TS, Zixi, SRT) based on SMPTE2038 spec.<br>New feature checkbox "ARIB STD B-37 (Subtitle) Settings" is | 14854 |

| | located inside the main Options tab in Live. | |
|---|---|---|
| Live (Ad Insertion) | **Cambria Live can now do Ad Insertion without being connected to BCM**<br><br>In past Cambria Live versions, having BCM was a requirement to support Ad insertion workflows.  That limitation has been removed, Cambria Live can now do Ad insertion without needing to be connected to BCM.   However, the Ad insertion feature is a purchase option and will need to be added to your Cambria Live license in order for the Ad insertion functions to work. | 15390 |
| Live (Program Loop) | **Program Loop now supports pause and resume workflow**<br><br>This feature can be enabled with a new checkbox setting in the Program Loop UI called "Allow to start streaming from the middle of one loop".   If this checkbox is enabled the Program Loop plugin can be deselected (either manually or through API) while it is running.   The operator would then presumably switch to another source input temporarily.   And when the Program Loop is selected again, the restart point of the loop will be based on current wall clock time, referencing some point in the middle of Program Loop. | 15424 |
| Live (Program Loop) | **Script to create ProgramLoopXML**<br><br>Capella can provide a Perl script that can be used to automatically generate the ProgramLoop.xml for a very specific workflow.<br><br>This script will generate the ProgramLoop.xml list based on video files that exist in a specified folder.<br><br>The script also can be used to add a Logo file layer.<br><br>**_Note:_** _this script will be called from CommandLine PlugIn periodically. Doing so, the user does not need to create ProgramLoop.xml from their end system._<br>_If you are interested in using this script please contact support@capellasystems.net for the script and instructions._ | 15425 |
| Live (Minor Enhancements ) | - Enhancement added for adding granular settings to transition.<br><br>- When audio channel mapping is enabled in capture sources such as SDI, an icon now appears on the capture source thumbnail.   Icon image is a speaker with "L" and "R" below the speaker. | 15559, 15556 |
| Live/BCM (Email Notifications, Monitoring) | **Gmail OAuth2 for Email Notifications**<br><br>There is now an option in Live (and BCM Monitoring) Email Notifications to specify a Gmail specific sender using the OAuth authentication process. This is similar to the YouTube and Facebook account add option where you log in to your google account via a web browser to allow Cambria Live to gain access to certain features. | 15432, 15431 |

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|---|---|---|
| Live/BCM (API Test Tools) | Both the BCM API test tool and the Live API test tool has been updated to include (port) options to select between BCM/Live and LPM/LP ports.   Please note that Live Packager Manager (LPM) and Live Packager (LP) are separate products and require different licenses then BCM or Cambria Live. | 15423, 15420 |

| New Features/Changes for Live and BCM (For 4.5) | | |
|---|---|---|
| Module | Feature | Capella Reference # |
| Live (Capture Source) | **SRT Input Support (Cambria Live Pro only)** | 14733 |
| Live (Capture Source) | **NDI Support (Cambria Live Pro only)**<br><br>NDI has been added as a capture source option.  Active NDI devices will show up as a selectable option in the NDI selection in Capture Source. | 14929 |
| Live (Source) | **Use Delayed Capture Mode**<br><br>Users can add a delay amount to the capture input, up to 30 seconds.  The setting can be found in "Delay Amount in Delayed Capture Mode" when the "Delayed Capture Mode" checkbox is checked. | 11956 |
| Live (Targets: CMAF/HLS/ MPEG-DASH) | **Encoding optimization for CMAF/HLS/ MPEG-DASH targets**<br><br>Optimization to share encoding across multiple Cambria Live targets that use the Layers with the same exact attributes.<br><br>"Interleave Video/Audio stream" checkbox must be checked in order for sharing to occur. | 14898 |
| Live (Target: Zixi) | **Zixi sender support (Cambria Live Pro only)**<br><br>Zixi/TS has been added as a Target in Cambria Live. | 14884 |
| Live (Targets) | **Latency Mode setting added to most targets**<br><br>For certain targets in Live, there is a new option "Latency Mode" under "Device Compatibility" in the "Encoding Settings" section which allows you to specify whether you want standard or low latency for your target. For best results, this should be combined with "Low Latency Mode" in the global options.<br><br>The targets that now have this available are:<br>1. RTMP<br>2. YouTube<br>3. Brightcove<br>4. Facebook<br>5. Microsoft Azure<br>6. ULIZA<br>7. Wowza<br>8. SRT / TS (Cambria Live Pro only)<br>9. RTP<br>10. Zixi (Cambria Live Pro only) | 14977 |
| Live (Application) | **Support for custom keyboard shortcuts for ad insertion**<br><br>Short cut key settings are located under the Option menu. | 14818 |

| Live (Application) | **CORS support added for Live RESTAPI server**<br><br>RESTAPI server supports CORS now.   RESTAPI calls can be made from a web browser or web UI based tool to Live. | 14971 |
|---|---|---|
| BCM | **BCM supports configuring specific IP/Port to Cambria Live machines**<br><br>Allows for Cambria Live machines outside of the network to work with BCM.<br><br>This setting can be found in the main BCM UI under the 'Option' dropdown as "Override External IP Address/Port".   Set this to the Public IP (and Port) of your network that has BCM.   You will need to make sure that Port forwarding is used to direct communication (TCP/IP) to the BCM machine (forward the port to port 8753, used by the BCM machine).<br><br>Limitations:   With this set to a public IP, Cambria Live machines in the BCM network will no longer be connected to BCM.   BCM backup however can be used in the same BCM network or the external network. | 14982, 14857 |
| BCM | **WebUI added for BCM (Beta)**<br><br>On a BCM machine you can find instructions on how to set user permissions and start the WebUI here:<br>C:\Program Files (x86)\Capella\CambriaBroadcastManager\cpx64\BCMWebUIUsers _Readme.txt<br><br>Note: not all BCM Manager features are available in the WebUI. | 14880 |
| BCM/Live (Licensing) | Grace period mechanism improved so that a reboot will not automatically shut off the grace period. | 15045 |
| Live (Companion Application) | **Cambria System Monitor**<br><br>This application tool is automatically installed with Cambria Live. Currently, its main function is to cleanup old logs automatically.<br><br>You can access the tool and settings by going to Windows Programs → Cambria System Monitor. | 14734, 15070 |

| New Features/Changes for Live and BCM (For 4.4) | | |
|---|---|---|
| Module | Feature | Capella Reference # |
| Live (Capture Source) | **Genlock support**<br><br>Genlock works in Live through supported AJA cards. | 14246 |
| Live (CMAF, DASH, HLS) | **Direct upload to S3**<br><br>AWS S3 upload target has been added to the CMAF, DASH , and HLS Target Settings. | 14315 |
| Live (HLS) | **AWS MediaTailor support**<br><br>We now support AWS MediaTailor for manifest manipulation and ad insertion. | 13471 |
| Live (HLS) | **Manifest upload options added to HLS target**<br><br>1) Use absolute URL for media segments<br>(When this is enabled, absolute URL prefix can be specified and child playlists will include this prefix for all segments)<br><br>2) POST copy of playlists<br>(When this is enabled, another URL can be specified where the copy of master/child playlist to be posted) | 14349 |
| Live | **Program Start/End marker**<br><br>Program start/end markers can be added to an HLS and Dash stream targets to signal a segment in the stream.   This is for compatible downstream replay/playout systems to replay that segment.<br><br>Program markers are added via REST API.<br>Please contact support@capellasystems.net for setup instructions. | 14382, 14464 |
| Live | **Added MP3 audio codec** | 14207 |
| Live | **Audio only RTMP supported** | 14211 |
| BCM | **Added dBMeter on Multi Preview tab**<br><br>The audio meter refresh rate can be controlled through the 'Options" drop down menu. | 14526 |
| Live | **Perl script plugin added to Controller Plugin → Command Line Plug-In Options**<br><br>The option to pass a Perl script to the program has been added to allow for more plug-in flexibility. | 14217 |

| | Note: We do not have any general script examples for this feature.  Please contact support@capellasystems.net for more information or to discuss possible usage. | |
|---|---|---|
| Live (Logging) | **Logging Enhancements**<br><br>1) Logs can be saved in UTF8 format.<br><br>2) Logs now include Ad Start and End Markers.<br><br>3) Settings for Snapshot Interval in the logging options have been added to increase user control. | 14386, 14548 |
| Live (Prometheus) | **Additional values added to metrics used by Prometheus**<br><br>Thread count, number of handles, memory usage added to /Metrics. | 14703 |
| BCM/Live | **BCM programs can launch Cambria Live with GUI minimized with "Engine" mode**<br><br>Engine mode will disable certain GUI functions and also launch Cambria Live with the application minimized.  This allows for reduced resource use by UI functions so that more power can be allocated to the encoders. | 14536 |
| BCM/Live (YouTube authentication) | **YouTube authentication updates**<br><br>1) YouTube authentication method is changed to use System Browser instead of embedded browser to adapt current YouTube recommendations.<br><br>2) Adjusted to a specification changes in YouTube's LiveStream API to fix YouTube event import error. | 14672, 14654 |
| BCM/Live (Components) | **Capella Network Time Updater**<br><br>Capella Network Time Updater that is now a part of regular installation with Cambria products.  This Windows Service will make sure the machine's clock is synced with NTP time. | 14243 |

Features listed include all of the features added for Cambria Live/BCM 4.2, 4.2.1, 4.2.2, 4.3.

***If you are currently using Cambria Live Ad Insertion with Cambria Live earlier than v4.2, we recommend that you understand what changes were made before upgrading to the new version of Cambria Live and BCM.

| New Features/Changes for Live and BCM (For 4.2 to 4.3) | | |
|---|---|---|
| Module | Feature | Capella Reference # |
| Live | **CMAF chunked transfer support**<br><br>Chunked transfer encoding reduces playback latency of the live stream.   To enable chunked transfer, check the 'Use Low Latency Mode' setting found in video settings of a CMAF target.<br><br>In addition to this setting there are two other settings that can be set to improve the speed of delivery.  'Use Accurate Reference Clock' can be enabled from the options menu to improve streaming speed accuracy.   Also, 'Use Low Latency Mode' option will help reduce internal buffers, allowing for less latency between the Live input and Live output. | 13445 |
| Live | **AWS MediaStore and MediaTailor support**<br><br>CMAF, MPEG-DASH, HLS targets all now support streaming to MediaStore | 13819, 13628 |
| Live | **Brightcove SRT output support**<br><br>SRT/TS target exporter added to support SRT streaming delivery to Brightcove.   SSAI signals also work with SRT delivery. | 13785 |
| Live | **ULIZA RTMP output support** | 14062 |
| Live | **ID3 support for Brightcove target** | 13359 |
| Live | **AJA Kona 1 support added**<br><br>The AJA Corvid is no longer available as an option.   To support 1 SDI input/output workflows, Cambria Live now supports AJA's Kona 1. | 13465 |
| Live | Increased the number of input audio channels that can be capture via SDI to 16 channels. | 13521 |
| Live | **ARIB STD-B39 signal input support**<br><br>ARIB STD-B39 signals can be accepted by Cambria Live and used as triggers for switching to Sponsor break feed and Ad break. | 13234 |
| Live | **Source file player added (including seek bar)**<br><br>The file player can be accessed through the properties tab in the clip settings.   The player does not affect the playback position of the file in the main Preview or Program windows. | 13619 |

| Live/BCM | **Ad Insertion Controls removed from Cambria Live and added to BCM** | 13177, 13233, 13273, 13555, 15390 |
|---|---|---|
| | Ad insertion controls/options including for Ad Insertion, SCTE, External Signal, Software Cue, Timecode Cue settings have been removed from the Cambria Live UI.  These controls/options have been moved to BCM.  This was done so that controls/options are centralized at a single controlling application which is aligned with streaming and ad insertion workflow expectations. | |
| | A majority of the settings can now be configured from the BCM Program Dialog.  Below is the workflow descriptions for the two main ways to setup a program that includes ad insertion. | |
| | Workflow 1: <br> - User starts with Live, create project, test streaming, test ad insertion, save project <br> - User goes to BCM, create Program and load project <br> - Upon project changes, user will save to project file, and goes to BCM to reload the project | |
| | Workflow 2: <br> - BCM operator goes to BCM, creating "placeholder" BCM Program(s) <br> - Live operator goes to Live, and create project, test streaming, test ad insertion and EXPORT it to BCM Program <br> - Upon project changes are needed, Live operator will IMPORT project from BCM, modify and EXPORT back to BCM program | |
| | _**Note:** **New for Cambria Live 4.6 / 4.6.1 and higher.**_ <br> _Cambria Live can now do Ad insertion without needing to be connected to BCM.  However, the Ad insertion feature is a purchase option and will need to be added to your Cambria Live license in order for the Ad insertion functions to work._ | |
| Live/BCM | **Manual setting added to Cambria Live to specify location of the BCM to connect to** | 13555 |
| | By default Cambria Live is configured to automatically detect and connect to a BCM machine on the same network.  You can disable this auto detection and manually specify the BCM that you want to connect to.  The settings can be found in Cambria Live under the BCM dropdown.  Select BCM Settings and uncheck 'Detect BCM Automatically' to setup the manual BCM connect. | |
| Live/BCM | If BCM is unreachable by Cambria Live then Ad insertion by Cambria Live will not work.  It is recommended that a BCM redundancy is setup to guard against this. | 14030 |
| Live/BCM | When using the Ad Insertion feature, make sure that the transition in Cambria Live is set to "Cut" and not "Crossfade." If using the "Crossfade" transition, you may notice that the ads end with at least 1 frame of the ad slate as a result of the fading transition from the ad back to the main source. | 15578 |

| ABC | Ad Break Control (ABC) tool is included with BCM to support manual Ad Insertion (including YoSpace manual insertion/prefetch workflows).  YoSpace Sparse Ad Break support.  ABC Configuration can be exported/imported. | 13278, 13389, 13267, 13177, 13790 |
|---|---|---|
| ABC | **Reuse Ad Break mode**<br><br>An option has been added to Ad Break Control to allow ads in the ad list to be reused.  In this mode, there is no "top down" ad order and an insertion can be requested by double clicking any Ad Break.  This Ad Break will be "reusable" fir the next ad break insertion request.<br><br>To enable the Reuse Ad Break mode, go to the Ad Break Control settings → 'Show Program Settings'.  Enable the 'Reuse Ad Break' checkbox. | 13452 |
| BCM / ABC | **Ad Break Control Interface has been added into BCM UI (tab)** | 13449 |
| BCM | **"Placeholder" Program creation feature**<br><br>Allows users to schedule a program in BCM without specifying an existing project initially.  Instead, once the "placeholder" program has been scheduled, the Live operator may then create and test the project first, then EXPORT the project back to the "placeholder" program.<br><br>Also if needed changes can be made to existing programs (with projects), operators can IMPORT the project from a BCM program, modify then EXPORT back to the BCM program.<br><br>In order to create a "placeholder" program, select the 'allow delayed project loading' option from the program setting dialog box when a program is created or edited. | 13556 |
| BCM | There are now different BCM licensing options based on which feature sets are needed.  Please contact sales@capellasystems.net for more information on the packages. | 13427, 13269, 13208 |
| BCM | Live projects with Direct Show capture inputs are now supported by BCM | 13285 |
| BCM | A Second Machine assignment has been added for Program Failover Stream handling<br><br>Operators can now indicate a second Machine for failover handling of the specified Program.<br><br>By default, BCM programs are set to (Auto) for Machine assignment.  Users may instead choose to specify a Primary and Failover machine for any Program by using the dropdowns in the Program Setting, Machine Assignment section.<br><br>Users may indicate specific machines to use for Primary Stream, Failover Stream, and Failover Stream 2.  Machine assignment can also be set for YouTube backup streams, if the project | 13523, 13594 |

| | contains backup streams. | |
|---|---|---|
| BCM / Dashboard | **Web-based Dashboard/Monitoring/Alerting**<br><br>Prometheus data output for Cambria is added.<br>Please contact support@capellasystems.net for setup instructions of a dashboard for monitoring and alerting. | 13448 |
| LiveEdit/ Live Editor | **Create VOD clip from multiple LiveEdit segments**<br><br>A new mode has been added to allow for LiveEdit / Editor to submit multiple segments to FTC to be stitched into one file.<br><br>This mode allows operators/editors to identify and mark program content that they want to keep in the VOD output and cut out commercial break content that is part of the original stream.<br><br>LiveEdit / Editor can be configured for this mode by going to Live Edit Options under the Options (dropdown) in the main Live application.   Enable the 'Use Segment Queue to submit multiple segments as single segment' option. | 13588 |
| Licensing | **USB Dongle and Legacy Software Licenses are now centralized with Cambria License Manager**<br><br>This change allows Cambria License Manager to be the primary tool for seeing what license is used and if it is valid.<br><br>Warning: If you are using a Software License (.lic), the location of where the licenses should be placed has is changed.   If a License File is being used, make sure the .lic file is added to this folder:<br>C:\Program Files (x86)\Capella\LicenseManager | 13929 |

## Known Issues

Here is a list of currently known important issues.   Some of which will be fixed in future releases.   BCM specific issues are listed at the end of the Known Issues section.

| Cambria Live Known Issues | | |
|---|---|---|
| **Module** | **Issue** | **Capella Reference #** |
| Application | **Multiple Cambria Live instances (Purchase Option)**<br><br>Cambria Live supports having multiple open instances on the same machine.   With this feature enabled, you can have up to 4 Cambria Live projects open and streaming on the same machine.<br><br>Notes:<br>- All instances will all share the same host machine resources.<br>- Any single AJA input / output port cannot be shared among concurrent instances.   However, concurrent instances can use different ports from the same AJA card (Corvid-44).<br>- Maximum concurrent instances are controlled by the dongle license.   1, 2 or 4 instance allowance can be programmed into the dongle license.   Please contact Capella sales for more details. | 9305 |
| Application (Video and Audio Sync) | **Removing audio playback device during Live operation may result in video/audio stuttering.**<br><br>Timing information is obtained from the audio device when they are in use.   If the audio device is removed, this may result in video/audio stutter. | 6342, 6148 |
| Application (High resource use) | **Windows CPU affinity issue can result in drop frames.**<br><br>This issue has been observed to occur with the combination of these conditions:<br>-Cambria Live setting "use physical CPU cores only" option is unchecked.<br>-HP Z420 (Intel Xeon E5-1620 CPU).<br>-Windows 7 (64-bit)<br><br>***Workaround:*** *Disabling hyperthreading through the machine's BIOS will keep this issue from occurring.   Another alternative workaround is to uncheck the "use physical CPU cores only" option in Cambria Live.* | 7642 |
| Application (High resource use) | **CPU fluctuations with loaded project**<br><br>We observe that there are CPU fluctuations due to randomness of resources allocation by Windows 7. In the worst cases, some projects that use high resources may perform poorly when the fluctuations happen, such as significant and persistent drop frames in Cambria Live. To workaround this problem, simply restart Cambria Live and reload the project.<br><br>To minimize these occurrences, we recommend the following:<br>1) Check the option to "use physical CPU cores only".   (Options dropdown) | 5626 |

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|---|---|---|
| | 2) Use Quad Channel memory configuration for the Machine.<br><br>**Note:** *We have not observed this issue occur with Windows 10 or Windows 2016.   Windows 7 is not officially supported with the current build of Cambria Live.* | |
| Source (File) | **Source file guidelines**<br><br>The system resources required to handle a given file may vary based on source format, source properties, and encoding attributes.   CPU usage in some cases can vary up to 30% due to the type of source used.   Listed below are guidelines that are relevant when using a machine similar to our *Recommended System or Minimum System Specification*.   Not following these guidelines will increase your chances for video/audio stuttering in your preview windows as well as your RTMP output video.<br><br>*Guidelines:*<br>●  *Use WMV, MPEG, or H.264 files (These formats were the focus of our testing.   Other formats may be able to be used as sources, but the performance/usability of other formats have not been tested).*<br>●  *To reduce some overhead you can use SD sources and sources*<br>*with the same frame rate as the encoding target frame rate.*<br>●  *Files that are not seekable cannot be used (Files may not be seekable for a various reasons, common cases include files with discontinuous or missing timestamps - if you encounter a file that is not seekable, please contact our support team and we can investigate the issue).*<br>● *MP4 files that are Open GOP, can take a long time to seek to specific points in the file.   Switching can have a delay when switching to Open GOP MP4 files in Cambria Live.   It is recommended that Closed GOP MP4 files be used instead.*<br>● *To avoid some network related issues, you should use sources that have been stored on the local machine.   If you are using network sources, please make sure that your read speed to the network source is fast enough to handle the file in real-time.*<br>● *Do not use \\localhost to point to a file on the local machine to avoid Windows Media Foundation file reading issues.   It is recommended to use \\machineName instead.*<br>● *MOV files with alpha channel is supported through the PiP/Audio column.*<br>● *A small subset of MP4 files may fail with an audio decoder error.   If you run into this issue please contact support@capellasystems.net.   This issue has been resolved and we can send you a new build to use.* | 3170, 4110, 5958, 6344, 7868, 8207, 14056 |
| Source (File) | **Increased source file cap to 1000 files; UI can become more sluggish**<br><br>The maximum number of source files that can be loaded into Cambria Live is 1000 files.   We are now loading files into multiple separate processes thus we are no longer have memory restrictions due to loading sources into a single process.<br><br>Known issue: UI functions and features can become more sluggish and less responsive when sources are using up a large | 4804, 5095, 7325 |

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|---|---|---|
| | amount of the system memory.<br><br>Example: On a machine with 8 GB RAM, UI navigation became sluggish with this many 20 second SD files loaded:<br>WMV – 150 files<br>MPEG (TS) – 200 files<br>H.264 (MP4) – 270 files<br><br>Warning: Some files require more memory than others.   By using files that have high memory requirement, it is still possible that Cambria Live will run into a memory deficiency problem due to running out of overall system memory.   In these cases, it may be necessary to install more RAM onto the system. | |
| Source (Capture) | **It is recommended to have all capture sources have the same framerate**<br><br>With the AJA Corvid-44, the application cannot correctly detect framerate for subsequent inputs after the first. | 8768 |
| Source (Capture) | **1080p59.94 or 1080p60 capture through AJA Corvid/LHi can cause drop frames and is not official supported**<br><br>Due to the AJA Corvid/LHi buffer level, (1080p59.94 or 1080p60) input will likely cause dropped frames.   The dropped frames occur when switching to the capture source.   The amount of dropped frames can vary from a few frames to persistent drop frames.   This variance is due to machine configuration.<br><br>***Workaround:*** *Using a recommended slot configuration for officially supported HP workstations can minimize the drop frames, but it will not completely eliminate dropped frames caused by this issue:*<br><br>*Z820 – Slot 6 (recommended), Slot 4 (compatible, 2 CPU config)*<br>*Z620 – Slot 5 (recommended), Slot 4 (compatible)*<br>*Z420 – Slot 5 (recommended), Slot 4 (compatible)*<br>*Z800 – Slot 5 (recommended), Slot 4 (compatible)*<br><br>***Recommendation:*** *This issue can be completely avoided by using the AJA Corvid-44 card.   Please contact Capella for purchase details.* | 7457 |
| Source (Capture) | **Virtual Cam crop accuracy**<br><br>It is a technical requirement that the horizontal and vertical resolution of the cropped area for Virtual Cam must be a multiple of four.   The red crop box does not accurately represent this requirement.   Because of this, the actual virtual area used for streaming may include a small amount of video outside of the red crop box area. | 5386 |
| Source (RTP) | **Real-time Transport Protocol (RTP) source support**<br><br>RTP streams can be used as source capture inputs in Cambria Live.   These capture inputs can be used as the only video to be streamed or as part of a composite group. | 5966, 9316 |

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| | Limitations: Not all RTP output devices are supported.   Due to the variances that exist in RTP steams for different output devices, there is a possibility that the output of your RTP device will not work natively with Cambria Live.   If RTP output from your device is not compatible with Cambria Live, please contact Capella support.<br><br>Note: Expect a 4 sec delay, in ideal network conditions, when sending RTP from Cambria Live to a second Cambria Live (using this RTP as a source). | |
| Source (SXH-360 DVI input) | **DVI input into Cambria Live**<br><br>Preview Quality:<br>If you input a signal through DVI input which contains content with text, the text may not be clear when you are previewing it through the staging or streaming preview windows.   This is expected behavior.   The preview windows have a set size where in order to view the DVI content it must be scaled to fit the size of<br>the preview windows.   This scaling can make text look distorted or unclear.   The output quality should look better than what is seen through the preview windows.<br><br>Streaming and Filewrite output quality:<br>To improve output quality, you can eliminate scaling steps by using one of these two methods:<br><br>● Match the target to the source (example: source is 1080p, target is set to 1080p)<br><br>● Match the source to the target (example: target is 1280x720, change source signal to be 1280x720 or use Virtual Cam and crop to that selection size)<br><br>Configure Computer DVI output to improve performance:<br>If you are inputting DVI from a Computer into Cambria Live, you should configure the DVI source frame rate to match the Cambria Live project frame rate for optimal performance.   For example, if your Cambria Live project is set to a global frame rate of 30fps, you should configure your DVI output from your computer to output DVI at 30 Hertz.   However, when changing the DVI input properties, please make sure that Cambria Live is not open.<br><br>Warning: <br>When changing resolution of other options for the DVI input signal, Cambria Live may crash.   Please make sure that Cambria Live is not open, when changing the display properties of the DVI input.   In addition, the display resolutions of 1366x768 and 1280x800 are not officially supported. | 5421, 6276, 8612, 8738 |
| Source (Capture) | **DirectShow camera support**<br><br>DirectShow compatible USB cameras are now supported in Live.<br><br>Tested cameras:<br>Lenovo Built-in Webcam<br>Logitech HD Pro C920 | 9643 |

| | | |
|---|---|---|
| | MagicCam (virtual Webcam)<br><br>Note: DirectShow camera support does not apply to Broadcast Manager or clients. | |
| Source (Playlist) | **Limitations for Capture Source Inside Playlist**<br><br>1) Capture sources inside playlist will always use the original audio for the capture source.<br><br>2) VC capture sources are currently not supported.<br><br>3) Capture source inside playlist is not supported by the source failover function. | 3606, 7093 |
| Source (Playlist) | **Slow source playback recovery**<br><br>After playlists playback sources that decode slower than realtime, the playlist will try to "catchup" by playing other files faster than realtime for a short period. | 6714 |
| Source (Power Point and PDF) | **Requirements for Power Point Importer for Live**<br><br>PowerPoint files (.pptx and .ppt) and PDF files can now be used a source assets.<br><br>Requirements:<br>● Install LibreOffice (Version 9.2.5.2). Download at: http://www.libreoffice.org/download/libreoffice-fresh/<br>● Install GhostScript (64 bit) (Version 9.14).   Download GhostScript 64 bit at: http://www.ghostscript.com/download/gsdnld.html<br><br>Features:<br>● Go to previous, next, and beginning of slides<br>● Automatic playback for slides<br>● Slide reordering<br>● Jump to any slide<br><br>Limitations/Known behaviors:<br>● Long loading times can occur when adding PowerPoint or PDF files with lots of slides (eg it can take 30s to load a PPT source with 100 slides)<br>● Files with lots of slides can consume a large amount of the applications memory (eg 100 slides uses around 1182 MB). | 7560, 13406 |
| Source (Switching) | If a source is being previewed in the Staging Preview before being applied to the Program Output a duplicate frame or old frame may exisit in the output at the time of switching.<br><br>**_Recommendation:_**  _This issue does not occur if the source being applied is not previewed first.   Applying to both previews at the same time will eliminate the duplicate/old frame problem. Also, this issue is being investigated and will be fixed in a future release._ | 8792 |

| Source (External Signal / SCTE switching) | A PiP or Layer may not be applied if the user applies it manually at the same time that an External Signal (or SCTE) switch is occurring.   If this occurs, reselect the PiP/Layer and it will apply. | 9160 |
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| Source (Failover) | A Cambria Live project will not switch to the Failover Source if the Capture Source had no signal to begin with.   The failover will only trigger once the Cambria Source has signal and loses it. | 11269 |
| Source and Target | **SCTE 35/104 Support**<br><br>**Source:**<br>● Read SCTE 104 from VANC area of SDI input<br>● SCTE 35 in TS RTP<br><br>**Target:**<br>● We translate the source SCTE data and embed it in RTMP output<br><br>**Commercial Switching**:<br>● Using the SCTE data we can automatically switch from the capture source to a commercial playlist and back.<br><br>**Supported Input Signals:**<br>● 1080i (29.97, 25)<br>● 720p (59.94, 50, 25)<br><br>*Limitations:*<br>*● SCTE support is limited to 1080i and 720p, 1080p is not supported.*<br>*● YouTube Live Programs using SCTE to trigger YouTube Ads must have the YouTube Live event setting "Sync to preview player" turned OFF when streaming is started.   It is recommended to use the "Start Broadcasting for YouTube Targets" from Cambria Live's options drop-down menu.   This function will automatically turn OFF the "Sync to preview player" setting when starting YouTube streaming.*<br>*● SD inputs are not supported when capturing VANC using the AJA Corvid-44 with multiple inputs.   All input signals must be HD, otherwise SCTE capture and/or any capture input could be distorted.*<br>*● SDI output is not supported when capturing VANC with AJA Corvid or LHi cards.* | 8134, 8135, 9271, 9152, 9159, 9040, 8900 |
| PiP (Video Files with Alpha) | **Warning! High resource use for PiPs using Video or Image Files with Alpha**<br>When using the combination of PiPs containing alpha layers with the PiP Video Control settings, the project will consume a large amount of the system's resources.   This may lead to dropped frames.<br><br>**Recommendation:** *When this issue occurs, uncheck the PiP layer.   Do not use Video Control on Video Files with Alpha.* | 8525, 8524 |
| Target | **Starting and stopping MBR streams**<br><br>If you are streaming multiple streams to the same channel. Stopping or starting one of the streams will cause all the actively streaming streams in the MBR group to restart. | 3616 |

| Target | **'Control Room' function and 'Go to Preview Page' function for You Tube targets**<br><br>In order see video previews when using these functions for YouTube targets, it is recommended to have a HTML5 supported browser. | 4006, 8821 |
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| Target (Output) | **RTP output, low latency mode**<br><br>RTP streams can be generated by Cambria Live as an output. When RTP output delivery is used in conjunction with the "low latency mode" preset setting, the stream can be delivered to playback devices in less than 1 second.<br><br>*Limitation: Delivery to multicast addresses is not currently supported.  Also, do not use the ME Mode = 2 (High Quality) target setting in conjunction with the "low latency mode", this will result in dropped frames.* | 4925, 4924 |
| Target (Filewrite Options) | **Split Target File at Every Specific Period**<br><br>In the Options Settings for file targets, output files can be setup to automatically split based on a user specified time period. This feature allows the user to create separate archive files of their live programs as the program is streaming.<br><br>*Limitation:  In order to make sure all content is captured, there will be a minor overlap of video content between the end of one file to the start of the next file.  This overlap will be less than or equal to 1 GOP size in length.* | 8495 |
| Target (SDI Output) | **Noise in SDI target output when VANC setting is ON but no SDI input is used**<br><br>There can be a few lines of noise that appears at the bottom of the video.  The noise is seen in the Cambria Live preview as well as the SDI input.<br><br>*Workaround:  Disable the VANC setting.  The setting can be found on the 'Option' menu dropdown.* | 10904 |
| Target (SDI Output) | **SDI output limitation, use matching formats for input and output**<br><br>SDI output must match the same frame size, framerate, and interlacing of the incoming SDI or HDMI input.  This is a limitation that exists for the AJA Corvid, LHi, and Corvid-24.  If input and output format does not match, this could cause SDI output not to work. | 8047, 6843 |
| Target (YouTube) | **YouTube account refresh tokens can be expired under certain conditions.**<br><br>Here are some reasons this may have happened:<br>● The token has been unused for 8 months<br>● The user has authorized more than 25 tokens per domain (for which there is a FIFO queue) | 8519 |

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| | ● The user has authorized more than 600 tokens in total (for which there is a FIFO queue)<br><br>When an expired refresh token is encountered, the currently logged in YouTube account will not work and will need to be removed through the Cambria Live Account Manager.   Once removed add the account back into Cambria Live. | |
| Target (YouTube) | **Support for YouTube's Single-use Stream Key / Variable preset**<br><br>YouTube allows for Variable preset, which is automatically used when the 'Single-use stream key' is selected from YouTube settings.   Variable preset is also an option when using a Reusable stream key.<br><br>With the Single-use stream key / Variable preset, the YouTube Program is no longer fixed to a specific video format (ex: 480p). Cambria Live can be used to stream any YouTube target preset.<br><br>By default Cambria Live will be configured to output 1080p when a Variable preset is being used for the YouTube Program.   You can change the video format from Cambria Live at anytime.<br><br>*Warning:   Cambria Live versions older than 3.5 will not work with YouTube when the Single-use stream key or Variable preset is selected.* | 12571 |
| Target (YouTube) | **Manual configuration warning for YouTube target preset settings**<br><br>Distorted playback of the program from YouTube can result if the YouTube target in Cambria Live is manually configured to a different frame rate/resolution than what is specified for the program on YouTube. | 9980 |
| Target (YouTube) | **Start and stop broadcasting for YouTube targets**<br><br>There is a delay/offset between when the start/stop broadcasting command is issued and when this actually takes effect on YouTube Live.   This can lead to missing around 30sec to 1min of program content at the beginning of the live stream.   And stop broadcasting can result in around 5 to 10 seconds of missing content at the end of the program.<br><br>*Recommendation:   Use a preroll or slate file prior to seeing the "Broadcasting" status for the target in the targets tab. Switch to the main program content when  "Broadcasting" is the status shown.   If you are using the scheduler, then setup a preroll to run automatically for 30+ seconds prior to the start of your show.   For stop broadcasting, stop the broadcast 10 seconds after your intended stop point.* | 7459 |
| Target (YouTube Ad Insertion) | **Cambria Live Ad Insertion not compatible with YouTube Control Room Preview feature**<br><br>YouTube Control Room preview function "Sync to preview" can cause Ad Insertion from Cambria Live not to work.   When | 7407 |

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| | running into this issue you will see an error message from Cambria Live after using Ad Insertion informing you of this case.<br><br>***Recommendation:*** *To avoid running into this issue, do not use YouTube Control Room to preview the stream prior to using the "Start Broadcasting for All YouTube Targets" from Cambria Live. Doing so will automatically deselect the "Sync to preview" setting before YouTube streaming / broadcasting.* | |
| Target (Facebook) | **Facebook Live support**<br><br>Facebook Live has been added as a target option.<br><br>Notes:<br>- Facebook account authentication done through account manager.<br><br>- Once you start streaming is when the post will show up on Facebook along with the streaming video.<br><br>- When the "Stop Streaming" button in Cambria Live is used, Facebook will end your live video broadcast automatically after a short time if you are not streaming to it.   This will give you a chance to restream back to the same program if you did not actually intend to stop streaming.   But once Facebook has ended the broadcast (usually within 1 to 3mins), you will no longer be able to stream video to the same Facebook post.<br><br>- If "Stop Broadcasting" option on our target menu dropdown at the top of the application.   This will immediately end your broadcast, and you will not have a chance to restream to it. But, your VOD for the post will start generating right away.<br><br><br>*Known Issues:*<br>*1. Your Facebook privacy options for the Cambria Live app may be set to 'Friends'.   If this is set on Facebook, then any Facebook post will be set to 'Friends' automatically, even if the Cambria Live target setting contains Privacy=Public.   To fix this issue you can go to Account Settings >> Apps, and find the Cambria Live app, there is a setting where you can edit 'App visibility and post audience'. Set this to 'Public'.   Another workaround is to switch the Privacy setting directly from the Facebook post.*<br><br>*2. Distorted playback of the stream on Facebook can result if the Facebook target in Cambria Live is manually configured to a different frame rate/resolution after it has started streaming.*<br><br>*3. If system time is used as RTMP timestamp, stream cannot be streamed to Facebook Live.   Please disable checkbox "Use System Time as RTMP Timestamp" from "Show Advanced Setting" in target setting.* | 10783<br>12077 |
| Target | **Wowza Server Configuration**<br><br>If your Wowza server is configured to 'Require password authentication' for RTMP sources.   Then make sure to configure these two items: | 11957 |

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| | 1) A user and password needs to be added in the 'Source Authentication' page in Wowza.<br><br>2) In the 'Source Security' section, add "CambriaLiveX" to the Flash Version String.<br><br>*Note: If RTMP Sources is configured to 'Open (no authentication required)' then neither of the above steps are necessary to allow for Cambria Live to stream to Wowza.* | |
| Target (Akamai) | **Akamai Certified RTMP streams**<br><br>Cambria Live RTMP streams sent to Akamai servers have been certified to be compliant with Akamai specifications.<br><br>If you are streaming multiple resolutions/bitrates to the same Akamai server, you should make sure the 'Sync GOP across Multiple Streams' option is checked ON. Here is where you can find checkbox option in the Target Settings:<br><br>'Target Setting' → 'Show Advanced Setting' → 'Sync GOP across Multiple Streams' | 9225 |
| Target (CMAF) | CMAF CTE uses up more memory over time than expected. We recommend not to do CMAF CTE streams more than 24hours. | 14687 |
| Target (Ooyala) | **Streaming RTMP to Ooyala**<br><br>Cambria Live can streams RTMP to Ooyala.<br><br>*Known issues:*<br>*1. If the number of audio channels is changed while the encoder is encoding, there may not be audio on the player side. The workaround is to stop the encoder first for 30 seconds before applying the change.*<br><br>*2. If and audio only stream is sent to Ooyala, this may cause their encoder to fail and there will be no video on the player until the server restarts. Do not send audio only RTMP.* | 11404 |
| Live (Target) | **Periscope support**<br><br>The RTMP Server target supports streaming to Periscope.<br><br>*Note: Modify the target settings to match recommended periscope settings. The 'Maximum GOP' in the presets 'Advanced Settings' should be changed to 60 to match Periscope's recommended key frame interval.* | 11727 |
| Target and Global Project Settings | **Default Target Aspect Ratio settings has been changed**<br><br>The default Target aspect ratio settings has been changed from "Same as Capture source" to "Same as Project Aspect Ratio". This change has been made so that the aspect ratio of the output can be consistent and more easily maintained. | 6620 |
| Target and | **60fps targets are supported** | 6690 |

| Global Project Settings | 60fps target outputs can be configured through the target preset configuration.   However, 60fps project settings are not currently officially supported.   Some modules related to 60fps handling will need to optimized to resolve issues with 60fps in the application.<br><br>*Note: We will be supporting the full 60fps workflows in a future build.* | |
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| Remote Desktop (Audio Sources) | **Remote desktop support, connecting WaveIn audio devices**<br><br>The remote machines non-Aja audio sources will be hidden in Windows and also in Cambria Live (through Remote Desktop).<br><br>***Workaround:***<br>*1. Open remote desktop connection options*<br>*2. Local resources > Remote Audio > Settings*<br>*3. Remote Audio Playback > Play on remote computer* | 6133 |
| Remote Desktop (Preview) | **Remote desktop can cause Staging Preview and Program Output to stutter**<br><br>When using remote desktop to connect to a machine running Cambria Live, stuttering may occur in the Staging Preview and Program Output windows.   The actual output streams (RTMP/UDP/filewrite/SDI out) are not affected.   However, the stuttering in the preview and output windows cannot be fixed until the program is restarted. | 8615 |
| Remote Desktop (Preview) | **Remote desktop support, preview refresh rate configuration**<br><br>Performance of Cambria Live through windows remote desktop can be improved by configuring the "Preview Refresh Rate" feature.<br><br>You can access this setting by right-clicking either preview window in Cambria Live:<br><br>Preview refresh rate options are:<br>   High - full frame rate (same as original source frame rate)<br>    Medium - update every 125 ms (8 fps)<br>    Low - update every 500 ms (2 fps)<br><br>This user setting will be remembered by the application.   In addition to this refresh rate setting, we also recommend that the display settings for Windows Remote Desktop Connection are kept at the default quality settings. | 3323 |
| Audio | **Realtek High Definition Audio drivers**<br><br>HP Z800 system can crash when Realtek High Definition Audio drivers are used in conjunction with the Cambria Live beeping notification feature.<br><br>***Recommendation:***  *Remove the "Realtek High Definition Audio" drivers from the machine and install "High Definition* | 3734 |

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| | *Audio" from Windows.   Or disable the beeping feature.* | |
| Keyboard Controls | **Keyboard Shortcuts**<br><br>List of Keyboard Shortcuts:<br><u>Global in the application:</u><br>● Composition: Ctrl+1 ~ Ctrl-9 to apply composition (up to 9 compositions)<br>● Switch to Log/Status tab: F1<br>● Create Composition from current selection: F2<br>● Apply to OnAir/Flip: F5<br>● Transition ON/OFF: F7<br>● Start Streaming: F8<br>● Stop Streaming: Ctrl-F8<br>● Program Output preview target selection: F9 (Previous target), F10 (Next target)<br>● PowerPoint / PDF slide selection: F11 (Previous slide), F12 (Next slide)<br>● Search Source: Ctrl-F<br>● Open Project: Ctrl-O (Usual short cut in Windows)<br>● Save Project: Ctrl-S (Usual short cut in Windows)<br><br><u>Applicable only if the list is focused:</u><br>● Switch between Sources/Pip/Layers: 1 ~ 9 (1 is the first source, 9 is the 9th source)<br>● Delete: Ctrl-Del<br>● Edit: F4 | 6065, 7933, 8743, 8746 |
| Live Tool (Reboot Manager) | **Machine Rebooting Manager Tool**<br><br>The Machine Rebooting Manager is a new tool that is installed with Cambria Live.   This tool allows users to configure automatic periodic maintenance reboots for the Cambria Live machine.<br><br>Once you launch the tool from the Windows Start Programs group, a Cambria Live icon will appear in your Windows System Tray for the Reboot Manager.   You can double-click on this icon to access Reboot Manager settings.<br><br>*Note:* Cambria Service will try to relaunch Cambria Live with the same state as before the reboot occurred.   Microsoft Window's auto-login configuration is required so that Windows can log into the same user account after reboot. | 12047 |
| Live Plug-in (Program Loop XML) | **Plug-in: Program Loop XML**<br><br>This Plug-in allows for an XML file to be used to automatically generate a Cambria Live looping asset list.<br><br>The XML contains information on what assets (Source/PiP/Layers) to use, asset and fade durations, ad insertion points.<br><br>The installer can be found in the Cambria Live installation package in the LivePlugInProgramLoop folder.<br><br>Once installed, you can access the options for the Plug-in through the Controller Plug-in Manager.   Cambria Live will watch the specified folder location for the XML and changes made to the XML.   This Plug-in provides an convenient mechanism for other systems to control a Cambria Live looping playlist through | 12219 |

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| | just updating the XML. | |
| Live Plug-in (CommandLine) | **Plug-in: Command Line**<br><br>This Plug-in allows for running command line program (Ex: batch file, Python script) periodically.<br><br>The installer can be found in the Cambria Live installation package in the LivePlugInCmdLine folder.<br><br>Once installed, you can access the options for the Plug-in through the Controller Plug-in Manager.   4 plug-ins entries are provided so that a total of 4 separate programs can be run. When the program is restarted at the specified interval, the previous program for that specific plug-in entry will be terminated if it is not already finished. | 12456 |
| Client Application (Live Editor) | **Cambria Live Editor (Purchase   Option)**<br>Live Editor is a client application that runs on a separate machine and uses the proxy file output and shared markers from Cambria Live to allow a second operator to accurately set in/out points for "highlight segments" from the live stream.   These segments can be reused in the live broadcast or be submitted to File Convert for file transcoding to other formats.   Transcoding progress of submitted segments can also be tracked through the Live Editor.<br><br>**Minimum System Requirement:**<br>Operating System: Windows 7 (64-bit) and Windows 8.1 (64-bit)<br>Processor: Intel Core i5 (4-core)<br>Memory: 4GB RAM<br>Video Card: Supports Direct3D acceleration<br>Network Adapter: Gigabit Ethernet<br>USB Port: (for Capella **Live Editor** license dongle)<br><br>*Limitations:*<br>*● Live Edit / Editor supports up to 1000 Markers.*<br>*● When two Live Editor client machines add shared markers within 10 seconds, the second machines marker will overwrite the first.*<br>*● The network disconnect warning for Live Editor will not be shown if the Live file output location is on the Live Editor machine.* | 8499, 8863, 8911, 9204, 9384 |
| Source (Desktop Stream, Companion Application) | **Desktop Stream (Remote) added to Installation Package**<br><br>Desktop Stream is a companion application that can be installed on a separate machine within the same network.   This application will allow the desktop of the machine to be streamed to Cambria Live.   Cambria Live will use the desktop as a Capture Source.<br><br>Desktop Stream requires a serial number.   Please contact Capella for a serial number.<br><br>**_Usage Recommendation:_** *To reduce memory bandwidth and increase performance, it is recommended to use the "Turn Off Aero" button from the Desktop Stream configuration dialog.* | 7308, 6785 |

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| Computer Hardware (Video Card) | **Remote Desktop and NVIDIA**<br><br>A case was discovered where when Remote Desktop was used to access the machine with Cambria Live, the application would freeze/get stuck.<br><br>**Recommendation:** *If you are running into this problem please update your NVIDIA card drivers to the latest version.* *http://www.nvidia.com* | 11307 |
| Computer Hardware (Video Card) | **NVIDIA cards with 'Fermi' architecture**<br><br>Memory leak when resizing the main Cambria Live application window on computers with certain video cards. This problem can lead to an application crash.<br><br>NVIDIA cards with the 'Fermi' architecture are known to cause this problem.<br><br>**Recommendation:** *If you are running into this problem please update your NVIDIA card drivers to the latest version.* *http://www.nvidia.com* | 4360 |
| Computer Hardware (Video Card) | **AMD Gaming Evolved App by Raptr can cause Cambria Live to crash**<br><br>AMD Catalyst Software Suite contains an app called AMD Gaming Evolved. It has found that if this application is installed on a Cambria Live machine, the Cambria Live UI can crash due to an unexpected behavior by the graphics driver.<br><br>**Recommendation:** *If you are using AMD graphics cards, do not install the AMD Gaming Evolved App.* | 12548 |
| Windows Component | **UsoWorker can cause run-out-of-memory error**<br><br>To avoid this error, turn off Windows Delivery Optimization. https://www.xplornet.com/support/internet/how-to-disable-peer-to-peer-updates-in-windows-10/ | 16572 |
| Windows Component | **Maximizing / minimizing other Windows applications/browsers can cause dropped frames**<br><br>**Recommendation:** *You can eliminate this issue by disabling the "Animate windows when minimizing and maximizing" setting or use the "Aero" theme.* | 8142 |
| Windows Component | **Disable Microsoft Window's Hibernate/Sleep mode**<br><br>Cambria Live does not support Microsoft Window's Hibernate/Sleep mode. If a computer goes into Hibernate/Sleep mode while Cambria Live is open, the computer may crash (BSOD) or the Live application may freeze. The hardware drivers and other 3rd party modules do not support Hibernate/Sleep mode.<br><br>**Recommendation:** *Disable Hibernate/Sleep on the Cambria Live machine:* | 3764 |

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| | *1. Go to Control Panel>Power Options* <br> *2. For the selected preferred plan, select 'Change plan settings'* <br> *3. Select 'Change advanced power settings'* <br> *4. Go to Sleep>Allow hybrid sleep* <br> *5. Change the setting to "On" (this change will disable the Hibernate option in the start menu)* <br> *6. Go to Sleep>Hibernate after* <br> *7. Change the setting to "Never"  (this change will keep the system from Hibernation when it sleeps)* | |

## Broadcast Manager (BCM) Known Issues

| Module | Issue | Capella Reference # |
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| Programs / Frame Rate Family | **Project Frame Rate Family / SDI input and output/ Kumo routing** <br><br> Frame Rate Family (FPS Family) is a group of frame rates.   There are 3 frame rate family groups: <br> 1: (24/30/60) <br> 2: (25/50) <br> 3: (23.976/29.97/59.94) <br><br> Multiple SDI input and output issues/behaviors: <br> - The input signal frame rate for SDI port 1 will set the FPS Family of the other SDI ports on the Corvid-44 card (ports 2-4). <br> - If ports 2-4 are not the same FPS Family as port 1, then ports 2-4 will not be able to detect the SDI input signal correctly. <br> - FPS Family for the card is remembered until it is changed by sending a different FPS Family signal to SDI port 1. <br><br> Kumo issues/behaviors: <br> - If the Live Project has a Kumo port selected and does not have a FPS family set, the project will not start.   The project will also not start if the FPS family used in the program setup does not match the FPS family settings used in the Kumo configuration. <br> - BCM does not detect routing conflicts across programs. Currently, the latest launched program will override the previous Kumo routing. | 10820, 10191, 10174, 10190, 10346 |
| Programs | **Cambria Live 3.0 projects (or earlier) are not compatible with Broadcast Manager** <br><br> Old Cambria Live projects, created in Live 3.0 or earlier, do not have sufficient information to be fully compatible with Broadcast Manager.   Some files referenced in the old projects may fail to load when the program is launched by Broadcast Manager. | 9336 |

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| | *Recommendation:* You can load the old project in Cambria Live 3.1.0 and resave the project which fixes the issue with the file references in the project. It is also recommended that you check all other aspects of the project before resaving. | |
| Programs | **If no established redundant connection is configured, programs will error out if BCM machine is disconnected from the network** | 10869 |
| Programs (Machine Assignment) | **Fixed Machine Assignments for Programs / Backup Programs / Program Failover**<br><br>By default BCM will assign programs (primary, backup, failover) to Cambria Live machines automatically based on internal logic. To the operator this assignment may appear un-deterministic. Machine assignment options have been added to the BCM's Program Settings to allow for programs to be assigned to a user specified Cambria Live machine.<br><br>*Warning:* By assigning a program to a specific machine, the automatic failover for the program will be set to "(not used)". If program failover is desired for this program, then the user must also specify a specific machine for program failover. Also, BCM will not indicate if there are sufficient machine resources to run all of the failover Programs concurrently. | 12346 |
| Programs (Failover) | **Live source failover BCM program failover**<br><br>If BCM program failover restarts a program where a Capture Signal source has no signal (and Live source failover has triggered), the Live failover feature will no longer work when the capture signal has returned. | 11469 |
| Programs (Failover) | **Preroll source may not be streamed once Broadcast Manager program failover retries the program**<br><br>When a program session fails and triggers the Broadcast Manager program failover, the program will be retried (usually on a different machine). The new retried program session may stream black video for the rest of the preroll period. After the preroll period, Cambria Live will switch normally to the main source defined by the program project. | 9372 |
| Programs (Error Handling) | **Cambria Live target errors are not handled by Broadcast Manager program error handling**<br><br>Cambria Live target errors such as encoding and network delivery errors are not handled by Broadcast Manager program failover. (Example: If an RTMP destination suddenly becomes unavailable the Broadcast Manager will not try to terminate the instance and start it on another machine.) Cambria Live target errors may instead be handled by Cambria Live failover mechanisms.<br><br>Broadcast Manager can be used to monitor Cambria Live target errors. The 'Output Preview' tab displays the Encode / Network health indicators for every Cambria Live instance. In addition, a notification can be setup on the Broadcast Manager to send an email due to an 'Program / streaming error'. | 9387 |

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| Programs (Error handling) | **Programs that are running on machines that have been disconnected from the Network are not handled by BCM when the machines are reconnected**<br><br>When the original Live machine running a program is disconnected from the network, after a 30sec timeout this will trigger BCM to reassign the program to another Live machine.   However, if the original Live machine is reconnected, BCM will not automatically stop the original program. | 10165 |
| Programs (YouTube Program 24+ hours) | **Programs using the unlimited duration setting must be manually stopped from the Programs tab**<br><br>When streaming to YouTube Live programs that are longer than 24-hours, the 'Unlimited Duration' setting should be used.  However, when this setting is used, Cambria Live will not automatically stop streaming to the YouTube program.   The user must manually select the 'Stop Now' option for the program from the Programs tab. | 9497 |
| Programs (YouTube) | **Cannot re-edit the stream type of a YouTube program created by BCM**<br><br>Once a YouTube program is created by BCM, the target resolution cannot be modified due to an issue with the YouTube API. | 12571 |
| Programs UI / Machines | **Program may run on a Live machine that is not Connected/Active**<br><br>This issue can occur if a user disconnects the Live machine from the Broadcast Manager simultaneously with a program being assigned. | 9495 |
| Machines | **Disconnected machines may take up to two minutes to reflect the current status in the machines list**<br><br>When a machine is disconnected from the network or IP changes, it may take up to two minutes for the machines list to update the machine's status.   In addition, the old machine entry will remain until it is manually deleted from the list. | 9345 |
| Redundancy | **YouTube Account Manager credentials are not duplicated to the backup Broadcast Manager**<br><br>YouTube Account Manager credentials are not duplicated to the backup Broadcast Manager.   If the backup machine is promoted to the primary Manager, it is required to input the credentials again when creating a new YouTube Live program from the Programs tab. | 9323 |
| Redundancy | **Redundancy may not work correctly if IP address of the Primary and Backup Manager machines change or if the machine is set to 'Primary' before connecting it to the network.**<br><br>*Workaround:   It is recommended that static IP addresses are configured for the Primary and Backup Manager machines before redundancy is configured.   Make sure to also set to 'Primary'* | 9408, 10168 |

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| | *when the machine is connected to the network.* | |
| Redundancy | **Backup machine will be set to the 'Stopped' role if the machine is shutdown**<br><br>When the machine is started back up it will remain in the 'Stopped' role. | 10172 |
| Redundancy | **BCM 'Stopped' role causes PostgresSQL database to be stopped**<br><br>If BCM machine is set to a 'Stopped' role (including the Primary machine set to 'Stopped' through known triggers), the PostgresSQL database will also be stopped on that machine. This can cause problems with installation of other software that uses the same database (File Convert and Cluster).<br><br>*Workaround: Make sure to manually set the redundancy role to no backup. Or contact Capella for steps to resolve this.* | 10668 |
| Redundancy | **Redundancy connection light can remain green, even when Backup BCM is uninstalled**<br><br>When BCM is uninstalled on the machine ProstgresSQL is not uninstalled, this is by design. However, because of this the redundancy connection will appear to the Primary BCM as working normally. | 10071 |
| Monitoring | **No automatic warning is given if email settings are incorrect**<br><br>*Recommendation: After configuring email settings in the Monitoring tab, please use the "Send Test" button to test if the settings are valid.* | 9358 |
| Options | **Do not launch if source availability fails behavior**<br><br>A program is expected not to start if 'do not launch if source availability fails' option is being used and that condition is met. It is also expected that the program will start if the 'do not launch if source availability fails' option is unchecked before the end time of that program is reached. | 9521 |
| Options (Cambria Live) | **Broadcast Manager has control of any Cambria Live instance that is running on the machine**<br><br>Broadcast manager has control of any Cambria Live instance running on a particular machine under any of these conditions:<br><br>1) Cambria Live is originally launched by Broadcast Manager<br>2) Cambria Live side option setting 'Allow Broadcast Manager to Control This Machine' is checked.<br><br>Broadcast Manager (BCM) controlled Cambria Live instances can be stopped/killed at any time. This includes instances that have been "Unlocked" by bypassing the lock screen for the instance. "Unlocking" the local Cambria Live instance, will allow for an additional level of user interaction with the Cambia Live instance, | 9554, 9555, 9857 |

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| | but it does not relinquish BCMs control over the instance.<br><br>*Workaround:   If Cambria Live is intended to run without interference from Broadcast Manager, start the Cambria Live manually (locally), and uncheck 'Allow Broadcast Manager to Control This Machine'.*<br><br>*Note:   BCM will try to close whatever Live standalone instances on the client machines, 6 minutes prior to the scheduled program start time.   The Live standalone instance will have the option to postpone, through a UI popup message.   Postponing will allow the standalone instance to remain active for another 6 minutes.* | |
| Windows Configuration | **Disable Microsoft Window's Hibernate/Sleep mode**<br><br>Cambria Broadcast Manager and Cambria Live does not support Microsoft Window's Hibernate/Sleep mode.   Broadcast Manager will not be able to use the Cambria Live client machine if it is in Hibernate/Sleep mode.   In addition, capture card hardware drivers and other 3$^{rd}$ party modules may not support Hibernate/Sleep mode and can cause other unwanted issues.<br><br>*Recommendation:   Disable Hibernate/Sleep on the Cambria Live machine:*<br>*1. Go to Control Panel>Power Options*<br>*2. For the selected preferred plan, select 'Change plan settings'*<br>*3. Select 'Change advanced power settings'*<br>*4. Go to Sleep>Allow hybrid sleep*<br>*5. Change the setting to "On" (this change will disable the Hibernate option in the start menu)*<br>*6. Go to Sleep>Hibernate after*<br>*7. Change the setting to "Never"  (this change will keep the system from Hibernation when it sleeps)*<br><br>*Note regarding Hybrid sleep and automatic reboot feature:*<br>*When Hybrid sleep is used in Windows 10, machine will actually go into sleep mode (or hybernate).   This will affect the automatic rebooting feature that is part of Live/BCM.    During machine is being in sleep/hibernate state, since machine is not running, it will not be counted as machine up time.*<br>*So, if user wants to restart machine on certain days of the week the machine should be kept up without sleep or hybrid sleep.   _* | 3764, 12875 |
| Windows Configuration | **Changing computer clock forwards causes licensing not to work for a period of time**<br><br>Changing the computer clock forwards beyond actual real world time can affect the duration of the license validity when you clock is rolled back.   If you are running into an issue with the dongle license, please contact Capella. | 6111 |
| Windows Configuration | **Redundancy requires machine clocks on the Primary and Backup Manager to be in sync**<br><br>*Recommendation:   If both Primary and Backup Managers are not part of a domain, configure Windows to synchronize with Internet time server to avoid problems with redundancy.   By default Windows is already configured to with this "on".* | 9395 |

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| | *If the machines are part of a domain, where Internet time sync is not available, the machine clocks will sync to the domain clock. This is not a problem.   However, it does imply if both Primary and Backup Manager machines are in a domain, they must be in the same domain.* | |
| Compatibility | **Cambria Broadcast Manager cannot be installed on the same machine as Cambria File Convert or Cambria Cluster Manager**<br><br>An error message will appear and installation will not continue. | 9328 |
| Compatibility | **Cambria not compatible with VirtualBox / VMware**<br><br>Cambria Live and Cambria Live Broadcast Manager are not compatible with (VirtualBox / VMware Workstation / VMware Player). Cambria Live machines installed with any of these virtual machine software may cause them not to show up in Cambria Live Broadcast Manager's Machine List properly. Those Cambria Live machines may not be able to stream programs. Note that the products need not to be installed in virtual machine to cause such issue.   It is merely the existence of (VirtualBox / VMware Workstation / VMware Player) software in the machine that causes the issue. | 9404, 6599 |