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Product Management

Nuremberg  
28.07.2017

## Release Letter

Products:	<b><i>H.264 Firmware for CPP-ENC Encoders: VJT X20/X40 XF-E VJT XTC XF VIDEOJET decoder 3000</i></b>
Version:	<b><i>5.97.0005</i></b>

This letter contains latest information about the above mentioned firmware version.

### 1 General

CPP-ENC H.264 firmware version 5.97.0005 is a maintenance release based on the former release 5.97.0002 for VJT X20/X40 XF-E encoders, VJT XTC XF transcoder, VIDEOJET decoder 3000 and VIDEOJET connect 7000 but is not applicable to other VIPX or VJTX platform products.

Changes since last release are marked in [blue](#).

**Note:**

**This firmware is not applicable to VIP X1600 XFM4 modules which remain at FW 5.53 as their final release.**

**Note:**

**This FW 5.97 is the final release for CPP-ENC encoders, transcoders and decoders. No more releases are intended to be made for these devices.**



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## 2 Applicable Products:

- VJT X20 XF-E
- VJT X40 XF-E
- VJT XTC XF
- VIDEOJET decoder 3000, VJD-3000
- VIDEOJET connect 7000, VJC-7000

## 3 Changes

- Password unlock function has been removed due to increased vulnerability. Devices that cannot be protected via other measures against access to the password unlock function, e.g. when directly connected to the Internet or to a non-exclusive corporate or office network, are highly recommended to be upgraded to this version to remove the vulnerability.
- [Telnet access has been removed for security reasons.](#)
- [A security leak, which allowed to extract critical data from the device, has been fixed.](#)



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## 4 Restrictions; Known Issues

### User Interface

- If UAC is set to default in Windows 7, no snapshot or recording via LIVE page is possible.
- If the memory protection inside the Internet Explorer is enabled (default setting), the automatic installation of Autoload Decoder will fail without producing an error message. Consequently, the replay page will not show video. As a work-around, two options are available:
  - Disable memory protection in Internet Explorer and re-connect to the device.
  - Manually download the Autoload Decoder installer from the device. The installer can be downloaded via *http://<ipaddress>/setup.exe* and started manually.
- Installation of Autoload Decoder fails if more than one NIC is installed in a PC.
- Replay using Autoload Decoder may be jerky when a device is close to or in an overload situation.
- In Firefox, no audio is audible on the Audio Settings page.
- Opera mini for mobile devices cannot work in Intranets because it gets all pages through an opera proxy in the Internet. If there is no Internet connection no content is provided.
- When changing GUI language, the browser cache may have to be deleted and the web browser be reloaded before the language will be selected correctly.
- IE10 by default does not allow snapshots or recording from the LIVEPAGE on local hard disk until one of the following actions is performed:
  - - uncheck the box "Enable Protected Mode" in internet options/security
  - - add the device's IP range to "Local intranet" zone
  - - add the device's IP address to the trusted sites
  - - start IE as administrator
- If an intranet site is opened, IE10 automatically runs in compatibility mode. This leads to a misbehaviour that no timeline is shown on the PLAYBACK page. Therefore the function "Display intranet sites in Compatibility View" must be disabled.
- Since JVM 1.7.25 a „Certificate Revocation Check“ has been implemented. In networks without access to the Internet (resulting in no access to the revocation services provided by Certificate Authorities) Web browser pages that contain a Java applet will see a significant delay in start-up times. To avoid such delay, you may choose to disable on line revocation checking through the Java Control Panel (JCP). Note that disabling on line revocation checking should only be considered in managed environments as it decreases security protections.
- With HTTPS connection in MS IE and VideoSDK 5.71 installed, swapping between stream 1 and 2 may cause the watermarking icon for stream 2 disappear. This may happen only for TCP video streams with infinite I-frame distance and B-frames on. A fix will be delivered with VideoSDK 5.71 MR1.



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- Video and audio may be asynchronous during replay via Web page.
- In rare cases it may happen that no recordings can be found on PC with Windows XP SP2 and IE6. Internet Explorer may stay in status 'connecting on replay page'. An update of Internet Explorer is recommended.
- With quad-view on LIVE page of VJT-X20/X40XF-E using encryption, sometimes not all 4 video streams might displayed.
- Mixing graphical and normal characters in name stamping is not supported. If mixed characters are entered the line will not be displayed.

### Encoding

- Mixture between video standards, e.g. PAL encoder connected to NTSC decoder, is not supported.
- In QCIF resolution, stamping is not available.
- Encoding bit rate for Baseline Profile plus (BP+) is limited to maximum 2.5 Mbps, regardless of any other setting in the encoder profile.
- With GOP structure set to IBP and IBBP the I-frame distance may not exactly correspond with the set value.

### Network

- QoS values are set according to group Video/Audio/Control for UDP packets, but for TCP packets only the QoS value for Video is inserted.

### VCA

- VJT-X20XF-E and VJT-X40XF-E only provide MOTION+ without tamper detection.

### Recording

- LUN size for local recording via "Direct iSCSI" is limited to 2 TB.
- VRM versions earlier than 2.0 will not be able to replay recordings from blocks that are recorded with FW 5.5x or higher.
- If a local media is exchanged, existing former recordings are only discovered after rebooting the device.
- In some cases formatting errors on external iSCSI drives may occur, which might need multiple tries to overcome.
- In rare cases it may happen that the owner of an iSCSI LUN is not displayed correctly. Recording is not affected, just previous owner remains displayed.
- If a device had primary and secondary recording running on CF card and is then added to a VRM system, the blocks used for primary recording will not be re-used, reducing the available recording space for the ANR recording. This can be solved by re-formatting the CF card.
- Numbering of the recorded files on the replay page is not always contiguous. If snippets across block borders belong together, like pre-alarm and alarm recording, the snippets become logically united and only the lower file number is presented in the list.



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- Dual recording of all four channels of a VJT-X40XF-E, which is also a standard case with ANR enabled, may exceed CF card performance and lead to recording gaps. Error messages are then shown in the logs on the LIVE page.  
It must be ensured that the CPU on average is kept below 100% load to ensure functionality. If necessary it is advised to reduce the recorded bit rate.
- With I-frame-only recording and audio also enabled for recording, audio will be fragmented or not audible during replay. Please disable audio recording in case of I-frame-only recording.
- Changing audio format while audio is being recorded may cause unknown behaviour of the device and must be avoided.
- In Recording->Storage Management, the upper 'Set' button only sets the iSCSI password. To store the ANR checkbox setting the lower 'Set' button must be used.

### Export

- With JPEG Posting active when device is booting, the first posted JPEG image may be a no-cam logo.
- FTP exported files which include audio in a format other than AAC must be renamed from .mp4 to .m4a to allow correct playback in QuickTime.
- If FTP export files contain only a few frames some players might not correctly replay such a file, or the replay is too quick to recognize something. The exported file is not corrupt though it might seem so.
- Files exported using continuous FTP backup for Rec. 2 where stream 2 is set to I-frames only mode contain wrong timing information and play back too fast.
- FTP export file size is always 100 MB if resolution change occurred in exported time span.
- Getting the file list from Dropbox may fail if there are too many objects (files and folders). Limit is approximately higher than 500 objects but also dependent on file name length etc.
- After modifying account settings, e.g. FTP server address, to get the changes applied either switching posting off and on or restarting the device is required.
- Under rare conditions when using condensed export the device may show undesired behaviour. It is recommended to not use this function.



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**Transcoder**

- Using profile 'Original' for replay via transcoder in Web browser may cause jerky video due to bandwidth limitation, just like with normal HD replay.
- Cameras to be used with transcoder VJT-XTCXF need minimum FW 5.52 and must record on the transcoder's CF card for the transcoder being able to replay from camera recordings.
- Cameras to be used with transcoder VJT-XTCXF and recording onto own local storage medium need minimum FW 5.60 for the transcoder being able to replay from camera recordings.
- The function "Configure Router" on the transcoder setup page requires UPnP enabled on the router. The resulting settings might not be persistent in the router during a power cycle. It is recommended to manually configure port forwarding in the router.

**Decoder**

- Monitors not supporting the selected display standard may function only in VGA fallback mode, according to HDMI specification.
- HD video is only accepted in first decoder instance, either in single view or in upper left quadrant of quad view.
- In quad-mode, no HD video is accepted.  
A "too large" image provides feedback in the respective video window.
- Maximum resolution of acceptable video streams is Full HD (1920 x 1080).  
Higher resolutions, like from a 5 MP camera, will not be accepted and feedback provided.  
A "too large" image provides feedback in the respective video window.
- When in quad-mode, connecting another device via the connections page may cause jerking of the existing video streams for the first 1-2 seconds.
- When substituting a connection with audio by another camera with audio it may happen that audio is played out too fast until the time stamps are synchronized.
- Audio may not always be fully synchronized to video.
- PTZ via IntuiKey does not work when stream 2 on a camera is set to region of interest (ROI).
- No feedback is returned when attempting to connect to a camera with wrong password.
- If a connection using no B frames is following a connection using B frames, or if an active connection gets the encoding profile changed to not use B frames the decoded video will show a short flicker with the next I frame as the decoding chain must be restarted internally.
- When using automatic I-frame insertion in unstable or dynamic network environment (like WLAN) it may happen that an I-frame request from the decoder is lost and video freezes. This can be avoided by setting an I-frame distance other than 0.
- VIDEOJET decoders 7000 and 8000 will not be listed in device scan of IP Matrix, thus must be added manually.



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### Miscellaneous

- The device date/time will be set to default (Year 2000) after power loss exceeding the buffer period. It is important to ensure that the date/time is correct for recording. An incorrect date/time setting could prevent from correct recording.
- After firmware upload while daylight saving time checkbox is activated the time zone must be adjusted.
- After reboot, the system time re-synchronisation may be delayed up to 9 seconds for SNTP respectively up to 14 seconds for time server protocol.
- A printout was added to telnet when sending an e-mail failed.  
A more detailed printout was added for the three error cases 'could not connect to server', 'authentication failed' and 'recipient not accepted'.
- AAC audio timestamps for UDP live video streams as well as for recording streams are based on 90 kHz instead of 16 kHz to ensure compatibility with VideoSDK.  
AAC audio timestamps for TCP live video streams are based on the standard 16 kHz timestamps. Standard players should connect to live video with AAC audio using TCP.
- Firmware upload stops recording when it fails or is terminated.
- After downgrade configuration integrity cannot be ensured and settings need to be checked or re-configured.
- ONVIF conformance is not yet provided for VJT-XTCXF and VJD-3000 with this firmware release.
- If it shall be checked if the image is not frozen, use milliseconds timestamp to verify.
- Special (umlaut) characters are not supported in encoder profile names.
- Characters that are used in URLs, like @, should not be used in names and password fields if configuration using Configuration Manager or other URL-based configuration clients is considered.

### Important note regarding CF Card compatibility

- CF cards must support "True IDE Mode" to be usable in encoders and transcoder.

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## 5 System Requirements

- Web Browsers:
  - Microsoft Internet Explorer 9.0 or higher
  - Mozilla Firefox
- Oracle Java Virtual Machine 1.6.0\_35
- DirectX 9.0c
- MPEG-ActiveX 5.71 or newer
- Configuration Manager 5.0 or newer



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## 6 Previous Revisions

### 6.1 Changes

- Replay not working in BVC and BVMS clients for negative time zones has been fixed.
- An issue with cameras from multiple VIDEOJET decoder 4000, in multi-cast configuration using identical ports, flickering on VIDEOJET decoder 3000 has been fixed.
- An issue with iSCSI password with 128kB sequence size has been fixed.
- A rare issue with camera inputs interchanged on encoders has been fixed.

### 6.2 Changes

- RTSP stream from VJT X40 XF-E now includes fmtp attribute.
- An issue with VIDEOJET decoder 3000 not clearing RTSP connection has been fixed.
- An issue with VIDEOJET decoder 3000 where RTSP JPEG streams from 3<sup>rd</sup> party cameras could not be established has been fixed.
- An issue with iSCSI CHAP authentication has been fixed.
- Missing PTZ control for camera 32 in IP Matrix on VIDEOJET decoder 3000 has been fixed.
- An issue with MP4 export of interlaced video has been fixed.

### 6.3 Changes with FW 5.93.0015

- VIDEOJET decoder 3000 now lists JPEG decoder in its capabilities.
- An issue with the device starting up with DHCP/APIPA mode after setting to factory default has been fixed.
- Switch configuration page has been added to VIDEOJET connect 7000, and flow control enabled.
- Temperature-dependent fan control and temperature warning levels have been added for VIDEOJET connect 7000.



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## **6.4 New Features with FW 5.93.0013**

### **Encoders**

- Automated Network Replenishment (ANR) 2.0 can now be configured through the Web interface with a single click.
- In ANR mode, CF card fill level is shown on recording status page.

### **Decoder**

- Various 3<sup>rd</sup> party (ONVIF) cameras that support RTSP and CGI interface can directly be connected. URL can be entered via decoder's connection page or used in ATSL scripting.

### **Transcoder**

- The transcoder setup containing addresses of remote devices is provided in the reply to a network scan.

### **VIDEOJET connect 7000**

- A connected MIC-7000 is automatically detected and the transcoder setup configured accordingly.
- Audio input signal is automatically forwarded to a connected MIC-7000 as the MIC's audio.
- VIDEOJET connect 7000 automatically acts as time server for a connected MIC-7000 to keep both devices synchronised.

## **6.5 Changes with FW 5.93.0013**

- An issue with wrong RTSP sequence numbers has been fixed.



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## 6.6 *New Features with FW 5.92.0027*

### Encoders

- Fixed video standard and VCR mode can now be selected for video inputs.
- Automated Network Replenishment (ANR) 2.0 is possible with CF card as recording buffer.

### Decoder

- Single/quad switching on VJD-3000 has been made faster.
- Video smoothing is now possible in VJD-3000, introducing a delay line to compensate jerkiness of video sources.

### Transcoder

- The info stamping of the transcoded stream can be enabled in Web interface and via RCP command.

### Decoder and Transcoder

- “Any” stream selection has been added to let the decoder or transcoder automatically detect the optimal resolution stream. This allows connection to cameras with higher resolution if they provide another stream not exceeding HD 1080p, or SD in case of quad view. For the decoder this also allows to connect to legacy MPEG-4 devices via M-JPEG stream if provided.
- New 4K and 12MP cameras are supported in scan list to allow connection to their lower resolution streams.
- Display information of too large resolution stream by special image in video window on decoder monitor and in Web interface.



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**Recording**

- A new Automated Network Replenishment method, ANR 2.0, has been implemented to avoid recording gaps. It provides a robust recording even on sporadic iSCSI connection loss or network outages.  
To achieve this it utilizes the devices' dual and local recording capability. The secondary recording, which is continuously written onto the local storage medium, functions as interim buffer for the primary recording that transfers this to the external iSCSI storage as long and whenever the connection is established.  
The time period to cover connection interruption depends on the size of the local storage medium and the data rate of the recorded stream.
  - Information on internal fill level of the recording buffer is provided.
  - The speed of the transfer from the secondary recording buffer to the primary recording on the iSCSI storage in the network can be dynamically controlled via playback speed and rate control.

**Please note:**

Setup of this feature is not possible via the devices' browser-based user interface.

It can be set up via RCP commands.

Bosch VMS 5.0 will allow enabling ANR 2.0 via its Configuration Client.

- Enhanced recording modes allow alarm recording with alarm-type specific, long pre-alarm times. Such can be triggered via virtual alarms with pre-alarm time and alarm duration specified. This function requires ANR 2.0 to be enabled.
  - Textual information provided with the virtual alarm command is stored as metadata. This could be e.g. POS or ATM info.
  - Bosch VMS 5.0 will use this feature in its multiple pre-alarm duration settings.
- Card media that reached maximum write cycles and would cause access errors are mounted as read-only to ensure accessibility of stored recordings.  
This state is valid until the next media exchange, then re-checked.
- Storage configuration of two iSCSI LUNs is possible on a device for local recording.
- Alarm recordings can be automatically protected.



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**Network**

- The products support enhanced encryption capabilities to provide compatibility to modern browsers. No separate AES Encryption license is required. Using HTTPS (SSL) automatically encrypts all payload channels (video, audio, metadata, etc.) related to the initiated communication.
- A new media data watermarking/signing method based on certificates has been implemented. The video stream includes signatures from the device's certificate. By checking the signature against the certificate it received from the device, possibly even by a certification authority (CA), a client can prove if the received video stream or playback is really from the original source.
  - Video authentication can be selected from Off, Classic, MD5, SHA-1 or SHA-256.
  - The signature period can be configured to balance the required computational power with other functions required from the device to perform.
  - This new watermarking method requires VSDK 5.71 or later to be functional in the Web browser.

**RTSP**

- Search and playback from local recordings is possible using RTSP connections. A tech note describing the feature and the parameters is available.
- The multicast settings on the device are synchronized with a RTSP multicast request.
  - If a multicast group is configured on the device and the RTSP request does not specify a multicast group, the configured session is used.
  - If no multicast group is configured on the device and the RTSP request does not specify a multicast group, a random multicast group is used.
  - If the RTSP request does specify a multicast group, this multicast group is used.
- CGI parameters were extended to allow playback from secondary recording, e.g. `rtsp://<ipaddress>/rtsp_tunnel?rec=1&inst=2`



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**Miscellaneous**

- Camera name fields now directly support Unicode character input, mapping to the available characters in the graphic character table. The selection from the graphic character table is not necessary anymore but still functional for backward compatibility.
- The status of the local storage medium is provided in the SNMP MIB.
- Date and time information has been added to the beginning of each line in the maintenance log file.
- After a network link is re-established EAPOL communication is initiated to restart 802.1x authentication even if the switch does not initiate this.

**Cloud-based Security and Services**

- Certificate chain check has been implemented.

**ONVIF conformance**

- Conformance of encoders was tested using recent ONVIF test tool 12.12.



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## 6.7 Changes with FW 5.92.0027

- “LIVEPAGE” has been renamed to “LIVE”.
- Menu “Advanced Mode->Network” and “Advanced Mode->Service->System Overview” page were re-structured to improve usability.
- Double-click for full-screen has been disabled for in-video-PTZ as it was often accidentally activated by fast PTZ mouse-clicks.
- Maximum I-frame distance in encoder profiles is now also based on configurable MAX\_GOP\_LENGTH\_VALUE.
- Pre-alarm RAM buffer settings changed by a management system are now also shown in the drop-down list on the “Recording Profiles” page.
- An issue where a device could become inaccessible after long run-time if configured servers could not be reached has been fixed.
- An issue with IE 11 showing a message that a device may not be responding due to a long-running script when forensic search returns many events (more than 1000) has been fixed.
- An issue where older recordings were not instantly listed on opening the Playback page has been fixed.
- The decoder logo for upload must be a non-progressive JPEG image that bears as little header information as possible. Resolution must stay within 800 horizontal and 720 vertical pixels and should consider the mainly used aspect ratio. Image size shall not exceed 200 kB. An invalid format of the decoder logo will cause decoding to fail until the logo is deleted again.

### ONVIF

- The issue where system date and time could not be changed via ONVIF has been solved.
- ONVIF command GetVideoEncoderConfigurations now returns the correct multicast IP address.
- The previous ONVIF implementation may have interfered with existing configurations made via RCP. To allow coexisting of these configuration possibilities a few adaptations and improvements were implemented.
- ONVIF video profiles were reduced to 3 per stream.
- Each stream has an 'ONVIF mode' flag. This flag will implicitly be set when a profile configuration is done via ONVIF. When that flag is set the stream always uses the ONVIF parameters.
- The ONVIF status is displayed on the respective profile configuration pages. The flag can be unchecked and the ONVIF configuration overwritten.
- ONVIF multicast configuration will also be saved in the ONVIF encoder profile.
- Each stream can be connected via ONVIF (RTSP) even when no ONVIF configuration was made. In that case, the active encoder profile is used.
- It is internally ensured that ONVIF configurations always are 'recording compatible' by using the default maximum I-frame distance.



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## 6.8 Changes with FW 5.85.0040

### Encoders

- On recent production lots, there might be sporadic issues with the video input during start-up, resulting in a pink hue on the video. This firmware fixes this.

## 6.9 New Features with FW 5.85.0039

- All Web GUI languages are now included in a single firmware file.

### Encoders

- Analogue Bosch PTZ cameras that use BICOM protocol and are connected to a VJT-X20/X40XF-E via RS-485 can be controlled via the Video Security iPad app.

### Decoder (since production release 5.85.0027)

- The following monitor display standards are selectable.  
If not supported by the monitor a fallback to VGA will occur.
  - PAL
  - NTSC
  - 1080p25
  - 1080p30
  - 1080i50
  - 1080i60
  - 720p50
  - 720p60
- The monitor display standard can be forced even if a monitor does not signal compatibility in its EDID information. Sometimes monitors do support more modes than they signal.
- A crop mode has been added which allows filling the video window with a cropped image to avoid black bars.
- A “Freeze” condition, which means loosing the video connection to the sender, creates an event that is usable in Alarm Task Scripting and for alarm generation.



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## **6.10 Changes with FW 5.85.0039**

### **Transcoder**

- The restriction to use only the service password in the transcoder setup has been removed.

### **Decoder Issues fixed (since production release 5.85.0027)**

- Video streams in 4CIF from interlaced sources containing B frames may cause the displayed video to freeze.
- If a camera with different resolution and/or aspect ratio than the previous stream is connected, for a short moment it may happen that the video is wrong-sized, or ghost pictures be shown.
- In quad-mode, when the decoder is at its computational limits, sometimes a clicking noise is induced to the audio signal.

## **6.11 Changes with FW 5.60.0061**

- Audio back-channel is now supported via SSL connections.
- Password level for transcoder live connections has been corrected.
- Transcoder now accepts connections from all input lines of multi-channel devices when controlled via management system.
- Platform information is now included in device capabilities.
- Automatic backup is now being correctly terminated when changing between backup of continuous recording or of alarm files.



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### **6.12 New Features with FW 5.60.0054**

- Support of new VJT XTC XF transcoder
- Estimation of available bandwidth for communication with the remote client.
- Support of router configuration for port forwarding if UPnP is enabled in router.
- Forensic Search on device to reduce data load on remote connection.
- Reworked PLAYBACK page to allow easy navigation between recordings, export functions and search results.
- Out-of-the-box support for Bosch Cloud-based Security & Services(CbS)
- Dynamic DNS extension to alternative providers no-ip.com and selfhost.de
- A JPEG thumbnail image is returned in auto-detect reply after network scan.
- Central URL <http://downloadstore.boschsecurity.com> where devices automatically check for new FW when Internet access is provided.
- ONVIF conformance to Profile S, validated with recent ONVIF test tool 12.06, with additional beta features of Profile G, like search service and replay service.

### **6.13 Changes with FW 5.60.0054**

- RECORDINGS page renamed to PLAYBACK
- FTP name scheme changed to allow sorting by date, new scheme like `snap_cx_YYYYMMDD_hhmmss.jpg`
- Due to legal requirements, minimum retention time has been changed to maximum retention time for local recordings.
- To fully comply with the RFC '\_' characters are replaced by '-' in the MIB file.

### **6.14 Changes with FW 5.52.0015**

- Number of simultaneous RTSP connections increased from 10 to 25.
- Type naming of VIP-X1600-XFM4 modules has been corrected to 'VIP-X1600-XFM4'.
- Bug fix for not saving DNS Server address in configuration when assigned via DHCP.



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### **6.15 New Features with FW 5.52.0009**

- For VIP-X1600-XFM4, progressive video is possible due to de-interlacing video before encoding. This results in better video quality at comparable interlaced video bit rate. A selection field has been added to the Installer Menu, default is off. The license is not required anymore but remains functional where installed.

### **6.16 New Features with FW 5.50.0057**

- VIP-X1600-XFM4: progressive video option with built-in de-interlacing.

To allow progressive video a special Global License Activation Key must be entered via the License page in the Web browser or the Configuration Manager:

02-01.41.01-F02A80E8-7AF66FC4-5AFC276B-2F363FF4-41498CE6

To switch back to interlaced video again, a Global License Deactivation Key can be applied:

02-01.41.00-CA429DA7-E96811A0-BEEE334A-9DF6FEE3-B076EC5C

These Global License Keys are valid for applicable products only.

To avoid typing errors it is recommended to copy & paste the keys from this release letter.

### **6.17 Changes with FW 5.50.0056**

- DHCP is enabled by default with new devices to achieve ONVIF Plug&Play compatibility. Settings remain untouched during firmware upgrade.
- Class D IP addresses are denied for standard address fields in Web browser.
- Unused pre-alarm buffer is released when changing the recording block.
- RTSP multicast connections need a retrigger to keep alive, initiated by the CGI parameter "mcRetrigger", which is set by default. It can be disabled by setting mcRetrigger=0 in the RTSP URL for environments where no keep-alive messages are sent. Otherwise the connection will time out after 1 minute.



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## 6.18 New Features with FW 5.50.0056

- Support of new H.264 encoders VJT-X20XF-E and VJT-X40-XF-E.

### Encoder

- Predictable rate control for long term recording ensures that maximum bit rate is not exceeded by peaks due to high motion. This makes storage calculation more reliable.
- Basic Region of Interest
- Adaptive Bit Rate encoding is available in TCP mode for replay and live. This is activated as long as there is only a single client connected to the stream. With the second connection, the profile settings become active.
- Quality settings (QP settings) are harmonized over all products.

### Network

- IPv6 support for Web browser access to product pages, including live view, control and replay, has been introduced.
- Quality of Service (QoS) allows setting different priorities for video, audio and control connections.
- IP Filtering allows defining two IP address ranges allowed to communicate with a device.
- Flexible path for FTP can be defined, using a built-in FTP explorer.
- HTTPS encryption using AES and 3DES ensures compatibility with latest Web browser generations like IE9.
- SNMP community names can be defined.
- HTTP streaming (server push) allows mobile clients to access video.
- MTU can be configured to adapt to network conditions.

### Recording

- Continuous recording files can be exported to a FTP server.
- Pre-alarm recording for short time spans can be done in RAM.
- FTP login data can be verified during setup.
- Recording ID can be delivered with triggering a virtual alarm and stored within metadata.
- Filenames for FTP export can be defined more meaningful by using pre-defined variables in an Alarm Task Script.



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### Alarm

- Alarm images, JPEGs attached to alarm emails, can be defined more meaningful by using pre-defined variables in an Alarm Task Script.
- Quality of Service (QoS) level for video can be set higher on alarm.
- True HTTP request is now possible in the Alarm Task Editor as an additional SendHTTPCommand().

### VCA

- IVA 5.5 has been incorporated in firmware 5.50.  
Please refer to the respective release letter for details.

### Web browser interface

- Region of Interest (ROI) cut-out is possible on LIVEPAGE when using stream 2. Pan, tilt and zoom functionality is available there to dynamically move the region of interest over the full video and control the size of the cut-out via the zoom factor. ROI is disabled in case of recording of stream 2.
- The same ROI functionality is also available on the replay page.
- In addition, replay can be transcoded by selecting an appropriate encoder profile on the replay page. This allows to playback high bit rate recordings even over bandwidth-limited connections.
- Mobile device can access the devices via browsers and are forwarded to specific pages, optimized for viewing on mobile devices. These pages use HTML5 technology with HTTP streaming for the live stream and HTTP download of recording files in .mp4 format. Apple devices support live view and playback of recordings. Android and Windows Phone support live view only.
- Pixel Counter allows counting of pixels in respect to stream resolution, e.g. to check if number of pixels of object in view is sufficient for identification.
- I-Frame only stream can be configured to be shown on the LIVEPAGE.
- The expected frame rate for I-Frame only is indicated on recording page.
- Display of V-SDK overlay icons can be configured on the LIVEPAGE settings
- Preview images in settings pages can be expanded for more details, including 1:1 view.
- Buttons to reboot a camera remotely and to set all camera and encoder parameters to factory defaults have been added.

### ONVIF

- ONVIF Profile S is supported.
- ONVIF PTZ commands are mapped onto Bilinx commands and PTZ instance is signalled available if a Bilinx camera is connected.



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**Miscellaneous**

- Debug logging has been enhanced to ease investigation during support cases.
- Holidays (Special Days) are updateable without stop/start recording.
- AAC is supported in addition to G.711 and L16 audio codecs and is selectable for recording. It provides higher audio quality than G.711 with 16 kHz sampling rate at significantly lower bit rate of approx. 48 kbps.
- Firmware files of all three platforms are combined into a common file that can be uploaded to any applicable product, regardless of the platform.  
Other languages than English and German are available as separate firmware packages.