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ST-VS/MKP1

Product Management

Nuremberg

20.12.2018

## Release Letter

Products:	<b><i>H.264 Firmware for EXTEGRA IP 9000</i></b>
Version:	<b><i>6.32.0124</i></b>

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

### 1 General

This firmware release is a maintenance release based on FW 6.32.0123.  
It is an upgrade for [CPP4 based EXTEGRA IP 9000 cameras only](#).

Changes since last release FW 6.32.0123 are marked in [blue](#).

**Note:**

Due to an internal file system being introduced since firmware 6.1x and architectural changes thereof, an upgrade to firmware 6.20 and higher is only possible from firmware 6.1x versions or higher. Cameras with previous firmware versions below 6.1x first need to upgrade to firmware 6.1x.

**Note:**

Since firmware 5.92 no Autoload Decoder can be installed from the camera anymore. This video decoder, used in browsers to view the video stream, had to be taken out of the firmware content due to size limitations, favouring the new features. Instead, a download link to get the more feature-rich MPEG-ActiveX has been inserted, requiring Internet access for immediate installation.



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## 2 Applicable products:

- [EXTEGRA IP dynamic 9000](#)
- [EXTEGRA IP starlight 9000](#)

**Note:**

All CPP4 devices incorporate a Trusted Platform Module (TPM) with own firmware. This TPM hardware and firmware have been enhanced over time to allow for additional security features. Due to security reasons, the firmware or functionality of the TPM cannot be altered in the field. Thus, not all new security features become available on devices with older TPM hardware or firmware revisions. Also, license types are related to the TPM version and can only be applied when matching.

The TPM version can be derived from a few bits in the Installation Code, to be found on the Service->Licenses page.

The bits are encoded in the 17<sup>th</sup> digit and have the following meaning:

- |   |  |
|---|--|
| 0 | TPM first HW revision, type 1 licenses   |
| 8 | TPM second HW revision, FW < v1.3,<br>global type 1 licenses up to bit 96, type 2 licenses       |
| C | TPM second HW revision, FW >= v1.3,<br>global type 1 licenses up to bit 96, type 2 to 3 licenses |

**Note:**

Since firmware version 6.30 all cameras are prepared to receive a unique Bosch certificate during production, assigned and enrolled by Escrypt LRA. These certificates prove that every device is an original Bosch-manufactured and untampered unit. Escrypt is a Bosch-owned company, providing a public certificate authority (CA). Enrollment of the certificates in production is asynchronous to this firmware release.



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### 3 Changes

- This version includes a fix for a recently discovered security vulnerability CVE-2018-19036. The vulnerability potentially allows the unauthorized execution of code on the device via the network interface. Bosch rates this vulnerability at 9.4 (Critical) and recommends customers to upgrade devices with updated firmware versions. For detailed information please refer to the published Security Advisory [BOSCH-2018-1202-BT](#).

### 4 System Requirements

- Web Browsers:
  - Microsoft Internet Explorer 11 or higher
  - Mozilla Firefox
- DirectX 11
- MPEG-ActiveX 6.02 or newer
- Configuration Manager 5.42 or newer



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## 5 Restrictions; Known Issues

### User Interface

- If UAC is set to default in Windows 7, no snapshot or recording via LIVEPAGE is possible.
- Video and audio may be asynchronous during replay via Web page.
- If a VCA configuration using a rule engine is switched to a VCA configuration without using a rule engine, e.g. MOTION+ or IVA default configuration, the saved configuration is invalid. Forensic search with this configuration may lead to undesired search results.
- 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.
- 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.
- Google Chrome requires a plug-in for displaying TIFF images to properly show the reference image.
- 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.
- 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 is available since VideoSDK 5.71 MR1.
- Upgrading the firmware to version 6.10 may require clearing the Web browser cache to have the new user interface style appear.

### Encoding

- Only H.264 Main Profile using CABAC is supported. CAVLC is not supported.
- JPEG always has HD 1080p format, although stream 1 could be set to SD (480p).
- Frame rates in low light mode might vary and cause bit rate control to produce higher bit rates than set as maximum.



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- Aspect ratios 16:9 and 4:3 are not combinable. Aspect ratio from stream 1 will lead.
- With GOP structure set to IBP and IBBP the I-frame distance may not exactly correspond with the set value.
- For stream setting "Dual ROI" the maximum resolution of stream 2 is 288p regardless of a higher resolution selected in the encoder profile.
- If bit rate is already reaching maximum level due to image content to be encoded, encoder quality regions with setting "object" cannot be improved for quality anymore and differences will gradually be reduced.

#### 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.
- IP addresses 172.20.1.0/30 which include 172.20.1.0 to 172.20.1.3 are reserved for internal communication and must not be used as device addresses. Products without internal communication ignore this restriction and allow the use of this range.

#### IVA

- IVA and flow need at least 12.5 frames per second video input frame rate. If IVA or Flow are configured, minimum frame rate of 12.5 must be set in ALC mode.
- There is only one configuration for IVA. When analysis type is changed, e.g. from IVA to IVA Flow, the former configuration is lost. Due to this, it is not possible to change the analysis type in a VCA profile switch.
- Due to a limitation of the script language that is used in the background, the delay timer for event-triggered VCA starts immediately when the configuration is set. A trigger event during this period does not restart the timer. Once the timer has elapsed, operation is as desired.
- On devices with VCA FPGA an outgoing IPv6 connection fails when device is initiator, e.g. trying to resolve a time server domain name,
- For 720p cameras, when switched to 1.3MP application mode, IVA does not work. As a result also iAE does not work, as IVA is needed for that. And therefore also User Mode "Intelligent AE" does not work optimally (it is using BLC).
- After firmware upgrade to version 6.10 the minimum object size seems being reset when editing 'motion in field' task. As a proposed workaround check minimum object size and correct value as applicable.
- "Too dark" alarm is not triggered under normal conditions due to the cameras low-light capabilities.



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### **MOTION+**

- An alarm recording configured to be triggered by MOTION+ with masks may not be operational after reboot. Saving MOTION+ configuration without any changes recovers from that. Alternatively masks may not be used with MOTION+.

### **Recording**

- LUN size for local recording via "Direct iSCSI" is limited to 2 TB.
- VRM version 2.12 or higher is required.
- 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 SD 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 SD card.
- Throughput limit for simultaneous recording and local replay at 100% playback speed is:
  - maximum total recording bit rate of 7 Mbps for external iSCSI recording
  - maximum total recording bit rate of 10 Mbps for SD card recording, depending on SD card performance
- SD card recording performance is highly dependent on the speed (class) and performance of the SD card.
- 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.
- 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.
- SDXC cards are formatted to FAT32 file system and not using the exFAT file system as being mandatory for SDXC standard compliance but fully recognized and accessible. The maximum size of 2TB is also supported with FAT32, once SD cards of that size might become available. FAT32 also increases portability to other than Windows platforms.
- If a local media is exchanged, existing former recordings are only discovered after rebooting the device.
- Physically removing the local storage media while recording causes the device to reboot. Recording must be stopped before removal.
- Changing audio format while audio is being recorded may cause unknown behaviour of the device and must be avoided.
- 5MP and larger JPEG streaming via RTSP is only possible with decoders supporting the ONVIF extensions.



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JPEG streaming via RTSP is based on RFC 2435. This RFC only allows for a maximum JPEG size of 2048 by 2048.

With ONVIF, the original, larger JPEG headers can also be transmitted via RTP header extensions. Unfortunately, this only works with decoders using these extensions, i.e. it does not work with a standard VLC.

- 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.
- The storage system indicator status must be ignored during formatting of an SD card.
- Forcing the camera into an overload situation may cause undesired behaviour and in worst cases even recording gaps. It should always be ensured that the CPU load is not consistently around or at its maximum. This can be achieved by adapting encoder settings or avoiding too many tasks, e.g. client sessions, in parallel.
- Sporadically occurring incorrect time zone info in recording packets may lead to gaps displayed in the playback timeline. The video footage within the gap cannot be replayed but becomes accessible via exporting the affected period. This may happen with firmware 6.32 below built 111.

### Export

- 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.
- With JPEG Posting active when device is booting, the first posted JPEG image may be a no-cam logo.
- FTP posting with resolution 1080p delivers JPEG with size of 1920x1072 pixels due to 16 pixel macroblock boundary of the JPEG encoder.
- 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.



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### Fixed cameras

- In case if there is no image displayed after upgrade to new firmware, please re-power the camera. Applicable cameras :
  - FLEXIDOME IP INDOOR 5000
  - FLEXIDOME IP OUTDOOR 5000
  - FLEXIDOME IP bullet 5000
  - FLEXIDOME IP INDOOR 4000
  - FLEXIDOME IP OUTDOOR 4000
  - DINION IP 4000 HD
  - DINION IP BULLET 4000 HD
  - DINION IP 5000 HD
  - DINION IP BULLET 5000 HD
  - DINION IP 7000 HD
- If analogue video output is switched on, the frame rate of the first stream is limited to 15 fps.
- With analogue output enabled and image rotated, the stream 2 resolution is limited to 720x720 pixels maximum.
- On DINION IP starlight 7000 HD, running stream 1 with 720p60, stream 2 is limited to SD resolution running at max. 30 fps.





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### Dome cameras

- Autopan starts outside of defined range if orientation is set to "Inverted".
- Tilt up limit is treated as lower tilt limit if orientation is set to "Inverted".
- For VG5, when Fast Address was changed a reboot is required to activate it.
- In AUTODOMEs, blanked sector may trigger a "too dark" alarm.
- On AUTODOMEs, privacy masking does not cover the complete configured area if privacy mask is placed too close to the edge of a scene. Move the target position to the center of the scene before creating a privacy mask.
- If LIVEPAGE is refreshed during recording of Tour A/B on AUTODOMEs the button "Stop display" will falsely display "Start recording" but still continue tour recording.
- After a firmware upload it may happen that the Privacy Masks and settings from Installer Menu are set to default. Make sure to check if Privacy Masks and Installer Menu settings are still valid after uploading new firmware.
- Some online help files describe a tracking icon which is not visible, documentation obsolete.
- For optimal image performance the user is advised not to turn off contrast enhancement during normal camera operation.
- To improve Recorded (Guard) tour playback accuracy, Bosch recommends users record tours using the User Interface (UI) instead of using a keyboard. In the event that the Recorded (Guard) tour loses position accuracy during playback, users should re-home the camera using the "Find home" button on the Live page.
- Since firmware 5.90 the camera module in AUTODOME 7000 HD receives a different setting that is persistent over a firmware downgrade as older firmware doesn't know of this parameter to revert it.  
If it is required to downgrade a RCP CGI command needs to be applied before or after the downgrade:  
`http://<ipaddress>/r/cp.xml?command=0x09a5&type=P_OCTET&direction=WRITE&protocol=TCP&payload=0x80000405300381010424560000ff&num=1`
- MIC 7000 orientation can be switched between normal and canted.
- When the user changes orientation from normal/canted to inverted (or vice versa), MIC 7000 will tilt itself up and over so that the visor and wiper are on top. If there is an attached illuminator this would result in the illuminator hitting the MIC's body. To avoid this, MIC 7000 will not allow an orientation change while the illuminator is attached. A warning message with "Yes/No" selection will be displayed when the user clicks the orientation radio button and the MIC has an illuminator.
- On AUTODOME 7000 and MIC 7000 "HDR" can be selected in the preposition mapping but has no effect as it is not supported in these models.
- NTCIP requires to have the SNMP port enabled to become functional. As the SNMP port, amongst others, has been closed by default if not needed due to security improvements, it must be re-enabled to allow NTCIP to work.



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**Miscellaneous**

- The camera 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 Video SDK.  
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.
- After changing the selectable camera mode via alarm input the switch back to a previous mode doesn't work anymore.
- 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.
- When a configuration file is loaded to an incompatible camera, e.g. a configuration file from a HD camera loaded onto a VGA camera, encoder settings might become invalid and need to be re-configured.
- If it shall be checked if the image is not frozen, use milliseconds timestamp to verify.
- Intelligent Defog default is OFF under "Low bitrate" scene mode.
- When combining CPU-intensive functions like e.g. encryption, watermarking, or dual recording, with high quality and high frame rate encoder settings, tuning of encoder profile settings might be required to avoid overload situations.
- No time change is allowed during the time when the "hour is repeated".
- Maintenance log file creation and download requires some time, though there is no progress indication, and needs to be waited for completion.

**ONVIF conformance**

- When using GetPresets command preset names are not set for scene1 to scene6.

Please check the respective release letter of a camera for further device-specific restrictions.



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## 6 Previous Revisions

### 6.1 New Features with FW 6.32.0123

#### Imaging

- Lens settings Near Focus Limits for day and night have been added.
- Sectors in dome cameras can be more flexible set to 4, 8, 12 or 16 (default).

#### Security

- Strengthened password policy:
  - New passwords must now be a minimum of 8 characters including special characters.
  - Passwords are continuously demanded; message cannot be hidden anymore.
- For full support of HSTS, an option “HSTS plus HTTP redirection” has been added.
- Fallback to TLS 1.0 can be disabled.

#### VCA

- JPEG with VCA overlay is now also available in full screen view.

For details on VCA 6.30 please refer to the release notes of Essential Video Analytics or Intelligent Video Analytics.

#### Miscellaneous

- Improved user interface for 802.1x settings. Interface shows an EAP-MD5 password field and lists the EAP-TLS certificates with a link to the certificate store.
- Security coprocessor (TPM) version is listed in system overview.
- Aux and preposition widgets on Live page can be completely disabled in Web appearance settings.
- New capability “cluster group” has been introduced. MIC integrators can get the audio back channel capability on VIDEOJET connect 7000 from this cluster group.

#### AUTODOME 7000

- Mosaic privacy masks are supported in AUTODOME IP 7000 series.



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## 6.2 Changes with FW 6.32.0123

- Limited frame rate stream capability names are presenting the frame rate as “skip” value, which is used as divisor in relation to the base frame rate.  
A value “skip 5” results e.g. in 12 fps if base frame rate is set to 60 fps, or in 5 fps if base frame rate is set to 25 fps.
- In preparation for ONVIF Profile Q support, planned for next major firmware release, the default setting for Automatic IPv4 address assignment has changed from “On” to “On plus Link-Local”, a setting that had already been in the option list before.  
Though this might seem a small change, it may have an impact:  
The former default IP address 192.168.0.1 will virtually become obsolete.  
Instead, the camera will assign itself an auto-IP address out of the range 169.254.1.0 to 169.254.254.255 as long as there is no other IP address assigned by a DHCP server.  
([https://en.wikipedia.org/wiki/Link-local\\_address](https://en.wikipedia.org/wiki/Link-local_address))  
The advantage is that there are no more duplicate IP addresses, which is considered prohibited in a network.
- VCA overlays are drawn after scaling to improve visibility.
- An issue has been fixed where the maintenance log could not be downloaded.
- An issue has been fixed where the wrong SD card recording status was displayed.
- A security leak, which allowed to extract critical data from the device, has been fixed.
- A problem with incorrect time zone info in recording packets causing gaps in timeline has been fixed.
- An issue has been fixed to prevent recording stop on big time jump.
- An issue has been fixed to prevent recording problems when timeserver not reachable and units are forced to synchronize on local RTC.
- An issue has been fixed where video footage could not be replayed at replay clients located in specific remote network areas.
- An issue has been fixed for camera models NDN-50022-A3, NIN-832-V10PS and VG5-7220-EPC5 where requesting an RTSP stream from those cameras could force a reboot.



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### **6.3 New Features with FW 6.30.0140**

#### **Imaging**

- A 1.3 MP application variant is now selectable for DINION IP bullet 4000 cameras.

#### **Security**

- The user management has been extended to allow free assignment of usernames. Each user can be assigned a user group representing live, user, or service level.
- New user management system allows to dynamically create a user for whom the password can be treated as token. Also timeout before user account expires is possible.
- Token-based authentication implemented to allow user management based on communication with Microsoft Active Directory Federation Services.
- Secure FTP connection (FTP over TLS) is implemented.
- ICMP redirect messages are not accepted anymore by default. Acceptance can be re-enabled via RCP+ command, if needed.
- Video authentication is now also possible on RTSP streaming. It can be enabled with CGI parameter 'auth=1' which requests picture info packets (payload type 97).

#### **Recording**

- Recording to iSCSI now supports LUN size up to 64 TB.
- A PTZ preposition can be stored in a recording profile, allowing to record only a 'region of interest' (ROI) of the full image.

#### **ONVIF**

- ONVIF encoder profile settings can be verified via [http://<ipaddress>/onvif\\_encoder\\_profiles](http://<ipaddress>/onvif_encoder_profiles).
- Manual focus and iris control is now supported via ONVIF command.
- Tamper detection alarms are now forwarded to and included in ONVIF event services.



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### VCA

- Web page layout has been improved for better usability and larger video for configuration.
  - Video analytics now fully support 16 tasks in RCP+ and IVA Task Script Language.
  - JPEGs can now include VCA overlays in Live page, alarm e-mails and JPEG Posting. For JPEG snapshot a new query parameter 'VCAOverlay' can be added to the URL, e.g. <http://<ipaddress>/snap.jpg?VCAOverlay=1>.
  - Video can now be paused during VCA configuration.
  - Reference image is now stored as JPEG instead of TIFF for broader compatibility.
  - Tamper detection "too bright / too dark" was no more functional due to too high dynamic on our cameras.  
To solve this issue, sliders for the brightness level have been added for manual adjustment.
- For details on VCA please refer to the release notes of Essential Video Analytics or Intelligent Video Analytics.

### Miscellaneous

- HTML5 video tag is used to display a continuous MP4 video file from the camera on browsers not supporting NPAPI plug-ins (MPEG-ActiveX) like Firefox, Chrome and MS Edge.
- A "Links" section in the main navigation (blue top bar) has been added, leading to a DownloadStore page providing latest tools, apps and supportive software.
- Unicode characters are now also possible on all configuration strings.
- Time server IP address can be accepted to be overwritten by DHCP.
- Display of preposition widget on Live page can be configured.
- MIC washer has been added to preset mapping functions.

## 6.4 Changes with FW 6.30.0140

- "Image too noisy" is removed as it never occurs due to the high dynamic of image processing.
- Downscaled images 4CIF/CIF are now encoded as PAL resolution (704x576 resp. 352x288) when camera is set to 25/50 fps base frame rate.
- Fixed a potential recording issue which could cause recording to stop due to insufficient storage error handling under rare error conditions, like e.g. massive irregular network connection interrupts to storage system.
- Fixed an issue in ONVIF signaling of SD resolution.



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### **6.5 Changes with 6.22.0007**

- Support of new camera modules in AUTODOME 7000 and MIC 7000, providing improved noise reduction.
- A high-resolution/limited-frame-rate capability has been introduced for stream 2 on various cameras.

### **6.6 Changes with 6.22.0007**

- Writing to ONVIF MaxFrameRate is now possible to improve compatibility with clients not using encoding interval. Written values are presented in same format when read.

### **6.7 Changes with 6.21.0008**

- An issue with increased noise and thereof increased bit rate from AUTODOME and MIC cameras has been fixed.
- Auto Focus accurateness on DINION IP bullet 4000 and DINION IP bullet 5000 has been improved.
- An issue with fragmented EAP-TLS transfer has been fixed, allowing support for Microsoft Windows NPS and RADIUS.
- An issue with ONVIF Analytics Service has been fixed.
- GUI translations and some embedded help files have been updated.
- An issue with analogue output flickering on DINION IP starlight 7000 and FLEXIDOME IP starlight 7000 in 1.3 MP mode has been fixed.
- Wrong wording on time protocol settings has been fixed.



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## **6.8 New Features with 6.20.0089**

### **Cameras**

- Support for DINION IP bullet 4000 and DINION IP bullet 5000.
- Dome and AUX functions can be mapped to presets.
- MIC-7000 audio back-channel support towards VJC-7000 audio output on LIVE page.

### **Security**

- Support of TLS 1.2 with updated cypher suites including AES 256 encryption.
- Device access security has been improved by:
  - Implementation of signed time synchronization
  - Signature-protected password unlock procedure
  - Telnet over HTML5 web sockets in browser, using secure TLS connection
  - Throttling of wrong password entries
  - Urging user towards setting a device password, strength meter provided
- Firmware, which is signed with a private certificate, is authenticated before transfer to Flash to ensure a secure firmware upload.
- Certificate handling has been enhanced by:
  - Auto-generation of self-signed certificates for SSL
  - User-defined creation of self-signed certificates
  - Possible upload of certificates with encrypted private keys
  - Improved recorded video authentication without PKI required
  - Storage and retrieval of certificate in recording for verifying signed video
- Web GUI security has been improved to prevent Cross-Site-Scripting in Browser.
- Use of secure connections can be advertised via support of HSTS.





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## **6.9 Changes with 6.20.0089**

- 56-bit encryption disabled for secure connections to increase minimum security level.
- Telnet service (system console) is now disabled by default.
- DHCP option 12 has been changed to send 'Renew' message including the camera name as hostname.

## **6.10 New Features with 6.11.0021**

- Adding improved AF speed for AVF cameras.

## **6.11 Changes with 6.11.0021**

- Adding small improvements and error corrections.
- ONVIF analytics capabilities have been corrected for dome cameras.
- Replay not working in BVC and BVMS clients for negative time zones has been fixed.



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## 6.12 New Features with 6.10.0129

### New Graphical User Interface

- Light and friendly Web browser interface following the Bosch Security Systems style guide for software interfaces.
- Usability improvements due to clearer structure and elements.
- Live preview during configuration wherever possible due to space.
- Tours re-arranged onto single page and scheduler for preset tour and alarm rules added for moving cameras.
- Encoder quality regions can be configured on moving cameras' preset positions with up to 8 regions.
- Video export format can be preselected from Bosch format including metadata and generic MP4 format on LIVE page.

### Imaging Enhancements

- Digital Zoom mode added to lens settings page.
- Setting migration keeps all the previous imaging settings after camera upgraded to new firmware. Please note: This is only applicable after firmware 6.10.

### Security Enhancements

- Certificate Store for management and assignment of client and server side certificates.
- Preparation for Public Key Infrastructure (PKI), enabled via special license, has been added.
- 56-Bit DES cipher suite is disabled for TLS connection.

### IVA Enhancements

- Object classification of object types "upright person", "bike", "car", "truck" replaces head detection.
- Geolocation allows setting a camera's global coordinates. The position of the tracked objects in the respective coordinate system is added to metadata. Camera viewers can show the tracked objects on a map.
- Usability improvements allow for easier calibration and easier drawing of elements and masks.
- MOTION+ configuration has been reworked. Eight MOTION+ alarm fields with up to 16 nodes can now be set. Areas can be removed from processing via VCA masks, which will then suppress metadata generation in these areas.

Note: For details and complete overview refer to release notes of IVA 6.10.



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**ONVIF Enhancements**

- IVA events can be received via ONVIF messages.
- Overlay metadata can be received in ONVIF XML format.
- AUX commands can be sent via ONVIF messages.
- Special functions like IR Correction, Visible White Light and Anti-Fog for MIC 7000 can be sent via ONVIF messages.
- Intelligent Tracking for AUTODOME and MIC can be enabled via ONVIF messages.
- Conformance was tested using recent ONVIF test tool 14.12.

**Miscellaneous**

- Missing time zones added for Caracas, Newfoundland, Kathmandu, Yangon, Samoa and Kiribati Island.
- 3<sup>rd</sup> party protocol support can be enabled via special license, showing specific menu when license is installed.
- Internal storage can be disabled and hidden via special license for certain LATAM countries. This license can only be cleared via technical service and support.
- An additional area in the flash memory, holding a file system to store specific files or data, has been implemented. This area can hold such like the enhanced Chinese character table or the FPGA image for IVA cameras running in 5:4 setup, certificates or configuration data. With FW 6.10 necessary files can be installed by uploading a supplementary firmware file. For successive firmware versions the sections will be recombined.
- Besides normal POE+ power signalling, with a special license installed the available power can be signalled proprietarily. Signalled power can be configured manually when license is installed.
- A customer logo up to 128x128 pixels with a depth of 256 colors can be uploaded as BMP file to be displayed in the camera name block. Options for placement are left, right or logo only.

**6.13 Changes with 6.10.0129**

- IPv6 operational improvements, e.g. netmask extended to 64 bit.
- Reference image is deleted when device is set to factory default.
- Improved robustness of encoding DSP.
- Fix for JPEG resolution handling on AUTODOME IP 7000.
- Fix for recording status while pre-alarm recording in RAM.