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Product Management

Nuremberg

23.09.2021

Release Letter

Products:	<i>H.264/H.265 Firmware for CPP13 INTEOX moving cameras</i>
Version:	<i>8.12.0005</i>

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

1 General

This firmware release is a release based on FW 8.12.0005.

INTEOX cameras are based on our **open Common Product Platform 13 (CPP13)**. It combines the strengths of our Bosch firmware with the openness of the Security and Safety Things ecosystem.

This release considers the sub-classification of the platform CPP13 into moving cameras and fixed cameras, aiming to provide a solution designed to meet the needs and capabilities of each camera model, enhancing applications and adjusting the camera control experience according to the technical specifications of the hardware:

- **INTEOX moving cameras:**
 - **AUTODOME inteox 7000i ;**
 - **MIC inteox 7100i - 2MP;**
 - **MIC inteox 7100i – 8MP.**
- INTEOX fixed cameras:
 - FLEXIDOME inteox 7100i IR ;
 - DINION inteox 7100i IR.

This release letter refers to the INTEOX moving cameras, for information about the INTEOX fixed cameras, please access the “***Bosch Releaseletter CPP13 FW 8.12.0005 fixed cameras***” version 8.12.0005, available on <https://downloadstore.boschsecurity.com/index.php>.

Changes since last release are marked in **blue**.

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2 Applicable products:

- AUTODOME inteox 7000i
- MIC inteox 7100i - 2MP
- MIC inteox 7100i – 8MP

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3 Important notes:

3.1 *Two-factor authenticated firmware signature*

The security of the signature of the firmware file has been strengthened by using a two-factor authentication process for signing the final released firmware file.

The new signature protects from non-released versions being installed in production systems. As a result, pre-release (beta) versions, required sometimes in projects, need to have a special license installed prior to the firmware update. Requests for pre-release versions need to be handled via tech support tickets in order to allow tracking and require a concession signed by the customer.

3.2 *“Originally manufactured” certificate*

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 the Bosch certificate authority (CA).

Enrollment of the certificates in production is asynchronous to this firmware release.

3.3 *Secure Element (TPM)*

All CPP13 devices incorporate a new secure microcontroller, which we call our Secure Element.

“A Secure Element is a tamper-resistant platform capable of securely hosting applications and their confidential and cryptographic data (for example cryptographic keys) in accordance with the rules and security requirements set by well-identified trusted authorities.¹

In this specific case the requirements are defined in the Trusted Platform Module library specification defined by the Trusted Computing Group (TCG). As the Secure Element supports the main functionalities specified by TCG, the ones needed for an IoT device, it is often referred to as a “TPM”. Due to security reasons, the firmware or functionality of the secure crypto-microcontroller cannot be altered in the field.

Thus, not all new security features become available on devices with older secure crypto-microcontroller hardware or firmware revisions.

3.4 *Open Source Software*

Bosch Security Systems is an advocate of integrating open source software into its products. The use of open source software is noted in the *Service* menu on the *System Overview* page of every camera's web interface. For general information regarding open source software in Bosch Security Systems products, please visit <http://www.boschsecurity.com/oss>.²

¹ <https://globalplatform.org/wp-content/uploads/2018/05/Introduction-to-Secure-Element-15May2018.pdf>, page 1.

² Examples: This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (<http://www.openssl.org/>). This product includes cryptographic software written by Eric Young (eay@cryptsoft.com). This software is based in part on the work of the Independent JPEG Group.

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4 Changes

This release adds the tools and features which allow us to offer in the next INTEOX firmware releases three options of firmware files. This alternative will give the user the freedom to choose between uploading the file according to the product type, or opting for the combined version that covers the entire INTEOX platform.

From the next release there will be three options of INTEOX firmware file:

- A file exclusive for fixed cameras.
- A file exclusive for moving cameras.
- A combined file valid for both fixed and moving cameras.

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5 System Requirements

For configuration purposes:

- Bosch Project Assistant 2.0.1 or higher
- Bosch Configuration Manager 7.42 or higher
- Web Browsers:
 - Google Chrome
 - Microsoft Edge (chromium based)
 - Mozilla Firefox

For operation purposes:

- Bosch Video Security app 3.2.1 or higher
- Bosch Video Security Client 3.2.2 or higher
- Bosch Video Management System 10.0.1 or higher
- Bosch Video Management System Viewer 10.0.1 or higher

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6 Restrictions; Known Issues

Video Content Analysis (VCA)

- Accuracy of dynamic privacy masking of VCA shapes relies on the scene-specific performance of Intelligent Video Analytics.
- Steering direction issue for displayed field of Global VCA in inverted mode of PTZ cameras.
- Auto-Tracking will follow in a subsequent release.

3rd party apps

- User management for the *local app management console* is currently distinct from the Bosch Camera Interface, default and only user is “admin”.
- For app deployment in offline, LAN scenarios it is possible to use the S&ST Device Management Tool as an alternative to Configuration Manager.
- Stream/encoder settings as well as permanent metadata display has no effect on the video stream processed by 3rd party apps – only privacy masks apply to 3rd party apps
- 3rd party app ONVIF events can be sent to clients, ONVIF metadata will follow in a later release.
- Part of the dedicated hardware for accelerated neural-network-based Video Analytics is reserved to Bosch in this first firmware release. It will be made available in a subsequent release allowing for even better performance for specific apps from the Security & Safety Things Application Store which make use the neural-network accelerator.
- Traffic detection provided by IVA and AI detectors can be affected when the camera simultaneously operates its maximum resolution and 3rd party apps.

Encoding

- Encoder region configuration settings will be added in a later release.
- 4CIF aspect ratio will be supported in a later release.

Recording

- Long-term rate control and low bitrate feature have been excluded from this release.
- Possibility that in certain cases non-recording profiles are not correctly displayed.
- Small deviations between the selected frame rate and the fps provided by the camera may be noticed during recording.

DIVAR hybrid / network

- DIVAR hybrid/network is not compatible to the new encoder concept of the cameras.

Miscellaneous

- Basic VMS integration at the start, full integration in progress with VMS partners.
- Dashboard – *Device status* can indicate active streams without an actual live connection.
- ONVIF export to FTP server can get stuck.
- Software Seal can be broken after reboot.
- IPv6 is not fully supported.

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- After changing IP address to a fixed IP via DHCP, the syslog may continue to output the DHCP address as identifier. To fix it a reboot must be performed.
- NTP server cannot be set via DHCP.
- No user feedback during upload of configuration files via camera web interface.
- “Double-tap” feature for inverted mode moves in opposite direction.
- Updating a configured traffic detector from FW 7.75 to FW 8.10 is not possible. The traffic detector needs to be configured newly.
- Setting a MTU-size lower than the standard may affect the network functionality of the camera.

Note: Some of the above-mentioned issues are deviations from the datasheet.

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7 Previous Releases

7.1 New Features with 8.10.0075

This release introduces:

- the support for the new **Bosch Security and Safety Systems AI detectors**, and its functionalities.
- the option for a crosshair on the live page. This feature can be configured via “Special Functions” on the Web-UI.
- features associated with traffic detection have been implemented in the new version of the *Intelligent Video Analytics (IVA)*, as part of the support for the new AI detectors. To have access to the details of these changes please refer to the IVA 8.10 release letter.

7.2 Changes with 8.10.0075

- The license ID for 3rd party apps is now displayed on Remote Portal.
- The alarm stamping size is now configurable.
- An alternative to factory reset through the Web interface has been developed, eliminating the need to perform the reset by means of the physical boot of the device.
- China standard GB/T 28181 has been put under a global license. When GB/T 28181 shall not be available it can be disabled with a global license key. This is irreversible for customers and can only be reversed via service and repair. The license also prohibits downgrading to earlier versions which provided GB/T 28181 as standard feature.

License key to disable GB/T 28181 is:

22-01.47.01-BF365391-21ABCB3D-28699CE4-3BD3AB09-FE25CD61

7.3 Changes with 7.75.0008

During a penetration test, Kaspersky Lab, who was contracted by Bosch for IP camera security maturity certification, detected some vulnerabilities which required immediate actions to ensure the security of installations using our cameras.

For more details refer to our Security Advisory BOSCH-SA-478243-BT, published at our Security Advisory web page

<https://www.boschsecurity.com/xc/en/support/product-security/security-advisories.html>
or visit our PSIRT website at <https://psirt.bosch.com>.

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- An issue with reflected XSS in URL handler is fixed (CVE-2021-23848).
- An issue with denial of service due to invalid web parameter is fixed (CVE-2021-23852).
- An issue with improper input validation of HTTP header is fixed (CVE-2021-23853).
- An issue with reflected XSS in page parameter is fixed (CVE-2021-23854).

7.4 Changes with 7.75.0006

- Fixed a few bugs and first and foremost further enhanced computational acceleration of analytics workloads for even better AI performance.
- Added enhanced vehicle detector functionality available with “-OC” (Object Classification) CTN cameras. The AI-based vehicle detector identifies vehicles with more accuracy than the core IVA. Even in dense traffic, the AI-based vehicle detector reliably separates vehicles for accurate counting results.

7.5 New Features with 7.70.00098 – very first release for INTEOX cameras

Note: This section uses the feature set of FW 7.61 for CPP7.3 as a baseline.

Camera functionality customization via secure execution of 3rd party apps from trusted sources

- Sandboxed environment protects Bosch firmware functionality from malfunctioning apps
- Trusted apps can be found at the [Security & Safety Things App Store](#)
- Integration into Security & Safety Things ecosystem via [Bosch Remote Portal](#) (cloud-connected app deployment) or via Configuration Manager 7.20 and above (app deployment in local network)

Security

- Support for next generation Secure Element microcontroller (“TPM”)
 - Secure storage of cryptographic keys (supporting up to 4096 bit RSA keys)
 - Future-proof until 2031 and beyond³
 - High risk target protection-grade, certified with Assurance Level (EAL) 6+⁴
 - Please also refer to section 3.3. in this document

³ According to [NIST Special Publication 800-57](#), part 1, p. 56

⁴ Based on Common Criteria for Information Technology Security Evaluation out of 7 levels according to ISO/IEC 15408



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- Remote Device Management (p.14) via Bosch Remote Portal supported as well (feel free to check out this webinar)

Streaming

- More flexibility
 - Full triple streaming with stream prioritization
 - Selectable H.264/H.265 coding standard per stream
 - 8 independent Encoder profiles per stream
- Frame and bit rate test functionality to analyse stream performance and bitrates

Video Content Analysis (VCA)

- Support of Artificial Intelligence based analytics for Bosch Intelligent Video Analytics and 3rd party apps
 - Better detection performance
 - Detection of moving and still objects
 - No need for calibration for use cases where object size and speed do not matter
- Permanent metadata display *per stream* for visualization of metadata and object trajectories, for easy and quick integration into VMS systems and recordings
- Dynamic privacy masking of VCA shapes per stream

On-screen Display

- Custom size fonts [1-1000] for On Screen Display text for better readable OSD on big monitors
- Increased embedded Logo resolution (1024x1024) and color depth (16M) on video streams
- Mosaic Privacy Masks to still see movement behind a mask