



From

BT-VS/MKP

Product Management

Nuremberg

08.06.2021

## Release Letter

|           |   |
|-----------|---|
| Products: | <b><i>H.264/H.265 Firmware for<br/>CPP13 INTEOX cameras</i></b> |
| Version:  | <b><i>7.75.0008</i></b>   |

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

### 1 General

This firmware release is a security release based on FW 7.75.0006.

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

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 Escript LRA. These certificates prove that every device is an original Bosch-manufactured and untampered unit.

Escript 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.”<sup>1</sup> 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> .

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



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## 4 Changes

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>.

- 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).

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## 5 System Requirements

- Configuration Manager 7.30 or newer
- Web Browsers:
  - Mozilla Firefox
  - Microsoft Internet Explorer 11 or higher (only for Bosch FW functionality, not for local app management)



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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

### 3<sup>rd</sup> party apps

- User management for the *local app management console* is currently distinct from the Bosch Camera Interface, default and only user is “admin” (this will be integrated in a later release)
- Losing access (credentials) to the *local app management console* and exiting the *app developer mode* can only be restored by resetting the camera to factory default via the respective physical button on the device (an easier solution is being worked on already)
- For app deployment in offline, LAN scenarios it is possible to use the S&ST Device Management Tool as an alternative to Configuration Manager
- Contrary to purchased *life-time* licenses, *trial* licenses for apps cannot be returned to the license pool or transferred to another device
- Configuration Manager 7.20 supports app installation and license upload, Configuration Manager 7.30 adds license revocation and license transfer to other devices
- Stream/encoder settings as well as permanent metadata display has no effect on the video stream processed by 3<sup>rd</sup> party apps – only privacy masks apply to 3<sup>rd</sup> party apps
- 3<sup>rd</sup> party app ONVIF events can be sent to clients, ONVIF metadata will follow in a later release
- App license type not displayed in Remote Portal
- 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.

### Encoding

- JPEG coding on stream 3 frame rate currently does not react to frame rate reduction
- Encoder region configuration settings will be added in a later release
- There can be issues with bitrates being displayed in the frame and bitrate test dialog
- 4:3 aspect ratio will be supported in a later release

### Recording

- Long-term rate control and low bitrate feature have been excluded from this release
- Automatic Network Replenishment may cause recording issues
- Possibility that in certain cases non-recording profiles are not correctly displayed

### DIVAR hybrid / network

- Compatibility with new encoder concept targeted for early 2021



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### Miscellaneous

- Basic VMS integration at the start, full integration in progress with VMS partners
- Configuration files do not include passwords anymore as these are meanwhile encrypted per device for enhanced security
- Dashboard – *Device status* can indicate active streams without an actual live connection
- Some debugging features are yet to come back
- ONVIF export to FTP server can get stuck
- Getting file list via SFTP faces issues
- Software Seal can be broken after reboot
- Ipv6-related issues
- There can be time server issues in DHCP mode
- Alarm stamping size not yet configurable
- Loading configuration files
  - Faces gaps in Remote Portal
  - No user feedback during upload via camera web interface
- Reference image check still needs some tuning
- “Double-tap” feature for inverted mode moves in opposite direction

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



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## 7 Previous Releases

### 7.1 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.

### 7.2 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 3<sup>rd</sup> 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 beyond<sup>2</sup>
  - High risk target protection-grade, certified with Assurance Level (EAL) 6+<sup>3</sup>
  - Please also refer to section 3.3. in this document
- [Remote Device Management](#) (p.14) via [Bosch Remote Portal](#) supported as well (feel free to check out this [webinar](#))

<sup>2</sup> According to [NIST Special Publication 800-57](#), part 1, p. 56

<sup>3</sup> Based on Common Criteria for Information Technology Security Evaluation out of 7 levels according to ISO/IEC 15408





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### **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