Security Systems

BOSCH

From		Nuremberg
ST-VS/MKP1	Product Management	18.12.2017

Release Letter

Products:	**_Combined Firmware for_** **_CPP7.3 UHD/HD/MP cameras_** **_CPP7 HD/MP cameras_** **_CPP6 UHD/MP cameras_** **_CPP5 encoders_** **_CPP4 HD cameras_** **_CPP3 cameras and encoders_** **_CPP-ENC H.264 encoders_**
Version:	**_6.42_**_.1215_

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

1   General

This firmware release is a combined firmware package, applicable to H.264 and H.265 products based on one of the following platforms.

Changes since last release are marked in blue.

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This firmware supports:
- CPP7.3 HD and UHD cameras
  - update from FW 6.40 or newer to latest FW 6.42
- CPP7 UHD cameras
  - update from FW 6.30 or newer to latest FW 6.42
- CPP6 UHD cameras
  - update from FW 6.10 or newer to latest FW 6.42
- CPP5 encoders
  - update from FW 5.91 or newer to FW 6.30
- CPP4 HD cameras
  - update from FW < 6.10 to intermediate FW 6.11
  - update from FW 6.10 or newer to latest FW 6.42
- CPP3 cameras and encoders
  - update from FW 4.54.0026 or newer to latest FW 5.74
- CPP-ENC
  - VIP-X1600-XFM4 encoders: update from FW 4.2x or newer to latest FW 5.53
  - VJT XF and VJD-3000 update to latest FW 5.97

The combined firmware package includes the following build versions:
- CPP7.3 FW 6.42.0021
- CPP7 H.264 6.42.0021
- CPP6 H.264 6.42.0021
- CPP5 H.264 6.30.0047
- CPP4 H.264 6.42.0021
- CPP4 H.264 6.11.0021
- CPP3 H.264 5.74.0004
- CPP-ENC H.264 5.97.0005 for VJT XF family, VJD-3000 and VJC-7000
- CPP-ENC H.264 5.53.0004 for VIP X1600 XFM4

For detailed description please refer to the separate release letters.

Note:
Due to an internal file system being introduced to CPP4 and CPP6 since firmware 6.10 and architectural changes thereof, a direct upgrade from firmware below version 6.10 to latest firmware is only possible via intermediate firmware 6.1x.
CPP4 cameras with firmware versions below 6.10 need to upload this package twice.

Note:
To upgrade to a newer firmware version using this combined firmware package, firmware versions before 5.5x require an intermediate update cycle using the respective platform firmware version mentioned above.

Note:
This combined firmware cannot be applied to CPP5 products with firmware version older than 5.91. It is required to upgrade to intermediate firmware 5.91 first.

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2   Applicable products:

CPP7.3
- o   AUTODOME IP 4000i
- o   AUTODOME IP 5000i
- o   AUTODOME IP starlight 7000i
- o   DINION IP bullet 4000i
- o   DINION IP bullet 5000i
- o   DINION IP bullet 6000i
- o   FLEXIDOME IP 4000i
- o   FLEXIDOME IP 5000i
- o   FLEXIDOME IP starlight 8000i HD
- o   FLEXIDOME IP starlight 8000i 6MP
- o   FLEXIDOME IP ultra 8000i MP UHD
- o   MIC IP starlight 7000i
- o   MIC IP fusion 9000i

CPP7
- o   DINION IP starlight 6000
- o   DINION IP starlight 7000
- o   FLEXIDOME IP starlight 6000
- o   FLEXIDOME IP starlight 7000
- o   DINION IP thermal 8000

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CPP6
- o DINION IP starlight 8000 12MP
- o DINION IP ultra 8000 12MP
- o DINION IP ultra 8000 12MP with C/CS mount telephoto lens
- o FLEXIDOME IP panoramic 7000 12MP 180
- o FLEXIDOME IP panoramic 7000 12MP 360
- o FLEXIDOME IP panoramic 7000 12MP 180 IVA
- o FLEXIDOME IP panoramic 7000 12MP 360 IVA
- o FLEXIDOME IP panoramic 6000 12MP 180
- o FLEXIDOME IP panoramic 6000 12MP 360
- o FLEXIDOME IP panoramic 6000 12MP 180 IVA
- o FLEXIDOME IP panoramic 6000 12MP 360 IVA

CPP5
- o VIDEOJET multi 4000
- o VIP-X16XF-E

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CPP4 (formerly IPBE4)

- AUTODOME IP 4000 HD
- AUTODOME IP 5000 HD
- AUTODOME IP 5000 IR
- AUTODOME 7000 series
- DINION HD 1080p
- DINION HD 1080p HDR
- DINION HD 720p
- DINION imager 9000 HD
- DINION IP bullet 4000
- DINION IP bullet 5000
- DINION IP 4000 HD
- DINION IP 5000 HD
- DINION IP 5000 MP
- DINION IP starlight 7000 HD
- EXTEGRA IP dynamic 9000
- EXTEGRA IP starlight 9000
- FLEXIDOME corner 9000 MP
- FLEXIDOME HD 1080p
- FLEXIDOME HD 1080p HDR
- FLEXIDOME HD 720p
- Vandal-proof FLEXIDOME HD 1080p
- Vandal-proof FLEXIDOME HD 1080p HDR
- Vandal-proof FLEXIDOME HD 720p
- FLEXIDOME IP panoramic 5000
- FLEXIDOME IP indoor 5000 HD
- FLEXIDOME IP indoor 5000 MP
- FLEXIDOME IP indoor 4000 HD
- FLEXIDOME IP indoor 4000 IR
- FLEXIDOME IP outdoor 4000 HD
- FLEXIDOME IP outdoor 4000 IR
- FLEXIDOME IP micro 5000 HD
- FLEXIDOME IP micro 5000 MP
- FLEXIDOME IP outdoor 5000 HD
- FLEXIDOME IP outdoor 5000 MP
- FLEXIDOME IP micro 2000 HD
- FLEXIDOME IP micro 2000 IP
- IP bullet 4000 HD
- IP bullet 5000 HD
- IP micro 2000
- IP micro 2000 HD
- MIC IP dynamic 7000
- MIC IP starlight 7000
- TINYON IP 2000 family
- MIC IP dynamic 7000
- MIC IP starlight 7000
- TINYON IP 2000 family

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CPP3 (formerly IPBE3)
- o AUTODOME Easy II IP series
- o AUTODOME Junior HD, Jr HD fix
- o AUTODOME 700 IP IVA
- o AUTODOME 800
- o AUTODOME Junior 800
- o VG4 AUTODOME IP series
- o VG5 AUTODOME IP series
- o DINION XF 720p+, NBN-921-P
- o DINION XF, NBC-455-P
- o DINION 2X, NBN-498-P
- o FLEXIDOME XF 720p+, NDN-921-P
- o FLEXIDOME XF, NDC-455-P
- o FLEXIDOME 2X, NDN-498-P
- o Economy Box Cameras, NBC-225 series, NBC-255 series, NTC-255-PI
- o Economy Dome Cameras, NDC-225 series, NDC-255 series
- o Economy HD Box Cameras, NBC-265 series, NTC-265-PI
- o Economy HD Dome Cameras, NDC-265 series, NDN-265-PIO
- o Extreme series EX30 IR, NEI-30 IR Imager
- o Far Infra-Red camera, VOT-320
- o VIP X1 XF Single-Channel H.264 Encoder
- o ~~WLAN cameras NBC-255-W and NBC-265-W~~
- o Economic version VIP-X1XF-E
- o Video Conference Dome IVA
- o REG 1.5 IP and REG L2
- o MIC IP PSU

CPP-ENC (formerly VIPX H.264)
- o VIP-X1600-XFM4
- o VJT-X20/X40XF-E
- o VJT-XTCXF
- o VIDEOJET decoder 3000, VJD-3000
- o VIDEOJET connect 7000, VJC-7000

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3 New Features for CPP7.3 products

Encoding

- Support of H.265 compression
  A camera can be configured to use either H.265 or H.264. As H.265 requires more CPU performance, there might be limitations to maximum frame rate under certain conditions.

  Note:
  H.265 requires approx. 4 times the performance for decoding compared to H.264.
  Installed workstations, decoders and software might lack the performance to fluently decode H.265 streams.

4 New Features for CPP7.3, CPP7, CPP6 and CPP4 products

Intelligent Streaming

- Intelligent Streaming is a combination of features and functions to optimize bitrate consumption of recorded video. It benefits from improved noise reduction in still areas of the image, an average noise level communicated to the encoder, larger GOP size, strong use of prediction in case of B slices, and dynamic tuning of quantization parameters (QP) in the encoder.

- The strength of the bitrate optimization can be set via 5 levels. Savings can be up to 90% using H.265 compression but are strongly scene-dependent.

Imaging

- Support of 120 dB high dynamic range for 5000 camera series has been added.

- Improved noise filtering in still scenes.

VCA

For details on VCA 6.40 please refer to the separate release notes of Essential Video Analytics or Intelligent Video Analytics.

ONVIF

- ONVIF manual iris and focus controls added.

- Feature coverage of the ONVIF metadata stream has been extended to include e.g. object classes, object shape polygons, faces, flame and smoke detection info.

- Profile G support

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Security

- Password enforcement
    - o New cameras with this firmware installed will only become operable after the password for the administration level (user "service") has been assigned.
    - o Other users "user" and "live" will only become accessible after the administrator assigned passwords to them.
    - o Cameras which are updated to this firmware from a version lower than 6.40 will not change their behaviour and remain at their former protection level unless reset to factory defaults.
- Stronger user name and password policy is enforced. The following rules apply:
    - o User names must be at least five (5) characters long.
    - o User name and password must not be identical.
    - o A password must consist of minimum eight (8) characters.
    - o A password must contain both upper-case and lower-case letters.
    - o A password must include one or more numerical digits.
    - o A password must include at least one of these special characters:
      ! ? " # $ % ( ) { } [ ] * + - = . , ; ^ _ | ~ \
      Other special characters (like space @ : < > ' & etc.) are not supported.
- Signed firmware file enforcement
  Only Bosch-signed firmware will be accepted by the camera without compromises.
- Data encryption on iSCSI storages
    - o The payload on an iSCSI drive is encrypted using a symmetric XTS encryption scheme (block encryption).
    - o The camera uses a number of public keys to asymmetrically encrypt the XTS key for multiple receivers. These public keys are maintained in the certificate store via certificates. Usage can be defined as for „recording1" and/or „recording2".
    - o Payload encryption is possible on SD cards as well as on external iSCSI storage.
    - o A client that shall be allowed to replay this footage must have its cert/key registered and activated.
    - o The Video Recording Manager (VRM) may also be a receiver to decrypt the payload data for replay.
- SRTP payload encryption for live and replay
  SRTP provides payload encryption of UDP streams via TLS, similar to what HTTPS does by using TLS for TCP streams. Also encrypted multicast connections are possible.
- SNMPv3 support
    - o New alternative SNMP support provides encryption and authentication. This new service will provide pure MIB-II access.
    - o Legacy functions, like NTCIP support or mapping of dedicated RCP commands to SNMP Enterprise MIB nodes, are only provided with existing SNMPv1 implementation.
- Certificate revocation list (CRL) support

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- To improve usability and provide a more compact overview, the web user interface for the certificate store has been updated. It now allows direct tagging of certificates for usages. The former split into two areas (Files and Usage) is removed.
- Stronger encryption and password protection for configuration file
  - The configuration file is encrypted and password-protected before download.
  - The user as the owner of this configuration file is prompted for the password.
  - The password is required when the configuration file is uploaded to a camera.
  - The configuration file is encrypted using standard mechanisms but not intended to be opened or modified by the user, thus the encryption key itself is kept internal and not exposed.
- Stronger encryption for maintenance log file
The maintenance log file as being used in tech support cases is encrypted with a Bosch public key. Only tech support staff is authorized to decrypt and open the file.
- The minimum TLS version can be defined, e.g. to avoid vulnerabilities from TLS 1.0 and 1.1.
- The Telnet console has been completely removed and is substituted by a new logging facility providing:
  - A more structured output including timestamp, severity and module sources
  - Search and filtering for specific events via web user interface
  - Direct output to a syslog server
  - Configuration to produce similar "debug" printouts for tech support as previously
- Consolidation of running services, visualized on new page "Network Services".
Only those services (HTTP, HTTPS, RTSP, RCP, iSCSI, NTP, discovery, ONVIF discovery) are running which are required for activated functionality. All other services (FTP, SNMP, UPnP, GB/T 28181) and their respective ports are deactivated.
- The password unlock functionality (support recovery option) can be disabled.
- CHAVE cameras
  - Multiple trusted issuers are now allowed for client certificate authentication.
  - An option to not wipe the SXI certificate when a factory default is issued has been added.
- Installation Code has been enhanced with a block for crypto-coprocessor version indicators. The Installation Code thus has a length of 48 digits instead of only 44 digits.
- Multicast discovery port is now configurable via browser interface.

Please check the release letters of CPP7.3, CPP7, CPP6 and CPP4 FW 6.42.0021 for completeness and details.

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5 Changes for CPP7.3, CPP7, CPP6 and CPP4 products

- The base frame rate default for DINION IP bullet 6000i has been changed to 60 fps.
- An issue where sporadically no video was shown after power cycle has been fixed.
- An issue where Automatic Network Replenishment ANR failed when SD card is broken has been fixed.
- Improved behavioural response on denial of service attacks.
- Various ONVIF communication issues have been fixed.
- Various smaller issues have been fixed.

Please check the release letters of CPP7.3, CPP7, CPP6 and CPP4 FW 6.42.0021 for completeness and details.

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6 Restrictions; Known Issues

- This firmware and its included platform firmware builds are not applicable to MPEG-4 products.

- The final firmware version for VIP-X1600-XFM4 modules is FW 5.53.
  No newer firmware will be provided for these modules.

- Configuration Manager cannot upload this Combined Firmware file to VIP-X1600-XFM4 modules. Use the module's web page instead for uploading; or use the separate firmware file.

- The final firmware version for CPP3 devices is FW 5.74.
  No newer firmware will be provided for these products.

- The Combined Firmware file does not load onto VG4 AutoDome or AutoDome Easy II via the browser when running a firmware version before 5.52.0017. The specific platform file should be used instead.

- Cameras or encoders with a minimum firmware version that is higher than the lowest firmware version in the combined firmware file may show error 0x0b in the upload history which can be ignored. Firmware upload is not affected by this.

- CPP4 cameras with firmware versions below 6.10 need to upload this package twice to receive the latest firmware version.

- CPP6 cameras with firmware versions below 6.10 need to upload the separate firmware version 6.1x first to receive the latest firmware version.

- With products running firmware 6.32 below built 111, 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.

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

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7 System Requirements

Possible clients for configuration purposes:

- Configuration Manager 5.51 or newer
- Web Browsers:
    - o Microsoft Internet Explorer 11.0 or higher
    - o Mozilla Firefox

Possible clients for operation purposes:

- Bosch Video Security iPad App 1.2
- Web Browsers:
    - o Microsoft Internet Explorer 11.0 or higher
    - o Mozilla Firefox
    - BVC 1.7 or newer

- ~~Oracle Java Virtual Machine 1.6.0_35~~
- DirectX 9.0c
- MPEG-ActiveX 6.12 or newer