From			Nuremberg
ST-VS/MKP1	Product Management		20.06.2018

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:	***6.50****.0620*

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 6.50
- CPP7 UHD cameras
  - update from FW 6.30 or newer to latest FW 6.50
- CPP6 UHD cameras
  - update from FW 6.10 or newer to latest FW 6.50
- CPP5 encoders
  - update from FW 5.91 or newer to latest 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 6.50
- 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 6.50.0128
- CPP7 H.264 6.50.0128
- CPP6 H.264 6.50.0128
- CPP5 H.264 6.30.0059
- CPP4 H.264 6.50.0128
- CPP4 H.264 6.11.0021
- CPP3 H.264 5.74.0010
- 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

- AUTODOME IP 4000i
- AUTODOME IP 5000i
- AUTODOME IP starlight 7000i
- DINION IP bullet 4000i
- DINION IP bullet 5000i
- DINION IP bullet 6000i
- FLEXIDOME IP 4000i
- FLEXIDOME IP 5000i
- MIC IP starlight 7000i
- MIC IP fusion 9000i

CPP7

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

CPP6

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

CPP5

- VIDEOJET multi 4000
- VIP-X16XF-E

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

CPP3 (formerly IPBE3)

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

CPP-ENC (formerly VIPX H.264)

- VIP-X1600-XFM4
- VJT-X20/X40XF-E
- VJT-XTCXF
- VIDEOJET decoder 3000, VJD-3000
- VIDEOJET connect 7000, VJC-7000

3 New Features for CPP7.3 products

- **Improved image performance for the following cameras:**
  - DINION IP 4000i IR
  - DINION IP 5000i IR
  - DINION IP starlight 6000i IR
  - FLEXIDOME IP 4000i
  - FLEXIDOME IP 5000i
  - AUTODOME IP 4000i
  - AUTODOME IP 5000i
- **Image pre-processing enhancements on DINION IP starlight 6000i IR:**
  - A user slider to tune the maximum gain allowance is added
  - A user slider to tune the day to night switch-point is added
  - A new scene mode is now available for optimized License Plate Recognition (LPR)
- **Intelligent Streaming enhancements**
  - Statistics pages have been added for live and recording streams. These provide guidance for optimally adjust bitrate and quality settings, and make judgement on averaging easier in order to optimize storage consumption.
  - Intelligent Streaming configuration parameters in encoder profiles are now grouped.
  - Encoder quality regions are now also supported on CPP7.3 platform.
- **Highly reliable SD card recording with life cycle monitoring**

  Industrial SD cards which provide wear level data can be monitored for their health and expected lifetime, providing much more reliable SD card recording.
  Three vendors have been tested and qualified:
  - Sony
  - SanDisk
  - Micron

  Due to the high dynamic in the SD card market, no direct reference to the models is given. Latest Industrial SD cards from all three vendors support this feature.
- **ONVIF Profile T is now supported**
- H.265 B frames support can be selected in Installer menu to allow for lower bitrates at certain resolutions.
- Digital zoom is now support on thermal image of MIC IP fusion 9000i
- Thermal module flat-field correction (FFC) on MIC IP fusion 9000i can be set to ‘auto modus’.
- Intelligent Tracking can be triggered by point-and-click feature in web interface.
- Manual iris control for AUTODOME 4000i/5000i has been added.
- Current gain value is visualized in video preview window.
- The ID out of the best face detection is attached to the JPEG filename when posted via FTP and also added to the metadata stream to allow searching.

- SNI support has been added to improve load-balancing for cloud-based solutions.

Security features

- **Software Sealing**
  The camera configuration can be ‘sealed’ once it should not be changed anymore. Any change of the sealing status and any change to static configuration, accidentally or intentional, will break the seal, creating an alarm message that can be used by the video management system to launch an appropriate alarm scenario.
  All modifications affecting the sealing status are logged separately.
- Firmware files are now encrypted.
- Files received via HTTP upload are checked for correct size.
- "Secure renegotiation" is signalled in TLS.
- In case of certificate user authentication, the clock base is re-adjusted, e.g. after battery loss.

3.1 Changes

- After updating to firmware version 6.50, users will be able to take advantage from boosted performance and enhanced image quality on all CPP7.3 (4000i, 5000i, 6000i) based cameras:
  - Overall improved contrast and sharpness (reduced haziness)
  - Improved visibility in scenes with highlights and dark areas
  - Improved facial detail visibility in scenes with strong backlight
  - Maintain more color in dark scenes
  - Stronger sharpening when it is getting darker by directional sharpening
  - The default shutter function in the ALC menu is now also available in HDR mode
- Specifically for the AUTODOME IP 5000i two additional improvements are available:
  - Better preserved highlights in dark scenes
  - Improved depth of field by introducing zoom-dependent iris control
- Missing SD resolutions have been added to stream 1 options.

Note:

Due to improved image tuning in this firmware version, the behavior of various image enhancement sliders can be different than in older FW releases.
Therefore it is recommended to perform a “Restore Mode Defaults” after the firmware update is finished in order to get the best performance.
This button can be found under: Configuration -> Camera -> Scene Mode.
This can be done for each scene mode individually. If you want to reset all scene modes, then it is recommended to perform a factory default.

Please check the release letter of CPP7.3 FW 6.50.0128 for completeness and details.

4 New Features for CPP7 products

- **Image pre-processing enhancements on DINION IP starlight 6000/7000 and FLEXIDOME IP starlight 6000/7000**
  - A user slider to tune the maximum gain allowance is added
  - A user slider to tune the day to night switch-point is added
  - A new scene mode is now available for optimized License Plate Recognition (LPR)
- **Intelligent Streaming enhancements**
  - Statistics pages have been added for live and recording streams. These provide guidance for optimally adjust bitrate and quality settings, and make judgement on averaging easier in order to optimize storage consumption.
  - Intelligent Streaming configuration parameters in encoder profiles are now grouped.
- **Highly reliable SD card recording with life cycle monitoring**

  Industrial SD cards which provide wear level data can be monitored for their health and expected lifetime, providing much more reliable SD card recording.
  Three vendors have been tested and qualified:
  - Sony
  - SanDisk
  - Micron

  Due to the high dynamic in the SD card market, no direct reference to the models is given. Latest Industrial SD cards from all three vendors support this feature.
- **ONVIF Profile T is now supported**
- Current gain value is visualized in video preview window.
- The ID out of the best face detection is attached to the JPEG filename when posted via FTP and also added to the metadata stream to allow searching.
- SNI support has been added to improve load-balancing for cloud-based solutions.

Security features

- **Software Sealing**

  The camera configuration can be ‘sealed’ once it should not be changed anymore. Any change of the sealing status and any change to static configuration, accidentally or intentional, will break the seal, creating an alarm message that can be used by the video management system to launch an appropriate alarm scenario.
  All modifications affecting the sealing status are logged separately.
- Firmware files are now encrypted.
- Files received via HTTP upload are checked for correct size.
- "Secure renegotiation" is signalled in TLS.
- In case of certificate user authentication, the clock base is re-adjusted, e.g. after battery loss.

Please check the release letter of CPP7 FW 6.50.0128 for completeness and details.

5 New Features for CPP6 products

- **Intelligent Streaming enhancements**
  - Statistics pages have been added for live and recording streams. These provide guidance for optimally adjust bitrate and quality settings, and make judgement on averaging easier in order to optimize storage consumption.
  - Intelligent Streaming configuration parameters in encoder profiles are now grouped.
- **Highly reliable SD card recording with life cycle monitoring**

  Industrial SD cards which provide wear level data can be monitored for their health and expected lifetime, providing much more reliable SD card recording.
  Three vendors have been tested and qualified:
  - Sony
  - SanDisk
  - Micron

  Due to the high dynamic in the SD card market, no direct reference to the models is given. Latest Industrial SD cards from all three vendors support this feature.
- **ONVIF Profile T is now supported**
- Current gain value is visualized in video preview window.
- The ID out of the best face detection is attached to the JPEG filename when posted via FTP and also added to the metadata stream to allow searching.
- SNI support has been added to improve load-balancing for cloud-based solutions.

Security features

- **Software Sealing**

  The camera configuration can be ‘sealed’ once it should not be changed anymore. Any change of the sealing status and any change to static configuration, accidentally or intentional, will break the seal, creating an alarm message that can be used by the video management system to launch an appropriate alarm scenario.
  All modifications affecting the sealing status are logged separately.
- Firmware files are now encrypted.
- Files received via HTTP upload are checked for correct size.
- "Secure renegotiation" is signalled in TLS.
- In case of certificate user authentication, the clock base is re-adjusted, e.g. after battery loss.

Please check the release letter of CPP6 FW 6.50.0128 for completeness and details.

From			Nuremberg
ST-VS/MKP1	Product Management		20.06.2018

6 New Features for CPP4 products

- **Intelligent Streaming enhancements**
  - Statistics pages have been added for live and recording streams. These provide guidance for optimally adjust bitrate and quality settings, and make judgement on averaging easier in order to optimize storage consumption.
  - Intelligent Streaming configuration parameters in encoder profiles are now grouped.
- **Highly reliable SD card recording with life cycle monitoring**

  Industrial SD cards which provide wear level data can be monitored for their health and expected lifetime, providing much more reliable SD card recording.
  Three vendors have been tested and qualified:
  - Sony
  - SanDisk
  - Micron

  Due to the high dynamic in the SD card market, no direct reference to the models is given. Latest Industrial SD cards from all three vendors support this feature.
- **ONVIF Profile T is now supported**
- Current gain value is visualized in video preview window.
- The ID out of the best face detection is attached to the JPEG filename when posted via FTP and also added to the metadata stream to allow searching.
- SNI support has been added to improve load-balancing for cloud-based solutions.

Security features

- **Software Sealing**

  The camera configuration can be ‘sealed’ once it should not be changed anymore. Any change of the sealing status and any change to static configuration, accidentally or intentional, will break the seal, creating an alarm message that can be used by the video management system to launch an appropriate alarm scenario.
  All modifications affecting the sealing status are logged separately.
- Firmware files are now encrypted.
- Files received via HTTP upload are checked for correct size.
- "Secure renegotiation" is signalled in TLS.
- In case of certificate user authentication, the clock base is re-adjusted, e.g. after battery loss.

Please check the release letter of CPP4 FW 6.50.0128 for completeness and details.

7 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.
- Video authentication using SHA hashing mechanisms are not functional if no self-signed certificate has been created yet. Opening an HTTPS connection once is prerequisite.
- Cameras with security coprocessor version 3 with an externally applied certificate will fail HTTPS connections requesting SHA256. The restriction applies to all functions using the private key from the certificate, including
  - EAP-TLS with client authentication
  - TLS-Time with client authentication
  - TLS-Syslog with client authentication

  With self-signed certificate, HTTPS is fully functional.
- Remote recording is not working with actual firmware on devices running FW 5.5x or older because of the recently added security features, which impact RCP+ communication and password handling.

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

8 System Requirements

Possible clients for configuration purposes:

- Configuration Manager 5.52 or newer
- Web Browsers:
    - Microsoft Internet Explorer 11.0 or higher
    - Mozilla Firefox

Possible clients for operation purposes:

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

- ~~Oracle Java Virtual Machine 1.6.0_35~~
- DirectX 11
- MPEG-ActiveX 6.13 or newer