From		Telephone	Nuremberg
STVC/PRM	Product Management	+49 911 93456 0	17.07.2012

Release Letter

Products:	***H.264 Firmware for*** ***CPP3 cameras and encoders***
Version:	***5.52****.0015*

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

1 General

This firmware is a feature release based on former release 5.51.0045.

This firmware provides a set of new features and closely aligns with firmware CPP4 H.264 products.

The platforms have been renamed for a more generic recognition to “Common Product Platform”, short CPP, followed by the architecture-related number or suffix.
The filenames are adapted accordingly.

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Applicable products:

- AutoDome Easy II IP series
- AutoDome Junior HD, Jr HD fix
- 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
- Economy HD Dome Cameras, NDC-265 series
- 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
- AutoDome 700 IP IVA
- Video Conference Dome IVA
- MIC IP PSU

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2 Changes

- AutoTracker has been renamed to Intelligent Tracking.
- NTCIP support has been moved under license and is not available anymore for free.

3 New Features

- Support of new DSA E-series iSCSI storage arrays.
- Intelligent Tracking (formerly AutoTracker) for HD resolution PTZ dome cameras
  Intelligent Tracking can be controlled by video analysis via an IVA task, e.g. when an object crosses a line Intelligent Tracking starts tracking this object.
  A user can manually start Intelligent Tracking by clicking on an object.
  In auto mode Intelligent Tracking will follow the biggest object.
- The compass function for AutoDome 700 and 800 series allows calibration for geographic OSD within the video.
  The compass function interferes with Intelligent Tracking and therefore is automatically turned off when Intelligent Tracking is activated.

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4 Restrictions; Known Issues

- 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.
- LUN size for local recording via “Direct iSCSI” is limited to 2 TB.
- VRM version 2.10 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.
- 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 streaming set to 1080p or 720p50/60, AES encryption is not possible.
- For HD cameras the encoder property setting “H.264 BP+ (bitrate limited)” can only be selected for the downscaled second stream.
- For standard definition devices the encoder property setting “H.264 BP+ (HW Decoder)” can only be selected for one stream. If the second H.264 stream is configured for this property, the selection of the other stream will be changed to “H.264 MP Low Latency”.
- Encoding bit rate for Baseline Profile plus (BP+) is limited to maximum 1.2 Mbps, regardless of any other setting in the encoder profile, without the special Global License Key applied. Additional delay will also be applied; maximum end-to-end delay might be up to 400 ms.
- Privacy Masks with colors black or white may cause tamper alarms "Picture too dark" or "Picture too bright" to trigger. Use gray color for Privacy Masks when these tamper alarms shall be activated to avoid false alarms.
- Privacy Masks on AutoDome Junior HD can only be colored gray.

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- Privacy masking is not supported for VG4 AutoDome, AutoDome Easy II, Economy Box cameras NBC-2x5, Economy Dome cameras NDC-2x5 as well as for VIP X1 XF.
- Access to the BVIP products' browser interface with secure connection (HTTPS) using Microsoft Internet Explorer 8 is only possible with AES Encryption license enabled.
  IE8 does not support 56-bit key DES encryption any more which requires the BVIP products to provide a 128-bit key encryption algorithm. This can only be realised by using AES.
- If the memory protection inside the Internet Explorer is enabled (default setting), the automatic installation of Autoload Decoder will fail without producing an error message.
  Consequently, the replay page will not show video.
  As a work-around, two options are available:
  - Disable memory protection in Internet Explorer and re-connect to the device.
  - Manually download the Autoload Decoder installer from the device.
    The installer can be downloaded via http://<ipaddress>/setup.exe and started manually.
- 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.
- With JPEG Posting active when device is booting, the first posted JPEG image may be a no-cam logo.
- M-JPEG HD resolution always follows HD resolution of stream1, respectively the stream with the higher resolution.
- 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.
- Video and audio may be asynchronous during replay via Web page.
- FTP posting with resolution 1080p delivers JPEG with size of 1920x1072 pixels due to 16 pixel macroblock boundary of the JPEG encoder.
- JPEGs from HD cameras in downscaled formats 480p and 240p are not scaled to 16:9 aspect ratio but to aspect ratio of 4CIF respectively CIF.
- When DHCP is switched on, Web browser has to be restarted and reconnected to the newly assigned correct IP address.
- Video loss might occur when the I-frame quality is set to a low value (e.g. 9) in a complex scene with a high video resolution. With these settings I-frames may become too big, which might cause a buffer-overflow.
- When configuring a secondary VRM recording while a primary recording is active, a gap of a few seconds will occur in the primary recording until all recordings are restarted.
- Pre-alarm time might become less accurate with extreme values, e.g. hours.
- For VOT-320, the tasks removed object, idle object and crowd detection are not supported.
- For WLAN cameras, viewing, recording and replay capabilities are dependent on wireless network quality and throughput. Default bit rate values, though already lowered, may need to be maintained accordingly to match the network's capability.
- 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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- 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”.
- 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'.
- For SDXC cards the exFAT file system, which is mandatory for SDXC, is not supported. Using of the bigger storage space is nonetheless possible.
- 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.
- Installation of Autoload Decoder fails if more than one NICs are installed in a PC.
- For VG5, when Fast Address was changed a reboot is required to activate it.
- Replay using Autoload Decoder may be jerky when a device is close to or in an overload situation.
- 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.
- In Firefox, no audio is audible on the Audio Settings page.
- Opera mini for mobile devices can not 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.
- 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.
- In camera menu of VG5 700, “High sensitivity” setting is not functional.
- Blanked sectors in dome cameras may cause “too dark” alarm or global change alarm when activated.
- A separate subnet should be used for wireless cameras to avoid access points being overloaded by network traffic. Otherwise the connection to the camera might get lost.
- In AutoDomes blanked sector may trigger a “too dark” alarm.
- On AutoDomes, if placed too close to the edge of a scene privacy masking does not cover the complete configured area. Center the target part of the scene before creating a privacy mask.
- AutoTracker bounding box and trajectories are visible behind a blanked sector.
- AutoTracker requires decent lighting to reliably track objects and will not show optimal performance during night mode.
- For proper function of AutoTracker digital zoom should be disabled,
- If a local media is exchanged, existing former recordings are only discovered after rebooting the device.
- AAC audio timestamps are 90 kHz instead of 16 kHz to ensure compatibility with VideoSDK.
- 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.

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- 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.
- 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.
- A WLAN camera might not be accessible over WLAN anymore after clicking the "Defaults" button in the Installer Menu due to WLAN settings are also defaulted.
- Wit VG5 AutoDomes and Privacy Masks defined in 'Normal' orientation, then orientation set to 'Inverted', existing Privacy Masks will not be disabled, thus the Privacy Masks do not cover the previously defined areas anymore. Make sure to adjust the Privacy Masks to the correct position.

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

5 System Requirements

- Microsoft Internet Explorer 8.0 or higher
- Oracle Java Virtual Machine 1.6.0_26
- DirectX 9.0c
- MPEG-ActiveX 5.30 or newer
- Configuration Manager 4.35 or newer

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6 Previous Revisions

6.1 Changes with FW 5.51.0045

- Mp4 files have been internally restructured to allow almost immediate replay access.

6.2 New Features with FW 5.51.0045

- AutoTracker for SD resolution PTZ dome cameras
  AutoTracker can be controlled by video analysis via an IVA task, e.g. when an object crosses a line AutoTracker starts tracking this object.
  A user can manually start the AutoTracker by clicking on an object.
  In auto mode AutoTracker will follow the biggest object.
- Support of new device:
  - MIC IP PSU

6.3 Changes with FW 5.50.0059

- DHCP is enabled by default with new devices to achieve ONVIF Plug&Play compatibility. Settings remain untouched during firmware upgrade.
- NTCIP support is now a licensable option for dome cameras.
- Class D IP addresses are denied for standard address fields in Web browser.
- Unused pre-alarm buffer is released when changing the recording block.
- RTSP multicast connections need a retrigger to keep alive, initiated by the CGI parameter "mcRetrigger", which is set by default.
  It can be disabled by setting mcRetrigger=0 in the RTSP URL for environments where no keep-alive messages are sent. Otherwise the connection will time out after 1 minute.

6.4 New Features with FW 5.50.0059

Encoder

- Predictable rate control for long term recording ensures that maximum bit rate is not exceeded by peaks due to high motion. This makes storage calculation more reliable.
- Downscaled images from HD cameras can use resolutions with undistorted 16:9 aspect ratio.
- JPEGs are also possible with downscaled resolutions.

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- Adaptive Bit Rate encoding is available in TCP mode for replay and live. This is activated as long as there is only a single client connected to the stream. With the second connection, the profile settings become active.
- Quality settings (QP settings) are harmonized over all products.

Network

- IPv6 support for Web browser access to product pages, including live view, control and replay, has been introduced.
- Quality of Service (QoS) allows setting different priorities for video, audio and control connections.
- IP Filtering allows defining two IP address ranges allowed to communicate with a device.
- Flexible path for FTP can be defined, using a built-in FTP explorer.
- HTTPS encryption using AES and 3DES ensures compatibility with latest Web browser generations like IE9.
- SNMP community names can be defined.
- HTTP streaming (server push) allows mobile clients to access video.
- MTU can be configured to adapt to network conditions.

Recording

- Continuous recording files can be exported to a FTP server.
- Pre-alarm recording for short time spans can be done in RAM.
- FTP login data can be verified during setup.
- Recording ID can be delivered with triggering a virtual alarm and stored within metadata.
- Filenames for FTP export can be defined more meaningful by using pre-defined variables in an Alarm Task Script. Please refer to the Alarm Task Scripting Language manual.

Alarm

- Alarm images, JPEGs attached to alarm emails, can be defined more meaningful by using pre-defined variables in an Alarm Task Script.
- Quality of Service (QoS) level for video can be set higher on alarm.
- True HTTP request is now possible in the Alarm Task Editor as an additional SendHTTPCommand().

VCA

- IVA 5.5 has been incorporated in firmware 5.50.
  Please refer to the respective release letter for details.

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Web browser interface

- Mobile device can access the devices via browsers and are forwarded to specific pages, optimized for viewing on mobile devices. These pages use HTML5 technology with HTTP streaming for the live stream and HTTP download of recording files in .mp4 format.
  Apple devices support live view and playback of recordings.
  Android and Windows Phone support live view only.
- Pixel Counter allows counting of pixels in respect to stream resolution, e.g. to check if number of pixels of object in view is sufficient for identification.
- I-Frame only stream can be configured to be shown on the LIVEPAGE.
- The expected frame rate for I-Frame only is indicated on recording page.
- Display of V-SDK overlay icons can be configured on the LIVEPAGE settings
- Preview images in settings pages can be expanded for more details, including 1:1 view.
- Buttons to reboot a camera remotely and to set all camera and encoder parameters to factory defaults have been added.

ONVIF

- ONVIF Profile S is supported.

Miscellaneous

- Debug logging has been enhanced to ease investigation during support cases.
- Holidays (Special Days) are updateable without stop/start recording.
- AAC is supported in addition to G.711 and L16 audio codecs and is selectable for recording. It provides higher audio quality than G.711 with 16 kHz sampling rate at significantly lower bit rate of approx. 48 kbps.
- Firmware files of all three platforms are combined into a common file that can be uploaded to any applicable product, regardless of the platform.

Camera specific features

- Enhanced tone mapping for VOT cameras
- Lens installation aid for motorized lens devices

6.5 Changes with FW 4.54.0026

- For wireless cameras, protocol for connection handling to access point has been improved:
- For VOT-320, no alarm was signalled when VCA was reconfigured. This has been fixed.

6.6 Changes with FW 4.54.0024

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- Support of new devices:
  - Wireless LAN cameras NBC-255-W and NBC-265-W
  - Economic version VIP-X1XF-E
  - AutoDome 700 IP IVA
  - Video Conference Dome IVA
- False Color tables for VOT-320 for better visualization of content of IR image.
- JPEG stream on HD devices now always delivers HD resolution JPEG.

	Stream 1	Stream 2	Stream 3	Stream 4
Quadruple streaming	HD 720p25/30	Downscaled stream	I frame only (from stream 1)	JPEG (HD 720p, limited frame rate)
Alternative streaming	HD 1080p25/30	HD 1080p25/30 (copy of stream 1)	I frame only (from stream 1)	JPEG (HD 1080p, limited frame rate)
Alternative streaming	HD 720p50/60	HD 720p50/60 (copy of stream 1)	I frame only (from stream 1)	JPEG (HD 720p, limited frame rate)
Alternative streaming	HD 720p25/30	HD 720p25/30 (copy of stream 1)	I frame only (from stream 1)	~~JPEG (4CIF 480p, full frame rate)~~ **JPEG (HD 720p, limited frame rate)**

6.7 Changes with FW 4.53.0014

- In former firmware releases I-frame distance in H.264 BP+ was fixed at 15, which in combination with low frame rates set by Divar XF/700 caused intermittent video. This has been fixed, and I-frame distance is configurable also for H.264 BP+.
- For keep-alive reasons, the RTSP parameter GET_PARAMETER is now supported.

6.8 Changes with FW 4.53.0009

- Support of AutoDome Junior HD Fixed and VG5 AutoDome IP series.

6.9 Features with FW 4.53.0009

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- ONVIF 1.02 conformance
  PTZ, event and imaging services are supported.
  Firmware is fully conformant to the official ONVIF Test Tool 1.02.
- Support SD Card recording in Dinion XF and 2X and Flexidome XF and 2X.
- New Quadruple Streaming capabilities for HD cameras.
- All video, also the downscaled stream, is provided in 16:9 aspect ratio.
- Recording of I-frames only is possible from both, stream 1 and stream 2.
- Recordings can be exported as *.mp4 files to a FTP server, either manually or after an alarm. The resulting file can be replayed with standard players.
- Replay from local recording via Web interface has been re-introduced. This allows replay over bandwidth-limited connections and connections using NAT.
- An “early warning” message is created when the device is in danger to run out of recording blocks. This message can also be sent as SNMP trap.
- In alarm e-mails with JPEGs attached, JPEG name includes camera name, date and time information for easier differentiation and archiving.
- Privacy masks are automatically excluded from alarm creation in MOTION+ and IVA.
- Intelligent Video Analysis (IVA) is enhanced to cover HD resolution.
- IVA allows Crowd Level Detection in a field.
- New IVA software framework for more reliable detection. This allows reduction of false alarms caused by shadows or windy elements, more stable object ID, pre-estimation of trajectory of an object, and improvement of the detection of small and slow objects.
- New IVA versions can be tested during a 30-day trial period, beginning with upgrading to a firmware including a new IVA version.
  This special activation key can only be applied once per new IVA version.

  To start the 30-day trial period a special Global License Activation Key must be entered via the License page in the Web browser or the Configuration Manager:

  02-08.20.2D0-C3C6D6F8-0FF05DE6-C9983538-45DB6B3F-F2A5AF58

  This Global License Key is valid for all applicable and IVA-capable products.
  To avoid typing errors it is recommended to copy & paste the key from this release letter.

- MOTION+ alarms can be applied with a debounce time of 1 second to reduce event load to management systems.
- Multiple MOTION+ or IVA alarms can be aggregated over a configurable time period.
- Recording of transparent (e.g. ATM or POS) data via plain TCP channel is possible.
  Data is stored as metadata and can be searched later on.
- The time limit for tamper detection with reference image has been extended to 9999 seconds.
- RTSP audio connections use 8 kHz timestamps to allow audio with standard media players like QuickTime or VLC.

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- NTCIP is supported for all AutoDome series.
- Audio is possible in 16 kHz quality for live connections.
  This mode requires approx. 500 kbps for such an audio stream.
  Recording of 16 kHz audio is also possible.
- UPnP discovery support can be enabled or disabled.
- Extended multi-connectivity by increasing RCP+ connections to 100 minimum.
- Temperature values (current and maximum) included in system overview for applicable products with temperature sensor.
- Decentralized event pre-processing is possible via Alarm Task scripting.
  Devices can register for RCP messages and payload as input for script actions.
- Implementation of a licensable function to increase the bandwidth limitation for H.264 BP+ encoded video from 1.2 Mbps up to 2 Mbps.

  H.264 BP+ requires CAVLC entropy encoding which is handled by the built-in CPU.
  The required computational power for CAVLC at 2 Mbps does not allow for more additional functions than MOTION+ on the CPU.

  Using this mode needs special care for the setup of a camera or encoder to ensure full functionality.

  Please consider the following restrictions to avoid erroneous behaviour:

  Do not enable
  - JPEG encoding in any way, including JPEG Posting or JPEGs in alarm emails
  - iSCSI or SD card recording, neither local nor remote
  - FTP export of recordings
  - AES encryption

  Do not allow
  - Access to the second stream (H.264 MP)
  - Access to the JPEG stream
  - Access to RTSP streams

  If necessary, access-protect the devices with passwords or disable the relevant ports.

  In case of less than the 2 Mbps being required there may be sufficient computational power left for an additional function. The needed performance is dependent on various settings and must be very carefully evaluated using the real environment.
  CPU load must be ensured to be continuously below 90% to keep the system functional.

  Exceeding the available computational power will cause undeterminable behaviour, including the risk of loosing video recording of multiple GOP lengths.

  To allow the bit rate increase a special Global License Activation Key must be entered via the License page in the Web browser or the Configuration Manager:

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02-01.1D.01-E7F59A39-5247CA08-C8FFE9F3-F4D1CEB1-F5DB22B3

To limit the bit rate to 1.2 Mbps again, a Global License Deactivation Key can be applied:

02-01.1D.00-DF14DC1D-0FFCFA4C-0FB214D8-6C231CD1-6585AD46

These Global License Keys are valid for all applicable products.
To avoid typing errors it is recommended to copy & paste the keys from this release letter.

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