From	Product Management	Telephone	Nuremberg
ST-VS/MKP1	ST-VS/MKP1	+49 911 93456 0	22.11.2017

Release Letter

Product:	***Video Recording Manager***
Version:	***3.70.0056***

This document contains latest information about the above mentioned maintenance release 3.70 Build 0056 of Bosch Video Recording Manager (VRM). This maintenance version is designed for usage in Bosch VMS 8.0 environment. Product boundaries are also described in the datasheet which can be found on the Bosch web page.

Important Note: The most recent version of Video Recording Manager can be downloaded from: http://www.boschsecurity.com/emea (Video → Video Software → Video Management Systems).

1. General

VRM Video Recording Manager provides a Distributed Network Video Recorder solution, eliminating the need for **dedicated** NVRs and signalling the second generation of IP Network Video Recording. VRM supports iSCSI-based storage systems and the Bosch Video IP devices (IP cameras and IP video servers).

VRM Video Recording Manager is comprised of the following software packages

- VRM Server including VRM Monitor
- Configuration Manager
- Video Streaming Gateway

Please note: For VRM Video Recording Manager v2.12 and later the Bosch Video Client BVC is the standard replay client. The BVC software and documentation is available on the Bosch ST web site www.boschsecurity.com. For playback of video data exported by VRM eXport Wizard the software Archive Player (part of the installation package) must be used.

VRM offers system-wide recording monitoring and management of Bosch iSCSI storage, video servers and cameras. VRM software supports Bosch H.264 and MPEG-4 IP video devices including all encoders, Dinion and FlexiDome IP cameras, as well as AutoDome and Extreme IP cameras and the Bosch HD cameras. Supported storage subsystems are the Bosch DSA and DLA disk array systems (iSCSI-based DVA storage systems still will work). The iSCSI disk arrays are not attached directly to VRM, but instead can be attached anywhere on a standard IP network via a 1 GbE uplink
as well depending on iSCSI storage model via 10 GbE (e.g. DSA E-Series E2700).
With the new Video Streaming Gateway component 3rd party cameras supporting ONVIF, RTSP or JPEG protocol are supported including the Bosch Legacy devices such VJ 8008 (RCP+ protocol).

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2. New Features

General:
- Support of large GOPs for Bosch intelligent streaming
- Support H.265
- Support of the new NetApp E-Series 2800 in Simplex mode.
- Performance optimizations for large LUNs and for many slices (alarm recording)

Enhanced connectivity:
- Single Port access through VRM (relays, alarms)

Security Enhancements
- Increased security for use login mechanism
- Update of the “HTTP security headers”
- Enable usage of the Windows cert store for SSL certificates
- Enhanced configuration encryption to protect VRM

3. Changes / Bug Fixes

- Fix: Time zone configuration
- Fix for invalid local time offset
- Fix: Time Server IP in managed devices is no longer automatically set by VRM
- Fix for max retention time deletion when restoring old database and data folder
- Fix: Consistent load balancing mode display in Configuration Manager and VRM monitor webpage
- Fix: inconsistency in VSG camera list handling fixed
- Fixed bitrate calculation for VIP X1/X2
- Fixed open redirect in http server
- BVMS User logins optimized for Client authentication
- Removed weak SSL protocol versions and cipher suites

4. Restrictions; Known Issues

- Installation, Upgrade, Downgrade
    - **Important Note:** Downgrade from VRM 3.70 or higher to 3.x or earlier is not supported. VRM 3.70 or higher must be uninstalled and config.xml must be deleted in order to downgrade. During the installation process of VRM 3.70 or higher a backup of the original config.xml will be stored automatically in the VRM directory and renamed to config_before_03.70.0056. This file can be reused when downgrading to VRM 3.6x by renaming it to config.xml during VRM 3.6x service is stopped.
      Since the config_before_3.70.0056.xml has only weak encryption, it is highly recommended to delete it at the system, if it is not needed anymore or to move on an external drive, which can be stored safely.
    - For VRM-managed cameras the replace functionality is not supported.
      To grant access to the recordings of a defective VRM-managed camera, keep the camera’s IP address as offline camera. Once the minimum retention time has expired, the ip address is free to use. The camera replacement has to be added as new device to the

VRM system. For non-VRM-managed cameras the Configuration Manager replace feature can still be used.

- Camera swap functionality is not supported.
- When upgrading an existing VRM server installation a message might be shown that the “rms service” could not be stopped. Enter “retry” in the message box and the installation routine will properly be continued.
- Downgrade from VRM 3.20 or higher to 3.0 or earlier is not supported. Uninstallation of VRM 3.20 or higher and deletion of config.xml is required to downgrade. During the installation process of VRM 3.20 or higher a backup of the original config.xml will be stored in the VRM directory. This can be reused when downgrading to VRM 3.0 by renaming it to config.xml when VRM 3.0 is stopped.

- Storage
  - Support of E2800 Simplex controller storage arrays.
  - No support for Full Duplex storage arrays
  - “LUN Size”: Size of a single LUN may not exceed 64 TB. If LUN-size is exceeds 2000 GB, the pool needs to be configured properly in Configuration Manager.
    Note: VRM uses a virtualization layer and manages 1GB blocks out of all LUNs.
    Thus, for the functionality it makes no difference how many LUNs are configured within one storage subsystem.
  - Restrictions for LUNs larger than 2000 GB:
    - Tape backup via VRM Export Wizard is not possible.
    - Requires camera firmware version 6.30 or later
    - Direct iSCSI playback is not supported
  - Deleting LUNs on Bosch DSA FAS storage systems may take several hours. If new LUNs are created while deleting is in process, the newly created LUNs have not yet full capacity. Therefore, it is necessary to wait before going live until the LUNs are completely deleted. The status of LUN deletion cannot be requested actively; only the final status of the deletion process is accessible. This restriction does apply to the new DSA E-Series.
  - Restriction: USB Transcoder IQN must be added manually to DSA FAS system if FAS does not support wildcard IQN
  - Changing IP-Addresses for iSCSI-storage is not supported
- Recording
  - H.265 Video Encoding is not supported
  - Time Server: VRM expects a local Windows Time Server running or for the BVIP cameras/encoders an external time server is configured. VRM Server may not be used as local time server.
  - "Prioritization Live Viewing vs. Recording": Recording and live viewing are independent processes and do not have a prioritization. The number of replay sessions started may influence the recording, i.e. system resources of storage array may be getting low and unrecognized by the VRM.
    Note: Recording must be manually configured in a way to allow for the required recording sessions and/or replay sessions.

  - “Automatic/Failover”: On failure of the primary storage and switching to the failover storage a recording gap of multiple seconds will occur.
  - Alarm recording: sometimes an active pre-alarm recording will be shown twice in the recording list.
  - Firmware 5.0 and higher: Prealarm may be set to a minimum value of 1s and post alarm to 5s. Firmware versions prior to 5.0 pre- and postalarm recording: the minimum time that can be configured for prealarm recording is 15 seconds and 5 seconds for postalarm recording.
  - Failover: switching the primary and secondary iSCSI target may result in a span list with incorrect quota
  - Failover (Backup) server must not execute “format” jobs
  - Recording Migration: Recordings that were created in a direct iSCSI environment with FW 3.52 cannot be migrated directly to a VRM solution but recordings will be ignored. Local recordings of BVIP devices with Firmware 4.10 or higher may be migrated to VRM environments.
  - Changing devices from M2 to M4 mode:
    Due to the additional channels in M4 mode the recordings from encoder input 3 that were accessible under channel 2 in M2 mode are now accessible under channel 3. Old recordings of channel 3 created in M2 mode are still accessible under channel 2.
  - Changing devices from M4 to M2 mode:
    Recordings from channel 3 and 4 in M4 mode will not be accessible anymore in M2 mode. Please backup any relevant data before switching from M4 to M2. Once the device has been set to M2 mode data of channel 3 and 4 will be deleted.
  - FTP Export of Recording: If FTP export for local recording of a BVIP device has been configured this must be deactivated manually before the camera/encoder is moved to a VRM environment
  - Authenticity check is not available if ANR is enabled.
  - During alarm recording, authenticity check is only available within the recordings.
- Video Streaming Gateway
  - H.265 Video Encoding is not supported
  - Audio on some 3rd Party cameras not fully supported which may result in non-availability of audio streams
  - Motion JPEG uses framerate as configured in camera settings
  - VCA is always recorded for Bosch devices
  - VCA is not available for ONVIF cameras
  - Maximum i-Frame distance must not be exceed 60; for backward replay only 30 or less are supported
  - During establishing a live connection no i-frame is requested, i.e. live connection is established not before the first i-frame is received
  - RTSP timeout handling like in Onvif handling (SET_PARAMETER) - some older cameras may not support this.
- Configuration

  - "GUI": Device tabs block on some PCs when camera privileges are modified and a device of different type is selected without saving the changes.
    Note: Workaround → privilege changes should be saved before selecting a device of another type.
  - Mass operations might not work reliably when more than 200 devices are selected.
- Trouble Shooting
  - To avoid high CPU loads while zipping system log files in case of trouble shooting the zipping process is running with lowest priority and may take a while.
  - If extended logging is activated and disk space is running below 1 GB free space, VRM automatically deactivates extended logging.
  - RCP+ logging must not be activated for more than 2000 devices. In this case extended logging must be turned off.
- IntuiKey
  - "Replay": IntuiKey can't start replay of media files stored on local PC
  - "UI Display": IntuiKey user interface displays ISO-Latin1 characters only
- Network Configuration
  - After licensing VRM no changes on the network links from different adapters should be done else VRM might encounter problems with license and/or block management
  - Network interfaces without a cable plugged in do not show an IP address on Windows Server 2008 based systems and therefore will be ignored by VRM. If a cable is plugged in at a later time, this may cause reordering of the detected network interface ports and can cause problems with licensing (s. above)

5. Installation Notes

Important note: For full feature compatibility VRM 3.20 requires the BVIP firmware version 6.0 or later. DSA E-Series Dual Controller and high-density expansion shelf products are **not** supported in earlier firmware versions but VRM 3.20 itself is backward compatible with firmware versions 2.53 or higher. Of course, enhancements and features available only with firmware version 6.0 will not be active.

Important note: VIDOS Client is not supported by VRM 3.0

6. Configuration Notes

- "Retention Time":
  - The **maximum** Retention Time is lower prioritized than actual recording. This means, if the preset maximum retention time is longer than the available storage capacity allows for the older recordings are overwritten.
  - The **minimum** Retention Time has a higher priority than recording. If the preset minimum retention time is longer than the available storage capacity allows for recording will be stopped and data is **not** deleted.
  - **Note**: Capacity necessary must be calculated manually depending on the desired retention time values

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7. System Requirements

VRM Server
The service “VRM Server” must be installed on a Microsoft® Windows based platform. No other Web server application may be installed:

Hardware	Server
Operating System	Windows Server 2008 R2 (Standard Edition, 64-bit), Windows Storage Server 2008 R2 (Standard Edition, 64-bit), Windows 7 Ultimate, Professional (SP1, 32-bit, 64-bit), Windows Server 2012R2, Windows Storage Server 2012R2; VMWare (ESXi 5.5); Hyper-V with Windows Server 2012 R2
CPU	1x or 2x Quad-Core Intel Xeon Processor E5606 (2.13 GHz, 8 MB L3 cache) or faster
RAM	min. 4 GB
Graphic Card	VGA- or SVGA-compatible
Ethernet Card	1 Gbps
Software	DirectX 9.0c
Free Disk Space	1000 MB
Installation	Windows Administrator Rights
Virtual Machine	If a virtualized high availability solution is used to run the VRM server software, it shall be configured in the same way as described in the corresponding BoschVMS Technical Service note. VMware consultant is recommended during design process. VMware: http://resource.boschsecurity.us/documents/VMware_BoschVMS_Technical_Service_Note_enUS_14851870603.pdf Hyper V: http://resource.boschsecurity.us/documents/Hyper_V_Technical_Service_Note_enUS_19448349195.pdf

VRM Monitor
VRM Video Recording Manager provides a HTML interface to be used with a Web GUI within the VRM Video Recording Manager network. This VRM Monitor module is installed automatically together with VRM Server. System requirements for VRM Monitor are:

Browser	Google Chrome 30 or higher; Mozilla Firefox 25 or higher; Internet Explorer 10 or higher; Safari 7 or higher;
Ethernet Card	1 Gbps (recommended)

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Configuration Manager 5.50.226

System requirements for Configuration Manager are:

Hardware	Personal Computer
Operating System	Windows Server 2008R2; Windows 7 SP1; Windows 8
CPU	Dual Core, 3.0 GHz or better
RAM	Min. 2 GB
Graphic Card	refer to MPEG-ActiveX 5.83
Ethernet Card	1 Gbps (recommended)
Software	DirectX 9.0c; Microsoft .NET 4.5
Installation	Windows Administrator Rights
Free Disk Space	250 MB (Configuration Manager, V-SDK)

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Bosch Video Client 1.7.5.093

BVC is required to replay data exported via the VRM eXport Wizard. System requirements for BVC are:

Hardware	Workstation
Operating System	Windows XP (Service Pack 2 or higher) or Windows 7 (32 bits and 64 bits), Windows 8
CPU	Intel Pentium DualCore, 3.0 GHz or comparable
RAM	Min. 4 GB
Graphic Card	NVIDIA GeForce 8600 or higher
Ethernet Card	100/1000-BaseT
Software	DirectX 9.0c
Installation	Windows Administrator Rights
Free Disk Space	10 GB

VRM eXport Wizard 1.20.0003

The VRM eXport Wizard for disk- and tape-based backup is a stand-alone application. The recommended OS platforms are

- Windows 7, 64-bit
- Windows Server 2008 R2

Tape backup is not supported on

- Windows XP
- Windows Server 2003

eXport Restrictions

- If overall backup time is longer then the respective retention time for a camera not all video data might be exported before being overwritten/deleted.
- If the iSCSI Export option is used on Windows XP or Windows Server 2003 platforms the Microsoft iSCSI Initiator must be installed manually. The latest version of the MS iSCSI Initiator is available from the Microsoft home page (www.microsoft.com).

Component Versions

- Video Streaming Gateway 6.40.0038
- Transcoder 6.40.0038
- VideoSDK 6.11.0060
- Microsoft® .Net Framework 4.5

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8. History

1. VRM 2.12

1.1. New Features

- Support of Bosch HD cameras (running Firmware 4.52 or higher)
- Support for basic setup of the new DLA Series
- DSA Series
  - Support for iSCSI Initiator wildcards in VRM Configurator (NetApp Ontap version 7.3.3 required for the DSA Series)
  - Support of Spare Disks for DSA Series in VRM Configurator

1.2. Bug Fixes

- Load Balancing: VRM now plans only for <n> days into the future. Thus, large span lists which would last for a very long time due to low bandwidth requirements are avoided. The VRM now distributes for the next <n> days. The default value is <n=4>, and can be changed by the Configuration Manager.
  Note: The planning ahead for <n> days is based on statistical data VRM Server is collecting during operations. Therefore, <n> is always the maximum duration and could be shorter depending on the individual bandwidth of the recording devices, especially during the initial setup of a VRM Server installation.
- Retention Time
  - Change of retention time during operation is handled correctly.
  - Problem fixed when recording “no cam” logo
- Block Delete: Blocks deleted either manually or due to maximum retention time, are correctly removed from the active system.
- Camera Info Web Page: Used Storage information shown correctly.
- Timeline: reliable Timeline update in BVMS Operator Client
- Performance Optimization
  - Performance optimized in alarm recording mode.
  - End of support for VSDK v4.27 based applications due to this performance optimization
- Generic.dll: bug fix for threading problems which caused crashes of the VRM Server due to network problems
- SNMP Traps: SNMP trap is created for each iSCSI target if it runs out of storage. If remaining free capacity is 10% or less a warning message is sent and resent every hour as long as the free capacity remains below the threshold.
- iSCSI Discovery: bug fix for problem when the initial iSCSI discovery is running at the same a VRM formatting of LUNs is executed
- DHCP Handling: Configuration Manager must not delete an IP address if the same MAC address is found with another IP address (DHCP handling). Furthermore, it is not possible to change the IP address of a device with the VRM Configurator (network tab and context menu). The IP address has to be changed with the CM, while the VRM Configurator is not connected to the VRM.
- Backup server state: VRM Monitor shows if this server is master or backup server
- Fixed: Live only user could do a replay
- Fixed: If recording is stopped with a “Remount Intended” (FW 4.20 or higher) in the system overview the number of active recording was not decremented
- Fixed: VRM Monitor bitrate graph on the overview page of the VRM Monitor sometimes showed bitrate 0kbps although cameras and targets showed a non-zero bitrate
- Fixed: Renaming of cameras in VRM Configurator

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2. VRM 2.20

2.1. New Features

- Load Balancing
  - New “All Mode”: Automatic Mode: „All mode“ with automatic assignment without explicit configuration where a max of 2 iSCSI targets per iSCSI host (BVIP module) are assigned
- Dual Recording capability
  - In this first implementation “Dual Recording” is restricted for large projects only and not supported as a standard feature
- VRM Configurator enhancements
  - VRM Configurator and ConfigManager will be consolidated in one configuration utility thus providing a homogenous feature set.
- Enhancements of VRM Monitor
  - Information on “Protected Recording”
  - The VRM Monitor web page will have a link to an additional web page with information about camera name, IP address and amount of protected recordings for each camera
- UI Enhancements
  - The summary and enlarged bitrate graphs will have the title “recording statistics” on top
  - All bitrate values are available for the last three months as a CSV file. The CSV file contains multiple columns, with the date, the bitrate value for each camera, and the bitrate value for each target.
  - The VRM saves the data for the CSV files in a binary file format. The CSV file is created on demand and the user can specify which time interval he wants to see in the CSV file. The selection is done via the VRM Monitor interface.
- Device Time Monitoring
  - VRM is monitoring the local time of each BVIP device: at a time difference of more than 10s the VRM generates a SNMP trap and a log entry. For BVIP devices with a time server configured, VRM does not change the time but a SNMP trap and a log entry are created.
- Increase number of replay sessions
  - The number of concurrent VRM replay sessions will be doubled: 32 → 64
- Alarm Recording
- Improved pre-alarm recording handling

2.2. Bug Fixes

- Bosch Video Client v1.2 included in the VRM Master Installer
- Fine tuning of log messages for load balancing
- Size of export data calculated correctly
- Online Help is available for VRM Monitor
- Network scan was not working, if license was expired
- VRM server installer is signed by a certificate
- VRM Monitor is ready for IE9
- Fixed: failover server does not recognize configuration changes
- https: only with replaced rcpp.dll (encryption enabled rcpp.dll)

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3. VRM 2.21

3.1. New Features

- Disk-based backup of VRM video data
  - Recorded data may be stored on file system based target. The playback of exported data is possible without a VRM environment. In this first version supported by Archive Player 5.10.0016 only.
- Tape-based backup of VRM video data
- Recorded data may be stored on tape target platform (Tape Library). In the first implementation only the Backup Software “NetBackup” is natively supported.
- The Backup software is not part of the VRM package. It must be installed and configured separately.
- VRM eXport Wizard
- GUI based wizard to easy export data to disk- or tape-based targets

3.2. Bug Fixes

(Build 0017)

- Fixed: VRM Server crash (out of memory) if BVIP device is in restricted mode with no valid storage targets and device is offline
- Fixed: No VRM TCP replay from cameras with track id ends with 0x00
- Fixed: potential crash on shutdown while requesting monitor pages
- Fixed: SNMP Monitoring of ISCSI Devices - iSCSI targets are detected offline if SNMP and iSCSI Monitoring both indicate an error
- Changed: default value for secondary span allocation is set to 8 (prior 64) to minimize overhead
- Changed: Equal load distribution over several LUNs within one iSCSI target
- Changed: VRM Monitor – Reporting Printout with CSV Exports for
  - Recorded data per day
  - Recorded minutes per day

(Build 0027)

- VRM Upgrade: VRM Installer checks if more than 120 iSCSI targets are configured and aborts upgrade installation
- VRM Upgrade: when upgrading from VRM versions < 2.20 the installer will report if the copy process of the respective “config.xml” has failed; a backup copy of the “config.xml” will be created before upgrading
- Time selection disabled for export of “stored data” and “recording duration data”
- Bitrate statistics graph on VRM Monitor page is now labelled with more than one value
- Fixed: JPEG snapshot supports BVIP firmware 5.50
- Fixed: Bitrate export with wrong values if bitrate > 35 Mbit/s
- Fixed: datasize search wrong if pre- and post-alarm are overlapping
- Fixed: Replay issue in export if blocks are overwritten during export
- Changed: Send immediately a block list to a device after it is added

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4. VRM 2.22

4.1. New Features

- Video Streaming Gateway

4.2. Bug Fixes

- Changed: Registry Key “MaxSpanAllocation” now refers to one line not per device. This key must be manually checked and adjusted if necessary
- Changed: Video Loss is signalled via SNMP trap for VSG and Encoders:
- Changed: Protected blocks can be shown on extra page of VRM monitor
- Changed: If log files exceed 100MB limit they are split and all parts are collected by using the export function of VRM monitor
- Changed: default retention time for loggings is changed from infinite to 30 days
- Changed: Track list rcp+ response returns always the complete URL instead of only IP address (important for customers that are using non Bosch replay clients)

5. VRM 2.30

5.1. New Features

- The main focus of VRM 2.30 is the support of the new DSA E-Series iSCSI disk arrays:
  - DSA-N2E6X2-08AT DSA E-Series Base Unit 8x 2TB
  - DSA-N2E6X2-12AT DSA E-Series Base Unit 12x 2TB
  - DSX-N1D6X2-12AT DSA E-Series Expansion Unit 12x 2TB

Detailed information on the new DSA E-Series can be found on the Bosch web site http://www.boschsecurity.com/emea (Video > Digital Recording and Storage > Disk Arrays (Network Attached)

5.2. Bug Fixes

- Added: Support of BVIP Firmware 4.15, 4.25 and 5.52
- Changed: E-Series drives are not supported by FW versions other than 4.15, 4.25 and 5.52, i.e. for a BVIP camera with a firmware earlier than 5.52 VRM will not assign blocks. This safety feature will only work if an E-Series disk array is added as type “E-Series”. It does not work if it is added as type "Other". BVIP devices with FW 2.53 have to be integrated via the Video Streaming Gateway if used with E-Series.
- Changed: VSG supports DSA E-Series
- Fixed: VRM crashes if restore data base option is enabled
- Fixed: Protect of VSG recording results in recording loss of the protected range
- Fixed: Export of a backup track is black (export to Backup LUN only)

6. VRM 3.0

6.1. New Features

(Build 0042)

- support of the high-density DSA E-Series:
  - DSA-N2C6X2-12AT DSA E-Series Base Unit Dual Controller 12x 2TB
  - DSX-N6D6X3-60AT DSA E-Series High Density Expansion Unit 60x 3TB
- Dynamic Transcoding Support
  - Integrated Transcoding management for internal and external Bosch transcoding devices
  - Transcoded replay via VRM monitor possible (non transcoded replay not possible anymore)

- Load Balancing Improvements
  - Configurable storage pools for easy pooling of iSCSI targets in one VRM environment
  - Each storage pools works separately based on the assigned load balancing properties and the assigned BVIP devices
  - Switch to activate or deactivate the usage of a failover target. Default setting for new installations is off, since a failover target is needed only if VRM Server and one iSCSI target fail at the same time.

(Build 0073)

- Autoprotect on Alarm for Bosch VMS systems

6.2. Bug Fixes

(Build 0042)

- Change: ANR (Automated Network Replenishment) is not supported anymore in VRM 3.0
- Change: Backups to internal “Backup LUNs” is not supported anymore. Exports / Backups
- supported by VRM eXport Wizard only.
- Change: The historical Recording Modes “All, Restricted or Preferred Mode” are not supported anymore. When updating existent installations the historical Recording Modes will be migrated automatically: “All” mode will be migrated to “Automatic” mode, “Restricted and Preferred” modes to “Failover” mode
- Change: If a camera is deleted from VRM, the blocks assigned to this camera are not deleted anymore as in previous versions. The blocks are preserved until their minimum retention time has expired unless they are already deleted manually.
- Change: Dynamic span list length allocation
- Change: Failover VRM stores a copy of the original XML of the master VRM. If the master VRM dies, the configuration can be retrieved from the Failover VRM to set up a new master VRM
- Change: ONVIF-SDK 1.30 integrated in Video Streaming Gateway for performance improvements
- Change: If there is no time server on the devices the VRM sets its IP address as time server (which is enabled by default on Win Server 2008 R2)
- Change: updated Japanese Language file
- Fixed: if an iSCSI target unmount action during an Export Job was cancelled by user interaction this caused remaining mounts to this target
- Fixed: The free capacity needed for export shown was labelled as “number of blocks” instead of value in GB.
- Corrected: In GUI dialogs “local disk” is used instead of “LUN”
- Corrected: estimated time is corrected and only the IP address is written to the Logfile instead of the complete URL
- Corrected: Due to “getTrackList” changes in VRM 2.22 the eXport Wizard was updated
- Corrected: Delete block from “spaninfolist” if it is/was overwritten and eXport Wizard is currently exporting from this target
- Length of username and password is max. 32 characters

(Build 0047)

- Fixed: Crash of VRM service if too many SNMP requests are sent in parallel – crash only occurred with FW version older than 5.50 and more than 64 simultaneous SNMP requests

- Fixed: Potential deadlock in combination with hardware Transcoder bandwidth check (USB
- Transcoder version not affected)
- Fixed: Clearing of lock header problem
- Fixed: Time server in VRM, VSG, or USB Transcoder unexpectedly active if Window Time Server not running or not available
- Changed: Online help of VRM updated
- Changed: Removed unnecessary and not useful VRM logbook entries
- Changed: Supported Transcoder (USB version only) software newer than 5.60.0051

(Build 0048)

- Fixed: Continuous slices were erroneously marked as alarm slices which could result in potential recording gaps.

(Build 0064)

- Fixed: Negative values for bitrates were erroneously considered for calculation
- Fixed: When deleting a block, minimum retention time is set to '0'. Otherweise devices might not be able to use this block again.
- Changed: Network-scan with multiple network-adapters improved
- Fixed: Discovery did not start when device is only partly reachable
- Fixed: requesting ports over HTTP/HTTPS returned an error, when VRM is unlicensed
- Changed: block-assignment improved

(Build 0073)

- Fixed: recording blocks that only contain pre-alarm recordings were never deleted by VRM and could only be reused by device after expiration of minimum retention time.
- Fixed: VSG could be set to invalid mode - local recording.
- Fixed: Pool setting changes via Bosch VMS Configuation Client were ignored by VRM. This could lead to secondary target not being used.
- Fixed: Discovery did not start when device FW version could not be retrieved.
- Fixed: DST switch may cause issues during playback.

(Build 0075)

- Fixed: in some cases initial discovery did not finish resulting in cameras not recording

7. VRM 3.20

7.1. New Features

(Build 0022)

- Redesign and rework of the web-based monitoring-capabilities. Supported browsers: Google Chrome 30 or higher; Mozilla Firefox 25 or higher; Internet Explorer 10 or higher; Safari 7 or higher;
- Restrict is now possible on a block basis – if supported by client. Replay of Video marked as "restricted" will be limited to certain users only. Autoprotect is now possible on a blockbasis – if supported by client. Video can be protected against deletion after minimum retention time period.
- Support of changing IP-addresses of BVIP cameras/encoders and VRM-system (e. g. in DHCP-managed Networks). This is valid for BVIP devices with firmware 5.60 or higher.
- VideoStreamingGateway can now handle M-JPEG.

7.2. Bug Fixes

(Build 0042)

- Changed: Re-phrased log-messages to be more understandable
- Changed: default logging provides more information for support
- Changed: Load-Balancing Limits are ignored if a single recording target is used

(Build 0026)

- Fixed: Enable automatic licensing for Genetec's Security Center video management system.

8. VRM 3.50

8.1. New Features

(Build 0038)

- Transcoder in DIVAR IP 6000 rev. 2 is supported
- Block consumption monitoring: Camera with exceptional high block-usage are excluded to prevent system overloading

8.2. Bug Fixes

(Build 0038)

- Fixed: Unused channels of an multichannel encoder are no longer taken into consideration for forecast calculation
- Fixed: PTZ control of Bosch Autodomes connected to VSG

9. VRM 3.51

9.1. New Features

(Build 0057)

- Maintenance Release with no new features

9.2. Bug Fixes

(Build 0057)

- Fixed: VSG and TimeZones with UTC- causes VSG to use wrong date

10. VRM 3.60

10.1. New Features

(Build 51)

- Support for large LUN-sizes with up to 64 TB
- Increased maximum supported block count from 1 million to 2 millions

10.2. Bug Fixes

(Build 51)

- Changed: Support for larger camera block lists (512 instead of 128) so that also cameras with high bitrate can record long enough if VRM is down
- Fixed: Failover server was not working as expected if it was restarted while the master server was down
- Fixed: VRM could crash if cameras send unexpected response payloads
- Fixed: VSG compatibility issue with VSDK 6.03
- Fixed: VSG didn't work properly, if service was started without network connectivity

- Fixed: VSG export issue, if alarm recording is used
- Fixed: Log file download issue via VRM web page

(Build 53)

- Fixed: VRM overwrites device timeserver setting which could lead to recording gaps when used with Bosch Video Management Software (BVMS) and external TimeServer.

11. VRM 3.61

11.1. New Features

(Build 08)

- Support FW 6.40 (password enforcement, bitrate optimization mode)
- Support for CPP 7.3 cameras
- Support of „signed firmware files“ for DIP 5000 in addition to the unsigned firmware files.
- Improved “save and restore of configuration”

11.2. Bug Fixes

(Build 08)

- Replay contacts of connected cameras can be controlled again

(Build 10)

- VideoSDK download from VRM was not working
- Improvements for download store

12. VRM 3.62

12.1. New Features

(Build 13)

- Support for large update files

12.2. Bug Fixes

(Build 13)

- Storage configuration could be broken, if system ran out of memory