From			Nuremberg
Product Management	(BT-SC/MKP8)		02.04.2019

Release Letter

Product:	***Video Recording Manager***
Version:	***3.81.0048***

This document contains latest information about the above mentioned maintenance release 3.81 Build 0048 of Bosch Video Recording Manager (VRM). This maintenance version (32 bit) is designed for usage in BVMS 9.0 environment. Product boundaries are also described in the datasheet which can be found on the Bosch web page. VRM 3.81.0048 Software is included in BVMS 9.0 download. In addition a 64bit Version is available at the Bosch Download Store.

Important Note: The most recent version of Video Recording Manager (incl. all VRM sub-components and VRM eXporter Tool) can be downloaded from:
https://www.boschsecurity.com/ (Product Catalog →Video Systems → 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 comprises the following software packages

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

Please note: For VRM Video Recording Manager v2.12 and later the Bosch Video Client BVC or Bosch Security Client can be used as standalone 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 Bosch Video Client BVC must be used.

VRM offers system-wide recording monitoring and management of Bosch iSCSI storage, video IP encoder and IP cameras. VRM software supports Bosch H.264/H.265 and MPEG-4 IP video devices including all Bosch video 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). 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 or E2800).
With the Video Streaming Gateway (VSG) 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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From			Nuremberg
Product Management	(BT-SC/MKP8)		02.04.2019

2. New Features

General:

- Support of IP camera Firmware 6.60
- Support of IP camera Firmware 6.61

3. Changes / Bug Fixes

- Security Fix: CVE-2019-6957: Buffer Copy without Checking Size of Input
- Security Fix: CVE-2019-6958: Improper Access Control
- Fix: Improved handling for the deleting of multiple IP camera/encoder devices
- Fix: Improved handling of CSV Export for protected recordings
- Fix: Improved logging and enhancements for debug level

4. Restrictions; Known Issues

- Installation, Upgrade, Downgrade
  - **Important Note:** Downgrade from VRM 3.81 (32 bit version) or higher to 3.x or earlier is not supported. VRM 3.81 or higher must be uninstalled and config.xml must be deleted in order to downgrade. During the installation process of VRM 3.81 or higher a backup of the original config.xml will be stored automatically in the VRM directory and renamed to config_before_03.81.0048. 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_3.81.0048.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 supported via the BVMS 9.0 Configuration Client. The Configuration Manager does not support any device replacement of VRM managed cameras.
    (Note: In case the device replace is not performed via BVMS Configuration Client and 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, a replace function is available in the Configuration Manager.
  - To swap to existing IP cameras in their physical installation location including the swap of their IP addresses while keeping the recording footage linked to the original IP address is not supported. Customers in the need to perform such a swap of two operational cameras, are requested to contact the local BOSCH technical support.
  - 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.
  - Up to 64 replay sessions tunnelled through VRM are supported. Same applies for the fail-over VRM, if exists.

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- Storage
  - “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 as long as the maximum of 2.000.000 blocks is not exceeded for the total VRM system.
  - Restrictions for LUNs larger than 2000 GB:
    - Tape backup via VRM Export Wizard is not possible.
    - Requires camera firmware version 6.30 or later; usage of Firmware 6.44 or later is recommended due to improved Firmware security.
      (Knowledge Base https://community.boschsecurity.com/t5/Security-Video/-/tap/4387)
  - Changing IP-Addresses for iSCSI-storage on the fly is not supported. Please refer to the Bosch Security Knowledge Base or consult your local support for manual alternatives.
- Recording
  - H.265 encoded video recording and playback is supported
  - Time Server: VRM expects a Windows Time Server running. For the BVIP cameras/encoders and the VRM a common time server must be configured to ensure an application-wide, uniform time-base. The VRM Server must synchronize with the same Time Server used for all VRM managed BVIP cameras/encoders.
  - "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.

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- 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.
- In case function “Secondary target usage” in a storage pool is enabled, this consumes blocks from other storages in that pool. Each IP camera and IP encoder gets extra blocks from one additional storage system assigned for usage in case primary is not reachable. By default this function is disabled (off) at each new pool. For each camera channel 2x 1GB blocks are reserved/assigned to the block list when having this feature enabled. E.g. VIP X1600 XFM4 would get 2x4 = 8 blocks form secondary storage. 16-channel encoder would get 32 blocks assigned. As the situation that the VRM and a complete storage go offline at the same time is seen on low risk, the secondary target usage is by default set to “off” and can be enabled if desired anyhow.

- Video Streaming Gateway
  - RTSP cameras with H.265 are supported – Currently ONVIF profile T 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.

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From			Nuremberg
Product Management	(BT-SC/MKP8)		02.04.2019

- 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). Windows Server 201x unused NIC should be disabled (different to Windows Server 2008)

5. Installation Notes

Important note: For full feature compatibility VRM 3.81 requires the BVIP firmware version 6.50, 6.51 and 6.60 or later. DSA E-Series Dual Controller in Dual-Simplex configuration and high-density expansion shelf products are **not** supported in earlier firmware versions and VRM version below VRM 3.20.
VRM 3.81 itself is backward compatible with firmware versions 2.53 or higher.
Enhancements and features available only with firmware version 6.0 or later will not be active.
Important note: VIDOS Client is not supported by VRM 3.0 and newer.

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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From			Nuremberg
Product Management	(BT-SC/MKP8)		02.04.2019

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 Server 2012R2, Windows Storage Server 2012R2, Windows Server 2016, Windows Storage Server 2016; VMWare (ESXi 5.5); Hyper-V with Windows Server 2012 R2
CPU	Intel Xeon E5-2620v3 (2.4 GHz, 6-core, 15MB, 85W) or faster
RAM	min. 8 GB
Graphic Card	VGA- or SVGA-compatible
Ethernet Card	1 Gbps
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.
VRM on DIVAR IP	VRM 3.81 can be installed on DIVAR IP 6000 R2 systems with reduced number of camera channels; e.g. up to 128 camera channels with Intel Xeon Processor E3-1275 V3, (8 MB Cache, 3.5 GHz), 8 MB Intel Smart Cache, Memory installed: 8 GB, DDR3-1666 ECC UNB (1 x 8 GB) Microsoft Operating System Windows Storage Server 2012 R2

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)

Component Versions
- Video Streaming Gateway 6.44.0030
- Transcoder 6.44.0030
- MPEGActiveX 6.13.0084
- Microsoft® .Net Framework 4.6.2

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From			Nuremberg
Product Management	(BT-SC/MKP8)		02.04.2019

Configuration Manager 6.00.0122

System requirements for Configuration Manager can be found in the Configuration Manager release letter.

Bosch Video Client 1.7.6.0978

BVC is required to replay data exported via the VRM eXport Wizard. As well as BVMS 9.0

System requirements for Bosch Video Client can be found in the Bosch Video Client release letter.

VRM eXport Wizard 1.20.0010

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

- Windows Server 2008 R2 (Standard Edition, 64-bit),
- Windows Storage Server 2008 R2 (Standard Edition, 64-bit),
- Windows Server 2012R2,
- Windows Storage Server 2012R2,
- Windows Server 2016,
- Windows Storage Server 2016
- Windows 10

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).

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From			Nuremberg
Product Management	(BT-SC/MKP8)		02.04.2019

8. History

VRM 3.81

New Features

(Build 32)

- Support of firmware 6.50 and firmware 6.51
- Device replacement feature offered via BVMS Configuration Client: You are able to replace a camera or an encoder without losing any recording of the camera
- Motion based recording for Sony cameras (7th generation) via RTSP streaming

Bug Fixes

(Build 32)

- Communication Issue between BVMS and VRM fixed. Microsoft® components like .Net Framework 4.6.2 and Redistributables for Visual Studio 2015 are included in the VRM package.
  (see Knowledge Base https://community.boschsecurity.com/t5/Security-Video/-/ta-p/416)
- Several minor additional bug fixes

VRM 3.71

New Features

(Build 29)

No new features

Bug Fixes

(Build 29)

- Bug Fix reporting storage blocks as empty but carrying video is fixed. Gaps in timeline could be shown and video footage could not be replayed. (#VRM-3016: blocks with a multiple of 256 slices were interpreted as empty blocks. Now corrected)
- Corrected display and replay of recorded clips in continuous and alarm recording
- If E2800 multipathing iSCSI targets used a new VRM eXport Wizard version is available to export during “alternate active path”.

VRM 3.71

New Features

(Build 22)

- Support of the new NetApp E-Series 2800 in “Full duplex mode” inclusive iSCSI multipathing
- Support of large GOPs for Bosch intelligent streaming
- Support H.265 for recording and replay
- Support of the new NetApp E-Series 2800 in Simplex mode.
- Performance optimizations for large LUNs and for many slices (alarm recording)

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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

Bug Fixes

(Build 22)
- Fix: Enhanced iSCSI block distribution in case of temporary camera mal function.
- 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

VRM 3.70

New Features:

(Build 60)

General:
- Support of large GOPs for Bosch intelligent streaming
- Support H.265
- Support of the new NetApp E-Series 2800 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 encryption to protect VRM configuration

Bug Fixes

(Build 60)
- Fixed transcoding issue for replay
- Fixed backward channel for bandwidth check
- Fixed https issues (SSL certificate management)
- Fix to prevent video deletion caused by manual restore of old database

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- Consistent load balancing mode display in Config Manager and VRM monitor
- Removed weak SSL protocol versions and cipher suites
- Fixed bitrate calculation for VIP X1/X2
- Fixed open redirect in http server
- BVMS User logins optimized

VRM 3.70

New Features

(Build 56)

General:

- Support of large GOPs for Bosch intelligent streaming
- Support H.265 for recording and replay
- 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

Bug Fixes

(Build 56)

- 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

VRM 3.62 (DIP 2000/5000 only)

New Features

(Build 13)

- Support for large update files

Bug Fixes

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(Build 13)
- Storage configuration could be broken, if system ran out of memory

VRM 3.61 (DIP 2000/5000 only)

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”

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

VRM 3.60

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

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.

VRM 3.51

New Features

(Build 0057)
- Maintenance Release with no new features

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Product Management	(BT-SC/MKP8)		02.04.2019

Bug Fixes

(Build 0057)

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

VRM 3.50

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

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

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