digivod
VMS

digivod Video Management Software

digivod is prize-winning video management software for all video surveillance installations, be it small or big, simple or challenging. **digivod** installations can be tailor-made to the requirements of each project.

digivod is fully scalable. The amount of cameras, work stations and recorders can be added flexibly during operations. Any third-party security sensors such as alarm systems, point of sales systems or analytics can be added during runtime.

digivod is truly manufacturer-independent. It supports IP, HD-SDI and analogue cameras. It supports all encoders and grabber cards established on the market.

digivod software is based on the client-server architecture. It runs on Microsoft Windows operating systems as true 64 Bit multicore application. All Windows versions starting from Windows 7 Professional are supported. For the server, no explicit Windows Server OS is required; however, the system also supports Windows server OS. The .NET 4.5 framework is required for client and server.
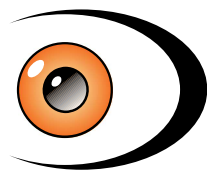
digivod®
security made easy

mal-tech
Secure Your Assets

- **High availability**

- **System resource efficiency (CPU, RAM, network, and storage)**

- **Scales with your needs**

- **Easy to administer**

- **Intuitive operations**

- **Server side GPU support for maximal performance**

- **Independent of camera and hardware manufacturers**

- **IP, HD-SDI and analog in one system**

- **H.265, H.264, MPEG4, MJPEG, MxPEG**

- **ONVIF conformant**

System Overview

digivod is client/server software. The server renders its functionality to the clients through Windows services that run in the background.

- **Camera management und recording**
  » Dynamical transcoding for instable/ limited networks such as WAN, LTE/ UMTS, ISDN and similar
  » Exports
  » Reports
  » Search
  » Fluid viewing of live and archive videos in single and multiple views for all devices (desktops, smart phones, tablets, browser)
  » Special streaming service for connections with low bandwidth and latency

- **Rule engine**
  » Rule sources, triggers and conditions
  » Alarm work flows
  » Rule actions
  » Variables in rules (e.g. camera name, name of an external source, time stamps etc.)

- **PTZ management**
  » Steering and control
  » Positioning and tracking
  » Presets

- **Backup**
  » Management of storage sets
  » Backup of configurations
  » Backup of recordings
  » Permanent backups

- **User and privileges**
  » Privilege groups
  » Users
  » Active Directory

- Management of **external devices/ libraries** such as gates or doors that are connected through Modbus, or tightly integrated devices/libraries such as video analytics, alarm systems, access control or fence sensors

- Management of external **digivod** installations in distributed environments **(Multi Location)**

- Management of multiple recorders in **High Availability Mode**

- **System monitoring**

- **API/SDK** for third-party applications

- The client (Observer) offers a graphical user interface. It includes all settings for each workstation. The client can be installed using Internet Explorer without requiring local administration privileges (one click installation)

- **digivod** also supports HTML5 based browsers and apps based on Android and iOS. Using the browser or the app, users can view live and archive videos, receive alarms, and steer PTZ. Any app can access multiple installations

Core Functionality

Cameras and PTZ

- Support of all established IP cameras and encoders through ONVIF or native integration

- Support of IP, analogue und HD-SDI

- **digivod** is conformant with the ONVIF standard (Profil S)

- Support of H.264, MPEG4, MJPEG und MxPEG. Prepared for H.265

- Unlimited Multi Megapixel support

- Integration of camera-onboard video analytics (Riva VCA, VideoIQ)

- Server based 360° dewarping for Axis and Grundig

- Performance optimized dual stream support (live access and video analytics or motion detection with low resolution secondary video stream, while synchronously recording high resolution primary stream)

- Lip synchronous, bi-directional audio

- Support of audio only devices

- Fixed cameras can be combined with external pan-tilt devices and used as PTZ cameras within **digivod**

- NTP time synchronization of cameras

- Steering of PTZ cameras using joystick, mouse, virtual joystick and keyboard

- Creation of new PTZ presets from the player view

- Adjustment of joystick sensitivity to workstations and users

- PTZ tours and scheduling

- Digital zoom and digital PTZ for all cameras in live and archive mode

- Position tracking of PTZ cameras. Position and zoom level are displayed as overlay in the camera view. Dynamical visualization in the GIS map while steering the PTZ

Recording

- The system supports all profiles, quality and compression stages, resolutions and frame rates for the video encoding in MJPEG, MPEG4, MxPEG and H.264 that are available on the cameras/video servers, which are connected natively or over ONVIF. It is possible to choose any of these parameters flexibly for each connected camera

- Video data is always stored as it comes from the camera. At no time is it altered or transcoded by storing the recordings

- The system allows free choice of storage location for the video data, as well as the duration of archiving, for each single camera

- The system supports secondary storage, e.g. USB disk or NAS

- **digivod** supports various recording schedules, amongst others, manual, permanent, event-based, and IO-triggered

- In case of scheduled recording, the system allows to choose individual video stream profiles (resolution, compression rate, frame rate) for each recording time slot. The schedules allow configurable exceptions such as holidays or closing hours

- The system supports the storage of video data on all well-established media (e.g. internal hard disks, RAID volumes (all RAID levels), USB hard disks, SAN, NAS)

- Video data that were recorded within the cameras on SD cards can be merged into the system periodically, manually or based on a fixed schedule. If the system is recording itself, and there is a gap in the system's recording (e.g. due to infrastructure problems), the data from the SD cards is automatically downloaded to fill the gaps

- The system supports server-side IntelMediaSDK for performant H.264 encoding

- **digivod** supports encryption of video and audio sequences by Rijndael-128 (AES)

Network

- **digivod** offers dedicated functions for network connections of various quality

- Dynamical transcoding allows optimization of framerate or resolution, adjusted to the available network and/ or the target display. **digivod** transcodes H.264, hardware accelerated, in real time

- **digivod** supports the activation of a second video stream (low resolution or low framerate) from the camera (free of channel license) for display and video analytics. The secondary stream is not recorded

- The system supports multicasting from the server to the clients for live viewing

- Communications between client and server, and server and server are always encrypted, allowing security of highest standard

- Recording can be done with iFrames for periods without events, and high resolution for those with events

- The system supports switching between primary and secondary video stream with simple hotkey

- The system supports intelligent permanent replication of recordings to an external destination (FTP or Samba share), dynamically adjusting the upload speed depending on number of live requests on the recorder. Such replicated files can later on serve as local archive. This allows a **digivod** headquarter to activate the network to an external recorder only for live access and to use the local archive for forensic investigations. This feature is especially useful in environments with limited bandwidth between the headquarter and the distributed sites

- All cameras in a LAN can be found by auto discovery and imported by simple mouse clicks

- The system offers a special **streaming service** to cater for low bandwidth connections with latency, such as LTE or satellite connections

Live Viewing and Archive Replay

- The system supports the display of all displayable objects (e.g. cameras, multi views, camera tours, IO ports) on all monitors that are connected to the client, and on all available video wall monitors

- The system supports video wall functionalities that allow the control of any number of video screens. The view that needs to be shown on a monitor can be determined by dragging the view into the monitor (drag and drop)

- The system allows simultaneous display of live and archive video of the same camera

- The Observer comes with an intuitive Player that includes symbol buttons such as skip to next/previous event, skip forward/backward for a defined amount of time, play forward/backward with configurable speed, and jumping back to live view. It especially allows jumping back and forth frame by frame, allowing detection of even the smallest details in the recordings

- In the case of single frame stepping, the system displays all frames in forward and backward mode, independently from the compression method of the camera

- The system displays synchronously in multi views, in forward and backward mode and in all speeds, even when the cameras have different compression methods, compression rates or frame rates.

The system supports fastback: quickly jumping into the last 60 seconds (or shorter). After this period, the view jumps back to live automatically

Video Export and Snapshots

- The system supports the export of the displayed live and archive pictures precise to the frame as .jpg file (snapshot)

- Video sequences can be exported with optional transcoding

- The system allows to export continuous and non-continuous video data of one or multiple cameras as displayable video files (MP4). As another option, the system supports that the video data from another camera to be inserted into the video data of the to-be-exported camera at a position of free choice (picture in picture)

- The system allows to export continuous and non-continuous video data of one or multiple cameras to an offline player package, to the split second and without any alteration. The offline player offers identical user interface as the system client and is executable on any established Windows system without installation of further software

- The system offers the option to encrypt video exports

Search and Research

- **digivod** supports camera-onboard analytics (Riva and VideoIQ cameras)

- **digivod** offers optional server-based motion detection, especially useful for passive grabber cards. Server-based motion detection can be configured and fine-tuned using live and archive views

- **SmartSearch:** supports ad-hoc search on one camera recordings for motion/picture changes within a region of interest. For those video analytics that deliver meta data, the meta data is stored during runtime. This allows retrieval of search results within milliseconds. This accelerated search currently is supported for Riva, **digivod** motion detection and TechnoAware. If no metadata is available (e.g. no analytics during runtime), the search is carried out on the raw recordings

- **QuickSearch:** supports quick summary of events within the last 24 hours (or any other duration) by allowing the user to zoom into the relevant time interval until the event has been found

- The system supports **License Plate Recognition** for slow moving vehicles (e.g. parking solutions) and fast moving vehicles (e.g. for highway surveillance). Black and white lists are supported. Search results are optimized by usage of country specific engines

Views

- Any multiple views can be created using **digivod**

- The system offers place holder sub views into which the user can drag and drop any camera during operations

- Any function (e.g. PTZ preset, manual recording, exports etc.) can be put on buttons. Buttons can be configured with individual icons for each state, e.g. activated, disarmed, suspended, deactivated etc. Buttons can be placed in any view, as well as site plans and GIS maps

- With alarm sub views, cameras associated with an alarm can pop up automatically in looping mode

Alarm Management

- **digivod** alarms are configured with rules. The rule engine allows various alarm sources, e.g. cameras, IO ports, external sites (in distributed environments), or video analytics, and many more. The rule engine allows definition of alarm conditions, e.g. schedules, IO states or intervals

- Each rule can define sophisticated system behavior and **actions.** Possible alarm actions include: opening of a view, switching of an IO port, starting/stopping of manual recording, PTZ steering, sending of SMTP alerts, playing of sounds, and many more

- Rules can be combined

- A **Managed Alarm** is an active alarm by its own workflow. It can be assigned to other operators, defined with instruction steps that need to be acknowledged, and resolved with only defined resolution grounds (e.g. resolved, false alarm, rehearsal, escalation etc.)

- A rule can associate any number of cameras to an alarm. The cameras can pop up automatically (if configured so) upon the alarm. For example, it is configurable to open the cameras at the front and back entrance and the side walls automatically whenever the intrusion system reports an alarm. Alarm views can be configured as auto split (automatically showing 1, or 2x2, or 3x3 live pictures from the alarm cameras) or carousel (tour of the alarm cameras).

Site Plan and GIS Map

- **digivod** supports **cascading site plans** and a flexible definition of status summaries. For example, floor plans within a building can be linked with each other and the building itself. The linking does not only allow quick navigation but the summary of camera and alarm information for the complete building

- Cameras, views, and IO ports can be placed in site plans and the GIS map. The status of all map/site plan items is shown dynamically. Double mouse click or drag and drop allow quick access to the cameras

- Individual icons can be imported and defined for all site plan/map items. Icons can be chosen to illustrate each state of an IO port

- The **GIS map** allows precise location of sensors and alarms. For an alarm, all cameras in the radius can be opened with one simple mouse click

- All external devices can be controlled from the site plan/GIS map through IO ports

- In distributed installations (multi location mode), site plans of each external site can be embedded into the GIS map of the headquarter, giving overview on the status (and location) of all external sites at one glance

Multi Location/Alarm Monitoring Centers/Broker

digivod can be operated in multi-location/alarm monitoring/Broker mode. In such environments, a headquarter accesses various distributed sites (recorders), and/or exported recordings (only for the Broker)

- Cameras, site plans, views and IO ports of the site are accessible from the navigation tree in the headquarter

- Each site can decide on the type of alarms that is propagated to the headquarter

- In the headquarter, own workflows can be defined based on alarms from individual external sites

- The headquarter can record live video streams from the site based on certain conditions. For example, it can be defined that the headquarter records dedicated cameras in case the emergency button is pushed on a site, allowing the headquarter to have backup videos even if the recordings should be destroyed on the site

- **digivod** sites can supply regular system status information to the headquarter

- **digivod** sites can use the permanent replication feature to replicate their recordings to a directory in the headquarter, through WAN or LTE. In order to save the network to the sites, the headquarter can use the replicated records for archive research, and access the network only for live viewings (only available with **digivod** Broker)

- A special form of "site" can be exported/backup recordings of a previous installation. This allows the headquarter to have live access to an external site while reviewing historical data of another installation that has relevance to the live site. This is especially useful if the external site is a mobile recorder that is activated for time limited surveillance jobs. This feature is only available with **digivod** Broker

- Various network settings within **digivod** allow optimal use of the network between the headquarter and the sites

High Availability

- **digivod** supports distributed recording on multiple recorders (multi recording)

- In the case of failure of one recorder, a pre-defined back up recorder can take over all cameras (fail over). Resolution and framerates can be adjusted to the remaining resources on the backup recorder(s)

- When the failing recorder comes online again, the fall back occurs automatically

- Fail over und fall back occur transparently for all connected clients

- Even for installations that use separate networks (e.g. in multi-location environments), fail over can be implemented. The **digivod** persistence architecture supports the Windows Distributed File System Replication (DFSR) for distributed sites. In the case of failure of one site, the backup site can start immediately, as long as the network to the cameras of the failing site allows access by the backup site. This is possible because the **digivod** architecture fully relies on the Windows services; it does not require third party database applications.

- **digivod** allows cyclical and manual backups for video recordings and configurations

- **digivod** supports simple recording of video data on separate storage sets

Security/Data Protection

- **digivod** supports server based privacy zones for masking of zones. Masked zones can be de-masked with relevant privileges

- **digivod** supports automatic logout after defined time of inactivity on the client

- Passwords are stored encrypted

- **digivod** supports encrypted video and audio recording, sequence by sequence

- **digivod** supports the 4 eyes principle for user logins

- All communications between client and server, and server and server, are encrypted