



VTS Logging & Replay VLR5070

KONGSBERG

VTS Logging & Replay (VLR5070) is designed as a collection of general-purpose recording and replay software modules. Both the logging software and the replay server software operates indiscriminately on the different data types and protocols used. This means that the basic modules in the VLR5070 simply taps the system of data and on request feeds it back to the system, exactly as it appeared when it was present in real time. A major advantage is that the regular Client software used to present VTS data to the VTS Operator, is also used to present replayed data, thus providing the same functionality as when operating on real-time data. This also means that no dedicated replay client software is necessary, except for the new Replay Control Panel.

Purpose

VLR5070 has two main functions:

- ✦ Log VTS related data from applicable sensors and servers in the VTMIS system
- ✦ Provide selected data from the storage, for the purpose of determining exactly what occurred at a specified time

Features

➤ Data Sources

In its standard form, the VLR5070 Logging and Replay application records and replays

- ✦ Tracked targets

Optionally, any combination of the following can be recorded and replayed as part of the VLR5070:

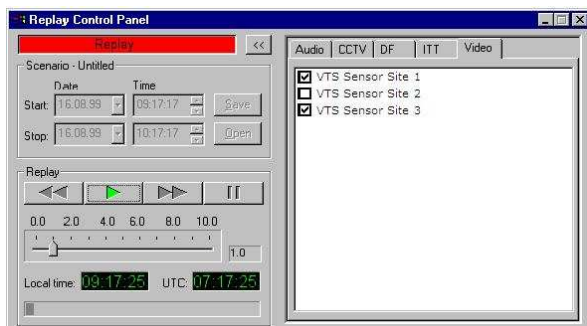
- ✦ Digital radar video
- ✦ Voice communications
- ✦ VHF/DF data
- ✦ CCTV images
- ✦ Operator actions related to control of targets and radars
- ✦ AIS text messages

For Meteorological and hydrological data, SCADA alarms and System status and alarms, logging and report facilities are available in the respective VTS applications.

➤ Replay

The VLR5070 replay application can be installed on any connected computer running Windows 2000/XP®, and is using the same presentation concept as the VOC5060, however adding the VLR5070 Replay Control Panel.

Through the VLR5070 replay application, tracked targets, digital radar video, voice communications, VHF/DF and CCTV images may be replayed in a synchronous mode. Reports are available for tracked targets, operator actions and AIS text messages.



➤ Configuration

VLR5070 features simple configuration applications that enable an administrator or technician to set parameters for the logging process. Typical VLR5070 configuration items are Logging ON or OFF for each individual source, Logging intervals and Source channel selections.

➤ Security

To minimise the possibility of loosing data, the logging process is independent of logon. The logging process starts automatically upon booting the PC. However, configuration changes are only possible after a Windows logon.

➤ Redundancy

The Log Server software stores data on a storage medium with a capacity sized after the volume of data and the time-span of the accessibility of the logged data. This can range from a single internal HDD to RAID systems in the terra-byte (1024Gb) size. The RAID array will normally be configured such that it will tolerate failure of one disk without loss of data.

In a standard redundancy configuration the digitising, filtering and logging software run in parallel on two PCs. During normal operation both parallel sets of software performs its task, but only the primary software actually writes data to the storage medium. In case of a failure on the primary PC, the secondary PC takes over. This concept ensures that the "non-logging" time gap is minimised, typically no more than 2-3 seconds.

➤ Equipment

In its standard configuration VLR5070 typically uses one single PC with a suitable size hard disk for storage.

However, the system is scalable. Optionally a VLR5070 installation may use a full fault tolerant level 5 Redundant Array of Independent Disks (RAID) system. It can also be configured to use two or more PCs, with individual RAID systems connected, running in parallel.

VLR5070 Components

➤ Log Server

The Log Server software is implemented as processes in the Windows 2000/XP® environment. It runs independent of the other VLR5070 components. There is normally a number of Log Server modules running in parallel, each one handling its own data type and interfacing the corresponding LAN channel. During normal operation the logging software require no user interaction to perform its task.

The data from the LAN-channels is stored in the sequence that it is received, such that the chronology of events is maintained.

➤ **Replay Server**

The Replay Server's role in the VLR5070 is very similar to the Log Server's role, except that the data travels in the opposite direction. The trigger of this action is a request from a Replay Control Panel.

The Replay Server software is normally running idle, with minimum of processing, until a request for replay is received. During replay data is read from the storage medium and fed to the interface modules.

➤ **Audio Digitizer**

The analogue VHF/Voice communication lines are connected to an A/D card in the VLR5070 PC. The Audio Digitizer software components digitise speech from all the connected lines, and it is recorded from the LAN by the Log Server software.

➤ **Replay Control Panel**

The Replay Control Panel (figure above) features a user friendly HCI for selection of known scenarios or composition of new ones, as well as replay controls. It is also responsible for triggering the switch from real-time data to replay data on all the Clients involved.

➤ **Storage Manager**

The Storage Manager software component monitors and manipulates the storage medium. It performs certain tasks automatically, as configured, and in other cases generates alarms if there are faulty disks or the system is low on storage space. It ensures that there is always sufficient free space for storage of new data.

Technical Specifications

➤ **General**

- ⊕ *Computer Type - Rack-mounted server*

➤ **Performance**

- ⊕ *Logging intervals*
 - *Tracked targets: Continuous*
 - *Radar video: Adjustable, typically every 2nd scan (typical antenna speed 20 rpm)*
 - *Voice: Continuous when traffic*
 - *VHF/DF: Continuous*
 - *CCTV: Adjustable, typically snap-shot every minute*
 - *Operator actions: Specified actions stored on event*
- ⊕ *All radar's in the system can be included for logging.*
- ⊕ *Recommended storage capacities based on 30 days of recording are 10Gb/Radar and 5Gb/Audio source, depending on the environment (clutter and traffic respectively).*

➤ **Interfaces**

- ⊕ *LAN Connection: RJ-45*
- ⊕ *LAN Protocol: IEEE Standard 802.3, 10/100BaseT*
- ⊕ *Analogue Audio Input: Up to max 32 balanced differential inputs or 64 single ended inputs connected to A/D cards.*
- ⊕ *Audio Output: Direct X/Direct Sound compatible sound card*

Options

- ⊕ **Data Sources** - VLR5070 can optionally be configured to record and replay any number of the following data sources
 - *Digital Video - One, some or all radar's*
 - *Audio - VHF radio, telephone and intercom*
 - *VHF/DF - VHF Direction Finding sensors*
 - *Closed Circuit Television (CCTV)*
 - *Operator Actions - On the VOC5060 workstations*
- ⊕ **Optional Computer** - An Industry Standard PC is available as replacement for the standard computer.
- ⊕ **Primary Storage** - 12-disk RAID as primary storage. Other choices may be smaller or larger RAID and internal HDD at any capacity. Writing and reading data to and from the RAID is accomplished through the operating system's file-system, namely NTFS.
- ⊕ **Secondary Storage** - Internal HDD and RAID at any capacity.
- ⊕ **Printer** - A wide range of compatible printers can be supplied. Normally, only one printer is needed for the entire VTS operations room.
- ⊕ **Replay Console** - The VLR5070 can be supplied with a standard or custom-designed workspace to house the computer equipment.
- ⊕ **HyperCam[®]** - For recording and playback of replay sessions as movies, HyperCam[®] can be supplied. This is supplied directly from the manufacturer, at their retail price, except for handling and installation.
- ⊕ **Voice Replay Manager** - A software module that allows for selection of audio channels for replay, and mode of synchronisation, as well as showing status properties for the selected channel. It also enables mixing, shifting and filtering of the selected channels.

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KONGSBERG

Kongsberg Norcontrol IT AS
PO Box 1024, N-3194 Horten, Norway
Phone: +47 33 08 48 00, Fax: +47 33 04 57 35

Email: knc.sales@kongsberg.com
Internet: www.kongsberg.com/eng/KDA/Norcontrolit/