Canon

VK-64/VK-16/VK-Lite
Setup Guide

Ver. 2.2

ENG

Introduction

Thank you for purchasing Network Video Recorder VK-64 v2.2/VK-16 v2.2 (hereafter referred to as **VK-64/VK-16**), or VK-Lite v2.2 (hereafter referred to as **VK-Lite**). VK-64/VK-16 and VK-Lite are software for recording and monitoring video via a network, and include storage server software and viewer software.

Read this guide thoroughly before using the software to build a network camera recording and monitoring system. Keep this guide in a safe location for future reference.

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Contents

Chapter 1   VK-64/VK-16 Installation

Chapter 2   VK-Lite Installation

About This Guide

This guide is intended for the following users.

- System administrators who install and manage VK-64/VK-16

- System administrators who install and manage VK-Lite

This guide first explains what you should know before operating a network camera monitoring system, and differences between VK-64/VK-16 and VK-Lite.

"VK-64/VK-16 Installation" describes the process from preparation for installation to system administration, and also provides references to each step's detailed explanations in the *Administrator's Manual*.

"VK-Lite Installation" describes the basic steps for preparation for installation and operation.

First, read this guide up to "Specification Comparison of VK-64/VK-16 and VK-Lite".
And then, read "VK-64/VK-16 Installation" or "VK-Lite Installation" depending on the software you use.

Icons used in this guide

The following icons are used in this guide to indicate descriptions that you should read in particular.

Icon	Explanation
Note	Contains notes and operational limitations. Read these notes carefully.
Tip	Contains supplementary explanations and reference information for the operation.
Reference	Shows the relevant page in other manuals that explains more details. Read these as necessary.

Note

It is recommended to read "VK-Lite Installation" even when installing VK-64/VK-16, as an example of simple configuration with 4 camera servers.

System Operation Overview

Overview of VK-64/VK-16

Network Video Recorder

Network Video Recorder is software for viewing video, recording video and audio, and playing video from multiple network cameras (hereafter referred to as camera servers). VK-64/VK-16 and VK-Lite enable viewing and recording of JPEG and MPEG-4 video, two-way audio communication, and audio recording.

Network Video Recorder Configuration

The Network Video Recorder consists of storage server software and viewer software. You can record videos from multiple camera servers and can log event information of motion detection and external device input, using the storage server software. Also you can view live videos from multiple camera servers, and play recorded videos saved on storage servers, using the viewer software.

Product Type

Product Name	Storage Server	Viewer
Network Video Recorder VK-64 v2.2	1 license	1 license
Network Video Recorder VK-16 v2.2	1 license	1 license
Network Video Recorder VK-64 v2.2 Viewer	-	1 license
Network Video Recorder VK-64 v2.2 5 Viewers	-	5 licenses

Network Video Recorder VK-64

Up to 64 camera servers can be registered to Network Video Recorder VK-64 (hereafter referred to as VK-64).

Network Video Recorder VK-16

Network Video Recorder VK-16 (hereafter referred to as VK-16) has the same core functionalities as VK-64, but the maximum of number of camera servers, which can be registered to, is 16.

Type	Storage Server	Viewer
VK-64	Up to 64 camera servers can be registered.	Same
VK-16	Up to 16 camera servers can be registered. All other functions are the same as VK-64.	Same

VK-64 Viewer (Viewer Only)

You need to purchase the required number of viewer licenses to use additional viewers. Also, VK-64 Viewer is suitable for a monitoring system, in which you need just monitoring, not recording. You can view live videos from and control up to 64 camera severs. (Some functions are not available, such as recording and playing video, displaying event logs of motion detection and external device input, and still frames.)

Upgrade from Older Versions

To upgrade from an older version (v1.1, v1.2, v1.3, v1.4, v2.0 or v2.1) to v2.2, download the free patch installer from our website. License keys used for the older versions can also be used for v2.2.

Network Video Recorder VK-Lite

Network Video Recorder VK-Lite supplied with VB-C500VD, VB-C500D and VB-C60 is a simplified version software of VK-64/VK-16. VK-Lite allows displaying video, recording video and audio, and playing audio, of up to 4 camera servers.

A VK-Lite Viewer license is given per camera server. When using multiple camera servers, you need to buy additional licenses ("VK-Lite Additional Viewer License") for each camera.

Specification Comparison of VK-64/VK-16 and VK-Lite

VK-Lite is Network Video Recorder which is supplied with VB-C500VD, VB-C500D and VB-C60. Although VK-Lite basically provides the same functionalities as VK-64/VK-16, there are some functional limitations as follows, since VK-Lite is a simplified version of VK-64/VK-16.

Type	Main functional limitations	VK-64/VK-16 v2.2	VK-Lite v2.2
Camera server connection	Max. number of camera servers	64 / 16	4
	Available camera servers	VB-C500VD, VB-C500D, VB-C60, VB-C300, VB-C50 series, VB-C10/R, VB150	VB-C500VD, VB-C500D, VB-C60, VB-C300, VB-C50 series
	Automatic camera server search	✔	✔
Storage Server	Recording format	JPEG, MPEG-4	JPEG only
	Max. recording frame rate	30 fps[*1]	5 fps [*1]
	Video recording mode	Normal Schedule recording (Continuous recording, Sensor event recording, Motion detection recording) Special Day Schedule recording Manual recording	Normal Schedule recording (Continuous recording) Manual recording
	Max. file size setting	Available 32~1024MB, 1~24 hours	Fixed 1GB/day (1024MB)
	Max. retained history of recorded video	999 weeks[*1]	12 weeks (90 days)
	Audio recording / playback	✔	✔
	Recording to NAS servers	✔	–
	Other functional limitations	–	Following functions are unavailable. ● Sending mail when an event occurs ● Customizing priorities of events ● Connection via HTTP proxy ● Remote trigger
Viewer	Live video format	JPEG, MPEG-4	JPEG, MPEG-4
	Max. displaying frame rate	30 fps[*1]	30 fps[*1]
	Max. number of video windows on the viewer	Unlimited[*1]	8 or less is recommended.
	Two-way audio	✔	✔
	Registration of multiple storage servers[*2]	✔	–
	Layout Sequences[*3]	✔	–
	Other functional limitations	–	Following function is unavailable. ● Connection via HTTP proxy ● Viewer control API

*1 Operational limits apply depending on the number of camera servers, the PC performance and hard disk capacity, and the amount of network traffic.

*2 In case of using VK-64/VK-16 with multiple storage servers, you can unify management of camera servers registered to each storage server and the recorded data, if you set one master storage server. When connecting to each storage server using VK-Lite Viewer, you need to switch connection one by one.

*3 Layout Sequences is a function to switch displayed viewer windows at set intervals.

System Configuration Examples

A combination of storage servers and viewers enables various types of system configurations, such as a simple system with one PC and one camera server, or a system using multiple PCs and camera servers.

Case1   Viewing and Recording on a Single PC

You can configure a system with one PC as both a storage server and a viewer.

Storage Server
Records video

Viewer
Displays live video and recorded video
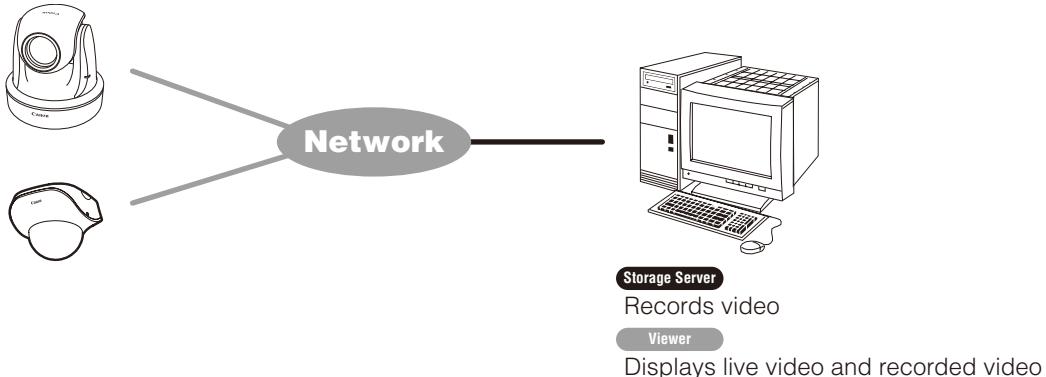
## Case2   Using One PC as a Storage Server and Another as a Viewer

This configuration is recommended for a system with multiple camera servers.

Storage Server
Records video

Viewer
Displays live video and recorded video
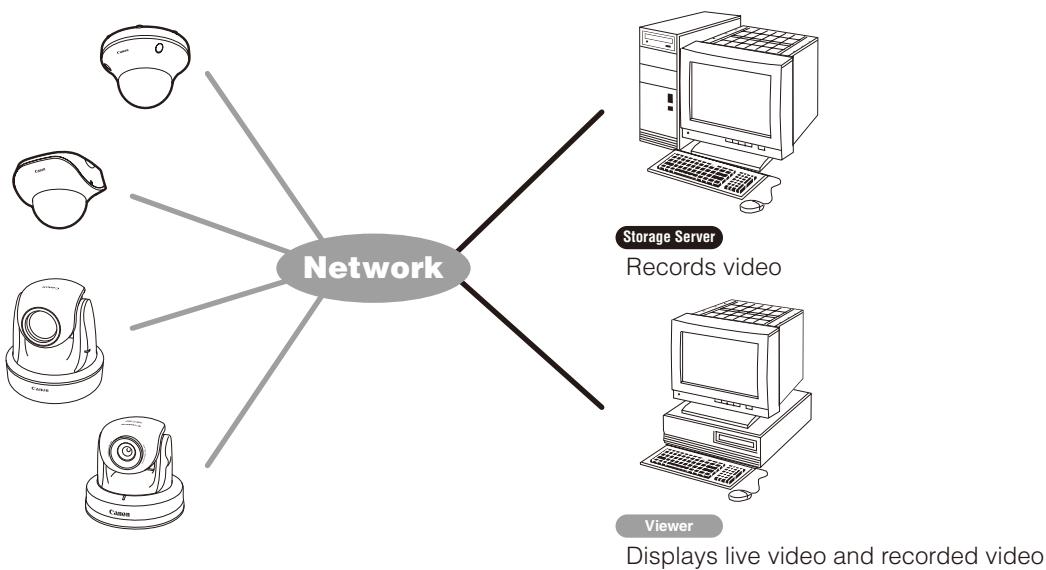
Case3　Using Multiple Storage Servers and Viewers

Up to 10 storage servers can be used on a single network. When multiple camera servers are used in a system, you can use one of them as a master storage server, and use the others as slave storage servers. Master storage servers are storage servers, which viewers first connect to, and are used to store information of camera servers registered to each storage server and to store event logs. Although there is no limit on the number of viewers to be connected, up to 10 clients can connect to a single server. In all, up to 192 camera servers can be operated in one system. You can operate a system with a combination of storage servers and VK-64, VK-16 or VK-Lite.

Slave Storage Server

Stores information of camera servers registered to each storage server and event logs

Master Storage Server

Network

Slave Storage Server
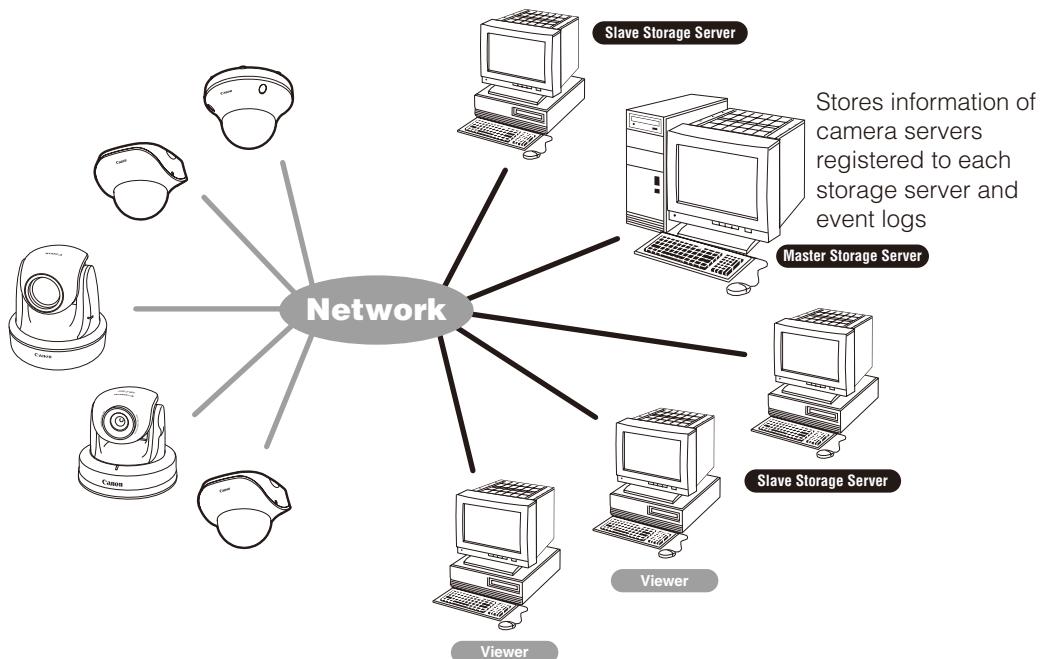
Viewer

Viewer

📝 Note

The master storage server function is not available with VK-Lite. When operating multiple storage servers with a VK-Lite Viewer, you need to switch the connection one by one.

Case4　Using Viewer Only

You can also use the viewer only.

Network

Displays live video

Viewer
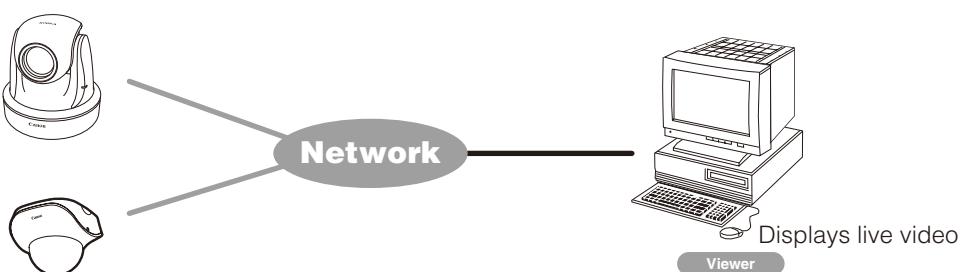
Important: Before Starting Operation

Please be sure to perform operational tests in the actual environment before starting operation.
Be aware of the following points prior to operation.

● Video recording and live viewing may not be done as your settings, depending on the network environment and the PC's performance.

● Under a heavy load on the CPU or disk of the PC, the recording may not be done at the specified frame rate, recording may be suspended temporarily, or you may receive slow responses to the viewer operation. Also, when the amount of free disk space become low, recording may be suspended temporarily, because the disk load increases due to deleting process of recorded video files.

● Operation and performance of storage servers and viewers may be affected on PCs, where anti-virus software or firewall software is running.

● When using a proxy server, video recording may not be done at the specified frame rate, or live viewing may become interrupted. Also, communication between a storage server and viewer may be interrupted. In those cases, audio cannot be recorded.

> ### 📖 Reference
> → Details on proxy server in *Administrator's Manual* ("How to set the [Settings] Tab", "Launch Storage Server by Specifying the IP address")

● Please be sure to read the following reference page for notes on each version of Windows OS.

> ### 📖 Reference
> → "Notes on Operating Environment" in *Administrator's Manual*

● When using a NAS server, take note of the following points.

  • Use recommended NAS servers with Windows Storage Server 2003 or Windows Storage Server 2003 R2.

  • To record video to a NAS server, it is recommended that the network for communicating with a camera server be separated from the network for communication with the NAS server.

● When using audio functions, take note of the following points.

  Audio functions are available on VB-C500VD, VB-C500D, VB-C60, VB-C300, VB-C50i, VB-C50iR, VB-C50FSi.

  • Audio can be sent and received using VK Viewer.

  • Audio recording is available. However, it is not possible to record audio without video. Video and audio must be recorded together.

  • Video and audio may be asynchronous.

  • Audio data may be interrupted depending on the PC's performance and the network environment.

  • Audio data may be interrupted on the PC, where antivirus software is running.

  • Audio functions cannot be used via a proxy server.

1

VK-64/VK-16 Installation

Setup Procedure

Setup Procedure

This chapter describes the installation process from preparation to maintenance.
See *Administrator's Manual* for detailed explanations of each step.

Step1   Preparation

Before installation, check the free space of the hard drive required for a storage
server, considering the video retention period and recording conditions, and then
prepare necessary equipments.

See "System Design Concept" in Chapter1
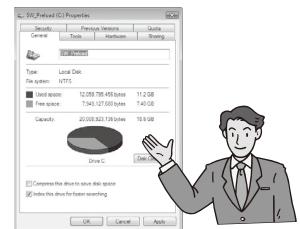
Step2   Camera Installation and Setup

Set up a camera.

See Camera's *User's manual* for details on how to connect the camera.

Step3   Installation

Install the VK-64/VK-16 storage server software and viewer software onto the PC
for storage server and the PC for viewer.

See "Chapter 2 Installation"
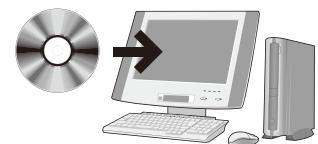
Step4   Storage Server Configuration

Configure the storage server settings. You can configure settings for recording
such as the maximum retained history and maximum file size, settings for event
notification, and settings for user privileges, etc.

See "Chapter 3 Storage Server Configuration Reference"

Step5 | Camera Server Registration

When registering a camera, first set the camera's the location and zone to make it easier to categorize registered cameras. If we look at an example of a retailer with multiple branches and stores, the branches and stores correspond to locations. The sub-classification, such as entrances, cash desks, parking lots, of each store correspond to zones. Register camera servers after setting locations and zones.

See "Chapter 4 Register Camera Server and Set Recording Schedule"
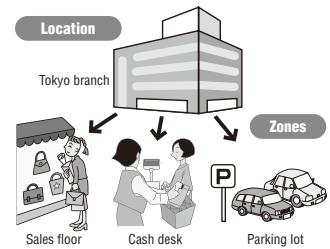
Step6 | Recording Schedule Configuration

Recording schedule settings are available for each camera server, such as continuous recording, motion detection recording, sensor event recording. Recording schedules include normal schedule and special day schedule, so you can configure detailed settings.

See "Chapter 4 Register Camera Server and Set Recording Schedule"
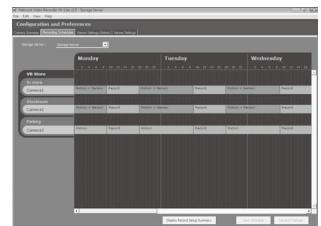
Step7 | Viewer Settings

You can customize your monitoring screen by designing and registering layouts of the viewing area. You can register multiple layouts and switch them at a fixed time interval, so it is possible to build large-scale monitoring systems. You can also set an upper limit on the viewing frame rate and configure automatic adjustment settings, as well as configure settings for event notifications to operators and audio alert depending on the priority level.

See "Chapter 5 Viewer Reference"
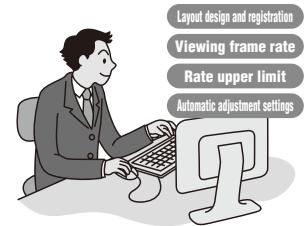
Step8 | Management and Maintenance

Network failure caused by unforeseen problems may negatively affect on the surveillance system operation. In order to avoid, it is recommended to carry out maintenance, such as periodical back up of recorded data and settings data.

See "Chapter 6 Operation and Management", "Chapter 7 Backup Scheme", and "Chapter 8 System Maintenance"

2
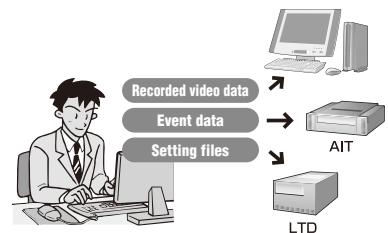
VK-Lite Installation

System Installation Example

VK-Lite System Installation Example

This chapter explains the process from installation to the operational management with an example of a VK-Lite surveillance system based on the following recording conditions.

Recording Conditions

Type (and number) of camera servers	VB-C60 (4)
Video size	VGA (640 x 480)
Video quality	3 (Video data size approx. 35.8 KB[*1])
Recording frame rate	1 fps
Video retention period	14 days

*1 May vary depending on the camera.

System Configuration Example

The example below shows a system, where a storage server and a viewer share a single PC connecting with 4 camera servers.
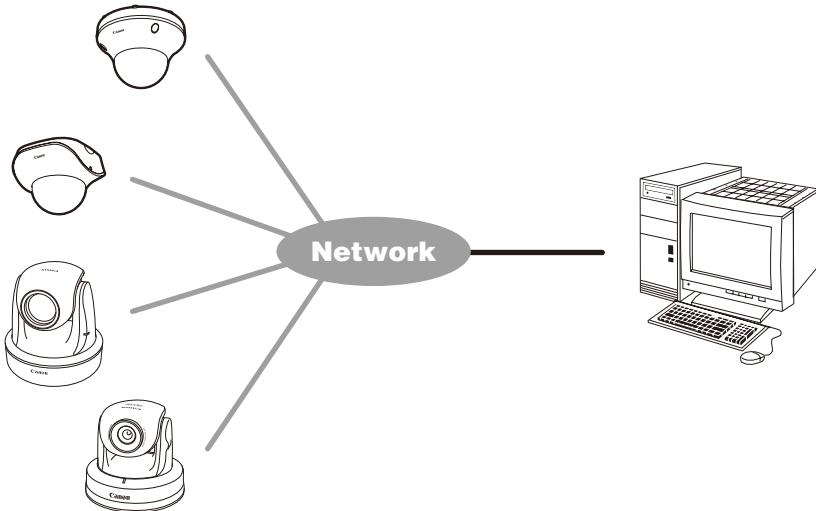
📋 Note

This installation example is explained on the assumption that all the preparation have already been completed, including settings for network cameras, and installation, setup and wiring of related equipments.

Step 1: Preparation

Calculate how much free hard disk space will be required for the storage server from the recording conditions to ensure that the system can operate stably.
The amount of hard disk space required can be calculated using the following formula.

Required free hard disk space

= No. of cameras x Video data size x Recording frame rate x Video retention period (sec.)

= 4 x 35.8 x 1 x (60 x 60 x 24 x 14)

≈ 173214720 KB

≈ 166 GB

The amount of free hard disk space required is therefore over 166 GB. However, this value does not include the space required in the system area.

Note

Do not use an external hard drive to store recorded video data. The video may not be recorded properly or the data may be corrupted.

Reference

→ "System Design Concept" in *Administrator's Manual*

Step 2: Camera Server Installation and Setup

Configure initial camera server settings, such as the IP address setting.
See *Start Guide* for details of initial camera server settings.

Tip

When you use presets and preset tours, it is recommended to complete camera server settings in advance, so that you can build the system more efficiently.

Reference

Initial camera settings → *Start Guide*
Preset settings → "Preset Setting Tool" in *Operation Guide*

Step 3: Installation

Install the VK-Lite storage server software on the PC for storage server and the VK-Lite Viewer software on the PC for viewer, using the Setup CD-ROM supplied with the network camera.
In the following example, VK-Lite storage server and VK-Lite Viewer are installed on a single PC.

Before Installation

The installation drive and the drive for storing recorded video should be formatted in NTFS.

Installation

1. Double-click VKLiteInstall.exe in the APPLICATIONS folder on the Setup CD-ROM supplied with VB-C500VD, VB-C500D or VB-C60 to start the installation.

2. Click [Next].

   The [License Agreement] screen appears. Read the agreement carefully, and then select the radio button saying [I accept the terms in the license agreement] and click [Next] to continue.

   > **Tip**
   > The License Key entry screen does not appear in VK-Lite installation process.

3. Both of the following applications are displayed.

   - Viewer
   - Storage Server

   When you need to install either one of the above, right-click on the application icon, which you will not install, and choose [This feature will not be available].

4. Click [Next].

   A screen for starting the installation is displayed.

   > **Tip**
   > ● It is recommended that you do not change the installation directory.
   > ● You can change the installation directory by clicking [Change].

5. Click [Install].

   The installation process begins and the progress bar is displayed.
   Once the installation has finished, the [InstallShield Wizard Completed] screen is displayed.

6. Click [Finish].

Now the installation has completed.

> ### 📸 Tip
>
> If you are running a system with multiple PCs, you need to install the software on each of the PCs.

> ### 📖 Reference
>
> → "Chapter 2 Installation" in *Administrator's Manual*

Step 4: Storage Server Configuration

Start up [VK-Lite Storage Server Configuration v2.2] for storage server settings.
In the following example we will configure basic settings, such as the maximum retained history, low disk space warning level, maximum disk space usage, and user management setting. How to set recording schedule is explained in "Step 6: Recording Schedule Configuration".

1. Double-click the [VK-Lite Storage Server Configuration v2.2] icon on the Desktop.

The [Login] dialog box is displayed.

2. Enter your user name and password, and click [Login].

The [Storage Server Configuration] dialog box is displayed.
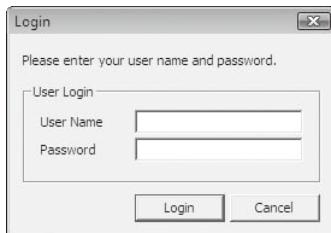
> ### 📸 Tip
>
> ● You need to log on to Windows as a Windows Administrator to configure storage server settings.
>
> ● After installation, the following VK-Lite user with administrator privileges is created.
>
>   User Name   admin
>   Password   NVR
>
> ● If [User Account Control] is enabled on Windows Vista, the [User Account Control] dialog box will be displayed. In this case, click [Allow].

3. Configure the basic storage server settings.

In this example, we use the hard disk space calculated based on the content of "Recording Conditions" (→ P. 2-2) and "Step 1: Preparation" (→ P. 2-3).

In practice, configure this value based on use.

- Set the [Maximum retained history] to 14 days.

- Use the default value of 10% for the [Low disk space warning level] (A value of 10% or more is recommended).

- Set the [Maximum disk space used] to 166 GB.
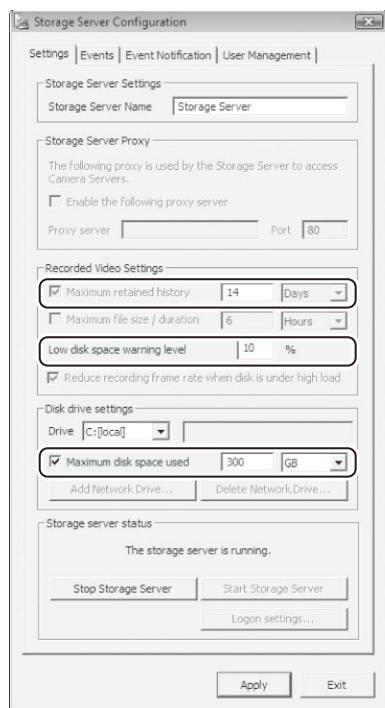
4. If the system is to be used by multiple users, you need to add users using the [User Management] tab.

    • Click [Add] and set the user name and password.

    • To assign administrative privileges to the user, check the [Administrator] checkbox.

📷 Note

It is strongly recommended that before operation, you change the user name "admin" and password created after installation.

⚙️ Tip

The following operations are available by the administrator only.
    • Configuring, registering, and changing camera servers
    • Configuring and changing recording schedules

5. Click [Apply].

    The changes are saved.

📖 Reference

→ "Chapter 3 Storage Server Configuration Reference" in *Administrator's Manual*

Step 5: Camera Server Registration

Start up VK-Lite Viewer to register camera servers.
When VK-Lite Viewer is run for the first time, no video is displayed in the viewer screen. To display video in the viewer screen, register a camera server and then arrange the video window on the viewing area.

1. Double-click the [VK-Lite Viewer v2.2] icon on the Desktop.

   The storage server connection menu (startup screen) is displayed.

   VK-Lite
   Viewer v2.2

2. Select [localhost] from the [Master Storage Server] pull-down menu, and click [Connect].

   The [Login] dialog box is displayed.


   ### 🔅 Tip

   In this example, [localhost] is selected because a storage server and viewer are installed and operate on the same PC.
   For the master storage server, select one from the following, considering the actual operating environment.

Operating Environment	Selection
The storage server and viewer are running on the same PC	localhost
The storage server and viewer are running on different PCs	Specify the IP address
Not record video but view live video	Storage Server not used

3. Enter the [User Name] and [Password], and click [Login].

   The Viewer Screen is displayed.
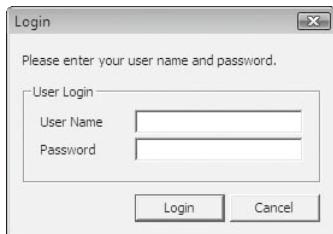
4. Select [View] → [Configuration] from the menu.

   The [Configuration and Preferences] screen is displayed.
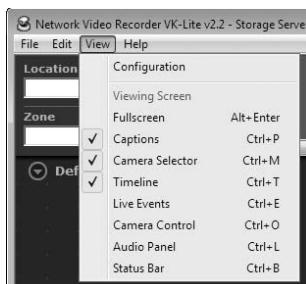
5. Click the [Locations / Zones] tab to create locations and zones.
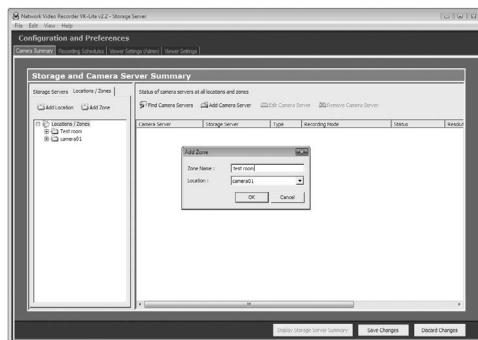
Tip

● You can set location names to identify each monitoring site, for example "Office Building", "Store", etc.

● You can set zone names for particular places in each Location, such as "Entrance", "Elevator Lobby", "Inside Store", "Stock Room", "Parking Lot", etc.

● The following example shows a location name and zone names used for a small retail (Only one Location is set, on the assumption that there is one branch only).

| Location	VB Store
Zone 1	Inside Store
Zone 2	Stock Room
Zone 3	Parking Lot

6. Click [Find Camera Servers].

   Camera servers that can be registered are displayed in the [Search Results] dialog box.

7. Select a camera server to register, and then click [Add Camera Server].

    The [Add Camera Server] dialog box is displayed.
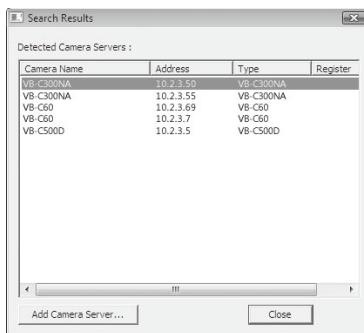
8. Configure the following settings in the [Add Camera Server] dialog box.

    - Enter the [User Name] and [Password], and then click [Connect]. Make sure that the live view is displayed in the [Preview] window.

    - Enter the [Camera Name], and select the [Location] and [Zone] of the camera.

    - Click [Start Control], and adjust the viewing angle of the camera.
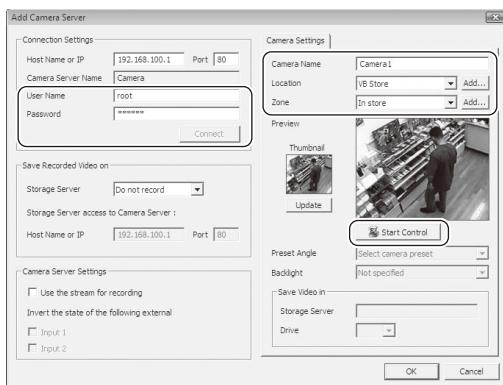

9. Click [OK].

    Now, the camera server has been registered. The registered camera server information is displayed in the right list of the screen.

10. Repeat step 6 to 9 to register other camera servers, if necessary.

11. Check that all of the camera servers that you are using have been registered successfully in the right list of the screen.

12. Click [Save Changes].

The registered camera information is saved.
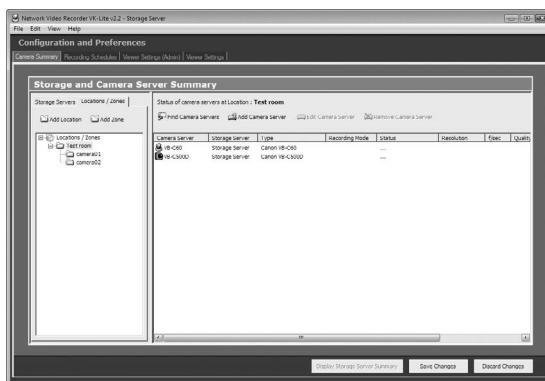
> 📖 **Reference**
>
> → "Chapter 4 Register Camera Server and Set Recording Schedule" in *Administrator's Manual*

## Step 6: Recording Schedule Configuration

Configure the recording schedule settings after camera server registration.
You can configurate recording schedule settings using the [Recording Schedules] tab in the [Configuration and Preferences] screen.
The following example shows a normal schedule for continuous recording at 1 fps all day through Monday to Sunday.

1. Click the [Recording Schedules] tab in the [Configuration and Preferences] screen.

2. Drag to select the entire camera server schedule area.

The [Add Schedule Item] dialog box is displayed. If it is not displayed, go to [Camera Summary] tub. Then, in the [Edit Camera Server] dialog box, choose [Storage Server] from the [Storage Server] drop-down menu.
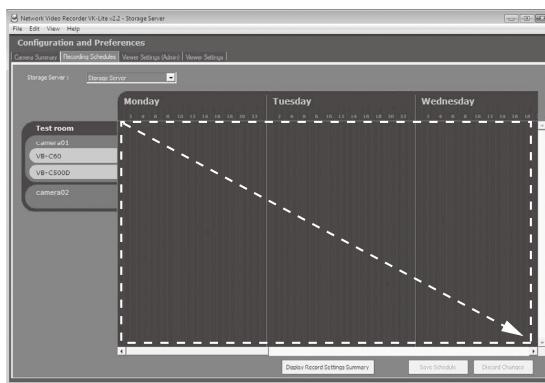
3. Configure the following settings.

   • Click [All Day].

   • Check the Monday to Sunday checkboxes.

   • Select "1 fps" from the drop-down list for recording frame rate.

4. Click [OK].

   The configured schedule is displayed in the schedule area.

5. Check that the settings are correct and click [Save Schedule].

   The schedule is saved.

> 🔅 **Tip**
> You can only select [Normal Schedule] in VK-Lite. [Special Day Schedule] cannot be selected.

> 📖 **Reference**
> → "Chapter 4 Register Camera Server and Set Recording Schedule" in *Administrator's Manual*

Step 7: Viewer Settings

The following example shows how to configure the basic settings for viewer, create a layout, and display video.

Basic Viewer Settings

You can configure basic viewer settings, such as the maximum frame rate, audio, still images, etc.
In the following example, just check the maximum frame rate setting for live video, but not change the value.

1. Click the [Viewer Settings] tab in the [Configuration and Preferences] screen.

   The default value of the maximum frame rate is "5 fps". You can select from the following frame rates.

   0.1, 0.2, 0.5, 1, 2, 5, 10, 15, 20, 25, 30
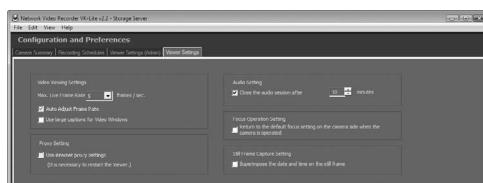
Creating Layouts and Displaying Video

The final step in the system configuration process is to create layouts.
In the following example,

● Use grids to arrange video windows

1. Select [View] → [Viewing Screen] from the menu.

   The Viewer is displayed. Video thumbnails of cameras registered in "Step 5: Camera Server Registration" are displayed in the camera selection area at the top of the viewer.

2. Right-click on Viewing Area and select [Layout Grids] → [Alignment Grid].

3. In the Camera Selection Area, drag a thumbnail onto the grid in the Viewing Area.
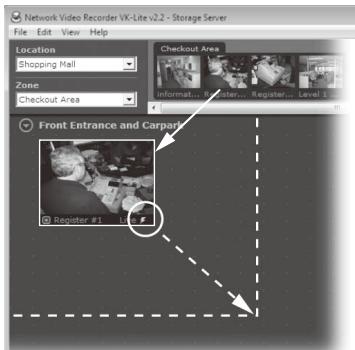
4. Drag the video window to the position you want to display. When you release the mouse, the size and position are automatically adjusted to match the layout frame.

   To change the size of video windows, click and drag any corner of the window. When you release the mouse, the size and position are automatically adjusted to match the layout frame.

5. Click and drag other thumbnails onto the Viewing Area and resize the windows. A layout example is shown to the right.

6. Right-click on the Viewing Area and select [Save] from the menu.

Layout Grids	▶
Initialize Layout	
New Layout	
New Layout Sequence...	
Save	
Save As...	
Organize...	
▦ Default Shared Layout	
▦ Default Personal Layout	
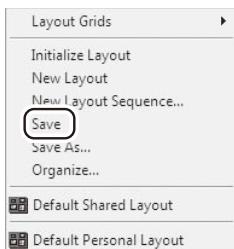
Now, the configuration process has been completed.

🔆 Tip
● The aforementioned example shows a layout example using [Default Shared Layout] displayed by default. You can create and save new layouts under any name.
● Live video quality may be degraded or be difficult to view depending on the video size for transmission set on the camera server. In those cases, the quality may be improved by changing the video size for transmission on the camera server or changing the video receiving size using the right-click menu of video windows.

📖 Reference
→ "Chapter 5 Viewer Reference" in *Administrator's Manual*

Step 8: Management and Maintenance

It is recommended to regularly provide the operational management, including backing up of recording and setting data, and system maintenance, while you are operating the system.

This section explained the basic operations of some VK-Lite functionalities and configuration examples for a network camera recording and monitoring system. For more detailed information, see *Administrator's Manual* provided on the supplied CD-ROM.

📖 Reference
→ "Chapter 6 Operation and Management", "Chapter 7 Backup Scheme", and "Chapter 8 System Maintenance" in *Administrator's Manual*

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