Canon

Network Video Recording Software
RM Series   **Ver.1.0**

RM-Lite

Administrator's Manual

Make sure you read this "Administrator's Manual" before using the software.

ENGLISH

This manual explains how to use RM-Lite v1.0 Network Video Recording Software (hereafter referred to as "RM-Lite"). Please read this manual before using the software. After reading the manual, keep it in a safe place for future reference. In addition, please read the license agreement before using the software. The license agreement can be found in the LICENSE folder on the setup CD-ROM.

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Support Information

For various types of information relating to support, including software updates (patch installer), User's Manuals, operating environment, etc., please see the Canon Web site.

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About Third Party Software

This product contains third party software modules.
Each module's license conditions are also available in the OpenSourceSoftware folder in the LICENSE folder on the accompanying set-up CD-ROM.

About the Manuals

This product has the following manuals:
- Administrator's Manual (this guide)
  This manual is intended for the system administrator and provides information on how to operate this software product.
- Viewer Operation Guide
  This simplified manual is intended for general users and explains how to operate the Viewer.
Please also read the manuals provided with each camera, as required.

About Sample Screens Unique to This Software

In this manual, some screens that are unique to this software are used as examples to illustrate operations. Please note that they may differ from the actual screens.
The VB-M40 is mainly used as the example camera in this manual. In addition, screens from Windows 7 are used as samples to describe operations.

How to Display and Read This Manual

This manual assumes that you display and read it on your computer's screen.

■ Icons in This Manual

The following icons are used to indicate descriptions on which you should focus your attention.

Icon	Meaning
Important	Cautions and restrictions during operation. Make sure to read these carefully.
Note	Supplementary descriptions and reference information.
Hint	Information useful for operation.

■ Icons Indicating Camera Models

The following icons indicate information that is unique to a supported camera model. The icons correspond to the following models:

Icon	Camera Model
M700	VB-M700F
M600	VB-M600D and VB-M600VE
M40	VB-M40
C500	VB-C500VD and VB-C500D
C60	VB-C60

Features

The RM series of network video recording software is a software product family used to monitor multiple locations using network cameras and to record and play back images from the cameras.
You can display live images from up to four cameras, and record the images according to schedules that you set up.

Flexible screen layout
You can arrange multiple video windows in the Viewer, so you can compare images from different locations at the same time.

Support for JPEG/MPEG-4 and H.264 *
The JPEG, MPEG-4 and H.264 video formats are supported for live view. Using MPEG-4 or H.264 formats decreases the load on the network bandwidth, while maintaining a high quality image.

* Only available for cameras that support the feature.

Direct camera operation
You can change the camera angle and use the zoom feature while watching the live view.

Shade control
Shade control automatically compensates for the dark regions in the image and can be used for both live and recorded images.

Two-way audio
Send and receive live audio. You can also use this feature to communicate with a location that has a camera.

Record Now
Use this feature to immediately start recording when you do not have a recording schedule set up.

Saving a segment of a recording
You can extract part of a recording and save it as a video file that can be played on a computer.

Setup Flow

The flow from preparation before introducing the system, to operation management and maintenance is shown below.

| **Step 1** | Consider the video storage period and recording conditions, determine the hard disk capacity required for recording and prepare the equipment. |
| **Prepare for introducing the system** | See "System Design" in "Chapter 1 Introduction". |

| **Step 2** | Set up your cameras for live image display or recording. |
| **Set up your cameras** | See your camera manuals. |

| **Step 3** | Install this software product on your computer. |
| **Install** | See "Chapter 2 Setup". |

| **Step 4** | Set up the Storage Server Group and Storage Servers. |
| **Set up the Storage Servers** | See "Chapter 3 Storage Server Settings". |

| **Step 5** | Add cameras to the Storage Server Groups. |
| **Add cameras** | See "Chapter 3 Storage Server Settings". |

| **Step 6** | Configure the Viewer to match your environment and use. |
| **Configure the Viewer** | See "Chapter 4 Viewer Settings". |

| **Step 7** | Set the recording conditions for using the cameras. |
| **Set a recording schedule** | See "Chapter 5 Setting a Recording Schedule". |

| **Step 8** | View live images and check events by playing back recorded images. You can set up your own layouts for the video windows. |
| **Day-to-day operation** | See "Chapter 6 Day-to-Day Operations". |

| **Step 9** | We recommended that you set up a management and maintenance process, such as taking regular backups of recording files, to reduce the impact of network failures on system operation. |
| **Operation management and maintenance** | See "Chapter 7 Operation and Management" and "Chapter 8 Backup". |

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Chapter 5   **Setting a Recording Schedule**

Appendix

Chapter 1

Introduction

❏ System requirements (operating environment, supported cameras, license conditions)

❏ System configuration and design guidelines

Operating Environment

System requirements

CPU	Intel Pentium G6950 2.80 GHz or higher, or an Intel CPU of equivalent class that meets the following requirements: Clock: 2.4 GHz or higher L2 cache: 512 KB or higher L3 cache: 3 MB or higher (only required if the L2 cache is less than 3 MB) Number of cores: 2 or more Intel Core i5 750 2.67GHz or higher is required when displaying multiple MPEG-4 or H.264 images
Memory	2 GB or greater
Hard disk	Interface: SAS / SATA Cache:16 MB or greater Spindle speed: 7200 rpm or faster 200 MB is required for installation (an additional 500 MB is required if .NET Framework 3.5 SP1 is not installed). Additional space for recording files and other files (the actual space required depends on the number of cameras and the recording settings). Additional space for saving extracted video files, as required.
Network controller	100 BASE-TX or similar, 100 Mbps transfer speed
Display	1280 x 1024 resolution or higher 16-bit colors or greater NVIDIA GeForce GT 220 or higher graphics card is required, or a graphics card of equivalent class that meets the following requirements, when displaying multiple MPEG-4 or H.264 images: Video memory size: 1 GB or greater Memory interface width: 128 bits Memory clock: 790 MHz or higher
Others	Audio support is required for audio playback (for details, see P. 6-10).
Operating system	Windows Server 2008 Standard Edition (Service Pack 2) 32-bit or 64-bit version Windows Server 2008 R2 Standard Edition 64-bit version Windows Vista Business (Service Pack 2) 32-bit or 64-bit version Windows Vista Enterprise (Service Pack 2) 32-bit or 64-bit version Windows Vista Ultimate (Service Pack 2) 32-bit or 64-bit version Windows Vista Home Premium (Service Pack 2) 32-bit or 64-bit version Windows 7 Professional 32-bit or 64-bit version Windows 7 Enterprise 32-bit or 64-bit version Windows 7 Ultimate 32-bit or 64-bit version Windows 7 Home Premium (Service Pack 2) 32-bit or 64-bit version

📖 Important

- The system requirments described above are the minimum configuration, assuming the following operating enviroment:

Storage Server	Maximum storage/playback data rate	17 Mbps
Viewer	Estimated display frame rate *[1]	1280 x 960: 2 fps *[2] 640 x 480: 10 fps *[2] 320 x 240: 30 fps *[2]
	Maximum events processed	10,000 events per day

*1 Assumes a standard resolution ([Image Quality] setting is [3]) and that the receive size and display size are the same. If the receive size and display size are different, performance may decrease due to an increase in processing load.

*2 If multiple image sizes are combined, the equivalent sizes are four 320 x 240 images for 640 x 480, and eight 320 x 240 images for 1280 x 960. For example:

1280 x 960 (1 fps)	→	equivalent to 8 fps (1 fps x 8)
640 x 480 (2 fps)	→	equivalent to 8 fps (2 fps x 4)
320 x 240 (10 fps)	→	10 fps (same as original)
	→	Total of 26 fps (8 + 8 + 10)

- If you need to operate a high reliability system (such as for 24-hour operation) we recommend that you use a server operating system on the computer that is used for the Storage Server.

- To record for extended periods (8 hours or more per day) in continuous recording mode, or when high-reliability operation is required (such as for 24 hour operation, and high frequency disk access) we strongly recommend that you use a high-reliability SAS hard disk. Using a low-reliability SATA hard disk may result in a disk error in a one to two year period. Therefore, you may need to check the disk for errors on a regular basis, using features such as scan disk. In such a case, recording performance may suffer during checking, due to the increased load on the disk.

- To help ensure stable operation, we recommend that you use a separate computer for the Storage Server and for the Viewer.

- This software does not support external storage, such as USB hard disks and NAS.

- Operation may slow down if the amount of stored data (number of recording files) becomes large.

- We recommend that you operate this software in its own dedicated LAN environment.

- The software may not be able to record images if you use an environment where the IP addresses of the Storage Servers or cameras are occasionally changed. Use fixed IP addresses to ensure proper operation.

- Using IPsec may degrade the performance for recording and displaying images.

- Using anti-virus software or a firewall may affect the performance of the Storage Server and Viewer.

- Running software other than this product or compatible camera management software may cause system operation to become unstable.

- Running Windows Update may cause system operation to become unstable and cause the system to restart.

- Depending on the performance of the computer and the network environment, changes in the photographing environment (such as the time of day and the weather) may result in it not being possible to display recorded or live images according to the specified settings.

- When there is a high load on the CPU or hard disk, images may not be recorded or displayed at the specified frame rate, recording may be interrupted, or the Viewer operation speed may decrease. In addition, recording may be interrupted when the available hard disk space is low.

- You can use the camera audio feature. Review the following items before using the feature.
  - Confirm that the Viewer supports transmission and reception of audio data.
  - The audio stream may be interrupted, depending on the performance of your computer and network environment.
  - Audio may be interrupted when using anti-virus software.

- Before applying a service pack or updating the operating system, please refer to Canon's compatibility information before performing the update.

- The following languages are supported: Japanese, English, French, Italian, German, and Spanish. Note that Windows Multi-language version is not supported.

- For details on the operating system see "Additional Considerations" in "Operating Environment" (P. 1-4).

• Be sure to test the system under your operating environment before starting regular operation.

Note

• The system environment of the Storage Server will depend on your operating environment (number of cameras, recording frame rate settings, etc.). For details, contact your local supplier.

• The following runtime modules are installed automatically with this software. Please do not uninstall any of these modules.
  – Microsoft Visual C++ 2008 Redistributable

• The information in this guide is current as of January 2011. For the latest information on this product, visit the Canon Web site.

Additional Considerations

• Do not specify the Windows folder or the Program Files folder on the system drive as the destination for snapshots or image files. You cannot save images or image files to those folders.
• You cannot use the shadow backup feature with this software. For example, once you delete the configuration file for this software, the file cannot be restored with the shadow backup feature.

Supported Cameras

Camera	Firmware Version
VB-M700F	Ver. 1.0.0 or later
VB-M600D	Ver. 1.0.0 or later
VB-M600VE	Ver. 1.0.0 or later
VB-M40	Ver. 1.0.0 or later
VB-C500VD/VB-C500D	Ver. 1.1.0 or later
VB-C60	Ver. 1.1.0 or later

Note

The information in this guide is current as of January 2011. For the latest information on this product, visit the Canon Web site.

About Licenses

This software application includes one license for the Storage Server and one license for the Viewer. The number of computers that a product with one license can be installed on is described below.

Storage Servers
With one Storage Server license, you can install a Storage Server on one computer.

Viewers
With one Viewer license, you can install the Viewer on one computer.
Only 1 Viewer can connect to a Storage Server at a time. You can also purchase individual Viewer licenses, therefore you must purchase the same number of licenses as you have Viewer installations.

Notes

■ Compatibility with the Network Video Recorder VK-64/16

Notes on Installation

This software cannot exist with VK-64/16 on the same computer. Do not install this software onto a computer where VK-64/16 is installed. You can install this software after uninstalling VK-64/16. However, please be aware of the following:

- You cannot use the cameras and recording schedule settings you added with VK-64/16. You must add and configure the cameras and schedules again.
- You cannot use the recording files and event information associated with VK-64/16.
- You cannot play back recordings made with VK-64/16.
- This software requires a computer with specifications that are higher than those required for VK-64/16. Therefore, the computer used for VK-64/16 may not meet the operation requirements for this software.

Notes on Protocol Compatibility

This software is not compatible with VK-64/16 protocols, because the protocol used between the Viewer and the Storage Server has been significantly changed. Therefore, you cannot connect to a VK-64/16 Storage Server from the Viewer in this software. Similarly, you cannot connect to this software's Storage Server from the Viewer in VK-64/16.

Notes on Recording Data and Event Data Compatibility

This software uses event data and recording file formats that are different from VK-64/16. VK-64/16 recordings can be played back using QuickTime Player. However, the recordings for this software are not supported by QuickTime Player. Note, however, that you can use QuickTime Player to play back a .mov file created using the [Extract Video] feature in this software.

System Configuration Example

This software records images from cameras using an IP network, such as a LAN.

> 📖 **Important**
> - The load on the Storage Server may increase depending on the number of cameras connected and the recording settings. See "Determining the Capacity of the Storage Server" (P. 1-7) to consider your configuration.
> - Regularly check that the time setting is correct on the computers that are running the Storage Server and the Viewer. Also, before changing the time setting on the computers, be sure to first stop the Storage Server and Viewer.

Configuration Example 1

This example shows the simplest system configuration, where the Storage Server and Viewer are installed on one computer. Up to four cameras are connected and images from the cameras are displayed or recorded using the same computer.

Image from camera → Storage Server/Viewer
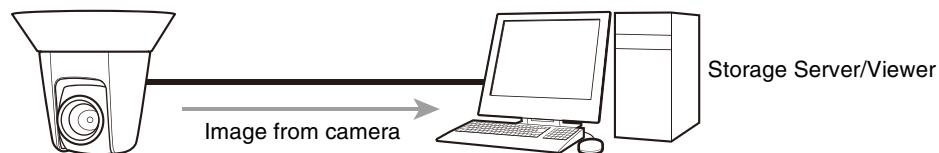
Configuration Example 2

You can install a Storage Server and a Viewer separately in two computers on the network.

Viewer   Storage Server Group

———●——— Network

———→ Images from the cameras

-------→ Recorded images
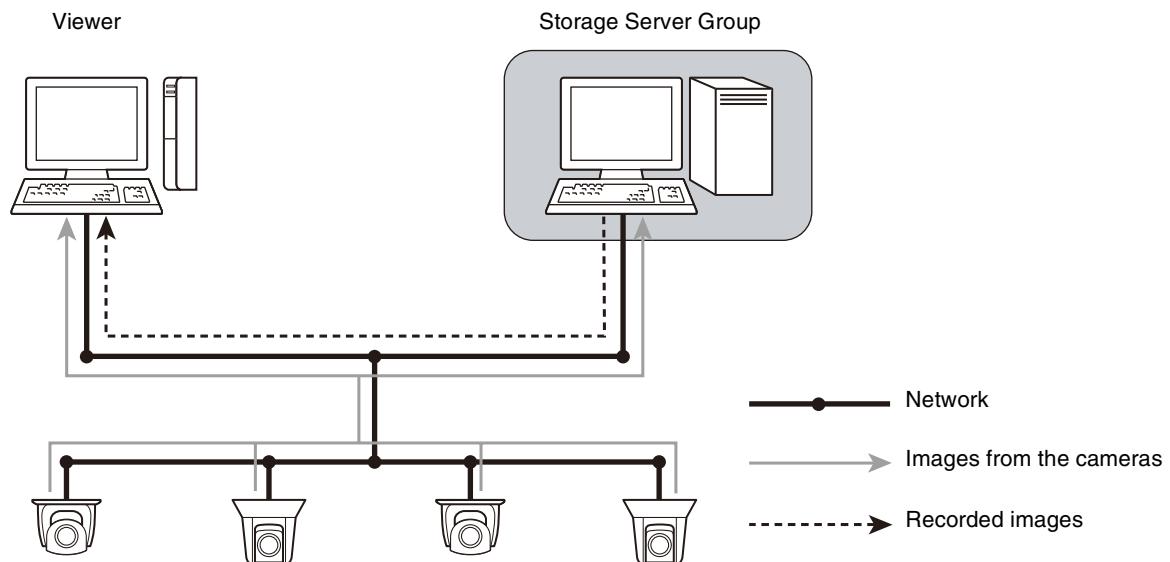
> 📋 **Note**
> RM-Lite operates with one Storage Server Group that contains one Storage Server.

System Design

Determining the Capacity of the Storage Server

You must determine the size and configuration of your Storage Server based on the recording and playback data volume per second and the required hard disk capacity.

> **Important**
>
> The operating performance of this software varies depending on factors such as the usage conditions and the hardware specifications of the Storage Server. Use the figures below only for reference.

■ Recording / playback data volume per second and the audio data volume

If the volume of recording or playback data handled by one server is 80 Mbps or greater, to ensure system stability you should review your recording requirements.
Audio data requires 64 Kbps of disk space, regardless of the type of camera.

> **Important**
>
> Depending on the hard disk and/or RAID card on your server, the disk write performance may be lower than the above estimates.

> **Hint**
>
> See "System Information" (P. 7-3) for details on the recording/playback data volume during operation.

■ Hard disk capacity requirements

The size of the recording file varies depending on how the camera is configured (the settings for image quality and size) and the complexity of actual image.

Follow these steps to determine the required hard disk capacity.

1 Decide on the required number of cameras and the image size for recording.

2 Decide on the image quality for each camera.

The higher the image quality setting the higher the image quality, resulting in a correspondingly higher data volume.

3 Decide on the frame rate required for recording.

For general security purposes, you can use 1 to 2 fps. Higher frame rates require more hard disk space.

4 Decide on the number of hours per day to record and the number of days to store the recorded data.

5 After deciding on the above parameters calculate the required hard disk capacity based on the recording file size (in KB).

6 If you will also record audio, be sure to calculate the additional amount of hard disk space required for the audio.

We recommend that you add 10 to 20% more space to the calculated hard disk capacity.

Sample calculations for each video format are shown below, assuming 1000 Kbps = 1 Mbps for the network bandwidth, and 1024 KB = 1 MB for the disk capacity.

- Image recording from 4 cameras (VB-M40).
- Image size is 320 x 240 and image quality is 3 (data size per frame: 15.3 KB).
- Recording frame rate is 2 fps.
- Data size per second is approximately 30.6 KB (= 15.3 KB x 2 fps).
  Although the actual recording file size depends on the objects recorded by each camera, this calculation assumes the typical sizes given above.

If JPEG images from 4 cameras are recorded at 2 frames per second in continuous recording mode, the required hard disk space is approximately 10 GB per day (= 30.6 KB x 4 cameras x 60 seconds x 60 minutes x 24 hours = 10,575,360 KB).

Example of the Data Size for the VB-M700F/VB-M600D/VB-M600VE/VB-M40 (JPEG)

Image Quality	Image Size			
	160 × 120	320 × 240	640 × 480	1280 × 960
1	2.0	5.2	16.0	51.6
2	3.0	8.3	25.8	83.3
3	3.7	10.4	32.5	110.0
4	4.7	13.6	43.2	152.6
5	7.4	22.9	78.1	280.9

(Units: KB)

Example of the Data Size for the VB-C500VD/VB-C500D/VB-C60 (JPEG)

Image Quality	Image Size		
	160 × 120	320 × 240	640 × 480
1	3.5	9.6	27.5
2	4.0	11.0	31.7
3	4.4	12.5	35.8
4	5.6	16.4	47.8
5	15.8	52.7	171.4

(Units: KB)

Important

The actual data size may increase or decrease depending on the objects being recorded. Make sure to confirm the data size for the actual system environment before starting operation.

■ **Storage Server Operation Considerations**

We recommended that you dedicate the Storage Server computer exclusively to running this software.
Be sure to avoid the following on the Storage Server computer:

- Running Web server software on the computer
  You cannot operate the Storage Server on a computer where Web server software such as Windows standard IIS
  (Internet Information Server) or Apache is already installed.
  The Storage Server uses HTTP protocol to communicate with cameras. Therefore, the Storage Server may not work
  normally if other Web service applications exist on the same computer.
  The HTTP port used by this software is 80 and cannot be changed.

- Running database server software (e.g., SQL Server, Oracle) on the computer
  Database processing can place a load on the hard disk that may affect recording performance. Conversely, this
  software may affect database server performance when it performs tasks that place a load on the hard disk.

- Using the computer as a file server
  The hard disk is frequently accessed when the computer is used as a file server, and this may affect recording
  performance. In addition, the Storage Server is more likely to run out of disk capacity if the computer is operated as a file
  server.

- Running other applications on the computer
  The additional processing load from running applications other than this software may affect recording performance.
  This software uses the TCP port number 80, 443,10080 and 2380. These ports should not be used by other applications.

Network Bandwidth Considerations

You need to consider the network bandwidth if you want to use a network camera for both recording and live view.
You must calculate the network bandwidth both for the Storage Server and the Viewer.
For example, if you use one Storage Server (QVGA 1 fps) and one Viewer (QVGA 5 fps), calculate the bandwidth as follows:

- Bandwidth for recording
  15 (KB/frame) x 1 (frames/sec) x 8 (bits) = 120 Kbps

- Bandwidth for live view (per Viewer)
  15 (KB/frame) x 5 (frames/sec) x 8 (bits) = 600 Kbps

Therefore, the required network bandwidth is calculated as follows:
120 Kbps x 1 + 600 Kbps x 1 = 720 Kbps

Chapter 2

Setup

❏ How to install the software
❏ Settings after installation

Installation

Before Installation

Use an NTFS Formatted Drive
The drive you install the software on and the drive for saving recorded images must be NTFS format.

Set Up the Cameras
You must set up any cameras that you will use with this software before starting operation. For details, refer to the camera manual.

Stop Other Applications
Stop other applications that are running on the computer, such as anti-virus software, before installing the software.

Install .NET Framework SP1
.NET Framework 3.5 SP1 or later must be installed on the computer.
You can download it from the Microsoft Download Center, or use the installer on the setup CD-ROM (Applications folder > DotNetFramewrk folder > dotnetfx35.exe).

How to Install the Software

> **📖 Important**
>
> You must log on to the computer as a computer administrator to install this software.

1 Double-click RMLite_v10.exe in the [Applications] folder on the setup CD-ROM bundled with the camera.

> **📄 Note**
>
> When the [User Account Control] dialog box appears, click [Yes] (or [Continue]).

2 Click [Next].

3 Read the license agreement carefully. Click [I accept the terms in the license agreement], if you accept them, and then click [Next] to continue.

4 Enter your user name and organization, and click [Next].

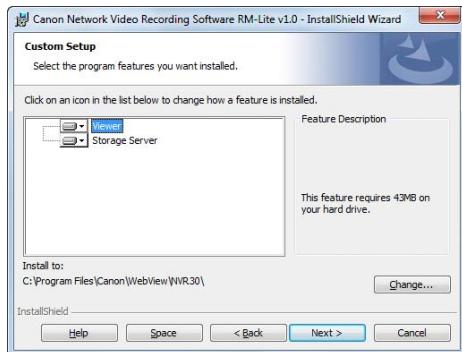**5** Specify whether to install both the Storage Server and Viewer, and click [Next].

Select [Complete] to install both applications. If you selected this option, proceed to step 7.
Select [Custom] to separately install either the Storage Server or the Viewer. If you selected this option, proceed to step 6.

6 Select the application to install, and then click [Next].

Click the application that you do not want to install and select [This feature will not be available].

7 Click [Next].

📝 Note

- When installing on a PC that has multiple network interfaces, select the network interface to use in the [Network adapter] list and the assigned IP address in the [IP address] list.

- If you clear the [Add storage server programs to the Windows Firewall exception list.] check box, you need to configure Windows Firewall after the installation is complete. For details, see "Windows Firewall Settings" (P. 2-4).

8 Click [Install].

9 Click [Finish].

The following icon appears in your desktop when the installation is complete.

RM-Lite
Viewer v1.0
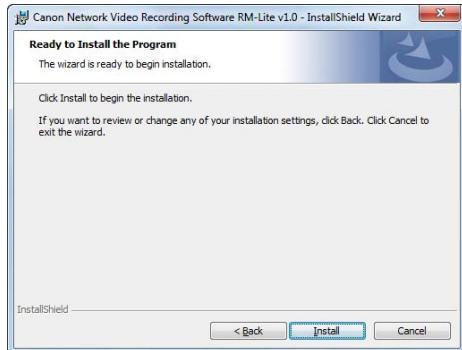
📖 Important

- You must restart the computer to enable the settings that were made during the installation.

- You must configure the operating system after installation. For details, see "Settings After Installation" (P. 2-4).

- If you reinstall this software after uninstalling it, the setting configurations from before uninstallation will not be retained. If you want to reinstall this software, we recommend that you back up the settings as a configuration file before uninstallation. For details on backup, see "Chapter 8 Backup".

Settings After Installation

Configure the following setting after installing this software according to the operating system you are using:

	Windows 7, Windows Vista	Windows Server 2008, Windows Server 2008 R2
Windows Firewall Setting	✓	✓
Security Level Setting	—	✓
Warning when Viewer Starts	✓	✓
Sound Settings for Using the Audio Feature	—	✓

(✓: Required, —: Not required)

Windows Firewall Settings

The changes to the settings are already complete if you selected the [Add storage server programs to the Windows Firewall exception list] check box during installation. If you did not select the above check box during installation, perform the following procedure to change the Windows Firewall settings.
The following settings are not required if you install the Storage Server and Viewer onto the same computer.

■ When using Windows 7 or Windows Server 2008 R2

1 Click [Start] > [Control Panel] to open the [Control Panel].

2 Click [System and Security] > [Windows Firewall].

3 Click [Advanced Settings] to display the [Windows Firewall with Advanced Security] window.

4 Click [Inbound Rules] and select [New Rule] from the [Action] menu to start the [New Inbound Rule Wizard].

5 Click [Port], and then click [Next].

6 Click [TCP] and [Specific local ports], and then enter 80 as the port number. Then click [Next].

7 Click [Allow the connection], and then click [Next].

8 Click [Next].

9 Enter a name (such as the Storage Server or Storage Server Group name) in [Name] and click [Finish].

10 The added inbound rule should be displayed in the [Windows Firewall with Advanced Security] window, with a checkmark icon displayed next to the rule.

■ When using Windows Vista or Windows Server 2008

1 Click [Start] > [Control Panel] to open the [Control Panel].

2 Click [System and Security] > [Windows Firewall].

In the Control Panel Classic View, double click [Windows Firewall].

3 Click [Change settings].

If the [User Account Control] dialog box is displayed, click [Continue].

4 Click the [Exceptions] tab and click [Add Port].

5 In the [Add a Port] dialog box, enter the name of the Storage Server and 80 as the port number. Make sure that [TCP] is selected and click [OK].

6 Confirm that the added Storage Server is now displayed in the [Windows Firewall] dialog box and that the check box is selected. Then, click [OK].

Security Level Setting

In Internet Explorer, the default security level setting for Internet or intranet sites in Windows Server 2008 and 2008 R2 is "High". Therefore, you are not able to configure settings in the configuration or top page of the camera. Follow these steps to register the site as a trusted site.

1 Start Internet Explorer and click [Tools] > [Internet Options] to display the [Internet Options] dialog box.

2 Click the [Security] tab.

3 Click [Trusted Sites] and click [Sites].

4 Clear the [Require server verification (https:) for all sites in this zone] check box.

5 Enter the IP address of your camera in [Add this website to the zone] and click [Add].

📝 Note

- For details on registration with trusted sites, click [Learn more about Internet Explorer's Enhanced Security Configuration] in the [Internet Options] dialog box and refer to the displayed summary.

- JavaScript may be disabled in the standard security setting, even if a content block dialog box is not displayed. This may limit the operation of the setting page or the camera's Viewer. The JavaScript setting is enabled automatically once trusted site registration is complete.

Sound Settings for Using the Audio Feature

The sound feature is disabled by default in Windows Server 2008 and 2008 R2. To receive audio with the camera's Viewer, follow these steps to enable the sound feature.

1 Click [Start] > [Control Panel] to open the [Control Panel].

If the [Control Panel] is set to [Classic View], double-click [Sound] and proceed to Step 3.

2 Click [Hardware and Sound] and click [Sound].

3 If the [Audio Service Not Running] dialog box is displayed, click [Yes].

4 The [Sound] dialog box is displayed. Select the [Playback] tab and confirm that an appropriate audio device is installed.

If no audio device is installed, refer to the manual for your computer on how to install an audio device.
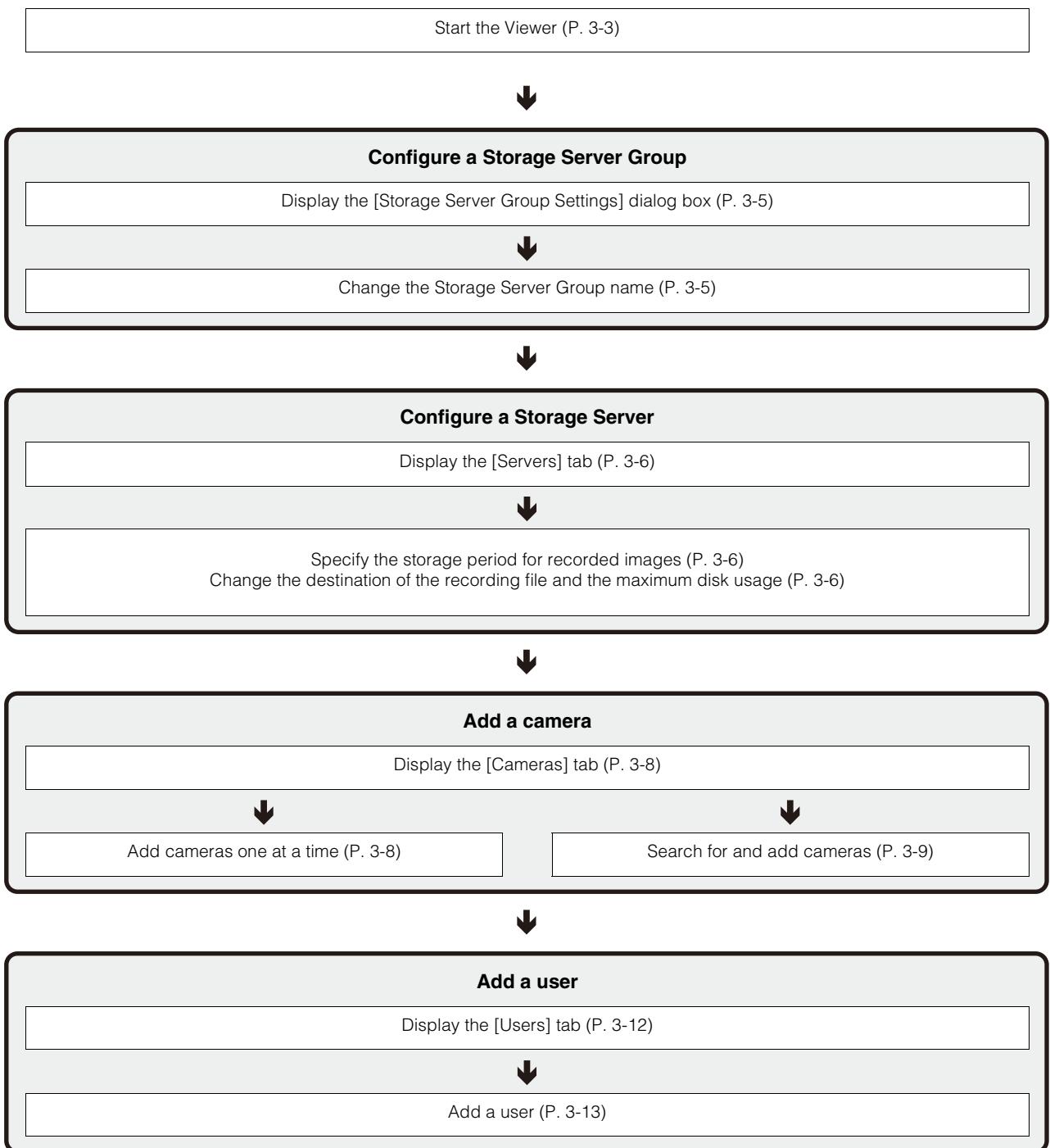
Warning When Viewer Starts

If [User Account Control] is enabled, the [User Account Control] screen will be displayed when you start the Viewer. Click [Yes] (or [Continue]) to start the Viewer.

Chapter **3**

Storage Server Settings

❏ Adding cameras
❏ Configuring the Storage Server Group
❏ Adding users

Flow of Storage Server Settings

Start the Viewer (P. 3-3)

⬇

Configure a Storage Server Group

Display the [Storage Server Group Settings] dialog box (P. 3-5)

⬇

Change the Storage Server Group name (P. 3-5)

⬇

Configure a Storage Server

Display the [Servers] tab (P. 3-6)

⬇

Specify the storage period for recorded images (P. 3-6)
Change the destination of the recording file and the maximum disk usage (P. 3-6)

⬇

Add a camera

Display the [Cameras] tab (P. 3-8)

⬇ ⬇

| Add cameras one at a time (P. 3-8) | Search for and add cameras (P. 3-9) |

⬇

Add a user

Display the [Users] tab (P. 3-12)

⬇

Add a user (P. 3-13)

📖 **Important**

We strongly recommend that only one administrator manage the setup of the Storage Servers on each network.
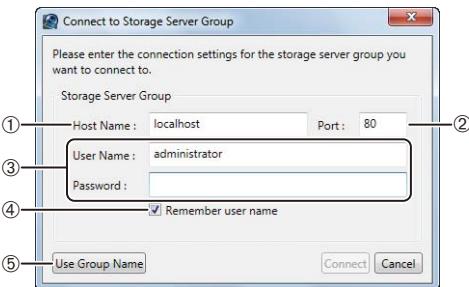
Start the Viewer

📖 Important

You must log on as a computer administrator to configure the Storage Server from the Viewer.

1 Double-click the [RM-Lite Viewer v1.0] icon on your desktop.

📝 Note

If the [User Account Control] dialog box appears, click [Yes] (or [Continue]).

2 Specify the information required to connect to the Storage Server Group.

① [Host Name]

Enter the host name or the IP address of the Storage Server Group. If the Viewer and the Storage Server are installed on the same computer, enter "localhost".

② [Port]

Normally, leave [80] unchanged.

③ [User Name], [Password]

Enter your user name and password.
The default user name and password are:
User Name: administrator
Password: NVR

④ [Remember user name]

Select the check box if you want the software to remember the user name.

⑤ [Use Group Name]

Click to specify a Storage Server Group name for the connection.

3 Click [Connect].

📖 Important

- You should change the password for the default user (administrator) as a security measure. For details on how to change the password, see "Add a User" (P. 3-12).

- Be sure to remember your password.

- You must start the Viewer while logged on as a user in the Administrator user group to be able to set up the Storage Server.

📝 Note

- The first time you connect to the Storage Server Group, you must enter the host name and port number. However, from the second time onward, you can simply specify the Storage Server Group name (P. 3-4).

- If there are no cameras added, a message is displayed asking if you want to add a camera. Click [Yes] to display the [Add Camera] dialog box and start adding a camera on the network. For details, see "Add Cameras One at a Time" (P. 3-8).

- You can configure the Viewer to start without displaying the startup screen or the [Connect to Storage Server Group] dialog box. For details, see "Create a Shortcut Icon for Starting the Viewer" (P. 10-2).

■ Specify the Storage Server Group for Starting the Viewer

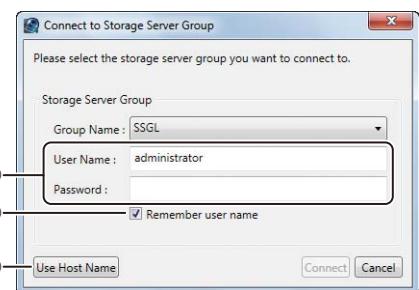You can start the Viewer using a Storage Server Group name instead of the host name of the server.

1 Double-click the [RM-Lite Viewer v1.0] icon on the desktop.

📝 Note

If the [User Account Control] dialog box appears, click [Yes] (or [Continue]).

2 Click [Use Group Name].

3 Specify the information required to connect to the Storage Server.

① [User Name] and [Password]
  Enter the use name and password.
  The default user name and password are:
  User Name: administrator
  Password: NVR

② [Remember user name]
  Select the check box if you want the software to remember the user name.

③ [Use Host Name]
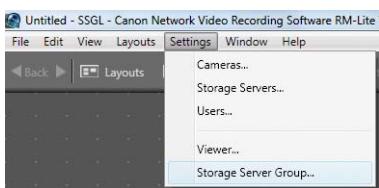 Click to specify a Storage Server Group name for the connection.

4 Click [Connect].
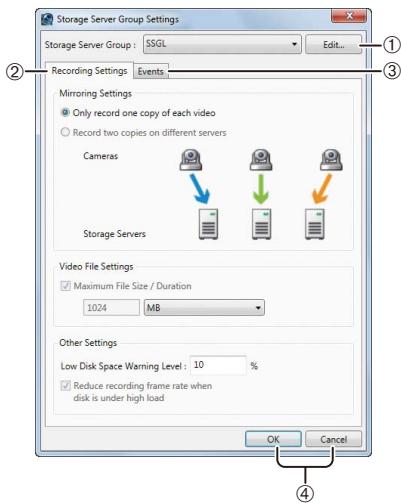
Configure a Storage Server Group

You can change the name of the Storage Server Group and configure the free disk space notifications.

Display the [Storage Server Group Settings] Dialog Box

1 Click [Settings] > [Storage Server Group].

The [Storage Server Group Settings] dialog box is displayed.

① **[Edit]**

Change the name of Storage Server Group.

② **[Recording Settings] tab**

Configure the free disk space notifications.

📝 Note

For RM-Lite, the items in the [Recording Settings] tab have the following limitations.

- The [Mirroring Settings] feature is not available.

- The [Maximum File Size / Duration] setting is not available. The maximum file size is fixed at 1,024 MB (1 GB) and the maximum duration is fixed at 24 hours.

- [Reduce recording frame rate when disk is under high load] is always enabled. You cannot disable it. You can confirm whether the frame rate has been automatically reduced by checking the [Live Events Log].

③ **[Events] tab**

This cannot be used with RM-Lite.

④ **[OK] and [Cancel]**

Close the dialog box.

Change the Storage Server Group Name

1 Click [Edit] to display the [Edit Storage Server Group Name] dialog box.

2 Change the Storage Server name and click [OK].

Configure the Low Disk Space Warning Level

An event is triggered when the free disk space available for recording becomes low, relative to the maximum disk space.
Specify this percentage using the following procedure.
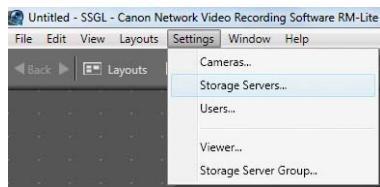
1 Click the [Recording Settings] tab.

2 In [Low Disk Space Warning Level], specify the free disk space level, as a percentage of the maximum disk space, which will issue a notification.
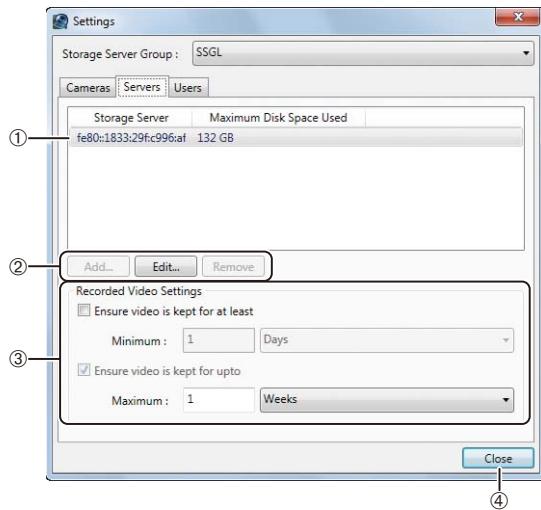
Configure a Storage Server

You can specify the storage period of the recorded images and the maximum disk usage.

Display the [Servers] Tab

1 Click [Settings] > [Storage Servers].

The [Servers] tab is displayed in the [Settings] dialog box.

① List of Storage Servers
   Display a list of Storage Servers.

② [Add], [Edit], and [Remove]
   Edit a Storage Server. [Add] or [Remove] are not available with RM-Lite.

③ [Recorded Video Settings]
   Specify the minimum and maximum storage period for recorded images.

④ [Close]
   Close the dialog box.

■ Specify the Storage Period for Recorded Images

You can specify the storage period for images recorded on the Storage Server.
- Select the [Ensure video is kept for at least] check box to specify the minimum storage period. Select the units (days or weeks) of the storage period and enter the number of days (1 to 90) or weeks (1 to 12).
- [Ensure video is kept for upto] is always enabled. You cannot disable it. Select the units (days or weeks) of the storage period and enter the number of days (1 to 90) or weeks (1 to 12).

> **Important**
>
> Depending on the maximum disk usage setting for the Storage Server (P. 3-6), recordings may not be stored for the full storage period specified in this setting.

Change the Destination of the Recording File and the Maximum Disk Usage

Specify a drive for recording or change the maximum disk usage.

1 Select a Storage Server from the list of Storage Servers.

2 Click [Edit] to display the [Storage Server Settings] dialog box.
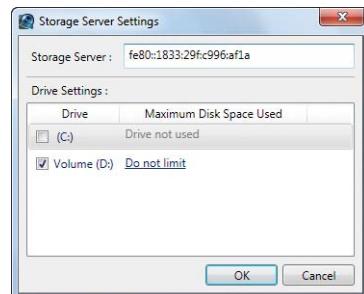
3 Clear the check boxes next to the drives that are not used for recording.

4 Specify the maximum disk usage.

Click [Do not limit] for each drive to display the maximum disk usage. Select the [Maximum Disk Space Used] check box and specify a maximum disk usage that does not exceed the total disk capacity.

5 Click [OK] to close the dialog box.

📖 Important

We recommend that you do not specify the system drive
(typically the C drive) as the destination for the recording file.

3

Storage Server Settings

Add a Camera

You can add a camera to be used for displaying images or recording to a Storage Server.

📄 Note
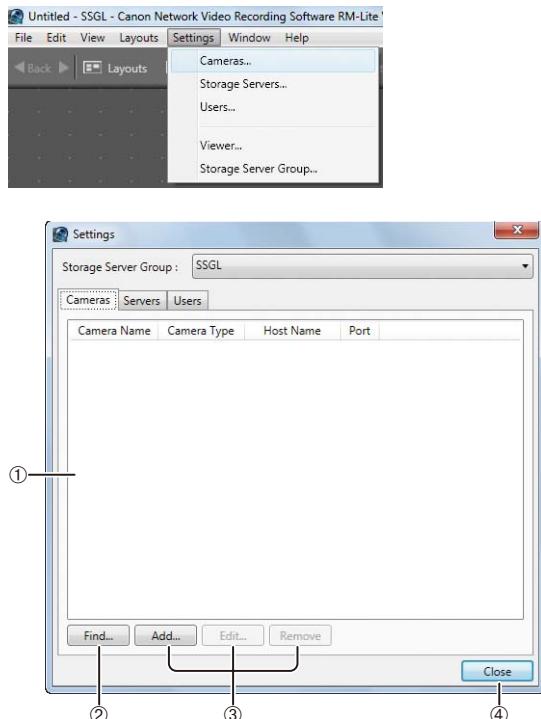
You can add up to four cameras.

Display the [Cameras] Tab

Display the [Cameras] tab in the [Settings] dialog box to start adding a camera.

1 Click [Settings] > [Cameras].

① List of cameras
  Displays a list of already added cameras.

② [Find]
  Search for cameras on the network.

③ [Add], [Edit], and [Remove]
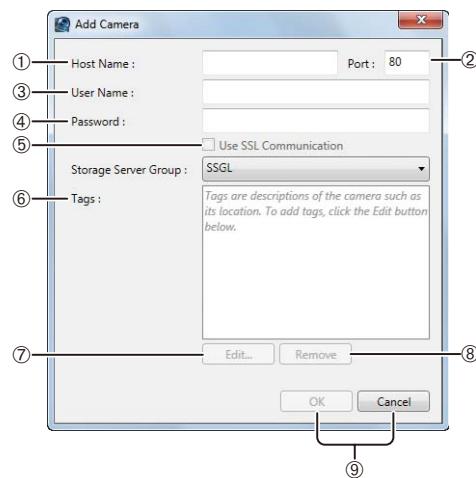 Add, edit or remove a camera.

④ [Close]
  Closes the dialog box.

Add Cameras One at a Time

Add cameras one at a time to the list of cameras on the [Cameras] tab.

1 Click [Add] to display the [Add Camera] dialog box.

2 Enter the information required to add the camera.

① [Host Name]
  Enter the host name or IP address of the camera.

② [Port]
  Enter the port number for communicating with the camera. Typically, leave [80] unchanged.

③ [User Name]
  Enter the user name for the camera.

④ [Password]
  Enter the password for the user specified in ③.

⑤ [Use SSL Communication]
  This cannot be used with RM-Lite.

⑥ [Tags]
  This cannot be used with RM-Lite.

⑦ [Edit]
  This cannot be used with RM-Lite.

⑧ [Remove]
  This cannot be used with RM-Lite.

⑨ [OK] and [Cancel]
  Close the dialog box.

3 Click [OK] to close the dialog box.

  The camera is added in the list of cameras on the [Cameras] tab.

3

Important

• Enter the camera's user name and password in [User Name] and [Password].

• If the host name or IP address of the camera is changed after registration, you must also change the Storage Server setting. For details, see "Edit Camera Information" (P. 3-10).

Search For and Add Cameras

You can search for cameras that are on the same network as the Storage Server.

1 Click [Find].

The cameras on the subnet are displayed in the [Camera Search Results] dialog box.
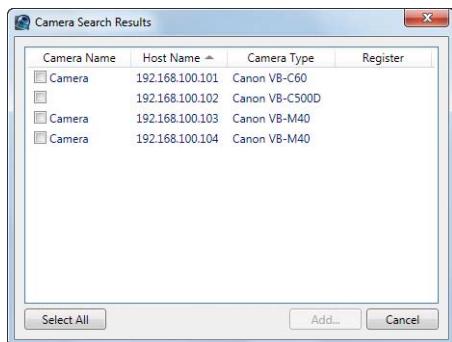
2 Select the check box of a camera you want to add. To select all the cameras, click [Select All].

You can add more than one camera by selecting multiple check boxes.

3 Click [Add].

The [Add Camera] dialog boxes for the cameras selected in step 2 are displayed in the order of the [Camera Search Results] list (from top to bottom).

4 Enter the information required to add the camera, referring to step 2 in "Add Cameras One at a Time" (P. 3-8).

5 Click [OK] to close the dialog box.

6 Repeat steps 4 and 5.

**7** When all the cameras are added, click [Cancel].

Note

• You can only search for cameras on the same subnet as the Storage Server. For details on how to add cameras on a different subnet, see "Add Cameras One at a Time" (P. 3-8).

• The names of the cameras (stored on the camera) are displayed in the list in the [Camera Search Results] dialog box.

• Cameras that have already been added are also found. However, a check box is not displayed next to the camera.

• If you cannot find the camera you are searching for, see "Add Cameras One at a Time" (P. 3-8) and add the camera.

• Only IPv4 addresses are displayed in the [Host Name] column of the [Camera Search Results] dialog box. (IPv6 addresses are not supported.)
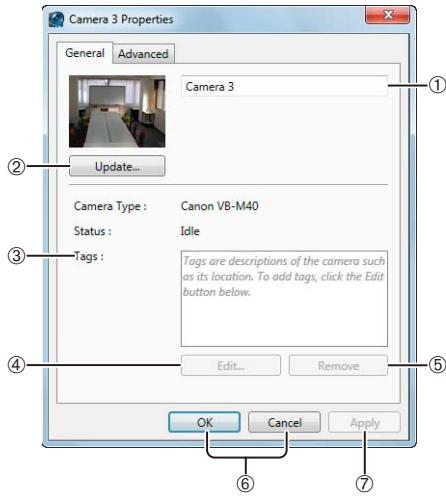
Edit Camera Information

You can edit the camera registration information, such as the camera name or the thumbnail image displayed in the Viewer.

1 Select a camera in the list and click [Edit] in the [Settings] dialog box to display the [<camera name> Properties] dialog box.

2 Configure the displayed settings.

[General] tab

① Camera name box
   Enter a camera name.

② [Update]
   Update the thumbnail image in the camera selection panel.

③ [Tags]
   This cannot be used with RM-Lite.

④ [Edit]
   This cannot be used with RM-Lite.

⑤ [Remove]
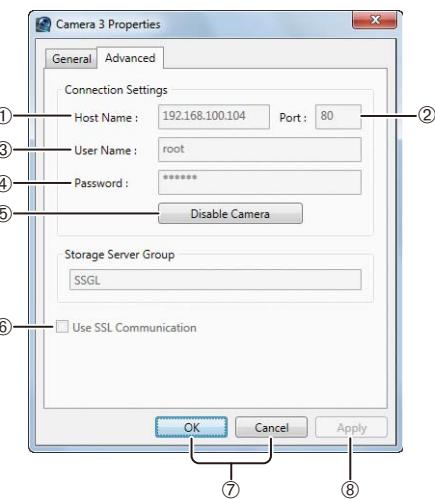   This cannot be used with RM-Lite.

⑥ [OK] and [Cancel]
   Close the dialog box.

⑦ [Apply]
   Apply the settings in the dialog box.

📝 **Note**

The camera name specified in the text box is only used by this software product. The camera name stored on the camera is not changed.

[Advanced] tab

① [Host Name]
   Change the host name or IP address of the camera.

② [Port]
   Change the port number used for communicating with the camera. Typically, leave [80] unchanged.

③ [User Name]
   Change the user name of the camera.

④ [Password]
   Change the password for the user entered in ③.

⑤ [Disable Camera]
   Disables the camera temporarily. To enable the camera, click [Enable Camera].

⑥ [Use SSL Communication]
   This cannot be used with RM-Lite.

⑦ [OK] and [Cancel]
   Close the dialog box.

⑧ [Apply]
   Apply the settings in the dialog box.

📝 **Note**

- Items ① to ④ can only be changed if the camera is disabled using [Disable Camera].

- If a camera is not working, you can disable it to prevent communication error notifications from being sent repeatedly.

- If you replace a camera that is not working with another camera, the host name, etc, is changed to that of the new camera, so there will be no effect on existing recording schedules and settings. (The replacement should be the same model as the original camera.)

- If you remove a camera, you will no longer be able to play any of the recordings made with the removed camera. By disabling the camera rather than removing it, you will still have access the recordings made with the camera.

■ Change the Thumbnail Image of a Camera

You can change the thumbnail image of a camera.
In the [<camera name> Properties] dialog box, click the [General] tab and click [Update] to display the [Thumbnail] dialog box.
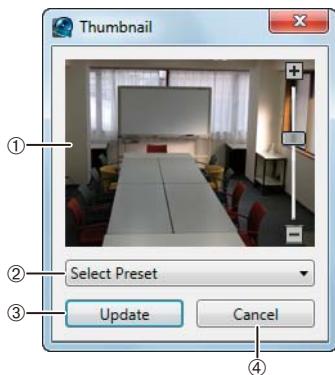
① **Preview image**
   Drag the slider to change the zoom position of the camera. Click in the preview image to change the camera position.

② **[Select Preset]**
   Select a preset image stored on the camera.

③ **[Update]**
   Use the current preview image as the camera thumbnail image. The [Thumbnail] dialog box closes and the camera thumbnail image is updated.

④ **[Cancel]**
   Close the dialog box without updating the thumbnail image.

M700 M600
You cannot use the pan/tilt/zoom feature.

C500
• You cannot use the pan/tilt feature.
• You cannot use the zoom when the digital zoom is set to [Disabled] on the camera.

📝 Note

You must configure the presets first before starting operation. For details, see the camera manual.

Remove a Camera

1 Select a camera in the list of cameras on the [Cameras] tab.

2 Click [Remove].

3 A message is displayed asking if you want to remove the camera. Click [Yes].

📖 Important

If you remove a camera, you will no longer be able to play back recordings made with the camera. If you need to play back the recordings, use [Disable Camera] on the [Advanced] tab instead of removing the camera.

Add a User

You can add users to the Viewer and place them in the administrator group or the general user group.

About User Groups

The Viewer provides the following two user groups, each with different user permissions.

- Administrator
  Users in this group can fully operate the Viewer.

- Operator
  Users in this group have limited access to the features of the Viewer. They cannot configure a camera or set a recording schedule.

You can specify the group to which the added user belongs by selecting from [User Group].

📖 Important

- A default user called "administrator" is created in the Administrator user group. The password for this user is "NVR". We recommend that you change the password for this user after installation. We strongly recommend that, for normal surveillance operation, you create individual users with access permissions for only the minimum required functionality.

- Be sure to remember your password.

- You cannot add user groups.

📝 Note

Administrator for this software program does not refer to the Windows administrator.

Display the [Users] Tab

1 Click [Settings] > [Users].
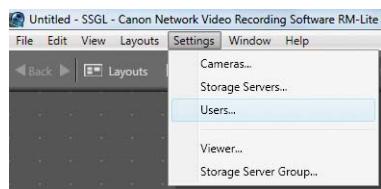
The [Users] tab is displayed in the [Settings] dialog box.

① List of users
  Displays a list of existing users.

② [Add], [Edit], and [Remove]
  Add, edit or remove a user.

③ [User Group Settings]
  This cannot be used with RM-Lite.

④ [Close]
  Closes the dialog box.

Add a User

Use this tab to add a new Viewer user. Also use it to specify the kind of user (Administrator or Operator).

1 Click [Add] to display the [Add User] dialog box.
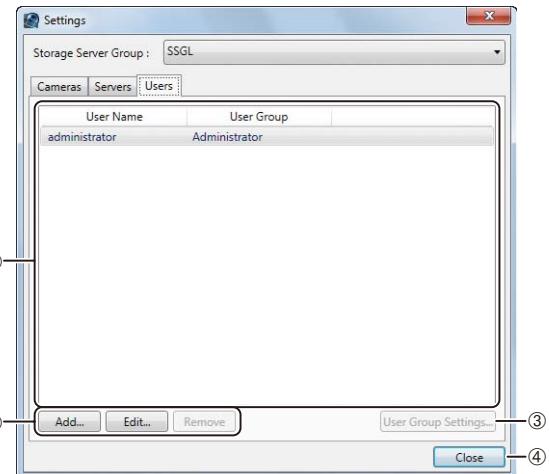
2 Enter the information required to add the user.

① [User Name]
Enter the name of the user to be added.

② [Password]
Enter the password used to log into the Viewer.

③ [Confirm Password]
Enter the password again for confirmation.

④ [User Group]
Select the user group ("Administrator" or "Operator"). You can also select an added user group.

⑤ [OK] and [Cancel]
Close the dialog box.

3 Click [OK] to close the dialog box.

The added user appears in the list of users on the [Users] tab.

Change the User Information

1 Select a user in the list.

2 Click [Edit] to display the [Edit User] dialog box.

3 Change the user information.

① [User Name]
All user names can be changed, except for the default "administrator" user name.

② [Old Password]
Enter the old password.

③ [New Password]
Enter the new password.

④ [Confirm New Password]
Enter the new password again for confirmation.

⑤ [User Group]
Select a user group ("Administrator" or "Operator"). The default "administrator" user is associated with the Administrator user group. You cannot change this user name.

⑥ [OK] and [Cancel]
Close the dialog box.

4 Click [OK] to close the dialog box.

3

Storage Server Settings

Remove a User

1 Select a user in the list.

2 Click [Remove].

3 A message asking if you want to remove the user is displayed. Click [Yes].

📝 **Note**

You cannot delete the default "administrator" user name.

Chapter 4

Viewer Settings

❏ Configuring the Viewer

❏ Configuring a camera

❏ Creating a layout

Flow for Viewer Settings

Start the Viewer (P. 3-3)

⬇

Configure the Viewer

Display the [Viewer Settings] dialog box (P. 4-3)

⬇

Configure the Viewer display and operation settings (P. 4-3)
Configure event notification and priorities (P. 4-4)

⬇

Configure the camera

Display the [Camera Selector] dialog box (P. 4-5)

⬇

Select a camera (P. 4-5)
Configure the video window (P. 4-6)
Configure the [Advanced Camera Settings] (P. 4-7)

⬇

Configure the video window layout

Create a layout (P. 4-11)

⬇

Place a video window (P. 4-11)

⬇

Save the layout (P. 4-12)

📖 **Important**

We strongly recommend that only one administrator configure the Storage Servers on each network.

Configure the Viewer

Start the Viewer and configure it for day-to-day operations. For details on how to start the Viewer, see "Start the Viewer" (P. 3-3).

Display the [Viewer Settings] dialog box

1 Click [Settings] > [Viewer].

The [Viewer Settings] dialog box is displayed.
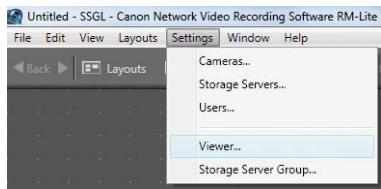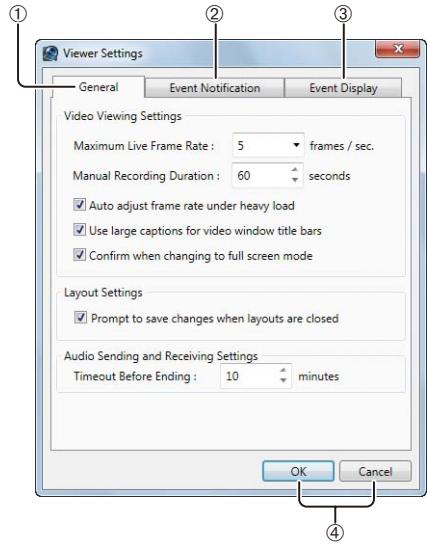
① **[General] tab**
Configure the Viewer screen display settings.

② **[Event Notification] tab**
Configure how the Viewer displays an event.

③ **[Event Display] tab**
This cannot be used with RM-Lite.

④ **[OK] and [Cancel]**
Close the dialog box.

Configure the Viewer Display and Operation Settings

1 Click the [General] tab.

2 Configure each item.
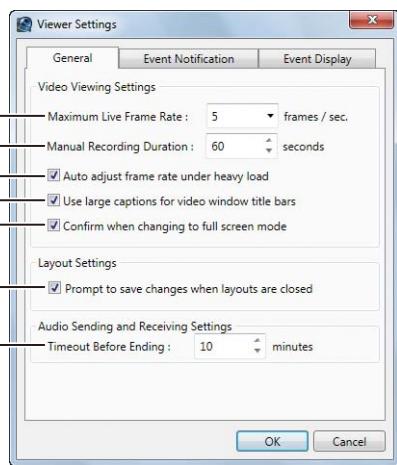
① **[Maximum Live Frame Rate]**
Specify the maximum live frame rate.

② **[Manual Recording Duration]**
Specify the [Record Now] recording time, from 30 to 300 seconds.

③ **[Auto adjust frame rate under heavy load]**
Automatically adjust the display frame rate.

④ **[Use large captions for video window title bars]**
Increase the title bar text size of the video window.

⑤ **[Confirm when changing to full screen mode]**
Display a confirmation message when switching to full screen mode.

⑥ **[Prompt to save changes when layouts are closed]**
Display a confirmation message when a layout in the Viewer is closed. The message is not displayed if the layout is not changed.

⑦ **[Timeout Before Ending]**
Automatically stop two-way audio communication after the specified period, from 1 to 60 minutes.

Configure Event Notification and Priorities

1 Click the [Event Notification] tab.

2 Configure each item.
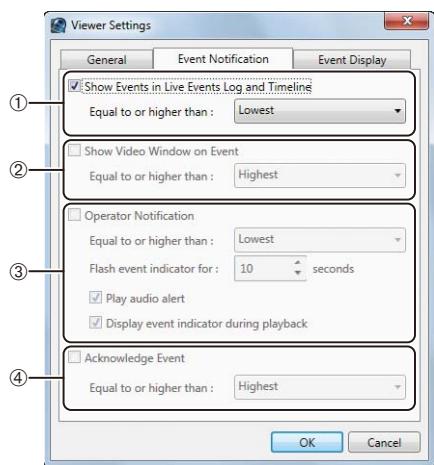
① [Show Events in Live Events Log and Timeline]
Display an event in the [Live Events Log] dialog box
and on the timeline.

   [Equal to or higher than]
   Specify the priority of events to be displayed.

② [Show Video Window on Event]
This cannot be used with RM-Lite.

③ [Operator Notification]
This cannot be used with RM-Lite.

④ [Acknowledge Event]
This cannot be used with RM-Lite.

Configure the Camera

Display the [Camera Selector] dialog box

1 Click [Window] > [Camera Selector].

The [Camera Selector] dialog box is displayed.

① [Search for] box
Search for the camera to be used for display.

② Camera search results
Displays a list of cameras found by searching.

📝 Note

Each time you select [Window] > [Camera Selector], the display of the [Camera Selector] dialog box is toggled on or off.
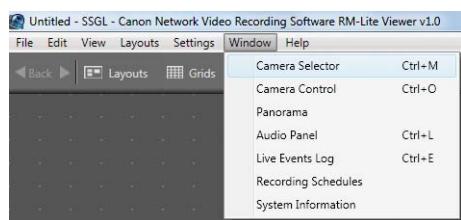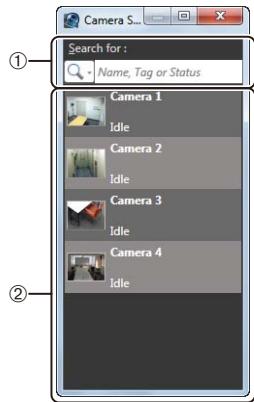
Select a Camera

When you have a large number of cameras registered, search for the camera using the camera name.

1 Click the search button to select the search criteria type and enter the search criteria.

Search button

Search criteria box

The following items are displayed when you click the search button.

• [Name, Tag or Status]
Enter a camera name or camera status in the search criteria box.

• [Camera Name]
Enter the camera name in the search criteria box.

• [Tag]
Cameras cannot be searched using this item in RM-Lite.

• [Camera Status]
Select the camera status to be searched.

• [Camera Type]
Select the model name to be searched.

• [Host Name (camera)]
Enter the camera host name or IP address in the search criteria box.

• [Storage Server Group Name]
Cameras cannot be searched using this item in RM-Lite.

2 Specify the search criteria and search for the camera.

3 Double-click the camera in the search results to display the video window.
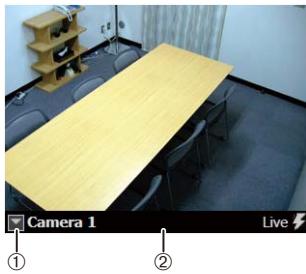
① Video window menu button.

Click to display a menu for operating the video window.

② Title bar

Displays the camera name and type of image being displayed.

4 To display images from other cameras, repeat step 3.

M700 M600 M40 C500

With the on-screen display feature enabled, if you set the display position to the lower right or lower left, the video window title bar, the recorded image indicator, or the event indicator may hide the text that should be displayed.

📖 **Important**

• When an error occurs, the corresponding error message is displayed in the video window. For details, see "Error Messages in the Video Window" (P. 9-4).

• The number of video windows that can be displayed in the Viewer depends on factors such as the graphics card, CPU performance, frame rate, camera image size, and the image quality.

• Viewer operation may slow down in the CPU load is high.

Configure the Video Window

You can configure the video window settings, including the window size and the video format (JPEG or MPEG-4).

■ Change the Video Window Size

1 Click the video window menu button to display the menu.

2 Select [Video Display Size] and specify the video window size from the submenu.

• [160x120] / [320x240] / [640x480]
Change the size of the video window, selecting from small ([160x120]), medium ([320x240]) and large ([640x480]).

• [Default]
Adjusts the size of video window to the received (live) image size. For the image size during reception, see "Change the Video Window Resolution" (P. 4-7).

• [Full Screen]
Display an image on the entire screen. For details, see "Display on the Full Screen" (P. 4-7).

📝 **Note**

• Drag the lower right corner of the video window to resize it.

• If the video window size selected in the [Video Receive Size] submenu is greater than [640 x 480], the load on the CPU will increase and the Viewer may operate more slowly.

■ **Change the Video Window Format**

1 Click the video window menu button to display the menu.

2 Click [Video Format] and select the video format ([JPEG] or [MPEG-4], or [H.264]) from the submenu.

M700 M600 M40
• [MPEG-4] is unavailable.
• The audio is not in synch with the live video when [H.264] is selected.

C500 C60
• [H.264] is unavailable.
• The audio is not in synch with the live video when [MPEG-4] is selected.

■ **Change the Video Window Resolution**

1 Click the video window menu button to display the menu.

2 Click [Video Receive Size] and select the resolution ([160x120], [320x240], [640x480], [1280x960], or [Default]) from the submenu.

Select [Default] to use the camera's resolution.

M700 M600 M40
The resolution cannot be specified for [H.264] format.

C500 C60
• [1280 x 960] is unavailable.
• The resolution cannot be specified for [MPEG-4] format.

📖 **Important**

When you display more than one video window for the same camera, changes to the resolution of one of these windows are reflected to all of the other windows.

📋 **Note**

• If you save the layout (P. 4-12), the [Video Receive Size] setting is also saved.

• The size used for [Default] is determined the first time you display an image from the camera. The size on the Viewer will not change, even if you change the size setting on the camera.

■ **Display on the Full Screen**

You can display the video window image on the full screen.

1 Click the video window menu button to display the menu.

A white frame is displayed surrounding the selected video window.

2 Select [Video Display Size] and select [Full Screen] from the submenu.

3 A confirmation message is displayed. Click [Yes].

The image from the selected video window is displayed on the full screen.

4 To exit full screen display, press the Esc key.

Configure the [Advanced Camera Settings]

1 Click [Window] > [Camera Control].

2 Click the video window of the camera you want to configure and click [Control] on the [Camera Control] dialog box to get control of the camera.

3 Click [Advanced] on the [Camera Control] dialog box to display the [Advanced Camera Settings] dialog box.

4 Click the tab that you want to configure.

5 After configuring the settings, click [Close].

📖 **Important**

If camera control is lost while the [Advanced Camera Settings] dialog box is open, you cannot continue configuring the settings. Click [Control] on the [Camera Control] dialog box again to get control and continue configuring the settings.
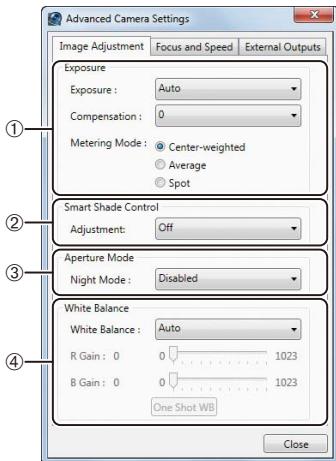
4

Viewer Settings

■ Adjust the Image

Adjust the image quality using the [Image Adjustment] tab in the [Advanced Camera Settings] dialog box.

[Image Adjustment] tab

> **📖 Important**
>
> The settings may be different for different camera models. For details, see the camera manual.
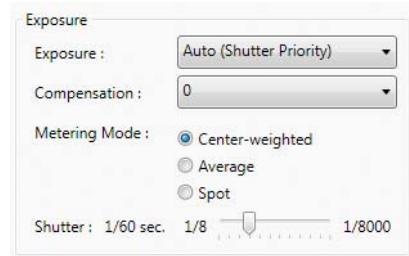

① **[Exposure]**

The settings change according to the selected exposure setting.

- **[Auto]**
  Automatically control the exposure.

- **[Auto (Shutter Priority)]**
  Specify the shutter speed.

- **[Auto (Flickerless)]**
  Reduce flicker from light sources, such as fluorescent lighting. The shutter speed is automatically adjusted according to the lighting conditions.

The exposure compensation setting is displayed when [Auto], [Auto (Shutter Priority)] or [Auto (Flickerless)] is selected.

[Compensation]: Specify exposure compensation using seven levels, from -3 to +3 (alternately [Off], [Low], [Medium], [High]). Select negative values to darken the image and positive values to lighten the image.

[Metering Mode]: Specify the metering mode setting: [Center-weighted], [Average], or [Spot].

Metering mode	Description
[Center-weighted]	Meters the entire image, focusing on the center of the image. A correct exposure is obtained for a subject near the center of the image, even though the periphery may be slightly darker or lighter. Use for subjects that are in the center of the image.
[Average]	Meters the entire image by averaging. A uniform exposure is obtained even when the scene has significant differences in brightness. Use for scenes where, for example, cars are passing through or people are entering and exiting.
[Spot]	Meters the center of the image. The correct exposure is obtained for a subject near the center of the image, irrespective of the brightness of the periphery. Use if the subject is lit by a spotlight or is backlit, where the exposure should be adjusted to the center of the image.

[Shutter]: Specify the shutter speed when [Exposure] is set to [Auto (Shutter Priority)] using 12 levels, from 1/8 to 1/8000 seconds.

- **[Manual]**
  Compensate for the exposure manually by using the following settings.

  [Iris]: Specify the iris setting. Drag the slider to the left to close down the iris and make the image darker or to the right to open up the iris and make the image brighter.

  [Shutter]: Specify the shutter speed using 15 levels, from 1/1 to 1/8000 seconds.

  [Gain]: Specify the gain (sensitivity to brightness). Drag the slider to the left to decrease the gain and make the image darker or to the right to increase the gain and make the image brighter.

② **[Smart Shade Control]**
  Specify a value to use for the camera's smart shade control feature for live image. Select one of seven levels, from 1 (weakest) to 7 (strongest), or [Off]. If [Off] is selected, the camera's smart shade control setting is used for live image.

③ **[Aperture Mode]**
  Specify the camera aperture mode.

  [Night Mode]

  - **[Disabled]**
    Disable the night mode function.

  - **[Enabled]**
    Displays live image in night mode.

  - **[Auto]**
    The camera automatically switches to night mode.

④ **[White Balance]**
  Specify the appropriate white balance by selecting one of the camera's light source settings displayed in the list.
  If [Manual] is selected, use one of the following two methods to adjust the white balance.

  - **[R Gain] and [B Gain]**
    Specify the white balance parameters by dragging the sliders. Drag to the right to increase the gain (the sensitivity to brightness).

  - **[One Shot WB]**
    Force white balance adjustment to a light source. Using a white object (such as piece of white paper) as a standard, fill the shot with the object and click this button.

M700 M600 M40 C500 C60
[Compensation] can be specified using seven levels, from -3 to +3. To disable exposure compensation, specify [0].

📝 **Note**

When [Night Mode] is enabled in [Aperture Mode], the screen image and the recorded image are in black & white.
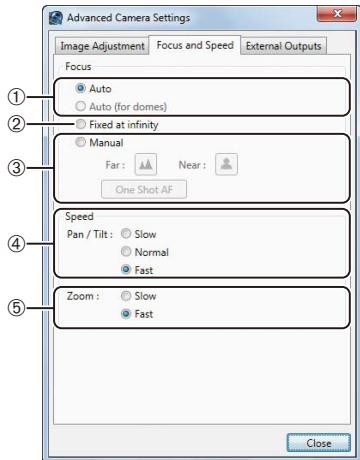
4

Viewer Settings

■ Adjust the Focus and Speed

You can use the [Focus and Speed] tab in the [Advanced Camera Settings] dialog box to adjust the focus and the pan/tilt/zoom speeds.

[Focus and Speed] tab

> **📖 Important**
>
> The settings may be different for different camera models. For details, see to the camera manual.

① **[Auto], [Auto (for domes)]**
Automatically focus the image.
Use [Auto (for domes)] for cameras equipped with an indoor dome housing. The setting prevents the camera from focusing onto the dome surface.

② **[Fixed at infinity]**
Fix the focal point at infinity.

③ **[Manual]**
Adjust the focus manually by clicking the [Far] or [Near] button.
Click [One Shot AF] to focus once on the current subject and then return to manual focus.

④ **[Pan/Tilt]**
Specify the pan/tilt speed ([Slow], [Normal] or [Fast]).

⑤ **[Zoom]**
Specify the zoom speed ([Slow] or [Fast]).

M700 M600 C500
The pan/tilt speed is unavailable. When the digital zoom on the camera is set to [Not Specified], the zoom speed is unavailable.

■ Configure External Outputs

Use the [External Outputs] tab on the [Advanced Camera Settings] dialog box to configure output to external devices connected to the camera.
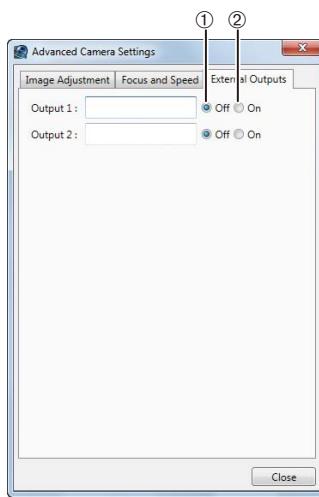
① **[Off]**
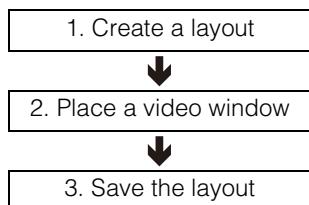Disable the external output.

② **[On]**
Enable the external output.

Configure the Video Window Layout

You can save the size and position of a video window in the Viewer as a layout.

Configure a layout using the following procedure:

```
1. Create a layout
        ↓
2. Place a video window
        ↓
3. Save the layout
```

📄 **Note**

When the Viewer starts, it displays the layout that was being displayed when the program last ended. A new layout with the name "Untitled1" is opened the first time the Viewer is started. You can save the layout with a name after you place a video window.

Create a Layout

Specify the layout name, layout background and the video window display conditions and open it as a new layout.

1 Click [Layouts] > [New Layout] to display the [New Layout] dialog box.
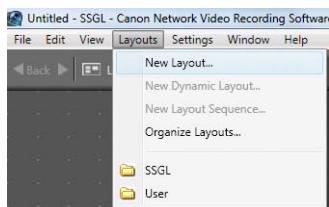
2 Configure each item.
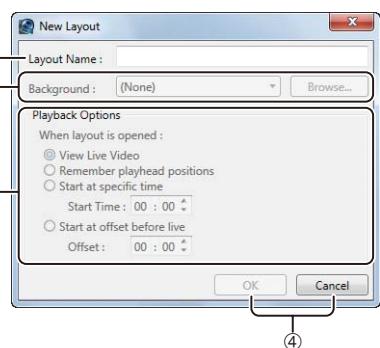
① **[Layout Name]**
Enter the name of the layout.

② **[Background]**
This cannot be used with RM-Lite.

③ **[Playback Options]**
This cannot be used with RM-Lite.

④ **[OK] and [Cancel]**
Close the dialog box.

3 Click [OK] to close the dialog box.

📖 **Important**

Following the above steps does not automatically save the layout. Be sure to enter a name and save the new layout after configuring it.

Place a Video Window

You can place a video window anywhere in the viewing area.

You can arrange video windows according to a grid.

■ Display a Grid

1 Click [Grids] on the toolbar.

2 Select the type of grid.

- **[None]**
  Do not display a grid.

- **[Alignment]**
  Display a dotted grid.

- **[160x120] / [320x240] / [640x480]**
  Display a solid grid with one of three sizes.

- **[Custom]**
  This cannot be used with RM-Lite.

■ Move a Video Window

You can drag a video window to any position.
When the grid is set to [None], the video window remains in the position to which it is dragged.
For options other than [None], the video window snaps to the grid position that is nearest to where the window is dragged.

> ### 🔲 Important
>
> The number of video windows that can be displayed in the Viewer depends on factors such as the video card, CPU performance, video frame rate, camera video size, and the video quality.

> ### 📄 Note
>
> You can enlarge the video window in multiples of the grid frame size (2 x 2, 3 x 3, etc.).

Save the Layout

After configuring the display and position of the video windows, follow these steps to save the layout.

1 Click [File] > [Save Layout].

2 Change the layout name as required, and click [OK].

Switch Between Layouts

1 Click [Layouts] on the toolbar to display a menu for selecting existing layouts.

2 Select a layout.

The menu is separated into two sub-menus:

- Shared layouts
  Displays shared layouts under the name of the currently connected Storage Server Group. The [Layouts] menu shows the currently connected Storage Server Groups.
  All users have access to the layouts, however, only the administrator can make changes to them.

- User layouts
  Displays layouts created by the currently logged in user. These layouts are not available to other users.

Organize Layouts

You can change the display order of menus, classify and organize layouts in folders, and edit the layouts.

1 Click [Layouts] > [Organize Layouts] to display the [Organize Layouts and Layout Sequences] dialog box.
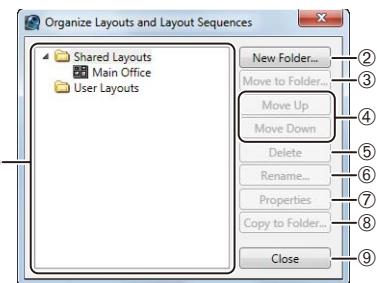
① **Layout tree**
Displays a list of created layouts.
The layout tree uses the following icons:

Icon	Description
🔳	Custom layout
📁	Folder

② **[New Folder]**
Create a new folder.

③ **[Move to Folder]**
Move the selected layout to a folder.

④ **[Move Up] and [Move Down]**
Move the selected layout up or down in the list.

⑤ **[Delete]**
Delete the selected layout from the list.

⑥ **[Rename]**
Change the name of the selected layout.

⑦ **[Properties]**
Displays the properties of the selected layout.
The properties displayed are the same as those displayed in step 2 on P. 4-11.

⑧ **[Copy to Folder]**
Copy the selected layout to a folder.

⑨ **[Close]**
Close the dialog box.

> ### 🔲 Important
>
> - You cannot change the name of the [Shared Layouts] and [User Layouts] folders.
>
> - Only the administrator (or a user with the required permissions) can manage shared folders (P. 3-12).

📋 Note

The settings in the [Organize Layouts and Layout Sequences] dialog box, such as the order of the layout sequence and the folder types are also displayed when you click the [Layouts] menu, or when you click the [Layouts] button on the toolbar.

4

Viewer Settings

Chapter 5

Setting a Recording Schedule

❏ How to set a schedule for recording images on particular days of the week or
  at the particular times
❏ Settings for different recording modes

Flow of Recording Schedule Settings

Display the [Recording Schedules] window (P. 5-3)

⬇

Set a Weekly schedule

Display the [Recording Schedules] window (P. 5-3)

⬇

Set a recording schedule (P. 5-3)

⬇

Configure the recording conditions

Continuous recording settings (P. 5-4)

⬇

Save or edit a recording schedule

Save a recording schedule (P. 5-5)

⬇

Edit, delete or copy from a recording schedule (P. 5-6)
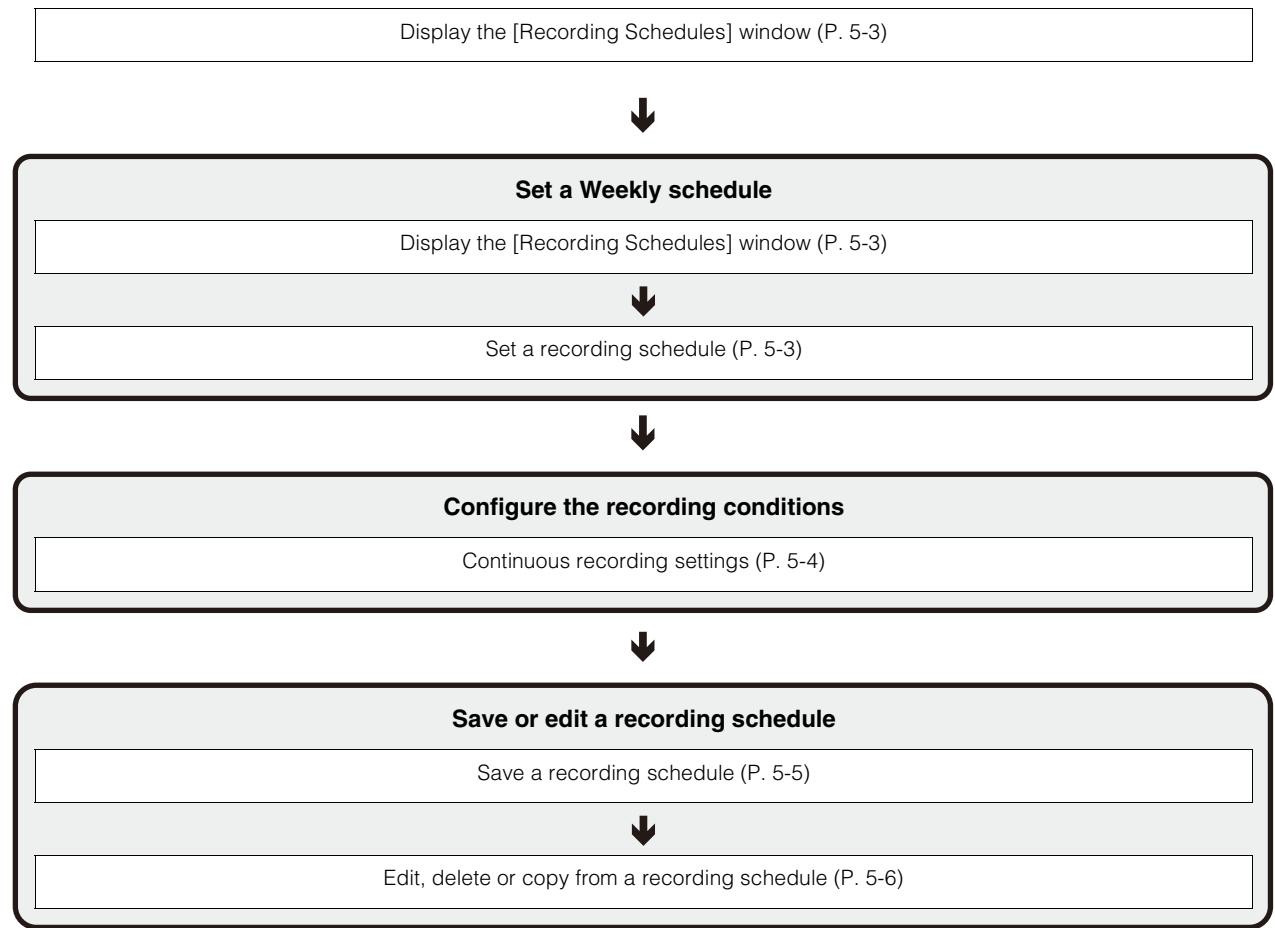
Important

Be sure to test recording schedules before using them.

Record on a Regular Basis (Repeating Weekly Schedules)

Display the [Recording Schedules] window

1 Click [Window] > [Recording Schedules] to display the [Recording Schedules] window.
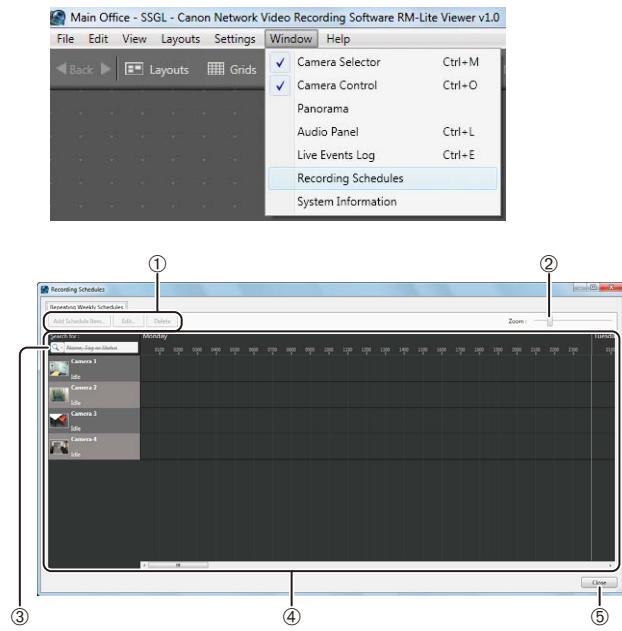
① [Add Schedule Item], [Edit], [Delete]
Add, edit or delete a schedule item.

② [Zoom] slider
Zoom in and zoom out the time line of the schedule area.

③ Camera search box
This cannot be used with RM-Lite.

④ Schedule area
Displays the currently registered cameras and their corresponding weekly schedules, arranged by day of the week.

⑤ [Close]
Closes this window.

Set a Weekly Schedule

1 In the schedule area, click the camera that you want to add the schedule to.

🔅 Hint
You can select more than one camera by holding down the Shift key or Ctrl key and clicking the cameras.

2 Click [Add Schedule Item] to display the [Edit Schedule Item] dialog box.
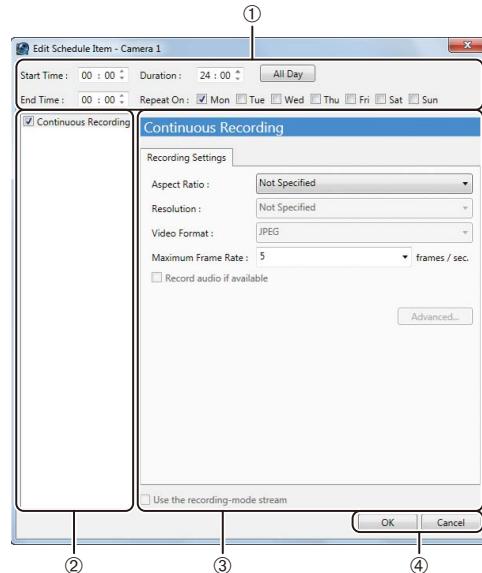
① Recording time settings area
Specify the day of the week and the start and end time of the recording period.

② Recording mode list
Select the recording mode.
Only continuous recording can be selected.

③ Recording settings area
Configure the settings for the recording mode.

④ [OK] and [Cancel]
Close the dialog box.

Specify the Recording Period and Day of the Week

1 Specify the recording period.

- To record for the entire day without specifying a starting and ending time, click [All Day].
- To specify a recording period, enter the start time in [Start Time] and the end time in [End Time]. Use these items when you want to specify a recording time that goes past midnight, such as when recording late into the night. Alternately, select a duration for the recording (minimum of 15 min.) in the [Duration] field.

2 Select the check boxes for the days of the week on which to repeat the recording in [Repeat On].

📄 Note

- You cannot specify overlapping recording schedules on the same camera.

- The time of the recording schedules is based on the Storage Server clock. We recommend that you synchronize the clocks on all the Storage Server you are using.

- If you set the operating system to automatically handle daylight saving time, the time will be automatically adjusted on the first and last days of the daylight saving time period.

Configure the Recording Mode

1 Click [Continuous Recording] in the recording mode list and select the check box.

2 Configure the video format of the recorded image.
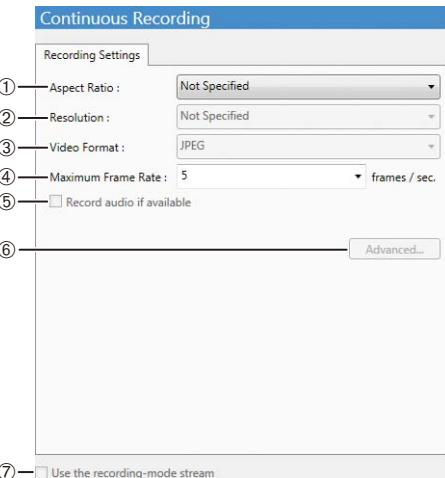
① **[Aspect Ratio]**
Specify the aspect ratio ([4:3]).
If you select [Not specified], the camera's aspect ratio setting is used for recording.

② **[Resolution]**
Set the [Aspect Ratio] to [4:3] to make this setting available and specify the resolution ([160x120], [320x240], [640x480] or [1280x960]).
If you select [Not Specified] for the [Resolution], the camera's resolution setting is used for recording.

📖 Important

The size of the recording file increases as the resolution becomes higher. Make sure there is sufficient hard disk space available before specifying a higher resolution.

③ **[Video Format]**
Fixed at [JPEG].

④ **[Maximum Frame Rate]**
Specify the maximum frame rate (number of frames recorded in one second) in the range from 0.1 to 5 frames per second (fps).

📖 Important

The size of the recording file increases as the frame rate becomes higher. Make sure there is sufficient hard disk space available before specifying a higher frame rate.

📝 Note

• It may not be possible to record at the specified frame rate or recording may pause intermittently, depending on the load on the Storage Server CPU or the hard disk.

• Recording may be performed at lower than the specified frame rate, depending on the number of Viewers that are accessing the camera, the load on the camera and Storage Server, variation in network traffic, and the environment at the time of recording.

⑤ [Record audio if available]
    This cannot be used with RM-Lite.

⑥ [Advanced]
    This cannot be used with RM-Lite.

⑦ [Use the recording-mode stream]
    This cannot be used with RM-Lite.

C500 C60
You cannot select [1280x960] for the [Resolution].

Save the Recording Schedule

1 Click [OK] to close the dialog box.

The schedule that was set is displayed in the schedule area. The schedule becomes active as soon as it is displayed in the schedule area.

5

Setting a Recording Schedule

Edit a Recording Schedule

Editing a Recording Schedule

1 Select the recording schedule you want to edit in the schedule area, and click [Edit].

2 Change the settings of the recording schedule.

For details on the settings in the [Edit Schedule Item] dialog box, see "Set a Weekly Schedule" (P. 5-3).

3 Click [OK] to close the dialog box.

Delete a Recording Schedule

1 Select the schedule that you want to delete in the schedule area.

2 Click [Delete].

The recording schedule is deleted.

Chapter 6

Day-to-Day Operations

❏ Viewing live images
❏ Playing recordings
❏ Operating a camera
❏ Changing the layout of a video window
❏ Viewing and checking events

Flow of Operations

View recorded images

Record Now (P. 6-4)	Play a recording (P. 6-6)
Save a snapshot of the displayed image (P. 6-4)	Save part of a recording (P. 6-7)
Search for a recording (P. 6-5)	Zoom in/out of the Viewer display (P. 6-7)

⬇

View live images

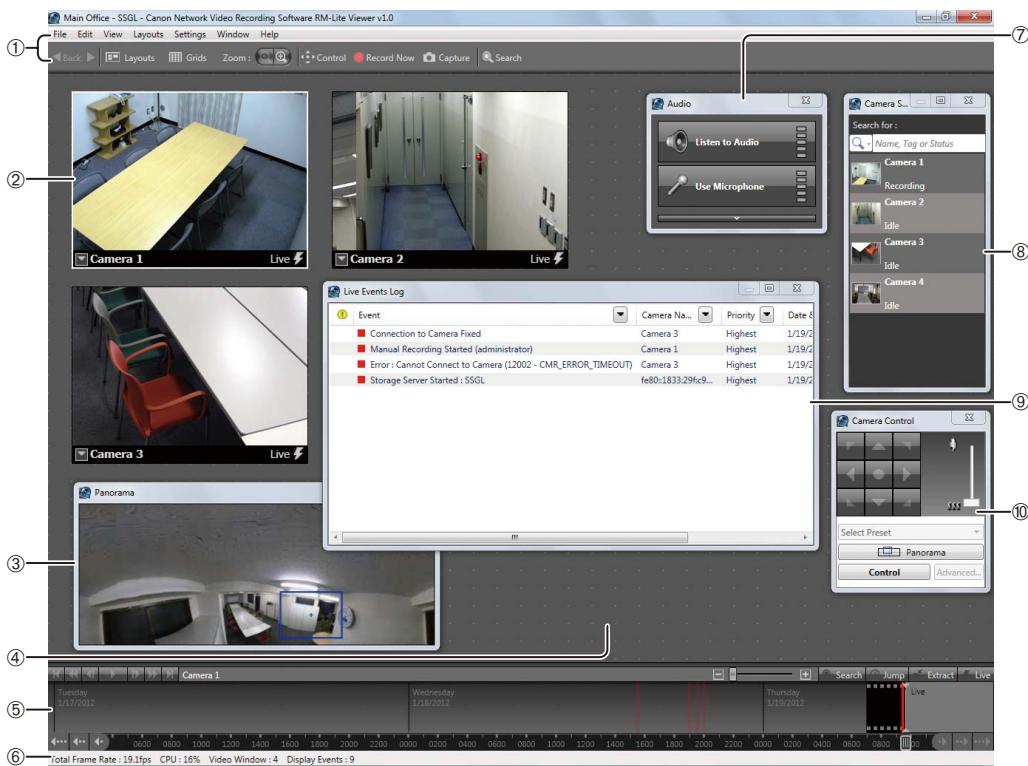|	
Get control of a camera (P. 6-8)	Change the camera angle using a panorama image (P. 6-10)
Use the pan/tilt/zoom feature (P. 6-8)	Play back audio (P. 6-10)
Change the camera angle to a preset position (P. 6-9)	Compensate for dark regions in the image (P. 6-11)

⬇

Check events

View a live event (P. 6-12)	Search for events (P. 6-12)

Viewer Features

① **Menu bar and toolbar**

Access this software's functions. The toolbar provides easy access to commonly used functions.

② **Video window**

Display live images from a camera or playback from a recording.

③ **[Panorama]**

Change the camera angle using a panorama image.

④ **Viewing area**

Place a video window in this area. You can display a grid for arranging video windows.

⑤ **Timeline**

Display the time and date and events that have occurred. Click an event to play back the recording.

⑥ **Status bar**

Displays Viewer status messages and CPU load.

⑦ **[Audio]**

Listen to live audio and transmit audio using the camera's two-way audio feature.

⑧ **[Camera Selector]**

Display and select cameras added to the Storage Server Group.

⑨ **[Live Events Log]**

Display events that occurred one hour or less after Viewer startup.

⑩ **[Camera Control]**

Get control of the camera and change the camera angle.

View Recorded Images

Record Now

Start recording while watching the live image.

1 Click the video window displaying the image to be recorded.

A white frame surrounding the selected video window is displayed.

2 Click [Record Now] on the toolbar.

Recording starts. The upper part of the window is red when recording. Recording stops automatically after the set time period.

📖 Important

- The maximum frame rate is 5 fps.
- The recording duration can be specified, however, the actual duration may depend on various settings and on network delay.

📝 Note

The [Record Now] duration can be changed. For details, see "Configure the Viewer Display and Operation Settings" (P. 4-3).
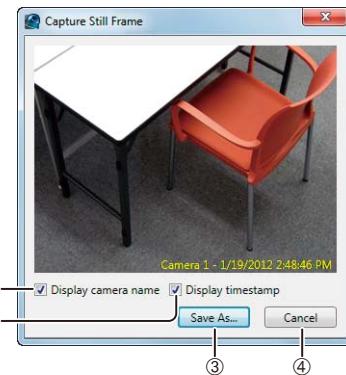
🔅 Hint

You can use [Record Now] to immediately record during a period where there is no recording schedule set.

Save a Snapshot of the Displayed Image

You can take a snapshot of the displayed image and save the still image.

1 Click [Capture] on the toolbar to display the [Capture Still Frame] dialog box.

2 Set the still image to be saved.

① [Display camera name] check box
Select this check box if you want to add the camera name to the still image.

② [Display timestamp] check box
Select this check box if you want to add the time and date to the lower right side of the saved still image. (You cannot specify the position, font, size or color.)

③ [Save As]
Save the preview image.

④ [Cancel]
Closes the dialog box.

3 Click [Save As].

The [Save As] dialog box appears.

4 Specify the file name and storage location and click [Save].

The file is saved in the specified location and the focus is placed on the [Capture Still Frame] dialog box again.

5 Click [Cancel] to close the dialog box.

M700 M600 M40 C500
If you use the on screen display feature of the camera, the date and time on the snapshot may look different from the date and time on the on screen display. In addition, we recommend that you display characters on the upper right or upper left of the snapshot.

Important

Do not specify the Windows folder or the Program Files folder on the system drive as the destination for the snapshot images. Images cannot be saved to these folders.

Note

- You cannot operate the preview when displaying the [Capture Still Frame] dialog box. You must operate the camera in advance to set its angle. For details on operating the camera, see "Operate the Camera" (P. 6-8).

- The .bmp file format is used for still images.

Search for a Recording

Images recorded using a recording schedule or [Record Now] are displayed on the timeline as events. You can search through the recordings to find the recording that you want to play back.

■ Search by Changing the Timeline

1 Click the video window.

2 Drag the timeline to display the time and date for the recording.

① **Slider**
Zoom out or zoom in the timeline.

② **Event display area**
Displays events according to the times they occurred.
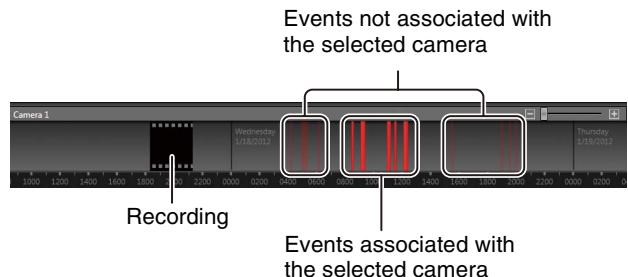
③ **Time bar**
Drag the bar to scroll through the timeline.
Change the recording period displayed in the timeline using the buttons at each end.

Button	Description
◀···	Go back one week
◀··	Go back one day
◀·	Go back 10% of the current time display
·▶	Go forward 10% of the current time display
··▶	Go forward one day
···▶	Go forward one week

3 Click an event in the event display area.

Events not associated with the selected camera

Recording

Events associated with the selected camera

Events displayed as film icons are images recording for that period. Click the event to play the recording. Events associated with the selected camera are also displayed in the event display area. (The color of these events represents their priority.) Click the event to play the recording.

Note

- Events in the display area that not associated with the selected camera (secondary events) are displayed as transparent. If you do not select a camera, all events are displayed as primary events (not transparent).

- Click [View] > [Timeline] to display/hide the timeline.

■ Search by Specifying the Time and Date

1 Click a video window.

2 Click [Jump] on the timeline to display the [Jump to Time] dialog box.

**3** Specify the date and time and click [OK].

The playhead moves to the specified date and time and the recorded video starts playing in the video window.

■ Search by Event

Click [Search] on the toolbar or [Search] on the timeline toolbar to search for an event. Click the event in the search results to play the associated recording. For details, see "Play Back an Event" (P. 6-13).

Play a Recording

Use the playback controls on the timeline to control the image displayed in the video window.
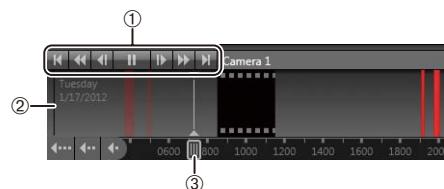
① Playback controls
Controls for image playback.

Button	Description
	Jump to previous event
	Rewind (each click changes the speed in sequence: 1x, 2x, 5x, 10x)
	Go to previous frame
/	Play/pause
	Go to next frame
	Fast forward (each click changes the speed in sequence: 2x, 5x, 10x)
	Jump to next event

② Event display area
Move the playhead to the playback position.

③ Playhead
Drag the playhead to change the playback position.

Video Window Display for Playback

① Playback indicator
Displays the playback status.

② Title bar
Displays the camera name and the time and date of the recording.

Important

- Because image data is being sent from the Storage Server to the Viewer during playback, playback response and smoothness depends on factors such as the amount of network traffic.

- The time displayed on the timeline corresponds to the clock on the computer where the Viewer is running.
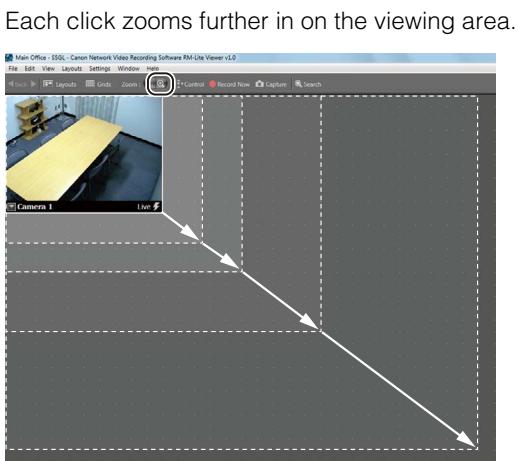
Note

- You can play recordings from more than one camera at the same time.

- You can display recordings from one camera in multiple video windows. You can also play images recorded at different times simultaneously.

- Click [Live] on the timeline toolbar during playback to return to the live image.

Zoom the Viewing Area In and Out

You can zoom the viewing area in and out in four levels.

1 On the toolbar, click [+] next to [Zoom].

Each click zooms further in on the viewing area.

2 Click [-] to zoom out.

Each click zooms further out of the viewing area.

Important

The quality of the video image in the video window decreases when you zoom in. To increase the image quality, increase the resolution (P. 4-7).

Note

- Select [Actual Size] from the [View] menu to return the view to the actual size.

- After selecting [Actual Size], you cannot zoom in further on the viewing area.

Save Part of a Recording

You can save a part of a recording with a length of up to one hour to a file.

1 Select a recording on the timeline.

2 Click [Extract] on the timeline to display the [Extract Video] dialog box.

3 Specify the time range for the image to be extracted.
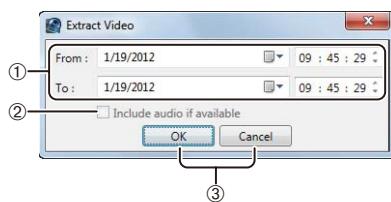
① [From] and [To]
Specify the date and time of the start and end positions.

② [Include audio if available] check box
This cannot be used with RM-Lite.

③ [OK] and [Cancel]
Close the dialog box.

4 Click [OK].

The [Save As] dialog box appears.

5 Specify the file name and storage location and click [Save].

Important

- You can extract an image from only one video window at a time.

- Do not specify the Windows folder or the Program Files folder on the system drive as the destination for the snapshot images. Images cannot be saved to these folders.

Note

Extracted images are saved in QuickTime format (with the .mov file extension) and can be played with QuickTime Player (or other players that support the .mov file format). If QuickTime Player is not installed, you can download it for free from http://www.apple.com/quicktime. We recommend that you use QuickTime Player Version 6.5.1 or later.

Operate the Camera

You can change the camera angle or adjust the image quality for a camera in the video window.

Get Control of a Camera

1 Click the video window.

2 Click [Window] > [Camera Control] to display the [Camera Control] dialog box.
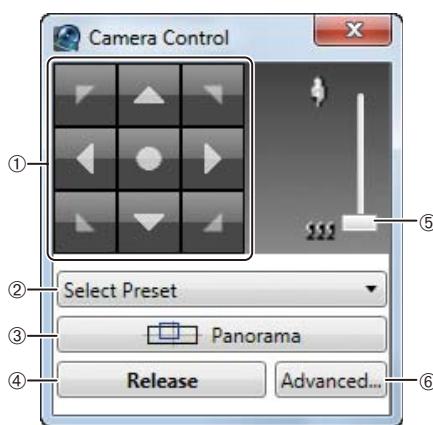
① **Camera angle control buttons**
Change the camera angle.

② **[Select Preset]**
Moves the camera to a preset position.

③ **[Panorama]**
Displays the [Panorama] window. Move the camera to a position using the panorama image.

④ **[Control]/[Release]**
Get or release control of the camera.

⑤ **Zoom slider**
Drag to change the zoom position. Drag up to move to the telephoto position and down to move to the wide-angle position.

⑥ **[Advanced]**
Configure the camera's advanced settings.

3 Click [Control].

You now have control of the camera for a certain period.

Note

- If the camera is idle for one minute, camera control is released automatically. A count down message is displayed 10 seconds before the release. If you want to keep control of the camera, click the video window.

- If you want to move the video window while you are in control of the camera, drag the title bar.

- You can also control the camera while recording. If the camera angle to be used during recording has been set, the camera returns to the set position when the Viewer releases camera control.

Use the Pan/Tilt/Zoom Feature

■ Use the Pan/Tilt/Zoom Feature in the [Camera Control] Dialog Box

You can use the pan/tilt/zoom feature in the [Camera Control] dialog box after getting control of the camera.
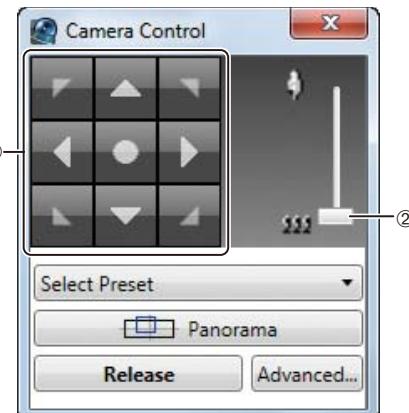
① **Camera angle control buttons**
Change the camera angle by clicking the buttons.
Click ■ in the center to point the camera to the front.

② **Zoom slider**
Drag the slider to change the zoom position.
Drag the slider up to move to the telephoto position and down to the wide-angle position.

■ Use Pan/Tilt/Zoom from the Video Window

You can also use the pan/tilt/zoom feature from the video window.

① Display area

Drag on the area to change the camera angle. Click on the area to move the camera angle to that point.

② Zoom slider

Change the zoom position using the slider or [+]/[-]. Click [+] or drag the slider up to move to the telephoto position. Click [-] or drag the slider down to move to the wide-angle position.

M700 M600

Pan/tilt/zoom is unavailable.

C500

- Pan/tilt is unavailable.
- Zoom is unavailable when the camera's digital zoom is set to [Disable].

Change the Camera Angle to a Preset Position

You can select a preset camera angle in the [Camera Control] dialog box after getting control of a camera.
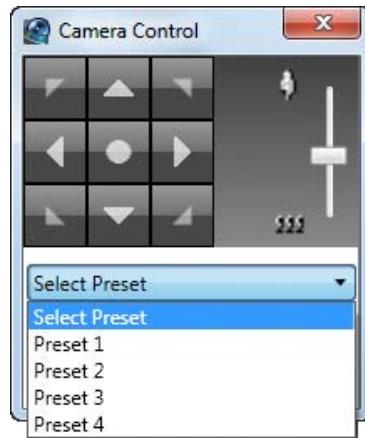
📋 Note

You must first configure the presets on the camera before using this feature. For details, see camera manual.

6

Day-to-Day Operations

Change the Camera Angle Using a Panorama Image

Change the camera angle by specifying a position on a panorama image.

1 Click [Panorama] in the [Camera Control] dialog box to display the [Panorama] window.

2 Change the camera angle and zoom using the frame displayed on the panorama image.

The frame is yellow when you have control of the camera. Drag the frame to change its size and zoom the camera in/out.

Drag the center of the frame to move the frame and change the camera angle.

If you draw a rectangle anywhere on the panorama image, the frame is redrawn at that location and the camera angle and zoom change correspondingly.

The frame is blue when you do not have control of the camera.

M700 M600 C500

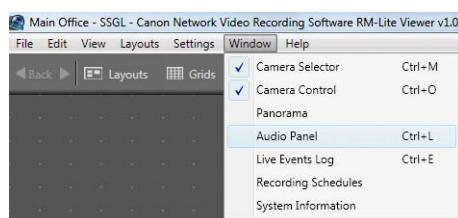A panorama image is not available.

📋 Note

You must first register a panorama image on the camera before using this feature. For details, see the camera manual.

Play Back Audio

If the audio feature on the camera is used, you can play audio using the audio panel or send audio using a microphone.

1 Click [Window] > [Audio Panel].

The [Audio] panel appears.

Options view

① [Listen to Audio]
Starts audio playback.

② [Use Microphone]
Starts audio transmission.

③ Show options button
Displays the options for the [Audio] panel.

④ [Play audio also while using microphone]
Select if you want to play audio even when using a microphone.

⑤ [Use silence detection to reduce network traffic]
Select if you want to detect silent segments when sending audio. Decreases the amount of data transmitted during silent segments to decrease the load on network bandwidth.

⑥ [Settings]
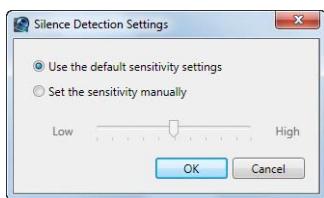Displays the [Silence Detection Settings] dialog box.

⑦ Hide options button
Hides the options of the [Audio] panel.

■ **Silence Detection Settings**

Select the [Use silence detection to reduce network traffic] check box on the [Audio] panel to set the silence detection sensitivity.
Click [Settings] to display the [Silence Detection Settings] dialog box and adjust the silence detection sensitivity.

① [Use the default sensitivity settings]
   Uses the default sensitivity for silence detection.

② [Set the sensitivity manually]
   Drag the slider to set the detection sensitivity.

③ [OK] and [Cancel]
   Close the dialog box.

Compensate for Dark Regions in the Image

Use the viewer shade control to compensate for any dark regions in the image.

1 Click the video window menu button to display the menu.

2 Click [Viewer Shade Control] and select the amount of shade from the submenu.

- [Off]
  Disable the shade control.

- [Low]/[Medium]/[High]/[Very High]
  Enable the shade control. View the video window and select a compensation value that gives the appropriate brightness.
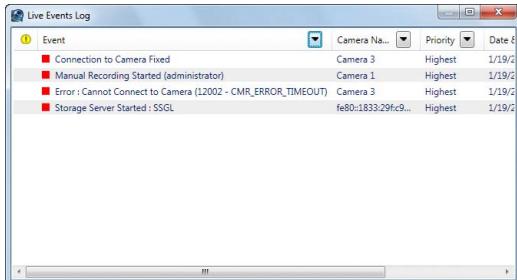
📑 **Note**

- You cannot apply this feature to more than one video window.

- The viewer shade control is a feature of the Viewer, not the camera. Therefore, it can be used for both live image and recorded image playback.

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Day-to-Day Operations

Check Events

View a Live Event

You can display past events in the [Live Events Log] window.

When the Viewer starts, the [Live Events Log] window is displayed, showing all events that occurred within the last hour. The top row in the list shows item names. You can sort events in the list by clicking ▼ in a column to specify the item to sort by and the sorting order.

📖 Important

A maximum of 200 events can be displayed in the [Live Events Log] window.

📝 Note

Click [Window] > [Live Events Log] to display the [Live Events Log] window.

■ Event Icon Colors

Different colored icons are displayed for events, depending on the priority.

Icon color	Priority
Red	Highest
Orange	High
Yellow	Medium
Light Green	Low
Green	Lowest

Search for Events

You can search past events and playback the event.

1 Click [Search] on the toolbar to display the [Event Search] dialog box.

2 Specify the search criteria.

① [Description]
Enter the search criteria (event, camera, priority, camera tag, or host name).

② [When]
Specify the period in which the target event occurred ([Today], [Last 2 Days], [This Week], [This Month], [This Year], and [All Dates]).

③ [Search], [Stop]
Start searching or stop a search in progress using these buttons.

④ [Advanced Search]
This cannot be used with RM-Lite.

⑤ [Search Results]
Displays the search results.

⑥ [Play Back Video]
Plays back the recording associated with the search results.

⑦ [Close]
Close this panel.

3 Click [Search] to start searching.

📝 Note

To display the [Event Search] dialog box when the toolbar is hidden, click [Search] on the timeline or click [Edit] > [Event Search].

■ **Play Back an Event**

If a recording is associated with an event in the search results, right-click the event and click [Play Back Video] to play back the recording in the video window of the corresponding camera.
If the video window is not displayed, clicking [Play Back Video] will automatically display the window and start playback.

📑 **Note**

Click [Live] in the timeline toolbar after playing in the video window to display the live view.

6

Chapter 7

Operation and Management

❏ Error and warning level events

❏ How to check the status of the Storage Server

❏ Disk space management

Storage Server Health Check

Events Indicating Errors or Warning Levels and Corresponding Actions

You can check events to determine if errors related to the Storage Server status have occurred.
When an event indicating an error or a warning level occurs, it is immediately displayed in the event panel or timeline. Take the appropriate action for the event.

Event Type	Message	Event Explanation	Corresponding Action
Low disk space notification[1]	Warning: Low disk space	Occurs when the free disk space becomes less than the specified valued, or the disk usage becomes greater than the specified value. Data may be deleted before the specified number of storage days has elapsed.	Check the recording mode settings (P. 5-4).
Starts/stops file deletion due to low disk space [1]	Warning: Files deleted due to low disk space	Occurs when the free disk space becomes less than the threshold, or the disk usage becomes greater than the threshold.	
Pauses/resumes recording due to low disk space [1]	Recording Suspended (Low Disk Space (<drive name>)	Occurs when the free disk space becomes less than the limit level, or the disk usage becomes greater than the limit level.	
Error connecting to the camera	Error: Cannot Connect to Camera	Occurs on an error when connecting to the camera.	Check the network connection.
Error connecting to the Storage Server	Error: Cannot Connect to the Storage Server	Occurs on an error when connecting to the Storage Server registered with the Storage Server Group.	Check the network status.
Error connecting to the Storage Server Group	Error: Cannot Connect to the Storage Server Group	Occurs on an error when connecting to the Storage Server Group.	Check the network status.
Change in the recording frame rate	Recording Frame Rate reduced due to high load issues	Indicates that the recording frame rate has been changed due to increased server load.	Check the recording mode settings (P. 5-4).

[1] See "Disk Space Management (Important)" (P. 7-4).

Status Bar

The status bar displays the Viewer processing status and load. You can check CPU usage to determine the load on your computer.
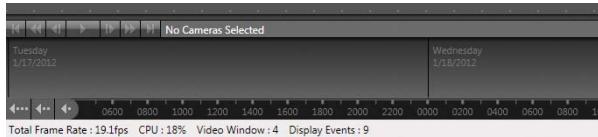

System Information

To get the detailed video processing status of the Storage Server, click [Window] > [System Information] to display the [System Information] dialog box. If system operation is unstable or you are not able to record in the way you intended to, refer to Chapter 1 and reconsider the system configuration.
The [System Information] dialog box shows the status on three different tabs.

[Cameras] tab

This tab displays recording settings and processing information (status, specified frame rate, actual frame rate, receiving bit rate, and recording bit rate) on the registered cameras.
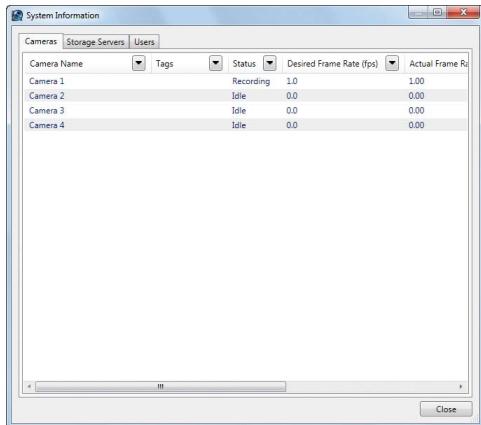
[Storage Servers] tab

This tab displays information (Storage Server Group name, status, CPU usage, recording bit rate, and playback bit rate) on the registered Storage Server.
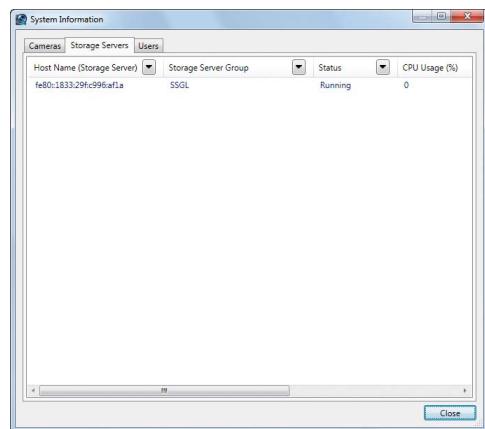
[Users] tab

This tab displays the users logged into the Viewer and related information (user group, host name (Viewer), Viewer version, host name (Storage Server), Storage Server Group).

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Operation and Management

Disk Space Management (Important)

The Storage Server monitors the disk space and responds according to the amount of available space.
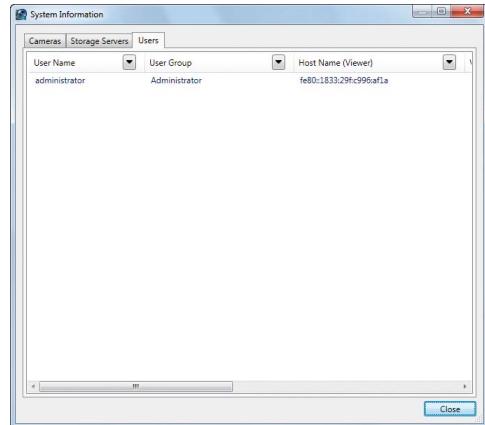
Disk Space Status	Explanation
Notification level indicating that the remaining disk space is low	You can specify a reference value using [Low Disk Space Warning Level] on the [Recording Settings] tab in the [Storage Server Group Settings] dialog box.
Threshold level	The Storage Server calculates a reference value based on various conditions and settings.
Limit level	

■ Action When the Low Remaining Disk Space Notification Level is Reached

The Storage Server issues an event when the disk space available for recording (i.e. available space relative to the maximum disk space used) goes below a certain level.
If [Maximum Disk Space Used] is not set, the drive capacity of the disk that stores the recording file is considered to be the maximum disk space.

Value for [Maximum Disk Space Used]
Notification level
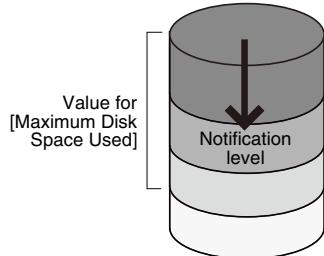
Low Remaining Disk Space Notification Level Conditions and Calculation Method

If one of the following conditions is met, a low remaining disk space notification level is indicated.

Condition 1: If the Storage Server disk space usage exceeds the following values:
$M \times (100 - A)/100$
(M: Value specified in [Maximum Disk Space Used], A: Value specified in [Low Disk Space Warning Level])
For example, if the value for [Maximum Disk Space Used] is 100 GB and the value for [Low Disk Space Warning Level] is 10%, the Storage Server reaches the low remaining disk space notification level when the remaining free disk space becomes 10 GB or less.

Condition 2: If the free disk space falls below the following values:
Disk space x A/100
(A: Value specified in [Low Disk Space Warning Level])
For example, if the disk space is 80 GB and the value for [Low Disk Space Warning Level] is 10%, the Storage Server reaches the low remaining disk space notification level when the remaining free disk space becomes 8 GB or less.

📝 Note

If other applications use the same hard disk, you need to consider condition 2. Even if the Storage Server uses a small amount of disk space, it may reach the low remaining disk space notification level according to condition 2 because other applications have consumed a portion of the disk space.

Calculation Example

Disk Drive	D Drive	E Drive
Disk Space	100 GB	200 GB
Free Disk Space	50 GB	200 GB
Value for [Maximum Disk Space Used]	40 GB	200 GB
Value for Low Remaining Disk Space Notification Level	Condition 1: 40 GB x (100-10)/100 = 36 GB Condition 2: 100 GB x 10/100 = 10 GB	Condition 1: 200 GB x (100-10)/100 = 180 GB Condition 2: 200 GB x 10/100 = 20 GB

■ Action When the Threshold Level is Reached

Recording continues, however, the Storage Server starts deleting recording files, beginning with old files, and issues an event.
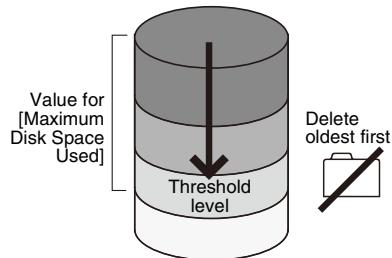
📝 Note

• Recording files are deleted, even if they have not reached the [Maximum Storage Period]. However, if the oldest file is currently in use by the Viewer (for example for playback of recorded video), it will not be deleted and the next oldest file will be deleted instead. Deletion continues sequentially until the free disk space exceeds the threshold again. For details on saving files, see Chapter 8.

• Normally, a recording file for which the minimum storage period has not elapsed is excluded from deletion. Note that such files are also deleted if the free disk space cannot reach and exceed the threshold value by deleting all the other files.
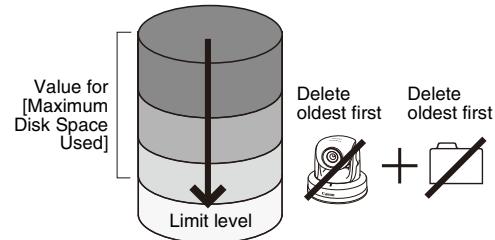
Threshold Level Conditions and Calculation Method

The threshold level is considered reached when the amount of free disk space drops below the following level. (Number of cameras + 1) x 64 MB

■ Action When the Limit is Reached

The Storage Server stops recording and issues an event when the free disk space drops to this level.
The Storage Server resumes recording and issues an event when the free disk space increases above this level after deleting recording files.

Limit Level Conditions and Calculation Method

The limit level is considered reached when the amount of free disk space drops below 64 MB. This level is fixed.

⚠ Important

• The threshold level is to protect against reaching the limit level. We recommend that you take appropriate measures, such as deleting unnecessary recording data, when the event for the low remaining disk space notification level occurs.

• Storing recordings that cause the threshold level to be exceeded increases the load on the Storage Server and may cause recording to be interrupt, resulting in incomplete recordings. We strongly recommend that you operate the Storage Server at below the threshold level.

• Note that the threshold level conditions may be met before the low remaining disk space notification level conditions are satisfied, depending on the circumstances. For example, a large number of cameras with limited disk capacity may cause a value for (Numbers of cameras +1) x 64 MB to be larger than the value of disk capacity x low free disk space notification setting/100.

7

Operation and Management

Chapter 8

Backup

❏ Types of backup target files and their destinations

❏ Restoring a recording file

Backing up data

Destinations of the Backup Files

The data that is saved during a backup consists of recording data, event data, and configuration files. The data is saved to the folders described below.

■ Recording Data

<Destination drive>:\Canon-NVR\videofiles
The following recording data file is backed up:

NVR3_MEDIA_ xxxxxxxx _ yyyymmdd _ hhmmss .edt
　　　　　　Camera ID　Year, month　　Time
　　　　　　　　　　　and day the
　　　　　　　　　　　recording
　　　　　　　　　　　started

Images being recorded are saved to a temporary file on the hard disk. By default, a recording file is created and saved on the destination drive when the temporary file size reaches 1 GB.

📝 Note

- Greenwich Mean Time is used for the time added to the file name of the recording data.

- This software uses lossy compression for the recording data. You do not need to compress the recording files further using a tape drive or other devices.

Temporary Files

The following is a temporary file, before it is made into a recording data file by the system. This file cannot be backed up using the standard backup method.

NVR3_UNINDEXED_MEDIA_xxxxxxxx_ yyyymmdd _hhmmss.edt
　　　　　　　　　Camera ID　Year, month and　　Time
　　　　　　　　　　　　　　day when
　　　　　　　　　　　　　　recording started

■ Event Data

<Destination drive>:\Canon-NVR\eventfiles
The following event data file is backed up:

NVR3_EVENT_ xxxxxxxx _ yyyymmdd _hhmmss .edt
　　　　　　Camera ID　Year, month　　Time
　　　　　　　　　　　and day when
　　　　　　　　　　　recording
　　　　　　　　　　　started

📝 Note

Greenwich Mean Time is used for the time added to the file name of the recording data.

■ Configuration Files

The settings for the Storage Server and the Viewer are saved in the following folders on the computer where the program is installed. You must back up all of these folders to completely back up the configuration files.

Configuration file path
<System drive>:\ProgramData\Canon\WebView\NVR30\
<System drive>:\Users\<user name>\AppData\Local\Canon\WebView\NVR30\

📝 Note

- The configuration file names are not displayed unless [Show hidden files and folders] is selected in the [View] tab of Windows Explorer [Folder Options].

- You cannot use the shadow backup feature.

Notes on Backup

- You do not need to stop recording to back up recorded data that is complete. However, the frame rate may change because of increased disk I/O load and/or CPU load.

- If you want to restore a backed-up recording file, the computer you restore the backup to must have the same drive configuration as the original Storage Server. For example, if you have a C drive for the original Storage Server system and a D drive for recorded data, you will also need a C and a D drive for the Storage Server you use when you restore the backup. Determine the hard disk capacity based on the volume of data to be restored.

How to Restore a Backup

Restoring from Backup Data

Use the following procedure to restore a Storage Server from backup data:

1 Prepare a new Storage Server for the restore.

The new Storage Server must have the same folder hierarchy as the original Storage Server.

2 Install this software.

3 Stop the Storage Server.

See "Stopping the Storage Server"(P. 8-3) for details on how to stop the Storage Server.

4 Restore the configuration file for this software to its original location.

The following folder is used by default:
Configuration file path
<System drive>:\ProgramData\Canon\WebView\NVR30\
<System drive>:\Users\<user name>\AppData\Local\Canon\WebView\NVR30\

5 Restore the recording files to their original location.

The following folder is used by default:
<Destination drive>:\Canon-NVR\videofiles\

6 Restore the event files to their original location.

The following folder is used by default:
<Destination drive>:\Canon-NVR\eventfiles\

7 Start the Storage Server.

8 Make sure that recording is performed correctly. Also make sure that the restored recording data plays back correctly.

📖 Important

If the [Ensure video is kept for upto] option is set on the [Servers] tab in the [Settings] dialog box, any restored recording data that exceeds the specified storage period will be deleted when the Storage Server starts.

■ Stopping the Storage Server

The Storage Server runs in the background as a Windows service. When you restore backup data, you must follow the following steps to temporarily stop the Storage Server.

1 Click [Start] > [Control Panel].

2 Click [System and Security].

3 Click [Administrative Tools].

4 Double-click [Services].

5 Double-click [RM-Lite Storage Server] to display [RM Storage Server Properties].

6 Click [Stop].

7 Click [OK] to close the properties.

📑 Note

To restart the Storage Server, follow the same steps and click [Start] in step 6.

Chapter 9

Troubleshooting

❏ Actions required when recording errors occur

❏ Solutions when Viewer problems occur

❏ Error messages

Actions Required When Recording Errors Occur

When a recording error occurs (e.g., data is missing) during playback, you can troubleshoot the cause by checking the information in the event log and the Storage Server log file.

Log		Cause	Action
Event	**Storage Server**		
Error: Cannot Connect to Camera	CameraServer <host name> disconnected(<error information>)	A network error may have occurred. Look for the cause of the error by checking the Winsock error code recorded in the Storage Server log (P. 9-7).	Check the network (hub, cables, etc.) for any problems and make sure that the camera is operating normally.
Recording Frame Rate reduced due to high load issues	—	• The effective recording rate is excessively low (below 50%). • The load on the Storage Server CPU may be high.	• Modify the recording schedule. • Check the current CPU usage and terminate any applications that are a heavy load on the CPU.
Recording Suspended (Low Disk Space (<drive name>))	—	The load from writing recorded data to the hard disk may be too high.	Shorten the maximum storage period or consider adding a hard disk. Additionally, try to modify the recording schedule.

Solutions When Viewer Problems Occur

If you encounter problems when you use the Viewer, refer to the following solutions:

Viewer and Video windows

Problem	Solution
I cannot use the pan, tilt or zoom feature of the camera in the video window.	• Double-click the video window or click [Control] on the [Camera Control] panel (P. 6-8). • If images are being played (the title bar of the video window is gray), you cannot operate the camera. Click [Live] on the timeline and get control of the camera.
When I click a video window to display the [Video Window] menu, [Record Now] is gray (unavailable). But, I can use the feature in another video window.	Display [<camera name>Properties] for the video window and check on the [Advanced] tab whether the camera is disabled. If the camera is disabled, click [Enable Camera]. (P. 3-10).
When I try to use layouts created by other users, the [Layouts] menu is not displayed. I cannot select a layout.	Layouts saved in the [User Layouts] folder cannot be seen by other users. To allow all users to access layouts created by a user, the layouts must be created by a user with administrator permissions and must be saved in the [Shared Layouts] folder (P. 4-11).
The quality of live or recorded images displayed in the video window is not good.	The quality of live or recorded images cannot be changed. The video quality may depend on the camera settings of the video window. The video quality for the camera can be increased using the settings on the camera.
None of the cameras will record.	• Is the network cable for the server properly connected? • Has there been a power failure? • If link lamps on the hub (switching hub) and on the network connector on the server do not light, there may be a defect in the server's cable, hub (switch), or network connector.
Some cameras do not record.	• Is the power and the network connection for the cameras working? • Do the cameras reply to a ping? • Can you view live images on the Viewer for the cameras?

Problem	Solution
I cannot connect to the Storage Server from the Viewer.	• Are the login user name and password correct? • Is the network connection between the server and the Viewer working? • Is the IP address of the destination server correct? • Does the server reply to a ping from the Viewer computer? • Is TCP port 80 being used by another application?
I cannot view live images.	• If "Could not connect to camera" is displayed in the video window, check the camera's power supply and network connection. • If a message is displayed in the timeline of the Viewer indicating that an error occurred when connecting to the camera, check the camera's power supply and network connection. • If the screen goes blank when the layout is switched, but an image is displayed after a few seconds, the number of cameras or the live frame rate setting exceeds the performance capabilities of your computer. Reduce the number of cameras, or decrease the frame rate.
The Storage Server slows down or it takes longer to perform various configuration changes, such as registering cameras or recording schedules from the Viewer.	If the Storage Server is running Windows Vista, use Windows Server 2008 instead.
The Viewer slows down.	• The performance of the Viewer depends largely on the specification of your CPU and graphics card. When the Viewer seems to slow down, try to reduce the number of cameras in the Viewer or decrease the live frame rate. • If the video quality or resolution setting for the cameras is high, the large amount of image data may cause processing to take longer. Try adjusting the video quality and video size settings on the camera.

Timeline

Problem	Solution
Nothing happens when I click any of the playback controls.	• Move the playhead off of the [Live] position. • You must select a video window before you can play back images. In addition, the previous frame and next frame buttons (P. 6-6) and the [Extract] button (P. 6-7) are enabled only when one video window is selected.

[Extract Video]

Problem	Solution
I tried to save a recording, but an error message is displayed telling me that no video can be found in the selected timeline segment.	Make sure that a recorded image is included in the selected portion of the timeline (P. 6-5).

Recording

Problem	Solution
The [Record Now] feature cannot be used.	Make sure that the camera is not disabled on the [Advanced] tab in [<camera name> Properties]. If the camera is disabled, click [Enable Camera]. (P. 3-10).
The amount of Storage Server disk space usage is much higher than the calculated level (P. 1-7, P. 7-4) and free disk space is low.	When the video quality setting of the camera is high, the amount of data per frame is large. In addition, if you are using anti-virus software, the software records communication between the Storage Servers and the cameras and the size of that log may reach several gigabytes. Change the anti-virus software settings to exclude the Storage Servers from the target list.

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Troubleshooting

Connection Problems

Problem	Solution
The screen goes blank and the "Cannot connect to camera" message is displayed.	A network error occurred, the camera was disconnected from the network, or the camera power was turned off.

Error Messages

Messages Displayed in the Viewer

■ Error Messages in the Video Window

	Message	Cause
Video window	Connecting to camera.	The Viewer is in the process of connecting to the camera.
	Cannot connect to camera.	The Viewer cannot connect to the camera and live images cannot be displayed.
	Getting camera control.	Displayed after the user tries to get camera control.
	Cannot get camera control.	Another user with higher priority is already controlling the camera when you try to get camera control.
	Control will be lost in <count down> seconds.	Displayed if the camera is idle for one minute; starts a countdown. The countdown starts at 10 and counts down one second at a time until it reaches zero.
	Camera control lost.	A timeout occurred while the Viewer was controlling the camera or another user with higher priority requested camera control. Displayed for three seconds.
	No recorded video.	This message is displayed when playing back a recording if there is no recorded image at the current playhead position.
	Cannot Connect to the Storage Server.	Displayed when you cannot connect to the Storage Server to play back a recording.
	Please wait.	Displayed when it may take some time to display an MPEG-4 or H.264 live image.
	Could not connect to send audio.	A connection for sending audio to the camera could not be established, so audio cannot be sent to the camera.
	Could not connect to receive audio.	A connection for receiving audio from the camera could not be established, so audio cannot be received from the camera and played back.

■ Warning Messages in the Viewer

	Message	Cause
User management	The user name already exists.	Tried adding a user to the Storage Server with a name that already exists.
	Unable to change the user name. The user '<user name>' aleady exists.	Tried changing a user name on the Storage Server to a name that already exists.
	Please ensure that the password and confirmation match exactly.	The password in the [Confirm Password] field, does not match the user password.
	Are you sure you want to remove this user?	Tried to delete a user.
Configuration	The value for maximum must be greater than or equal to 1 day.	Tried to specify less than one day for the maximum storage period.

■ Confirmation Messages in the Viewer

	Message	Cause
Adding and editing a camera	Are you sure you want to remove the camera '<camera name>'? If the camera is removed, you will not be able to play back recorded video.	Tried to delete the camera.
Managing a layout	This will replace an existing layout of the same name. Are you sure you want to continue?	Tried to save an open layout to a folder that contains a layout with the same name. Alternately, tried to move or copy a layout to a folder that contains a layout with the same name.
	Are you sure you want to delete the selected layout '<layout name>'?	Tried to delete a layout.
	Are you sure you want to delete the folder '<folder name>'; including all layouts and layout sequences inside it?	Tried to delete a layout folder.

■ Error Messages in the Viewer

	Message	Cause
Recording schedules	This schedule item overlaps a previously scheduled item. Please check your settings and try again.	Recording schedules overlap.
	Recording schedule items must be at least 15 minutes long. Please check your settings and try again.	Tried to set a schedule with a period shorter than 15 minutes.
	Recording schedule items cannot be created for the following cameras because of a clash with existing schedules: <camera name>	Tried to drag a recording schedule window to add multiple recording schedules, however, one camera has a conflicting schedule.
	Failed to create multiple recording schedule items. All selected cameras have recording schedule items that clash with a schedule time range.	Tried to add a recording schedule to multiple cameras using the [Edit Schedule Item] dialog box, but the schedule time range clashes with schedules that are already set on the cameras.
	At least one day must be selected. Please check your settings and try again.	[OK] was clicked without specifying the day of the week.
	At least one recording mode must be selected. Please check your settings and try again.	[OK] was clicked without selecting the check box for a recording mode.

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Troubleshooting

	Message	Cause
Viewer window	Communication with the SSG "<storage server group name>" has failed. To ensure that event and video data are available from this SSG, identify and resolve the problem and then press [OK] to reconnect to the SSG. If you press [Cancel], then some event data including all future events for cameras recording to this SSG will not be available.	A problem occurred connecting to the Storage Server to display a Viewer window. When multiple Storage Servers are registered, a window may be displayed for each server.
	Do you want to save changes to this layout?	Tried to close a layout that was modified.
	Cannot save it in this folder.	The Windows folder or the Program Files folder was specified as the destination folder for snapshots.
Adding and editing a camera	Could not connect to camera. Please verify that the host name, port number, user name, and password are correct.	Could not connect to the camera.
Saving the specified image	The length of the extracted video must not exceed 1 hour.	Tried to make the time longer than 1 hour.
	Unable to extract video. There is no video data in the specified timeframe.	Could not save an image because there was no recorded image in the selected segment.
	Cannot save it in this folder.	The Windows folder or the Program Files folder was specified as the destination folder for a *.mov file.
Managing a layout	This layout cannot be saved using the same name as an open layout. Please try again using a different name.	A layout with the same name exists in the destination, and the name is the same as the layout currently in use.
	You cannot move the folder '<folder name>' because it contains an open layout.	Tried to move a folder that contains an open layout to another folder.
	You cannot move the layout '<layout name>' because it is the current layout.	Tried to move the current layout to another folder.
	You cannot delete the layout '<layout name>' because it is the current layout.	Tried to delete the current layout.
	You cannot delete the folder '<folder name>' because it contains the current layout.	Tried to delete the folder containing the current layout.
	Unable to change the layout folder name. The name '<folder name>' already exists.	Tried to change the name of the folder to the name that already exists.

Messages Recorded in the Log Files

■ Log File Locations

The Storage Server log files are saved in the following folder on the computer where the server is installed.
<System drive>:\ProgramData\Canon\WebView\NVR30\Log\

Types of Log Files

File Name	Explanation
storage_server_log_0.csv	Log file for the Storage Server
viewer_log_0.csv	Log file for the Viewer

■ Error Message List

Messages shown below are recorded in the log file when an error occurs.

Message	Explanation
Cannot rename storage_server.cfg.tmp to storage_server.cfg file	A temporary file for the configuration file was found, but could not be renamed.
No configuration file found.	Could not find the Storage Server configuration file.
Cannot delete old config '<file name>', error code <win32 error>	Could not save the configuration.
Cannot rename config from '<temporary file>' to 'storage_server.cfg', error code <win32 error>	Could not save the configuration.
Cannot write to config '{storage server name}	Could not save the configuration.
Configuration file failed consistency check, exiting...	Inconsistency was found in the configuration file. (This occurs when the configuration file is rewritten directly.)
Error: Local machine not in the config.	Could not find the IP address or host name of the Storage Server in the configuration file.
Failed to bind to listen port {port number}	The Storage Server could not bind to the port.
Failed to setsockopt for conditional accept()	Could not apply a socket option to the socket for group communication.
LS_start_service(apache) failed.	Apache startup failed.
Unable to obtain file size on disk, GetFileAttributesEx failed with error=%d for file %S	Could not determine the size of the media or event file.
CameraServer <host name> disconnected(<error information>)	Could not connect to the camera.

■ Error Codes

Winsock Error Codes

Code	Error Message	Possible Cause
10038	An operation was attempted on something that is not a socket.	This may occasionally occur. No action is required.
10048	Only one usage of each socket address (protocol/network address/port) is normally permitted.	All communication resources are in use.
10050	A socket operation encountered a dead network.	Occurs when the computer recognizes that the network is down because the router or hub closest to the computer is powered off. Normally, this cannot be recognized, therefore this error is rarely reported.

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Troubleshooting

Code	Error Message	Possible Cause
10051	A socket operation was attempted to an unreachable network.	Occurs when other network devices recognize that the network is down because the router or hub is powered off. Normally, this cannot be recognized, therefore this error is rarely reported.
10054	An existing connection was forcibly closed by the remote host.	The connection was aborted by the camera due to a camera restart or other causes. This may occur when the camera is restarted using the restart button on the configuration page provided by the camera software. However, this rarely occurs.
10060	A connection attempt failed because the connected party did not properly respond after a period of time, or established connection failed because connected host has failed to respond.	A timeout occurred in the TCP connection with the camera. (This occurs when the camera is powered off.)
10061	No connection could be made because the target machine actively refused it.	The camera rejected the TCP connection. (This occurs when the port number is incorrect or another cause.)
10064	A socket operation failed because the destination host was down.	Occurs when the camera is powered off. (Normally, 10060 occurs.)
10065	A socket operation was attempted to an unreachable host.	There is no route for connecting to the camera. (This may also occur when there is a failure in the network cable connected to the computer or hub.)
10091	WSAStartup cannot function at this time because the underlying system it uses to provide network services is currently unavailable.	There is a failure on the computer's network adapter.
11001	No such host is known.	The host name could not be resolved in the DNS.
11004	The requested name is valid, but no data of the requested type was found.	The host name could not be resolved in the DNS.

HTTP Error Codes

Code	Error Message	Possible Cause
401	Unauthorized	The user authentication for connecting to the camera is incorrect.
403	Forbidden	A connection cannot be established due to an IP address restriction on the camera. (This may also be returned by a proxy server.)
500	Internal Server Error	Occurs when the HTTP server is running but the Storage Server is not started. It may also occur during normal operation if the camera is restarted.
503	Service Unavailable	Occurs when the camera is temporarily unable to process requests due to server overload (excessive requests from multiple clients), or an uncompleted start-up process on the camera, or other reasons.

wininet Error Codes

Code	Error Message	Possible Cause
12002	The request has timed out.	A request timeout occurred. Indicates that the connection or request transmission failed.
12005	The URL is invalid.	The URL is incorrect. (Normally, this does not occur, however, it may occur when an attempt is made to connect to an unsupported camera.)
12007	The server name could not be resolved.	The host name could not be resolved. (This error is generated when a host name that is not registered in the DNS is specified or when a problem occurred in communication with the DNS itself.)

Code	Error Message	Possible Cause
12017	The operation was canceled, usually because the handle on which the request was operating was closed before the operation completed.	The communication was canceled. (This error does not indicate a problem and may be generated during normal operation.)
12029	The attempt to connect to the server failed.	The connection to the camera failed. (Normally, 12002 is generated.)
12030	The connection with the server has been terminated.	The connection to the camera has been aborted. (The disconnect process itself is recorded when it executes normally.)
12031	The connection with the server has been reset.	The connection to the camera has been reset.

Event Information

Event Information	Displayed Message
Record Now	[Manual Recording Started] or [Manual Recording Stopped]
Recording	[Recording Started] or [Recording Stopped]
Change in the recording frame rate	[Recording Frame Rate reduced due to high load issues] or [Reverted to the Recording Frame Rate due to resolution of high load issues]
Low Disk Space Warning	[Warning: Files deleted due to low disk space]
Delete recorded files (when disk space is insufficient)	[Delete recorded files (when disk space is insufficient) started] or [Delete recorded files (when disk space is insufficient) stopped]
Delete recorded files (when disk space is low)	[Delete recorded files (when disk space is low) started] or [Delete recorded files (when disk space is low) stopped]
Suspending/Resuming Recording	[Recording Suspended] or [Fixed: Recording Resumed]
Camera Communications Error	[Error: Cannot Connect to Camera] or [Connection to Camera Fixed]
Storage Server Starting/Stopping	[Storage Server Started] or [Storage Server Stopped]

Appendix

Create a Shortcut Icon for Starting the Viewer

You can configure the way the Viewer starts up, for example, to have it bypass the login screen with the user name and password (P. 3-3, P. 3-4) by creating a shortcut icon that specifies Viewer startup options.

📖 Important

- You cannot reconfigure the shortcut icon that is automatically created on your desktop when you install this software.

- The login password can be easily viewed in the properties of the shortcut icon. Make sure to take sufficient security measures when using this feature.

1 Right-click [Viewer.exe] in the installation folder and click [Create shortcut].

[Viewer.exe] is located in the following folder by default:
<System drive>:\Program Files\Canon\WebView\NVR
A dialog box asking whether to create a shortcut on the desktop is displayed.

📝 Note

<System drive> corresponds to the drive containing the system files of the operating system. If the operating system is installed on the C drive, the system drive is the C drive.

2 Click [OK].

3 Right-click the shortcut icon that was created on the desktop and select [Properties].

4 On the [Shortcut] tab, add a startup option to [Target].

Startup Options	Description
-group nvr:// <username>:<password>@< storage server group name>	The information in the options is used to connect to the server group and start the Viewer, without displaying the [Connect to Storage Server Group] dialog box on startup.

5 Click [OK] to close the dialog box.

Camera Maintenance

About the Latest Camera Firmware

You can find the latest firmware and configuration backup and restore tools for cameras that are supported by this program at the Canon Web site.

Update the Firmware

To update the firmware for your camera, you must use the tool that is specific to your camera model.

1 Download the latest firmware with the firmware update tool, and download the configuration backup and restore tools.

2 Back up the camera configuration using the configuration backup tool.

3 Update the firmware using the firmware update tool.

📝 Note

If the firmware update fails, restore the configuration using the configuration restore tool.

How to Check the Version

The steps below explain how to check the version of this software.

Checking the version of the Viewer

1 Start the Viewer.

2 Click [Help] > [About].

3 Check the version of the software on the displayed dialog box.

Checking the version of the Storage Server

1 Click the Start button > [Control Panel] > [Uninstall a program] or [Add or Remove Programs].

2 Check the version of the software in the displayed list.

Functional Limitations for MPEG-4 and H.264 formats

The VB-C60, VB-C500D, and VB-C500VD support MPEG-4 format, while the VB-M40, VB-M600D, VB-C600V and VB-C700F support the H.264 format. Note that the following limitations apply.

Live display
- The following video window settings are disabled, and the frame rate settings on the camera are enabled.
  - Maximum Frame Rate
  - Auto Adjust Frame Rate
- Synchronization of audio and video is not guaranteed.

Appendix

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