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Milestone Systems

XProtect® VMS 2021 R2

Getting started guide - Single computer installation

XProtect Corporate

XProtect Expert

XProtect Professional+

XProtect Express+



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All names of people and organizations used in the examples in this text are fictitious. Any resemblance to any actual organization or person, living or dead, is purely coincidental and unintended.

This product may make use of third-party software for which specific terms and conditions may apply. When that is the case, you can find more information in the file `3rd_party_software_terms_and_conditions.txt` located in your Milestone system installation folder.

Overview

About this guide

This single computer installation guide for XProtect VMS serves as a point of reference to getting started with your system. The guide helps you perform the basic installation of your system and to verify connections between clients and server.

The guide has checklists and tasks that help you get started with the software and prepare you for working with the system.

Check the Milestone website (<https://www.milestonesys.com/downloads/>) for updates to make sure you install the most recent version of the software.

Licensing

Licenses (explained)

Before you start the installation, you can learn about licenses in this topic.



If you are installing XProtect Essential+, you can run the system with eight device licenses for free. Automatic license activation is enabled and hardware devices will be activated as you add them to the system.



Only when you upgrade to a more advanced XProtect product, the rest of this topic is relevant.

When you purchase your software and licenses, you get:

- An order confirmation and a software license file named after your SLC (Software License Code) and with the .lic extension received per email
- A Milestone Care coverage

To get started, download the software from our website (<https://www.milestonesys.com/downloads/>). When you install the software, you are asked to provide a valid license file (.lic).

License types

There are several license types in the XProtect licensing system.

Base licenses

As a minimum, you have a base license for one of the XProtect VMS products. You may also have one or more base licenses for XProtect add-on products.

Device licenses

As a minimum, you have several device licenses. Generally, you need one device license per hardware device with a camera that you want to add to your system. But this can differ from one hardware device to another and depending on the hardware device being a Milestone supported hardware device or not. For more information, see [Supported hardware devices on page 6](#) and [Unsupported hardware devices on page 6](#).

If you want to use the video push feature in XProtect Mobile, you also need one device license per mobile device or tablet that should be able to push video to your system.

Device licenses are not required for speakers, microphones, or input and output devices attached to your cameras.

Supported hardware devices

Generally, you need one device license per hardware device with a camera that you want to add to your system. But a few supported hardware devices require more than one device license. You can see how many device licenses your hardware devices require, in the list of supported hardware on the Milestone website (<https://www.milestonesys.com/supported-devices/>).

For video encoders with up to 16 channels, you need only one device license per video encoder IP address. A video encoder can have one or more IP addresses.

However, if the video encoder has more than 16 channels, one device license per activated camera on the video encoder is required - also for the first 16 activated cameras.

Unsupported hardware devices

An unsupported hardware device requires one device license per activated camera using a video channel.

Unsupported hardware devices do not appear in the list of supported hardware on the Milestone website (<https://www.milestonesys.com/supported-devices/>).

Camera licenses for Milestone Interconnect™

To run Milestone Interconnect, you need Milestone Interconnect camera licenses on your central site to view video from hardware devices on remote sites. The number of required Milestone Interconnect camera licenses depends on the number of hardware devices on the remote sites that you want to receive data from. Only XProtect Corporate can act as a central site.

Licenses for add-on products

Most XProtect add-on products require additional license types. The software license file also includes information about your licenses for add-on products. Some add-on products have their own separate software license files.

License activation

After installation, the surveillance system runs on licenses that need to be activated before a certain period ends. This is the grace period. Once the installation is complete, you can get an overview of your licenses for all installations with this SLC on the Management Client **Basics > License Information** page.

Milestone recommends that you activate your licenses before you make the final adjustments. If you do not activate your licenses before the grace period expires, all recording servers and cameras without activated licenses stop sending data to the surveillance system.

To activate your licenses:

- For online activation, log in to the Software Registration page with your My Milestone account on the Milestone website (<https://online.milestonesys.com/>)
- For offline activation, you must export a license request (.lrq) file in the Management Client and then log in to the Software Registration page and upload the .lrq file

Once you have uploaded the .lrq file, Milestone emails you an activated .lic file for import

Requirements and considerations

Getting started checklist

Follow the checklist below to ensure that you carry out the steps of your installation in the right order.

Completed?	Step	Details
<input type="checkbox"/>	Prepare servers and network	<p>A new and fully updated Microsoft Windows® installation</p> <p>Microsoft®.NET Framework 4.8 or higher installed</p> <p>Assign static IP addresses or make DHCP reservations to all system components</p>
<input type="checkbox"/>	About virus scanning	Exclude specific file types and folders
<input type="checkbox"/>	Prepare cameras and devices	<p>Make sure camera models and firmware are supported by the XProtect system</p> <p>Cameras must be connected to the network and you can access them from the computer where you install your system</p>
<input type="checkbox"/>	Register your Software License Code	<p>Go to the Milestone website (https://online.milestonesys.com/) and register your SLC</p> <p>Obtain the .lic-file</p> <p>This step does not apply to XProtect Essential+ systems</p>
<input type="checkbox"/>	Download the installation files	Go to Milestone website (https://www.milestonesys.com/downloads/) and download the relevant installation file
<input type="checkbox"/>	Install your system	Detailed description of a single computer installation, see Install your system on page 12
<input type="checkbox"/>	Install clients on other computers	<p>Install XProtect Smart Client on page 15</p> <p>Install the Management Client on page 18</p>

Before you start installation

Prepare your servers and network

Operating system

Make sure that all servers have a clean installation of a Microsoft Windows operating system, and that it is updated with all the latest Windows updates.

For information about the system requirements for the various components of your system, go to the Milestone website (<https://www.milestonesys.com/systemrequirements/>).

Microsoft® .NET Framework

Check that all servers have Microsoft .NET Framework 4.8 or higher installed.

Network

Assign static IP addresses or make DHCP reservations to all system components and cameras. To make sure that sufficient bandwidth is available on your network, you must understand how and when the system consumes bandwidth. The main load on your network consists of three elements:

- Camera video streams
- Clients displaying video
- Archiving of recorded video

The recording server retrieves video streams from the cameras, which results in a constant load on the network. Clients that display video consume network bandwidth. If there are no changes in the content of the client views, the load is constant. Changes in view content, video search, or playback, make the load dynamic.

Archiving of recorded video is an optional feature that lets the system move recordings to a network storage if there is not enough space in the internal storage system of the computer. This is a scheduled job that you have to define. Typically, you archive to a network drive which makes it a scheduled dynamic load on the network.

Your network must have bandwidth headroom to cope with these peaks in the traffic. This enhances the system responsiveness and general user experience.

Virus scanning (explained)

The XProtect software contains a database and as with any other database you need to exclude certain files and folders from virus scanning. Without implementing these exceptions, virus scanning uses a considerable amount of system resources. On top of that, the scanning process can temporarily lock files, which could result in a disruption in the recording process or even corruption of databases.

When you need to perform virus scanning, do not scan recording server folders that contain recording databases (by default C:\mediadatabase\, as well as all subfolders). Also, avoid performing virus scanning on archive storage directories.

Create the following additional exclusions:

- File types: .blk, .idx, .pic
- Folders and subfolders:
 - C:\Program Files\Milestone
 - C:\Program Files (x86)\Milestone
 - C:\ProgramData\Milestone

Your organization may have strict guidelines regarding virus scanning, but it is important that you exclude the above folders and files from virus scanning.

Prepare cameras and devices

Make sure your cameras and devices are supported.

On the Milestone website, you can find a detailed list of supported devices and firmware versions (<https://www.milestonesys.com/supported-devices/>). Milestone develops unique drivers for devices or device families, and generic drivers for devices based on standards like ONVIF, or devices that use the RTSP/RTP protocols.

Some devices that use a generic driver and that are not specifically listed as supported may work, but Milestone does not provide support for such devices.

Verify that you can access the camera over the network

The recording server must be able to connect to the cameras. To verify that, connect to your cameras from a browser or the software that came with your camera, on the computer where you want to install the XProtect system. If you cannot access a camera, the XProtect system cannot access the camera either.



For security reasons, Milestone recommends that you change camera credentials from their manufacturer defaults.

Instead of accessing the device with the vendor supplied software, you can use the Windows ping utility.

See the camera's documentation for information about network configuration. If your system is configured with default port settings, you must connect the camera to HTTP port 80. You can also choose to change the default port settings.



If you change the default credentials for a camera, remember to use these when you add the camera to the system.

Register Software License Code

Before you install, you must have the name and location of the software license file that you received from Milestone.

You can install a free version of XProtect Essential+. This version provides you with limited capabilities of the XProtect VMS for a limited number of cameras. You must have internet connection to install XProtect Essential+.

The Software License Code (SLC) is printed on your order confirmation and the software license file is named after your SLC. Milestone recommends that you register your SLC on our website (<https://online.milestonesys.com/>) before installation. Your reseller may have done that for you.

Installation

Install your system

The **Single Computer** option installs all server and client components on the current computer.

You can install a free version of XProtect Essential+. This version provides you with limited capabilities of the XProtect VMS for a limited number of cameras. You must have internet connection to install XProtect Essential+.

The recording server scans your network for hardware. Discovered devices are added automatically to your system. Cameras are preconfigured in views, and a default operator role is created. After installation, XProtect Smart Client opens and is ready for use.



If you upgrade from a previous version of the product, the system does not scan for cameras, or create new views and operator roles.

1. Download the software from the internet (<https://www.milestonesys.com/downloads/>) and run the Milestone XProtect VMS Products 2021 R2 System Installer.exe file.
2. The installation files unpack. Depending on the security settings, one or more Windows® security warnings appear. Accept these and the unpacking continues.
3. When done, the **Milestone XProtect VMS** installation wizard appears.
 1. Select the **Language** to use during the installation (this is not the language that your system uses once installed; this is selected later). Click **Continue**.
 2. Read the *Milestone End-user License Agreement*. Select the **I accept the terms in the license agreement** check box and click **Continue**.
 3. On the **Privacy settings** page, select whether you want to share usage data, and click **Continue**.



You must not enable data collection if you want the system to have an EU GDPR compliant installation. For more information about data protection and the usage data collection, see the [GDPR privacy guide](#).



You can always change your privacy setting later. For more information, see [System settings \(Options dialog box\)](#).

4. In the **Enter or browse to the location of the license file**, enter your license file from your XProtect provider. Alternatively, browse to locate it or click the **XProtect Essential+** link to download a free license file. The system verifies your license file before you can continue. Click **Continue**.



If you do not have a valid license file you can get one for free. Click the **XProtect Essential+** link to download a free license file. The free license file is downloaded and appears in the **Enter or browse to the location of the license file** field.

4. Select **Single computer**.

A list of components to install appears (you cannot edit this list). Click **Continue**.

5. In the **Specify recording server settings** window, do the following:
 1. In the **Recording server name** field, enter the name of the recording server. The default is the name of the computer.
 2. The **Management server address** field shows the address and port number of the management server: localhost:80.
 3. In the **Select your media database location** field, select the location where you want to save your video recording. Milestone recommends that you save your video recordings in a separate location from where you install the software and not on the system drive. The default location is the drive with the most space available.
 4. In **Retention time for video recordings**, define for how long you want to save the video recordings. You can enter from between 1 and 999 days, where 7 days is the default retention time.
 5. Click **Continue**.
6. In the **Select file location and product language** window, do the following:
 1. In the **File location** field, select the location where you want to install the software.
 2. In **Product language**, select the language in which to install your XProtect product.
 3. Click **Install**.

The software now installs. If not already installed on the computer, Microsoft® SQL Server® Express and Microsoft IIS are automatically installed during the installation.

You may be prompted to restart the computer. After restarting your computer, depending on the security settings, one or more Windows security warnings may appear. Accept these and the installation completes.

7. When the installation completes, a list shows the components that are installed on the computer.

Click **Continue** to add hardware and users to the system.



If you click **Close** now, you bypass the configuration wizard and XProtect Management Client opens. You can configure the system, for example add hardware and users to the system, in Management Client.

8. In the **Enter user names and passwords for hardware** window, enter the user names and passwords for hardware that you have changed from the manufacturer defaults.

The installer scans the network for these hardware as well as hardware with manufacturer default credentials.

Click **Continue**.

9. In the **Select the hardware to add to the system** window, select the hardware that you want to add to the system. Click **Continue**.

10. In the **Configure the devices** window, you can give the hardware useful names by clicking the edit icon next to the hardware name. This name is then prefixed to the hardware devices.

Expand the hardware node to enable or disable the hardware devices, such as cameras, speakers, and microphones.



Cameras are enabled by default, and speakers and microphones are disabled by default.

Click **Continue**.

11. In the **Add users** window, you can add Windows users and basic users. These users can have either the Administrators role or the Operators role.

Define the user and click **Add**.

When you are done adding users, click **Continue**.

When the installation and initial configuration are done, the **Configuration is complete** window appears, where you see:

- A list of cameras and devices that are added to the system
- A list of users who are added to the system
- Addresses to XProtect Web Client and the mobile server, which you can copy and share with your users

When you click **Close**, XProtect Smart Client opens and is ready to use.

Download the XProtect® Device Pack

A device pack is a set of drivers that is installed with your XProtect system to interact with your devices. A device pack is installed on the recording server. Milestone adds support for new devices and firmware versions on an ongoing basis, and releases device packs every two months on average. A device pack is automatically included when you install the XProtect system. To get the latest device pack, manually check for newer versions to download and install.

To update your device pack after installation, go to the download section of the Milestone website (<https://www.milestonesys.com/downloads/>) and download the relevant installation file.



If your system uses very old cameras, you may need to download the device pack for legacy devices. For more information, see <https://www.milestonesys.com/community/business-partner-tools/device-packs/>.

Install clients

You can access your XProtect system from other computers via the clients. The following steps will help you download and install XProtect Smart Client used for viewing video and the Management Client used for configuring and managing the system on other computers.

Install XProtect Smart Client


The XProtect system has a built-in public installation web page. From this web page, you can download and install XProtect Smart Client on any other computer on the network.

1. To access the public installation webpage, enter the following URL in your browser: **http://[computer address]/installation/**
[computer address] is the IP address or host name of the XProtect VMS computer.
2. Click **All Languages** and run the downloaded file.
3. Click **Yes** to all warnings. Unpacking starts.
4. Select the language for the installer and then click **Continue**.
5. Read and accept the license agreement. Click **Continue**.
6. Select the installation type. Click **Typical** to choose the default values and start the installation.
7. Open XProtect Smart Client. The XProtect Smart Client login dialog box appears.
8. Specify the host name or the IP address of your XProtect VMS computer in the **Computer** field.
9. Select authentication, enter your user name and password. Click **Connect** and XProtect Smart Client opens.

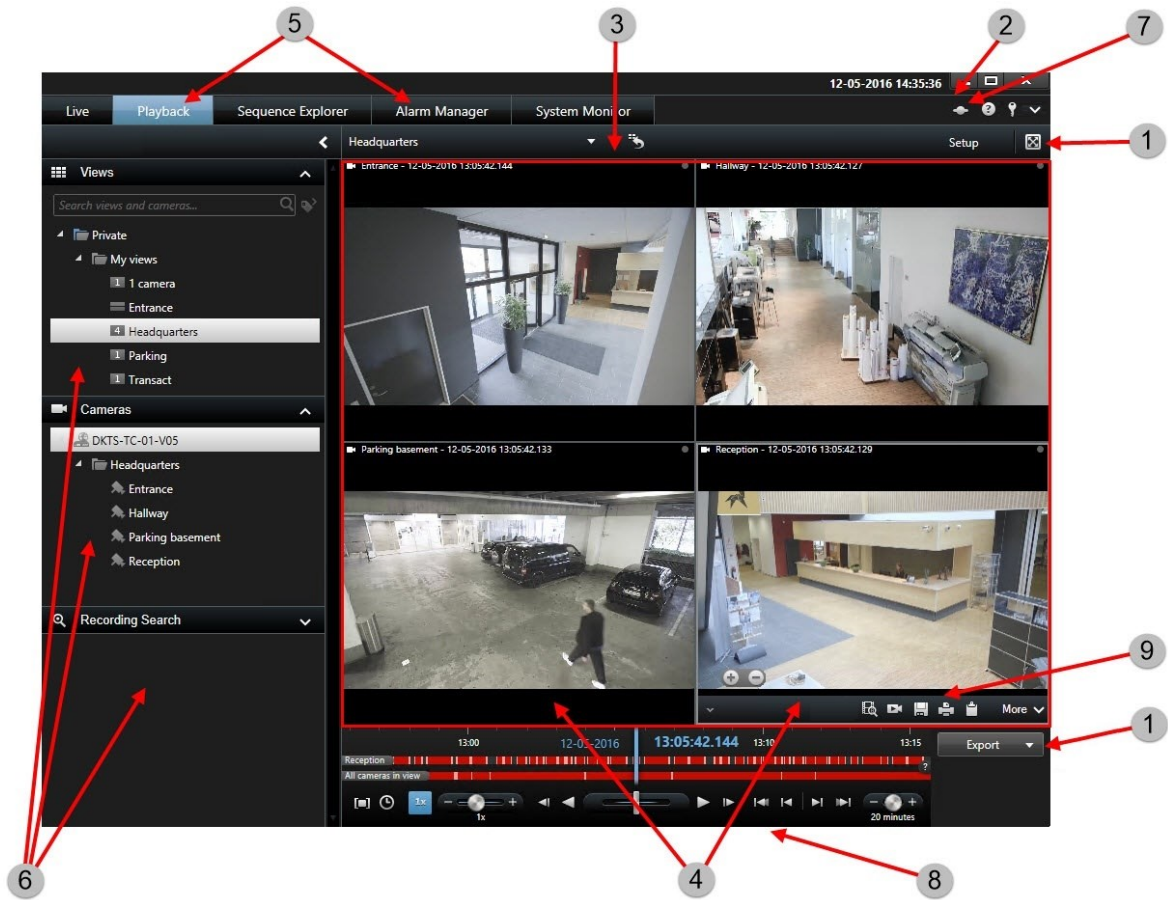
- 10. You can verify the default views or add new views: In **Setup** mode, add a group and then a view to this group.
- 11. Add a camera to one of the view items by dragging and dropping it into a view item and click **Setup** again.

Check that you can see live video and that the round video indicator in the upper right corner of the camera view is either green or red. Green means that the camera sends video to the system, while red means that the system is also currently recording the video.



To read in details about the features in XProtect Smart Client and what you can accomplish with your system, click the **Help** icon  in the upper right corner or press **F1** for context sensitive help.

XProtect Smart Client interface



In XProtect Smart Client, you view live video on the **Live** tab, and recorded video on the **Playback** tab. When you select the **Live** tab, your XProtect Smart Client connects to the surveillance system server and displays live video from cameras in the selected view.

Item	Function
1	Task buttons
2	Application toolbar
3	View

Item	Function
4	View item
5	Tabs
6	Panes
7	Application buttons
8	Timeline
9	The camera toolbar

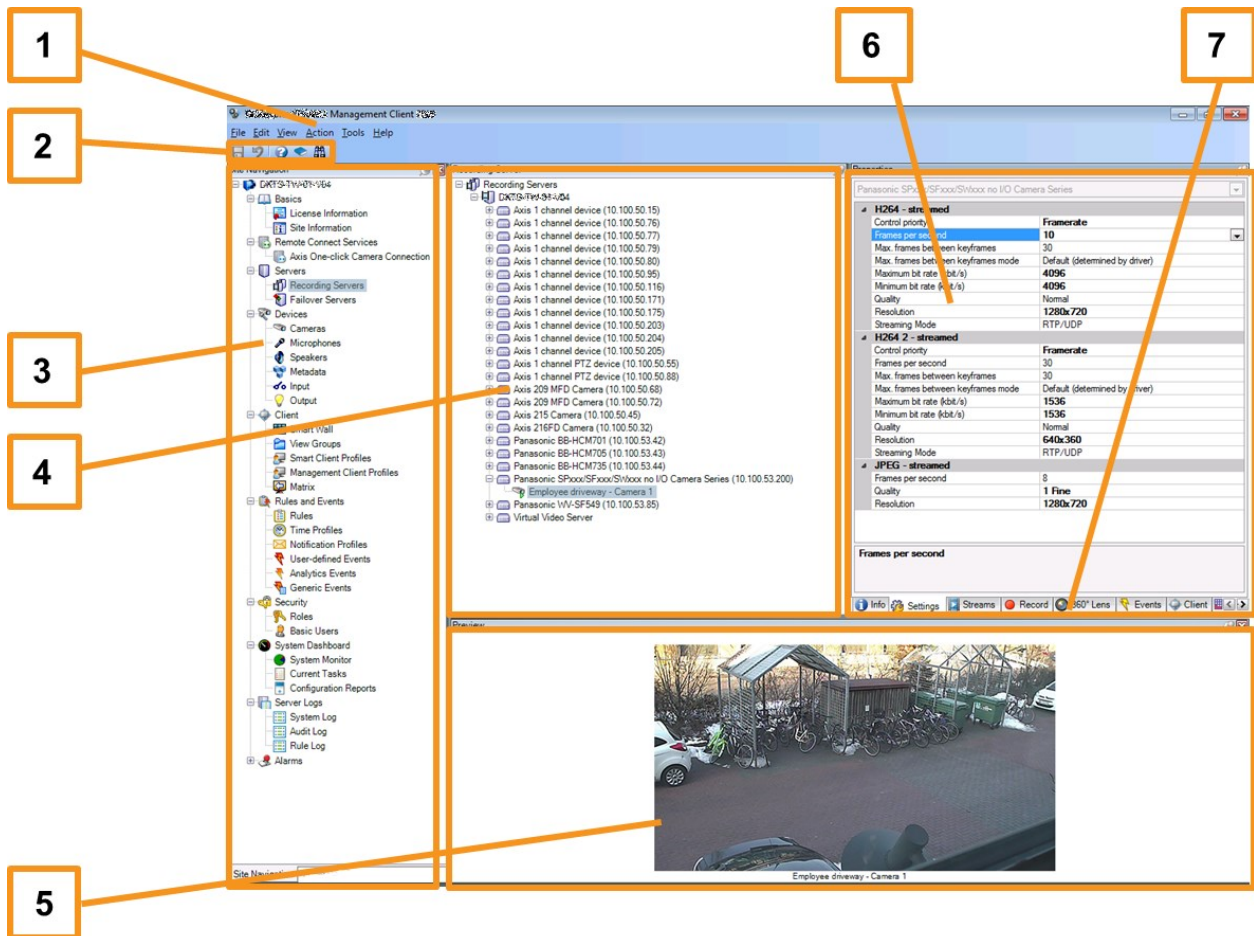
Install the Management Client

The XProtect VMS has a built-in administrative installation web page. From this web page, administrators can download and install the Management Client or other XProtect system components to any other computer on the network.

1. To access the administrative installation web page, enter the following URL in your browser: **http://[computer address]/installation/admin/**
 [computer address] is the IP address or host name of the XProtect VMS computer.
2. Click **All Languages** for the Management Client installer. Run the downloaded file.
3. Click **Yes** to all warnings. Unpacking starts.
4. Select the language for the installer. Click **Continue**.
5. Read and accept the license agreement. Click **Continue**.
6. Select file location and product language. Click **Install**.
7. The installation is complete. A list of successfully installed components is displayed. Click **Close**.
8. Click the icon on the desktop to open the Management Client.
9. The Management Client login dialog appears.
10. Specify the host name or the IP address of your management server in the **Computer** field.
11. Select authentication, enter your user name and password. Click **Connect**. The Management Client launches.

To read in details about the features in the Management Client and what you can accomplish with your system, click **Help** in the tools menu.

Management Client interface



1. Tools menu
2. Shortcut icons
3. Site navigation pane
4. Overview pane
5. Video preview
6. Properties
7. Properties tabs

Optimization

System scaling

To enable scaling of up to thousands of cameras across multiple sites, the system consists of several components that handle specific tasks. You have installed all components on a single server. Alternatively, you can install the components on separate dedicated servers to scale and distribute the load.

Depending on hardware and configuration, smaller systems with up to 50-100 cameras can run on a single server. For systems with more than 100 cameras, Milestone recommends that you use dedicated servers for all or some of the components.

Not all components are needed in all installations. You can always add components later. Such components could be additional recording servers, failover recording servers or mobile servers for hosting and providing access to XProtect Mobile and XProtect Web Client.



helpfeedback@milestone.dk

About Milestone

Milestone Systems is a leading provider of open platform video management software; technology that helps the world see how to ensure safety, protect assets and increase business efficiency. Milestone Systems enables an open platform community that drives collaboration and innovation in the development and use of network video technology, with reliable and scalable solutions that are proven in more than 150,000 sites worldwide. Founded in 1998, Milestone Systems is a stand-alone company in the Canon Group. For more information, visit <https://www.milestonesys.com/>.

