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Milestone Systems

XProtect® Screen Recorder 2021 R2

Administrator manual



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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.

Supported VMS products and versions

This manual describes features supported by the following XProtect VMS products:

- XProtect Corporate
- XProtect Expert
- XProtect Professional+
- XProtect Express+
- XProtect Essential+

Milestone test the features described in this manual with the above-mentioned XProtect VMS products in the current release version and the two previous release versions.

If new features are only supported by the current release version and not any previous release versions, you can find information about this in the feature descriptions.

You can find the documentation for XProtect clients and add-ons supported by the retired XProtect VMS products mentioned below on the Milestone download page (<https://www.milestonesys.com/downloads/>).

- XProtect Enterprise
- XProtect Professional
- XProtect Express
- XProtect Essential

Overview

Introduction

This manual describes the Milestone XProtect Screen Recorder feature. It allows a Windows computer to act as an IP video camera, sending the contents of its desktop to the recording server it is connected to. The XProtect Screen Recorder feature is a small application to be installed on one or more Windows computers where you want to record desktop contents, and a camera driver included in XProtect Device Pack 6.0 and later versions.

XProtect Screen Recorder works with all XProtect products on the following Windows platforms in both 32- and 64-bit versions:

- Client operating systems: Microsoft Windows 8.1 or newer
- Server operating systems: Microsoft Windows Server 2008 R2 or newer

In this document, when the term "recording server" is used, it refers to XProtect recording servers.

How XProtect Screen Recorder works

Once installed, XProtect Screen Recorder is automatically controlled from the startup menu of the computer where it is installed and runs in the context of the user logged into this computer. This means that XProtect Screen Recorder automatically and invisibly starts up every time the user logs in to the computer and closes down every time the user closes down.

If online user-switching is done via Window's **Fast User Switching** feature, the XProtect Screen Recorder will continue to record in the context of the new user, however any other type of user-switching/-logging in or out will result in discontinuation of the feature. Read more about switching users without logging off on <https://www.techpages.com/windows-10-enable-or-disable-fast-user-switching/>.

This is possible because it is a service running in the background, capturing the computer's screen at a set frame rate. It is also this service that provides the interface that your XProtect surveillance system can connect to and retrieve images from similarly as any other camera.

Licensing

Licensing

When you add a screen recorder device in Management Client, you need a device license, just like with any other device. However, downloading and installing the XProtect Screen Recorder software is free of charge and you can install it as many times as required.



XProtect Screen Recorder can and may only be used with Milestone software.

Installation

Installing and configuring on computer

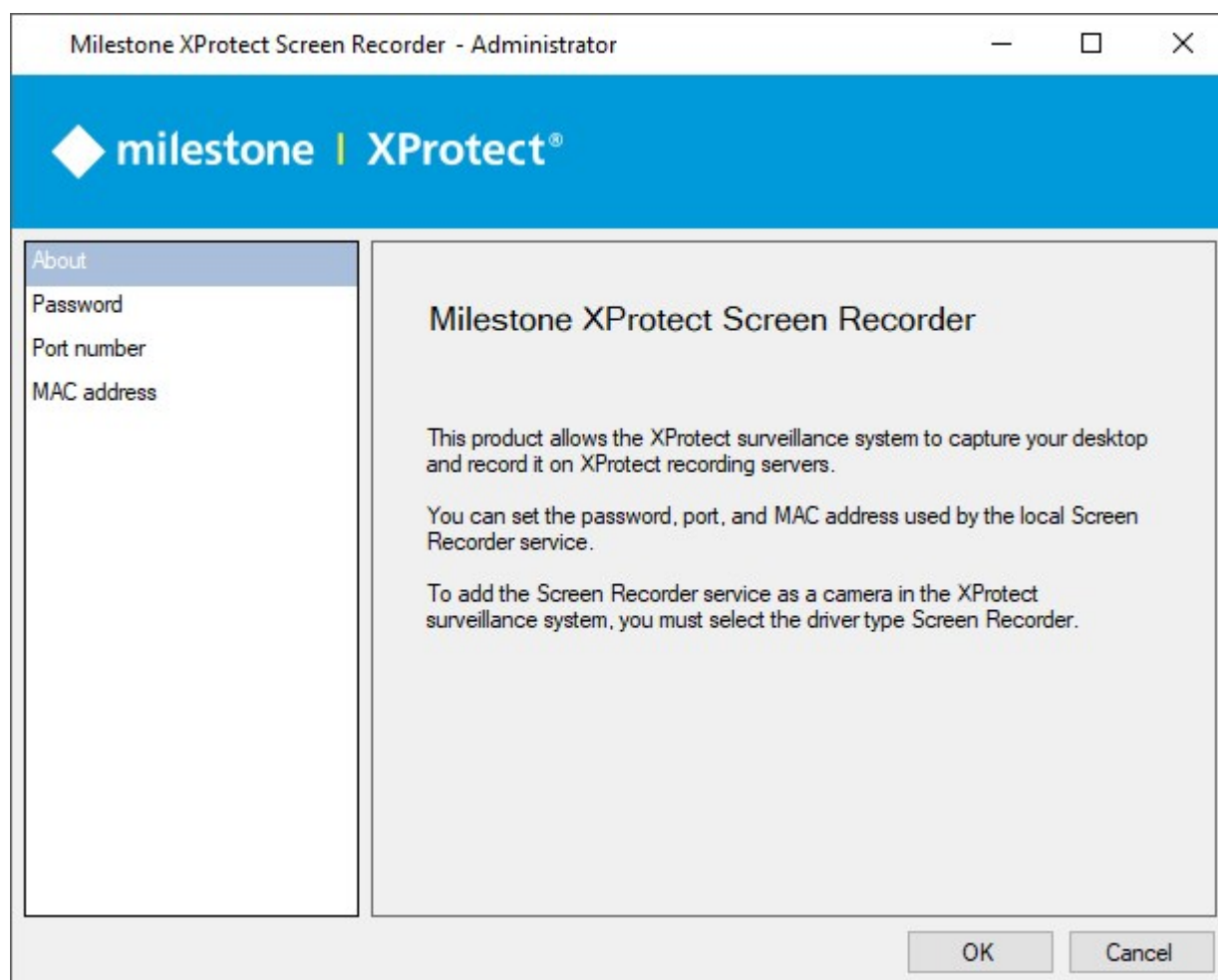
Before you can start using the XProtect Screen Recorder feature, you must first download and install it on one or more Windows computer(s) where you want to receive desktop images.

The application part of XProtect Screen Recorder consists of a Windows service and a desktop capture process. When installing the feature, you must have administrator rights to the computer you are using. Uninstalling or stopping the Windows service also requires administrator rights.

Locate the file (<https://www.milestonesys.com/downloads/>) named MilestoneXProtectScreenRecorderInstaller.exe and follow the download and installation procedure. When complete, the computer will work as an IP camera. From Management Client, you can add the XProtect Screen Recorder device, similar to adding a camera, to connect to it.

Towards the end of the installation, the **Milestone XProtect Screen Recorder - Administrator** window appears.

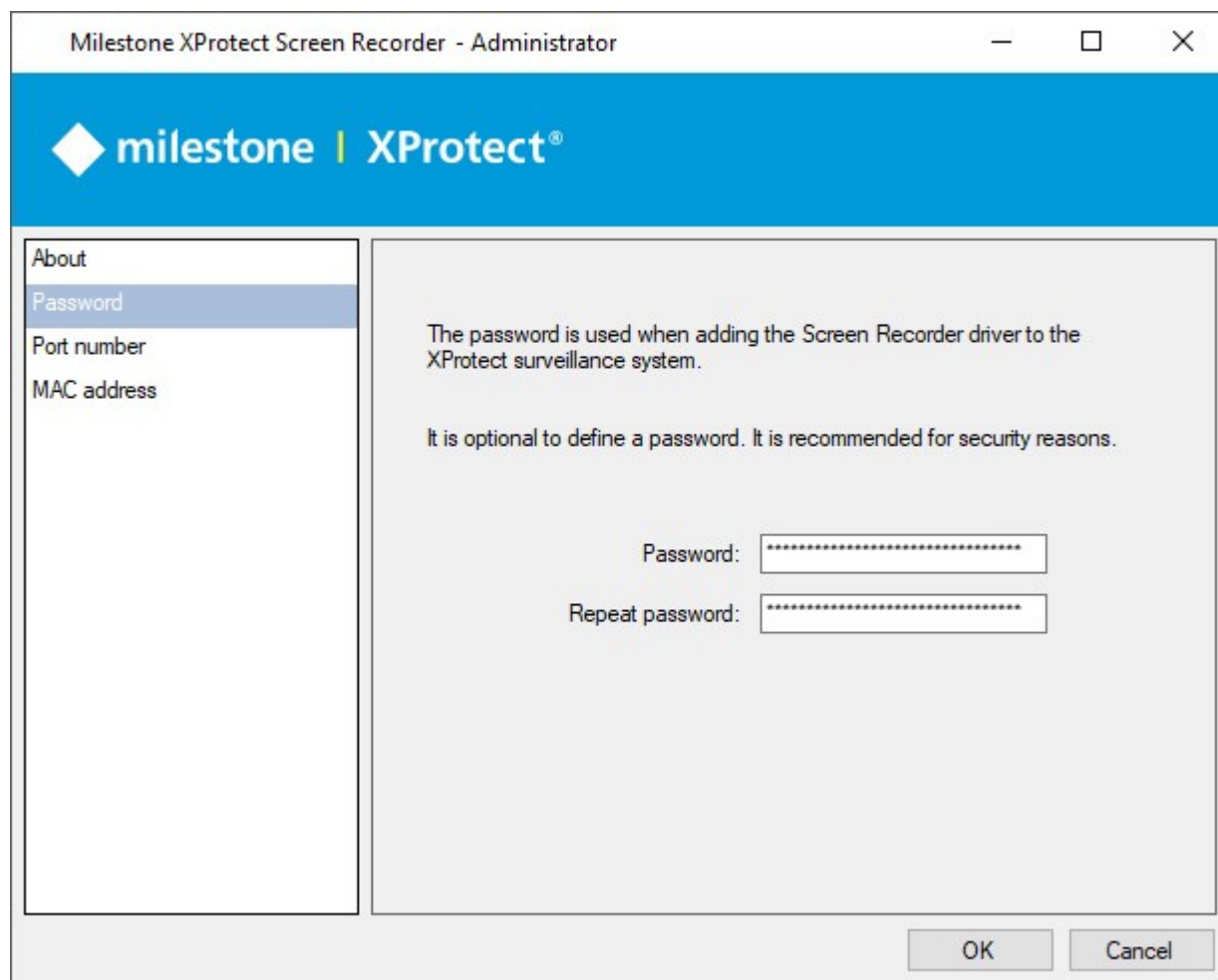
Address the configuration parameters below and click **OK** to save and finish the installation process.



Set password

It is important that only the relevant recording server connects to and request video from a computer with XProtect Screen Recorder installed. You do this by entering a password of your choice in the text fields displayed in the illustration below.

Milestone recommends that you fill in the password fields. In addition, there is no way to be reminded of the password, so it is important to remember the password. You must enter the password in Management Client on the recording server side.



The screenshot shows the 'Milestone XProtect Screen Recorder - Administrator' window. The left sidebar contains a menu with 'About', 'Password' (selected), 'Port number', and 'MAC address'. The main area displays the following text:

The password is used when adding the Screen Recorder driver to the XProtect surveillance system.

It is optional to define a password. It is recommended for security reasons.

Below this text are two input fields:

Password:

Repeat password:

At the bottom right of the window are 'OK' and 'Cancel' buttons.

Set port number

For the relevant recording server to connect to a computer with XProtect Screen Recorder installed, you must specify a Transmission Control Protocol (TCP) port. TCP ports are identified by their number. The default number is 52111. If this port is already in use by another program, change it.



Make sure that the selected port is open on your firewall so the recording server can connect to it.

Milestone XProtect Screen Recorder - Administrator

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About
Password
Port number
MAC address

The XProtect surveillance system uses the port number below to connect to, and retrieve images from the Screen Recorder service.

Port number:

If a firewall is enabled on the computer, you must open the selected port in the firewall.

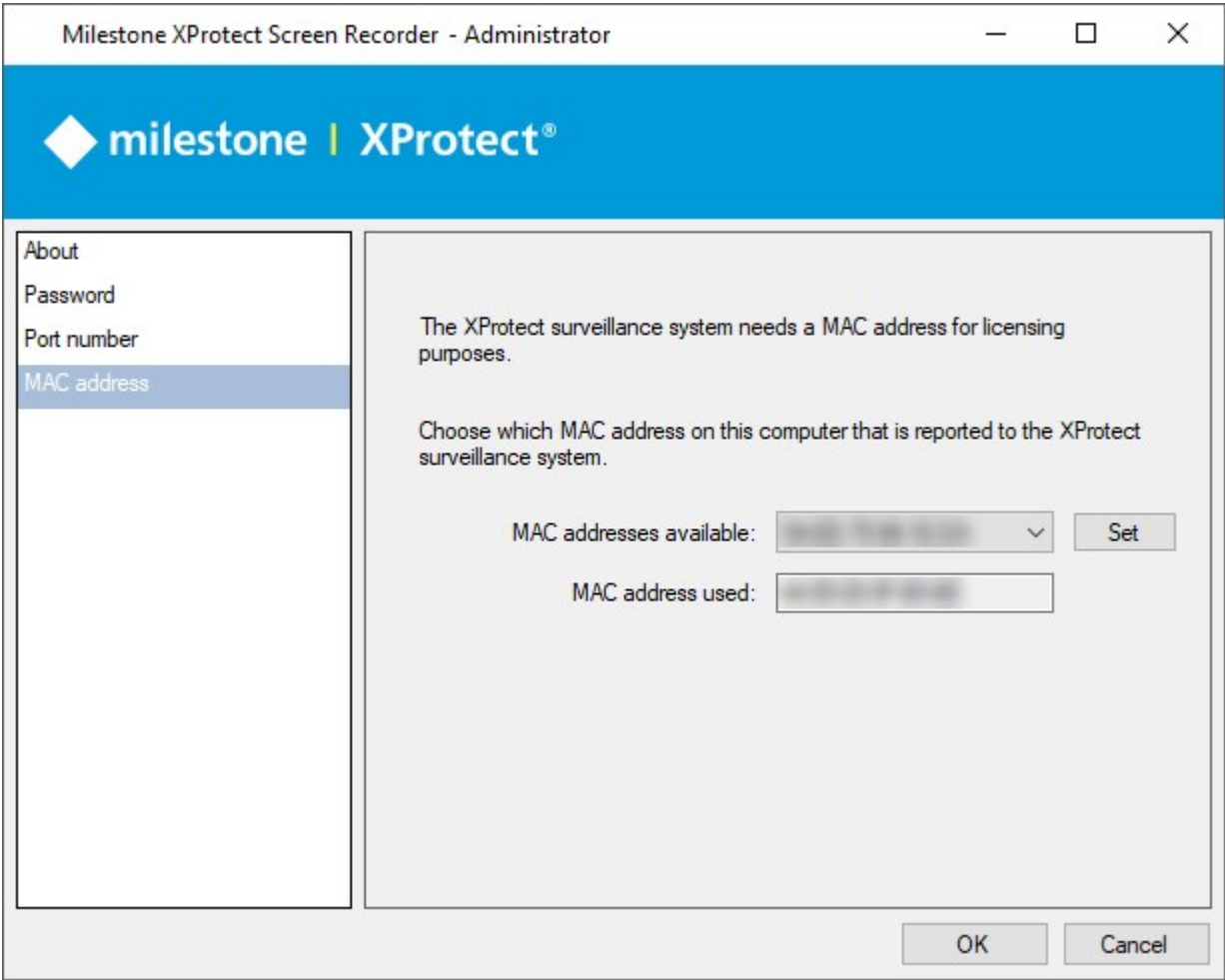
OK Cancel

Set MAC address

For licensing purposes, you must also select a MAC address. You can choose between all MAC addresses available on the computer with XProtect Screen Recorder installed.

1. Make a selection in the **MAC address available** list.
2. Click **Set**.
3. The selected MAC address is displayed in the **MAC address used** field.

When you configure the screen recorder device in Management Client, you must provide a license key that matches the selected MAC address.



Configuration

Configuring after installing on computer

After installing, it is possible to change all XProtect Screen Recorder configurations. This is done from the Milestone XProtect Screen Recorder - **Administrator**'s window which can be reached in the following way:

1. Open Windows' **Start** menu.
2. Click **Milestone XProtect Screen Recorder Administrator**.
3. Confirm that the XProtect Screen Recorder is allowed to make changes to your hard drive. Next, the XProtect Screen Recorder - **Administrator**'s window will open.
4. From the left-hand menu of the window, click **Password**, **Port Number** or **MAC Address** (depending on what you want to do).

Change password

1. In the **Administrator**'s window, on the **Password** tab, move focus to either text field to clear them both.
2. Next, click **OK** to delete the old password (you will be presented with a warning).
3. Enter a new password and click **OK**. This saves changes and restarts the XProtect Screen Recorder.
4. Close the window.

Change port number

1. In the **Administrator**'s window, go to the **Port Number** tab.
2. Fill in the port number (see [Set port number on page 8](#)).
3. When done, click **OK**. This saves changes and restarts the XProtect Screen Recorder.
4. Close the window.

Change MAC address

MAC addresses relate to hardware. If you change your network adapter, the selected MAC address may no longer be available. You must then select another valid address. This also requires that you enter a new license on the recording server side.

1. In the **Administrator**'s window, go to the **MAC Address** tab.
2. Set the MAC addresses (see [Set MAC address on page 9](#)).
3. When done, click **OK**. This saves changes and restarts the XProtect Screen Recorder.
4. Close the window.

Installing on recording server

In Management Client, you must add a screen recorder device that connects to the XProtect Screen Recorder service. It is added and configured like any other IP video camera. For more information, see the section [about how to add hardware](#) in the administrator manual for XProtect VMS.

When you add a screen recorder device, the user name must be **videoos** and the device type **Screen Recorder**. A screen recorder device has the following configurable parameters:

- Frames per second/live frame rate
- Quality
- Capture mode



When adding a screen recorder device, you must provide the IP address of the device. In this case, the device is a computer. But when adding a device of the Screen Recorder type, you may be in a situation where the computer does not have a permanent IP address. In that case, you can use the Domain Name System (DNS) name of the computer.

Set frames per second/live frame rate

Frames per second in XProtect Corporate / **Live frame rate** in other Milestone surveillance products.

A low frame rate is recommended because high frame rates may cause heavy CPU usage on the computer with XProtect Screen Recorder installed. For this reason, the XProtect Screen Recorder feature never yields more than 4 frames per second.



Two frames per second offers a nice impression of screen activity and causes approximately 5-8% extra CPU usage on an average Windows 7 computer anno 2010. Thus, 2 or 3 frames per second is the recommended daily setting.

Set quality

Video frames are sent to the recording server as a series of JPEGs. It is possible to lower network and storage consumption by configuring a lower quality. However, this will result in a more blurred image. The effective valid range is 0 (poorest quality) to 100 (best quality). Default is 75, which reduces the amount of data nicely without reducing the visual quality too much. However, the JPEG algorithm is not optimized for computer images with many rectangles. So even with a high quality you will still observe glitches around straight lines.

Set capture mode

With regards to capture mode, there is a choice of:

- **Primary screen only:** the primary screen only
- **All screens** (if there is more than one screen): a mosaic of all screens setup for the computer in question
- **Screen 1, Screen 2, etc.** (if there is more than one screen): The selected screen only

Optimization

Security

As mentioned earlier, XProtect Screen Recorder's recording process is controlled from the computer startup menu and runs in the context of the logged in user. This means that the user can use the Windows Task Manager to shut down the process. To prevent that, Windows must be configured so that the user has no access to Windows Task Manager or other programs with similar capabilities.

Disabling XProtect Screen Recorder results in the device connecting to the XProtect Screen Recorder service showing a red screen with a cross over it.



The TCP based protocol used between the recording server and the computer with XProtect Screen Recorder installed utilizes Digest Authentication (RFC 7616) with SHA256 as a hashing algorithm. The risk of other products intercepting a desktop is therefore minimal, but you are urged to define a password in the **Milestone XProtect Screen Recorder- Administrator's** window.

Maintenance

Uninstalling from computer



The following procedure describes standard system component removal in recent Windows versions; the procedure may be slightly different in older Windows versions.

1. In Windows' Start menu, select **Control Panel**, and:
 - If using **Category** view, find the **Programs** category, and click **Uninstall** a program
 - If using **Small icons** or **Large icons** view, select **Programs and Features**
2. In the list of currently installed programs, right-click the required Milestone program or service.
3. Select **Uninstall** if you wish to uninstall all components. Select **Change** if you only wish to uninstall some components.
4. Follow the removal instructions.

Troubleshooting

Troubleshooting

A problem which may occur with XProtect Screen Recorder is that the recording server and the computer with XProtect Screen Recorder installed cannot connect. These are probable causes:

- The configured TCP port is not open on the firewall that the XProtect Screen Recorder is installed on. Or if communication runs through a router, the router may also have a firewall that causes problems
- The IP address defined on the recording server is different from the IP address on the computer with XProtect Screen Recorder installed
- The IP port defined on the recording server is different from the one configured on the computer with XProtect Screen Recorder installed
- The password defined on the recording server is different from the one configured on the computer with XProtect Screen Recorder installed
- The Device Pack and XProtect Screen Recorder versions are incompatible



XProtect 2019 R3 includes Device Pack 10.5. Connection will fail if you are running Device Pack 10.4 (or earlier) and using the XProtect Screen Recorder version 2019 R3 (or later).

To investigate other problem scenarios, you can enable the tracing of relevant desktop recordings:

1. In Windows Explorer, in the directory: %PROGRAMFILES%\Milestone\XProtect Screen Recorder, locate the file: ScreenRecorderService.exe.config.
2. Using an editor, for example, Microsoft® Notepad, change the value of the attribute "Log" to "yes" as illustrated below:

```
<?xml version="1.0"?>
<configuration>
  <startup><supportedRuntime version="v2.0.50727"/></startup>
  <appSettings>
    <add key="Log" value="yes"/>
  </appSettings>
</configuration>
```

4. Save the file under the same name and in the same location.

5. Start Milestone XProtect Screen Recorder Administrator (see [Configuring after installing on computer on page 11](#)).
6. Click **OK** to restart XProtect Screen Recorder. Logging is now enabled.
7. In the **AllUsers ProgramData** folder, in the subdirectory: Milestone\XProtect Screen Recorder, two log files are now available: Servicelog.txt and Desktoplog.txt.
 - Servicelog.txt is a log of all network traffic and communication between the recording server and the computer with XProtect Screen Recorder installed
 - Desktoplog.txt is a log of the process running on the computer with XProtect Screen Recorder installed, capturing desktop images and sending them to the Windows service as JPEG images
8. To avoid that the two log files grow extensively, it is important to reset the "Log" attribute to "no" when done. See step 2.
9. Restart Milestone XProtect Screen Recorder Administrator (see [Configuring after installing on computer on page 11](#)).



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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/>.

