



The open platform company

# **Milestone Systems**

XProtect® MIP SDK 2016 R3

## **Getting Started Guide**

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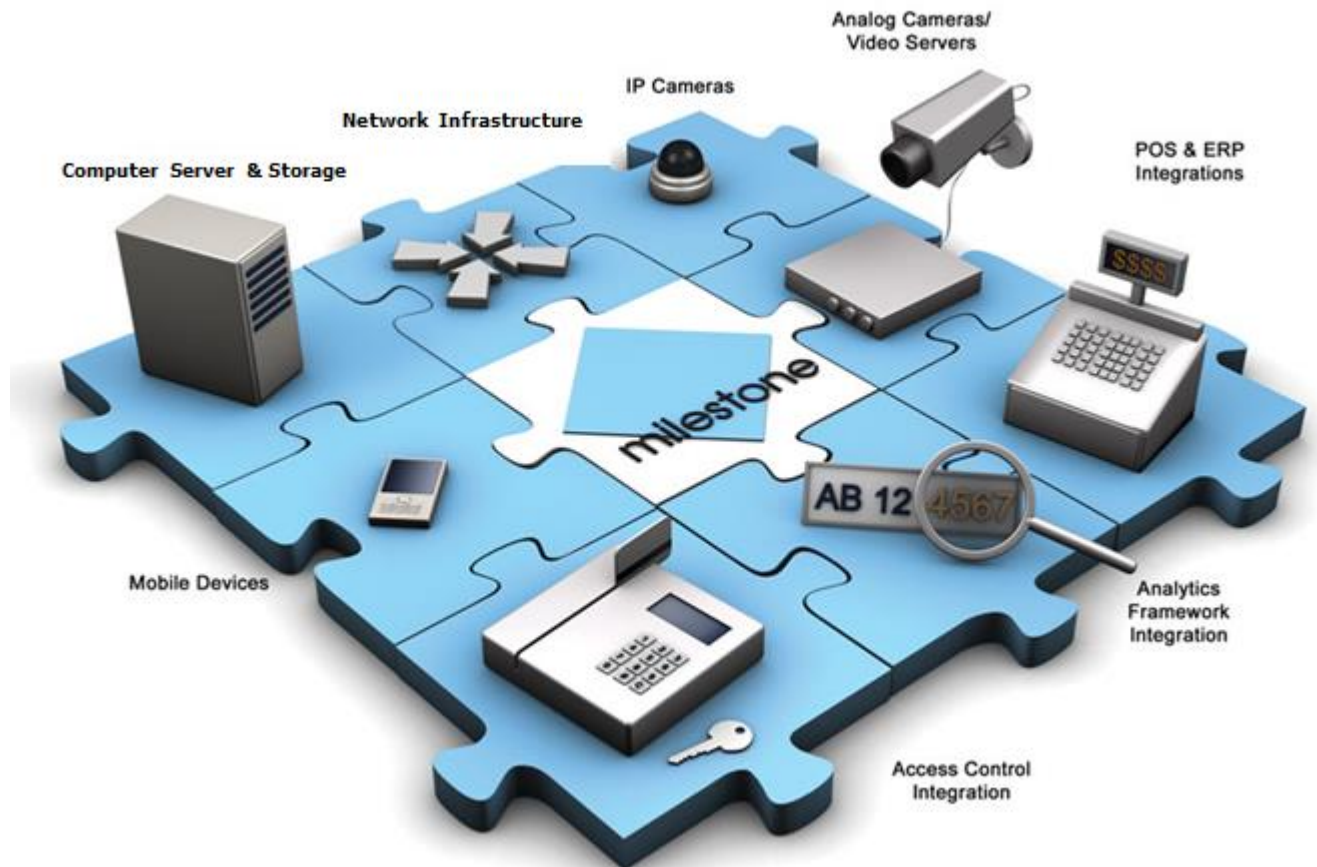
All names of people and organizations used in the examples in this text are fictitious. Any resemblance to any actual organization or person, living or dead, is purely coincidental and unintended.

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.

## About this guide

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To support the vision about the open platform community Milestone provides the Milestone Integration Platform Software Development Kit.

The guide is targeted at software developers and Milestone solution partners who want to build their own integrated solution or customize their Milestone XProtect® video management software surveillance solution.

This guide helps you obtain the software and perform the installation on your PC. It serves as a point of reference for documentation, and you can also find an introduction to the different ways of making integrations.

Remember to check the Milestone website <http://www.milestonesys.com> for updates to make sure you install the most recent version of the software.

# Milestone Solution Partner

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The Milestone Solution Partner program is for any company that wants to develop applications and product offerings for Milestone XProtect video management software. Based on our open Milestone Integration Platform Software Development Kit (MIP SDK), Milestone Solution Partners can create solutions that integrate systems in the areas of:

- Video.
- Video analytics.
- Audio.
- Metadata.
- Access control.
- Business systems.
- Events.
- Building automation systems.
- Control of devices connected to XProtect video management software.
- XProtect video management software configuration automation.

## **Join the Milestone Solution Partner program**

Joining the MSP program gives you the following possibilities and benefits:

- Become a partner with the world's leading IP video management software provider.
- An opportunity to expand your business by creating solutions targeted for industry verticals.
- With increased exposure to Milestone sales partners, you can increase awareness of your solution and its capabilities.

## **Discover all the Milestone Solution Partner integrations**

Milestone has a wide range of Milestone Solution Partner integrations. In our Solution Finder <https://www.milestonesys.com/solution-partners/solution-finder/>. Milestone customers can search for the video management solutions they need.

## **Milestone certified solution program**

Milestone Solution Partners with commercially available software integrations or IT Infrastructure components compatible with Milestone XProtect video management software can submit their solutions for certification.

# What is MIP SDK

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## **MIP**

The open platform is integrated in the following Milestone XProtect system components:

- XProtect Smart Client
- XProtect Management Client
- XProtect Management Application
- Management Server
- Event Server

## **MIP SDK**

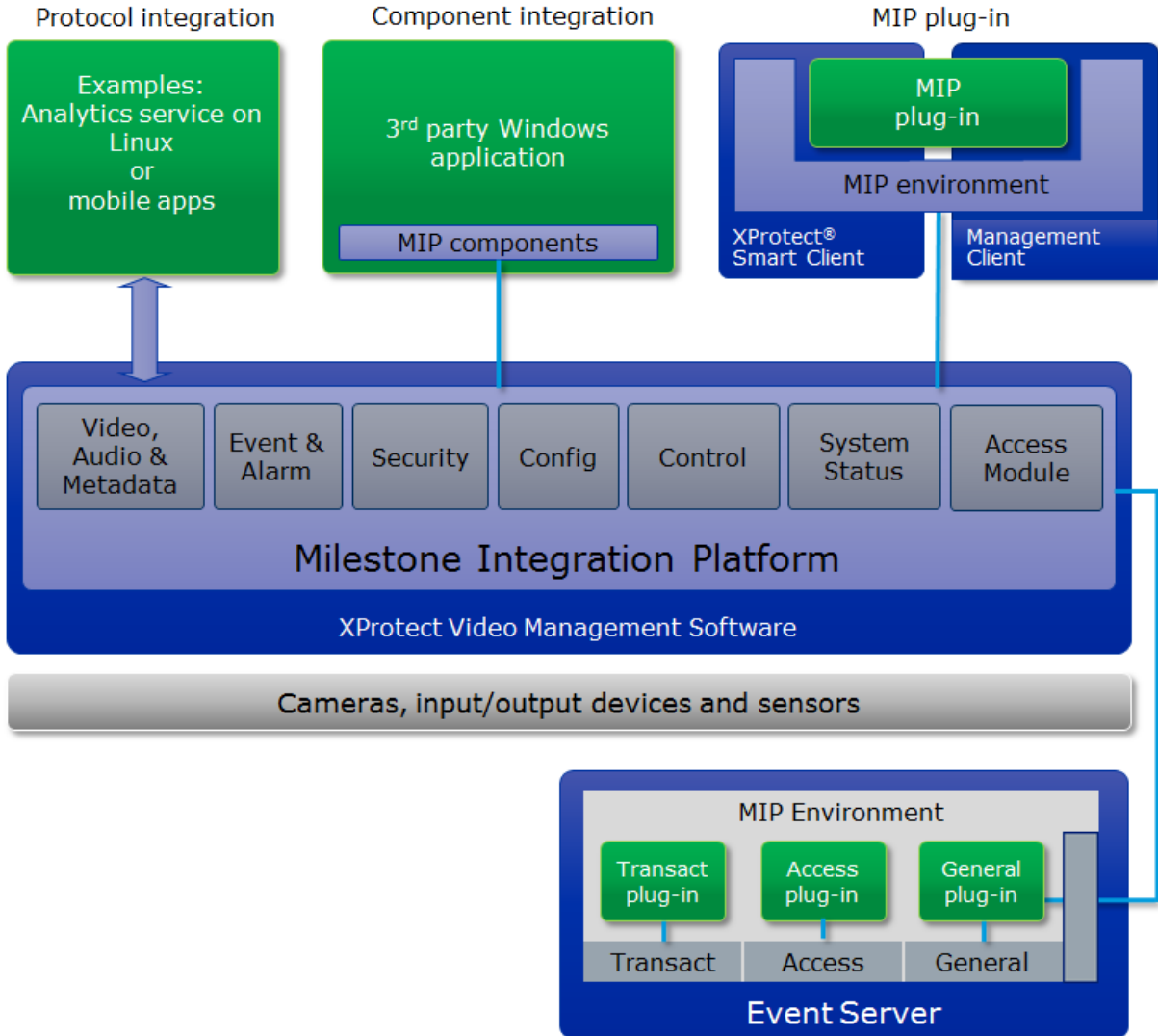
To have a truly open platform and a community around it Milestone provides the SDK that contains:

- The tools for developing integrations.
- Documentation of a set of interfaces.
- A set of wrapper .NET DLLs providing an easy interface to a variety of functionality.
- A large collection of samples for different ways of using the MIP SDK.
- Short descriptions and how-to guides.
- A small application to display links to this information.
- Libraries.

The MIP SDK is also used internally by Milestone software development teams.

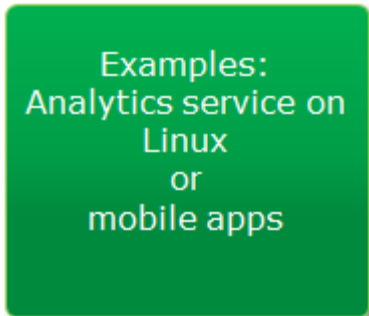
# Ways of making integrations

The following diagram shows the different ways to make integrations for XProtect video management software.



## Protocol integration

Milestone Solution Partners can access the Milestone video management software configuration, get live or recorded video, and send control commands as well as events to the Milestone server even when their applications are run on a non-Microsoft operating system, or when their application has been developed using a non-.NET supported language.



### Why choose protocol integration?

- Network-based.
- Any operating systems.
- Any programming languages.
  - Only requires network access (TCP/IP Socket, SOAP and others).
  - Accessible from Java, Linux and more.
- High performance.

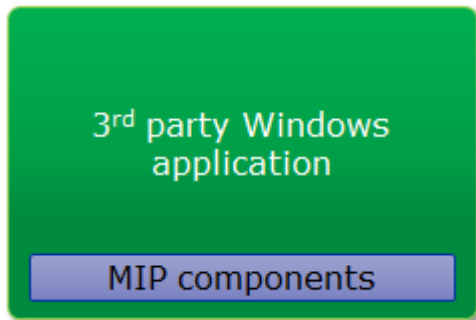
### Available protocols

- Server Command SOAP Protocol for login and configuration access.
- Recorder Command SOAP Protocol for controlling devices.
- Image Server XML Protocol for controlling devices.
- Image Server TCP/IP Raw Protocol for access to live and recorded video.
- Central Protocol for retrieving live updates regarding status changes and events from XProtect Enterprise and XProtect Professional systems.
- Status Protocol for retrieving live updates regarding status changes and events from XProtect Corporate systems.
- Analytics and MAD Event protocol for generating new events.



## Component integration

When an end user application is developed by others than Milestone, such other developers can use the MIP components to interact with the Milestone servers.



### Third party Windows application

- Could, for example, be an Internet Explorer HTML page or any Microsoft-based application.

### Why choose component integration?

- Faster development.
- Send events to Milestone video management software.
- Issue control commands to Milestone video management software or related devices, for example cameras with PTZ or associated output.
- Access the Milestone video management software configuration.
- Display live and recorded video.
- Get live video streams.

### Available components

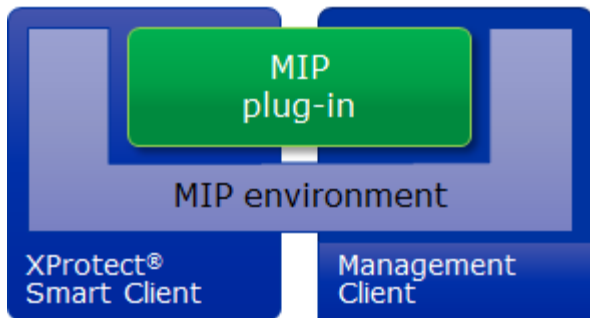
- ActiveX (Milestone).
  - ImageViewer ActiveX. Communicates with video management system servers, decodes all supported codecs, and facilitates video display. Each ImageViewer ActiveX handles one video stream.
  - AudioPlayer ActiveX. Communicates with video management system servers, decodes all supported codecs, and facilitates audio playback. Each AudioPlayer ActiveX handles one audio stream.
  - EngineManager ActiveX. Helps getting basic configuration and performing login processes on servers. The EngineManager ActiveX is often used for HTML-based applications.
- MIP .NET Library.
  - Access to Milestone server configuration.

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- Logon dialog.
- View video.
- Listen to audio.
- Control commands.
- Event triggering.
- Milestone Media Toolkit.
  - Access via both C++ and C#.
  - Able to retrieve from Imageserver, exported database and Analytics servers.
  - Can specify resize, format, transcode and more.
  - Can store result as new database, transcode to JPEG, or as RGB.

## Plug-in integration

A MIP plug-in is a plug-in developed by Milestone Solution Partners (MSPs) that can run in a number of MIP products, enabling support of multiple products with a single developed plug-in. Plug-in integration gives the ability to extend the functionality of the MIP-enabled Milestone applications.



### Operation

Enables plug-in developers to create an operational interface directly integrated into XProtect Smart Client.

### Management

Enables plug-in developers to create the configuration of the integration into the.

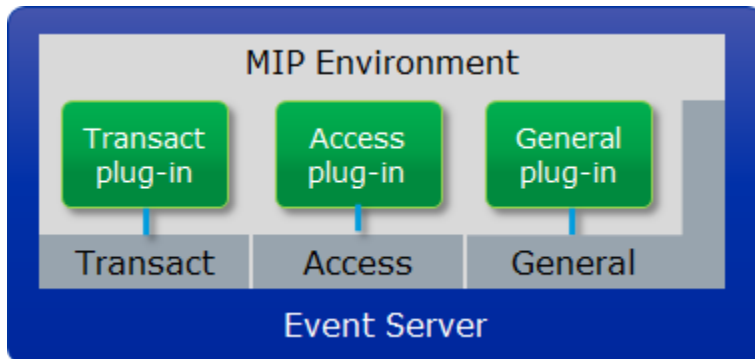
- XProtect Corporate Management Client
- XProtect Expert Management Client
- XProtect Enterprise Management Application
- XProtect Professional Management Application

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- XProtect Express Management Application

### Events

Enables server logic (non UI logic) to be run inside the event server, for example to automatically react to events from either XProtect or third-party systems.



### MIP Environment

- Unifies the environment for the MIP plug-ins.
- The MIP environment uses .NET, and all samples are written in C#.

This is true for the MIP environment, but the MIP SDK contains several parts that do not require .NET or C#.

The MIP environment lets developers:

- Add simple ways of system control, for example for handling devices with PTZ, events, and outputs.
- Store Milestone Solution Partner-developed configurations.
- Share Milestone Solution Partner configurations between applications.
- Assign identical administrator look and feel for XProtect products.
- Add specific user controls in XProtect Smart Client.
- Add customized options menu configuration for common parameters, for example for using private and shared views between all users.
- Impose customized graphic overlays on live or recorded video, for example for video content analysis (analytics) applications.
- Access recorded images for post-processing management.

## Integration type overview

This table gives you an overview of the advantages and disadvantages of the different types of integrations.

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Integration type	Advantages	Disadvantages
<b>Protocol</b>	Operating system- and development environment-agnostic. Can enable high performance.	High complexity and low developer output.
<b>Component</b>	Easy development of new applications. Easy integration into 3rd party application.	Requires .NET environment.
<b>Plug-in</b>	Fast development of functionality without the need to build the hosting environment. Direct integration inside Milestone's clients.	Requires .NET environment.

## Identify areas of integration

This table gives you an overview of some of the possibilities in the different areas of integrations.

Areas of integration	Some of the possibilities
<b>Video</b>	Retrieve and display live or recorded video or single frame JPEG images. Place overlay information on live or recorded video.
<b>Video analytics</b>	Object detection, perimeter tripwires, license plate recognition and facial recognition.
<b>Audio</b>	Retrieve and play audio streams.
<b>Metadata</b>	Storage, playback, retrieval and sending of metadata.
<b>Access control</b>	Plug-in for event server via XProtect Access framework.
<b>Business systems</b>	Integrate point of sale systems via XProtect Transact framework or enterprise resource systems.
<b>Events</b>	Trigger internal or external events and alarms. Retrieve analytics events.
<b>Building automation system</b>	Create a plug-in for event server. User interface for events, alarms and map is XProtect Smart Client.
<b>Control of XProtect video management software</b>	Send and retrieve PTZ commands and positions from cameras. Send a start or stop recording event from a device. Retrieve edge recordings. Activate external output. Smart Wall functionality.
<b>XProtect configuration automation</b>	In XProtect Corporate and XProtect Expert, a configuration API is available.

## What to consider before getting started

- Use plug-in integration as first choice?
- Use component integration as second choice?
- Identify where end-users operate the system?
- Make architecture drawing of integration solution?
- Involve Milestone in the review of the suggested architecture?
- Integrate and test?
- Review test scenarios?
- Get the solution certified?
- Add solution to Milestone Solution Finder <https://www.milestonesys.com/solution-partners/solution-finder/>?

## **Minimum system requirements**

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- .NET Framework 4.5
- Microsoft Windows 7 64-bit (or newer)
- Visual Studio 2013 (or later)
- MIP supported Milestone video management software product:
  - XProtect Corporate
  - XProtect Expert
  - XProtect Enterprise
  - XProtect Professional
  - XProtect Express

## How to download and install

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Milestone recommends that you install MIP SDK on a computer in a development environment and not on a computer in an existing Milestone video management software environment.

To implement and test your integration, you must install XProtect Corporate. Contact <mailto:partner@milestonesys.com> for a developer license. You can download the software and documentation on Milestone website.

To make your computer ready for XProtect integration development, follow the recommended steps to install MIP SDK.

### Download MIP SDK

To download the MIP SDK <https://www.milestonesys.com/mipsdk/>:

Sign up to download the MIP SDK.

1. Click the **Download MIP SDK** button.
2. Please fill-in the form and accept the terms and conditions.
3. A MIP SDK download button will be presented to you.
4. Click the button to download the MIP SDK installer file.

### Install MIP SDK

5. When download is completed run the .msi installer file.
6. The setup wizard appears. Click **Next** to continue.
7. Read the Milestone End-user License Agreement. Select the **I accept the terms in the license agreement** check box.
8. Click **Install** to begin the installation
9. Accept all warnings.
10. When the installation is complete click the **Finish** button to exit the setup wizard.

Milestone MIP SDK is now installed on your computer. The MIP files are located at:

C:\Program Files\Milestone\MIPSDK

C:\Program Files\Milestone\MIPPlugins

### MIP SDK in Milestone clients

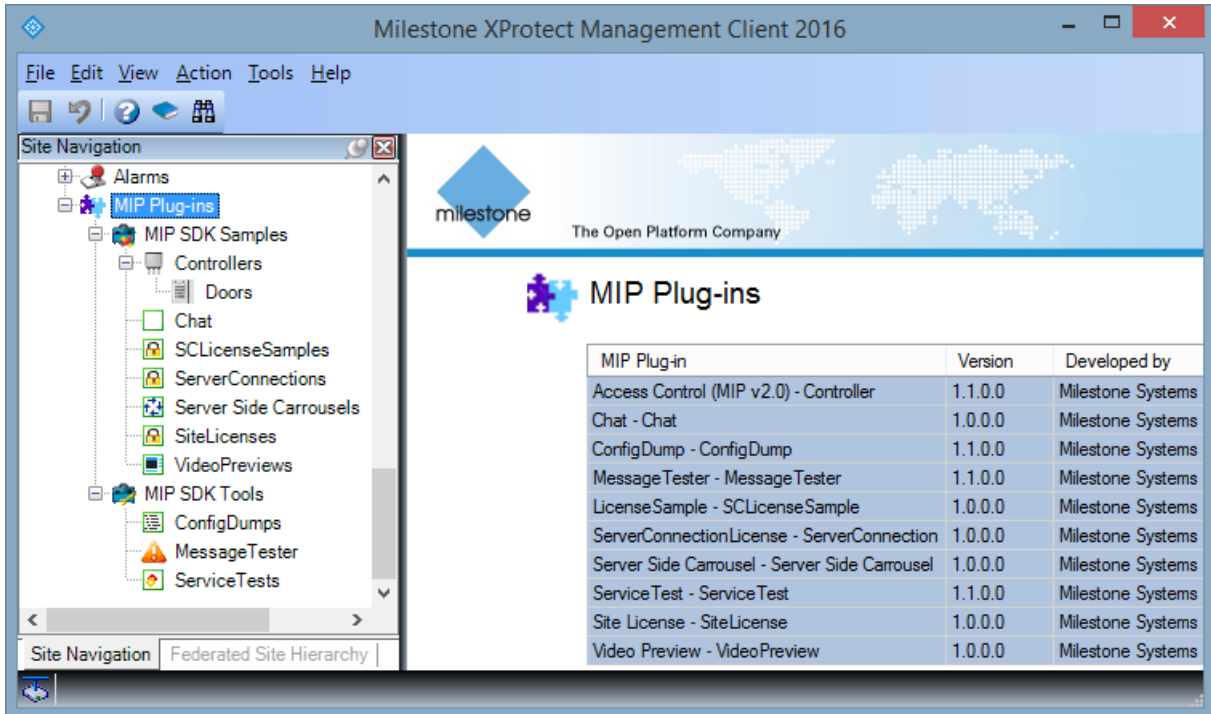
MIP SDK is now installed on your computer. The MIP tools and Plug-ins are visible in these clients:



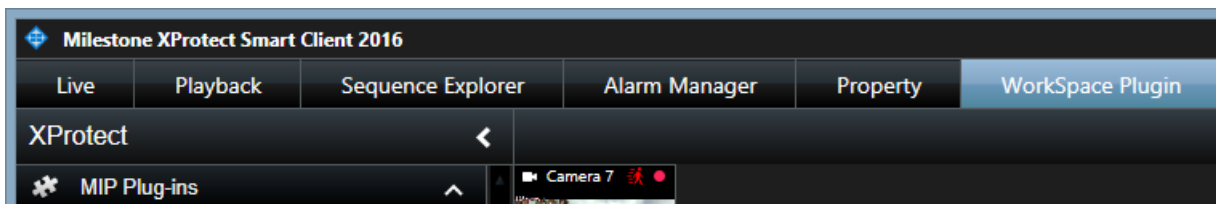
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- XProtect Management Application
- XProtect Management Client
- XProtect Smart Client

In XProtect Management Client and XProtect Management Application the MIP Plug-ins are added to the Site navigation pane. This consist of MIP SDK Samples and MIP SDK Tools.



In XProtect Smart Client a WorkSpace Plug-in tab is added along with the MIP Plug-ins pane.



# MIP Documentation

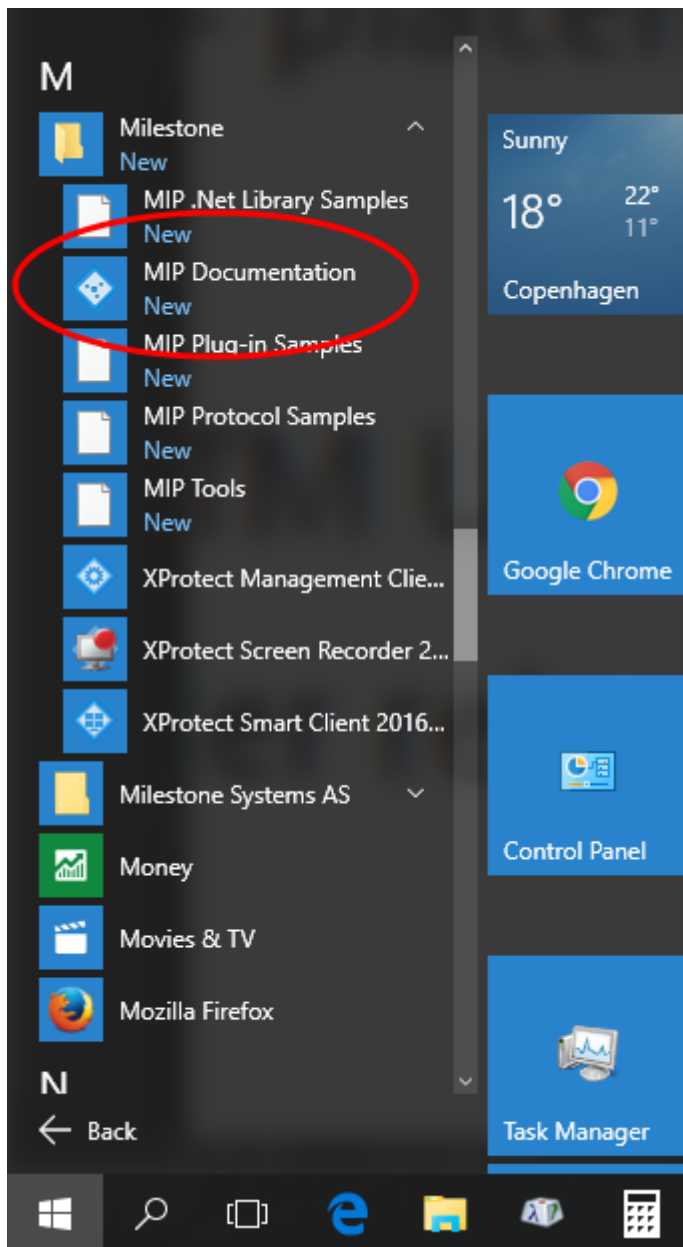
This is a comprehensive HTML-based documentation set describing the different ways software developers can use MIP SDK to integrate applications and devices in the XProtect video management software.

- One UI contains all documentation.
- Search across notes and interface documentation.
- The introductions are useful to get acquainted with the terminology and basics of frequently used topics in the MIP SDK.
- Documentation divided on key development approach: Protocol, Component and Plug-in.



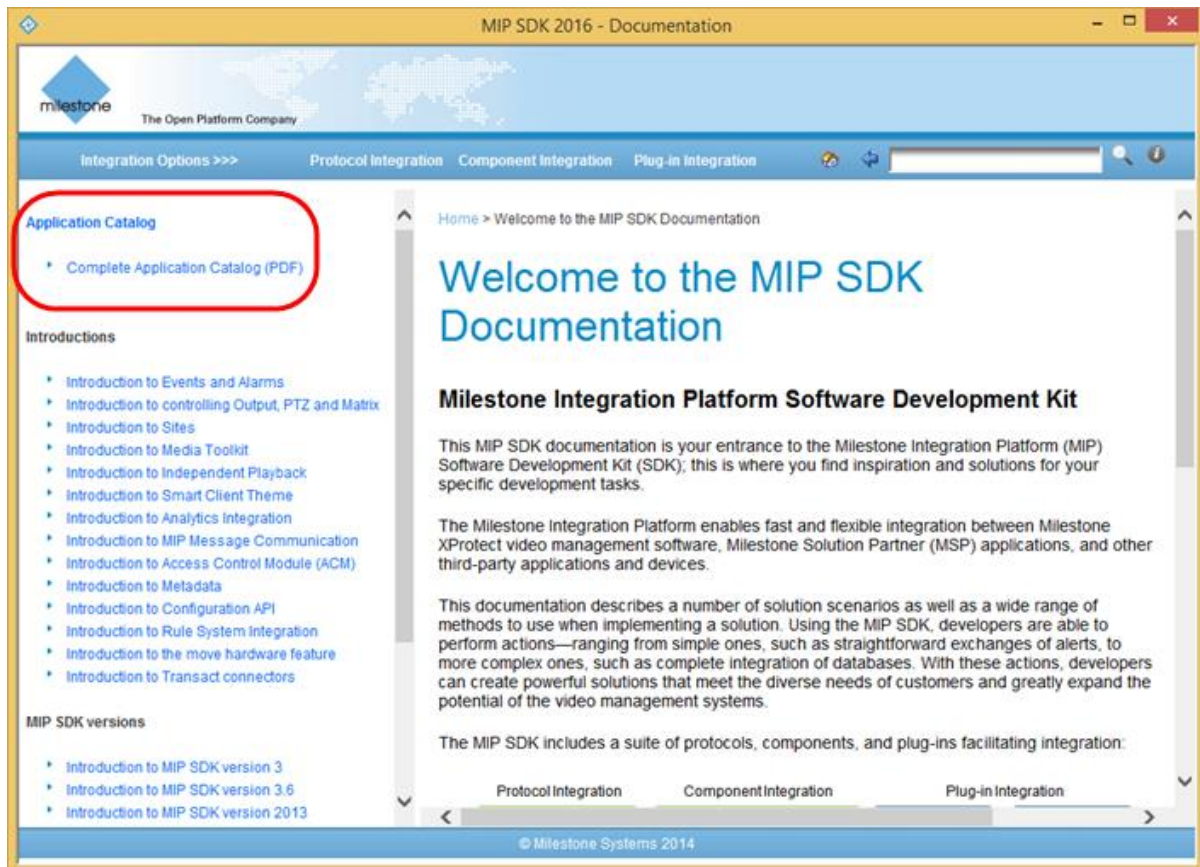
## XProtect MIP SDK 2016 R3 - Getting Started Guide

Find the MIP Documentation start page by searching for MIP Documentation in Windows or find the shortcut in Windows' All Apps.



## Application Catalog

Inside the MIP Documentation you can locate the Application Catalog. The document is intended as a combination of inspiration and a catalog of possible solutions when you consider what kind of integrations you would like to develop for a Milestone video management software. The document describes scenarios that could be the background for implementing a solution as well as the requirements and what you can achieve with this solution. The scenarios also include an illustration with more detailed notes about the technical requirements.



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### **About Milestone Systems**

Milestone Systems is a global industry leader in open platform IP video management software, founded in 1998 and now operating as a stand-alone company in the Canon Group. Milestone technology is easy to manage, reliable and proven in thousands of customer installations, providing flexible choices in network hardware and integrations with other systems. Sold through partners in more than 100 countries, Milestone solutions help organizations to manage risks, protect people and assets, optimize processes and reduce costs. For more information, visit: <http://www.milestonesys.com>.

