

ONVIF-vs-SDK Decision Guide

ONVIF is a floor, not a ceiling. Use ONVIF wide; reach into a vendor SDK only where a feature earns the integration cost and the lock-in. A one-page map for deciding per camera model.

What ONVIF guarantees vs what needs the vendor SDK

| Capability | ONVIF baseline | Vendor SDK |
|---------------------------------|-------------------------------------|---------------------------------|
| Discovery + live streaming | Yes - Profile S / T (H.264 / H.265) | Yes - full control |
| Edge recording + replay | Yes - Profile G | Yes |
| Standardized events / metadata | Yes - Profile M (object class) | Yes - native, richer fields |
| Deep analytics tuning | No - output only, not tuning | Yes - zones, sensitivity, lists |
| Native edge events, low latency | Partial - often polled | Yes - event-driven push |
| Fleet device management | No | Yes - firmware, certs, health |
| On-camera applications | No | Yes - e.g. Axis ACAP |

What each major vendor SDK unlocks beyond ONVIF

| Vendor | SDK / API | Style | Unlocks beyond ONVIF |
|-----------|-------------------|----------------------------|--|
| Axis | VAPIX + ACAP | HTTP API + on-camera apps | Full device control; run your own / 3rd-party analytics on the camera |
| Hikvision | ISAPI + HCNetSDK | HTTP/REST + binary SDK | Deep config, playback, PTZ, alarms, remote management (SDK needs a signed license) |
| Dahua | HTTP API + NetSDK | HTTP/REST + binary SDK | Login, live, playback, PTZ, alarm reporting, device search across IPC/NVR |
| Hanwha | SUNAPI | HTTP/CGI API | Image tuning, advanced events/analytics, storage, network and security config |
| Bosch | Video SDK + RCP+ | Binary SDK + RCP+ protocol | Unit configuration and deep integration; RCP+ over CGI where the SDK does not fit |

Questions to ask - per camera model

| Topic | Ask the vendor and your VMS |
|-------------|--|
| Baseline | Which ONVIF profile (S / T / G / M), and which features quietly need the vendor SDK? |
| VMS driver | Does my VMS ship a deep device pack for this exact model - or only generic ONVIF? |
| Analytics | Is the analytic configurable over the standard, or only through the vendor SDK? |
| Events | Do I need event-driven push (SDK) latency, or is polled ONVIF good enough? |
| Management | Firmware, certificate, and fleet management - standard, SDK, or vendor service? |
| Lock-in | If I drop this vendor later, how much of the integration is non-portable? |
| Maintenance | Who re-tests the SDK integration across each firmware and SDK update? |

Rule of thumb: ONVIF everywhere as the baseline that keeps your long tail of cameras cheap; a vendor SDK (or a deep VMS device pack) only on the cameras whose advanced features you actually use. "ONVIF-conformant" is not "fully featured over ONVIF". Sources: ONVIF Profiles / Profile T; Axis ACAP / VAPIX; Hikvision ISAPI / HCNetSDK; Dahua NetSDK; Hanwha SUNAPI; Bosch RCP+; Milestone MIP SDK.