

Interoperability Standards Quick Reference

No single standard covers a security system — it stacks several. Which standard owns which layer, OSDP vs the Wiegand it replaces, and the RFP questions to ask at each layer.

Which standard for which job

Standard	What it standardizes	Layer	Status in 2026
ONVIF	Camera to software; access profiles A / C / D	Device & system	Dominant for video
PSIA PLAI	Identity sync (logical to physical)	Identity	Active, multi-vendor
PSIA PKOC	Open, license-free access credential	Credential	Emerging (over OSDP, 2024)
OSDP	Reader to controller (IEC 60839-11-5)	Wire	Dominant; replaces Wiegand
MQTT	Event & metadata transport (ONVIF Profile M)	Messaging	Growing
IEC 62676	What a video surveillance system must do; image quality	System rulebook	Reference for tenders
Wiegand	Reader to controller (legacy)	Wire	Obsolete — phase out

OSDP vs Wiegand — the reader-to-controller wire

Aspect	Wiegand (legacy)	OSDP (modern)
Direction	One-way only	Two-way + supervised (knows if a reader drops)
Encryption	None — readable / spoofable on the cable	AES-128 Secure Channel
Wiring	6-12 wires, one cable run per reader	2 wires (RS-485), multi-drop bus
Distance	~ 150 m (500 ft)	~ 1,219 m (4,000 ft)
Standard	De-facto, 1980s	IEC 60839-11-5 (2020); SIA v2.2.2 (2024)

RFP questions to ask — at each layer

Layer	Ask the vendor
Video (camera to VMS)	Which ONVIF profile (S / T / G / M), and which features quietly need the vendor SDK?
Access — system	Does the platform speak ONVIF Profile A / C / D to configure third-party door controllers?
Access — wire	Are readers OSDP (IEC 60839-11-5) with Secure Channel — not 1980s Wiegand?
Identity	Can identities sync from HR / IT (PSIA PLAI or equivalent) so access revokes on termination?
Credential	Is the credential open (e.g. PKOC) or proprietary and locked to one supplier?
Events / metadata	Are events published over MQTT (ONVIF Profile M) for cross-vendor consumption?
Requirements	For regulated tenders, does the system meet IEC 62676 image quality (observe / recognize / identify)?

Always ask which standard, which profile, which version — “standards-based” alone settles nothing, and the gap between “conformant” and “fully featured” applies at every layer. Sources: PSIA (Specifications, PLAI, PKOC); ONVIF Profiles; SIA OSDP / IEC 60839-11-5; IEC 62676.



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This reference maps ONVIF, PSIA, OSDP, MQTT and IEC 62676 to the layers of a security system. We wrote seven volumes on the video stack. Volume 6 covers computer vision on camera feeds, Volume 7 covers real-time pipelines, serving and regulation, and Volume 1 covers the encoding that every camera stream starts with.

WHAT YOU WILL FIND INSIDE

- Detection and tracking on camera feeds
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