

Physical Security on a District Level



Who are you?

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Video Surveillance

Cameras & Encoders

Cameras

- Axis M3045-VE
 - Inexpensive corridor camera
- Axis M3007
 - 360 camera to use for hallway intersections
- Axis P1427-LE
 - Outdoor, waterproof, and IR based camera with high resolution



Axis M3045-VE



Axis M3007



Axis P1427-LE

Encoders

- Axis M7014 - 4 port encoder used to replace analog door cameras
- Axis M7016 - 16 port encoder used to replace large volumes of analog cameras



Axis M7014

Axis M7016



IP Camera Connectivity

- Uses one ethernet connection for data transfer and POE
- IP cameras do require a bit of power to operate. Having multiple high end cameras could require a POE budget

Placement

- Intersections - 360 camera at the center of an intersection
- Corridors - 2 cameras each looking the direction of one another
- Outdoor - Up high towards corners of buildings



Quad
View

360 View



Outdoor Use

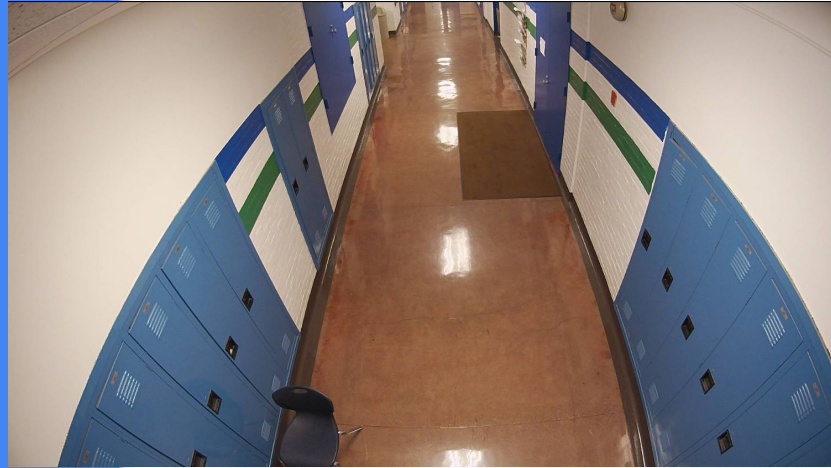
- Wide Angle Lense
- Higher up and towards the corners of the building leads to better coverage



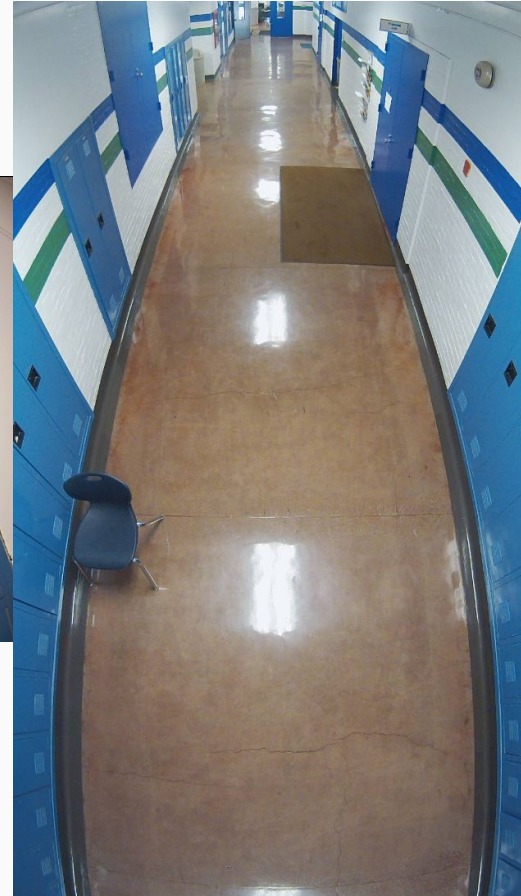
Corridor Mode

- Maximum image use
- Requires rotation of lense 90 degrees
- Requires change of camera view setting to 90 degrees

Corridor Mode Off



Corridor Mode On



Wide Dynamic Range (WDR)

- WDR allows view of lower and higher light levels ranging within an image. This provides better image quality for cameras placed to view through windows, covered, or shade covered areas.



WDR OFF

WDR ON



Barrel Distortion Correction (BDC)

- This setting corrects issues with lens curve that causes curve distortion around what is known to be a straight line object.

BDC Off



BDC ON

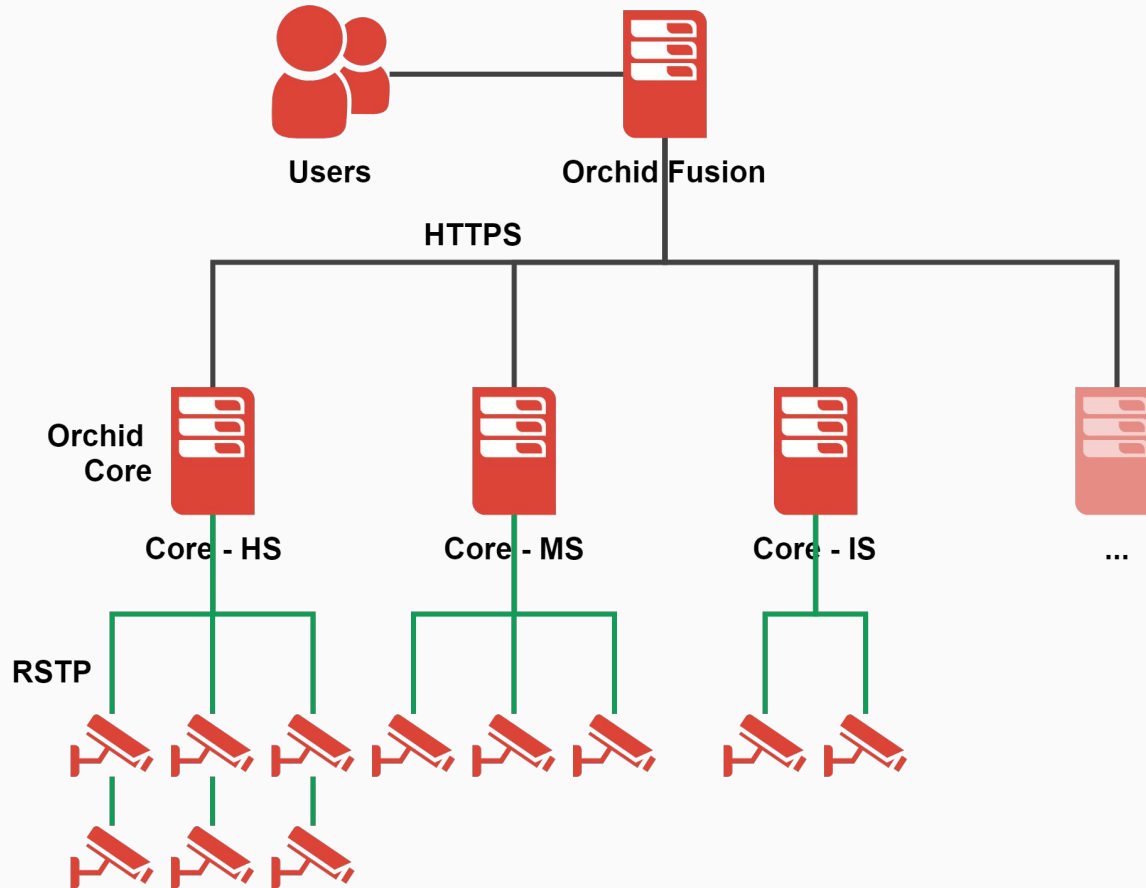


Video Management System

Our Requirements

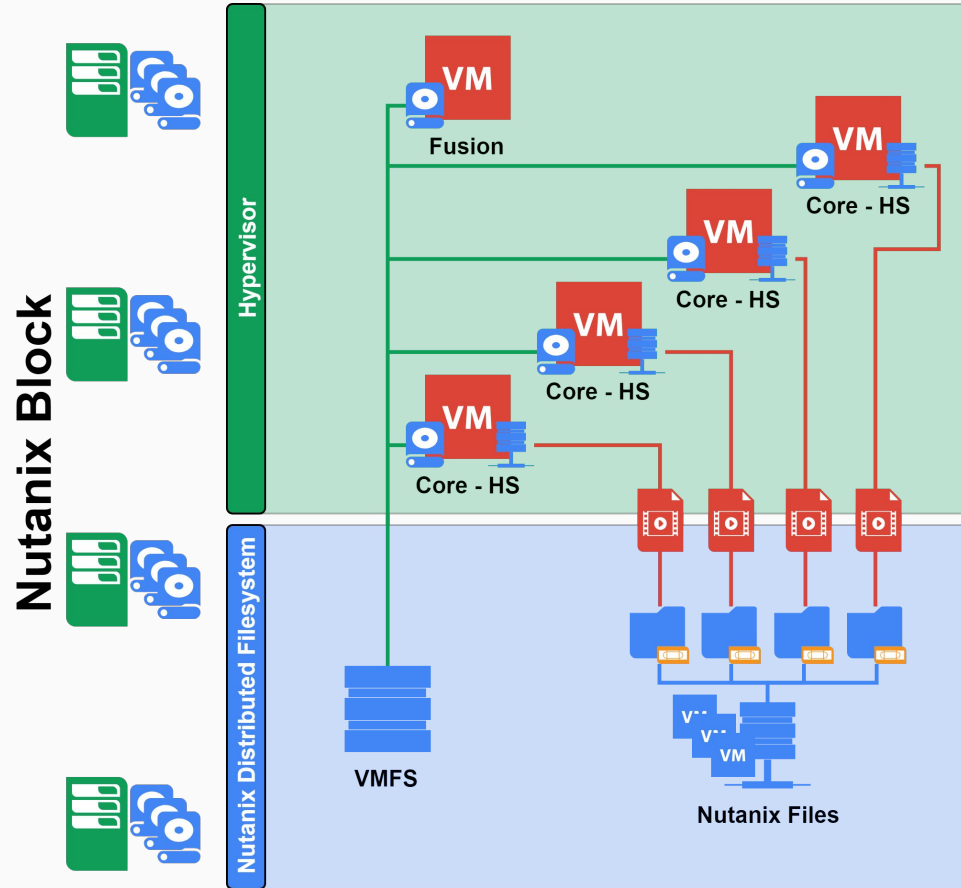
- Camera vendor agnostic
- No client or web plugin required
- Single sign on with identity provider
- Easily virtualized, portable, and lightweight
- Easy to use

VMS Architecture

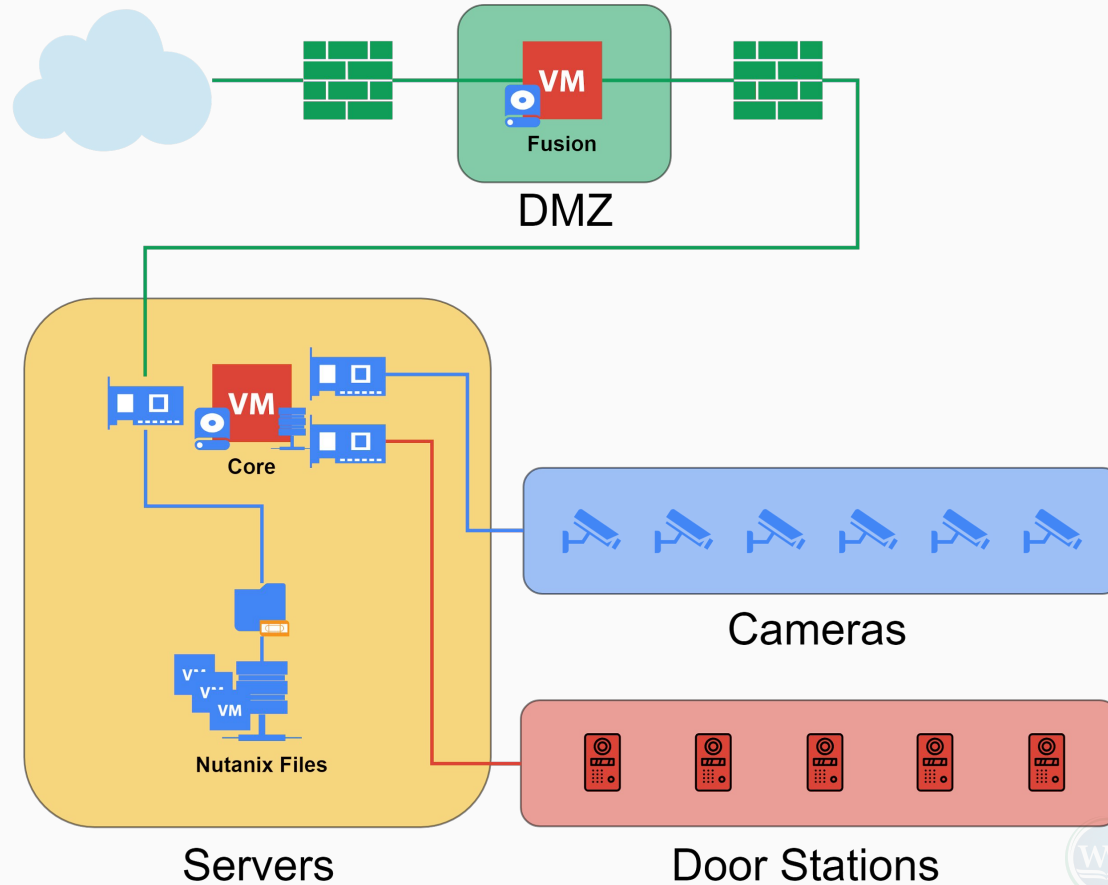


IT Infrastructure

Compute and Storage Infrastructure



Network Segmentation



Door Station (Intercom)

Video surveillance meets access control.



Door Station Workflow



Door Station

AXIS A8004-VE & A8105-E

Notes:

- Video SIP client
- Wide angle lens
- Input/output header
- Same OS as cameras
- Event system



Benefits

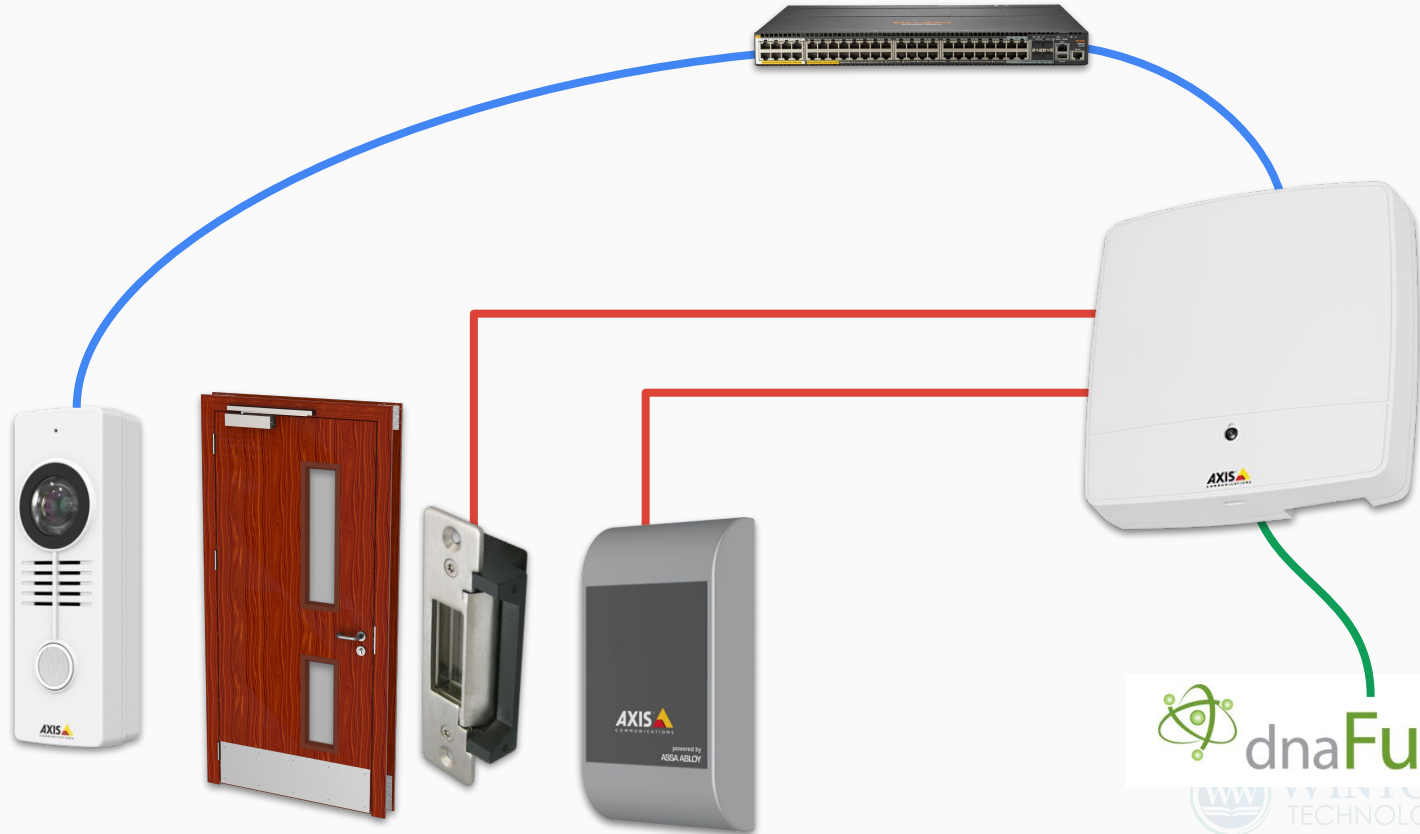
- Uses existing VoIP system (using SIP video)
 - Hunt pilot functionality to find available staff
- Simple install using only GbE with PoE
- Recorded by surveillance system 24/7

Access Control



Access Control Components

Diagram



Door Controller

AXIS A1001-VE

Notes:

- 2 Inputs & 2 Outputs
- Ethernet-based
- Similar AXIS OS



Card Reader

AXIS A4010-E

Notes: Testing reader compatibility with door controller and cards is important



Door Release

Notes:

- We leave selection and installation to our vendor
- Selecting the right type is very important



Card Types

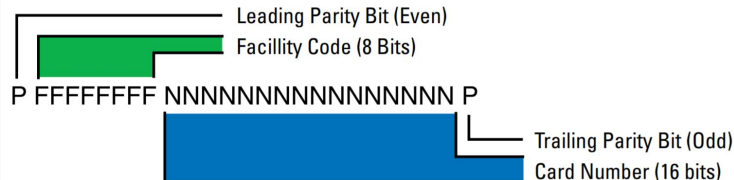
Technology:

- “Prox” Cards
- HID iCLASS
- MIFARE (1k, 4k, DESfire)

Card Format:

- # of Bits
- Facility & ID, or CSN
- Parity Bits

"Standard" 26-Bit Wiegand Format



Access Control Software

Required Features

- Hardware vendor agnostic
- Import cardholder data from external data source

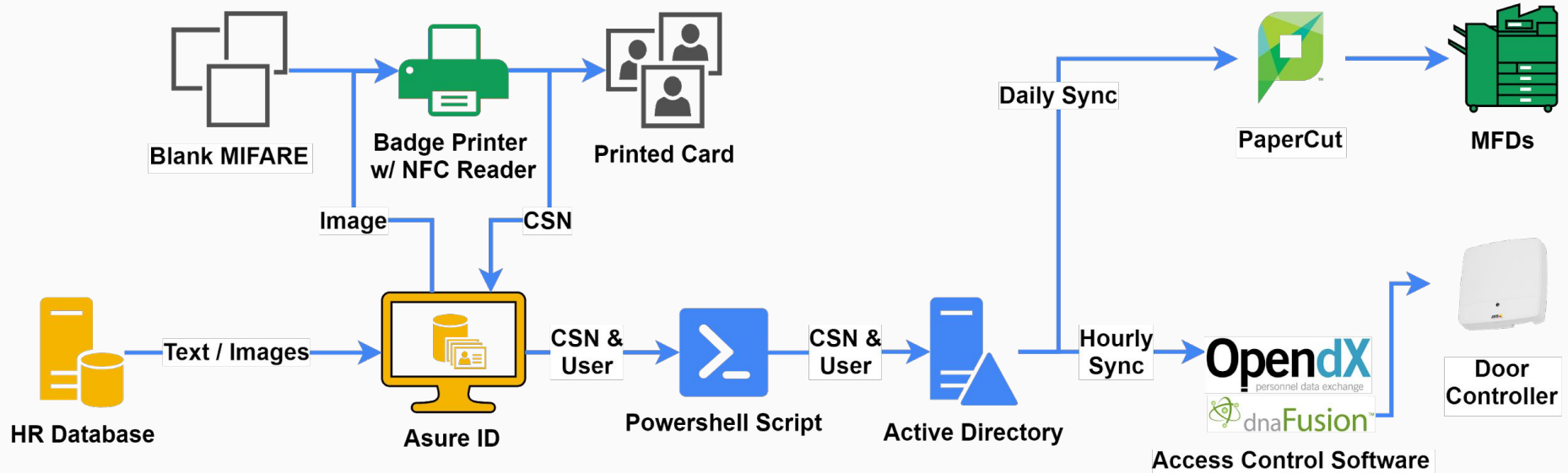
Open Options DNA Fusion

- **Supports multiple controller types:**
Mercury-based, AXIS, wireless / PoE
- Syncs users
- Manages door controllers
- Maps users to door groups
- Door open conditions
- Web / mobile interfaces

Management & Automation



Identity Workflow



Manufacturer Tools

AXIS Site Designer

- Visual quality
- Field of view
- Bandwidth / storage

AXIS Device Manager

- Setup & Configuration
- Firmware Upgrades
- Inventory
- Bulk Config Templates

Hardware Inventory & Naming

Keeps track of serial, MAC, model, installation location, camera view stats.

Helps us with creating camera names and quick setup.

Name scheme keeps sorted cameras together by: buildings, external, room number, and view.

Camera and Access Control Inventory																
File Edit View Insert Format Data Tools Add-ons Help Last edit was 10 days ago																
=CONCATENATE(G14,IF(H14="Ext","- ",CONCATENATE(H14,"J14"),""),K14,IF(OR(ISBLANK(L14),L14="J14"),"- ",CONCATENATE("- ",IF(E14,"-P","&E14,""))))																
	Serial	MAC	Model	Type	Enc Port	In Use	Campus	Int/Ext	Room-Equip	Room-Camera	View-Dir	View-Description	ESM Description	IP Address	Internal Device Name	
31	ACCC8E	ACCC8E	AXIS M3005	Camera		Y	IS	Int	13	13	W	Hard Hall	IS1	Hard Hall	AxisCam-IS-ACCC8E	
32	ACCC8E	ACCC8E	AXIS M3005	Camera		Y	IS	Int	13	13	S	Back Entry	IS1	Back Entry	AxisCam-IS-ACCC8E	
33	ACCC8E	ACCC8E	AXIS M3005	Camera		Y	IS	Int	12	12	E	Hall	IS1	Hall	AxisCam-IS-ACCC8E	
34	ACCC8E	ACCC8E	AXIS M3005	Camera		Y	IS	Int	13	13	N	Entry	IS1	Entry	AxisCam-IS-ACCC8E	
35	ACCC8E	ACCC8E	AXIS M3024-L	Camera		Y	IS	Ext	13	13	SE	Ground	ISE	Ground	AxisCam-IS-ACCC8E	
36	ACCC8E	ACCC8E	AXIS M3005	Camera		Y	IS	Int	13	13	S	Hall	IS1	Hall	AxisCam-IS-ACCC8E	
37	ACCC8E	ACCC8E	AXIS M3005	Camera		Y	IS	Int	10	10	W	Rooms	IS1	Rooms	AxisCam-IS-ACCC8E	
38	ACCC8E	ACCC8E	AXIS M3005	Camera		Y	IS	Int	13	13	E	Office	IS1	Office	AxisCam-IS-ACCC8E	
39	ACCC8E	ACCC8E	AXIS M7016	Encoder	1	Y	MS	Int	16	13	NE	Hall 1	MS	Hall 1-P1	AxisEnc-MS-ACCC8E	
40	ACCC8E	ACCC8E	AXIS M7016	Encoder	2	Y	MS	Int	16	12	E	Hall W	MS	Hall W-P2	AxisEnc-MS-ACCC8E	
41	ACCC8E	ACCC8E	AXIS M7016	Encoder	3	Y	MS	Int	16	12	W	Hall E	MS	Hall E-P3	AxisEnc-MS-ACCC8E	
42	ACCC8E	ACCC8E	AXIS M7016	Encoder	4	Y	MS	Int	16	24	W	Floor Bathroom	MS	Floor Bathroom-P4	AxisEnc-MS-ACCC8E	
43	ACCC8E	ACCC8E	AXIS M7016	Encoder	1	Y	MS	Int	16	24	W	Hall	MS	Hall-P1	AxisEnc-MS-ACCC8E	
44	ACCC8E	ACCC8E	AXIS M7016	Encoder	2	Y	MS	Int	16	16	NE	Entrance	MS	Entrance-P2	AxisEnc-MS-ACCC8E	
45	ACCC8E	ACCC8E	AXIS M7016	Encoder	3	Y	MS	Int	16	15	N	Auditorium Entry	MS	Auditorium Entry-P3	AxisEnc-MS-ACCC8E	
46	ACCC8E	ACCC8E	AXIS M7016	Encoder	4	Y	MS	Int	16	13	SW	Stair	MS	Stair-P4	AxisEnc-MS-ACCC8E	
47	ACCC8E	ACCC8E	AXIS M7016	Encoder	1	Y	MS	Int	16	12	N	Stair Entry	MS	Stair Entry-P1	AxisEnc-MS-ACCC8E	
48	ACCC8E	ACCC8E	AXIS M7016	Encoder	2	Y	MS	Int	16	24	S	Hall	MS	Hall-P2	AxisEnc-MS-ACCC8E	
49	ACCC8E	ACCC8E	AXIS M7016	Encoder	3	Y	MS	Int	16	24	S	Hall	MS	Hall-P3	AxisEnc-MS-ACCC8E	
50	ACCC8E	ACCC8E	AXIS M7016	Encoder	4	Y	MS	Int	16	24	SW	Stairwell	MS	Stairwell-P4	AxisEnc-MS-ACCC8E	
51	ACCC8E	ACCC8E	AXIS M7016	Encoder	1	Y	MS	Int	16	12	W	Stair	MS	Stair-P1	AxisEnc-MS-ACCC8E	
52	ACCC8E	ACCC8E	AXIS M7016	Encoder	2	Y	MS	Ext	16	18	SE	Lot Gym	MS	Front of Gym-P2	AxisEnc-MS-ACCC8E	

[Campus][?Ext][RoomCam]-[ViewDir]-[Desc][?-EncPort]

CB111-S-Enrollment Hall

CBExt109-NW-Parking Lot

HSExtPB-PTZ-Stadium

MS154-N-Auditorium Entry-P3

Bulk Camera Setup Scripts

DHCP Reservations from CSV (PS)

1. Look for existing lease, exit if found
2. Create reservation
3. Replicate DHCP failover scopes

Add to Orchid from CSV (PS to REST)

1. Create ONVIF root admin
2. Create ONVIF Orchid user
3. Create camera in Orchid

(ONVIF Python library python-onvif-zeep & Orchid REST API)

Thanks! 🙌