

Installation and Configuration Guide for Dual-lens Face Recognition Camera



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Chapter1. Installation specification

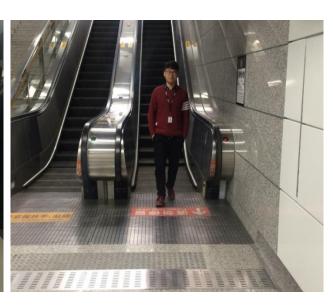
1.1 Installation

The accuracy rate of face recognition is great involved with installation location, ambient light (such as too dark, too bright) and so on. In order to ensure the better effect, it raises some installation suggestions as follows:

- 1) Installation position should be the standard passageways or the Entrances/ Exits, which insures the direction of traffic is particular and capture the Enter/Leave personnel' faces in the direction.
- 2) Choose the stable lighting condition with adequate illumination. Light compensation is necessary to ensure the facial features are visible under the condition of insufficient light or backlight.



Example of standard scenario:



Example of unsuitable scenario:



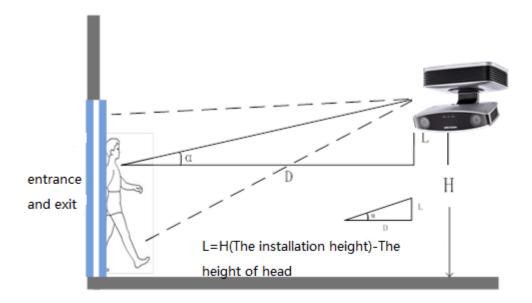
Backlight



Lack of light

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1.2 The Installation Requirement of Camera



The installation diagram

The installation position selection specification of face capture camera is as follows:

- 1) The camera should be installed in the front of passageway and capture the positive face. The horizontal angle of deflection had better be less than 25 °.
- 2) The installation of camera needs an elevation angle, which avoids the situation that the rear face is obscured when the tandem persons go through the passageway. The vertically elevation angle should meet the below requirement: $\alpha = 15 \pm 5^{\circ}$.
- 3) It requires that the covered PD (Pupil Distance) pixels needs to be larger than 40 pixels to distinguish the face details from the captured image. The practical width of face detection should be less than or equal to 3 meters with 2MP camera.
- 4) Make sure that there is no shelter between the camera lens and the passageway.

Example of standard scenario:

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Example of unsuitable scenario:



Dip Angle is too large



Elevation Capture



The scenario is too wide



Incline installation, with shelter





(2)

The scenario is too large and the face recognition rate is low

1.3 The Selection of Camera Lens

- 1) Different cameras, lens focal lengths and monitoring widths are key points for the different monitoring distance and installation. The conversion relation between them is as follows:
- 2) The selection of lens focal length: f = 2.1D 8426 Face Recognition camera The selection of lens focal length: f = 2.9D 2MP Bullet Face capture camera (1)
- 3) The height of camera: $H = \tan(\alpha^{\circ}) \times D + 1.5$
- 4) D : The monitoring distance
- 5) The height below the head sets as average value 1.5 m
- 6) α is the elevation angle
- 7) Elevation angle is recommended as 10°, $\tan(10^\circ) \approx 0.18$, $\tan(15^\circ) \approx 0.27$, $\tan(20^\circ) \approx 0.36$

1.4 Installation Position and Lens Query Table

Camera Model	Monitoring Width W	Lens Focal Length	Monitoring Distance	Installation Height of Camera	Elevation angle α °
2MP 8426	2.5m	4mm	1.9m	1.8m	10°
2MP 8426	2.5m	6mm	2.8m	2.0m	10°
2MP 8426	2.5m	8mm	3.8m	2.2m	10°
2MP 8426	2.5m	12mm	5.7m	2.6m	10°
2MP 8426	2.5m	16mm	7.6m	2.9m	10°



Chapter2 Camera Configuration

2.1 Configure the parameter via IE browser

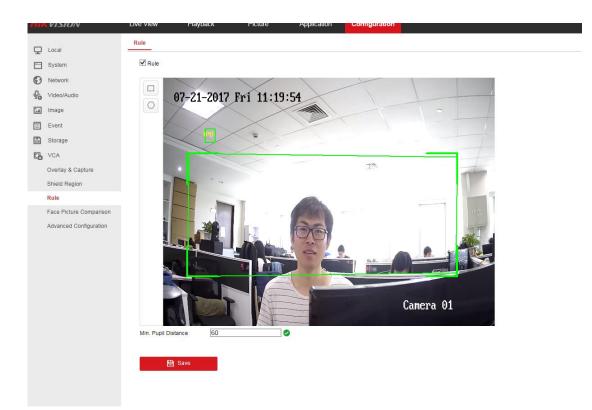
Step 1: Enter [configuration]-[local], set the [play performance] as fluent; Enable [Rules]. Then Click "Save" when finishing the configuration, as shown in the below picture:

HII	VISION	Live	View	Playback	Picture	Application	Configuration				👤 admin	Help	E+ Logout	
_														~
₽	Local		Live View Pa	rameters										
	System		Protocol		TCP		○ MULTICAST	○ HTTP	_					
Ð	Network		Play Perform	nance	O Shortest Delay	 Balanced 	 Fluent 							
Q.	Video/Audio		Rules		Enable	 Disable 			_					
14	Image		Feature Info	rmation Overlay	 Enable 	 Disable 								
₿	Event		Image Form	at	JPEG	⊖ BMP								
5	Storage		Record File 5	Settings										
63	VCA		Record File	Size	O 256M	• 512M	⊖ 1G							
			Save record	I files to	C:\Users\wuhui5@	@hikvision.com\W	eb\RecordFiles	В	rowse	Open				
			Save downle	oaded files to	C:\Users\wuhui5(@hikvision.com\W	eb\DownloadFiles	В	rowse	Open				
			Picture and C	Clip Settings										
			Save snaps	hots in live view to	C:\Users\wuhui5@	@hikvision.com\W	eb\CaptureFiles	В	rowse	Open				
			Save snaps	hots when playback to	C:\Users\wuhui5@	@hikvision.com\W	eb\PlaybackPics	В	rowse	Open	No	10		×
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												Save su	cceeded.	
			🗎 s	ave		©Hikvision	Digital Technology Co., Ltd	I. All Rights Reserve	d.					

Step 2: Enter [configuration]-[VCA]-[Rule] interface, check the "Rule". Then configure the "Min. Pupil Distance" and "Detection area". Click "Save" when finishing the configuration.

- a) 【Min Pupil Distance】: Minimum size filter box, which is used to control the size of the captured face. The maximum size box will be generated automatically by default, which the rectangular box is generated according to the distance between two eyes and mouth. Min Pupil Distance should be set up by drawing the box instead of entering the number directly. Moreover it is necessary to set up it, or it cannot capture face picture successfully. Different image resolutions require different box sizes. With 1080P resolution as an example, the size value of "Min Pupil Distance" shouldn't be less than 40, and 60 is recommended.
- b) 【Rules】: Draw a rectangle or polygonal (up to 10 sides) face detection area. The minimum value is 28*28 pixels and the maximum size is to cover the full screen. Detection area is generally recommended to be drawn as the half of the screen area size, no more than two-thirds of the picture.

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Step 3: 【Advanced Configuration】: The parameters of Advanced Configuration are generally set as default without modification. If want to realize self-comparison or comparison with "Face Recognition NVR", "Capture Times" is suggested to modified to 5 times, which increases the number of uploading face pictures. Click "Save" when finishing the configuration.

【Generation Speed】 It is used to control the speed of target generation in the detection region, the higher the value, the faster the target to generate

【Capture Times】 It is used to set up the number of capture times in the detection area during the process from entering to leaving of face..

[Sensitivity] It is used to control the face detection sensitivity. The higher the sensitivity, the easier it is to detect the face.

C Capture Interval **J** It will capture the face image every few frames during the process from entering to leaving the detection area. The quality of the captured image is highest among these few frames.

【Capture Sensitivity】 It is used to set the score threshold of captured picture. The face image can be captured only the score of face is greater than or equal to the threshold.

2.2 Configure the parameter via IVMS-4200

Step 1: It is necessary to install Storage Server if the camera doesn't install SD card.

Step 2: Configure the Storage Server. Enter [Remote Configuration]-[Storage]-[General].

1) Format HDD.



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📰 Storage Server	Nickname IP	Device S	erial No.		Net Status		
+ Add New Device Type	face 10.5.3.1	.02 DS-NVR	-V120B20160713-68F728	BC1949C	0		
– 🗞 System		Configuring t	Remote Con he HDD Paramete	-	-	-	
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2) Configure Quota Ratio for record and picture.

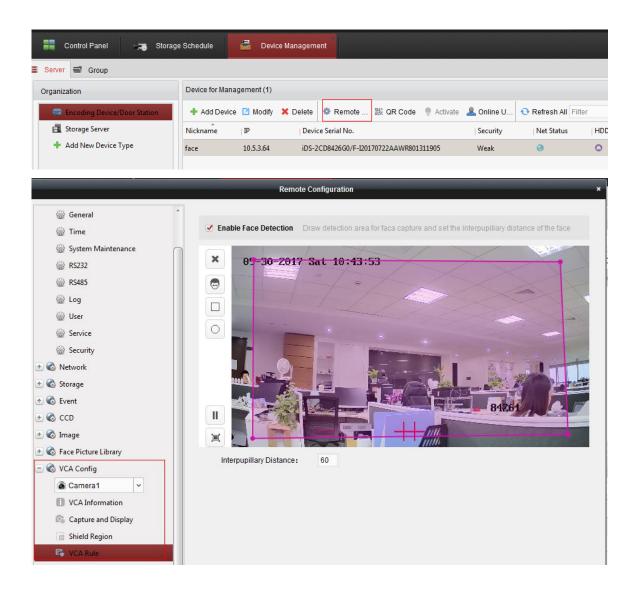
Storage Mode:	Quota 🗸			
Total Capacity:	3487.62	GB		
Quota Ratio For Record:	30	%		
Quota Ratio For Picture:	70	%		
Quota Ratio For Addtiona	0	%	_	

Step 3: Enter [Control Panel]-[Storage Schedule]. Configure the Capture Schedule and check Picture Storage.

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earch 5	Storage of Encoding Storage Recording Schedul Capture Schedule	ıle: All-day Template 💙	Edit Advanced Settings Edit Advanced Settings]
	Storage Server Storage Server:	ace 🗸	Storage Server Management	
	Storage Content:	Recording Schedule	Template 01	Edit Advanced Settings
	Storage Quota:	Picture Storage Additional Information Stora Record Quota:30% Picture Quota Ratio:70%	Storing the alarm pictures of the ca age Set Quota	amera

Step 4: Enter [Device Management]-[Remote Configuration]. Face detection function can be configured in VCA Config. The configuration is same with the way in the web.





2.3 Configure Face Picture Library via IE browser

Step 1: Enter [Application]-[Face Picture Library Configuration], click "+" to create face library. NOTES: It only supports to create 3 face libraries.

HIKVISION	Live View	Playback	Picture	Applicat	tion	Configuration		
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Face Picture Library +								
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234		Not specified	~	ID Type	Not sp	ecified	~	ID No.
hello	Date of Birth: Fr	2017-09-29	**		Sear	ch Reset		

Step 2: After clicking add, it is necessary to configure Face Picture Library Name and Threshold. NOTES: The threshold value is used to define the comparison similarity. When the similarity is equal to, or higher than the threshold, the camera would push the compared alarm picture to NVR or IVMS-4200.



For example: if the threshold is set as 70, the comparison alarm picture will be uploaded only the similarity percentage reaches to 70%. The suggested threshold is 60 and it is necessary to reboot the device after modifying the threshold.

Add			
Face Picture Library Name	Test		9
Threshold	60		Ø
Remarks		$\langle \rangle$	
		OK Cancel	

Step 3: Import the face picture.

If you click "Add", the picture is added by one piece.

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u click "Import", the ba	atch picture can be imported.	
Import Add	Modify Delete Batch Mod	
	Date of Birth: Fr 1970-0	

2.4 Configure Face Picture Library via IVMS-4200

Step 1: Enter [Device Management]-[Remote Configuration]-[Face Picture Library]-[Face Picture Library Configuration].



Control Panel 🔊 Storag	e Schedule	🚔 Devi	ce Manageme	ent				
Server Group	Device for Mana	gement (1)						
Encoding Device/Door Station	+ Add Device	🗹 Modify	🗙 Delete	o Remote 謎 QI	R Code 🔮 Activate	🔔 Online U	🕂 Refresh All Fil	ter
🛃 Storage Server	Nickname	IP	Devic	e Serial No.		Security	Net Status	HD
+ Add New Device Type	face	10.5.3.64	iDS-2	CD8426G0/F-I20170722A	AWR801311905	Weak	0	٥

Step 2: Add a new Face Picture Library.

	Remote Configuration ×	
 System Device Information General Time System Maintenance RS232 	Configure Face Picture Library Face Picture Library 123 Add Modify Delete Import File Export File Batch M Name Gender Not speci v Province Not speci v City Not speci v ID Type Not speci v ID No. Date of Birth : 1970-01-01 To 2017-09-30 To Modeling Status Not speci v Modeling Status Not speci v Gender Not speci v Gender Not speci v	DD St
 RS485 Log User Service Security Contended Network Contended Storage Contended Event 	S Add Modeling *	
 CD CD Control Image Control Face Picture Library Face Picture Library Configuration CONFig 		→ > ▲

Step 3: Add or import the picture to the face picture library.

Add by one piece:



Face Picture Lib	rary 123 Y Ac	ld Modify	Delete	Import File Exp	ort File	Batch M
Name	Gende	r Not speci	 Province 	Not speci 🛩	City	Not speci
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		Date of Birth	2000-01-01	2		
		Province		~		
		City		~		
	Upload	ID Type		~		
		ID No.				

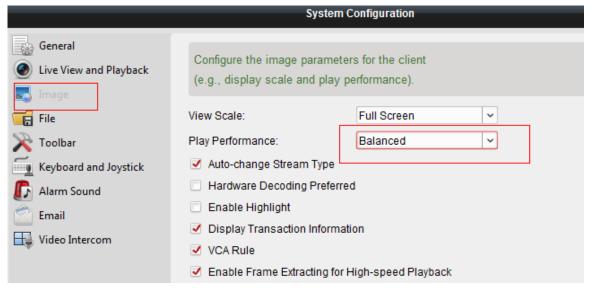
Batch Import:

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Modeling Status Not Search Name Gender	speci v		City ID Tyj	pe ID No. I	Modeling Modeling Status	+ / 1	Restore C
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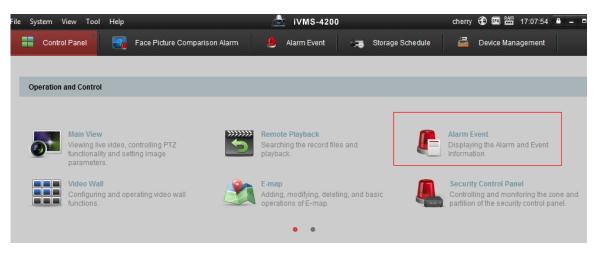


2.5 Result Demonstration

Step 1: In IVMS-4200, enter [Tool]-[System Configuration]-[Image]. Set up the Play Performance as Balanced mode.



Step 2: Enter [Alarm Event]. Click " 🔍 " button to check the face comparison result.

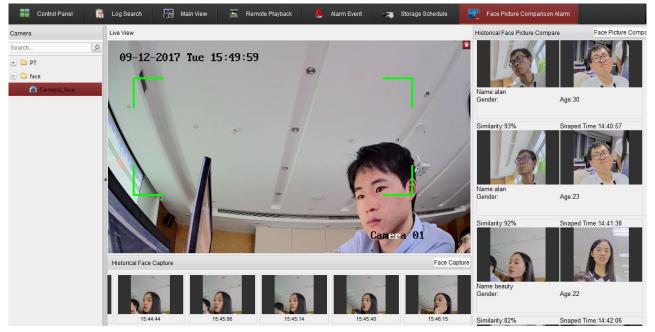




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L.,	2017-02-18 12:46:21	编码设备10.96.8.189 直接项1	BRANC: 210.01.10.96.8.189	人数比对报警	0	0
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t.	2017-02-18 12:43:39	病药设备:10.96.8.189 温险项1	BRAND AND 1, 10.958.189.	人設備的機關	0	8
£	2017-02-18 12:42:56	病時設备:10.2.32.60 直接信1	時間協会の 高級の1,10,2,32,60	人和明治部署	0	
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		and the set of the set of		a design of the		275

The face comparison result is shown as below. It will display the Age and Similarity information in IVMS-4200.

NOTES: If you want to display the Name and Gender information, it needs to edit them when add/import the picture to the face picture library.



Step 3: The captured face picture can be exported by IVMS-4200 or Web.

1) In IVMS-4200, enter [Control Panel]-[Log Search].



le System View Tool Help	1	<u>i</u> ∨MS-420	0	cherry 🚯 📖 🋗 17:13:55 🔒 🗕 🗖
Control Panel	Log Search 📑 Face	Picture Comparison Alarm	🔔 Alarm Event 💦 👼	Storage Schedule
og Search	Client Log Lists		🗃 Export Picture	🔁 Log Filter 🔀 Backup Log
 Client Logs Server Logs tart Time: 2017-09-11 00:00:00 	 Filter by Keyword: Filter by Condition: Log Type: Description Information: 	Filter All All	▼ ▼	Clear Filter More
nd Time:	v	r Name Log Type	Description Info Device Name	Device Type Details Grou
2017-09-11 23:59:59	2017-09-11 16:55:40 che	rry Operation Log	Modify Storage face	Storage Server
O Gazat	2017-09-11 16:21:55 che	rry Operation Log	Add Storage Ser face	Storage Server
Q Search	2017-09-11 16:21:33 che	rry Operation Log	Delete Storage Face Recognition	Storage Server

2) In Web, enter [Application]-[Face Picture Comparison Statistics]. Input the Start and End time, then click search.

