# **NUUO**<sup>®</sup>

# **The Intelligent Surveillance Solution**

# **NuFace** User Manual

Ver. 1.0.0.151015.00

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# 1. Introduction:

NuFace is a windows-based application aiming to provide advance face recognition analysis service to users with simplicity configuration and accurate result.

This application should be compatible with NUUO all product line with TCP/IP metadata connection: NUUO Mainconsole v6.1 and above NUUO Crystal v3.1 and above

### 1-1 Function

Nuface is a portable application which shall provide below functions:

- Get video streaming from WebCam or IPcam.
- Register faces as profile for recognition
- Face recognition analysis for profiled face
- Send recognition results(metadata) to NUUO product (via TCP/IP client)

# 2. Requirement:

#### 2-1 Minimum Hardware Requirement

CPU	(CPU) Intel <sup>®</sup> Core™ i3 2.4GHz and above			
OS	Windows XP, Windows 7, Windows Embedded			
RAM	2GB			
Storage size	20 GB			

- **%** Turn off UAC is required when installing/executing application
- **X** Administrator privilege is required

### 2-2 Tested Capture Device:

#### Web Cam

Model	Logitech HD Webcam C910 and				
	C920, Logitech Quickcam Pro 9000, Microsoft LifeCam				
	Series				
Environment	Indoor with bright light				
Distance of Face	7 meters in 640x480 resolution				

#### IP Cam

Brand	Axis, Vivotech, D-link, Basler
Environment	Indoor with bright light
Distance of Face	7 meters in 800x600 resolution

#### 2-3 OS Requirement:

Windows 7: Microsoft.NET Framework 4.0 or above Microsoft Visual C++ 2010 (x86)

Windows XP: Microsoft.NET Framework 3.5 and 4.0 Microsoft Visual C++ 2010 (x86)

## 2-4 Application Spec

Features							
Face recognition	<ul> <li>Gender detection</li> </ul>						
Black list	<ul> <li>Age detection</li> </ul>						
<ul> <li>Distance detection</li> </ul>	Face Scramble						
Speci	fication						
Supported Video Source	Web Cam/USB Cam						
	IP CAM (via CGI or RTSP)						
Recommended Codec for analysis	MJPEG over HTTP						
	MJPEG over RTSP						
Max. analyzed channels per server	16 (depends on server and video quality)						
The maximum quantity of faces to be	64						
detected per video source							
The recommended quantity of faces to	8						
get recognition analyzed							
Recommended pixel of face for	100x100						
recognition							
Minimum pixel of face to be detected	20x20						
Recommended angle for recognition	Within 15 degree						
Recommended pixel for recognition	Minimum 100x100						
Maximum album of faces	1,000						
Maximum registered images in the	10,000						
profile							
Face enrollment methods	Live capture						
	History images						

## 2-5 Other Requirement

- If project requires extreme accuracy; the recognition environment shall be setup. For example, object shall not wear glasses, hat or significant wearing; object shall stand in a predefined zone which the lighting and view angle is preset for recognition.

# 3. Interface and Operation:

## 3-1 Application UI

#### Function List



Red frame represents female; blue Frame represents male and white frame represents neutral gender Same color means same object been detected (max 8 colors)

#### **Feature Definition**

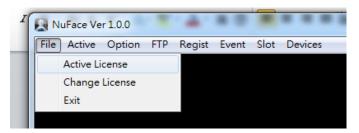
Face detection and counting	Uses pattern detection to log and analyze the demographics of the people who see the visual
	messaging.
Age estimation	Counts and reports the age and age ranges of
	detected persons.
Gender estimation	Counts and reports the gender of detected
	persons.
Attention time	Detects how long each detected viewer looks at a
	message.
Viewer distance	Detects and estimates the distance between each
	detected viewer and the camera. (cm)

## 3-2 License Activation

NuFace is portable application.

How to activate license:

- a. Open License.ini
- b. Type in license serial number (42 digits) in License.ini
- c. Close license.ini
- d. Open NuFace.exe



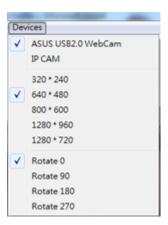
e. File Tab – Click Activate License

#### 3-2-1 Notes of License activation

- First time Activate license or Change license requires WAN environment for license server.
- Only one license number is accepted in license.ini
- There is no transfer license feature in NuFace
- If server had 1ch license activated; and user want to use 4ch in this server. User has to put 4ch license serial number in license.ini and then click on Change license.
- The server time has to be accurate, if there is more than 15 mins difference between server time and standard time, the activation would fail.

### 3-3 Video Devices

Click Devices on the function list to select webcam or IP cam and choose the resolution.



#### If IP CAM is selected, the setting window will pop-up.

Option FTP Regist Event Slot Devices

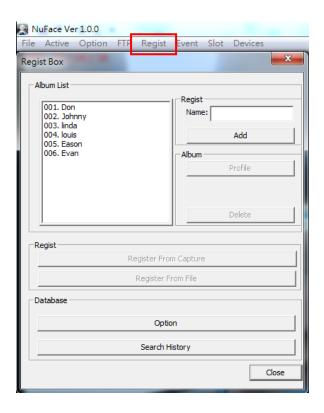
URLBOX		x
URL rtsp://10.0.3.55 User Password		
	ОК	Cancel

Go to Slot/Slot option Change Image source

Slot Li	ct						_		
3011		Cam ID	Image Source			Page	Page 1	•	
01.	•	Cam0	IP Cam 💌	Setting	rtsp://10.0.14.43:9000/v.sdp				
02.		Cam0	ASUS USB2.0 V 👻	Setting	ASUS USB2.0 WebCam				
03.	Γ	Cam0	ASUS USB2.0 V 💌	Setting	ASUS USB2.0 WebCam				
04.	Γ	Cam0	ASUS USB2.0 V 💌	Setting	ASUS USB2.0 WebCam				
05.	Γ	Cam0	ASUS USB2.0 V 💌	Setting	ASUS USB2.0 WebCam				
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07.	Г	Cam0	ASUS USB2.0 V 👻	Setting	ASUS USB2.0 WebCam				
08.		Cam0	ASUS USB2.0 V 👻	Setting	ASUS USB2.0 WebCam				

## 3-4 Registering Faces

-Adding face profile – Regist



- 1. Click "Regist" on the menu bar -> The Regist Box pops up
- 2. Enter "Name" for the ID -> Click "Add"
- 3. ID should be added to the Album List

There are two ways to add album files

- 3-1 Register From Capture directly capture face image from video device.
- 3-2 Register From File add face image from existing picture.
- 4. Adding faces with different angles for better performance
- 5. Click "close" when you finish the registration process

NuFace Ver 1.0.0	Protocounty, No., No.					
	Regist Event Slot Devi	ces				
FPS: 29 / 28 / 30	Regist Box Album List 001. Don 002. Johnny 003. Inda	Regist Name:	0   Johnny Delete			
T	004. louis 005. Eason 006. Evan	Add Album Profie Delete	25	1   Johnny Delete		
	Penist	Register From Capture Register From File	3	2   Johnny Delete		
		Option Search History Close	3	3   Johnny Delete		
62			3	4   Johnny Delete		
				Close		

-Add group as Black and White list

1.Regist a group from database option, you can make members in black group or white group .

le Active Option Regist			
gist Database		X	Page 1
Album List List:	Regist Name		Slot 0 PIC. No. BoxID. Start Time. End Time. Watch. Gender. Age. Di           Name: "Terry "[977]         Group: "Black list"," "           +0   SCREEN   1727310   17273135   82   1   2   54
oooo. reny			Name: "Terry " (977) Group: "Black list ", " " + 0   SCREEN   17265357   17272166   280   1   2   51 Earce Size: 206
	Ald	ung)	Name: "Terry "(977) Group: "Black list", " " +0   SCREEN   17263606   17264282   67   1   2   54 Face Size: 126
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		Hart	Name: "Terry " (977) Group: " Black list ", " " + 0   SCREEN   17262490   17262642   15   1   2   52 Earce Size: 128
Search	Delete	core: 998	Name: "Terry " (977) Group: "Black list ", " " + 0   SCREEN   17262207   17262309   10   1   2   54 Earce Size: 180
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Reg	gister From File		Name: " Terry " (977) Group: " Black list ", " " +0   SCREEN   17261629   17261694   6   1   2   54 ====================================
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Da	tabase Option		Name: " Terry " (977) Group: " Black list ", " " 4.0   SCREEN   17255647   17255772   12   1   2   55 Farce Size: 172
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	ОК		Name: " Terry " (1000) Group: " Black list ", " " + 0   SCREEN   17243773   17250123   235   1   2   50 Eace Stre 212

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vict Databa				Page 1
Tag Edit Tag 2 Tag 2 Tag 2 Tag 3 Tag 4	n t Option-		Age: young)	Stot 0 PIC. No. BoxID. Start Time . End Time . Watch . Gender . Ace . Distart           Name: "Terry" (977)         Group: "Black list", ""           • 0   S CREEN   17273780   17274819         103   11   2   48           Earo. Size .210         Group: "Black list", ""           • 0   S CREEN   17273780   1727362   135   1   2   48           Earo. Size .210         Group: "Black list", ""           • 0   S CREEN   17272310   1727362   135   1   2   55           Earo. Size .210         Group: "Black list", ""           • 0   S CREEN   172635557   17272166   280   11   2   51           Earo. Size .206         Group: "Black list", ""           • 1   S CREEN   17263506   17264282   67   1   2   54           Earo. Size .206         Hame: "Terry" (977)           • 0   S CREEN   17262742   17262763   2   1   2   53           Faro. Size .201         Group: "Black list", ""           • 0   S CREEN   17262742   17262742   15   1   2   53           Faro. Size .201         17262490   17262424   15   1   2   54           Faro. Size .201         Group: "Black list", ""           • 1   S CREEN   17262742   17262763   2   1   2   53           Faro. Size .201         17262490   17262424   15   1   2   54           Faro. Size .201         IT262207   17262091   10   2   54           • 1   S CREEN   17262707   17262091   10   1   2   54           • 1   S CREEN
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Tag 8	1	ок		

2. You can press the Album and assign the person to the group of black or white list .

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Group       Black list          Black list          bad guy          steal          0.2015 / 11 / 18 17:35:23         0.2015 / 11 / 18 17:33:50         0.3 2015 / 11 / 18 17:31:01         04. 2015 / 11 / 18 17:29:20         05. 2015 / 11 / 18 17:25:56         06.         07.         08.         09.         11.         12.         13.         14.         15.	Search					
Group       Black list          Black list          bad guy          steal          0.2015 / 11 / 18 17:35:23         0.2015 / 11 / 18 17:33:50         0.3 2015 / 11 / 18 17:31:01         04. 2015 / 11 / 18 17:29:20         05. 2015 / 11 / 18 17:25:56         06.         07.         08.         09.         11.         12.         13.         14.         15.						
Group       Black list <ul> <li>Black list</li> <li>Black list</li> <li>Black list</li> <li>Black list</li> <li>Construct list</li> <li>Black list</li> <li>Black list</li> <li>Construct list<td>Comment</td><td>-</td><td></td><td>· · · · · · · · · · · · · · · · · · ·</td><td></td><td></td></li></ul>	Comment	-		· · · · · · · · · · · · · · · · · · ·		
Black list <ul> <li>White list</li> <li>White list</li> <li>Image: Steal</li> <li>Image: Steal</li></ul>	Group Black list 💌	Sub Group				
bad guy interior     04. 2015 / 11 / 18 17:29:20       steal     05. 2015 / 11 / 18 17:29:20       08.     09.       11.     11.       12.     13.       13.     14.       15.     15.						
steal  steal						
Steal     07.       08.     09.       10.     11.       11.     12.       13.     14.       15.     15.	, 			2015 / 11 / 18 17:25:56		
09.           10.           11.           12.           13.           14.           15.	steal					
10.           11.           12.           13.           14.           15.			08.			
11.       12.       13.       14.       15.						
12. 13. 14. 15.						
14. 15.			12.			
15.						

3. You can set up the event/action for the group which in the black list

ven	it Lis	Trigger Slot		Trigger Rule		Trigger		Trigger Type	Trigger Message	Page	Page 1	•
	_											
D1	<b>v</b>	Camera 1	•	New OTS	-	Black list All Group Black list	<b>•</b>	Play Sound	You are under the rest			
02		All Camera	•	VIP Come	•	White list		Send Web Cor 🔻				
03		All Camera	•	VIP Come	•	All Group	•	Send Web Co 💌				
04		All Camera	•	VIP Come	•	All Group	•	Send Web Co 💌				
)5		All Camera	•	VIP Come	•	All Group	•	Send Web Co 💌				
)6		All Camera	•	VIP Come	•	All Group	•	Send Web Co 💌				
)7		All Camera	•	VIP Come	•	All Group	•	Send Web Co 💌				
)8		All Camera	•	VIP Come	•	All Group	•	Send Web Co 💌				

## 3-5 Advance Setting

#### 3-5-1 Mimimum Application

Click "Start Minimum" in the list of "Option" functions, NuFace will be minimized to the toolbar when running.



#### 3-5-2 Feature Enable/Disable

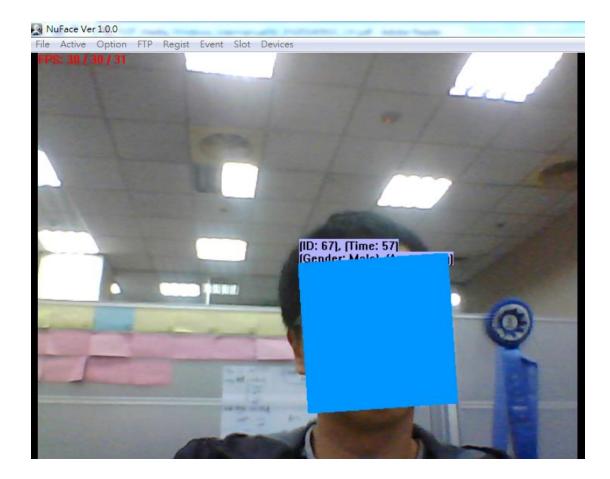
Click "Active" on the function list and enable/disable the feature.



Feature	Action			
Start Capture	Starts the camera capture			
Face Detect	Detects faces shown on the screen			
Estimate	Estimate age and gender			
Output log	Export log file			
Output Face Image	Export face image			
Face Filter	Mosaic the faces shown on the screen			
Default setting: "Start Capture", "Face Detect", "Estimate", "Output				
Log" are enabled.				

#### 3-5-3 Face Filter

Click "Active" on the function list and enable "Face Filter", the face will be scrambled.



### 3-5-4 Detection Setting

Click "Option" on the function list and select "Detect Option"



The parameter setting will be shown as below:

Option Box	-	Acres 1	-		X
Detect Setting Face Size Face Interval Frame Detect Interval	20 0 5	Pixel (20 ~ 100) (0 ~ 2) (1 ~ 10)	Timer Setting OTS Count Viewer Count Attention Discard	50 5 5	1/100 sec 1/10 sec 1/10 sec
Record ReVisit Time	600	1/10 sec	FPS Limit	30	FPS
				ОК	Cancel

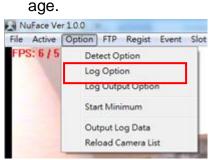
Parameter	Definition and Description	Scale	Default
Face Size	The minimum face resolution	20-100	20
	to be detected.		
Face Interval	The allowed tolerance of	0-2	0
	distance between viewers. The		
	smaller the value, the closer		
	the distance between two faces		
	that can be detected and vice		
	versa.		
Frame Detect	The parameter is to set the	1-10	5
Interval	number of frames between		
	each identification. The default		
	setting of "5" means 5 frames		
	between each identification.		
	The larger the value, the lower		
	the loading time, but with a		
	slower refresh on screen.		
OTS Count	Determines the	0-999	5
(1/10	opportunity-to-see by setting		
seconds)	up a minimum viewing time		
Viewer Count	Determines a qualified viewer	0-999	5
(1/10seconds)	by setting up a minimum		
	viewing time.		
Attention	The allowable time	0-999	5
Discard	determining a non-view		
(1/10			
seconds)			

<sup>1</sup> OTS stands for opportunity-to-see. OTS is used for defining the audience that has been detected with/without age/gender estimation.

<sup>2</sup> Viewer is used for defining the audience whose age/gender has been estimated and viewing time is sufficient.

#### 3-5-5 Age Range Setting

Click "Option" on the function list and select "Log Option" to set the range of



Log Box	Statement of the local division of the local	×
Age Setting	Add Range	Default
000 ~ 017_child 018 ~ 030_young	Delete Range	
031 ~ 059_adult 060 ~ 100_senior		
	Age:	
	Name:	
	Update	
Gender Setting		
Middle Range 0 % (0~20)		ОК

Click Default to restore te default system settings.

#### Default Age Setting

Age	Bracket Name
0-17	Child
18-30	Young

31-59	Adult
60-100	Senior

#### Parameter

Parameter	Definition and Description	Scale	Default
Middle Range	Neutral gender range: the higher	0-20	0
	the scale, the greater the range for		
	neutral gender allowance.		

# 4. Metadata connection guide (Mainconsole)

1. Open NUUO Main Console, go to General Setting> Metadata Application



 Click on "Insert" to add new source; the Metadata type is Nu-connection, the source type should be Nuface, the port for NuFace is "4097".

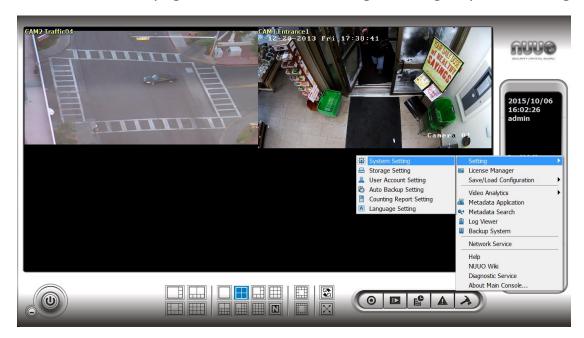
🌧 Metadata Applicatio				¥ 23	
Data Source Display	Plug-in Metadata Source Settir	ng	2	×	AUUO
B AST OF PARA	Settings Name: Metadata Type: Source Type: IP Address: Port	Nuface	Test Connection	Export	DEDITIONAL EXAMPLE 2015/10/06 15:50:01 admin Free:86.3 GB C C C C C C C C C C C C C C C C C C C
			<ul> <li>C</li> </ul>	DK X Cancel	

#### 3. Test connection

etadata Application	
ta Source Display   Plug-In   markt M Databa Source Setting	
Settings Name: Nuface Netadata Settings Name: POS  Source Type: NuFace  Test Connection	2015/10/06 19:01:07 admin
Server JP 127.0.0.1 Server Port 4097	Free:3.7 GB 👰 🗈) 🔒 📌 📟
① Metadata Server Nuface is available 違元	

4. Go to Metadata Source Setting page and enter the Channel ID correspond to the related Camera

Metadata Settings Name: NuFace NuFace NuFace Channel ID 0 Metadata Type: Test Connection Export	Metadata Applicatio Data Source Display		<u>لایا</u> ک
Seturgs     Name:     NuFace     Metadata Type:     Source Type:     Test Connection     Export		*	
Channel ID 0	⊡ <b>\$</b> 123 <b>\$</b> 123 ⊡ <b>\$</b> 123	Name: NuFace Metadata Type:	
✓ OK X Cancel Define			
✓ OK X Cancel Define			
V OK X Cancel Define			
			✓ OK X Cancel Define



5. Back to Main page , Go to General Setting > Setting > System Setting

6. Select Camera > Insert a new IP camera

🍐 Setting			? <u>x</u>	
General Camera   VO Device   PTZ Config   Hotine   Address   P ● ● ● ▲ I S[Insert a new IP camera. I CAM02 Traffic04	Sook   Monitor Display   Joystick			2015/10/06 18:08:59 admin
Camera Settings		Show Video Infos Date Time Camera Number Camera Name Bitrate Apply All	2015/10/06    PM06:08:00    Font	
		<b>~</b> (	OK X Cancel	

Enter IP Cam's IP address 
 port 
 user account 
 password 
 customize
 name, please also select the IP CAM's manufacturer and model
 name .

💩 Setting	IP Camera / Video Server Settir	ng 🤤 🔀	7 X	
General Camera I/O De				<b>NUUO</b>
P 🔁 🖄 🎂	Name:	Entrance1		SECURITY ORVETAL BOARD
CAM01 Entrance		192 . 168 . 10 . 218 DNS		
	Port:	80		2015/10/06
	User Name: Password:	root		18:50:37 admin
	Protocol:	C TCP C UDP @ HTTP		
	Device Vendor:	AXIS Auto Detect		Free:86.2 GB
	Camera Model:	AXIS Auto Detect		2 🗈 🕯 💆 🛄
	Video Channel:	✓ 1 □ 2 □ 3 □ 4	2015/10/06 💌	
		5 6 7 8	PM06:49:00	- 0. +
	Description			
	Video Codec:MJPEG H264 Audio Codec:G.711 G.726 AAC			< <b>n</b> > -
	Camera:1, DI:4, DO:4		Font	
			Font	
		✓ OK X Cancel	OK X Cancel	

8. Go back to Metadata application page <sup>,</sup> select the IP camera you just added and choose the Nuface Filter accordingly .



9. Enter a customize name for Nuface , press " OK" and choose the new

build data filter in the metadata filter list .

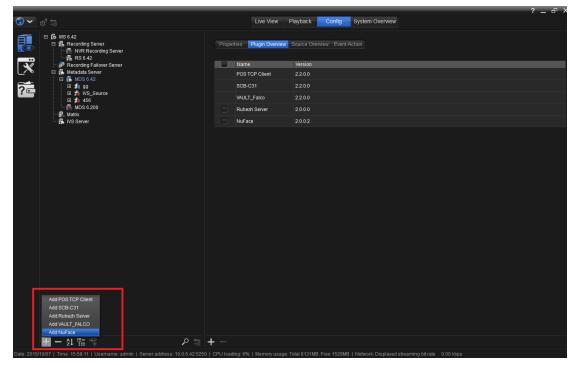
Transaction D Original Data	:		Filtered Data:		×	: 🕹 a
HTTP/1.14	0d><0a>200<0d>	<0a>DK<0d><0a>Seq : 0<0d Add New Line	HTTP/1.1 200 0K 			
Start	End			1	÷ >	
Filter		Substitution <transaction start=""></transaction>				

10. Go back to Main Page, the Nuface Metadata will show up in the screen if the link is successful.



# 5. Metadata Connecting Guide (Crystal)

- 1. Download "NUUO\_Nuface\_Plugin.zip" from NUUO Website.
- 2. Upload "NUUO\_Nuface\_Plugin.zip" to Metadata Server.
- 3. Click on "Add NuFace" to add new source



 Go to metadata source > Properties, enter Server IP (Nuface software's IP address), the port for NuFace is "4097", then press "Connection test" to make sure the connection is alive.

	? _ & >
s: *o	Live View Playback Config System Overview
Image: Second	Properties       Channel Overview       Event Action         Metadata Source:       E nable         Plugin type:       NuFace         Source:       Metadata source         Descriptor:
	Server IP: 100.8.32 Server Port: 4097 INFORMATION Connected to this Metadata Source successful. OK
+-24 聖 早 クな	
Date: 2015/10/07   Time: 16:00:03   Username: admin   Server address: 10.0.6.42:5	250   CPU loading: 30%   Memory usage: Total 8131MB Free 1301MB   Network: Displayed streaming bit rate 0.00 kbps

5. Add metadata channel, go to properties and enter Channel ID accordingly. (Ex : First will be 0, second will be 1, etc ... )

			, <del></del>
•	<u>ت پ</u> ه	Live View Playback Config System Overview	
	□ 🔂 MS 6.42 □ 🛃 Recording Server □ 🗄 📆 NVR Recording Server		( _ + >
		Copy schedule: 🛐	

6. Select Camera > Enter IP Cam's IP address > port > user account >

password  $\,^{,}\,$  customize name, please also select the IP CAM's

manufacturer and model name .

7. Go back to Metadata application page > Metadata Display , select the

IP camera you just added related to the metadata .

• 🕄	e: to	Live View Playback Config System Overview
	□ Øs. NVR Management Server       □ Øs. Recording Server       □ Øs. NVR Metadala Server       □ Øs. Matrix       □ Øs. NVS Server       □ Øs. NVS Server	Properties Filter Meladata Display Event Action
		Metadata OSD:
		Font Tahoma -
		Font state       Mone         Bold       B. MVR Recording Server         Bold       Mile MVR Recording Server         Font color.       Server         Font edge color.       Server         Background color.       Server         Background color.       Server         Sassociated Camera:       None         Display timeout       Clear transaction display after         Oisplay timeout       Clear transaction display after         Background color.       Sect meout
Data: 201		

8. Enter a customize name for Nuface , press "OK" and choose the new

build data filter in the metadata filter list .

Λυυο™			5 🗖 🖌
€ <b>:</b> †o ~ 🕤		Live View Playback Config	
E 👫 Metada E 👫 pizte E	ng Server : Recording Server a Server	Properties Filter Metadata Display Event Action Choose filter: Inter (2) + - ▼ ▼ ▼ Filter name: Inter (2) Encoding option: ISOII Transaction timeout 10 sec. Data filter definition: Properties Properties Filtered data: Iter → ▼ P ↓ Filter configuration:	Î
<b>+ −</b> <sub>2</sub> ↓	<del>د:</del>	Priority Action type / Match option / Data / Result	

9. Go back to Main Page, the Nuface Metadata will show up in the screen if the link is successful.

