

AI Face Detection/AI People Detection/AI Vehicle Detection
External Interface Specification

V1.10

i-PRO Co., Ltd.

Change log

VER.	Date	Item no.	Comment	Revise trigger
1.00	2022/4	All	First edition	-
1.01	2022/5	2.2.2	*Delete <Gray><Orange><Purple><Pink> from <Shoes><Color>. *Delete <Gray> from <Bag><Color>. (Supported from app version V1.20)	Software fix
		2.1.2	*Changed the definition of <tt:Color> (Supported from app version V1.20) *Added Table 1.	
		2.1	*Fixed Meta Stream Example * Modify ObjectId to an integer value (Supported from app version V1.20)	
		2.1.3 2.2.3	Changed <Suv> to <SUV>	Document fix
		3.1	Changed trackID trackID=3 -> trackID=4	
1.02	2022/7	2.2.2 2.2.3	Delete <Property name="Color"> (Supported from app version V1.21)	Software version upgrade
1.03	2023/2	2.1.3	Added "Motorcycle" to VehicleInfo	Document fix
		2.2.3	·Corrected the description of the timeout condition. ·Corrected the description of VehicleInfo	
1.04	2023/7	2.2.2 2.2.3	Re-added <Property name="Color"> (Supported from app version V1.70)	Software version upgrade
		3.	New addition	
1.05	2024/2	3.1	Added meta information No. 56~74	Document update
			Added setting to not save csv when the judgment results of age and gender are null. (Supported from app version V1.90)	Software version upgrade
1.06	2024/5	3.1.2.2	Corrected the range of parameter days. Before correction: 1 - 6 After correction: 1 - 7	Document fix
1.07	2024/10	2.3 3.2 4. 5.	New addition (Supported from app version V2.10)	Software version upgrade
		2.1.1	·Add <tt:ClassCandidate> ·Changed so that Max=999 is given when Age > Min=61. (Supported from app version V2.10)	

			<ul style="list-style-type: none"> ·Add <tt:ClassCandidate> and <tt:Image> ·Changed so that Max=999 is given when Age > Min=61. ·Change XML namespace of Age,Hair,Gender,Accessory,Length,Color,FacialHair,Beard,Opticals,Hat,Mask,Wear from tt: to fc:. (Supported from app version V2.10)	
		2.1.3	Add the followings. <ul style="list-style-type: none"> ·<tt:Color> in RGB format ·<tt:ClassCandidate> ·<tt:Image> (Supported from app version V2.10)	
		2.2.2	Corrected transmission timing.	Document fix
1.08	2025/1	3.1.2 3.1.3	Removed mention of Colorspace from Color tag. (Supported from app version V2.11)	Software version upgrade
		3. 7.	New addition	Document fix
		2.2.2.2 2.3.2.2	Corrected description of parameter "hour" and command examples.	
1.09	2025/4	4.2.1 7.1.2	Corrected description of parameter "send-premise".	Document fix
1.10	2025/10	4.2.2	Add the following parameters directly under <HumanBody>. <ul style="list-style-type: none"> ·<FeatureValue> ·<L2Norm> ·<feature-value-version> 	Software version upgrade

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1. Introduction

This document describes the specifications for the external interface of AI Face Detection, AI People Detection and AI Vehicle Detection.

1.1. Functional specifications

AI Face Detection detects the face and determines the best shot. In addition, for the thumbnail determined to be the best shot, feature amount extraction for face matching and gender age estimation processing are performed. Thumbnails and meta information (gender and age information or passed location information) can be acquired as ONVIF® meta information (Features for face matching are not disclosed). Meta information can be saved as csv and acquired by CGI.

AI People Detection detects a person and determines the best shot. In addition, the person attribute estimation process is performed on the thumbnail determined to be the best shot. Thumbnails and meta information (attribute information or passed location information) can be acquired as ONVIF® meta information. When the meta information (attribute information) matches the watchlist, the watchlist alarm is notified as TCP alarm and HTTP alarm. Meta information can be saved as csv and acquired by CGI.

AI Vehicle Detection detects two-wheeled vehicles / four-wheeled vehicles and determines the best shot. In addition, vehicle type / vehicle color estimation processing is performed on the thumbnail determined to be the best shot. Thumbnails and meta information (attribute information or passed location information) can be acquired as ONVIF® meta information. When the meta information (attribute information) matches the watchlist, the watchlist alarm is notified as TCP alarm and HTTP alarm.

*ONVIF is the trademark of ONVIF Inc.

2. Interface commands (CGI): Download the CSV files

2.1. Structure

[Command interface]

Method: GET/POST

[CGI]

· Multi-sensor camera (The example below is in the case of specifying channel 1)

■AI Face Detection

http://192.168.0.10/cgi-bin/adam.cgi?methodName=sendDataToAdamApplication&appName=FaceBestshotApp&channel=1&s_appDataType=9&s_appData=(base64 data)

■AI People Detection

http://192.168.0.10/cgi-bin/adam.cgi?methodName=sendDataToAdamApplication&appName=HumanBestshotApp&channel=1&s_appDataType=9&s_appData=(base64 data)

· All cameras except for multi-sensor camera

■AI Face Detection

http://192.168.0.10/cgi-bin/adam.cgi?methodName=sendDataToAdamApplication&appName=FaceBestshotApp&s_appDataType=9&s_appData=(base64 data)

■AI People Detection

http://192.168.0.10/cgi-bin/adam.cgi?methodName=sendDataToAdamApplication&appName=HumanBestshotApp&s_appDataType=9&s_appData=(base64 data)

CGI URL : http://192.168.0.10/cgi-bin/adam.cgi

Name of API : sendDataToAdamApplication

[Request Parameters]

Parameter	Description
appName	FaceBestshotApp : Specified when sending to AI Face Detection HumanBestshotApp : Specified when sending to AI People Detection
channel	Channel details of multi-sensor camera *Given only to multi-sensor camera
s_appDataType	Data type transmitted. Always "9" if this is a CGI used for downloading CSV files
s_appData	Base 64 encoded. Specify how to download the CSV file.

[Contents of s_appData]

See chapter 3.2.2 for AI Face Detection and chapter 3.3.2 for AI People Detection.

2.2. AI Face Detection

AI Face Detection performs feature extraction and gender age estimation for thumbnails determined to be the best shots. Meta information (attribute information) can be saved in csv and obtained by CGI.

The maximum retention period and number of meta information are as follows. Delete old meta information if any of the following limits are exceeded.

- Maximum retention period: 92 days
- Maximum saved number: 50,000

[CGI to enable csv save function]

http://192.168.0.10/cgi-bin/adam.cgi?methodName=sendDataToAdamApplication&appName=FaceBestshotApp&s_appDataType=1&s_appData=e3thcHBNZXRob2Q6UE9TVH0se3NhdmluZ19jc3ZfZW5hYmxlOjF9fQ==

[CGI to disable csv save function (initial setting)]

http://192.168.0.10/cgi-bin/adam.cgi?methodName=sendDataToAdamApplication&appName=FaceBestshotApp&s_appDataType=1&s_appData=e3thcHBNZXRob2Q6UE9TVH0se3NhdmluZ19jc3ZfZW5hYmxlOjB9fQ==

2.2.1. CSV file format

For meta information, one piece of meta information for a person is saved at the timing of transmission of ONVIF meta information. However, if the same person continues to be detected across the timing of saving the csv file, two pieces of meta information for one person may be saved. See chapter 2.2.1 for information on when to send ONVIF meta information.

The csv file format and meta information contents are described below.

localtime, utctime, timezone, summertime, age, gender, (Detailed information [Table No. 8-17 below].)
localtime, utctime, timezone, summertime, age, gender, (Detailed information [Table No. 8-17 below].)
localtime, utctime, timezone, summertime, age, gender, (Detailed information [Table No. 8-17 below].)
...
localtime, utctime, timezone, summertime, age, gender, (Detailed information [Table No. 8-17 below].)

Meta information list

No.	Data	Format	Description
1	localtime	YYYY/MM/ DD HH:mm:SS ss YYYY : years (4 columns) MM : month(2 columns) DD : day(2 columns) HH : hour(2 columns) mm : minute(2 columns) SS : second(2 columns) ss : millisecond(2 columns in increments of 10 milliseconds)	Year, month, day, hour, minute, second (local time) when meta information is saved (Ex.) 2011/04/21 00:24:36 01
2	utctime	YYYY/MM/ DD HH:mm:SS ss YYYY : years (4 columns)	Year, month, day, hour, minute, second (UTC) when meta information is saved

		MM : month(2 columns) DD : day(2 columns) HH : hour(2 columns) mm : minute(2 columns) SS : second(2 columns) ss : millisecond(2 columns in increments of 10 milliseconds)	(Ex.) If localtime= 2011/04/21 0:24:36 01 in Japan, 2011/04/20 15:24:36 01
3	timezone	-12:00~+12:00 (6 columns)	Timezone (e.g.)In case of Japan, +09:00
4	summertime	IN, OUT	Summertime IN: Daylightsaving time (Summertime) OUT: Not daylight saving time
5	age	0~6,255	Age determination result 0 : 0~10 years old 1 : 11~20 years old 2 : 21~30 years old 3 : 31~40 years old 4 : 41~50 years old 5 : 51~60 years old 6 : 61 and over 255 : Undecidable * When score_mask is 0.2 or more, the accuracy of age identification decreases. Therefore, when score_mask is 0.2 or more, it is recommended not to use age determination results.
6	gender	0, 1, 255	Gender determination result. 0 : Male 1 : Female 255 : Undecidable

7	score_age_0	0.00~1.00	Likelihood of age. The age represented by each parameter name is shown below. score_age_0 : 0~10 years old score_age_1 : 11~20 years old score_age_2 : 21~30 years old score_age_3 : 31~40 years old score_age_4 : 41~50 years old score_age_5 : 51~60 years old score_age_6 : 61 and over * If the age determination result is not determinable, the value shall be -1.0. (*1)
8	score_age_1		
9	score_age_2		
10	score_age_3		
11	score_age_4		
12	score_age_5		
13	score_age_6		
14	score_male	0.00~1.00	Likelihood of gender * If the result of gender determination is inconclusive, the value shall be -1.0. (*1)
15	score_female		
16	score_mask	0.00~1.00	Likelihood of whether or not human is wearing a mask. * If the result of the determination of whether or not a mask is worn is inconclusive, the score shall be -1.0. (*1)

*1 By sending the following CGI, it is possible to select whether to save all meta information in csv or to discard it when the judgment results of the likelihood of age and gender (data No.7~15) are all null.

[Configuration CGI for saving csv even when all values are -1.0 (default setting)]

http://192.168.0.10/cgi-bin/adam.cgi?methodName=sendDataToAdamApplication&appName=FaceBestshotApp&s_appDataType=1&s_appData=e3thcHBNZXRRob2Q6UE9TVH0se3Vuc2F2ZWRFY3N2X21vZGU6MH19

[Configuration CGI for discarding without saving csv when all values are -1.0]

http://192.168.0.10/cgi-bin/adam.cgi?methodName=sendDataToAdamApplication&appName=FaceBestshotApp&s_appDataType=1&s_appData=e3thcHBNZXRob2Q6UE9TVH0se3Vuc2F2ZWRFY3N2X21vZGU6MX19

■About saving meta information

The storage period of the meta information in the internal memory is one hour. Unsaved meta information will not be retained if the app operation is stopped or the camera is turned off.

2.2.2. Getting the CSV file

2.2.2.1. Get storing period (mode:range)

[CGI URL]

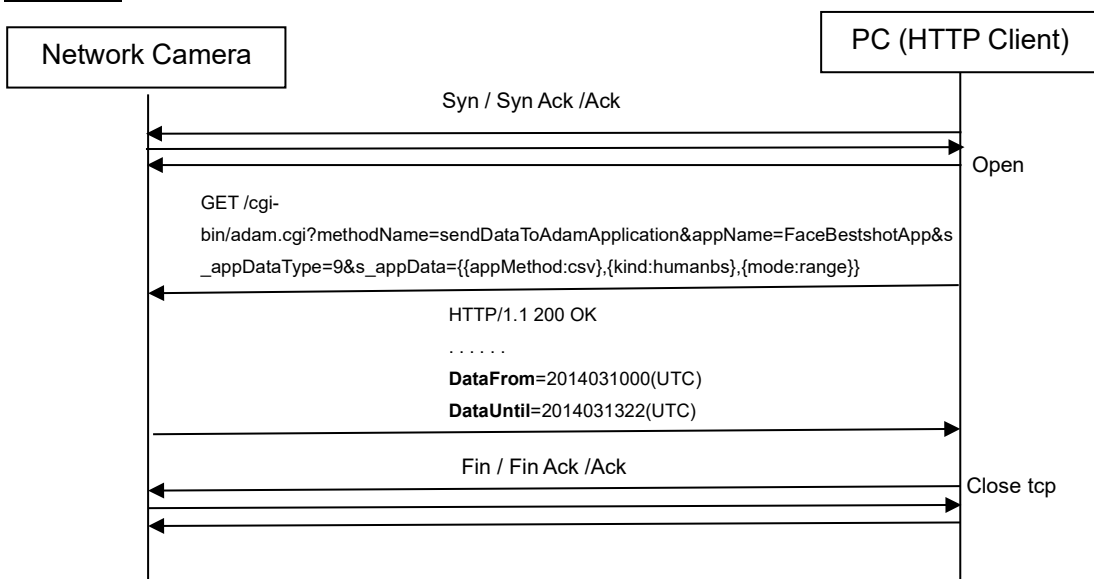
http://192.168.0.10/cgi-bin/adam.cgi?methodName=sendDataToAdamApplication&appName=FaceBestshotApp&s_appDataType=9&s_appData={{appMethod:csv},{kind:facebs},{mode:range}}

*Apply base 64 encode to the preference value that follows "s_appData=".

[Request parameters]

Parameter	Value	Description
appMethod	csv	Set the method.
kind	facebs	Kind of the csv data facebs: Meta information of AI Face Detection *This parameter can't be omitted
mode	range	Kind of response range: Get storing period *This parameter can't be omitted

Sequence



Response format

```
HTTP1.1 200OK [CR][LF]
Status 200[CR][LF]
....
Content-Length: xxxxx[CR][LF]
DataFrom=YYYYMMDDHHmm(UTC)[CR][LF]
DataUntil= YYYYMMDDHHmm(UTC)[CR][LF]
```

Response data

Data	Format	Description
DataFrom	YYYYMMDDHHmm(UTC) YYYY: year(4 columns) MM: month(2 columns) DD: day(2 columns) HH: hour(2 columns) mm: minute(2 columns)	Time and date of the oldest csv file (UTC time)
DataUntil	YYYYMMDDHHmm(UTC) YYYY: year(4 columns) MM: month(2 columns) DD: day(2 columns) HH: hour(2 columns) mm: minute(2 columns)	Time and date of the latest csv file (UTC time)

The response when there are multiple pieces of meta information is

DataFrom=YYYYMMDDHH(UTC) (time and date of the oldest meta information)

DataUntil=yyyymmddhh(UTC) (time and date of the latest meta information)

to the client as a response to the CGI.

```
HTTP/1.1 200 OK[CR][LF]
Status: 200[CR][LF]
...
...
Content-length: xxxxx[CR][LF]
```

```
DataFrom=2014031000(UTC)[CR][LF]
```

```
DataUntil=2014031322(UTC)[CR][LF]
```

When there is only one piece of meta information, the response is sent to the client as a response to the CGI with DataFrom and DataUntil set to the same date and time.

2.2.2.2. Get csv files by a date (mode:multi)

[CGI URL]

http://192.168.0.10/cgi-bin/adam.cgi?methodName=sendDataToAdamApplication&appName=FaceBestshotApp&s_appDataType=9&s_appData={{appMethod:csv},{kind:facebs},{mode:multi},{year:YYYY},{month:MM},{date:DD},{hour:HH},{days:d}}

*Apply base 64 encode to the preference value that follows "s_appData=".

[Request parameters]

Parameter	Value	Description
appMethod	csv	Set the method.
kind	facebs	Kind of the csv data facebs: Meta information of AI Face Detection *This parameter can't be omitted
mode	multi	Kind of response multi: Get csv/index files by a date. *This parameter can't be omitted
year	(numerical value) (4 columns)	Date of the file to acquire (Year) *This parameter can't be omitted when the 'mode' parameter set to 'multi'.
month	1 - 12	Date of the file to acquire (Month) *This parameter can't be omitted when the 'mode' parameter set to 'multi'.
date	1 - 31	Date of the file to acquire (Date) *This parameter can't be omitted when the 'mode' parameter set to 'multi'.
days	1 - 7	The days of the file to acquire *This parameter can't be omitted when the 'mode' parameter set to 'multi'.

hour	0 - 23	The start time of the file to acquire *This parameter can't be omitted when the 'mode' parameter set to 'multi'.
------	--------	---

[Command examples]

Getting csv files of 4/11/2023 for one day.

In case of the UTC time difference is +9 hours, the time period for which the CSV file is to be obtained is as follows

2024/4/10 15:00~2024/4/11 15:00 UTC

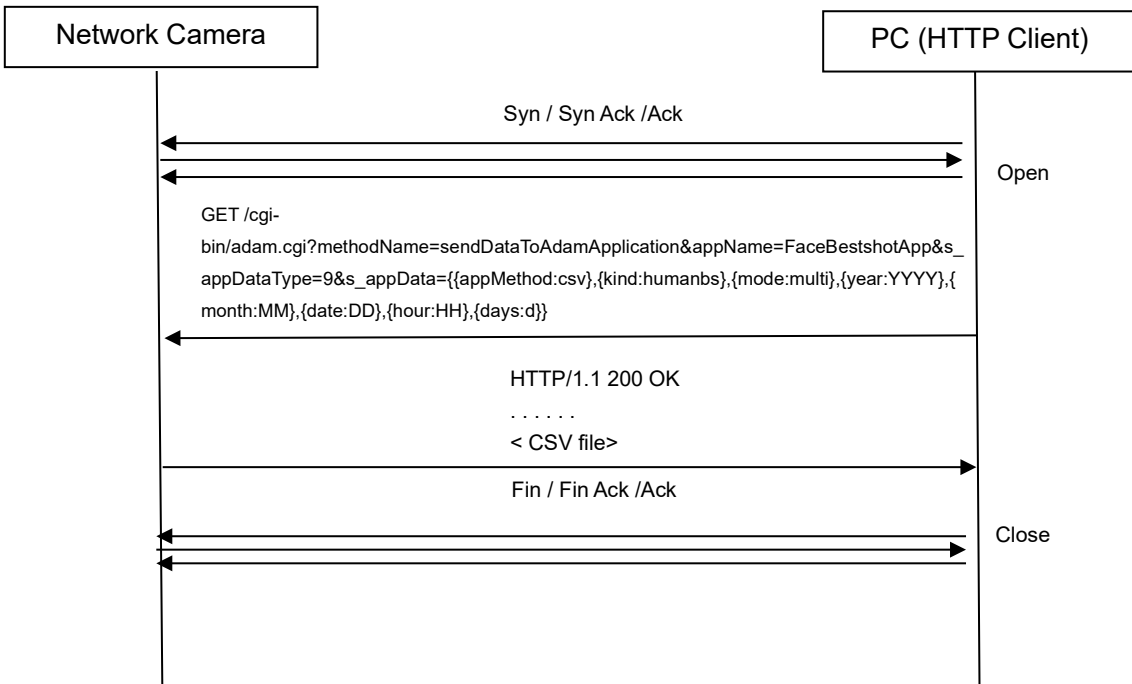
Therefore, specify the following as the CSV acquisition time (UTC) in the CGI parameter.

http://192.168.0.10/cgi-bin/adam.cgi?methodName=sendDataToAdamApplication&appName=FaceBestshotApp&s_appDataType=9&s_appData={{appMethod:csv},{kind:facebs},{mode:multi},{year:2014},{month:04},{date:10},{days:1},{hour:15}}

*Apply base 64 encode to the preference value that follows "s_appData=".

If meta information exists within the number of days to be acquired from the date specified by CGI, all existing meta information is sent as csv files.

Sequence



[csv file name]

face_bs_YYYYMMDDHHMM2_yyyymmddhhmm2.csv

face_bs_ : fixed prefix

YYYY :

The year (4 digits) of the oldest meta information

MM :

The month (2 digits) of the oldest meta information

DD :

The day (2 digits) of the oldest meta information

HH :

The hour (2 digits) of the oldest meta information

MM2 :

The minutes (2 digits) of the oldest meta information

yyyy :

The year (4 digits) of the latest meta information

mm :

The month (2 digits) of the latest meta information

dd :

The day (2 digits) of the latest meta information

hh :

The hour (2 digits) of the latest meta information

mm2 :

The minutes (2 digits) of the latest meta information

e.g.) Get csv files for 3 days from 7:00:00 on April 20, 2011.

When the oldest meta information's localtime is April 20, 2011 7:30:00 and the latest meta information's localtime is April 23, 2011 5:00:00, csv file name is

face_bs_201104200730_201104230500.csv

Response format

HTTP/1.1 200 OK[CR][LF]

Status: 200[CR][LF]

Connection: close[CR][LF]

```
Content-Disposition:form-
data;name="data"filename="face_bs_YYYYMMDDHH_yyyymmddhh.csv"[CR][LF]
Content-Type: text/plain[CR][LF]
Content-Length: xxxx[CR][LF][CR][LF]
(meta data(csv))
```

2.2.2.3. Error response

Error response

```
HTTP1.1 200OK [CR][LF]
Status 200[CR][LF]
....
Content-Length: xxxxx[CR][LF]
xxxxxxxxxxx[CR][LF]
[CR][LF]
```

Kind of the error	Content of xxxxxxxxxxxx
csv files doesn't exist.	No Data.
Abnormal CGI parameters (Value is out of range, required parameter is not assigned, etc.)	Parameter Error:xxxx *Give xxxx the parameter name that caused the error

2.3. AI People Detection

AI People Detection performs personal attribute estimation processing on the thumbnail determined to be the best shot. Meta information (attribute information) can be saved as csv and acquired by CGI.

The maximum retention period and number of meta information are as follows. Delete old meta information if any of the following limits are exceeded.

- Maximum retention period: 92 days
- Maximum saved number: 50,000

[CGI to enable csv save function]

http://192.168.0.10/cgi-bin/adam.cgi?methodName=sendDataToAdamApplication&appName=HumanBestshotApp&s_appDataType=2&s_appData=e3thcHBNZXRob2Q6UE9TVH0se3NhdmluZ19jc3ZfZW5hYmxlOjF9fQ==

[CGI to disable csv save function (initial setting)]

http://192.168.0.10/cgi-bin/adam.cgi?methodName=sendDataToAdamApplication&appName=HumanBestshotApp&s_appDataType=2&s_appData=e3thcHBNZXRob2Q6UE9TVH0se3NhdmluZ19jc3ZfZW5hYmxlOjB9fQ==

2.3.1. CSV file format

One meta information of the person is saved at the timing of transmission of ONVIF meta information. However, if the same person continues to be detected across the save timing of the csv file, two pieces of meta information for one person may be saved. See section 2.2.2 for ONVIF meta information transmission timing.

When the maximum retention period or the maximum number of stored items is exceeded, the oldest meta information is deleted.

The csv file format and meta information content are described below.

localtime, utctime, timezone, summertime, age, gender, [No.7 to 55 in the table below]
 localtime, utctime, timezone, summertime, age, gender, [No.7 to 55 in the table below]
 localtime, utctime, timezone, summertime, age, gender, [No.7 to 55 in the table below]
 ...
 localtime, utctime, timezone, summertime, age, gender, [No.7 to 55 in the table below]

Meta information list

No.	Data	Format	Description
1	localtime	YYYY/MM/ DD HH:mm:SS ss YYYY : years (4 columns) MM : month(2 columns) DD : day(2 columns) HH : hour(2 columns) mm : minute(2 columns) SS : second(2 columns) ss : millisecond (2 columns in increments of 10 milliseconds)	Year, month, day, hour, minute, second (local time) when meta information is saved (Ex.) 2011/04/21 00:24:36 01
2	utctime	YYYY/MM/ DD HH:mm:SS ss	Year, month, day, hour, minute, second (UTC) when meta information is saved

		YYYY : years (4 columns) MM : month(2 columns) DD : day(2 columns) HH : hour(2 columns) mm : minute(2 columns) SS : second(2 columns) ss : millisecond (2 columns in increments of 10 milliseconds)	(Ex.) If localtime= 2011/04/21 0:24:36 01 in Japan, 2011/04/20 15:24:36 01
3	timezone	-12:00~+12:00 (6 columns)	Timezone (e.g.)In case of Japan, +09:00
4	summertime	IN, OUT	Summertime IN: Daylightsaving time (Summertime) OUT: Not daylight saving time
5	age	0~6,255	Age determination result 0 : 0~10 years old 1 : 11~20 years old 2 : 21~30 years old 3 : 31~40 years old 4 : 41~50 years old 5 : 51~60 years old 6 : 61 and over 255 : Undecidable * When score_mask is 0.2 or more, the accuracy of age identification decreases. Therefore, when score_mask is 0.2 or more, it is recommended not to use age determination results.

6	gender	0, 1, 255	Gender determination result. 0 : Male 1 : Female 255 : Undecidable
7	score_age_0	0.00~1.00	Likelihood of age. The age represented by each parameter name is shown below. score_age_0 : 0~10 years old score_age_1 : 11~20 years old score_age_2 : 21~30 years old score_age_3 : 31~40 years old score_age_4 : 41~50 years old score_age_5 : 51~60 years old score_age_6 : 61 and over * If the score of the judgment result is less than or equal to “Attribute information transmission threshold (bestshot transmission)”, the score shall be -1.0. (*1)
8	score_age_1		
9	score_age_2		
10	score_age_3		
11	score_age_4		
12	score_age_5		
13	score_age_6		
14	score_male	0.00~1.00	Likelihood of gender * If the score of the judgment result is less than or equal to “Attribute information transmission threshold (bestshot transmission)”, the score shall be -1.0. (*1)
15	score_female		
16	score_hair_long	0.00~1.00	Likelihood of hairstyle * If the score of the judgment result is less than or equal to “Attribute information transmission threshold (bestshot transmission)”, the score shall be -1.0. (*1)
17	score_hair_short		
18	score_hair_hat		
19	score_hair_color_black	0.00~1.00	Likelihood of hair color

20	score_hair_color_brown		* If the score of the judgment result is less than or equal to “Attribute information transmission threshold (bestshot transmission)”, the score shall be -1.0. (*1)
21	score_hair_color_white		
22	score_hair_color_gray		
23	score_hair_color_gold		
24	score_beard	0.00~1.00	Likelihood of whether or not human has a beard. * If the score of the judgment result is less than or equal to “Attribute information transmission threshold (bestshot transmission)”, the score shall be -1.0. (*1)
25	score_nobeard		
26	score_sunglass	0.00~1.00	Likelihood of whether or not human is wearing sunglasses. * If the score of the judgment result is less than or equal to “Attribute information transmission threshold (bestshot transmission)”, the score shall be -1.0. (*1)
27	score_noglass		
28	score_mask	0.00~1.00	Likelihood of whether or not human is wearing a mask. * If the score of the judgment result is less than or equal to “Attribute information transmission threshold (bestshot transmission)”, the score shall be -1.0. (*1)
29	score_nomask		
30	score_tops_longsl eeve	0.00~1.00	Likelihood of type of tops score_tops_longsl : Long score_tops_shortsl : Short * If the score of the judgment result is less than or equal to “
31	score_tops_shortsl leeve		

			Attribute information transmission threshold (bestshot transmission)", the score shall be -1.0. (*1)
32	score_tops_color_black	0.00~1.00	Likelihood of color of tops * If the score of the judgment result is less than or equal to "Attribute information transmission threshold (bestshot transmission)", the score shall be -1.0. (*1)
33	score_tops_color_brown		
34	score_tops_color_white		
35	score_tops_color_gray		
36	score_tops_color_green		
37	score_tops_color_red		
38	score_tops_color_blue		
39	score_tops_color_yellow		
40	score_tops_color_orange		
41	score_tops_color_purple		
42	score_tops_color_pink		
43	score_bottoms_trousers		
44	score_bottoms_shorts		
45	score_bottoms_color_black	0.00~1.00	Likelihood of color of bottoms

46	score_bottoms_color_brown		<p>* If the score of the judgment result is less than or equal to “Attribute information transmission threshold (bestshot transmission)”, the score shall be -1.0. (*1)</p>
47	score_bottoms_color_white		
48	score_bottoms_color_gray		
49	score_bottoms_color_green		
50	score_bottoms_color_red		
51	score_bottoms_color_blue		
52	score_bottoms_color_yellow		
53	score_bottoms_color_orange		
54	score_bottoms_color_purple		
55	score_bottoms_color_pink		
56	score_shoes_color_black	0.00~1.00	<p>Likelihood of color of shoes</p> <p>* If the score of the judgment result is less than or equal to “Attribute information transmission threshold (bestshot transmission)”, the score shall be -1.0. (*1)</p>
57	score_shoes_color_brown		
58	score_shoes_color_white		
59	score_shoes_color_green		
60	score_shoes_color_red		
61	score_shoes_color_blue		
62	score_shoes_color_yellow		
63	score_bag	0.00~1.00	

64	score_nobag		Likelihood of whether or not human has a bag * If the score of the judgment result is less than or equal to “Attribute information transmission threshold (bestshot transmission)”, the score shall be -1.0. (*1)
65	score_bag_color_black	0.00~1.00	Likelihood of color of bag * If the score of the judgment result is less than or equal to “Attribute information transmission threshold (bestshot transmission)”, the score shall be -1.0. (*1)
66	score_bag_color_brown		
67	score_bag_color_white		
68	score_bag_color_green		
69	score_bag_color_red		
70	score_bag_color_blue		
71	score_bag_color_yellow		
72	score_bag_color_orange		
73	score_bag_color_purple		
74	score_bag_color_pink		

*1 By sending the following CGI, it is possible to select whether to save all meta information in csv or to discard it when the judgment results of the likelihood of age and gender (data No.7~15) are all null.

[Configuration CGI for saving csv even when all values are -1.0 (default setting)]

http://192.168.0.10/cgi-bin/adam.cgi?methodName=sendDataToAdamApplication&appName=HumanBestshotApp&s_appDataType=2&s_appData=e3thcHBNZXRob2Q6UE9TVH0se3Vuc2F2ZWRfY3N2X21vZGU6MH19

[Configuration CGI for discarding without saving csv when all values are -1.0]

http://192.168.0.10/cgi-bin/adam.cgi?methodName=sendDataToAdamApplication&appName=HumanBestshotApp&s_appDataType=2&s_appData=e3thcHBNZXRob2Q6UE9TVH0se3Vuc2F2ZWRfY3N2X21vZGU6MX19

■About saving meta information

The storage period of the meta information in the internal memory is one hour. Unsaved meta information will not be retained if the app operation is stopped or the camera is turned off.

2.3.2. Getting the CSV file

2.3.2.1. Get storing period (mode:range)

[CGI URL]

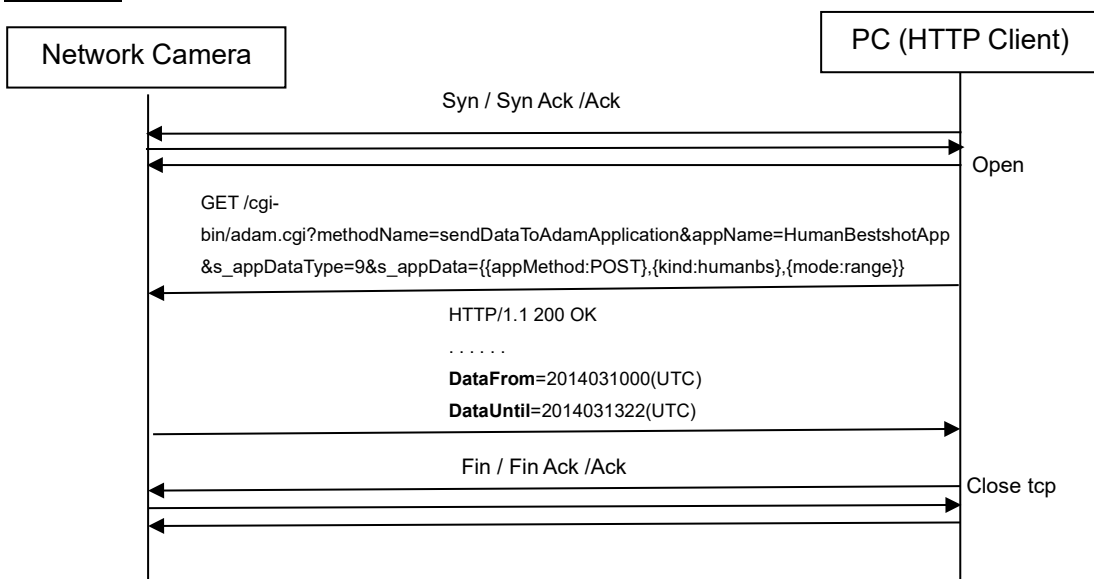
http://192.168.0.10/cgi-bin/adam.cgi?methodName=sendDataToAdamApplication&appName=HumanBestshotApp&s_appDataType=9&s_appData={{appMethod:csv},{kind:humanbs},{mode:range}}

*Apply base 64 encode to the preference value that follows "s_appData=".

[Request parameters]

Parameter	Value	Description
appMethod	csv	Set the method.
kind	humanbs	Kind of the csv data humanbs: Meta information of AI People Detection *This parameter can't be omitted
mode	range	Kind of response range: Get storing period *This parameter can't be omitted

Sequence



Response format

```
HTTP1.1 200OK [CR][LF]
Status 200[CR][LF]
....
Content-Length: xxxxx[CR][LF]
DataFrom=YYYYMMDDHHmm(UTC)[CR][LF]
DataUntil= YYYYMMDDHHmm(UTC)[CR][LF]
```

Response data

Data	Format	Description
DataFrom	YYYYMMDDHHmm(UTC) YYYY: year(4 columns) MM: month(2 columns) DD: day(2 columns) HH: hour(2 columns) mm: minute(2 columns)	Time and date of the oldest csv file (UTC time)
DataUntil	YYYYMMDDHHmm(UTC) YYYY: year(4 columns) MM: month(2 columns) DD: day(2 columns) HH: hour(2 columns) mm: minute(2 columns)	Time and date of the latest csv file (UTC time)

The response when there are multiple pieces of meta information is

DataFrom=YYYYMMDDHH(UTC) (time and date of the oldest meta information)

DataUntil=yyyymmddhh(UTC) (time and date of the latest meta information)

to the client as a response to the CGI.

```
HTTP/1.1 200 OK[CR][LF]
Status: 200[CR][LF]
...
...
Content-length: xxxxx[CR][LF]
```

```
DataFrom=2014031000(UTC)[CR][LF]
```

```
DataUntil=2014031322(UTC)[CR][LF]
```

When there is only one piece of meta information, the response is sent to the client as a response to the CGI with DataFrom and DataUntil set to the same date and time.

2.3.2.2. Get csv files by a date (mode:multi)

[CGI URL]

http://192.168.0.10/cgi-bin/adam.cgi?methodName=sendDataToAdamApplication&appName=HumanBestshotApp&s_appDataType=9&s_appData={{appMethod:csv},{kind:humanbs},{mode:multi},{year:YYYY},{month:MM},{date:DD},{hour:HH},{days:d}}

*Apply base 64 encode to the preference value that follows "s_appData=".

[Request parameters]

Parameter	Value	Description
appMethod	csv	Set the method.
kind	humanbs	Kind of the csv data humanbs: Meta information of AI People Detection *This parameter can't be omitted
mode	multi	Kind of response multi: Get csv/index files by a date. *This parameter can't be omitted
year	(numerical value) (4 columns)	Date of the file to acquire (Year) *This parameter can't be omitted when the 'mode' parameter set to 'multi'.
month	1 - 12	Date of the file to acquire (Month) *This parameter can't be omitted when the 'mode' parameter set to 'multi'.
date	1 - 31	Date of the file to acquire (Date) *This parameter can't be omitted when the 'mode' parameter set to 'multi'.
days	1 - 7	The days of the file to acquire *This parameter can't be omitted when the 'mode' parameter set to 'multi'.

hour	0 - 23	The start time of the file to acquire *This parameter can't be omitted when the 'mode' parameter set to 'multi'.
------	--------	---

[Command examples]

Getting csv files of 4/11/2023 for one day.

In case of Shingapore, the UTC time difference is +8 hours. The periods for which count results are to be obtained are as follows.

4/10/2023 16:00~4/11/2021 16:00 UTC

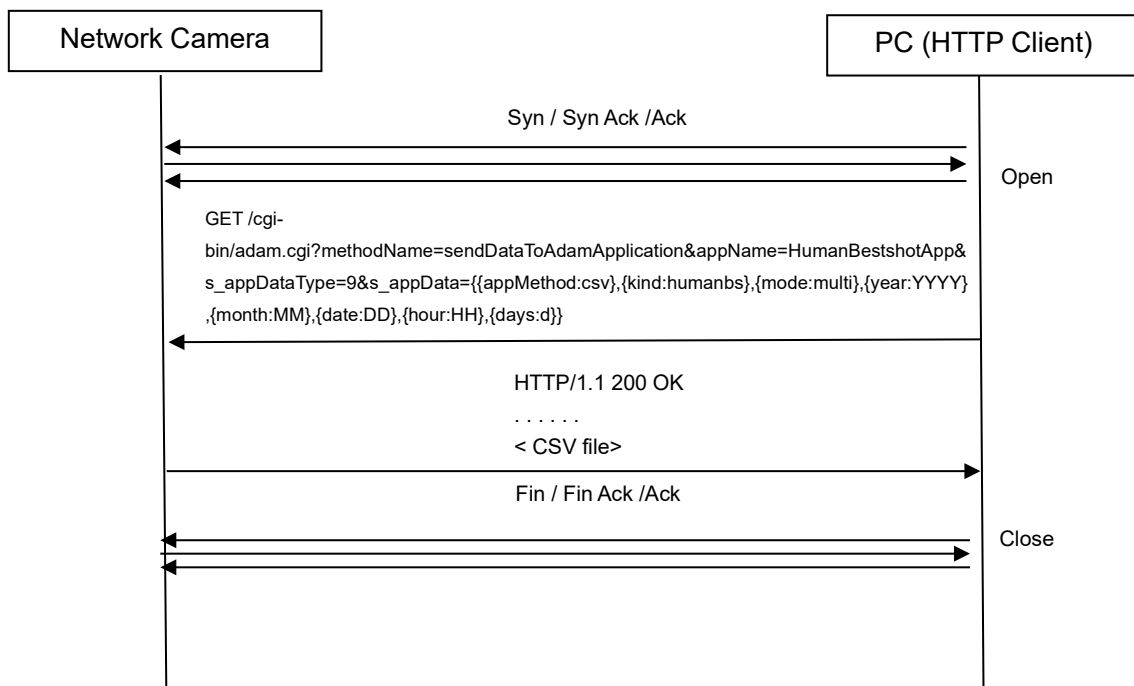
Therefore, specify the following as the CSV acquisition time (UTC) in the CGI parameter.

http://192.168.0.10/cgi-bin/adam.cgi?methodName=sendDataToAdamApplication&appName=HumanBestshotApp&s_appDataType=9&s_appData={{appMethod:csv},{kind:humanbs},{mode:multi},{year:2023},{month:4},{date:10},{days:1},{hour:16}}

*Apply base 64 encode to the preference value that follows "s_appData=".

If meta information exists within the number of days to be acquired from the date specified by CGI, all existing meta information is sent as csv files.

Sequence



[csv file name]

human_bs_YYYYMMDDHHMM2_yyyymmddhhmm2.csv

human_bs_ : fixed prefix

YYYY :

The year (4 digits) of the oldest meta information

MM :

The month (2 digits) of the oldest meta information

DD :

The day (2 digits) of the oldest meta information

HH :

The hour (2 digits) of the oldest meta information

MM2 :

The minutes (2 digits) of the oldest meta information

yyyy :

The year (4 digits) of the latest meta information

mm :

The month (2 digits) of the latest meta information

dd :

The day (2 digits) of the latest meta information

hh :

The hour (2 digits) of the latest meta information

mm2 :

The minutes (2 digits) of the latest meta information

e.g.) Get csv files for 3 days from 7:00:00 on April 20, 2011.

When the oldest meta information's localtime is April 20, 2011 7:30:00 and the latest meta information's localtime is April 23, 2011 5:00:00, csv file name is

human_bs_201104200730_201104230500.csv

Response format

HTTP/1.1 200 OK[CR][LF]

Status: 200[CR][LF]

Connection: close[CR][LF]

```
Content-Disposition:form-
data;name="data"filename="human_bs_YYYYMMDDHH_yyyymmddhh.csv"[CR][LF]
Content-Type: text/plain[CR][LF]
Content-Length: xxxx[CR][LF][CR][LF]
(meta data(csv))
```

2.3.2.3. Error response

Error response

```
HTTP1.1 200OK [CR][LF]
Status 200[CR][LF]
....
Content-Length: xxxxx[CR][LF]
xxxxxxxxxx[CR][LF]
[CR][LF]
```

Kind of the error	Content of xxxxxxxxxxxx
csv files doesn't exist.	No Data.
Abnormal CGI parameters (Value is out of range, required parameter is not assigned, etc.)	Parameter Error:xxxx *Give xxxx the parameter name that caused the error

3. Additional information

Meta data is given to H.264/H.265 RTP header and JPEG header when this feature is in use.
Refer to the document below for the details of meta data.

Command interface iPRO_H.265models_verx.xx.pdf

13.7 Location of meta information in each stream

3.1. AI Face Detection, AI People Detection, AI Vehicle Detection

3.1.1. Basic information

Byte	Bit	0	8	16	24
0byte		ID		Length	
4byte		Utcclk			
8byte		resultinfoLength		areanum	arealength
12byte		imgwidth		imgheight	


[Data layout]

[List of the basic data]

Parameter	Length (Bit)	Values and comments
ID	16	Fixed ID AI Face Detection : 0x0033 AI People Detection : 0x0031 AI Vehicle Detection : 0x0032
Length	16	Length of data (including ID and Length) in byte
Utcclk	32	The career second from 1970
resultinfoLength	16	Length of the result information in byte
areanum	6	The number of detected frames
arealength	10	The data length of a detection result in byte
imgwidth	16	Width of the detected frame
imgheight	16	Height of the detected frame

3.1.2. Result information

Result information of each detected frame

Bit Byte	0	8	16	24	
0byte	ID				Type
4byte	hstart		vstart		
8byte	hcnt		vcnt		

[Data layout]

[List of result data]

Parameter	Length(Bit)	Values and comments
ID	16	ID of the detection frame 0 ~ 65535
Type	4	0 fixed
Recommended Size	3	Whether the detection frame is within the recommended detection size range or not. 0 : Outside the recommended size range 1 : Within the recommended size range
hstart	16	X coordinate (Upper left) of the detection frame *1
vstart	16	Y coordinate (Upper left) of the detection frame *1
hcnt	16	Width of the detection frame *1
vcnt	16	Height of the detection frame *1

*1 Overall resolution depends on the settings and resolution of camera. For 2MP cameras, the following would apply.

1920x1080 when the image capture mode is 16:9 and image rotation is 0°/180°

1080x1920 when the image capture mode is 16:9 and image rotation is 90°/270°

1440x1080 when the image capture mode is 4:3 and image rotation is 0°/180°

4. ONVIF Meta Stream

There are two types of ONVIF meta information as follows.

[1] Analytics stream : The detection frame information is sent regularly. See below for the transmission cycle.

Network Camera other than Multi-Sensor Camera :

(When the camera's imaging mode is set to 30fps) 10fps

(When the camera's imaging mode is set to 25fps) 8.3fps

Multi-Sensor Camera :

(When the camera's imaging mode is set to 15fps/30fps) 3.75fps

(When the camera's imaging mode is set to 12.5fps/25fps) 3.1fps

[2] Event stream : Send thumbnails and meta information. The transmission interval is different for each applications.

4.1. Analytics Stream

The format of Analytics Stream is different for each applications.

4.1.1. AI Face Detection

4.1.1.1. Parameter description

Parameter	Value	Description
UTC time	Date and Time(UTC)	UTC of video frame
ApiSource	AIFaceDetection	Fixed value
ObjectId	4 byte integer	Detected object ID
BoundingBox	-1 ~ 1 (up to 2 decimal places)	Rectangle area of the detected object (coordinate of upper-left position and lower-right position)
CenterOfGravity	-1 ~ 1 (up to 2 decimal places)	Midpoint of BoundingBox
Class	- Face(object) - 0 ~ 1(Likelihood) (up to 2 decimal places)	Kind of object and likelihood
Class - ClassCandidate - Type - Likelihood	-Face (Type) -0~1 (Likelihood) (up to 2 decimal places)	Kind of object and likelihood Face: face Can be changed to grant or not by sending CGI. (*1)

HumanFace - Age - Min, Max	(Min, Max)= (0,10),(11,20),(21,30),(31,40), (41,50),(51,60),(61,999)	Age * This is applied when the best shot is confirmed. * This is not applied when the value of HumanFace -> Accessory -> Mask -> Wear is true.
HumanFace - Gender	Male, Female	Gender * This is applied when the best shot is confirmed.
HumanFace - Accessory - Mask - Wear	false, true	Whether or not human is wearing a mask. * This is applied when the best shot is confirmed.

*1 It is possible to select whether or not to grant by sending the following CGI.

[CGI for setting when not to grant]

http://192.168.0.10/cgi-bin/adam.cgi?methodName=setApplicationPreference&appName=FaceBestshotApp&prefType=Integer&prefName=onvif_analytics_classcandidate&value=0

[CGI setup for granting (default setting)].

http://192.168.0.10/cgi-bin/adam.cgi?methodName=setApplicationPreference&appName=FaceBestshotApp&prefType=Integer&prefName=onvif_analytics_classcandidate&value=1

4.1.1.2. Meta Stream Example

When `onvif_analytics_classcandidate=1`,

```
<?xml version="1.0" encoding="utf-8"?>
<tt:MetadataStream xmlns:tt="http://www.onvif.org/ver10/schema"
xmlns:fc="http://www.onvif.org/ver20/analytics/humanface">
  <tt:VideoAnalytics>
    <tt:Frame UtcTime="2020-01-20T10:00:08.20Z" ApiSource="AIFaceDetection">
      <tt:Object ObjectId="12345">
        <tt:Appearance>
          <tt:Shape>
            <tt:BoundingBox left="-0.20" top="0.99" right="0.83" bottom="-0.78" />
            <tt:CenterOfGravity x="0.73" y="0.13" />
          </tt:Shape>
          <tt:Class>
            <tt:ClassCandidate>
              <tt:Type>Face</tt:Type>
              <tt:Likelihood>0.82</tt:Likelihood>
            </tt:ClassCandidate>
            <tt:Type Likelihood="0.82">Face</tt:Type>
          </tt:Class>
          <tt:HumanFace>
            <fc:Age>
              <tt:Min>11</tt:Min>
              <tt:Max>20</tt:Max>
            </fc:Age>
            <fc:Gender>Male</fc:Gender>
            <fc:Accessory>
              <fc:Mask>
                <fc:Wear>>false</fc:Wear>
              </fc:Mask>
            </fc:Accessory>
          </tt:HumanFace>
        </tt:Appearance>
      </tt:Object>
    </tt:Frame>
```

```

<tt:Frame.UtcTime="2020-01-20T10:00:18.20Z">
    ... (another frame information)
</tt:Frame>
</tt:VideoAnalytics>
</tt:MetadataStream>

```

When onvif_analytics_classcandidate=0,

```

<?xml version="1.0" encoding="utf-8"?>
<tt:MetadataStream xmlns:tt="http://www.onvif.org/ver10/schema"
xmlns:fc="http://www.onvif.org/ver20/analytics/humanface">
  <tt:VideoAnalytics>
    <tt:Frame.UtcTime="2020-01-20T10:00:08.20Z" AplSource="AIFaceDetection">
      <tt:Object.ObjectId="12345">
        <tt:Appearance>
          <tt:Shape>
            <tt:BoundingBox left="-0.20" top="0.99" right="0.83" bottom="-0.78" />
            <tt:CenterOfGravity x="0.73" y="0.11" />
          </tt:Shape>
          <tt:Class>
            <tt:Type.Likelihood="0.81">Face</tt:Type>
          </tt:Class>
          <tt:HumanFace>
            <fc:Age>
              <tt:Min>11</tt:Min>
              <tt:Max>20</tt:Max>
            </fc:Age>
            <fc:Gender>Male</fc:Gender>
            <fc:Accessory>
              <fc:Mask>
                <fc:Wear>>false</fc:Wear>
              </fc:Mask>
            </fc:Accessory>
          </tt:HumanFace>
        </tt:Appearance>
      </tt:Object>
    </tt:Frame>

```

```
<tt:Frame.UtcTime="2020-01-20T10:00:18.20Z">
  ... (another frame information)
</tt:Frame>
</tt:VideoAnalytics>
</tt:MetadataStream>
```

4.1.2. AI People Detection

4.1.2.1. Parameter description

Parameter	Value	Description
UTC time	Date and Time(UTC)	UTC of video frame
ApiSource	AIPeopleDetection	Fixed value
ObjectId	4 byte integer	Detected object ID
BoundingBox	-1 ~ 1 (up to 2 decimal places)	Rectangle area of the detected object (coordinate of upper-left position and lower-right position)
CenterOfGravity	-1 ~ 1 (up to 2 decimal places)	Midpoint of BoundingBox
Class - ClassCandidate - Type - Likelihood	-Human (Type) -0~1 (Likelihood) (up to 2 decimal places)	Kind of object and likelihood Human: human * Not applied when "Give the ClassCandidate to Analytics Stream" is set to "Off".
Class	- Human(object) - 0 ~ 1(Likelihood) (up to 2 decimal places)	Kind of object and likelihood
HumanFace - Age - Min, Max	(Min, Max)= (0,10),(11,20),(21,60), (61,999)	Age * This is applied when the best shot is confirmed.
HumanFace - Gender	Male, Female	Gender * This is applied when the best shot is confirmed.
HumanFace - Hair - length - Color	- Long, Short - (X,Y,Z) : RGB values	Hairstyle and hair color * This is applied when the best shot is confirmed. * Refer to Table 1 for an XYZ (RGB) value and the corresponding table of color.
HumanFace - FacialHair - Beard	false, true	Whether or not human has a beard. * This is applied when the best shot is confirmed.
HumanFace - Accessory - Optionals - Wear	false, true	Whether or not human is wearing sunglasses. * This is applied when the best shot is confirmed.

HumanFace - Accessory - Hat - Wear	false, true	Whether or not human is wearing a hat. * This is applied when the best shot is confirmed.
HumanFace - Accessory - Mask - Wear	false, true	Whether or not human is wearing a mask. * This is applied when the best shot is confirmed.
HumanBody - Clothing - Tops - Category - Color	- LongSleeve, ShortSleeve - (X,Y,Z) : RGB values	Type and Color of tops * This is applied when the best shot is confirmed. * Refer to Table 1 for an XYZ (RGB) value and the corresponding table of color.
HumanBody - Clothing - Bottoms - Category - Color	- Trousers, Shorts - (X,Y,Z) : RGB values	Type and Color of bottoms * This is applied when the best shot is confirmed. * Refer to Table 1 for an XYZ (RGB) value and the corresponding table of color.
HumanBody - Clothing - Shoes - Color	- (X,Y,Z) : RGB values	Color of shoes * This is applied when the output setting is set to "On".
HumanBody - Belonging - Bag - Color	- (X,Y,Z) : RGB values	Color of bag * This is applied when the output setting is set to "On"
Image	Base64 encoded	JPEG image * Not applied when "Give the Image to Analytics Stream" is set to "Off". * This is applied when the best shot is confirmed.
Properties - DirectionNamed	Up/Right/Down/Left/UpRight/UpLeft/ DownRight/DownLeft	Direction of movement

Table 1: XYZ (RGB) value and the corresponding table of color

Color	X	Y	Z
Black	0	0	0
Brown	165	42	42
White	255	255	255
Gray	128	128	128
Green	0	255	0
Red	255	0	0
Blue	0	0	255
Yellow	255	255	0
Orange	255	165	0
Purple	128	0	128
Pink	255	192	203
Gold * Only as for the hair color	255	215	0

4.1.2.2. Meta Stream Example

“Give the ClassCandidate to Analytics Stream”={On}, “Give the Image to Analytics Stream”={Off}

```
<?xml version="1.0" encoding="utf-8"?>
<tt:MetadataStream xmlns:tt="http://www.onvif.org/ver10/schema"
xmlns:fc="http://www.onvif.org/ver20/analytics/humanface"
xmlns:bd="http://www.onvif.org/ver20/analytics/humanbody">
  <tt:VideoAnalytics>
    <tt:Frame UtcTime="2020-01-20T10:00:08.20Z" AplSource="AIPeopleDetection">
      <tt:Object ObjectId="12345">
        <tt:Appearance>
          <tt:Shape>
            <tt:BoundingBox left="-0.20" top="0.99" right="0.83" bottom="-0.78" />
            <tt:CenterOfGravity x="0.73" y="0.11" />
          </tt:Shape>
          <tt:Class>
            <tt:ClassCandidate>
              <tt:Type>Human</tt:Type>
              <tt:Likelihood>0.81</tt:Likelihood>
            </tt:ClassCandidate>
            <tt:Type Likelihood="0.81">Human</tt:Type>
          </tt:Class>
          <tt:HumanFace>
            <fc:Age>
              <tt:Min>11</tt:Min>
              <tt:Max>20</tt:Max>
            </fc:Age>
            <fc:Gender>Male</fc:Gender>
            <fc:Hair>
              <fc:Length>Short</fc:Length>
              <fc:Color>
                <tt:ColorCluster>
                  <tt:Color X="0" Y="255" Z="0" />
                </tt:ColorCluster>
              </fc:Color>
            </fc:Hair>
          </tt:HumanFace>
        </tt:Appearance>
      </tt:Object>
    </tt:Frame>
  </tt:VideoAnalytics>
</tt:MetadataStream>
```

```

<fc:FacialHair>
  <fc:Beard>true</fc:Beard>
</fc:FacialHair>
<fc:Accessory>
  <fc:Opticals>
    <fc:Wear>>false</fc:Wear>
  </tt:Opticals>
  <fc:Hat>
    <fc:Wear>true</fc:Wear>
  </fc:Hat>
  <fc:Mask>
    <fc:Wear>>false</fc:Wear>
  </fc:Mask>
</fc:Accessory>
</tt:HumanFace>
<tt:HumanBody>
  <bd:Clothing>
    <bd:Tops>
      <bd:Category>LongSleeve</bd:Category>
      <bd:Color>
        <tt:ColorCluster>
          <tt:Color X="0" Y="255" Z="0" />
        </tt:ColorCluster>
      </bd:Color>
    </bd:Tops>
    <bd:Bottoms>
      <bd:Category>Trousers</bd:Category>
      <bd:Color>
        <tt:ColorCluster>
          <tt:Color X="0" Y="255" Z="0" />
        </tt:ColorCluster>
      </bd:Color>
    </bd:Bottoms>
  </bd:Clothing>
</tt:HumanBody>
</tt:Appearance>

```

```

        <tt:Extension xmlns="">
            <Properties>
                <Property name="DirectionNamed">Up</Property>
            </Properties>
        </tt:Extension>
    </tt:Object>
</tt:Frame>
<tt:Frame UtcTime="2020-01-20T10:00:18.20Z">
    ... (another frame information)
</tt:Frame>
</tt:VideoAnalytics>
</tt:MetadataStream>

```

“Give the ClassCandidate to Analytics Stream”={Off}, “Give the Image to Analytics Stream”={On}

```

<?xml version="1.0" encoding="utf-8"?>
<tt:MetadataStream xmlns:tt="http://www.onvif.org/ver10/schema"
xmlns:fc="http://www.onvif.org/ver20/analytics/humanface"
xmlns:bd="http://www.onvif.org/ver20/analytics/humanbody">
    <tt:VideoAnalytics>
        <tt:Frame UtcTime="2020-01-20T10:00:08.20Z" AplSource="AIPeopleDetection">
            <tt:Object ObjectId="12345">
                <tt:Appearance>
                    <tt:Shape>
                        <tt:BoundingBox left="-0.20" top="0.99" right="0.83" bottom="-0.78" />
                        <tt:CenterOfGravity x="0.73" y="0.11" />
                    </tt:Shape>
                    <tt:Class>
                        <tt:Type Likelihood="0.81">Human</tt:Type>
                    </tt:Class>
                    <tt:HumanFace>
                        <fc:Age>
                            <tt:Min>11</tt:Min>
                            <tt:Max>20</tt:Max>
                        </fc:Age>
                        <fc:Gender>Male</fc:Gender>
                    </tt:HumanFace>
                </tt:Appearance>
            </tt:Object>
        </tt:Frame>
    </tt:VideoAnalytics>
</tt:MetadataStream>

```

```

<fc:Hair>
  <fc:Length>Short</fc:Length>
  <fc:Color>
    <tt:ColorCluster>
      <tt:Color X="0" Y="255" Z="0" />
    </tt:ColorCluster>
  </fc:Color>
</fc:Hair>
<fc:FacialHair>
  <fc:Beard>true</fc:Beard>
</fc:FacialHair>
<fc:Accessory>
  <fc:Opticals>
    <fc:Wear>>false</fc:Wear>
  </tt:Opticals>
  <fc:Hat>
    <fc:Wear>>true</fc:Wear>
  </fc:Hat>
  <fc:Mask>
    <fc:Wear>>false</fc:Wear>
  </fc:Mask>
</fc:Accessory>
</tt:HumanFace>
<tt:HumanBody>
  <bd:Clothing>
    <bd:Tops>
      <bd:Category>LongSleeve</bd:Category>
      <bd:Color>
        <tt:ColorCluster>
          <tt:Color X="0" Y="255" Z="0" />
        </tt:ColorCluster>
      </bd:Color>
    </bd:Tops>
    <bd:Bottoms>
      <bd:Category>Trousers</bd:Category>
      <bd:Color>

```

```
<tt:ColorCluster>
  <tt:Color X="0" Y="255" Z="0" />
</tt:ColorCluster>
</bd:Color>
</bd:Bottoms>
</bd:Clothing>
</tt:HumanBody>
<tt:Image>/9j//gBMAB ((*snip*)) v1/CgR//2Q==</tt:Image>
</tt:Appearance>
<tt:Extension xmlns="">
  <Properties>
    <Property name="DirectionNamed">Up</Property>
  </Properties>
</tt:Extension>
</tt:Object>
</tt:Frame>
<tt:Frame UtcTime="2020-01-20T10:00:18.20Z">
  ... (another frame information)
</tt:Frame>
</tt:VideoAnalytics>
</tt:MetadataStream>
```

4.1.3. AI Vehicle Detection

4.1.3.1. Parameter description

Parameter	Value	Description
UTC time	Date and Time(UTC)	UTC of video frame
ApiSource	AIVehicleDetection	Fixed value
ObjectId	4 byte integer	Detected object ID
BoundingBox	-1 ~ 1 (up to 2 decimal places)	Rectangle area of the detected object (coordinate of upper-left position and lower-right position)
CenterOfGravity	-1 ~ 1 (up to 2 decimal places)	Midpoint of BoundingBox
Color - ColorCluster	(X,Y,Z) : RGB value	Color of vehicle By sending CGI, it is possible to select whether to send the data as RGB values or as a string (*1) *For the correspondence between XYZ (RGB) values and colors, see Table 2 .
Class - ClassCandidate - Type - Likelihood	- Vehical (Type) - 0~1 (Likelihood) (up to 2 decimal places)	Kind of object and likelihood Vehical: vehicle * Not applied when "Give the ClassCandidate to Analytics Stream" is set to "Off".
Class	- Vehicle(object) - 0 ~ 1(Likelihood) (up to 2 decimal places)	Kind of object and likelihood
VehicleInfo	- Pickup, Truck, Bus, SUV (*2), Van, Sedan, Motorcycle - 0 ~ 1(Likelihood) (up to 2 decimal places)	Kind of vehicle and likelihood *2 SUV include compacts and wagons.
Image	Base64 encoded	JPEG image * Not applied when "Give the Image to Analytics Stream" is set to "Off". * This is applied when the best shot is confirmed.

Color	Gray, White, Red, Black, Blue, Green, Brown, Yellow, Purple, Pink	Color of vehicle By sending CGI, it is possible to select whether to send the data as RGB values or as a string (*1)
Properties - DirectoinNamed	Up/Right/Down/Left/UpRight/UpLeft/DownRight/DownLeft	Direction of movement

Table 2 : XYZ (RGB) value and color correspondence table

Color	X	Y	Z
Black	0	0	0
Brown	165	42	42
White	255	255	255
Gray	128	128	128
Green	0	255	0
Red	255	0	0
Blue	0	0	255
Yellow	255	255	0
Purple	128	0	128
Pink	255	192	203

*1 The transmission format of the Color tag can be selected by sending the following CGI.

[CGI setting for sending car color as RGB value (default setting)]

http://192.168.0.10/cgi-bin/adam.cgi?methodName=setApplicationPreference&appName=VehicleBestshotApp&prefType=Integer&prefName=onvif_analytics_color_type&value=0

[CGI setting for sending car color as a string].

http://192.168.0.10/cgi-bin/adam.cgi?methodName=setApplicationPreference&appName=VehicleBestshotApp&prefType=Integer&prefName=onvif_analytics_color_type&value=1

4.1.3.2. Meta Stream Example

“Give the ClassCandidate to Analytics Stream”={On}, “Give the Image to Analytics Stream”={Off}, onvif_analytics_color_type=0

```
<?xml version="1.0" encoding="utf-8"?>
<tt:MetadataStream xmlns:tt="http://www.onvif.org/ver10/schema">
  <tt:VideoAnalytics>
    <tt:Frame UtcTime="2020-01-20T10:00:08.20Z" AplSource="AIVehicleDetection">
      <tt:Object ObjectId="12345">
        <tt:Appearance>
          <tt:Shape>
            <tt:BoundingBox left="-0.20" top="0.99" right="0.83" bottom="-0.78" />
            <tt:CenterOfGravity x="0.73" y="0.11" />
          </tt:Shape>
          <tt:Color>
            <tt:ColorCluster>
              <tt:Color X="0" Y="0" Z="0" />
            </tt:ColorCluster>
          </tt:Color>
          <tt:Class>
            <tt:ClassCandidate>
              <tt:Type>Vehical</tt:Type>
              <tt:Likelihood>0.81</tt:Likelihood>
            </tt:ClassCandidate>
            <tt:Type Likelihood="0.81">Vehicle</tt:Type>
          </tt:Class>
          <tt:VehicleInfo>
            <tt:Type Likelihood="0.81">Car</tt:Type>
          </tt:VehicleInfo>
        </tt:Appearance>
        <tt:Extension xmlns="">
          <Properties>
            <Property name="DirectionNamed">Up</Property>
          </Properties>
        </tt:Extension>
      </tt:Object>
```

```

</tt:Frame>
<tt:Frame UtcTime="2020-01-20T10:00:18.20Z">
    ... (another frame information)
</tt:Frame>
</tt:VideoAnalytics>
</tt:MetadataStream>

```

“Give the ClassCandidate to Analytics Stream”={Off}, “Give the Image to Analytics Stream”={On}, onvif_analytics_color_type=1

```

<?xml version="1.0" encoding="utf-8"?>
<tt:MetadataStream xmlns:tt="http://www.onvif.org/ver10/schema">
  <tt:VideoAnalytics>
    <tt:Frame UtcTime="2020-01-20T10:00:08.20Z" AplSource="AIVehicleDetection">
      <tt:Object ObjectId="12345">
        <tt:Appearance>
          <tt:Shape>
            <tt:BoundingBox left="-0.20" top="0.99" right="0.83" bottom="-0.78" />
            <tt:CenterOfGravity x="0.73" y="0.11" />
          </tt:Shape>
          <tt:Class>
            <tt:Type Likelihood="0.81">Vehicle</tt:Type>
          </tt:Class>
          <tt:VehicleInfo>
            <tt:Type Likelihood="0.81">Car</tt:Type>
          </tt:VehicleInfo>
          <tt:Image>/9j//gBMAB ((*snip*)) v1/CgR//2Q==</tt:Image>
        </tt:Appearance>
        <tt:Color>Black</tt:Color>
        <tt:Extension xmlns="">
          <Properties>
            <Property name="DirectionNamed">Up</Property>
          </Properties>
        </tt:Extension>
      </tt:Object>
    </tt:Frame>
  </tt:VideoAnalytics>
</tt:MetadataStream>

```

```
... (another frame information)
</tt:Frame>
</tt:VideoAnalytics>
</tt:MetadataStream>
```

4.2. Event Stream (thumbnails and meta information)

The format of Event Stream is different for each applications.

4.2.1. AI Face Detection

The transmission interval of thumbnails and meta information is 1 second or 2 seconds (initial value: 1 second) interval, which can be changed by setting.

The maximum number of faces transmitted at one time is 6 faces at 1-second intervals and 12 faces at 2-second intervals. If more than the maximum number of faces are shown, the face information with the smallest number of faces to be sent is given priority for transmission.

4.2.1.1. Parameter description

Parameter	Value	Description
UTC time	Date and Time(UTC)	UTC of video frame
ApISource	AIFaceDetection	Fixed value
Objectld	4 byte integer	Detected object ID
GUID	Hex numbers	UUID
BoundingBox	-1 ~ 1 (up to 2 decimal places)	Rectangle area of the detected object * Coordinates (-1 ~ 1) of best shot for the entire angle of view.
CenterOfGravity	-1 ~ 1 (up to 2 decimal places)	Midpoint of BoundingBox
Class	- Face(object) - 0, 1(Likelihood) (up to 2 decimal places)	Kind of object and likelihood
Image	Base64 encoded	JPEG image
HumanFace - FeatureValue - L2Norm - feature-value-version	Non-disclosure	Non-disclosure
HumanFace - start-time	Date and Time(UTC)	Date and Time when the face is detected for the first time.
HumanFace - bs-frame	- X coordinate, Y coordinate, Width, Height Decimal numbers (0 ~320)	Coordinates(upper left) of the frame of the detected face of the best shot. * QVGA

HumanFace - thumb-frame	- X coordinate, Y coordinate, Width, Height Decimal numbers (0 ~320)	Coordinates with Upper left of thumbnail image of face as the origin.
HumanFace - face-info	Decimal numbers 0 fixed,0 fixed, Score of face detection x100	Face-likeness of the frame of the detected face.
HumanFace - bs-score	Decimal numbers 0 fixed, 0~3000	Score of best shot
HumanFace - send-premise	Non-disclosure	Internal data
HumanFace -Mask	false, true	Whether or not human is wearing a mask.
HumanFace -Age - <Range min="0" max="10"> - <Range min="11" max="20"> - <Range min="21" max="30"> - <Range min="31" max="40"> - <Range min="41" max="50"> - <Range min="51" max="60"> - <Range min="61">	0 ~ 1 (up to 2 decimal places)	Likelihood of age * This is not applied when the value of HumanFace -> Wear is true.
HumanFace -Gender - Male - Female	0 ~ 1 (up to 2 decimal places)	Likelihood of gender
Properties - RecommendedSize	false, true	If the width of the frame of detected human meets the recommended detection size, the value will be true. If not satisfied, the value will be false.
Properties - DetectPixelWidth	0 ~ Maximum width of camera resolution	Width of face [pixel] * It is not the size of the best shot, but the size of the detected object before resizing.
Properties - DetectPixelHeight	0 ~ Maximum height of camera resolution	Height of face [pixel]

		*It is not the size of the best shot, but the size of the detected object before resizing.
--	--	--

4.2.1.2. Meta Stream Example

```
<?xml version="1.0" encoding="utf-8"?>
<tt:MetadataStream xmlns:tt="http://www.onvif.org/ver10/schema">
  <tt:VideoAnalytics>
    <tt:Frame UtcTime="2020-01-20T10:00:08.20Z" AplSource="AIFaceDetection">
      <tt:Object ObjectId="107"
GUID="7CE62E87D1BB845F4A256728FED42A53">
        <tt:Appearance>
          <tt:Shape>
            <tt:BoundingBox left="-0.20" top="0.99" right="0.83" bottom="-
0.78"/>
            <tt:CenterOfGravity x="0.73" y="0.11" />
          </tt:Shape>
          <tt:Class><tt:Type Likelihood="0.82">Face</tt:Type></tt:Class>
          <tt:Image>(base64 image data)</tt:Image>
          <tt:Extension xmlns="">
            <HumanFace>
              <FeatureValue> ((*snip*)) </FeatureValue>
              <L2Norm> ((*snip*)) </L2Norm>
              <start-time>2020-01-20T10:00:03.60Z</start-time>
              <bs-frame>50,34,18,21</bs-frame>
              <thumb-frame>107,114,16,15</thumb-frame>
              <face-info>0,0,870</face-info>
              <bs-score>0,1234</bs-score>
              <send-premise>21000000</send-premise>
              <feature-value-version>0.1</feature-value-version>
              <Mask>false</Mask>
              <Age>
                <Range min="0" max="10">0.00</Range>
                <Range min="11" max="20">0.00</Range>
                <Range min="21" max="30">0.02</Range>
                <Range min="31" max="40">0.08</Range>
                <Range min="41" max="50">0.25</Range>
                <Range min="51" max="60">0.48</Range>
                <Range min="61">0.15</Range>
              </Age>
            </HumanFace>
          </tt:Extension>
        </tt:Appearance>
      </tt:Object>
    </tt:Frame>
  </tt:VideoAnalytics>
</tt:MetadataStream>
```

```
        </Age>
        <Gender>
            <Male>0.37</Male>
            <Female>0.63</Female>
        </Gender>
    </HumanFace>
</tt:Extension>
</tt:Appearance>
<tt:Extension xmlns="">
    <Properties>
        <Property name="RecommendedSize">true</Property>
        <Property name="DetectPixelWidth">120</Property>
        <Property name="DetectPixelHeight">120</Property>
    </Properties>
</tt:Extension>
</tt:Object>
</tt:Frame>
<tt:Frame UtcTime="2020-01-20T10:00:18.20Z" ApiSource="AIFaceDetection">
    ...(another frame information)
</tt:Frame>
</tt:VideoAnalytics>
</tt:MetadataStream>
```

4.2.2. AI People Detection

Thumbnails and meta information are sent at the timing when the best shot is determined; after one transmission, it takes at least 2 seconds before the next transmission.

The maximum number of people that can be transmitted at one time is 20.

4.2.2.1. Parameter description

Parameter	Value	Description
UTC time	Date and Time(UTC)	UTC of video frame
AplSource	AIPeopleDetection	Fixed value
ObjectId	4 byte integer	Detected object ID
GUID	Hex numbers	UUID
BoundingBox	-1 ~ 1 (up to 2 decimal places)	Rectangle area of the detected object * Coordinates (-1 ~ 1) of best shot for the entire angle of view.
CenterOfGravity	-1 ~ 1 (up to 2 decimal places)	Midpoint of BoundingBox
Class	- Human(object) - 0, 1(Likelihood) (up to 2 decimal places)	Kind of object and likelihood
Image	Base64 encoded	JPEG image
HumanFace - Age - <Range min="0" max="10"> - <Range min="11" max="20"> - <Range min="21" max="60"> - <Range min="61">	0 ~ 1 (up to 2 decimal places)	Likelihood of age
HumanFace - Gender - Male, Female	0 ~ 1 (up to 2 decimal places)	Likelihood of gender
HumanFace - Hair - length - Long, Short_Bald, Hat - Color	0 ~ 1 (up to 2 decimal places)	Likelihood of hairstyle and hair color

- Black, Brown, White, Gray, Gold		
HumanFace - FacialHair - Beard, NoBeard	0 ~ 1 (up to 2 decimal places)	Likelihood of whether or not human has a beard.
HumanFace - Accessory - Optical - Sunglass, NoGlass	0 ~ 1 (up to 2 decimal places)	Likelihood of whether or not human is wearing sunglasses.
HumanFace - Accessory - Mask - Mask, NoMask	0 ~ 1 (up to 2 decimal places)	Likelihood of whether or not human is wearing a mask.
HumanBody - FeatureValue	256-dimensional float vector	Base64-encoded feature data for individuals. (*1)
HumanBody - L2Norm	1-dimensional float vector	The base64-encoded reciprocal of the L2 norm.
HumanBody - feature-value-version	0.1	Feature Version
HumanBody - Clothing - Tops - Category - LongSleeve, ShortSleeve - Color - Black, Brown, White, Gray, Green, Red, Blue, Yellow, Orange, Purple, Pink	0 ~ 1 (up to 2 decimal places)	Likelihood of type and Color of tops
HumanBody - Clothing - Bottoms - Category - Trousers, Shorts - Color	0 ~ 1 (up to 2 decimal places)	Likelihood of type and Color of bottoms

- Black, Brown, White, Gray, Green, Red, Blue, Yellow, Orange, Purple, Pink		
HumanBody - Clothing - Shoes - Color - Black, Brown, White, Green, Red, Blue, Yellow	0 ~ 1 (up to 2 decimal places)	Likelihood of color of shoes
HumanBody - Belonging - Bag - Bag - NoBag - Color - Black, Brown, White, Green, Red, Blue, Yellow, Orange, Purple, Pink	0 ~ 1 (up to 2 decimal places)	Likelihood of color of bag
UpperBodyCoordinate	- left, right : 0 ~ Maximum width of best shot - top, bottom : 0 ~ Maximum height of best shot	Detection frame information of head in the beset shot [pixel]
FaceCoordinate	- left, right : 0 ~ Maximum width of best shot - top, bottom : 0 ~ Maximum height of best shot	Detection frame information of face in the beset shot [pixel]
Properties - DirectionNamed	Up/Right/Down/Left/UpRig ht/UpLeft/DownRight/Down Left	Direction of movement

Properties -Color	false, true	True for color video, false for black-and-white video.
Properties - Wholebody	false, true	True if the whole body is detected, false if not detected.
Properties - Upperbody	false, true	True if the head is detected, false if not.
Properties - Face	false, true	If the face is detected, it is true, and if it is not detected, it is false.
Properties - RecommendedSize	false, true	If the width of the frame of detected human meets the recommended detection size, the value will be true. If not satisfied, the value will be false.
Properties - DetectPixelWidth	0 ~ Maximum width of camera resolution	Width of human [pixel] * It is not the size of the best shot, but the size of the detected object before resizing.
Properties - DetectPixelHeight	0 ~ Maximum height of camera resolution	Height of human [pixel] *It is not the size of the best shot, but the size of the detected object before resizing.
Properties - Shoes	0 ~ 1	Likelihood of whether or not human puts on shoes.
Properties - Bag	0 ~ 1	Likelihood of whether or not human has a bag.

*1 In i-PRO Active Guard, FeatureValue is used to calculate feature similarity. The calculation method is shown below.

① Similarity Calculation

Cosine similarity is used.

$$\text{Formula : } \text{sim}(A, B) = \cos(\theta) = \frac{A \cdot B}{\|A\| \|B\|}$$

※A and B represent the feature values (FeatureValue) of Human A and Human B.

② Similarity Adjustment Processing

The following adjustment processing is applied.

If similarity is less than 45 : $\frac{50}{45} * Similarity$

If similarity is 45 or greater : $50 + \frac{50}{55} * (Similarity - 45)$

4.2.2.2. Meta Stream Example

```
<?xml version="1.0" encoding="utf-8"?>
<tt:MetadataStream xmlns:tt="http://www.onvif.org/ver10/schema">
  <tt:VideoAnalytics>
    <tt:Frame UtcTime="2020-01-20T10:00:08.20Z" AplSource="AIPeopleDetection">
      <tt:Object ObjectId="101" GUID="28FED42A7BB845F4A2567CE62E87D153">
        <tt:Appearance>
          <tt:Shape>
            <tt:BoundingBox left="-0.20" top="0.99" right="0.83" bottom="-0.78" />
            <tt:CenterOfGravity x="0.73" y="0.11" />
          </tt:Shape>
          <tt:Class><tt:Type Likelihood="0.8">Human</tt:Type></tt:Class>
          <tt:Image>(base64 image data)</tt:Image>
          <tt:Extension xmlns="">
            <HumanFace>
              <Age>
                <Range min="21" max="60">0.85</Range>
              </Age>
              <Gender>
                <Male>0.99</Male>
              </Gender>
              <Hair>
                <length>
                  <Short_Bald>0.99</Short_Bald>
                </length>
                <Color>
                  <Gray>0.73</Gray>
                </Color>
              </Hair>
              <FacialHair>
                <Beard>0.91</Beard>
              </FacialHair>
              <Accessory>
                <Opticals>
                  <Sunglass>0.28</Sunglass>
                </Opticals>
              </Accessory>
            </HumanFace>
          </tt:Extension>
        </tt:Object>
      </tt:Frame>
    </tt:VideoAnalytics>
  </tt:MetadataStream>
```

```

        <NoGlass>0.71</NoGlass>
    </Opticals>
    <Mask>
        <NoMask>0.99</NoMask>
    </Mask>
</Accessory>
</HumanFace>
<HumanBody>
    <FeatureValue>(base64-encoded feature)</FeatureValue>
    <L2Norm>( base64-encoded L2Norm)</L2Norm>
    <feature-value-version>0.1</feature-value-version>
    <Clothing>
        <Tops>
            <Category>
                <LongSleeve>0.98</LongSleeve>
            </Category>
            <Color>
                <Black>0.95</Black>
                <Gray>0.21</Gray>
            </Color>
        </Tops>
        <Bottoms>
            <Category>
                <Trousers>0.98</Trousers>
            </Category>
            <Color>
                <Black>0.99</Black>
            </Color>
        </Bottoms>
    </Clothing>
</HumanBody>
</tt:Extension>
<UpperBodyCoordinate left="10" top="12" right="40" bottom="120" />
<FaceCoordinate left="15" top="18" right="35" bottom="110" />
</tt:Appearance>
<tt:Extension xmlns="">

```

```
<Properties>
  <Property name="DirectionNamed">Up</Property>
  <Property name="Color">true</Property>
  <Property name="Wholebody">true</Property>
  <Property name="Upperbody">true</Property>
  <Property name="Face">true</Property>
  <Property name="RecommendedSize">true</Property>
  <Property name="DetectPixelWidth">120</Property>
  <Property name="DetectPixelHeight">500</Property>
</Properties>
</tt:Extension>
</tt:Object>
<tt:Object ObjectId="102" GUID="4A2567CE62E87D15328FED42A7BB845F">
  ...
</tt:Object>
</tt:Frame>
<tt:Frame UtcTime="2020-01-20T10:00:18.20Z" AplSource="AIPeopleDetection">
  ...(another frame information)
</tt:Frame>
</tt:VideoAnalytics>
</tt:MetadataStream>
```

4.2.3. AI Vehicle Detectoin

Metadata is sent after the vehicle has been tracked or when the tracking is time-out (*). The maximum number of vehicles that can be transmitted at one time is 20.

* The time-out conditions are shown below.

Condition 1: When the detection duration of the same ID reaches 10 seconds from the start of tracking.

Condition 2: When the detection duration of the same ID reaches 1 hour after judging that it has timed out. (Metadata for parked vehicles will be sent every hour.)

4.2.3.1. Parameter description

Parameter	Value	Description
UTC time	Date and Time(UTC)	UTC of video frame
ObjectId	4 byte integer	Detected object ID
GUID	Hex numbers	UUID
BoundingBox	-1 ~ 1 (up to 2 decimal places)	Rectangle area of the detected object * Coordinates (-1 ~ 1) of best shot for the entire angle of view.
CenterOfGravity	-1 ~ 1 (up to 2 decimal places)	Midpoint of BoundingBox
Class	- Vehicle(object) - 0, 1(Likelihood) (up to 2 decimal places)	Kind of object and likelihood
Image	Base64 encoded	JPEG image
VehicleInfo - Type - Sedan, Van, SUV (*1), Truck, Bus, Pickup,TwoWheels	0 ~ 1 (up to 2 decimal places)	Likelihood of model of car *1 SUV include compacts and wagons.
VehicleInfo - Color - Black, Brown, White, Gray, Green, Red, Blue, Yellow, Purple, Pink	0 ~ 1 (up to 2 decimal places)	Likelihood of color of car

Properties - DirectionNamed	Up/Right/Down/Left/UpRight /UpLeft/DownRight/DownLeft	Direction of movement
Properties -Color	false, true	True for color video, false for black-and-white video.
Properties - RecommendedSize	false, true	If the width of the detection frame meets the recommended detection size, the value will be true. If not satisfied, the value will be false.
Properties - DetectPixelWidth	0 ~ Maximum width of camera resolution	Width of car [pixel] * It is not the size of the best shot, but the size of the detected object before resizing.
Properties - DetectPixelHeight	0 ~ Maximum height of camera resolution	Height of car [pixel] *It is not the size of the best shot, but the size of the detected object before resizing.

4.2.3.2. Meta Stream Example

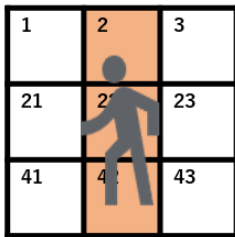
```
<?xml version="1.0" encoding="utf-8"?>
<tt:MetadataStream xmlns:tt="http://www.onvif.org/ver10/schema">
  <tt:VideoAnalytics>
    <tt:Frame UtcTime="2020-01-20T10:00:08.20Z" AplSource="AIVehicleDetection">
      <tt:Object ObjectId="105" GUID="BB845F4A256728FED42A7CE62E87D153">
        <tt:Appearance>
          <tt:Shape>
            <tt:BoundingBox left="-0.20" top="0.99" right="0.83" bottom="-0.78" />
            <tt:CenterOfGravity x="0.73" y="0.11" />
          </tt:Shape>
          <tt:Class><tt:Type Likelihood="0.82">Vehicle</tt:Type></tt:Class>
          <tt:Image>(base64 image data)</tt:Image>
          <tt:Extension xmlns="">
            <VehicleInfo>
              <Type>
                <SUV>0.98</SUV>
              </Type>
              <Color>
                <Blue>0.96</Blue>
              </Color>
            </VehicleInfo>
          </tt:Extension>
        </tt:Appearance>
        <tt:Extension xmlns="">
          <Properties>
            <Property name="DirectionNamed">Up</Property>
            <Property name="Color">true</Property>
            <Property name="RecommendedSize">true</Property>
            <Property name="DetectPixelWidth">120</Property>
            <Property name="DetectPixelHeight">500</Property>
          </Properties>
        </tt:Extension>
      </tt:Object>
      <tt:Object ObjectId="105" GUID="BB845F4A256728FED42A7CE62E87D153">
        ...
      </tt:Object>
    </tt:Frame>
  </tt:VideoAnalytics>
</tt:MetadataStream>
```

```
</tt:Object>
</tt:Frame>
<tt:Frame UtcTime="2020-01-20T10:00:18.20Z" AplSource="AIVehicleDetection">
  ...(another frame information)
</tt:Frame>
</tt:VideoAnalytics>
</tt:MetadataStream>
```


000000110000000000000000001111000000000000111111000000000000111111000000000011
1111000000000000001111110000000000000011100000000000000000100000000000000000

*1 The cell to be set as 1 among the passed locations where a person or a vehicle has passed can be selected by sending the following CGI.

[The entire person or vehicle is set to 1 (default setting)]



■AI Face Detection

http://192.168.0.10/cgi-bin/adam.cgi?methodName=sendDataToAdamApplication&appName=FaceBestshotApp&s_appDataType=1&s_appData=e3thcHBNZXRob2Q6UE9TVH0se2NhbGN1bGF0ZV9sb2NhdGlvbjowfX0=

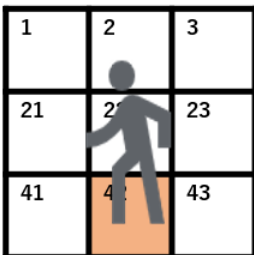
■AI People Detection

http://192.168.0.10/cgi-bin/adam.cgi?methodName=sendDataToAdamApplication&appName=HumanBestshotApp&s_appDataType=2&s_appData=e3thcHBNZXRob2Q6UE9TVH0se2NhbGN1bGF0ZV9sb2NhdGlvbjowfX0=

■AI Vehicle Detection

http://192.168.0.10/cgi-bin/adam.cgi?methodName=sendDataToAdamApplication&appName=VehicleBestshotApp&s_appDataType=2&s_appData=e3thcHBNZXRob2Q6UE9TVH0se2NhbGN1bGF0ZV9sb2NhdGlvbjowfX0=

[Only the foot position of the person or vehicle shall be 1]



■ AI Face Detection

http://192.168.0.10/cgi-bin/adam.cgi?methodName=sendDataToAdamApplication&appName=FaceBestshotApp&s_appDataType=1&s_appData=e3thcHBNZXRob2Q6UE9TVH0se2NhbGN1bGF0ZV9sb2NhdGlvbjoxfX0=

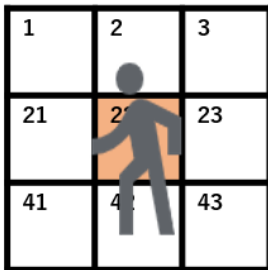
■ AI People Detection

http://192.168.0.10/cgi-bin/adam.cgi?methodName=sendDataToAdamApplication&appName=HumanBestshotApp&s_appDataType=2&s_appData=e3thcHBNZXRob2Q6UE9TVH0se2NhbGN1bGF0ZV9sb2NhdGlvbjoxfX0=

■ AI Vehicle Detection

http://192.168.0.10/cgi-bin/adam.cgi?methodName=sendDataToAdamApplication&appName=VehicleBestshotApp&s_appDataType=2&s_appData=e3thcHBNZXRob2Q6UE9TVH0se2NhbGN1bGF0ZV9sb2NhdGlvbjoxfX0=

[Only the center position of the person or vehicle is 1]



■ AI Face Detection

http://192.168.0.10/cgi-bin/adam.cgi?methodName=sendDataToAdamApplication&appName=FaceBestshotApp&s_appDataType=1&s_appData=e3thcHBNZXRob2Q6UE9TVH0se2NhbGN1bGF0ZV9sb2NhdGlvbjoyfX0=

■ AI People Detection

http://192.168.0.10/cgi-bin/adam.cgi?methodName=sendDataToAdamApplication&appName=HumanBestshotApp&s_appDataType=2&s_appData=e3thcHBNZXRob2Q6UE9TVH0se2NhbGN1bGF0ZV9sb2NhdGlvbjoyfX0=

■ AI Vehicle Detection

http://192.168.0.10/cgi-bin/adam.cgi?methodName=sendDataToAdamApplication&appName=VehicleBestshotApp&s_appDataType=2&s_appData=e3thcHBNZXRob2Q6UE9TVH0se2NhbGN1bGF0ZV9sb2NhdGlvbjoyfX0=

5. TCP alarm notification

Refer to the document below to learn about TCP alarm notification.

Command interface iPRO_H.265models_verx.xx.pdf

7.11. Panasonic Alarm Protocol(TCP notification)

5.1. AI People Detection

The alarm notification is transmitted in the form of message ID listed below.

Message name	Extension area		
	Category	Message ID	Message(ASCII)
HUMAN ATTRIBUTE MATCH (Watchlist1)	0x01	0x76	HUMAN ATTRIBUTE MATCH 01 (*1)
HUMAN ATTRIBUTE MATCH (Watchlist2)	0x01	0x77	HUMAN ATTRIBUTE MATCH 02 (*1)
HUMAN ATTRIBUTE MATCH (Watchlist3)	0x01	0x78	HUMAN ATTRIBUTE MATCH 03 (*1)
HUMAN ATTRIBUTE MATCH (Watchlist4)	0x01	0x79	HUMAN ATTRIBUTE MATCH 04 (*1)

*1 Message can be changed to a string specified in the “Alarm message” settings.

5.2. AI Vehicle Detection

The alarm notification is transmitted in the form of message ID listed below.

Message name	Extension area		
	Category	Message ID	Message(ASCII)
VEHICLE ATTRIBUTE MATCH (Watchlist1)	0x01	0x82	VEHICLE ATTRIBUTE MATCH 01 (*1)
VEHICLE ATTRIBUTE MATCH (Watchlist2)	0x01	0x83	VEHICLE ATTRIBUTE MATCH 02 (*1)
VEHICLE	0x01	0x84	VEHICLE ATTRIBUTE MATCH 03

ATTRIBUTE MATCH (Watchlist3)			(*1)
VEHICLE ATTRIBUTE MATCH (Watchlist4)	0x01	0x85	VEHICLE ATTRIBUTE MATCH 04 (*1)

*1 Message can be changed to a string specified in the "Alarm message" settings.

6. HTTP alarm notification

Refer to the document below to learn about HTTP alarm notification.

Command interface iPRO_H.265models_verx.xx.pdf

7.12. HTTP alarm notification

6.1. AI People Detection

The HTTP alarm notification is transmitted in the form of alternative characters as follows.

Alternative characters within MHttpRequest# parameter	Value
%almsrc	41
%almsrc2	Watchlist alarm Watchlist1 : 76 Watchlist2 : 77 Watchlist3 : 78 Watchlist4 : 79

6.2. AI Vehicle Detection

The HTTP alarm notification is transmitted in the form of alternative characters as follows.

Alternative characters within MHttpRequest# parameter	Value
%almsrc	41
%almsrc2	Watchlist alarm Watchlist1 : 82 Watchlist2 : 83 Watchlist3 : 84 Watchlist4 : 85

7. HTTP notification

7.1. AI Face Detection

7.1.1. Telegraphic protocol specification

When using the telegraphic protocol between the camera – PC, the HTTP protocol is used. As an HTTP client, the camera sends data to server, such as a processing unit PC.

No.	Item	Specification
1	Number of destinations	2
2	Address	Configurable by IPv4 or host name.
3	Port	1~65535
4	Connection	Disconnect the session after each transmission.
5	Content-type	multipart/form-data
6	Secure	TLS 1.2 or TLS 1.3
7	Transmission interval	1sec, 2sec This can be changed by the “Bestshot transmission interval” setting.
8	Authentication	Basic authentication, Digest authentication

7.1.2. Detail of Telegraphic protocol

This section describes the information to be sent from the camera to the server.

[Common information (Header part)]

Parameter	Value	Description
X-SensorKind	0x9000 fixed	Fixed value
X-SensorData	1~10	Number of meta information and thumbnails added to the Body part.
X-ProductID	Half-width alphanumeric character	Camera ID
X-SettingData	The following elements	Thumbnail setting value
	face-sens	1~10 Face detection sensitivity Assign the result of the following calculation. {(100 - “detection threshold”

			setting)/10}+1 Decimal points are rounded down. e.g.) When 20 is set for the “detection threshold” setting, 9 is assigned.
	thumbnail-size	1, 9	Face thumbnail size 1: 160pixel ×160pixel 9: 320pixel ×320pixel When “Image size of bestshot” is set to 160 x 160, 1 is assigned. When “Image size of bestshot” is set to 320 x 320, 9 is assigned.
	surplus-area	1, 3	Percentage of excess area in face thumbnails 1: 10% 3: 30% When “Image size of bestshot” is set to 160 x 160, 1 is assigned. When “Image size of bestshot” is set to 320 x 320, 3 is assigned.
	thumbnail-quality	1 fixed	Fixed value
X-SendTime	Date and Time(UTC)	Date and time	Date and time Format : [yyyy-mm-dd]T[hh:mm:ss.xx]Z e.g.) JST, August 29, 2013 12:35:01.00 2013-08-29T03:35:01.00Z
X-TZ	-1200~+1300	Time difference from UTC	e.g.) Osaka, Sapporo, Tokyo (time difference of 9 hours) X-TZ : +0900

X-ST	0, 1	Daylight saving time setting 0: non-daylight saving time 1: daylight saving time
------	------	--

[Count information (Body part)]

Parameter		Notation	Value	Description
<detect id>	ID	Decimal number	1~32767	Detected object ID
<start-time>	Date and time when the thumbnail image was detected	Decimal number	[yyyy-mm-dd]T[hh:mm:ss.xx]Z	Time when the thumbnail image to be attached was detected.
<start-frame>	X-coordinate, Y-coordinate, width, height	Decimal number	0~320	Upper left coordinate of the first detected face detection frame *QVGA coordinates with the upper left corner of the screen as (0,0) *Only the timing when tracking is completed is given.
<bs-frame>	X-coordinate, Y-coordinate, width, height, tracking time	Decimal number	X-coordinate, Y-coordinate, width, height : 0~320 Tracking time : 1~32767	Coordinates of the upper left corner of the best shot face detection frame and tracking time *QVGA coordinates with the upper left corner of the screen as (0,0) *Only the timing when tracking is completed is given.
<thumb-frame>	X-coordinate, Y-coordinate, width, height	Decimal number	0~320	Coordinates of the upper left corner of the face detection frame after the thumbnail image is generated *Coordinates with the upper left corner of the thumbnail image as (0,0) *Only the timing when tracking is completed is given.
<face-info>	0 fixes, 0 fixes, face-likeness	Decimal	Face-likeness : 0~1000	Face-likeness of the best shot

		number		frame of the detected face. *Only the timing when tracking is completed is given.
<bs-score>	0 fixes, best shot score	Decimal number	Best shot score : 0~3000	Best shot score *Only the timing when tracking is completed is given. *If the face is shown sideways, the score may be zero.
<send-premise>	Timing of transmission	Non-disclosure	Non-disclosure	Internal data
<feature-value-version> <l2norm>	Non-disclosure	Non-disclosure	Non-disclosure	Non-disclosure

*1 Tracking time can be converted to time from the following.

$$[\text{Date and time when the thumbnail image was detected}] + [\text{Tracking time}] \times [\text{Time to determine best shot [ms]}]$$

The processing time for determining the best shot varies depending on the camera's image capture mode.

Network Camera other than Multi-Sensor Camera :

(When the camera's imaging mode is set to 30fps) 200ms

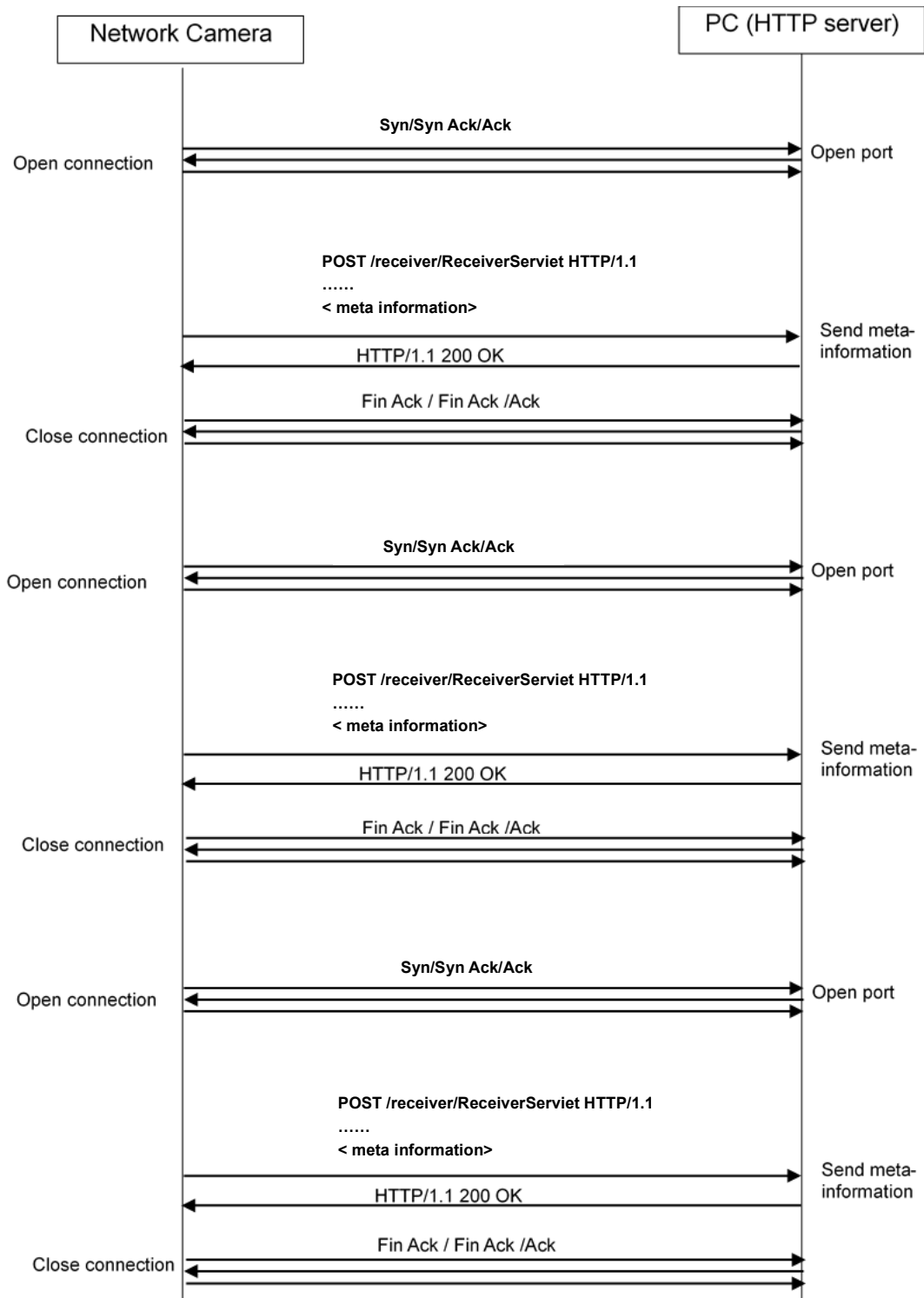
(When the camera's imaging mode is set to 25fps) 120ms

Multi-Sensor Camera :

(When the camera's imaging mode is set to 15fps/30fps) 267ms

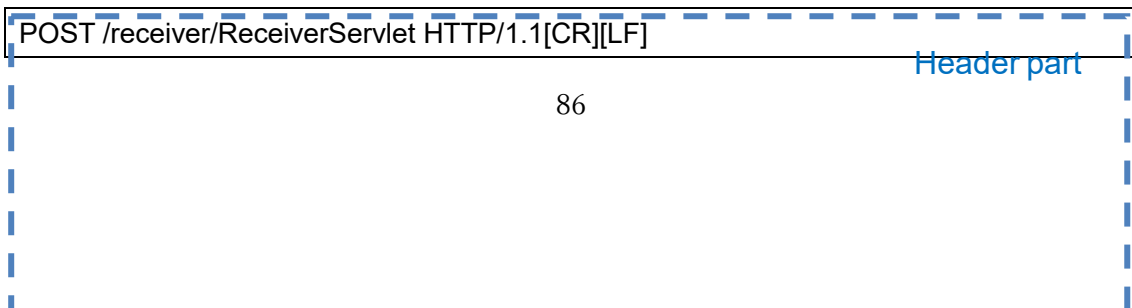
(When the camera's imaging mode is set to 12.5fps/25fps) 323ms

7.1.3. Telegraphic protocol sequence



7.1.4. Transmission format

An example of the transmission format is shown below.



Content-Length: xxxxx[CR][LF]
User-Agent: Panasonic Camera/1.0[CR][LF]
Connection: close[CR][LF]
Content-type: multipart/form-data; boundary=myboundary[CR][LF]
X-SensorKind: 9000[CR][LF]
X-SensorData: 10[CR][LF]
X-ProductID: 5u7s5ubs5OXs75Xs4OTs7uE%3D[CR][LF]
X-SettingData: face-sens="8"; thumbnail-size="9"; surplus-area="3";
thumbnail-quality="1"[CR][LF]
X-SendTime: 2013-08-29T01:43:05.87Z[CR][LF]
X-TZ: 63[CR][LF]
X-ST: 0[CR][LF]
Host: 192.168.0.111:8080[CR][LF]
[CR][LF]

--myboundary[CR][LF]

Content-Disposition: form-data; name="iPROxml1"[CR][LF]

Body part

[CR][LF]

< URL-encoded meta information 1 (XML format) >

--myboundary[CR][LF]

Content-Disposition: form-data; name="Thumb1";
filename="yyyymmddhhmmss_xxxxx_zzzzz.jpg"[CR][LF]

Content-Type: image/jpeg[CR][LF]

Content-length: XXXX[CR][LF]

[CR][LF]

< Face Thumbnail Image 1 >

--myboundary[CR][LF]

Content-Disposition: form-data; name="Feat1";
filename="yyyymmddhhmmss_xxxxx_zzzzzfv.bin"[CR][LF]

Content-Type: application/octet-stream[CR][LF]

Content-length: XXXX [CR][LF]

[CR][LF]

((*snip*))

--myboundary[CR][LF]

Content-Disposition: form-data; name="iPROxml2"[CR][LF]

[CR][LF]

< URL-encoded meta information 2 (XML format) >

```
--myboundary[CR][LF]
Content-Disposition: form-data; name="Thumb2";
filename="yyyyymmddhhmmss_XXXXX_zzzzz.jpg"[CR][LF]
Content-Type: image/jpeg[CR][LF]
Content-length: XXXX[CR][LF]
[CR][LF]
< Face Thumbnail Image 2 >
--myboundary[CR][LF]
Content-Disposition: form-data; name="Feat2";
filename="yyyyymmddhhmmss_XXXXX_zzzzzfv.bin"[CR][LF]
Content-Type: application/octet-stream[CR][LF]
Content-length: XXXX [CR][LF]
[CR][LF]
((*snip*))
--myboundary[CR][LF]
```

Examples of meta information to be URL encoded are shown below.

[1] When notified at the timing when the tracking of the detection target is completed

```
<detect id="254">
<start-time>2024-12-18T05:33:10.59Z</start-time>
<start-frame>112,58,9,11</start-frame>
<bs-frame>127,61,14,15,1</bs-frame>
<thumb-frame>115,115,90,90</thumb-frame>
<face-info>0,0,210</face-info>
<bs-score>0,6</bs-score>
<send-premise>21000000</send-premise>
<feature-value-version>0.1</feature-value-version>
<l2norm>((*snip*))</l2norm>
</detect>
```

[2] When notified at a timing when tracking of the detection target has not been completed

```
<detect id="254">
<start-time>2024-12-18T05:33:10.59Z</start-time>
```

```
<send-premise>21000000</send-premise>  
</detect>
```

8. Appendix

8.1. How to use Meta Data Stream

This product sends meta information by making a request with the following two types of RTSP URLs. In either request, the product sends meta information in the same format.

- (1) i-PRO Original Stream
- (2) ONVIF RTSP Stream

The transmission sequence for each request is described below.

(1) i-PRO Original Stream

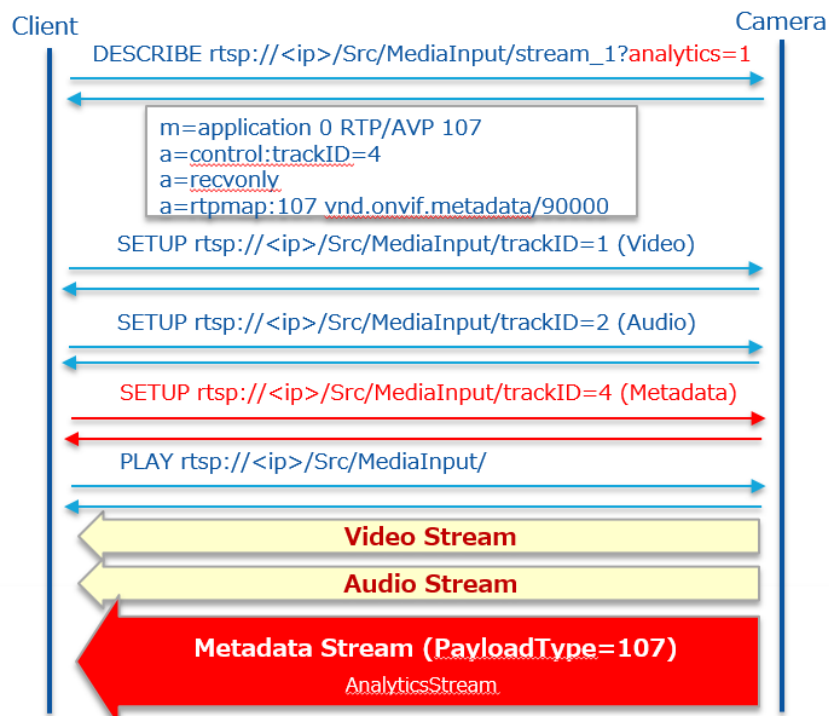
*The RTSP URL is i-PRO's own RTSP URL.

*Send “analytics=1” when requesting (RTSP URL) Analytics Stream. In the case of a multi-sensor camera, the channel number of the camera receiving the meta information is specified.

Example: To receive meta information on channel number 4, specify the following.

```
rtsp://<ip>/Src/MediaInput/stream_1/ch_4?analytics=4
```

*Send “event=1” or “analytics=1&event=1” respectively when requesting (RTSP URL) Analytics Stream, Event Stream, or both. In the case of a multi-sensor camera, send a request with “event=1” regardless of which camera receives the meta information.

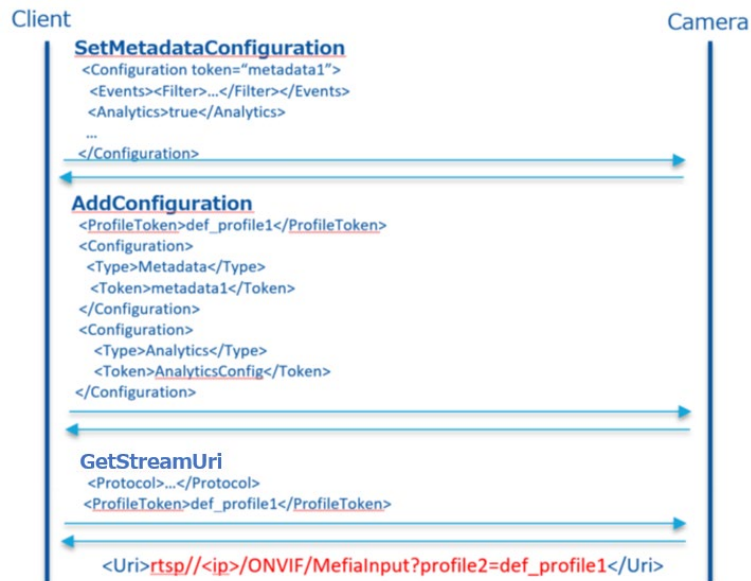


(2) ONVIF RTSP Stream

* Configure by ONVIF commands

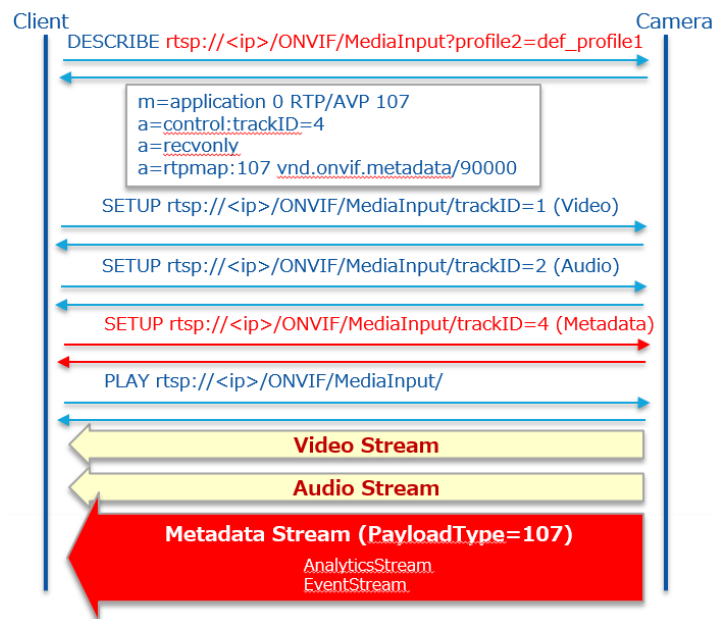
- SetMetadataConfiguration(Event filter, analytics flag)
- AddConfiguration(Add "metadata1" and "AnalyticsConfig" at "MediaProfile")

* Get RTSP URL by ONVIF commands(GetStreamUri)



* Streaming by URL got by ONVIF commands

- Event stream is also sent by streaming analytics



See the document "i-PRO_ApplicationNote_ONVIF.pdf" for details.