



Auto Tracking Application RA-AT001 Protocol Specifications

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CANON INC.

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Revision History

Version	Date	Changes	Revision History
1.00	2024/07/01	-	First edition
1.01	2025/07/31	3.2.1 Setting acquisition 3.2.2 Setting change 3.2.8 Function information acquisition 3.2.10 Metadata acquisition for tracking	- Supported Auto Tracking Application Ver.1.3.0 - Added track_info.cgi

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1 Introduction

This document specifies the protocol (hereafter the auto tracking protocol) for control of the auto tracking application (hereafter the auto tracking app). With this protocol, you can acquire information from the auto tracking app and control the auto tracking app.

1.1 Use of this Document

This document is for developers of peripheral equipment and applications using the auto tracking app.

Note that the term “remote camera” used in this document refers to any camera that supports the auto tracking app.

This document applies to the combinations of remote camera models and auto tracking apps listed below. As a general rule, the entire text of this document applies only to these combinations, unless otherwise specified.

Table 1-1 Combinations of models and auto tracking applications to which this document applies

Model	Auto tracking application
CR-N700	1.3.0
CR-N500	
CR-N300	
CR-N100	

1.1.1 Caution

Only use the auto tracking command when the auto tracking app is running. Refer to the auto tracking app instruction manual for details of how to use the auto tracking app.

1.2 Notation

The following notation and text formatting is used in this document.

<i>"Italic"</i>	Represents a parameter replaceable with an actual name or value.
"Verdana 0...50"	Represents a parameter or setting value.
"<Verdana>"	Represents a variable.
" Note: "	Represents a special note or precaution.
[XXXXXX]	Represents a reference chapter or section and reference documents besides this document.

2 Protocol Overview

The auto tracking protocol provides control of the auto tracking app and information acquisition from the auto tracking app. The auto tracking protocol is provided as an HTTP service of the remote camera.

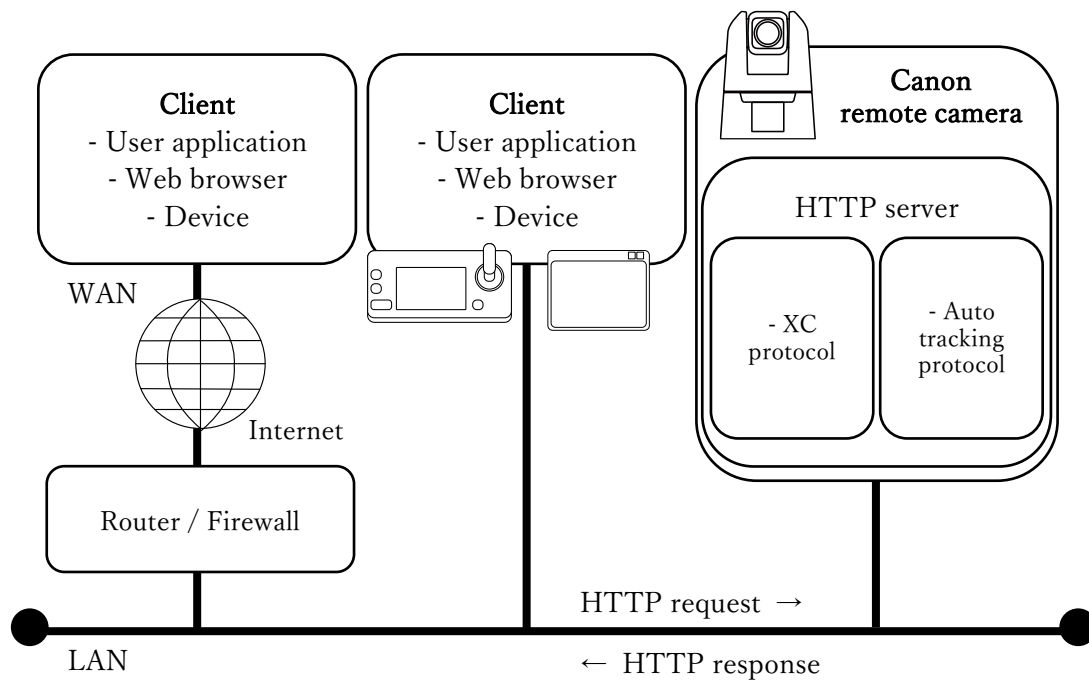


Fig. 2-1 Auto tracking protocol concept diagram

3 Auto Tracking Protocol Specifications

3.1 Interface Specifications

3.1.1 Request

Controls the auto tracking app using the auto tracking protocol. The auto tracking protocol is received by the HTTP server of the remote camera as an HTTP request.

The auto tracking protocol is not dependent on a specific HTTP version. The remote cameras supported by this document are HTTP/1.1 and HTTP/2 compliant. GET can be used as the HTTP method.

The URI is made up of an auto tracking protocol or parameter that starts with "/cgi-addon/Auto_Tracking_RA-AT001/app_ctrl/".

Including the leading "cgi-addon/Auto_Tracking_RA-AT001/app_ctrl/", the URI and message body are case sensitive.

Syntax:

```
GET /cgi-addon/Auto_Tracking_RA-AT001/app_ctrl /<Command>[?<ParameterList>...]
HTTP/1.1
```

3.1.1.1 HTTP Request Header

The following is the HTTP request header field related to the operation of the auto tracking protocol.

All other HTTP request fields are ignored.

- Authorization
- Connection

3.1.2 Response

The auto tracking protocol response is sent from the HTTP server of the remote camera as an HTTP response.

Response:

```
HTTP/1.1 200 OK
Date: <Time stamp>
Connection: keep-alive
Content-Length: <Message body length>
Server: vb
content-type: application/json
cache-control: no-cache, no-store
pragma: no-cache
x-frame-options: sameorigin
expires: thu, 01 dec 1970 00:00:00 gmt
x-content-type-options: nosniff
x-xss-protection: 1; mode=block
<Blank line>
<Message body>
```

3.1.2.1 HTTP Status

The execution result of the HTTP protocol of the auto tracking protocol is returned with an HTTP status. The main return values and meanings are described below.

Table 3-1 List of returned HTTP statuses

HTTP Status	Description
200 OK	Request was processed normally
400 Bad Request	Request is invalid
403 CGI is limited	The specified CGI has a restricted function
404 Not Found	Resources corresponding to the requested URI do not exist
500 Internal Server Error	Request denied due to internal processing error
503 Service Unavailable	Request denied due to temporary overload

3.1.2.2 Auto Tracking App Status

The message body of the auto tracking protocol response contains the auto tracking app status (status code). The main return values and meanings are described below.

Table 3-2 List of returned auto tracking app statuses

status_code	Description
G0_100	Processed normally
G0_101	Setting changes were restricted: - Could not change the setting - Rounded to a value different from the specified one
E4_120	Invalid parameter
E4_121	Required parameter not specified
E4_122	Specified CGI does not exist
E4_123	Restricted due to the specified CGI having a restricted function
E4_124	The number of [key=value] items among the request parameters exceeds the maximum limit
E5_100	Request denied due to internal processing error
E5_101	Execution not possible due to camera facial detection function being unavailable

3.1.3 Protocol Configuration

3.1.3.1 Command List

The following are the commands provided by the auto tracking protocol and the corresponding function.

Table 3-3 Commands and functions of the auto tracking protocol

Command	Function
get_config.cgi	Acquires the auto tracking app settings
update_config.cgi	Changes the auto tracking app settings (Settings valid while auto tracking app is running)
save_config.cgi	Saves the auto tracking app settings (Settings valid even after restarting the auto tracking app)
validate_config.cgi	Acquires how many irregularities have occurred in area settings of the auto app and the area names
get_setting_set.cgi	Acquires the configuration set information set in the auto tracking app
update_setting_set.cgi	Changes the configuration set number and name to be applied to the auto tracking app
move_initial_position.cgi	Controls PTZ to move to the initial position set in the auto tracking app
get_capability.cgi	Acquires function information provided by the auto tracking app
get_limitation_info.cgi	Acquires the time information recorded when the function of the auto tracking app was restricted or when the restriction was released
track_info.cgi	Acquires metadata created by the auto tracking app

3.1.3.2 Protocol Syntax

The auto tracking protocol consists of commands and parameters. The following are the syntax conditions when specifying commands and parameters.

- Parameters are in the format “<Name>=<Value>”.
- Parameters are specified with the “&” separator in the URI query string.
- The parameters perform URL encoding.
- Parameter names and values may be partially abbreviated with the “[...]” notation. *1
- There are no limitations on the order of parameter specification. *2

Note:

*1 Parameters that cannot be abbreviated are indicated with [Mandatory].

*2 If a parameter is specified multiple times, only the last specified parameter is used unless it is a parameter that can be specified multiple times.

Example:

```
http://192.168.100.1/cgi-addon/Auto_Tracking_RA-AT001/  
app_ctrl/update_config.cgi?trackingEnable=1&targetSelection=0
```

Note:

The auto tracking protocol does not support pipelining even when conforming with HTTP/1.1.

3.2 Command Specification

This describes the auto tracking protocol command specifications.

3.2.1 Setting acquisition [get_config.cgi]

Acquires the auto tracking app settings. Keys parameter is used to specify the name of the setting item whose value is to be acquired. At least one parameter must be specified in a single command. Multiple parameters can also be specified and set values acquired.

For setting items in Auto Tracking Application (Lite), please refer to the "Auto Tracking Application User Manual."

3.2.1.1 Command

Syntax:

```
http://<IpAddress>/cgi-addon/Auto_Tracking_RA-AT001/app_ctrl/  
get_config.cgi?keys=<Value1>[,<Value2>...]
```

Parameter:

Parameter	Value Type/Range	Description
keys	Refer to Table 3-4 Setting item list	Name of setting item to be acquired

Table 3-4: Setting item list

Setting item	Value Type/Range	Description
trackingEnable	0 1	Indicates whether auto tracking is Off or On 0: Auto tracking Off 1: Auto tracking On
zoomControlEnable	0 1	Indicates whether to specify the display size of the tracked object 0: Display size Off 1: Display size On
targetSizeLevel	[1:5]	Represents the filming size of the tracked object * When zoomControlEnable is "0", this setting is deactivated

Setting item	Value Type/Range	Description
autoZoomEnable	0 1	Indicates whether the autozoom function is Off or On When On, it zooms in/out while tracking to maintain the display size at the specified targetSizeLevel 0: autoZoom Off 1: autoZoom On * When zoomControlEnable is "0", this setting is deactivated
targetSelection	0 1	Indicates whether [Auto Select] is Off or On 0: Tracked target not automatically selected 1: Tracked target automatically selected
sensitivity	[1:10]	Represents the sensitivity to tracking the object The higher the value, the more agile the tracking
targetPosition	X [1000:9000] Y [1000:9000]	Represents the position (X,Y) of the tracked object's face displayed on the screen, and specifies it as "X:Y" X and Y are ratios of the screen width and height, respectively (scaled to 10,000)
compAssistEnable	0 1	Indicates whether [Auto Framing] is Off or On 0: Auto Framing Off 1: Auto Framing On
multiTargetAssistEnable	0 1	Indicates whether [Multi-Person] is Off or On Adjusts the display position and size to ensure multiple targets fit in a well-balanced manner 0: Multi-Person Off 1: Multi-Person On *This feature is disabled when compAssistEnable is "0"
multiTargetAssistSens	[1:3]	Represents the zoom speed during multi-target tracking The higher the value, the faster the zoom speed during tracking *This setting is invalid when [Multi-Person] is disabled
multiTargetAssistMinSize	[1:3]	Represents the minimum size when zooming out during multi-person tracking The higher the value, the sooner zooming out will stop before the subject's size becomes too small *This setting is invalid when [Multi-Person] is disabled

Setting item	Value Type/Range	Description
faceOperationAssistEnable	0 1	Indicates whether [Face Direction] is Off or On Adjust the display position to ensure space is left in the facing direction during single target tracking 0: Face Direction Off 1: Face Direction On *This feature is disabled when compAssistEnable is "0"
faceOperationAssistFreq	[1:3]	Represents the adjustment sensitivity of [Face Direction] The higher the sensitivity, the more frequent the adjustment will be *This setting is invalid when [Face Direction] is disabled
faceOperationAssistStrength	[1:3]	Represents the size of the space adjusted in the display position by [Face Direction] The higher the value, the larger the space left in the face direction *This setting is invalid when [Face Direction] is disabled
faceOperationAssistCenterPos	0 1	Represents the display position when the target faces forward in [Face Direction] 0: Maintain 1: Center *This setting is invalid when [Face Direction] is disabled
sitStandAssistEnable	0 1	Indicates whether [Sit/Stand] is Off or On Adjust the display size after the target sits down or stands up during single target tracking 0: Sit/Stand Off 1: Sit/Stand On *This feature is disabled when compAssistEnable is "0" *When enabled, the following settings will be applied: [Display Size]: On, same value as [Display Size After Standing Up] [Auto Zoom]: On
sitAssistSize	4 5	Represents the display size after sitting down The higher the value, the larger the display size of the target will be after sitting down *This setting is invalid when [Sit/Stand] is disabled
standAssistSize	1 2	Represents the display size after standing up The higher the value, the larger the display size of the target will be after standing up *This setting is invalid when [Sit/Stand] is disabled

3.2.1.2 Response

In the response to `get_config.cgi`, the processing result for the setting acquisition and the set values for the items specified by command are returned in the format "Name": "Value".

Shows details of the response to `get_config.cgi`.

A. Successful response

- **Command example**

```
http://<IpAddress>/cgi-addon/Auto_Tracking_RA-AT001/app_ctrl/  
get_config.cgi?keys=trackingEnable,targetSelection
```

- **Response example**

HTTP Code : 200 OK

Content-Type : application/json

MessageBody :

```
{"trackingEnable":"0","targetSelection":"1","status_code":"G0_100","description":"Su  
ccess"}
```

B. Error response

- **Details of the response**

Table 3-5: Details of the response when error occurs

header	body		
HTTP status code	status_code	description	Content
400	E4_120	Invalid Parameter	Invalid setting item name
404	E4_122	CGI does not exist	Specified CGI does not exist
500	E5_100	CGI internal error	Request denied due to internal processing error
503	E5_101	Face detection is disabled	Execution not possible due to camera facial detection function being unavailable

3.2.2 Setting change [update_config.cgi]

Changes the auto tracking app settings. Settings can be changed by specifying the setting items and values as parameters. At least one setting item must be specified in a single command. Multiple setting items can be specified and their settings changed.

After changing the settings, they are effective as long as the auto tracking app is running. If the procedure in [3.2.3 Setting Saving] is carried out the settings are kept even after restarting the app.

For setting items in Auto Tracking Application (Lite), please refer to the "Auto Tracking Application User Manual."

3.2.2.1 Command

Syntax:

```
http://<IpAddress>/cgi-addon/Auto_Tracking_RA-AT001/app_ctrl/  
update_config.cgi?<Name1>=<Value1>&<Name2>=<Value2>...
```

Table 3-6: Setting item list

Setting item	Value Type/Range	Description
trackingEnable	0 1	Indicates whether auto tracking is Off or On 0: Auto tracking Off 1: Auto tracking On
zoomControlEnable	0 1	Indicates whether to specify the filming size of the tracked object 0: Display size Off 1: Display size On
targetSizeLevel	[1:5]	Represents the filming size of the tracked object * When zoomControlEnable is "0", this setting is deactivated
autoZoomEnable	0 1	Indicates whether the autozoom function is Off or On When On, it zooms in/out while tracking to maintain the filming size at the specified targetSizeLevel 0: autoZoom Off 1: autoZoom On * When zoomControlEnable is "0", this setting is deactivated

Setting item	Value Type/Range	Description
targetSelection	0 1	Indicates whether [Auto Select] is Off or On 0: Tracked target not automatically selected 1: Tracked target automatically selected
sensitivity	[1:10]	Represents the sensitivity to tracking the object The higher the value, the more agile the tracking
targetPosition	X [1000:9000] Y [1000:9000]	Represents the position (X,Y) of the tracked object's face displayed on the screen, and specifies it as "X:Y" X and Y are ratios of the screen width and height, respectively (scaled to 10,000)
roundType	0 1	Specifies how to round the set value when a value outside the limits is specified while function is restricted (*write only) Treated as "0" if not specified Setting is not necessary when there is no restriction on function but even if set it will not affect operation 0: If the maximum range limit is exceeded ⇒round to the lowest value that is in the range If the minimum range limit is not reached ⇒round to the highest value that is in the range 1: If the maximum range limit is exceeded ⇒round to the highest value that is in the range If the minimum range limit is not reached ⇒round to the lowest value that is in the range
compAssistEnable	0 1	Indicates whether [Auto Framing] is Off or On 0: Auto Framing Off 1: Auto Framing On
multiTargetAssistEnable	0 1	Indicates whether [Multi-Person] is Off or On Adjusts the display position and size to ensure multiple targets fit in a well-balanced manner 0: Multi-Person Off 1: Multi-Person On *This feature is disabled when compAssistEnable is "0"
multiTargetAssistSens	[1:3]	Represents the zoom speed during multi-target tracking The higher the value, the faster the zoom speed during tracking *This setting is invalid when [Multi-Person] is disabled

Setting item	Value Type/Range	Description
multiTargetAssistMinSize	[1:3]	Represents the minimum size when zooming out during multi-person tracking The higher the value, the sooner zooming out will stop before the subject's size becomes too small *This setting is invalid when [Multi-Person] is disabled
faceOperationAssistEnable	0 1	Indicates whether [Face Direction] is Off or On Adjust the display position to ensure space is left in the facing direction during single target tracking 0: Face Direction Off 1: Face Direction On *This feature is disabled when compAssistEnable is "0"
faceOperationAssistFreq	[1:3]	Represents the adjustment sensitivity of [Face Direction] The higher the sensitivity, the more frequent the adjustment will be *This setting is invalid when [Face Direction] is disabled
faceOperationAssistStrength	[1:3]	Represents the size of the space adjusted in the display position by [Face Direction] The higher the value, the larger the space left in the face direction *This setting is invalid when [Face Direction] is disabled
faceOperationAssistCenterPos	0 1	Represents the display position when the target faces forward in [Face Direction] 0: Maintain 1: Center *This setting is invalid when [Face Direction] is disabled
sitStandAssistEnable	0 1	Indicates whether [Sit/Stand] is Off or On Adjust the display size after the target sits down or stands up during single target tracking 0: Sit/Stand Off 1: Sit/Stand On *This feature is disabled when compAssistEnable is "0" *When enabled, the following settings will be applied: [Display Size]: On, same value as [Display Size After Standing Up] [Auto Zoom]: On

Setting item	Value Type/Range	Description
sitAssistSize	4 5	Represents the display size after sitting down The higher the value, the larger the display size of the target will be after sitting down *This setting is invalid when [Sit/Stand] is disabled
standAssistSize	1 2	Represents the display size after standing up The higher the value, the larger the display size of the target will be after standing up *This setting is invalid when [Sit/Stand] is disabled

3.2.2.2 Response

In the response to `update_config.cgi`, the processing result for the setting change is returned.
Shows details of the response to `update_config.cgi`.

A. Successful response

• Command example

```
http://<IpAddress>/cgi-addon/Auto_Tracking_RA-AT001/app_ctrl/update_config.cgi?trackingEnable=1&targetSizeLevel=2
```

• Details of the response

Table 3-7: Details of the response when operation is successful

header	body		
HTTP status code	status_code	description	Content
200	G0_100	Success	Setting changes processed normally
200	G0_101	Parameter range is limited	Setting changes were restricted: - Could not change the setting - Rounded to a value different from the specified one

• Response example

HTTP Code : 200 OK
Content-Type : application/json
MessageBody :

```
{"status_code": "G0_100", "description": "Success"}
```

B. Error response

- Details of the response

Table 3-8: Details of the response when error occurs

header	body		
HTTP status code	status_code	description	Content
400	E4_120	Invalid Parameter	Invalid parameter
404	E4_122	CGI does not exist	Specified CGI does not exist
400	E4_124	Too many query parameters	The number of [key=value] items among the request parameters exceeds the maximum limit
500	E5_100	CGI internal error	Request denied due to internal processing error
503	E5_101	Face detection is disabled	Execution not possible due to camera facial detection function being unavailable

3.2.3 Setting saving [save_config.cgi]

Saves the app settings. After making the setting changes in [3.2.2 Setting Change], saving the settings will keep them effective even after restarting the app.

3.2.3.1 Command

Syntax:

```
http://<ipaddress>/cgi-addon/Auto_Tracking_RA-AT001/  
app_ctrl/save_config.cgi?keys=<Value1>[,<Value2>...]
```

Parameter:

Parameter	Value Type/Value Range	Description
keys	<string>	Name of setting item to be saved

3.2.3.2 Response

In the response to save_config.cgi, the processing result for the setting saving is returned.
Shows details of the response to save_config.cgi.

A. Successful response

- **Command example**

```
http://<ipaddress>/cgi-addon/Auto_Tracking_RA-  
AT001/app_ctrl/save_config.cgi?keys=trackingEnable
```

- **Response example**

HTTP Code : 200 OK
Content-Type : application/json
MessageBody :

```
{"status_code": "G0_100", "description": "Success"}
```

B. Error response

- Details of the response

Table 3-9: Details of the response when error occurs

header	body		
HTTP status code	status_code	description	Content
400	E4_120	Invalid Parameter	Invalid setting item name
404	E4_122	CGI does not exist	Specified CGI does not exist
500	E5_100	CGI internal error	Request denied due to internal processing error

3.2.4 Area setting status acquisition

[validate_config.cgi]

Acquires the number of irregular area settings of the auto tracking app and the area names.

If one or more irregularities are acquired, the auto tracking cannot be turned on until they have been deleted. In other words, it is not possible to make “trackingEnable=1” in [3.2.2 Setting Change (update_config.cgi)].

If there are one or more irregularities, the area settings must be revised using the auto tracking app setting screen (hereafter the auto tracking UI).

3.2.4.1 Command

Syntax:

```
http://<IpAddress>/cgi-addon/Auto_Tracking_RA-AT001/app_ctrl/  
validate_config.cgi
```

3.2.4.2 Response

In the response to validate_config.cgi, the processing result for the area setting status acquisition, and the number of irregularities in the area setting and the area names, are returned.

Shows details of the response to validate_config.cgi.

A. Successful response

• Details of the response

Table 3-10: Details of the response when operation is successful

Field Name	Value	Content
error_num	Integer value	Number of irregularities in the area setting
error_info	[Area name1]:[Area name2]	Name of area where irregularity occurred (refer to Table 3-11) *When an irregularity occurs in only one area, the same name is entered for area names 1 and 2.

Table 3-11: Area information

Area Name	Content
visibilityLimitUpper	Specified shooting range: Upper
visibilityLimitLower	Specified shooting range: Lower
visibilityLimitRight	Specified shooting range: Right
visibilityLimitLeft	Specified shooting range: Left
homePosition	Initial position
priorityDisplayArea	Priority display area
fixedAngleArea1	Fixed viewing angle area:1
fixedAngleArea2	Fixed viewing angle area:2
fixedAngleArea3	Fixed viewing angle area:3
fixedAngleArea4	Fixed viewing angle area:4
detectedArea	Automatic selection area

• Response example

HTTP Code : 200 OK

Content-Type : application/json

MessageBody :

```
{"error_num":1,"error_info":["visibilityLimitLeft:homePosition"],"status_code":"G0_100","description":"Success"}
```

B. Error response

- **Details of the response**

Table 3-12: Details of the response when error occurs

header	body		
HTTP status code	status_code	description	Content
400	E4_120	Invalid Parameter	Invalid parameter
404	E4_122	CGI does not exist	Specified CGI does not exist
500	E5_100	CGI internal error	Request denied due to internal processing error

3.2.5 Acquires configuration set information

[get_setting_set.cgi]

Acquires the configuration set information set in the auto tracking app. More precisely, the configuration set number and name can be acquired.

3.2.5.1 Command

Syntax:

```
http://<Ipaddress>/cgi-addon/Auto_Tracking_RA-AT001/app_ctrl/  
get_setting_set.cgi
```

3.2.5.2 Response

In the response to `get_setting_set.cgi`, the currently active configuration set number, the list of all configuration sets (number, name), and the processing result for the configuration set information acquisition, are returned.

Shows details of the response to `get_setting_set.cgi`

A. Successful response

▪ Details of the response

Table 3-13: Details of the response when operation is successful

Field Name	Value	Content	
setNo	[1:5]	Currently active configuration set number	
settingSetList	Array[5]	Configuration set information array (number/name)	
	Field Name	Value	Content
	setNo	[1:5]	Configuration set number
	setName	Character string (40 characters max.)	Configuration set name Note: URL-encoded UTF-8 character string

▪ Response example

HTTP Code : 200 OK

Content-Type : application/json

MessageBody :

```
{
  "setNo": "1",
  "settingSetList": [
    {"setNo": "1", "setName": "setting1"},
    {"setNo": "2", "setName": "setting2"},
    {"setNo": "3", "setName": "setting3"},
    {"setNo": "4", "setName": "setting4"},
    {"setNo": "5", "setName": "setting5"}],
  "status_code": "G0_100", "description": "Success"
}
```

B. Error response

▪ Details of the response

Table 3-14: Details of the response when error occurs

header	body		
HTTP status code	status_code	description	Content
400	E4_120	Invalid Parameter	Invalid parameter
404	E4_122	CGI does not exist	Specified CGI does not exist
500	E5_100	CGI internal error	Request denied due to internal processing error

3.2.6 Changes configuration set information

[update_setting_set.cgi]

Changes the configuration set number to be applied to the auto tracking app. It is also possible to change the name of that configuration set at the same time.

If the setting values were not saved when the configuration set number was changed, the configuration set number is changed after saving the setting values.

3.2.6.1 Command

Syntax:

```
http://<Ipaddress>/cgi-addon/Auto_Tracking_RA-AT001/app_ctrl/  
update_setting_set.cgi?setNo=<Value1>&setName=<Value2>
```

Parameter:

Parameter	Value Type/Range	Description
setNo	[1:5]	Applied configuration set number [Mandatory]
setName	Character string (40 characters max.)	Configuration set name for the number specified in setNo Empty when "%22%22" is specified because it overlaps with a setting value that implies an empty value Note: URL-encoded UTF-8 character string

3.2.6.2 Response

In the response to update_setting_set.cgi, the processing result for the configuration set information change is returned.

Shows details of the response to update_setting_set.cgi

A. Successful response

· Command example

```
http://<Ipaddress>/cgi-addon/Auto_Tracking_RA-AT001/app_ctrl/  
update_setting_set.cgi?setNo=2&setName=S2
```

- **Details of the response**

Table 3-15: Details of the response when operation is successful

header	body		
HTTP status code	status_code	description	Content
200	G0_100	Success	Configuration set information changes processed normally
200	G0_101	Parameter range is limited	Setting changes were restricted: - Could not change the setting - Rounded to a value different from the specified one

- **Response example**

HTTP Code : 200 OK

Content-Type : application/json

MessageBody :

```
{"status_code": "G0_100", "description": "Success"}
```

B. Error response

- **Details of the response**

Table 3-16: Details of the response when error occurs

header	body		
HTTP status code	status_code	description	Content
400	E4_120	Invalid Parameter	Invalid setting item name
400	E4_121	Required parameters are missing	Required parameter not specified
404	E4_122	CGI does not exist	Specified CGI does not exist
500	E5_100	CGI internal error	Request denied due to internal processing error

3.2.7 PTZ control to move to the initial position

[move_initial_position.cgi]

Controls PTZ to move to the initial position set in the auto tracking app. Changes to the initial position setting should be performed with the auto tracking UI.

3.2.7.1 Command

Syntax:

```
http://<IpAddress>/cgi-addon/Auto_Tracking_RA-AT001/app_ctrl/  
move_initial_position.cgi
```

3.2.7.2 Response

In the response to move_initial_position.cgi, the processing result for initial position PTZ control is returned.

Shows details of the response to move_initial_position.cgi

A. Successful response

- Response example

HTTP Code : 200 OK
Content-Type : application/json
MessageBody :

```
{"status_code": "G0_100", "description": "Success"}
```

B. Error response

- Details of the response

Table 3-17: Details of the response when error occurs

header	body		
HTTP status code	status_code	description	Content
400	E4_120	Invalid Parameter	Invalid setting item name
404	E4_122	CGI does not exist	Specified CGI does not exist
500	E5_100	CGI internal error	Request denied due to internal processing error

3.2.8 Function information acquisition

[get_capability.cgi]

Acquires function information provided by the auto tracking app.

3.2.8.1 Command

Syntax:

```
http://<IpAddress>/cgi-addon/Auto_Tracking_RA-AT001/app_ctrl/  
get_capability.cgi
```

3.2.8.2 Response

In the response to `get_capability.cgi`, the processing result for the acquisition of function information provided by the auto tracking app and the set values for the items specified by command are returned.

Shows details of the response to `get_capability.cgi`.

A. Successful response

• Details of the response

Table 3-18: Details of the response when operation is successful

Field Name	Value	Content		
api-info	object	App function information		
	Field Name	Value	Content	
	cgi	Character string array	List of CGI prepared by the auto tracking app	
	options	Character string array	Items limited by function restrictions	
		Field Name	Value	Content
		update_config.cgi	Object array Information about parameters with setting values limited by function restrictions *Left blank ([]) when there is no function restriction	
		Field Name	Value	Content
		key	Setting item name	Refer to [3.2.2 Setting Change]
		value	Settable value	Settable value
		update_setting_set.cgi	Object array List of configuration set information limited by function restrictions *Left blank ([]) when there is no function restriction	
		Field Name	Value	Content
		key	Setting item name	Refer to Table 3-19
		value	Character string array	Settable configuration set value
	ui_control	Object array List about items on auto tracking UI limited by function restrictions *Left blank ([]) when there is no function restriction		

Table 3-19: Configuration set restrictions

Field Name	Values when function is restricted	Content
setNo	["1"]	Selectable configuration set number
setName	[]	Selectable configuration set name

- **Response example**

HTTP Code : 200 OK

Content-Type : application/json

MessageBody :

```
{
  "api-info":
  {
    "cgi":
    [
      "get_config.cgi", "update_config.cgi", "init_config.cgi", "validate_config.cgi", "track_info.cgi",
      "select_target.cgi", "save_config.cgi", "convert_tracking.cgi", "get_setting_set.cgi", "update_setting_set.cgi",
      "save_setting_set.cgi", "move_initial_position.cgi", "get_limitation_info.cgi", "get_capability.cgi"
    ],
    "options":
    {
      "update_setting_set.cgi": [], "update_config.cgi": [], "ui_control": []
    }
  },
  "status_code": "G0_100", "description": "Success"
}
```

- **Response example (when the app function is restricted)**

HTTP Code : 200 OK
Content-Type : application/json
MessageBody :

```
{
  "api-info": {
    "cgi": [
      "get_config.cgi", "update_config.cgi", "validate_config.cgi", "track_info.cgi", "save_config.cgi", "convert_tracking.cgi", "get_setting_set.cgi", "update_setting_set.cgi", "move_initial_position.cgi", "get_limitation_info.cgi", "get_capability.cgi"
    ],
    "options": {
      "update_setting_set.cgi": {
        "key": "setNo", "value": ["1"]
      }, {
        "key": "setName", "value": [""]
      }, {
        "key": "targetSizeLevel", "value": ["2", "4"]
      }, {
        "key": "autoZoomEnable", "value": ["1"]
      }, {
        "key": "targetPosition", "value": ["5000:5000"]
      }, {
        "key": "trackingDisableAreaEnable", "value": ["0"]
      }, {
        "key": "targetSelection", "value": ["1"]
      }, {
        "key": "detectedAreaEnable", "value": ["0"]
      }, {
        "key": "trackingStartTime", "value": ["0"]
      }, {
        "key": "sensitivity", "value": ["9"]
      }, {
        "key": "undetectedArea1Enable", "value": ["0"]
      }, {
        "key": "undetectedArea2Enable", "value": ["0"]
      }, {
        "key": "undetectedArea3Enable", "value": ["0"]
      }, {
        "key": "undetectedArea4Enable", "value": ["0"]
      }, {
        "key": "priorityDisplayAreaEnable", "value": ["0"]
      }, {
        "key": "fixedAngleArea1Enable", "value": ["0"]
      }, {
        "key": "fixedAngleArea2Enable", "value": ["0"]
      }, {
        "key": "fixedAngleArea3Enable", "value": ["0"]
      }, {
        "key": "fixedAngleArea4Enable", "value": ["0"]
      }, {
        "key": "trackingRestartEnable", "value": ["1"]
      }, {
        "key": "tiltFixed", "value": ["0"]
      }, {
        "key": "visibilityLimitEnable", "value": ["0"]
      }, {
        "key": "silhouetteDisplay", "value": ["1"]
      }, {
        "key": "execApplicationDisplayMode", "value": ["1:0"]
      }, {
        "key": "priorityAreaDisplayMode", "value": ["1"]
      }, {
        "key": "cameraFrameDisplayMode", "value": ["1"]
      }, {
        "key": "nonDetectionAreaDisplayMode", "value": ["1"]
      }, {
        "key": "clickControlModeTargetSelect", "value": []
      }, {
        "key": "clickControlModeSilhouetteMove", "value": []
      }
    ],
    "status_code": "G0_100", "description": "Success"
  }
}
```

B. Error response

- **Details of the response**

Table 3-20: Details of the response when error occurs

header	body		
HTTP status code	status_code	description	Content
400	E4_120	Invalid Parameter	Invalid setting item name
404	E4_122	CGI does not exist	Specified CGI does not exist
500	E5_100	CGI internal error	Request denied due to internal processing error

3.2.9 Acquisition of restriction information

[get_limitation_info.cgi]

Acquires the time information recorded when the function of the auto tracking app was restricted or when the restriction was released. If there are changes to the time information, the app restriction information must be acquired again using `get_capability.cgi`.

3.2.9.1 Command

Syntax:

```
http://<IpAddress>/cgi-addon/Auto_Tracking_RA-AT001/app_ctrl/  
get_limitation_info.cgi
```

3.2.9.2 Response

In the response to `get_limitation_info.cgi`, the time information recorded when the function of the auto tracking app was restricted or when the restriction was released, and the processing result of the acquisition of updated information about application restrictions is returned.

Shows details of the response to `get_limitation_info.cgi`

A. Successful response

▪ Details of the response

Table 3-21: Details of the response when operation is successful

Field Name	Value	Content
lastUpdateTime	Character string (maximum 11-digit number)	Time when the application restriction status was last updated (monotonic)

▪ Response example

HTTP Code : 200 OK
Content-Type : application/json
MessageBody :

```
{"lastUpdateTime":"4495","status_code":"G0_100","description":"Success"}
```

B. Error response

- **Details of the response**

Table 3-22: Details of the response when error occurs

header	body		
HTTP status code	status_code	description	Content
400	E4_120	Invalid Parameter	Invalid setting item name
404	E4_122	CGI does not exist	Specified CGI does not exist
500	E5_100	CGI internal error	Request denied due to internal processing error

3.2.10 Metadata acquisition for tracking

[track_info.cgi]

Acquires metadata related to auto tracking.

3.2.10.1 Command

Syntax:

```
http://<Ipaddress>/cgi-addon/Auto_Tracking_RA-AT001/app_ctrl/track_info.cgi
```

3.2.10.2 Response

In the response to `track_info.cgi`, tracking metadata (in json format) and the execution result of the metadata acquisition process are returned.

Shows details of the response to `track_info.cgi`.

A. Successful response

- Details of the response

Table 3-23: Details of the response when operation is successful

Field Name	Content		
timestamp	Time information		
	Field Name	Value Type/Range	Content
	monotonic_time	<timespec>	Unique time of the remote camera
	real_time	<timespec>	Actual time of the remote camera
camera_ptz_info	Camera PTZ information		
	Field Name	Value Type/Range	Content
	pan_pos	*1	Camera Pan position (1/1000 degrees)
	tilt_pos	*1	Camera Tilt position (1/1000 degrees)
	zoom_pos	*1	Camera Zoom position (1/1000 degrees)
tracking_info	Tracking information		
	Field Name	Value Type/Range	Content
	track_status	[0:5]	Auto tracking status: 0: Tracking Off 1: Waiting for target selection (Auto Select Off) 2: Waiting for target selection (Auto Select On) 3: Tracking 4: Target lost 5: Angle fixed

Field Name	Content		
tracking_info	target_info	Content	
		Tracking target information (main)	
		Field Name	Value Type/Range
		id	<int>
		Content	
		Tracking ID	
		Content	
		Detection rectangle information (expressed as parts per 10,000 of the screen position)	
		Field Name	Value Type/Range
		Content	
	pos	Center X coordinate	
		Center Y coordinate	
		Width	
		Height	
		Content	
		Control information	
		Content	
		Auto Framing operation information	
	composition_assist	Field Name	Value Type/Range
		Content	
		Multi-Person tracking operation status: 0: Stopped 1: Operating	

Field Name	Content				
detection_info	Detection information (all targets)				
	Field Name	Value Type/Range	Content		
	detection_enable	[0:1]	Camera detection status: 0: Disabled *2 1: Enabled		
	detection_disable_cause	[0:2]	Detection disable reason: 0: None / Detection enabled 1: Detection disabled 2: Internal error		
	detection_num	<int>	Number of detections		
	Field Name	Content			
	result	Detection results (for number of detections)			
		Field Name	Value Type/Range	Content	
		tracking_id	<int>	Detection ID	
		Field Name	Content		
		pos	Detection rectangle information (expressed as parts per 10,000 of the screen position)		
			Field Name	Value Type/Range	Content
			x	[0:10000]	Center X coordinate
y			[0:10000]	Center Y coordinate	
w	[0:10000]		Width		
h	[0:10000]		Height		

*1 For PTZ value ranges, please refer to the user manual for each model.

*2 Refer to "Auto Tracking Application User Manual" for details.

- **Response example**

HTTP Code : 200 OK
Content-Type : application/json
MessageBody :

```
{
  "general": {
    "detection_resolution": {"width": "960", "height": "540"}
  },
  "timestamp": {
    "monotonic_time": {"tv_sec": "11565", "tv_nsec": "931785950"},
    "real_time": {"tv_sec": "1748332131", "tv_nsec": "5025050"}
  },
  "camera_ptz_info": {
    "pan_pos": "-9561", "tilt_pos": "792", "zoom_pos": "63400"},
    "tracking_info": {
      "track_status": "3", "track_result": "0", "target_info": {
        "id": "-20",
        "pos": {
          "x": "2208", "y": "5388", "w": "1447", "h": "2574"}
      },
      "control_info": {
        "composition_assist": {"assisting_multi_target": "1"}
      }
    },
    "detection_info": {
      "detection_enable": "1",
      "detection_disable_cause": "0",
      "detection_num": "2",
      "result": [
        {
          "tracking_id": "-20",
          "pos": {
            "x": "2208", "y": "5388", "w": "1447", "h": "2574"},
          "class": "0",
          "attribute_num": "1",
```

```

        "attribute":[{"attr_type":"0","attr_val":"1"}]
    },
    {
        "tracking_id":"1",
        "pos":{
            "x":"8031","y":"4907","w":"718","h":"1277"},
        "class":"0",
        "attribute_num":"1",
        "attribute":[
            {"attr_type":"0","attr_val":"1"}
        ]
    }
]
},
"status_code":"G0_100",
"description":"Success"
}

```

B. Error response

- **Details of the response**

Table 3-24: Details of the response when error occurs

header	body		
HTTP status code	status_code	description	Content
400	E4_120	Invalid Parameter	Invalid setting item name
404	E4_122	CGI does not exist	Specified CGI does not exist
500	E5_100	CGI internal error	Request denied due to internal processing error
503	E5_101	Face detection is disabled	Execution not possible due to camera facial detection function being unavailable

[Last page]