



XC Protocol Specifications

Canon Inc.

BPE-7216-011

Dec. 1, 2025

Table of Contents

1. Introduction	4
1.1. Use of this Document	4
1.1.1. Notation of “devices” and “cameras”	4
1.1.2. Models and Firmware Versions	4
1.1.3. Precautions for Session/Control Privileges and Related Items	7
2. XC Protocol Overview	9
2.1. XC Control Protocol Overview	9
2.2. XC Settings Protocol Overview	10
2.3. XC Settings Copy Protocol Overview	11
3. XC Control Protocol Specifications	12
3.1. Interface Specifications	12
3.1.1. Request	12
3.1.1.1. HTTP Request Header	12
3.1.2. Response	13
3.1.2.1. HTTP Status	13
3.1.2.2. Livescope Status	13
3.1.3. Protocol Configuration	14
3.1.3.1. Command List	14
3.1.3.2. Protocol Syntax	16
3.1.4. Sessions and Access Privileges	16
3.1.4.1. Client and Session Management	16
3.1.4.2. User Type of User Access Control Function	17
3.1.4.3. Privilege Settings and Session Priority	18
3.1.4.4. Creating a Session and Applied Restrictions	18
3.1.4.5. User Types and Creatable Session Types	19
3.1.4.6. Closing a Session	19
3.1.4.7. Limits on the Number of Clients	19
3.1.4.8. Session-based Access Privileges by Function	20
3.1.4.9. Sessionless Access Privileges by Function	22
3.2. Command Specifications	23
3.2.1. Session Control	25
3.2.1.1. Creating a Session [open.cgi]	26
3.2.1.2. Closing a Session [close.cgi]	30
3.2.1.3. Camera Control Privilege Request [claim.cgi]	32
3.2.1.4. Releasing Camera Control Privileges [yield.cgi]	37

3.2.1.5. Changing Session Attributes [session.cgi]	39
3.2.2. Information Acquisition	43
3.2.2.1. Information Acquisition [info.cgi]	43
3.2.3. Camera Control	62
3.2.3.1. Camera Control [control.cgi]	62
3.2.3.2. Menu Control [menu.cgi]	68
3.2.4. Video Retrieval	70
3.2.4.1. Still Image Retrieval [image.cgi]	70
3.2.4.2. Video Stream Retrieval [video.cgi]	73
3.2.4.3. Thumbnail Image Retrieval [thumbnail.cgi]	76
3.2.5. Metadata Acquisition	78
3.2.5.1. Metadata Acquisition [meta.cgi]	78
3.2.6. Preset/Trace	82
3.2.6.1. Saving Preset [preset/set]	83
3.2.6.2. Recording Traces [trace/set]	87
3.2.6.3. Trace Playback [trace/control]	91
3.2.7. Standby	92
3.2.7.1. Standby Transition/Restoration [standby.cgi]	92
3.2.8. Monitoring Assist	95
3.2.8.1. Monitoring Assist Setting [configuration.cgi]	95
3.2.8.2. User LUT Setting [configuration/userlut]	96
3.2.9. Custom Picture	98
3.2.9.1. Custom Picture Setting [cpfile/set]	98
3.2.9.2. Look File Setting [cpfile/lookfile]	99
3.2.10. Initialize Parameters	100
3.2.10.1. Obtain initializable parameters/Initialize Parameters [reset.cgi]	101
4. XC Settings Protocol Specification	106
4.1. Restrictions on models and firmware versions	106
4.2. Interface Specifications	106
4.2.1. Request	106
4.2.2. Response	107
4.2.3. Interface Details	107
4.2.3.1. Keys	107
4.2.3.2. HTTP Method	108
4.3. API Specifications and Input/Output Examples	110
4.3.1. API Specifications	110
4.3.2. Queries	111

4.3.2.1. getCameraConfig	111
4.3.3. Mutations	111
4.3.3.1. updateParameters	111
4.3.4. Objects	112
4.3.4.1. CameraConfig	112
4.3.4.2. Group	112
4.3.4.3. Group Connection	113
4.3.4.4. GroupEdge	113
4.3.4.5. ParameterConnection	113
4.3.4.6. ParameterEdge	114
4.3.4.7. UniversalParameter	114
4.3.5. Interfaces	114
4.3.5.1. Parameter	114
4.3.6. Input objects	115
4.3.6.1. ParameterUpdateInput	115
4.3.7. Scalars	115
4.3.7.1. Boolean	116
4.3.7.2. Float	116
4.3.7.3. ID	116
4.3.7.4. Int	116
4.3.7.5. String	116
4.3.8. Input/Output Examples	116
4.3.8.1. Input/Output Examples for a query	116
4.3.8.2. Input/Output Examples for a mutation	119
4.4. Setting items and groups	120
4.4.1. Notation legend	120
4.4.1.1. Data type	122
4.4.1.2. Attribute	126
4.4.2. Settings items	127
4.4.2.1. System	127
4.4.2.2. Device Attribute	127
4.4.2.3. Clocks and Time Zones	128
4.4.2.4. Networks	129
4.4.2.5. Camera	136
4.4.2.6. Video	136
4.4.2.7. Servers	140
4.4.2.8. Communication	144

4.4.2.9. Security	151
4.4.3. Groups	156
4.5. HTTP Status and Application Errors	160
4.5.1. HTTP Status	160
4.5.2. Application Errors	160
4.5.2.1. Request Errors	161
4.5.2.2. Field Errors	162
4.6. Limitations and Unsupported features	165
4.6.1. Access Rate Limiting	166
4.6.1.1. Limitation specification	166
4.6.2. Query Cost Limiting	166
4.6.2.1. Limitation specification	166
4.6.3. Unsupported GraphQL features	167
4.6.3.1. Introspection	167
4.6.3.2. Directive	168
5. XC Settings Copy Protocol Specification	170
5.1. Restrictions on models and firmware versions	170
5.2. Interface Specifications	170
5.2.1. Request	170
5.2.1.1. HTTP Request Header	171
5.2.2. Response	171
5.2.3. Settings information and settings categories	171
5.2.4. Protocol Configuration	172
5.2.4.1. Command List	172
5.3. Command specifications	172
5.3.1. Settings Information Acquisition [copy/download]	173
5.3.2. Settings Information Reflection [copy/upload]	174
5.3.3. Settings Category Acquisition [copy/category]	176
5.4. HTTP status and detailed status	176
Appendix A: Model Specific Information	179
A.1. CR-N700/N500/N300/N100/X300-dependent Information	179
A.1.1. Command Specifications	179
A.1.2. Parameter Specifications of info.cgi/control.cgi	180
A.1.3. H.264/H.265 Image Parameter Specifications	180
A.2. C500mk2/C400/C300mk3/C80/C70/C50/XF605-dependent Information	181
A.2.1. Command Specifications	181
A.2.2. Parameter Specifications of info.cgi/control.cgi	183

A.3. RC-IP1000-dependent Information	183
A.3.1. Command Specifications	183
A.3.2. Information Acquisition [info.cgi]	184
A.3.2.1. Command	184
A.3.2.2. Response	185
A.3.3. Switching Control for the Selected Camera [control.cgi]	185
A.3.3.1. Command	185
A.3.4. Assignment Function Control [control.cgi]	186
A.3.4.1. Command	186
A.3.5. Designated Camera Presets/Tally Lamp Control [control.cgi]	186
A.3.5.1. Command	186
Appendix B: APPENDIX	189
B.1. Fragmented MP4	189
B.2. Device Search	190
B.3. Settings for RTP/RTSP Video Transmission	190
B.3.1. Settings Parameters Relating to RTP/RTSP Video Transmission	191
B.3.2. Initial Settings Values and Starting Video Transmission	191
B.3.3. Commands to Use Keep-alive	191
B.4. Parameter List of info.cgi/control.cgi/configuration.cgi	192

YOUR USE OF THE PROTOCOL SPECIFICATIONS

IMPORTANT - READ CAREFULLY BEFORE YOU START USING THE PROTOCOL SPECIFICATIONS. BY USING THE PROTOCOL SPECIFICATIONS, YOU AGREE TO BE BOUND BY TERMS AND CONDITIONS BELOW.

THIS document is a legal agreement between you and Canon Inc. ("CANON"), and governs your use of the Protocol Specifications (the "PROTOCOL SPECIFICATIONS"). IF YOU DO NOT AGREE TO THE TERMS AND CONDITIONS BELOW, DO NOT USE THE PROTOCOL SPECIFICATIONS.

- CANON hereby grants you a non-transferable, non-exclusive, payment free and non-royalty-bearing and worldwide license to use the PROTOCOL SPECIFICATIONS solely for the purpose of developing the software program or the hardware products which are used together with CANON's products compatible with the protocol provided in the PROTOCOL SPECIFICATIONS.
- All rights, title and interest in the PROTOCOL SPECIFICATIONS is owned by CANON or its licensors. Except as expressly provided herein, no license or right, express or implied, is hereby conveyed or granted by CANON to you for any intellectual property of CANON and its licensors. You shall not copy, translate to another language nor modify the PROTOCOL SPECIFICATIONS without the prior written consent of CANON.
- CANON is not responsible for maintaining or helping you in your use of the PROTOCOL SPECIFICATIONS.
- THE PROTOCOL SPECIFICATIONS ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO NON-INFRINGEMENT, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.
- CANON SHALL NOT HAVE ANY OBLIGATION TO INDEMNIFY YOU AGAINST ANY CLAIM OR SUIT BROUGHT BY A THRID PARTY NOR BE LIABLE FOR ANY DAMAGES ARISING OUT OF THE PROTOCOL SPECIFICATIONS, THE SOFTWARE WHICH YOU DEVELOPED BY USING THE PROTOCOL SPECIFICATIONS AND/OR USE THEREOF.

Canon Inc.

Revision	Release Date	Location	Changes
000	May 19, 2021	-	First edition
001	Jul. 21, 2021	-	Added description about preset control Added support information for CR-N500/CR-N300 firmware 1.1.0 Added support information for EOS C500 Mark II / EOS C300 Mark III
002	Nov. 11, 2021	-	Added support information for CR-X300
003	Aug. 10, 2022	-	Added support information for XF605 Added custom picture Added monitoring assist settings
004	Dec. 7, 2022	-	Added support information for CR-N700 / EOS C500 Mark II / EOS C300 Mark III / EOS C70
005	Sep. 1, 2023	-	Added support information for CR-N500/CR-N300 firmware 1.3.0 Added support information for CR-X300 firmware 1.1.0 Added support information for CR-N700 firmware 1.2.0 Added support information for CR-N100
006	Dec. 1, 2023	-	Added support information for CR-N700 firmware 1.3.0 Added support information for CR-N500/CR-N300 firmware 1.4.0 Added support information for CR-X300 firmware 1.2.0 Added support information for C500mk2 firmware 1.0.9.1 Added support information for C300mk3 firmware 1.0.7.1 Added support information for C70 firmware 1.0.9.1 Added support information for XF605 firmware 1.0.3.1

007	Jul. 1, 2024	-	<p>Added support information for EOS C400</p> <p>Added support information for CR-N700 firmware 1.4.0</p> <p>Added support information for CR-N500/CR-N300 firmware 1.5.0</p> <p>Added support information for CR-N100 firmware 1.1.0</p> <p>Added support information for CR-X300 firmware 1.3.0</p> <p>Added support information for C500mk2 firmware 1.1.2.1</p> <p>Added support information for C300mk3 firmware 1.0.8.1</p> <p>Added support information for C70 firmware 1.0.9.1</p> <p>Added support information for XF605 firmware 1.0.4.1</p> <p>Added metadata items of meta.cgi</p>
008	Jul. 22, 2024	-	Added support information for RC-IP1000
009	Dec. 1, 2024	-	<p>Added support information for EOS C80</p> <p>Updated the version of other product(s) that supports the XC protocol to the latest firmware</p>
010	Jul. 31, 2025	-	<p>Changed the title of this document from “XC Control Protocol Specifications” to “XC Protocol Specifications”</p> <p>Added an overview description and chapter regarding the XC settings copy protocol</p> <p>Add a chapter and description regarding the pan-tilt acceleration/deceleration mode.</p> <p>Updated the version of product(s) that supports the XC protocol to the latest firmware</p>
011	Dec. 1, 2025	-	<p>Added an overview description and chapter regarding the XC settings protocol</p> <p>Added support information for CR-N400 / CR-N300 / EOS C50</p> <p>Updated the version of other product(s) that supports the XC protocol to the latest firmware</p>

Chapter 1. Introduction

The XC Protocol Specifications (hereinafter, this document) define the XC protocols, which are used for Canon remote cameras, video production equipment, professional video cameras, and remote camera controllers.

Using the XC protocols makes it possible to acquire information from these devices and control them.

1.1. Use of this Document

This document is intended for the developers of applications for peripheral devices to be connected to Canon remote cameras, video production equipment, professional video cameras, or remote camera controllers via the XC protocols. To use this document, knowledge of application development is required.

1.1.1. Notation of “devices” and “cameras”

In this document, the term “devices” refers to all Canon remote cameras, video production equipment, professional video cameras, and remote camera controllers that support the XC protocols.

In this document, “cameras” refers to all Canon remote cameras, video production equipment, and professional video cameras that support the XC protocols: remote camera controllers categorized as devices are excluded.

That is, unless otherwise specified, the terms “devices” and “cameras” used in this document refer to Canon devices and cameras that support the XC protocols.

In this document, these notation rules also apply to the terms that include “device” or “camera.” That is, for example, in this document, “device control” refers to control of the Canon devices that support the XC protocols, and “camera control right” refers to control right for Canon cameras that support the XC protocols.

The devices and cameras referred to are specified in the table titled '[Combinations of Models and Firmware Versions to which This Document Applies](#)'.

1.1.2. Models and Firmware Versions

The recommended combinations of device models and firmware versions are as follows, as of the date of release of this document. Unless otherwise specified, all descriptions in this document relate to these combinations only.

Please note that newer versions of the firmware may have been released since this document was published.

Therefore, when using the XC protocol, we recommend checking Canon’s support page to find and use the latest firmware for your device model that supports the XC protocol.

In addition, the names of the device categories that indicate the classification of each model and

the scope of models indicated by “devices” and “cameras” as described in “About the notation of ‘devices’ and ‘cameras’” are described below.

Table 1. Combinations of Models and Firmware Versions to which This Document Applies

Model Category	Model	Firmware Version	XC control protocol	XC settings protocol	XC settings copy protocol	Range defined as "Device"	Range defined as "Camera"
Remote Cameras	CR-N700	1.6.0	●	[1]	●	●	●
	CR-N500	1.7.0	●	[1]	●	●	●
	CR-N400	1.0.0	●	●	●	●	●
	CR-N350	1.0.0	●	●	●	●	●
	CR-N300	1.7.0	●	[1]	●	●	●
	CR-N100	1.2.0	●	[1]	●	●	●
	CR-X300	1.4.0	●	[1]	●	●	●
Cinema Cameras (CINEMA EOS SYSTEM)	EOS C500 Mark II (hereinafter C500mk2)	1.1.5.1	●			●	●
	EOS C400 (hereinafter C400)	1.0.4.1	●			●	●
	EOS C300 Mark III (hereinafter C300mk3)	1.0.9.1	●			●	●
	EOS C80 (hereinafter C80)	1.0.4.1	●			●	●
	EOS C70 (hereinafter C70)	1.1.2.1	●			●	●
	EOS C50 (hereinafter C50)	1.0.0.1	●			●	●
Pro Camcorder	XF605	1.0.7.1	●			●	●
Remote Camera Controller	RC-IP1000	1.2.0	●			●	

Note that even the models listed above do not support all protocols, commands, parameters, etc., described in this document, and the scope of support varies for each model.

For support status and model-specific specifications, refer to '[Model Specific Information](#)' in this document.

1.1.3. Precautions for Session/Control Privileges and Related Items

In 'Sessions and Access Privileges' and 'Session Control' in the descriptions in this document pertaining to the XC control protocol, “User Type” based on “Session”, “Control Privileges”, and their acquisition is described in many pages.

However, with devices, almost all the information acquisition and device control related to the XC control protocol is possible regardless of the "presence or absence of session," with the exception of a few. Also, all the information acquisition and device control are possible regardless of "control rights". There is also no restriction by the user type.^[2]

Thus, except for special cases where session-based operation or device control privileges are necessary, it is recommended to skip reading this part because it is unnecessary information for normal information acquisition or device control.

[1] The XC settings protocol is not supported, but the RC settings protocol is supported. See the "Remote Camera Settings Protocol Specification" for details.

[2] No information acquisition or device control can be performed when the user right restriction is set on the device side.

Chapter 2. XC Protocol Overview

The XC protocols consist of the XC control protocol, the XC settings protocol, and the XC settings copy protocol, and these are collectively referred to as the XC protocols.

The XC control protocol provides functions for acquiring information from devices and controlling devices.

The XC settings protocol provides the functionality needed to acquire information about camera settings and apply changes to the camera.

The XC settings copy protocol provides functions for acquiring information about camera settings and applying the acquired settings to the same camera or to another camera.

For each of the three protocols, it is provided as an HTTP service on the remote camera, and consists of HTTP requests from the client and the corresponding HTTP responses from the camera.

In particular, the XC settings protocol is characterized by its requests and responses conforming to the GraphQL specification.

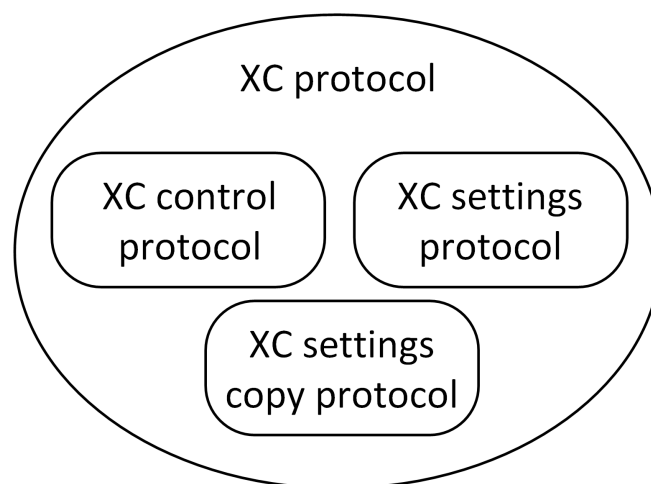


Figure 1. Roles of the XC control protocol, XC settings protocol, and XC settings copy protocol with respect to the XC protocols

2.1. XC Control Protocol Overview

The XC control protocol provides functions for acquiring information from devices and controlling devices.

In the case of a camera, the information to be acquired is various parameters held by the camera, more specifically, camera status, optical settings, physical PTZ (pan, tilt, and zoom) positions, and so on. Furthermore, the information to be acquired includes a list of discrete values that these settings and positions can take, as well as maximum and minimum values.

Control of a camera refers to changing various parameters of the camera, more specifically, changing the status of the camera, changing optical settings, and PTZ operations.

On the other hand, in the case of a remote camera controller, the information to be acquired

includes the camera number connected to the remote camera controller and the number of available USER buttons.

Device control refers to switching cameras and executing commands assigned to the USER buttons.

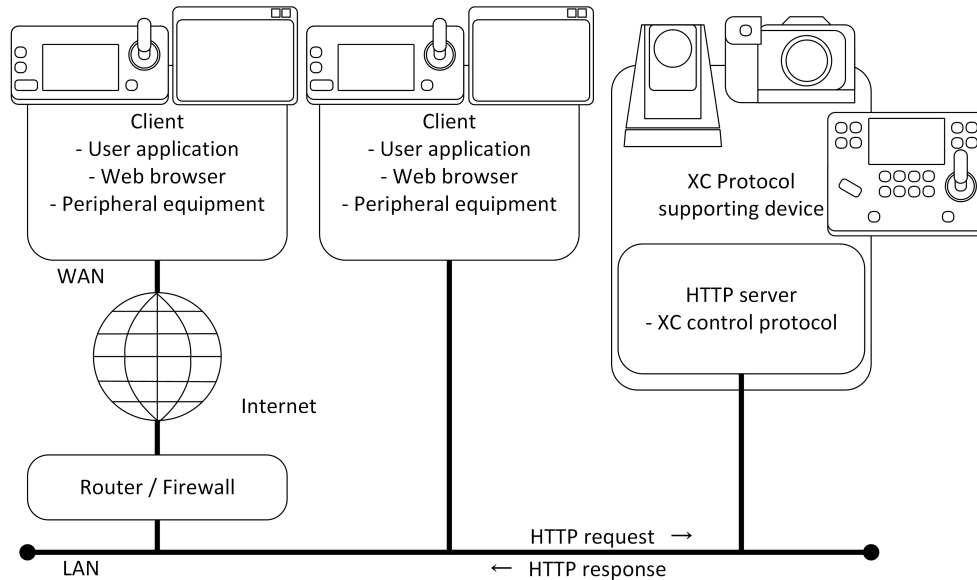


Figure 2. XC control protocol concept diagram

2.2. XC Settings Protocol Overview

The XC settings protocol provides the functionality needed to acquire information about camera settings and apply changes to the camera.

The settings that can be acquired or changed include various setting items within the camera's system. More specifically, these include system settings, network and server settings, video streaming settings, as well as administrator, user, password, and permission settings.

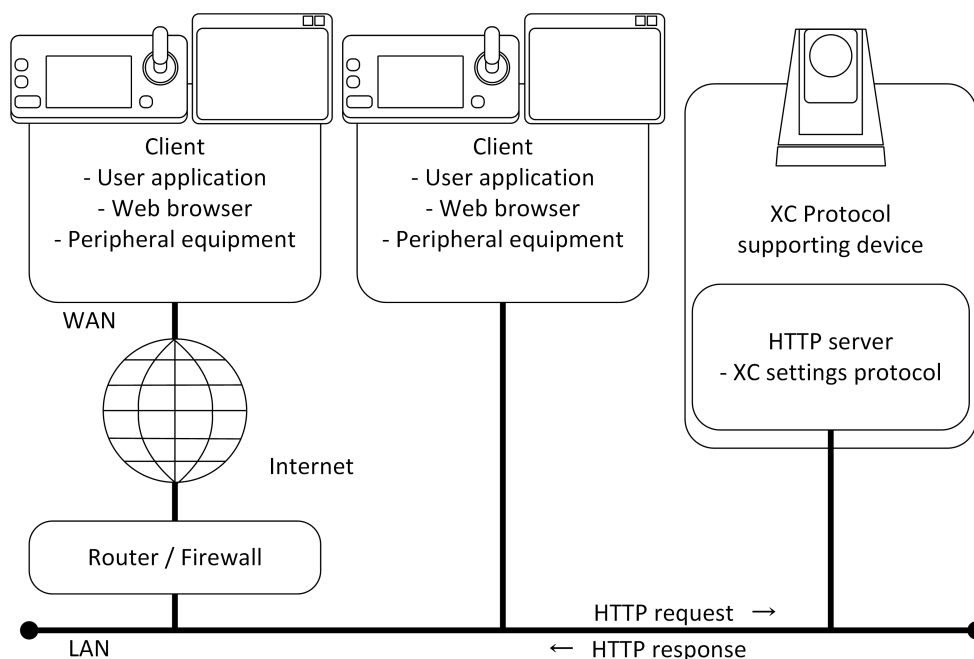


Figure 3. XC settings protocol concept diagram

2.3. XC Settings Copy Protocol Overview

The XC settings copy protocol provides functions for acquiring information about camera settings and applying the acquired settings to the same camera or to another camera.

The settings information to be acquired/reflected refers to various setting items held by the camera, more specifically, settings related to the camera's system, network environment, server functions, preset/trace settings, administrators, users, passwords, and permissions.

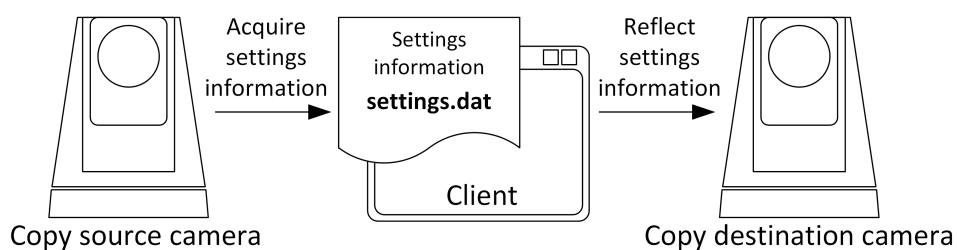


Figure 4. XC settings copy protocol concept diagram

Chapter 3. XC Control Protocol Specifications

The XC control protocol provides functions for acquiring information from, and controlling, devices.

3.1. Interface Specifications

The interface specifications of the XC control protocol are described in the following.

- Request format and content
- Response format and content, and list of status codes
- Protocol command configuration, syntax format
- User access management function, session/sessionless and function execution privileges

3.1.1. Request

In the XC control protocol, XC control commands are used to perform device control. The XC control command is received by the HTTP server of the device as an HTTP request.

The XC control protocol is not dependent on a specific HTTP version.

The devices supported by this document are HTTP/1.1 and HTTP/2-compliant.

GET or POST can be used as the HTTP method.

The URI is made up of a XC control command or parameter that starts with `"/-wvhttp-01-/"`. With the exception of the starting `"wvhttp"`, the URI and message body are not case-sensitive.

Syntax:

```
GET /-wvhttp-01-/<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 XC control protocol. All other HTTP request headers are ignored.

- Authorization
- Connection
- Content-Length
- If-Modified-Since^[1]

3.1.2. Response

Under the XC control protocol, image data and device status information are sent from the HTTP server of the device as an HTTP response.

Response:

```
HTTP/1.1 200 OK
Date: <Time stamp>
Connection: keep-alive
Content-Length: <Message body length>
Server: vb
accept-ranges: none
content-type: <Message body mime-type>
livescope-status: 0
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 XC control command is returned with an HTTP status. The main return values and meanings are described below.

Table 2. List of Returned HTTP Statuses

HTTP Status	Description
200 OK	Request was processed normally.
304 Not Modified	Data is not modified.
400 Bad Request	Request is invalid.
401 Unauthorized	User authentication failed.
404 Not Found	Resource corresponding to the requested URI does not exist.
411 Length Required	Content-Length is not specified.
500 Internal Server Error	Request denied due to internal processing error.
503 Service Unavailable	Request denied due to temporary overload.

3.1.2.2. Livescope Status

Livescope status is an independent extension field that indicates the execution result of the XC control command. If the Livescope status indicates an abnormality, "200 OK" is returned as the

HTTP status. The return values and meanings are described below.

Table 3. List of Returned Livescope Statuses

Livescope Status	Description
0	Processed normally.
301 No Camera Control Right	Request denied due to no issuing of the control privilege request.
302 Camera is not available	Camera specified with <Camera> parameter does not exist.
303 Camera is not controllable	Camera cannot be controlled due to a camera abnormality.
401 Unknown Operator	Undefined command specified.
403 Invalid Parameter Value	Invalid parameter value specified.
404 Operation Timeout	Command execution not completed even at response time limit.
406 Parameter Missing	Mandatory parameter not specified.
407 Invalid Request	Invalid session function requested.
408 Conflict	Exclusive operation requested.
409 Conflict	Recording stream requested while migrating video to external memory.
410 Invalid Data	Invalid data was specified.
411 Data Not Found	Specified data does not exist.
501 Unknown Connection ID	Specified session does not exist.
503 Too many clients	Maximum number of connections exceeded.
507 Insufficient Privilege	Cannot access due to access privilege.
508 Request Refused	Request denied due to temporary connection limit of camera.
509 Standby	Access limited during standby state.
510 Switching Standby	Access limited during transition from normal state to standby state.
511 Switching Idle	Access limited during restoration from standby state to normal state.

3.1.3. Protocol Configuration

3.1.3.1. Command List

The following are the functions provided by the XC control protocol and the corresponding commands.

Table 4. Commands and Functions of XC Control Protocol

Commands	Functions	Support requirement
open.cgi	This creates a session.	Optional
close.cgi	This closes a session.	Optional
claim.cgi ^[2]	This requests camera control privileges.	Optional
yield.cgi ^[2]	This releases camera control privileges.	Optional
session.cgi	This retrieves and changes a session-specific attribute.	Optional
info.cgi	This is used to obtain camera information.	Mandatory
control.cgi	This is used to control a camera or presets.	Mandatory
menu.cgi	This is used to control the camera's menu, etc.	Optional
image.cgi	This is used to retrieve a JPEG still image.	Optional
video.cgi	This is used to retrieve a video stream.	Optional
thumbnail.cgi	This is used to retrieve a thumbnail image.	Optional
meta.cgi	This is used to obtain metadata related to focus.	Optional
preset/set	This preset-stores camera control parameters.	Optional
trace/set	This records traces.	Optional
trace/control	This plays back traces.	Optional
standby.cgi	This is used to perform standby transition/restoration.	Optional
configuration.cgi	This is used to make monitoring and assist settings.	Optional
configuration/userlut	Registering, deleting, and resetting User LUTs.	Optional
cpfile/set	Control custom picture.	Optional
cpfile/lookfile	Register and delete Look File.	Optional
reset.cgi	Initialize camera control parameters.	Optional

- **Not all the commands are supported** by each model of the devices.
- Commands with “Mandatory” in the Support requirement column are always supported (info.cgi and control.cgi only).
- Commands with “Optional” in the Support requirement column are supported by some models.
- The support information of the optional commands of each model is described in '[Model Specific Information](#)'.

- Regarding mandatory requirements info.cgi and control.cgi, the supported parameters vary depending on the model.

3.1.3.2. Protocol Syntax

A XC control command is made up of a command and parameter. The following are the syntax conditions when specifying a command and parameter.

- The parameter is in the format "<Name>=<Value>".
- The parameter is specified with the "&" separator in the URI query string.
- The parameter performs URL encoding.
- The parameter name and value may be partially abbreviated with the "[...]" notation.^[3]
- There are no limitations in the order of parameter specification.^[4]

Example:

```
http://192.168.100.1/-vvhttp-01-/image.cgi?pan=1000&tilt=1000
```

NOTE

The XC control protocol does not support pipelining even when conforming with HTTP/1.1.

3.1.4. Sessions and Access Privileges

3.1.4.1. Client and Session Management

The XC control protocol can be used in two ways: session-based, in which a session is created and a series of command operations are performed; and sessionless, in which a command operation is performed per each request and response.

The following types of clients are available when using the XC control protocol session-based and sessionless.

- Session-based
 - Normal session
In a normal session, the session ID is specified and a series of command operations are performed.
 - Video-less session
In a video-less session, a session is created without using the video transmission function and without selecting a video stream. Other functions are the same as during a normal session.
- Sessionless
 - Event stream - client

An event stream - client is a client that makes a request to get an information item (info.cgi), in which the stream method is selected, without creating a session.

- Video stream - client

A video stream - client is a client that gets a video stream (video.cgi) without creating a session.

- Sessionless camera control

Sessionless camera control is a client that performs camera control (control.cgi, menu.cgi) without creating a session.

3.1.4.2. User Type of User Access Control Function

The user access control function of the camera manages the authentication information of administrators and authorized users. A user with anonymous access that does not require authentication is called a guest user.

- Guest user: Does not require authentication and is not registered to the user list.
- Authorized user: Requires user authentication and is registered to the user list.
- Administrator: Requires authentication as an administrator.

The user access control function manages and controls the camera operation privileges for each of these three types of user. The administrator can configure and change the control privileges for guest and authorized users.

Table 5. Relationship between User Type, Granted Privileges, and Configurable Privilege Type

User Type	Overview of Granted Privileges	Configurable Privilege Type
Guestuser	<ul style="list-style-type: none"> * According to video transmission and camera control privilege settings for guest users * Use commands permitted for guest users 	<ul style="list-style-type: none"> * Video transmission and camera control not available * Video transmission only available * Video transmission and general camera control available
Authorized user	<ul style="list-style-type: none"> * According to video transmission and camera control privilege settings for authorized users * Use commands permitted for authorized users 	<ul style="list-style-type: none"> * Video transmission and camera control not available * Video transmission only available * Video transmission and general camera control available * Video transmission and privileged camera control available

User Type	Overview of Granted Privileges	Configurable Privilege Type
Administrator	<ul style="list-style-type: none"> * No restrictions on video transmission or camera control due to privilege settings * Use commands that can only be operated with administrator authorities * Use exclusive commands as an administrator 	* No restrictions due to privilege settings

3.1.4.3. Privilege Settings and Session Priority

In a XC control protocol session, camera control privilege settings are applied according to the user access control function. The value indicating the level of the camera control privileges in a XC control protocol session is called the priority. Camera control privileges can be obtained preferentially by a session with higher priority.

Sessions interrupted by a higher priority session must forfeit camera control privileges.

NOTE

For details on obtaining and forfeiting camera control privileges, see '[Camera Control Privilege Request \[claim.cgi\]](#)'.

3.1.4.4. Creating a Session and Applied Restrictions

A XC control protocol session is created with a session creation request (open.cgi). The type of session (general, privileged, or administrator) is determined by the “priority” parameter specified when the session is created.

- The type of session (general or privileged) is determined by “priority” parameter specified to the session creation request command.
- Session connection time is limited by the setting of the model specific “Maximum connection time”.
- Number of simultaneous session connections is limited by the model specific “Maximum number of clients”.
- The administrator session is limited to only one, and there are no restrictions on the session connection time or number of connections.

Table 6. Session Privilege Types and Their Features

Session Type	Description
General session	<p>Session connection time is limited by “Maximum connection time”.</p> <p>Number of simultaneous session connections is limited by “Maximum number of connections”.</p>

Session Type	Description
Privileged session	Session connection time is unlimited. Number of simultaneous session connections is limited by “Maximum number ofconnections”.
Administrator session	Session connection time is unlimited. Number of simultaneous session connections is limited to 1.

3.1.4.5. User Types and Creatable Session Types

In a XC control protocol session, the session types that can be created are limited according to the user type.

Table 7. Relationship between User Types and Creatable Session Types

User Type	Creatable Session Type
Guest user	* Can only create a general session
Authorized user	* Can create a general session * Can create a privileged session with privileged camera control
Administrator	* Can create a general session * Can create a privileged session * Can create an administrator session

3.1.4.6. Closing a Session

A XC control protocol session can be closed with a session close request (close.cgi), and the connection held by the sessionless client ceases to exist when the HTTP connection is disconnected.

In addition to this external connection close operation based on a client request, the connection can be closed on the camera side as below.

- When the connection time limit is exceeded
- When there is no request granting a session ID within the prescribed time after a session is created

3.1.4.7. Limits on the Number of Clients

In addition to the limit on the number of connections during a normal XC control protocol session, the following limits on the number of connections also apply to session-based clients and sessionless clients.

- Session-based
 - Normal session

Number of simultaneous normal session connections is limited by the model specific “Maximum number of clients”.

- Video-less session

The number of simultaneous connections during a video-less session is different from that of a normal session and is limited as the number of connections of a video-less session. It is managed as the total of the number of video-less session connections, sessionless event stream client connections, and sessionless video stream connections.

- Sessionless

- Event stream - client

The number of simultaneous sessionless event stream client connections is managed as the total of the number of video-less session connections, sessionless event stream client connections, and sessionless video stream connections.

- Video stream - client

The number of simultaneous sessionless video stream client connections is managed as the total of the number of video-less session connections, sessionless event stream client connections, and sessionless video stream connections.

- Sessionless camera control

This function does not use a stream, so there is no limit to the number of simultaneous connections.

NOTE

That an administrator session is not included in normal sessions.
Note that the execution of a request to get a single information item (info.cgi) with the stream method not specified does not include the number of connections.

3.1.4.8. Session-based Access Privileges by Function

The following are the XC control protocol commands that can be operated according to the privileges configured for a session-based user.

Table 8. XC Control Command Access Privileges by Session-based User

User Type	Set Privileges	Session Control		Video	Information	Camera Control
		open close session	claim yield	image video	info meta	control etc...^[5]
Guest user	×: Video transmission ×: Camera control	General (Limited) ^[6]	×	×	■	×
	■: Video transmission ×: Camera control	General (Limited) ^[6]	×	■ (Limited) ^[7]	■	×
	■: Video transmission ■: Camera control General	General (Limited) ^[6]	General (Limited) ^[8]	■ (Limited) ^[7]	■	General ^[9]
Authorized user	×: Video transmission ×: Camera control	General (Limited) ^[6]	×	×	■	×
	■: Video transmission ×: Camera control	General (Limited) ^[6]	×	■ (Limited) ^[7]	■	×
	■: Video transmission ■: Camera control General	General (Limited) ^[6]	General (Limited) ^[8]	■ (Limited) ^[7]	■	General ^[9]
	■: Video transmission ■: Camera control privileged	privileged (Unlimited) ^[6]	privileged (Unlimited) ^[8]	■ (Unlimited) ^[7]	■	privileged ^[9]
Administrator	* No restrictions due to privilege settings	General (Limited) ^[6]	General (Limited) ^[8]	■ (Limited) ^[7]	■	General ^[9]
		privileged/Admin (Unlimited) ^[6]	privileged/Admin (Unlimited) ^[8]	■ (Unlimited) ^[7]	■	privileged/Admin ^[9]

Legend:

■: Available; ×: Unavailable (no privilege); -: Unavailable (session required) General: camera control; Privileged: privileged camera control; Admin: administrator authorities

3.1.4.9. Sessionless Access Privileges by Function

The following are the XC control protocol commands that can be operated according to the privileges configured for a sessionless user.

Table 9. XC Control Command Access Privileges by Sessionless User

User Type	Set Privileges	Session Control		Video	Information	Camera Control
		open close session	claim yield	image video	info meta	control etc... ^[5]
Guest user	×: Video transmission ×: Camera control	-	-	×	■	×
	■: Video transmission ×: Camera control	-	-	■ (Unlimited) ^[10]	■	×
	■: Video transmission ■: Camera control General	-	-	■ (Unlimited) ^[10]	■	General ^[11]
Authorized user	×: Video transmission ×: Camera control	-	-	×	■	×
	■: Video transmission ×: Camera control	-	-	■ (Unlimited) ^[10]	■	×
	■: Video transmission ■: Camera control General	-	-	■ (Unlimited) ^[10]	■	General ^[11]
	■: Video transmission ■: Camera control privileged	-	-	■ (Unlimited) ^[10]	■	privileged ^[12]
Administrator	* No restrictions due to privilege settings	-	-	■ (Unlimited) ^[10]	■	privileged ^[12]

Legend:

■: Available; ×: Unavailable (no privilege); -: Unavailable (session required) General: camera

control; Privileged: privileged camera control; Admin: administrator authorities

3.2. Command Specifications

This describes the XC control protocol command specifications.

The following is the notation used in this document.

Since the command specifications differ greatly from those of the cameras, details regarding the remote camera controllers are described in '[RC-IP1000-dependent Information](#)'.

Notation - List of Information Item Attributes:

The information items have different behavior depending on whether it is an item that can only be referenced, an item that can be referenced and updated, or an item that provides event notification when updated.

This behavior is called an attribute, and the attribute information is abbreviated as shown below.

Table 10. Attribute Notation of Information Items

Attribute	Attribute Value	Description
Can be referenced	G	Indicates an item that can be referenced with info.cgi
Can be controlled	C	Indicates an item that can be updated with control.cgi
Session-specific item	P	This is a session-specific value; modifying it has no impact on other sessions
Update notification item	U	Indicates an item whereby the update provides event notification with info.cgi

NOTE

Items that can be executed in a privileged session or higher are listed as “privileged”, and items that can be executed only in an administrator session are listed as “admin” in the attribute value column.

Notation - List of Subscript Abbreviations of Array Information Items:

The array subscripts are abbreviated as shown below for the items selected in an array as information items.

Some items may have a valid value range that varies according to the model.

Table 11. Subscript Abbreviations of Array Information Items

Abbreviation 1	Abbreviation 2	Valid Value	Description
<Camera>	<c>	1	Camera number
<Video>	<v>	1...3	Video stream number

Abbreviation 1	Abbreviation 2	Valid Value	Description
<Preset>	<p>	1...100	Preset number (only when a preset is valid)
<Trace>	<t>	1...10	Trace number (only when a trace is valid)
<Input>	<i>	1...2	Contact input terminal number
<Output>	<o>	1...2	Contact output terminal number
<Audio>	<a>	1	Number of audio input terminals
<Custom picture>	<u>	1...	Number of custom picture
No regulation	<k>	1...2	Crop region number

NOTE

As the number of cameras is fixed at 1, <Camera> and <c> are not used and may appear as follows.
e.g. c.1.status:=<string> Camera controllable status

Notation - List of Information Item Types:

The type information of information items is abbreviated as shown below.

Table 12. Type Notation of Information Items

Type	Type Value	Description
Character string [ASCII]	<string>	ASCII character string. Also includes multiple element joint type. ^[13]
Character string [UTF-8]	<unicode>	Indicates a UTF-8 encoded multibyte characterstring type.
Signed integer	<int>	Indicates a signed decimalinteger type.
Fixed point number	<fixed>	Indicates a signed decimalfixed point number type.

Notation - Value Range of Information Items:

For values, ranges, and selection items, the minimum and maximum values within all supported products are described. However, the models within those ranges may not exist.

e.g. When the models within the value range exist

Specifications of model A

Parameter Value	Type/Range	Attribute	Description
c.1.xx	10...100	GC-U	Integer with a range of 10 to 100

Specifications of model B

Parameter Value	Type/Range	Attribute	Description
c.1.xx	10...50	GC-U	Integer with a range of 10 to 50

Description in this chapter

Parameter Value	Type/Range	Attribute	Description
c.1.xx	10...100	GC-U	Integer with a range of 10 to 100

e.g. When the models within the value range do not exist

Specifications of model A

Parameter Value	Type/Range	Attribute	Description
c.1.yy	10...100	GC-U	Integer with a range of 10 to 100

Specifications of model B

Parameter Value	Type/Range	Attribute	Description
c.1.yy	50...200	GC-U	Integer with a range of 50 to 200

Description in this chapter

Parameter Value	Type/Range	Attribute	Description
c.1.yy	10...200	GC-U	Integer with a range of 10 to 200

Notation - Model Specific Information:

If the specifications for each product differ from those listed in this chapter, the differences are listed in '[Model Specific Information](#)'.

If model names are written in the column '[Model Specific Information](#)', the function of the models are expanded or added, or the functions are limited.

3.2.1. Session Control

In the XC control protocol, obtaining camera control privileges or obtaining video stream is managed for each session individually created. With cameras, creating sessions are not mandatory because almost all camera control and information acquisition can be accessed

sessionlessly, except for some camera control parameters.

However, it is necessary to create a session to use all functions of the XC control protocol because, for example, in session-based information acquisition, it is possible to use the function to receive event notification when a difference occurs during a continuous connection.

3.2.1.1. Creating a Session [open.cgi]

This creates a XC control protocol session.

- The type of general or privileged session is determined according to the priority specification.
- The content of the video to be obtained in the session is determined by the video stream specification.
- There are two methods for selecting a video stream: specifying video parameters such as the video codec and video resolution (v), or specifying the video stream number (w). **The (v) parameters are maintained solely for backward compatibility; therefore, no new features have been added to them, and none will be added in the future. Any new features related to video streams will be implemented using the (w) parameters. For example, H.265 is no longer supported with the (v) parameters and is supported only with (w). Furthermore, the discontinuation of (v) is planned for future device releases. Therefore, the use of (w) parameters is strongly recommended for new implementations.**
- It is possible to create a session without performing a video transmission by specifying “Invalid”.

When a session is created successfully, the session ID, user privilege, remaining time, priority, and selected video stream information (only when specified) are returned as a response.

3.2.1.1.1. Commands

Syntax:

```
http://<ipaddress>/-wvhttp-01-  
/open.cgi?[s.priority=<Value>][&v=<Value>][&w=<Value>][&w.<Video>.frate=<Value>]
```

Preconditions and precautions:

- The session lifetime varies depending on the priority, but privileged and administrator sessions are unlimited. Guest users are limited by the model specific “Maximum connection time”.
However, if after a session is created, there is no request (video.cgi, image.cgi, info.cgi, control.cgi, etc.) granting a session ID within the prescribed time (60 seconds), that session is cleared regardless of the privileges.
- It is limited by the model specific “Maximum number of clients”. If the maximum number of

connections is exceeded, the session is not created, and 503 is returned as the Livescope status response.

- The administrator session has no restrictions on the connection time or number of connections. However, if a separate administrator session has already been established, the connection is denied, and 408 is returned as the Livescope status response.
- For video parameter specification (v), if there is no stream that conforms to the specified video size, a stream with a video size that is close to the specified value and is one size lower is selected.
- If both the video parameter specification (v) and video stream number specification (w) are specified when selecting a video stream, the video parameter specification (v) has priority. Even if neither are specified, the video parameter specification (v) takes priority and the video codec is jpg.
- A session with no video stream (“video-less”) can also be created. However, a video stream must be specified for an administrator session.

Parameters:

Parameter	Value Type/Range	Description
[s.]priority	0...50	Specifies the session priority. ^[14]
v	<video parameter> null	Selects the stream by the video parameter. ^{[15][16]} Video-less session when “null” is specified.
w	1...3	Selects the stream by the video stream number. ^[16] Specifies a video stream number that can be referenced with info.cgi.
w.<Video>.frate	100...30000	Specifies the video stream frame rate. Unit: Number of frames per 1000 seconds Specify at the same time as w. Ignored if w is not specified.
comparable	admin	When admin is selected in this item, realm of the HTTP response header returns “Administrator” in the case of a privileged session ^[14] .

3.2.1.1.2. Response

The response content for open.cgi varies depending on whether the video parameter specification (v) or video stream number specification (w) was specified. The following shows the response content and status value returned when an error occurs.

A. Successful response [video parameter specification (v)]

```

HTTP Code   : 200 OK
Content-Type : text/plain;charset=utf-8
Livescope-Status : 0
MessageBody :
<Parameter>:=<Value>
<Parameter>==<Value>

s:=8a96-c09b18f0
s.authority.audio:= disabled
s.authority.control:= enabled
s.authority.video:=enabled
s.origin:=192.168.100.1:80
s.duration:=0
s.priority:=0
v:=jpg:1920x1080:3:30000

```

Return value:

Return value	Value Type/Range	Description
s	<string>	Session ID
s.authority.audio	disabled, enabled	Audio device privilege
s.authority.control	disabled, enabled	Camera control privilege
s.authority.video	disabled, enabled	Video distribution privilege
s.origin	<IPaddress>:<port>	Camera IP address and HTTP port number ^[17]
s.duration	0...<Maximum connection time>	Remaining session connection time ^[18] Unit:Second0:Unlimited
s.priority	0...50	Session priority
v	<video parameter>	Video parameter of selected stream ^[19] Notreturned if video-less (v=null) is specified.
v.<Video>.cbr	64...16384	Selected video stream target bit rateUnit: kbps ^[20]

B. Successful response [video stream number specification (w)]

```

HTTP Code   : 200 OK
Content-Type : text/plain;charset=utf-8
Livescope-Status : 0
MessageBody :

<Parameter>:=<Value>
<Parameter>==<Value>

s:=8a96-c09b18f0

```

```
s.authority.audio:= disabled
s.authority.control:= enabled
s.authority.video:=enabled
```

```
s.origin:=192.168.100.1:80
s.duration:=0
s.priority:=0
w:=1
w.1.type==h264
w.1.size==480x270
w.1.quality==0
w.1.frate==1000
w.1.crop==off
```

Return value:

Return value	Value Type/Range	Description
s	<string>	Session ID
s.authority.audio	disabled,enabled	Audio device privilege
s.authority.control	disabled,enabled	Camera control privilege
s.authority.video	disabled,enabled	Video distribution privilege
s.origin	<IPaddress>:<port>	Camera IP address and HTTP port number
s.duration	0...	Remaining session connection time Unit:Second 0:Unlimited
s.priority	0...50	Session priority
w	1...3	Selected video stream number ^[21]
w.<Video>.type	jpg,h264, h265	Selected video stream video codec
w.<Video>.type.profile	baseline, main,high	Selected video stream profile ^[22]
w.<Video>.kind	overview	By selected video stream video type
w.<Video>.size	<videowidth>x<video height>	Selected video stream size
w.<Video>.quality	1...10	Selected video stream Q value Lowquality 1 ← → 10 Highquality

Return value	Value Type/Range	Description
w.<Video>.cbr	64...16384	Selected video stream target bit rate note:[It is returned when the video codec of <video parameter> is "h264".] Units:kbps
w.<Video>.frate	100...30000	Selected video stream frame rate Unit:Number of frames per 1000 seconds
w.<Video>.crop	offon	Enable/disable digital PTZ

C. Error response

HTTP status return value:

HTTP Status	Meaning
401 Unauthorized	User authentication failed. ! A guest user requested a privileged or administrator session. ! An authorized user requested an administrator session.

Livescope status return value:

Livescope Status	Meaning
403 Invalid Parameter Value	Invalid parameter value specified. ! A video stream number (w) outside the valid range was specified.
407 Invalid Request	Invalid session function requested. ! An invalid video stream number (w) was specified. ! A video-less (v=null) administrator session was requested.
408 Conflict	An exclusive operation was requested. ! An administrator session was requested and excluded to an existing session.
503 Too many clients	Maximum number of connections exceeded. ^[23] ! A session that exceeds the maximum number of connections was requested.
507 Insufficient Privilege	Cannot access due to access privilege.

3.2.1.2. Closing a Session [close.cgi]

This closes a XC control protocol session.

3.2.1.2.1. Commands

Syntax:

```
http://<ipaddress>/-vvhttp-01-/close.cgi?s=<SessionID>
```

Preconditions and precautions:

- A guest user cannot close a privileged session.
- A guest user or authorized user cannot close an administrator session.

Parameters:

Parameter	Value Type/Range	Description
s	<string>	Session ID (Mandatory)

3.2.1.2.2. Response

A. Successful response

HTTP Code : 200 OK Content-Type : text/plain;charset=utf-8 Livescope-Status : 0 MessageBody :

```
OK
```

B. Error response

HTTP status return value:

HTTP Status	Meaning
401Unauthorized	User authentication failed. ! A guest user requested a privileged or administrator session. ! An authorized user requested the closing of an administratorsession.

Livescope status return value:

Livescope Status	Meaning
406 Parameter Missing	Mandatory parameter not specified. ! Mandatory parameter or session ID(s) notspecified.
501 Unknown Connection ID	Specified session does not exist. ! Invalid session ID(s) specified.

3.2.1.3. Camera Control Privilege Request [claim.cgi]

This is used to obtain camera control privileges. The priority of the session determines whether camera control privileges can be obtained and the assigned time of the control privileges.

- Camera control privilege request for a general session
 - The assigned time of the camera control privileges is limited by the set camera control time.^[24]
 - If a general session has already obtained control privileges, a control privilege request from the same general session is queued until the previous session releases control privileges or the assigned time for camera control privileges has elapsed.
 - Control privileges are assigned to queued control privilege requests in the order they were requested.
 - When obtaining control privileges, in addition to using the result of the control privilege request, info.cgi can also be used to obtain notification of a change in the status of an information item.
 - The number of sessions queued to obtain camera control privileges is managed by the set the maximum camera control queue length. If a control privilege request exceeds the camera control queue length, a failure response is returned.

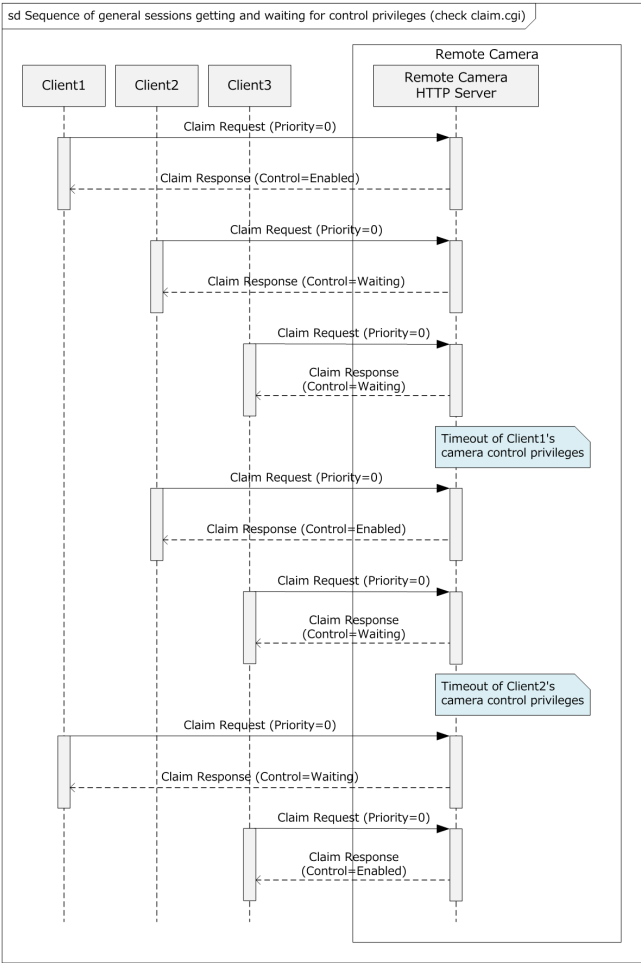


Figure 5. Sequence of General Sessions Getting and Waiting for Camera Control Privileges (Check claim.cgi)

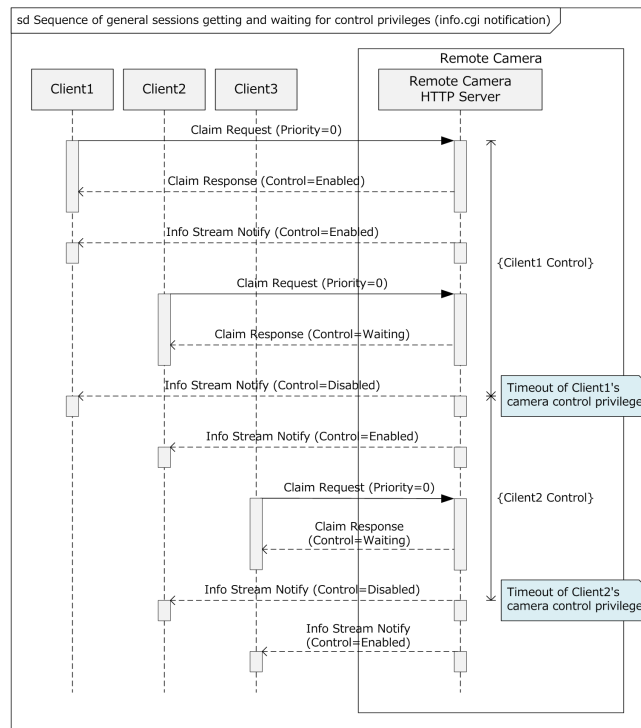


Figure 6. Sequence of General Sessions Getting and Waiting for Camera Control Privileges (info.cgi Notification)

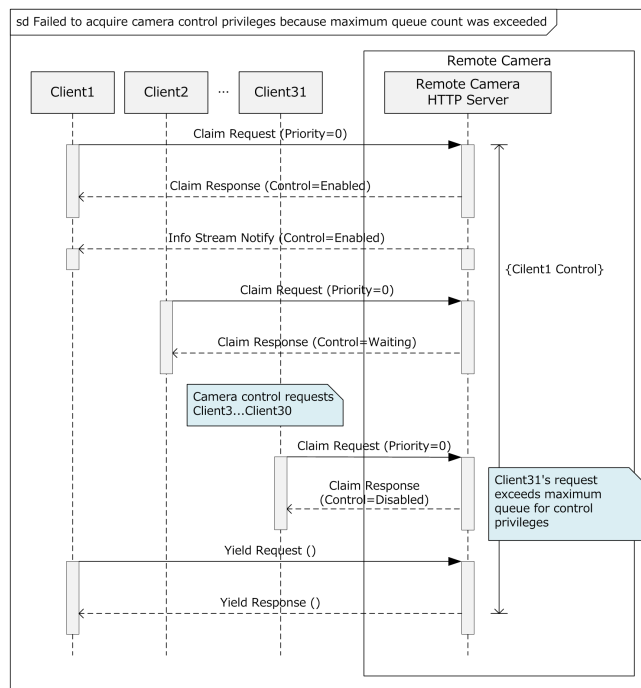


Figure 7. Failed to Acquire Camera Control Privileges Because Maximum Queue Count Was Exceeded

- Camera control privilege request for a privileged session
 - In a privileged session, session management in which control privilege requests are queued, as in a general session, is not performed, and instead, the higher priority privileged session obtains control privileges. In this case, the control privileges of the session that had previously obtained control privileges are forfeited.

- Control privileges can also be obtained when a session with the same priority requests control privileges.
- If a privileged session requests control privileges, all queued control privilege requests of general sessions fail.

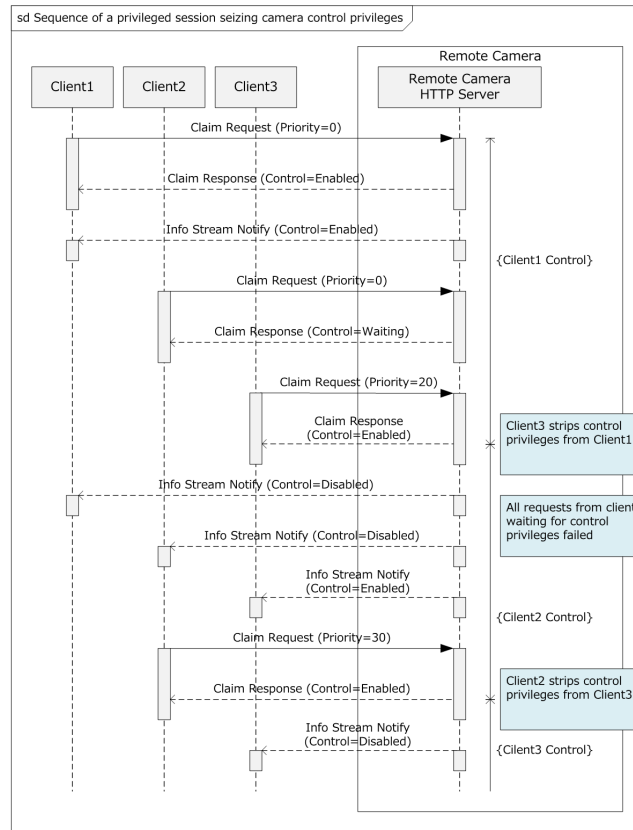


Figure 8. Sequence of a Privileged Session Seizing Camera Control Privileges

3.2.1.3.1. Commands

Syntax:

```
http://<ipaddress>/-vvhttp-01-/claim.cgi?s=<SessionID>
```

Parameters:

Parameter	Value Type/Range	Description
s	<string>	Session ID (Mandatory)

3.2.1.3.2. Response

A. Successful response [Change in control privileges status of own session due to control privilege request]

The following is the response when the status of the control privileges changes as a result of a processed control privilege request.

e.g. Before control privilege request = disabled → After control privilege request = enabled or waiting

HTTP Code : 200 OK

Content-Type : text/plain;charset=utf-8

Livescope-Status : 0

MessageBody :

```
s.control:=enabled:20000
```

Return value:

Return value	Value Type/Range	Description
s.control	enabled [:<assigned time>], waiting [:<standby time>]	Camera control privileges status of own session ^[25] Unit: Millisecond

B. Successful response [No change in control privileges status of own session due to control privilege request]

The following is the response when the status of the control privileges does not change even when a control privilege request is processed.

e.g. Before control privilege request = disabled →

After control privilege request = disabled (failed to obtain control privileges)

Before control privilege request = waiting →

After control privilege request = waiting (continuing to wait)

HTTP Code : 200 OK

Content-Type : text/plain;charset=utf-8

Livescope-Status : 0

MessageBody :

```
s.control==disabled
```

Return value:

Return value	Value Type/Range	Description
s.control	enabled[:<assigned time>], waiting[:<standby time>], disabled	Camera control privileges status of own session ^[26] Unit: Millisecond

C. Error response

HTTP status return value:

HTTP Status	Meaning
401 Unauthorized	User authentication failed. ! Specified session ID(s) does not have camera control privileges.

Livescope status return value:

Livescope Status	Meaning
406 Parameter Missing	Mandatory parameter not specified. ! Mandatory parameter or session ID(s) not specified.
501 Unknown Connection ID	Specified session does not exist. ! Invalid session ID(s) specified.

3.2.1.4. Releasing Camera Control Privileges [yield.cgi]

This releases camera control privileges. If waiting to obtain camera control privileges, this cancels the wait status.

- When releasing control privileges, in addition to using the result of the control privilege release, info.cgi can also be used to obtain notification of a change in the status of an information item.

3.2.1.4.1. Commands

Syntax:

```
http://<ipaddress>/-wvhttp-01-/yield.cgi?s=<SessionID>
```

Parameters:

Parameter	Value Type/Range	Description
s	<string>	Session ID (Mandatory)

3.2.1.4.2. Response

A. Successful response [Change in control privileges status of own session due to control privilege release]

The following is the response when the status of the control privileges changes as a result of a processed control privilege release with respect to the privileges status before release of control privileges.

e.g. Before control privilege release = enabled or waiting → After control privilege release = disabled

HTTP Code : 200 OK

Content-Type : text/plain;charset=utf-8

Livescope-Status : 0

MessageBody :

```
s.control:=disabled
```

Return value: (*The specified parameter determines whether “==” or “:=” is returned as the return value.)

Return value	Value Type/Range	Description
s.control	disabled	Camera control privileges status of own session

B. Successful response [No change in control privileges status of own session due to control privilege release]

The following is the response when the status of the control privileges does not change even when a control privilege release is processed with respect to the privileges status before release of control privileges.

e.g. Before control privilege release = disabled → After control privilege release = disabled

HTTP Code : 200 OK

Content-Type : text/plain;charset=utf-8

Livescope-Status : 0

MessageBody :


```
s.control==disabled
```

Return value: (*The specified parameter determines whether “==” or “:=” is returned as the return value.)

Return value	Value Type/Range	Description
s.control	disabled	Camera control privileges status of own session

C. Error response

Livescope status return value:

Livescope Status	Meaning
406 Parameter Missing	Mandatory parameter not specified. ! Mandatory parameter or session ID(s) not specified.
501 Unknown Connection ID	Specified session does not exist. ! Invalid session ID(s) specified.

3.2.1.5. Changing Session Attributes [session.cgi]

This retrieves a XC control protocol session-specific attribute or changes a specific attribute.

- A session-specific attribute can be used to change the priority and video stream.
- Changes to the session priority affect the XC control command access privileges and camera control privileges.
- The size and frame rate of the video to be retrieved in the session can be changed by changing the video stream attributes.
- There are two methods for selecting a video stream: specifying video parameters such as the video codec and video resolution (v), or specifying the video stream number (w). **The (v) parameters are maintained solely for backward compatibility; therefore, no new features have been added to them, and none will be added in the future. Any new features related to video streams will be implemented using the (w) parameters. For example, H.265 is no longer supported with the (v) parameters and is supported only with (w). Furthermore, the discontinuation of (v) is planned for future device releases. Therefore, the use of (w) parameters is strongly recommended for new implementations.**

When a session attribute is changed successfully, the changed priority and changed video stream information are returned as a response.

3.2.1.5.1. Commands

Syntax:

```
http://<ipaddress>/-wvhttp-01-  
/session.cgi?s=<SessionID>[&s.priority=<Value>][&v=<Value>][&w=<Value>][&w.<Video>.frate=<Value>]
```

Preconditions and precautions:

- If the session priority is lowered to a general session, the session may be disconnected due to the limitation of the model specific “Maximum connection time”.
- If the session priority is lowered to a level where there are no camera control privileges, the camera control privileges are forfeited.
- If the session priority is lowered and there is a session requesting camera control privileges at a higher priority, the camera control privileges are forfeited.
- For video parameter specification (v), if there is no stream that conforms to the specified video size, a stream with a video size that is close to the specified value and is one size lower is selected.
- If both the video parameter specification (v) and video stream number specification (w) are specified when selecting a video stream, the video parameter specification (v) has priority. Even if neither are specified, the video parameter specification (v) takes priority and the video codec is jpg.
- When the image.cgi or video.cgi video retrieval command is being executed for the video parameter specification (v), changes to the video codec of the video stream are denied, and 408 is returned as the Livescope status response.
- When the image.cgi or video.cgi video retrieval command is being executed for the video stream number specification (w), changes are only permitted to the type between JPEG video streams. If H.264 is specified, changes are denied, and 408 is returned as the Livescope status response.

Parameters:

Parameter	Value Type/Range	Description
s	<string>	Session ID (Mandatory)
[s.]priority	0...50	Specifies the session priority. ^[14] "0" when omitted (generalsession).
v	<video parameter>	Selects the stream by the video parameter. ^{[15][16]}

Parameter	Value Type/Range	Description
w	1...3	Selects the stream by the video streamnumber. ^[16] Specifies a videostream number that can be referenced with info.cgi.
w.<Video>.frate	100...30000	Specifies the videostream frame rate. Unit: Number of frames per 1000 seconds Specify at the same time as w. Ignored if w is not specified.

3.2.1.5.2. Response

The response content for session.cgi varies depending on whether the video parameter specification (v) or video stream number specification (w) was specified. The following shows the response content and status value returned when an error occurs.

A. Successful response [video parameter specification (v)]

HTTP Code : 200 OK

Content-Type : text/plain; charset=utf-8

Livescope-Status : 0

MessageBody :

```
s.priority:=0
v:=jpg:1920x1080:3:30000
```

Parameters:

Parameter	Value Type/Range	Description
s	0...50	Changed session priority
v	<video parameter>	Video parameter of changed stream ^[19]

B. Successful response [video stream number specification (w)]

HTTP Code : 200 OK

Content-Type : text/plain; charset=utf-8

Livescope-Status : 0

MessageBody :

```
s.priority:=0
w:=5
```

```
w.1.type==h264
w.1.size==480x270
w.1.quality==0
w.1.frate==1000
w.1.crop==off
```

Return value: (*The specified parameter determines whether “==” or “:=” is returned as the return value.)

Return value	Value Type/Range	Description
s.priority	0...50	Changed session priority
w	1...3	Changed video stream number
w.<Video>.type	jpg, h264, h265	Changed video stream video codec
w.<Video>.type.profile	baseline, main, high	Selected video stream profile ^[27]
w.<Video>.kind	overview	By selected video stream video type
w.<Video>.size	<videowidth>x<videoheight>	Changed video stream size
w.<Video>.quality	1...10	Changed video stream Q value Lowquality 1 ← → 10High quality
w.<Video>.cbr	64...16384	Changed video stream target bit rate ^[27] Unit: kbps
w.<Video>.frate	100...30000	Changed video stream frame rate Unit: Number of frames per 1000 seconds

C. Error response

HTTP status return value:

HTTP Status	Meaning
401 Unauthorized	User authentication failed. ! A guest user requested a privileged session.

Livescope status return value:

Livescope Status	Meaning
403 Invalid Parameter Value	Invalid parameter value specified. ! A video stream number (w) outside the validrange was specified.

Livescope Status	Meaning
406 Parameter Missing	Mandatory parameter not specified. ! Mandatory parameter or session ID(s) not specified.
407 Invalid Request	Invalid session function requested. ! An invalid video stream number (w) was specified.
408 Conflict	An exclusive operation was requested. ! A change in the video stream was specified with the videoparameter specification (v) while the video retrieval command was being executed. ! A change in the video stream to a format other than JPEG was specified with the video stream number specification (w) while the video retrieval command was being executed.
501 Unknown Connection ID	Specified session does not exist. ! Invalid session ID(s) specified.

3.2.2. Information Acquisition

The information acquisition commands of cameras under XC control protocol are described below.

3.2.2.1. Information Acquisition [info.cgi]

This is used to obtain various remote camera information. Select whether to acquire information from a session-based or sessionless client. In addition, as needed, select the method for issuing the command and acquiring the result and the method for receiving notification each time there is a change in information in a camera due to the stream format.

- Session-based - Issuing a request as needed
 - At the initial information acquisition after the camera is started, all requested items are returned immediately as a response.
 - At all subsequent information acquisitions, items are returned as a response only when those items are different from the initial response content. If there is no difference at the time of the information acquisition request, the response is queued until a difference exists.
 - "timeout" parameter can be used to specify the response time limit.
- Sessionless - Issuing a request as needed
 - All requested items are returned immediately as a response for each information acquisition request.
- Stream format specification
 - It is possible to select the stream format for both session-based and sessionless clients. The

server push mode using "multipart/x-mixed-replace" MIME type is used for the response format.

- Response format

- At the initial information acquisition after the camera is started, all requested items are returned immediately as a response.
- Thereafter, an information acquisition request is not performed, and items are repeatedly returned as a response only when those items are different from the previous response content.
- There is only one format for the response for info.cgi : “item name:=value”.
- The following shows the behavior of info.cgi for each usage.

When the stream format is not specified in a sessionless case, all requested items are returned immediately as a response for each information acquisition request.

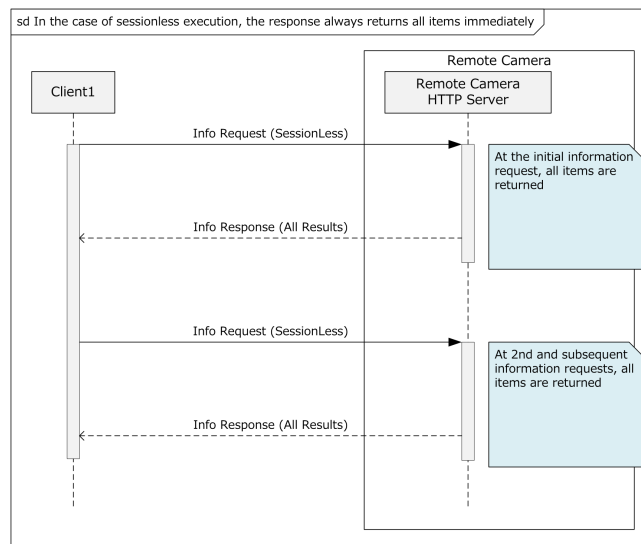


Figure 9. In the Case of Sessionless Execution, the Response Always Returns All Items Immediately

When the stream format is not specified in a session-based case, in all subsequent information acquisitions, items are returned as a response only when those items are different from the initial response content.

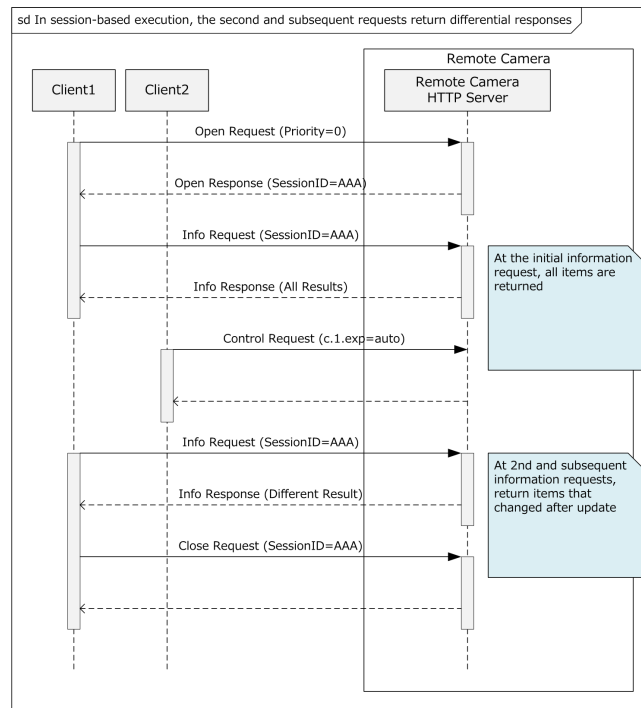


Figure 10. In Session-Based Execution, the Second and Subsequent Requests Return Differential Responses

When the stream format is not specified in a session-based case, in all subsequent information acquisitions, if there is no difference at the time of the information acquisition request, the response is queued until a difference exists.

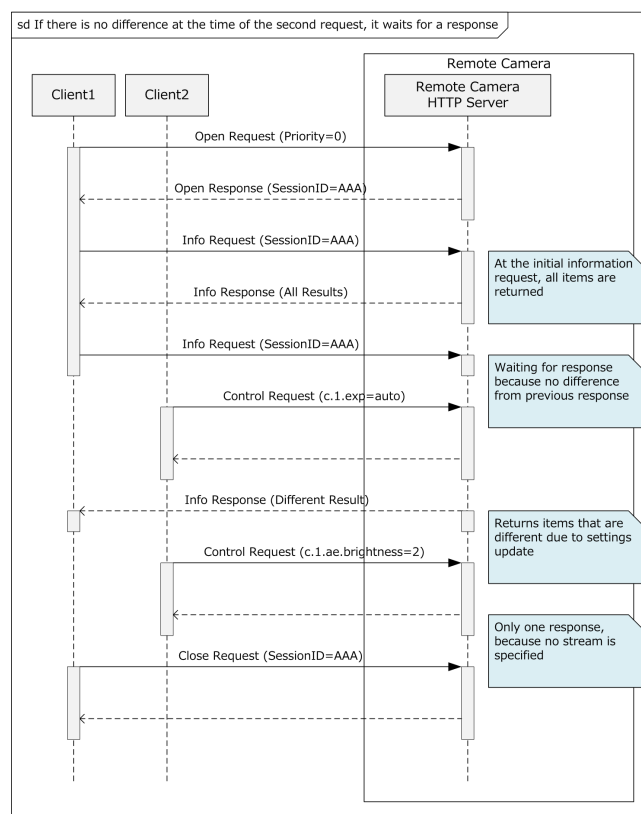


Figure 11. If There Is No Difference at the Time of the Second Request, It Waits for a Response

When the stream format is specified, at the initial information acquisition after the camera is started, all requested items are returned immediately as a response.

Thereafter, an information acquisition request is not performed, and items are repeatedly returned as a response only when those items are different from the previous response content.

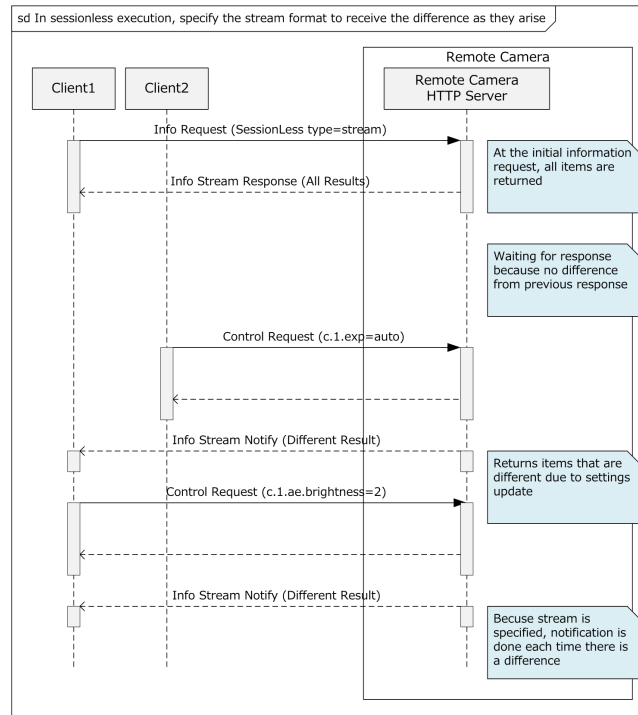


Figure 12. In Sessionless Execution, Specify the Stream Format to Receive the Differences as They Arise

"timeout" specification can be used to specify the response time limit. When the response time limit specified with "timeout" elapses, only the "timestamp" item, which indicates that the time limit timed out, is returned as a response.

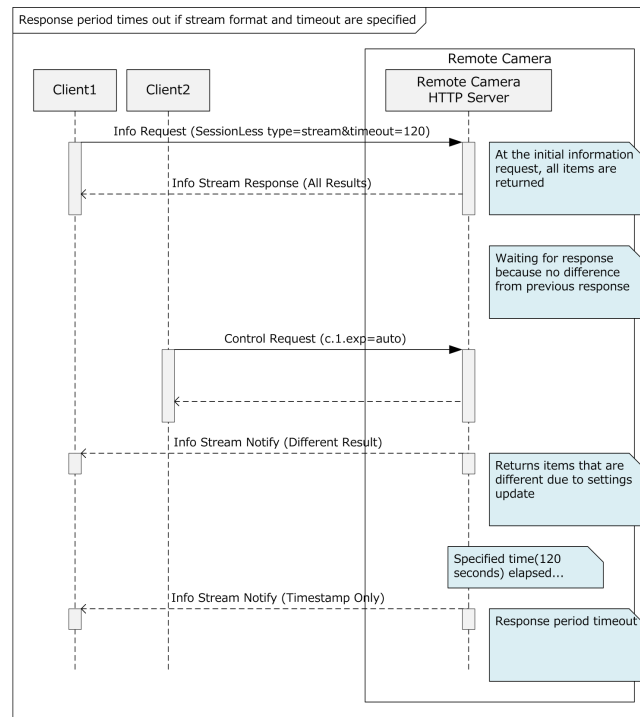


Figure 13. Response Period Times Out If Stream Format and Timeout Are Specified

3.2.2.1.1. Commands

Syntax:

```
http://<ipaddress>/-wvhttp-01-/info.cgi?[s=<sessionID>][&item=<Value>]
[&type=<Value>][&timeout=<Value>]...
```

Preconditions and precautions:

* A request cannot be executed multiple times in the same session, and if attempted, 408 is returned as the Livescope status response.

Parameters:

Parameter	Value Type/Range	Description
s	<string>	Session ID
item	<itemname 1> [,<itemname 2>...]	Specifies the information item to be acquired. ^[28] When this specification is omitted, all the items are specified.

Parameter	Value Type/Range	Description
type	stream	Response format specification stream: Sends data in stream format In the stream format, all the data is transmitted first and any difference is transmitted from the camera later sequentially.
timeout	<int>	Response time limit specification (If the specified response timeout is less than 10 seconds, it will be set to 10 seconds.) Unit: Second
interval	0, 33, 100, 200, 500, 1000	Minimum interval of performing notification of pan position/tilt position/zoom position during the PTZ operation Unit: Millisecond "0" = No notification "0" when omitted

3.2.2.1.2. Response

The response format for information acquisition is "item name:=value".

- The initial response for information acquisition returns all items, while the second and subsequent responses specifying a session return only the items that have changed. In both cases, the "item name:=value" format is returned.

A. Successful response [normal]

This indicates the initial response of an information acquisition or a response when a command is issued as needed.

HTTP Code : 200 OK

Content-Type : text/plain; charset=utf-8

Livescope-Status : 0

MessageBody :

```
timestamp=122.642
realtime=1753083745.012
s.system.status:=idle
s.epoch:=Mon, 21 Jul 2025 16:42:04 +0900
s.hardware:=Canon CR-N400
s.hardware.id:=117
s.hardware.address:=*****
s.hardware.maxsize:=3840x2160
s.firmware:=1.0.0
```

```
s.protocol:=7.0.0
s.maxsize:=3840x2160
v.list:=h264:1920x1080:0:59940,jpg:1280x720:6:14980
v.h264.cbr:=20000
w.maxsize:=1920x1080
w.count:=3
w.1.status:=enabled
w.1.type:=h264
w.1.type.profile:=high
w.1.kind:=overview
w.1.size:=1920x1080
w.1.quality:=0
w.1.cbr:=20000
w.1.frate.min:=100
w.1.frate.max:=59940
w.1.crop:=off
w.2.status:=enabled
w.2.type:=h264
w.2.type.profile:=high
w.2.kind:=overview
w.2.size:=640x360
w.2.quality:=0
w.2.cbr:=6000
w.2.frate.min:=100
w.2.frate.max:=29970
w.2.crop:=off
w.3.status:=enabled
w.3.type:=jpg
w.3.kind:=overview
w.3.size:=1280x720
w.3.quality:=6
w.3.frate.min:=100
w.3.frate.max:=14980
w.3.crop:=off
c:=1
c.count:=1
c.1.type:=Canon CR-N400
c.1.status:=enabled
c.1.platform.status:=initialized
c.1.platform.error:=0
c.1.name.utf8:=Camera
c.1.shooting:=fullauto
c.1.shooting.list:=fullauto>manual
c.1.exp:=auto
c.1.exp.list:=auto>manual
c.1.ae.brightness:=0
c.1.ae.brightness.min:=-8
c.1.ae.brightness.max:=8
c.1.ae.brightness.list:=-8,-7,-6,-5,-4,-3,-2,-1,0,1,2,3,4,5,6,7,8
c.1.me.brightness:=0
c.1.me.brightness.min:=-8
c.1.me.brightness.max:=8
c.1.ae.photometry:=center
c.1.ae.photometry.list:=center,spotlight,backlight
c.1.me.photometry:=center
```

```

c.1.me.photometry.list:=center,spotlight,backlight
c.1.ae.resp:=1
c.1.ae.resp.min:=0
c.1.ae.resp.max:=2
c.1.me.resp:=1
c.1.me.resp.min:=0
c.1.me.resp.max:=2
c.1.me.diaphragm.mode:=auto
c.1.me.diaphragm.mode.list:=auto>manual
c.1.me.diaphragm.increment:=4
c.1.me.diaphragm.increment.list:=3,4
c.1.me.diaphragm.fine:=off
c.1.me.diaphragm.fine.list:=off,on
c.1.me.diaphragm:=180
c.1.me.diaphragm.list:=180,200,220,240,260,280,320,340,370,400,440,480,520,560,620,670,730,800,870,950,1000,1100,1200,1400,1500,1600,1700,1900,2100,2200
c.1.me.diaphragm.shift.min:=-100
c.1.me.diaphragm.shift.max:=100
c.1.me.iris:=656
c.1.me.iris.min:=396
c.1.me.iris.max:=656
c.1.me.fno:=180
c.1.me.diaphragm.restrict:=on
c.1.me.diaphragm.restrict.list:=off,on
c.1.me.shutter.mode:=auto
c.1.me.shutter.mode.list:=auto,speed,slow,clearscan,angle,off
c.1.me.shutter.increment:=4
c.1.me.shutter.increment.list:=3,4
c.1.me.shutter:=60
c.1.me.shutter.list:=60,75,90,100,120,150,180,210,250,300,360,420,500,600,720,840,1000,1200,1400,1700,2000
c.1.me.clearscan:=5994
c.1.me.clearscan.min:=5994
c.1.me.clearscan.max:=199800
c.1.me.clearscan.shift.min:=-100
c.1.me.clearscan.shift.max:=100
c.1.me.angle:=18000
c.1.me.angle.list:=36000,24000,21600,18000,12000,9000,6000,4500,3000,2250,1500,1125
c.1.ae.flickerreduct:=off
c.1.ae.flickerreduct.list:=off,auto
c.1.me.flickerreduct:=off
c.1.me.flickerreduct.list:=off,auto
c.1.me.gain.mode:=auto
c.1.me.gain.mode.list:=auto>manual
c.1.me.gain.increment:=normal
c.1.me.gain.increment.list:=normal,fine
c.1.me.gain:=35
c.1.me.gain.min:=0
c.1.me.gain.max:=300
c.1.me.gain.list:=0,5,10,15,20,25,30,35,40,45,50,55,60,65,70,75,80,85,90,95,100,105,110,115,120,125,130,135,140,145,150,155,160,165,170,175,180,185,190,195,200,205,210,215,220,225,230,235,240,245,250,255,260,265,270,275,280,285,290,295,300
c.1.me.gain.boost:=off
c.1.me.gain.boost.list:=off,on
c.1.me.gain.highsensitive:=off

```

```

c.1.me.gain.highsensitive.list:=off,on
c.1.me.gain.shockless:=off
c.1.me.gain.shockless.list:=off,high,normal,low
c.1.ae.gainlimit.max:=300
c.1.ae.gainlimit.max.min:=0
c.1.ae.gainlimit.max.max:=300
c.1.ae.gainlimit.max.list:=0,5,10,15,20,25,30,35,40,45,50,55,60,65,70,75,80,85,90,95,100,105,110,1
15,120,125,130,135,140,145,150,155,160,165,170,175,180,185,190,195,200,205,210,215,220,225,230,235
,240,245,250,255,260,265,270,275,280,285,290,295,300
c.1.me.gainlimit.max:=300
c.1.me.gainlimit.max.min:=0
c.1.me.gainlimit.max.max:=300
c.1.lenscorrect.diffraction:=off
c.1.lenscorrect.diffraction.list:=off,on
c.1.colorbar:=off
c.1.colorbar.list:=off,on
c.1.nd.mode:=assist
c.1.nd.mode.list:=assist,fixed
c.1.nd.filter:=800
c.1.wb:=auto
c.1.wb.list:=auto>manual,wb_a,wb_b,daylight,tungsten,kelvin
c.1.wb.action.list:=one_shot_a,one_shot_b
c.1.wb.value:=248-234
c.1.wb.kelvin.increment:=mired
c.1.wb.kelvin.increment.list:=kelvin,mired
c.1.wb.kelvin:=4760
c.1.wb.kelvin.list:=2000,2020,2040,2060,2080,2110,2130,2150,2170,2200,2220,2250,2270,2300,2330,235
0,2380,2410,2440,2470,2500,2530,2560,2600,2630,2670,2700,2740,2780,2820,2860,2900,2940,2990,3030,3
080,3130,3200,3230,3280,3330,3390,3450,3510,3570,3640,3700,3770,3850,3920,4000,4080,4170,4300,4350
,4440,4550,4650,4760,4880,5000,5130,5260,5410,5600,5710,5880,6060,6300,6450,6670,6900,7140,7410,76
90,8000,8330,8700,9090,9520,10000,10530,11110,11760,12500,13330,14290,15000
c.1.wb.kelvin.cc:=2
c.1.wb.kelvin.cc.min:=-20
c.1.wb.kelvin.cc.max:=20
c.1.wb.resp:=1
c.1.wb.resp.min:=0
c.1.wb.resp.max:=2
c.1.wb.shockless:=off
c.1.wb.shockless.list:=off,on
c.1.wb.awbhold:=off
c.1.wb.awbhold.list:=off,on
c.1.cp.list:=standard_bt709,widedr_bt709,clog3,pq,hlg,eos_standard,eos_neutral,canon709_bt709,user
c.1.gamma:=standard_bt709
c.1.gamma.list:=clog3_cgmut,clog3_bt2020,clog3_bt709,pq_bt2020,hlg_bt2020,widedr_bt709,standard_b
t709,canon709_bt709
c.1.colormatrix:=video
c.1.colormatrix.list:=video,neutral,production_camera
c.1.lookfile:=off
c.1.lookfile.list:=off
c.1.lookfile.name:=
c.1.lookfile.before.gamma:=widedr_bt709
c.1.lookfile.before.hlgcolor:=vivid
c.1.lookfile.before.over100:=through
c.1.lookfile.before.whitelevel100:=on
c.1.lookfile.after.gamma:=cp

```

```
c.1.lookfile.after.gamma.list:=cp,sdr_bt709,sdr_bt2020,hdr_pq_bt2100,hdr_hlg_bt2100
c.1.hlgcolor:=vivid
c.1.hlgcolor.list:=vivid,bt2100
c.1.blacklevel:=0
c.1.blacklevel.min:=-250
c.1.blacklevel.max:=250
c.1.blacklevel.red:=0
c.1.blacklevel.red.min:=-250
c.1.blacklevel.red.max:=250
c.1.blacklevel.green:=0
c.1.blacklevel.green.min:=-250
c.1.blacklevel.green.max:=250
c.1.blacklevel.blue:=0
c.1.blacklevel.blue.min:=-250
c.1.blacklevel.blue.max:=250
c.1.blackgamma:=0
c.1.blackgamma.min:=-50
c.1.blackgamma.max:=50
c.1.blackgamma.range:=0
c.1.blackgamma.range.min:=-20
c.1.blackgamma.range.max:=50
c.1.blackgamma.point:=0
c.1.blackgamma.point.min:=-20
c.1.blackgamma.point.max:=50
c.1.lowkeysaturation:=off
c.1.lowkeysaturation.list:=off,on
c.1.lowkeysaturation.level:=0
c.1.lowkeysaturation.level.min:=-50
c.1.lowkeysaturation.level.max:=50
c.1.knee:=on
c.1.knee.list:=off,on
c.1.knee.automatic:=on
c.1.knee.automatic.list:=off,on
c.1.knee.whitelevel100:=on
c.1.knee.whitelevel100.list:=off,on
c.1.knee.slope:=0
c.1.knee.slope.min:=-35
c.1.knee.slope.max:=50
c.1.knee.point:=85
c.1.knee.point.min:=50
c.1.knee.point.max:=100
c.1.knee.saturation:=0
c.1.knee.saturation.min:=-10
c.1.knee.saturation.max:=10
c.1.nr.mode:=auto
c.1.nr.mode.list:=manual,auto
c.1.nr.spatialfilter:=0
c.1.nr.spatialfilter.min:=0
c.1.nr.spatialfilter.max:=12
c.1.nr.framecorrelation:=0
c.1.nr.framecorrelation.min:=0
c.1.nr.framecorrelation.max:=3
c.1.nr.snpriority:=off
c.1.nr.snpriority.list:=off,on
c.1.ac:=0
```

```
c.1.ac.min:=-10
c.1.ac.max:=50
c.1.ac.detailfreq:=0
c.1.ac.detailfreq.min:=-8
c.1.ac.detailfreq.max:=8
c.1.ac.coringlevel:=0
c.1.ac.coringlevel.min:=-30
c.1.ac.coringlevel.max:=50
c.1.ac.limit:=0
c.1.ac.limit.min:=-50
c.1.ac.limit.max:=50
c.1.skindetail.level:=0
c.1.skindetail.level.min:=0
c.1.skindetail.level.max:=3
c.1.skindetail.hue:=0
c.1.skindetail.hue.min:=-16
c.1.skindetail.hue.max:=16
c.1.skindetail.chroma:=16
c.1.skindetail.chroma.min:=0
c.1.skindetail.chroma.max:=31
c.1.skindetail.area:=16
c.1.skindetail.area.min:=0
c.1.skindetail.area.max:=31
c.1.skindetail.ylevel:=16
c.1.skindetail.ylevel.min:=0
c.1.skindetail.ylevel.max:=31
c.1.colormatrix.gain:=0
c.1.colormatrix.gain.min:=-50
c.1.colormatrix.gain.max:=50
c.1.colormatrix.phase:=0
c.1.colormatrix.phase.min:=-18
c.1.colormatrix.phase.max:=18
c.1.colormatrix.rg:=0
c.1.colormatrix.rg.min:=-50
c.1.colormatrix.rg.max:=50
c.1.colormatrix.rb:=0
c.1.colormatrix.rb.min:=-50
c.1.colormatrix.rb.max:=50
c.1.colormatrix.gr:=0
c.1.colormatrix.gr.min:=-50
c.1.colormatrix.gr.max:=50
c.1.colormatrix.gb:=0
c.1.colormatrix.gb.min:=-50
c.1.colormatrix.gb.max:=50
c.1.colormatrix.br:=0
c.1.colormatrix.br.min:=-50
c.1.colormatrix.br.max:=50
c.1.colormatrix.bg:=0
c.1.colormatrix.bg.min:=-50
c.1.colormatrix.bg.max:=50
c.1.wb.shift.rgain:=0
c.1.wb.shift.rgain.min:=-50
c.1.wb.shift.rgain.max:=50
c.1.wb.shift.ggain:=0
c.1.wb.shift.ggain.min:=-50
```

```
c.1.wb.shift.ggain.max:=50
c.1.wb.shift.bgain:=0
c.1.wb.shift.bgain.min:=-50
c.1.wb.shift.bgain.max:=50
c.1.colorcorrection.area:=off
c.1.colorcorrection.area.list:=off,area_a,area_b,area_ab
c.1.colorcorrection.a.phase:=0
c.1.colorcorrection.a.phase.min:=0
c.1.colorcorrection.a.phase.max:=31
c.1.colorcorrection.a.chroma:=16
c.1.colorcorrection.a.chroma.min:=0
c.1.colorcorrection.a.chroma.max:=31
c.1.colorcorrection.a.area:=16
c.1.colorcorrection.a.area.min:=0
c.1.colorcorrection.a.area.max:=31
c.1.colorcorrection.a.ylevel:=16
c.1.colorcorrection.a.ylevel.min:=0
c.1.colorcorrection.a.ylevel.max:=31
c.1.colorcorrection.a.revision.level:=0
c.1.colorcorrection.a.revision.level.min:=-50
c.1.colorcorrection.a.revision.level.max:=50
c.1.colorcorrection.a.revision.phase:=0
c.1.colorcorrection.a.revision.phase.min:=-18
c.1.colorcorrection.a.revision.phase.max:=18
c.1.colorcorrection.b.phase:=0
c.1.colorcorrection.b.phase.min:=0
c.1.colorcorrection.b.phase.max:=31
c.1.colorcorrection.b.chroma:=16
c.1.colorcorrection.b.chroma.min:=0
c.1.colorcorrection.b.chroma.max:=31
c.1.colorcorrection.b.area:=16
c.1.colorcorrection.b.area.min:=0
c.1.colorcorrection.b.area.max:=31
c.1.colorcorrection.b.ylevel:=16
c.1.colorcorrection.b.ylevel.min:=0
c.1.colorcorrection.b.ylevel.max:=31
c.1.colorcorrection.b.revision.level:=0
c.1.colorcorrection.b.revision.level.min:=-50
c.1.colorcorrection.b.revision.level.max:=50
c.1.colorcorrection.b.revision.phase:=0
c.1.colorcorrection.b.revision.phase.min:=-18
c.1.colorcorrection.b.revision.phase.max:=18
c.1.over100:=through
c.1.over100.list:=through,clip,press
c.1.is:=off
c.1.is.list:=off,on1,on2
c.1.focus:=auto
c.1.focus.list:=auto>manual
c.1.focus.action.list:=far,near,one_shot,spot,stop
c.1.focus.oneshot.status:=idle
c.1.focus.target.action.list:=prev,next
c.1.focus.value:=0
c.1.focus.value.min:=0
c.1.focus.value.max:=2048
c.1.focus.restrict:=off
```



```
c.1.focus.restrict.list:=off,on
c.1.focus.speed:=39
c.1.focus.speed.min:=0
c.1.focus.speed.max:=63
c.1.focus.auto.speed:=1
c.1.focus.auto.speed.min:=0
c.1.focus.auto.speed.max:=2
c.1.focus.frame.1.x:=5000
c.1.focus.frame.1.x.min:=0
c.1.focus.frame.1.x.max:=9999
c.1.focus.frame.1.y:=5000
c.1.focus.frame.1.y.min:=0
c.1.focus.frame.1.y.max:=9999
c.1.focus.frame.1.width:=7999
c.1.focus.frame.1.height:=7499
c.1.focus.detect:=facecatch
c.1.focus.detect.list:=off,faceonly,facecatch
c.1.focus.detect.eye:=off
c.1.focus.detect.eye.list:=off,on
c.1.focus.detect.faceae:=off
c.1.focus.detect.faceae.list:=off,on
c.1.focus.auto.track:=off
c.1.focus.auto.track.list:=off,on
c.1.focus.auto.track.frame.x.min:=0
c.1.focus.auto.track.frame.x.max:=9999
c.1.focus.auto.track.frame.y.min:=0
c.1.focus.auto.track.frame.y.max:=9999
c.1.focus.auto.resp:=1
c.1.focus.auto.resp.min:=0
c.1.focus.auto.resp.max:=2
c.1.zoom:=6430
c.1.zoom.status:=0
c.1.zoom.d:=350
c.1.zoom.mode:=off
c.1.zoom.mode.list:=off,dzoom,mag
c.1.zoom.dzoom:=100
c.1.zoom.mag:=100
c.1.zoom.mag.list:=100,150,300,600
c.1.zoom.diameter:=100
c.1.zoom.diameter.upperlimit:=40000
c.1.zoom.min:=350
c.1.zoom.max:=6430
c.1.zoom.limit.min:=350
c.1.zoom.limit.max:=6430
c.1.zoom.speed.min:=0
c.1.zoom.speed.max:=127
c.1.zoom.accel:=off
c.1.zoom.accel.list:=off,start,stop,both
c.1.pt.ramp.mode:=ramp
c.1.pt.ramp.mode.list:=ramp,acceldecel
c.1.pan:=0
c.1.pan.status:=0
c.1.pan.min:=-17000
c.1.pan.max:=17000
c.1.pan.limit.min:=-17000
```

```
c.1.pan.limit.max:=17000
c.1.pan.speed.mode.list:=manual,auto1,auto2
c.1.pan.speed.min:=10
c.1.pan.speed.max:=10000
c.1.pan.speed.ratio.min:=1
c.1.pan.speed.ratio.max:=1000
c.1.pan.ramp:=1
c.1.pan.ramp.min:=0
c.1.pan.ramp.max:=2
c.1.tilt:=0
c.1.tilt.status:=0
c.1.tilt.min:=-3000
c.1.tilt.max:=10000
c.1.tilt.limit.min:=-3000
c.1.tilt.limit.max:=10000
c.1.tilt.speed.mode.list:=manual,auto1,auto2
c.1.tilt.speed.min:=10
c.1.tilt.speed.max:=10000
c.1.tilt.speed.ratio.min:=1
c.1.tilt.speed.ratio.max:=1000
c.1.tilt.ramp:=1
c.1.tilt.ramp.min:=0
c.1.tilt.ramp.max:=2
c.1.erotate:=0
c.1.erotate.list:=0,18000
u:=1
u.count:=20
u.mode:=standard
u.1.name:=BT.709 Standard
u.1.protect:=on
u.1.protect.list:=off,on
...
u.20.name:=User20
u.20.protect:=off
u.20.protect.list:=off,on
p:=1
p.count:=100
p.status:=0
p.action.list:=stop
p.ptztime.min:=2000
p.ptztime.max:=99000
p.ptzspeed.min:=1
p.ptzspeed.max:=100
p.ptzspeed.saved.list:=on
p.freeze.list:=off,on
p.freeze.default:=off
p.1.name.utf8:=home
p.1.thumbnail.id:=
p.1.content:=enabled
p.1.content.ptz:=enabled
p.1.content.focus:=enabled
p.1.content.exp:=disabled
p.1.content.wb:=disabled
p.1.content.is:=disabled
p.1.content.cp:=disabled
```

```
p.1.content.lenscorrect:=disabled
p.1.pan.speed:=20000
p.1.tilt.speed:=18000
p.1.zoom.speed:=105
p.1.ptz.speed:=100
p.1.ptz.time:=
...
p.100.name.utf8:=
p.100.thumbnail.id:=
p.100.content:=disabled
p.100.content.ptz:=disabled
p.100.content.focus:=disabled
p.100.content.exp:=disabled
p.100.content.wb:=disabled
p.100.content.is:=disabled
p.100.content.cp:=disabled
p.100.content.lenscorrect:=disabled
t:=0
t.count:=10
t.status:=idle
t.1.name.utf8:=
t.1.thumbnail.id:=
t.1.recorded:=off
t.1.time:=0
...
t.10.name.utf8:=
t.10.thumbnail.id:=
t.10.recorded:=off
t.10.time:=0
a.count:=0
i.count:=0
o.count:=0
f.tally:=off
f.tally.list:=off,on
f.tally.mode:=preview
f.tally.mode.list:=preview,program
f.standby:=idle
f.standby.list:=idle,standby
f.output.list:=output1:12g-sdi,output2:hdm1_3g-sdi,output3:ip
f.output1.videoinfo:=3840x2160:59940:P
f.output2.videoinfo:=1920x1080:59940:P
f.output3.videoinfo:=1920x1080:59940:
f.frateconversion:=off
f.frateconversion.list:=off,on
f.frateconversion.target:=24
f.frateconversion.target.list:=24,30
m.menu.type:=0
m.menu.type.list:=0
m.onscreen:=off
m.onscreen.list:=off,on
m.output1.onscreen:=off
m.output1.onscreen.list:=off,on
m.output2.onscreen:=off
m.output2.onscreen.list:=off,on
k.count:=3
```

```
k.output1.crop:=overview
k.output1.crop.list:=overview
k.output2.crop:=overview
k.output2.crop.list:=overview,crop1,crop2,crop3
k.output3.crop:=overview
k.output3.crop.list:=overview,crop1,crop2
k.1.crop.size:=1920x1080
k.1.crop.frame.x:=5000
k.1.crop.frame.x.min:=0
k.1.crop.frame.x.max:=9999
k.1.crop.frame.y:=5000
k.1.crop.frame.y.min:=0
k.1.crop.frame.y.max:=9999
k.1.crop.frame.width:=5000
k.1.crop.frame.width.min:=1333
k.1.crop.frame.width.max:=10000
k.1.crop.frame.height:=5000
k.2.crop.size:=1920x1080
k.2.crop.frame.x:=5000
k.2.crop.frame.x.min:=0
k.2.crop.frame.x.max:=9999
k.2.crop.frame.y:=5000
k.2.crop.frame.y.min:=0
k.2.crop.frame.y.max:=9999
k.2.crop.frame.width:=5000
k.2.crop.frame.width.min:=5000
k.2.crop.frame.width.max:=5000
k.2.crop.frame.height:=5000
k.3.crop.size:=1920x1080
k.3.crop.frame.x:=5000
k.3.crop.frame.x.min:=0
k.3.crop.frame.x.max:=9999
k.3.crop.frame.y:=5000
k.3.crop.frame.y.min:=0
k.3.crop.frame.y.max:=9999
k.3.crop.frame.width:=2813
k.3.crop.frame.width.min:=750
k.3.crop.frame.width.max:=3094
k.3.crop.frame.height:=8889
b.temperature:=0
monitoring.output1.lut:=off
monitoring.output1.lut.list:=off,on
monitoring.output1.lut.type:=
monitoring.output1.lut.type.list:=
monitoring.output1.userlut1.name:=USERLUT1
monitoring.output1.userlut1.colorsapce:=
monitoring.output1.userlut1.colorsapce.list:=gamut_bt709,gamut_bt2020,none
monitoring.output1.userlut1.range:=
monitoring.output1.userlut1.range.list:=full,narrow
monitoring.output1.userlut1.lut.name:=
monitoring.output1.userlut2.name:=USERLUT2
monitoring.output1.userlut2.colorsapce:=
monitoring.output1.userlut2.colorsapce.list:=gamut_bt709,gamut_bt2020,none
monitoring.output1.userlut2.range:=
monitoring.output1.userlut2.range.list:=full,narrow
```

```

monitoring.output1.userlut2.lut.name:=
monitoring.output1.userlut3.name:=USERLUT3
monitoring.output1.userlut3.colorsapce:=
monitoring.output1.userlut3.colorsapce.list:=gamut_bt709,gamut_bt2020,none
monitoring.output1.userlut3.range:=
monitoring.output1.userlut3.range.list:=full,narrow
monitoring.output1.userlut3.lut.name:=
monitoring.output1.userlut4.name:=USERLUT4
monitoring.output1.userlut4.colorsapce:=
monitoring.output1.userlut4.colorsapce.list:=gamut_bt709,gamut_bt2020,none
monitoring.output1.userlut4.range:=
monitoring.output1.userlut4.range.list:=full,narrow
monitoring.output1.userlut4.lut.name:=
monitoring.output2.viewassist:=off
monitoring.output2.viewassist.list:=off,on
monitoring.output2.viewassist.type:=
monitoring.output2.viewassist.type.list:=
monitoring.output1.clog.range:=full
monitoring.output1.clog.range.list:=full,narrow
monitoring.output2.clog.range:=full
monitoring.output2.clog.range.list:=full,narrow
monitoring.output1.hdr.range:=narrow
monitoring.output1.hdr.range.list:=full,narrow
monitoring.output2.hdr.range:=narrow
monitoring.output2.hdr.range.list:=full,narrow
monitoring.hdrtosdrgain:=-30
monitoring.hdrtosdrgain.list:=-75,-70,-65,-60,-55,-50,-45,-40,-35,-30,-25,-20,-15,-10,-
5,0,5,10,15,20,25,30,35,40,45,50,55,60,65,70,75
monitoring.osd.framedisplay:=off
monitoring.osd.framedisplay.list:=displevel1_2,displevel1,displevel2,off
monitoring.osd.displevel:=displevel1
monitoring.osd.displevel.list:=displevel1,displevel2
monitoring.osd.displevel1:=all
monitoring.osd.displevel1.list:=all,all_frame
monitoring.osd.displevel2:=recinfo
monitoring.osd.displevel2.list:=recinfo,funcmenu
monitoring.output1.osd.opacity:=off
monitoring.output1.osd.opacity.list:=off,on
monitoring.output2.osd.opacity:=off
monitoring.output2.osd.opacity.list:=off,on
monitoring.output1.osd.opacity.level:=750
monitoring.output1.osd.opacity.level.list:=250,375,500,625,750
monitoring.output2.osd.opacity.level:=750
monitoring.output2.osd.opacity.level.list:=250,375,500,625,750
assist.output1.skindetail:=off
assist.output1.skindetail.list:=off,on
assist.output2.skindetail:=off
assist.output2.skindetail.list:=off,on
assist.output1.colorcorrection:=off
assist.output1.colorcorrection.list:=off,area_a,area_b
assist.output2.colorcorrection:=off
assist.output2.colorcorrection.list:=off,area_a,area_b
assist.output1.peaking:=off
assist.output1.peaking.list:=off,on
assist.output2.peaking:=off

```

```

assist.output2.peaking.list:=off,on
assist.peaking.type:=peaking1
assist.peaking.type.list:=peaking1,peaking2
assist.peaking.peaking1.color:=white
assist.peaking.peaking1.color.list:=white,red,yellow,blue
assist.peaking.peaking1.gain:=8
assist.peaking.peaking1.gain.min:=0
assist.peaking.peaking1.gain.max:=15
assist.peaking.peaking1.freq:=2
assist.peaking.peaking1.freq.min:=1
assist.peaking.peaking1.freq.max:=4
assist.peaking.peaking2.color:=red
assist.peaking.peaking2.color.list:=white,red,yellow,blue
assist.peaking.peaking2.gain:=15
assist.peaking.peaking2.gain.min:=0
assist.peaking.peaking2.gain.max:=15
assist.peaking.peaking2.freq:=1
assist.peaking.peaking2.freq.min:=1
assist.peaking.peaking2.freq.max:=4
assist.output1.marker:=off
assist.output1.marker.list:=off
assist.output2.marker:=off
assist.output2.marker.list:=off
assist.marker.center:=off
assist.marker.center.list:=yellow,blue,green,red,black,gray,white,off
assist.marker.center.type:=cross1
assist.marker.center.type.list:=cross1,cross2,dot1,dot2
assist.marker.horizontal:=off
assist.marker.horizontal.list:=yellow,blue,green,red,black,gray,white,off
assist.marker.vertical:=off
assist.marker.vertical.list:=yellow,blue,green,red,black,gray,white,off
assist.marker.grid:=off
assist.marker.grid.list:=yellow,blue,green,red,black,gray,white,off
assist.marker.aspect:=off
assist.marker.aspect.list:=yellow,blue,green,red,black,gray,white,mask100,mask75,mask50,mask25,off
assist.marker.aspect.ratio:=4:3
assist.marker.aspect.ratio.list:=4:3,13:9,14:9,16:9,1.375:1,1.66:1,1.75:1,1.85:1,1.90:1,2.35:1,2.3
9:1,9:16,custom
assist.marker.aspect.custom:=256
assist.marker.aspect.custom.min:=100
assist.marker.aspect.custom.max:=999
assist.marker.safearea:=off
assist.marker.safearea.list:=yellow,blue,green,red,black,gray,white,mask100,mask75,mask50,mask25,o
ff
assist.marker.safearea.basis:=whole_picture
assist.marker.safearea.basis.list:=whole_picture,aspect_marker
assist.marker.safearea.type:=side_length_8000
assist.marker.safearea.type.list:=side_length_8000,side_length_8800,side_length_9000,side_length_9
300,side_length_9500,area_8000,area_9000,area_9250,area_9500

```

Return value:

Return Value	Value Type/Range	Description
timestamp	<sec>.<ms> *<fixed>	Camera specific time (Totaltime from camera start)
realtime	<sec>.<ms> *<fixed>	Camera actual time (Secondsfrom Greenwich Mean Time)

B. Successful response [Stream format specification]

This indicates the content of the different response when the stream format was specified.

HTTP Code : 200 OK

Content-Type : multipart/x-mixed-replace;boundary=boundary

Livescope-Status : 0

MessageBody :

```
--boundary
Content-Type: text/plain; charset=utf-8
Content-Length: <DataLength>
timestamp=4091.450
realtime=1380159728.596
s.epoch:=Thu, 26 Sep 2013 08:34:24 +0900
s.hardware:=Canon CR-N500

--boundary
Content-Type: text/plain; charset=utf-8
Content-Length: <DataLength>
timestamp=<Second.MSecond>
realtime=<Second.MSecond>
c.1.zoom:=5070
--boundary

--boundary
Content-Type: text/plain; charset=utf-8
Content-Length: <DataLength>
timestamp=<Second.MSecond>
realtime=<Second.MSecond>
--boundary--
```

NOTE Only the "timestamp" item is returned for the final response.

C. Error response

Livescope status return value:

Livescope Status	Meaning
403 Invalid Parameter Value	Invalidparameter value specified. ! A value other than a seconds value isspecified to the "timeout"parameter.
408 Conflict	Anexclusive operation was requested. ! Information acquisition was requested multiple times at the sametime during the same session.
501 Unknown Connection ID	Specifiedsession does not exist. ! Invalid session ID(s) specified.

3.2.2.1.3. Acquired Parameters

There are many parameters that can be acquired with info.cgi, and they will be described in APPENDIX '[Parameter list of info.cgi/control.cgi/configuration.cgi](#)'.

However, parameter details that can be acquired by info.cgi for the remote camera controller are described in "[info.cgi Parameter Specifications](#)" of the model specific information for RC-IP1000.

3.2.3. Camera Control

The camera control commands under XC control protocol are described below.

3.2.3.1. Camera Control [control.cgi]

This is used to control a camera or a tally lamp of cameras. A control request for multiple items can be included in one command.^[29]

Except for some camera control parameters, sessionless access is possible for almost all controls for remote cameras, video production equipment, and video cameras for professional use. All camera controls can also be performed without control privileges.

Likewise, except for some camera control parameters, sessionless access is also possible for almost all controls for remote camera controllers.

- Angle of View Linkage
 - Some models support the angle of view linkage function.
 - This function adjusts the operating speed according to the angle of view of the zoom as a Pan/Tilt speed adjustment function.
 - This function has the following three operation modes.
 - The operation mode will be "auto2" when there is no designation.

Table 13. Operation Modes

Operation Mode	Description
manual	This mode operates at a constant speed. Pan/Tilt operation is performed at a specified speed regardless of the zoom viewing angle.
auto2 (default)	In this mode, the Pan/Tilt operation speed changes according to the zoom viewing angle. The operation speed is faster at the wide angle side and slower at the telephotoside. The speed specified by the ratio to the horizontal angle of view is regarded as the speed at the wide angle end, and operation is performed at a speed corresponding to the angle of view.
auto1	Similar to auto2, in this mode, the Pan/Tilt operation speed changes according to the zoom viewing angle. The operation speed is specified by the ratio to the horizontal angle of view.

NOTE

The operation mode can be specified by the following parameters of control.cgi.
 c.<c>.pan.speed.mode, c.<c>.pan.speed.mode.pos, c.<c>.pan.speed.mode.dir,
 c.<c>.tilt.speed.mode, c.<c>.tilt.speed.mode.pos, c.<c>.tilt.speed.mode.dir

3.2.3.1.1. Commands

Syntax:

```
http://<ipaddress>/-wvhttp-01-  
/control.cgi?[s=<sessionID>][&s.priority=<Priority>][&<Name>=<Value>]...
```

Preconditions and precautions:

- If camera control privileges cannot be obtained immediately with a sessionless control request, camera control is not performed, and 301 is returned as the Livescope status response.
- Depending on the camera operation status, while the camera is executing control.cgi, a status update notification may be sent from info.cgi multiple times.
- The actual camera movement position or setting value may not match the position or value specified with control instructions such as pan, tilt, zoom, focus, and parameters about color compensation. Confirm the actual movement position or setting value with info.cgi.
- If a control item is not specified in the command, 406 is returned as the Livescope status response.
- If an item other than the pan, tilt, or zoom speed is not specified for the control item with a

sessionless control request, 406 is returned as the Livescope status response.

- "-0" is specified with a control request by the pan, tilt or zoom difference (magnification), 403 is returned as the Livescope status response.
- A session ID specification has priority over a priority specification.

3.2.3.1.2. Response

The item value of the processing result of the specified control item is returned for the response to the control request. There are two different formats for the returned response: "item name:=value" and "item name==value".

- "item name:=value" indicates an item changed as a result of a processed control request.
- "item name==value" indicates an item not changed as a result of a processed control request.

A. Successful response [normal]

HTTP Code : 200 OK

Content-Type : text/plain;charset=utf-8

Livescope-Status : 0

MessageBody :

```
p=1
p.ptztime=10000
```

NOTE

Normally, only the result of the item is returned for the control request specified to the parameter.

The above is an example of a response, and not all items are returned with one control request.

B. Error response

HTTP status return value:

HTTP Status	Meaning
401 Unauthorized	<p>User authentication failed.</p> <p>! A user without privileged camera control requested control that requires privileges.</p> <p>! A user other than an administrator requested control that requires administrator authorities.</p>

Livescope status return value:

Livescope Status	Meaning
301 No Camera Control Right	Request denied due to no issuing of the control privilege request. ! Unable to obtain camera control privileges with the priority specification request.
401 Unknown Operator	Undefined command specified.
403 Invalid Parameter Value	Invalid parameter value specified. ! A value that does not match the type was specified to the parameter. ! “-0” was specified with the differential position (magnification) specification for pan, tilt, or zoom.
406 Parameter Missing	Mandatory parameter not specified. ! Control item not specified to the parameter. ! An item other than pan, tilt, and zoom speed was not specified with the priority specification request.
501 Unknown Connection ID	Specified session does not exist. ! Invalid session ID(s) specified.

3.2.3.1.3. Commands (Preset Control)

Control of executing presets saved in the camera and stopping presets that are running is also performed using control.cgi.

Preset saving will be described in ‘[Saving Preset \[preset/set\]](#)’.

Syntax:

```
http://<ipaddress>/-wvhttp-01-
/control.cgi?[s=<sessionID>][&priority=<Value>][&p=<Value>][&p.ptztime=<Value>][&p.ptzspeed=<Value>][&p.action=stop][&p.ptzspeed.saved=on][&p.freeze=on][&camno.target=<value>]...
```

Preconditions and precautions:

- If p.ptztime, p.ptzspeed, or p.ptzspeed.saved=on is specified when p is specified, the Pan, Tilt, and Zoom functions start working simultaneously for the preset positions. The functions turn off simultaneously after the movements are complete. If p.ptztime and p.ptzspeed are specified at the same time, p.ptztime is used.
- If p.ptzspeed.saved=on is specified when p is specified, PTZ will preset move at the speed saved in p.<p>.ptz.speed or the time saved in p.<p>.ptz.time. If p.ptzspeed.saved=on and p.ptztime or p.ptzspeed are specified at the same time, p.ptztime or p.ptzspeed is used.
- If p.ptztime, p.ptzspeed, or p.ptzspeed.saved=on are not specified when p is specified, PTZ will move presets at the speed saved in p.<p>.pan.speed, p.<p>.tilt.speed, and p.<p>.zoom.speed,

respectively.

- If p.freeze is not specified when p is specified, operation is based on the model specific “still image output (default)” setting value.
- camno.target is valid only when controlling the remote camera controller.

3.2.3.1.4. Response (Preset Control)

A. Successful response [Normal]

HTTP Code : 200 OK

Content-Type : text/plain;charset=utf-8

Livescope-Status : 0

MessageBody :

```
p=1
p.ptztime=10000
```

B. Error response

Livescope status return value:

Livescope Status	Meaning
401 Unknown Operator	Undefined command specified. Mandatory parameter not specified.
403 Invalid Parameter Value	Invalid parameter value specified. ! A value that does not match the type was specified to the parameter.
501 Unknown Connection ID	Specified session does not exist. ! Invalid session ID(s) specified.

3.2.3.1.5. Command (Custom Picture Control)

control.cgi is also used to control the switching of Custom Picture saved in the camera.

Saving and resetting custom pictures is explained in ‘[Custom picture setting \[cpfile/set\]](#)’.

Syntax:

```
http://<ipaddress>/-vvhttp-01-/control.cgi?[s=<sessionID>][&priority=<Value>][&u=<Value>]...
```

3.2.3.1.6. Response (Custom Picture Control)

A. Successful response [normal]

HTTP Code : 200 OK

Content-Type : text/plain;charset=utf-8

Livescope-Status : 0

MessageBody :

```
u=1
u.1.protect=on
u.1.name=normal_bt709
```

B. Error response

Livescope status return value:

Livescope Status	Meaning
401 Unknown Operator	Undefined command specified. Mandatory parameter not specified.
403 Invalid Parameter Value	Invalid parameter value specified. ! A value that does not match the type was specified to the parameter.
501 Unknown Connection ID	Specified session does not exist. ! Invalid session ID(s) specified.

3.2.3.1.7. Control Parameters

Since there are many kinds of parameters that can be controlled by control.cgi (including preset control and custom picture control), they are explained in APPENDIX 'Parameter list of [info.cgi/control.cgi/configuration.cgi](#)'.

However, parameter details that can be acquired by control.cgi for the remote camera controller are described in {[Switching control for selected camera \[control.cgi\]](#)}, {[Assignment function control \[control.cgi\]](#)}, and {[Camera preset/tally lamp control \[control.cgi\]](#)} of the model specific information for RC-IP1000.

For preset control, see "Preset Information [p]", and for custom picture control, see "Custom Picture Information [u]" in the same list.

3.2.3.1.8. Pan-Tilt Acceleration/Deceleration Mode

The pan-tilt acceleration/deceleration mode (c.<c>.pt.ramp.mode) can be set to either ramp (default) or acceldeccel. The ramp mode is suitable for manual pan-tilt operation by an operator, such as with a remote camera controller. In contrast, acceldeccel is suitable for continuously sending commands, including absolute position specifications of c.<c>.pan and c.<c>.tilt, to the camera at short intervals (e.g., every 33 ms) from clients like programs or scripts. This mode is designed for applications where the camera's pan and tilt are controlled according to predefined trajectories and timings.

When continuously specifying absolute positions, the pan-tilt operation may become unstable in ramp mode; however, switching to acceldecel mode can help stabilize it. On the other hand, during manual operation, acceldecel mode tends to accelerate easily and decelerate poorly, making it difficult for the operator to stop at the intended position. Therefore, it is recommended to set the mode to acceldecel only while the client is continuously specifying absolute positions, and to revert the mode back to ramp after the series of pan-tilt controls is completed.

When controlling pan and tilt by continuously specifying absolute positions at short intervals, please keep the following points in mind.

- It is strongly recommended to set c.<c>.pt.ramp.mode to acceldecel before starting pan-tilt control. Keeping it in ramp mode may cause unstable pan-tilt operation when commands are sent at short intervals.
- When returning to manual operation using a remote camera controller or similar, always revert c.<c>.pt.ramp.mode back to ramp. Leaving it in acceldecel mode makes manual control very difficult due to quick acceleration, slow deceleration, and difficulty stopping at the intended position.
- When acquiring status concurrently via info.cgi:
 - Use "differential response" to retrieve only items that have changed since the last response, which can improve response speed compared to retrieving all information. There are two methods for obtaining differential responses: session-based and streaming format specified by type=stream. For details on differential responses, refer to section ["Information Acquisition \[info.cgi\]"](#).
 - Specifying only necessary items using the item parameter may also improve response speed.
- Do not use relative position designation commands (such as d or v) when performing pan-tilt control at short intervals continuously. Doing so may cause the pan-tilt direction to invert due to internal calculations.

3.2.3.2. Menu Control [menu.cgi]

This is used to control the camera's menu settings, etc. A control request for multiple items can be included in one command.^[30]

3.2.3.2.1. Commands

Syntax:

```
http://<ipaddress>/-vvhttp-01-/menu.cgi?[s=<sessionID>] [&<Name>=<Value>][&output=<Value>]...
```

Preconditions and precautions:

- While menu.cgi is being executed by the camera, depending on the operating condition of the

camera, status update notification from info.cgi may be performed in multiple steps.

- If a control item is not specified in the command, 406 is returned as the Livescope status of the response.

Parameters:

Parameter	Value Type/Range	Description
s	<string>	Session ID
cmd	up, down, left, right, enter, cancel	Provides instructions for operating the menu, such as moving the cursor and confirming/canceling settings.
onscreen	off, on	Controls the onscreen superimposition of video output.
output	output1, output2...	When set with onscreen, it specifies the output terminal for onscreen superimposition. * If unspecified, all the output terminals are subject to control. * Output terminal information, output<N>, can be acquired from f.output.list.
type	0...3	Controls the display of various setting screens. 0: None 1: MENU screen 2: Custom Picture screen 3: FUNC screen * Values acquired from m.menu.type.list of info.cgi can be specified

3.2.3.2.2. Response

The item value of the processing result of the specified control item is returned for the response to the control request. There are two different formats for the returned response: “item name:=value” and “item name==value”.

- “item name:=value” indicates an item changed as a result of a processed control request.
- “item name==value” indicates an item not changed as a result of a processed control request.

This indicates the content of the response.

A. Successful response [normal]

HTTP Code : 200 OK Content-Type : text/plain;charset=utf-8 Livescope-Status : 0 MessageBody :

```
<Parameter>:=<Value>
<Parameter>==<Value>
```

```
m.menu.type:=1
```

NOTE

Normally, only the result of the item is returned for the control request specified to the parameter.

B. Error response**HTTP status return value:**

HTTP Status	Meaning
401 Unauthorized	User authentication failed. ! A user without privileged camera control requested control that requires privileges. ! A user other than an administrator requested control that requires administrator authorities.

Livescope status return value:

Livescope Status	Meaning
401 Unknown Operator	Undefined command specified.
403 Invalid Parameter Value	Invalid parameter value specified. ! A value that does not match the type was specified to the parameter.
406 Parameter Missing	Mandatory parameter not specified. ! Control item not specified to the parameter.
501 Unknown Connection ID	Specified session does not exist. ! Invalid session ID(s) specified.

3.2.4. Video Retrieval

The camera video image data retrieval commands for the XC control protocol, image.cgi for still image retrieval and video.cgi for video stream retrieval are described below. In addition, thumbnail.cgi for thumbnail still image retrieval is also described.

3.2.4.1. Still Image Retrieval [image.cgi]

This is used to retrieve a JPEG still image. You can select a method from using a video stream selected for a session-based client and specifying a video stream to a command for a sessionless

client.

- Session-based
 - This uses the video stream settings of a session specified with a session ID. Video parameter specification (v) and video stream number specification (w) are also ignored.^[31]
 - If the video stream setting of the specified session is H.264 or H.265, it is changed automatically to JPEG.^[32]
- Sessionless
 - The content of the video to be retrieved is determined by the video stream specification.
 - There are two methods for selecting a video stream: specifying video parameters such as the video codec and video resolution (v), or specifying the video stream number (w). **The (v) parameters are maintained solely for backward compatibility; therefore, no new features have been added to them, and none will be added in the future. Any new features related to video streams will be implemented using the (w) parameters. For example, H.265 is no longer supported with the (v) parameters and is supported only with (w). Furthermore, the discontinuation of (v) is planned for future device releases. Therefore, the use of (w) parameters is strongly recommended for new implementations.**

3.2.4.1.1. Commands

Syntax:

```
http://<ipaddress>/-vvhttp-01-/image.cgi?[s=<SessionID>][&v=<Value>][&w=<Value>]
```

Preconditions and precautions:

- This command cannot be used when transmitting a video stream with video.cgi. If this command is requested, it is not executed, and 408 is returned as the Livescope status response.
- The video codec specifies the JPEG video stream for both the video parameter specification (v) and video stream number specification (w). If a format other than JPEG is specified, 403 is returned as the Livescope status response.
- For video parameter specification (v), if there is no stream that conforms to the specified video size, a stream with a video size that is close to the specified value and is one size lower is selected.
- If both the video parameter specification (v) and video stream number specification (w) are specified when selecting a video stream, the video parameter specification (v) has priority. Even if neither are specified, the video parameter specification (v) takes priority and the video codec is jpg.

- Frame rate cannot be specified with this command. Use video.cgi to specify frame rate.

Parameters:

Parameter	Value Type/Range	Description
s	<string>	Session ID
v	<video parameter>	Selects the stream by the video parameter. ^[16]
w	1...3	Selects the stream by the video stream number. ^[16] Specifies a video stream number that can be referenced with info.cgi.

3.2.4.1.2. Response

A. Successful response

HTTP Code : 200 OK

Content-Type : image/jpeg

Livescope-Status : 0

Livescope-Frame-Number: <JPEG data serial number>footnote[Livescope-Frame-Number is an extension field unique to XC control protocol similar to Livescope-Status. A serial number is assigned in the order the still image request commands are received, and this can be used for sequence control on the client side.] MessageBody :

<JpegImageData>

B. Error response

HTTP status return value:

HTTP Status	Meaning
401 Unauthorized	User authentication failed. ! A user without video transmission privileges requested video transmission.

Livescope status return value:

Livescope Status	Meaning
403 Invalid Parameter Value	Invalid parameter value specified. ! A format other than JPEG was specified with the video parameter specification (v). ! A format other than JPEG was specified with the video stream number specification (w). ! A video stream number (w) outside the valid range was specified. ! “-0” was specified with the differential position (magnification) specification for pan, tilt, or zoom.
404 Operation Timeout	Command execution not completed even at response time limit. ! Unable to generate images.
406 Parameter Missing	Mandatory parameter not specified. ! Mandatory parameter or session ID(s) not specified.
407 Invalid Request	Invalid session function requested. ! An invalid video stream number (w) was specified.
408 Conflict	An exclusive operation was requested. ! Still image retrieval was requested while executing a video stream retrieval command.
501 Unknown Connection ID	Specified session does not exist. ! Invalid session ID(s) specified.

NOTE

As a usage method during session specification, JPEG still images can be continually requested, which is useful for applications compiling a pseudo-video. In sessionless mode, this is useful for applications retrieving one JPEG still image. Still image requests during the same session are processed in the order they are received with this command, and Livescope frame numbers are assigned and returned in that order.

3.2.4.2. Video Stream Retrieval [video.cgi]

This requests a video stream transmission. You can select a method from using a video stream selected for a session-based client and specifying a video stream to a command for a sessionless client.

- Session-based
 - This uses the video stream settings of a session specified with a session ID.
 - The video stream transmission continues until the session is ended by the session duration end or the client ends the session, or the HTTP connection is disconnected by the client.

- Sessionless
 - The content of the video to be retrieved is determined by the video stream specification.
 - There are two methods for selecting a video stream: specifying video parameters such as the video codec and video resolution (v), or specifying the video stream number (w). **The (v) parameters are maintained solely for backward compatibility; therefore, no new features have been added to them, and none will be added in the future. Any new features related to video streams will be implemented using the (w) parameters. For example, H.265 is no longer supported with the (v) parameters and is supported only with (w). Furthermore, the discontinuation of (v) is planned for future device releases. Therefore, the use of (w) parameters is strongly recommended for new implementations.**

The video stream transmission continues until the specified video transmission time has elapsed or the HTTP connection is disconnected by the client.

3.2.4.2.1. Commands

Syntax:

```
http://<ipaddress>/-wvhttp-01-  
/video.cgi?[s=<SessionID>][&v=<Value>][&w=<Value>][&w.<Video>.frate=<Value>][&duration=<Value>]
```

Preconditions and precautions:

- This command cannot be used while executing still image retrieval with image.cgi. If this command is requested, 408 is returned as the Livescope status response.
- For video parameter specification (v), if there is no stream that conforms to the specified video size, a stream with a video size that is close to the specified value and is one size lower is selected.
- If both the video parameter specification (v) and video stream number specification (w) are specified when selecting a video stream, the video parameter specification (v) has priority. Even if neither are specified, the video parameter specification (v) takes priority and the video codec is jpg.

Parameters:

Parameter	Value Type/Range	Description
s	<string>	Session ID
v	<video parameter>	Selects the stream by the video parameter. ^[16]

Parameter	Value Type/Range	Description
w	1...3	Selects the stream by the video stream number. ^[16] Specifies a video stream number that can be referenced with info.cgi.
w.<Video>.frate	100...30000	Specifies the video stream frame rate. Unit: Number of frames per 1000 seconds Specify at the same time as w. Ignored if w is not specified.
duration	0...<Maximum connection time>	Video send time specification ^[33] Unit: Second 0: Unlimited

3.2.4.2.2. Response

The response content of video.cgi varies depending on the specified video codec. The following shows the response content for both JPEG and H.264 and the status value returned when an error occurs. The response content of H.265 follows H.264.

A. Successful response [video codec: JPEG specification]

HTTP Code : 200 OK

Content-Type : multipart/x-mixed-replace;boundary=boundary

Livescope-Status : 0

MessageBody :

```
--boundary
Content-Type: image/jpeg
Content-Length: <ImageLength>

<JpegImageData 1>
--boundary
Content-Type: image/jpeg
Content-Length: <ImageLength>

<JpegImageData 2>
--boundary
...

--boundary
Content-Type: image/jpeg
Content-Length: <ImageLength>

<JpegImageData Last>
--boundary--
```

B. Successful response [video codec: H.264 specification]

HTTP Code : 200 OK

Content-Type : video/mp4

Livescope-Status : 0

MessageBody :

<H.264VideoData>

C. Error response

HTTP status return value:

HTTP Status	Meaning
401 Unauthorized	User authentication failed. ! A user without video transmission privileges requested video transmission.

Livescope status return value:

Livescope Status	Meaning
403 Invalid Parameter Value	Invalid parameter value specified. ! A video stream number (w) outside the valid range was specified.
407 Invalid Request	Invalid session function requested. ! An invalid video stream number (w) was specified. ! type=rec was specified to a stream of H.264 or 10 fps or higher.
408 Conflict	An exclusive operation was requested. ! Video stream retrieval was requested while executing a still image retrieval command. ! A video stream retrieval with multiple type=rec specifications was requested.
501 Unknown Connection ID	Specified session does not exist. ! Invalid session ID(s) specified.

3.2.4.3. Thumbnail Image Retrieval [thumbnail.cgi]

Acquires JPEG still image thumbnails for presets and traces.

3.2.4.3.1. Commands

Syntax:

```
http://<ipaddress>/-wvhttp-01-/thumbnail.cgi?[s=<SessionID>][&p=<Value>][&t=<Value>]
```

Preconditions and precautions:

- If neither p nor t is specified, 406 is returned as the Livescope status response.
- If both p and t are specified, the t specification takes precedence.

Parameters:

Parameter	Value Type/Range	Description
s	<string>	Session ID
p	1...100	Specifies the preset number of the preset thumbnail image to be acquired. Returns Livescope status 403 (Invalid Parameter Value) for numbers out of range.
t	1...10	Specifies the trace number of the trace thumbnail image to be acquired. Returns Livescope status 403 (Invalid Parameter Value) for numbers out of range.

3.2.4.3.2. Response

A. Successful response

HTTP Code : 200 OK

Content-Type : image/jpeg

Livescope-Status : 0

MessageBody :

```
<JpegImageData>
```

B. Error response

HTTP status return value:

HTTP Status	Meaning
401 Unauthorized	User authentication failed. ! A user without video transmission privileges requested video transmission.

Livescope status return value:

Livescope Status	Meaning
403 Invalid Parameter Value	Invalid parameter value specified.
406 Parameter Missing	Mandatory parameter not specified. ! Preset number(p) or trace number(t) not specified.
411 Data Not Found	Specified data does not exist.
501 Unknown Connection ID	Specified session does not exist. ! Invalid session ID(s) specified.

3.2.5. Metadata Acquisition

The metadata acquisition command meta.cgi related to focus positions under XC control protocol is described below.

3.2.5.1. Metadata Acquisition [meta.cgi]

This is used to acquire the positions of rectangles for the face, eyes, and object detected in the face-priority AF, face-only AF, eye detection, and object detection of the camera. In addition, metadata for a focus guide for notifying a user of the direction in which the focusing degree and the focus are matched when MF is set is acquired. Select whether to acquire information from a session-based or sessionless client.

3.2.5.1.1. Commands

Syntax:

```
http://<ipaddress>/-vvhttp-01-/meta.cgi?[s=<SessionID>][&type=<Value>]
```

Parameters:

Parameter	Value Type/Range	Description
s	<string>	Session ID

Parameter	Value Type/Range	Description
type	once, stream	Transmission format once: Latest metadata is transmitted. stream: Stream format metadata is transmitted. In the stream format, all the metadata is transmitted first and any difference is transmitted from the camera later sequentially.

3.2.5.1.2. Response

A. Successful response

The body of a meta.cgi response is returned as binary data in MessagePack format. In the sample response below, the body is illustrated in a JSON-like notation solely for explanatory purposes; please be aware that the actual response is not in JSON.

HTTP Code : 200 OK

Content-Type : application/x-msgpack

Livescope-Status : 0

MessageBody :

```
{
  version: 3.0.0,    # metadata version
  timestamp: 569.647,    # time elapsed from power on [s]
  realtime: 1589940161.636, # current time (local time)
  detect: [ # detected object
    {
      type: face,    # detection type (face)
      pos: {
        x: 9207, # X coordinate (0-9999)
        y: 9185, # Y coordinate (0-9999)
        w: 1152, # width (1-10000)
        h: 2048 # height (1-10000)
      },
      main: true,    # main face or not
      track: false   # tracking face or not
    },
    {
      type: eye, # detection type (eye)
      pos: {
        x: 9100, # X coordinate (0-9999)
        y: 9200, # Y coordinate (0-9999)
        w: 100,  # width (1-10000)
        h: 100   # height (1-10000)
      },
      main: true,    # main eye or not
      track: false   # tracking eye or not
    },
  ],
}
```

```
type: object, # detection type (object)
pos: {
  x: 9100, # X coordinate (0-9999)
  y: 9200, # Y coordinate (0-9999)
  w: 100, # width (1-10000)
  h: 100 # height (1-10000)
},
main: true, # main object or not
track: false # tracking object or not
},
],
fguide: [ # focus guide, 1
{
  status: true, # focus guide valid or invalid (true, false)
  level: 0, # focusing being done (0-2:2 is focusing)
  angle: 35, # focusing degree (0-60: 0 is focusing)
  dir: front, # focus information (front: front pin, behind: back pin)
  pos: {
    x: 8192, # X coordinate (0-9999)
    y: 8192, # Y coordinate (0-9999)
    w: 1280, # width (1-10000)
    h: 1456 # height (1-10000)
  }
}
]
}
```

Metadata:

Item	Sub Item	Sub-sub Item	Value Type/Range	Description
version			1.0.0...	Version of metadata

Item	Sub Item	Sub-sub Item	Value Type/Range	Description
detect				Faces, eyes, and objects detected Face: Max. 9, Eye: Max. 10, Object: Max. 10
	type		face, eye ^[34] , object ^[34]	Detection type face: Indicates that this is a face detection frame eye: Indicates that this is an eye detection frame ^[34] object: Indicates that this is an object detection frame ^[34]
	pos	x	0...9999	x coordinate of detected face Center of rectangle
		y	0...9999	y coordinate of detected face Center of rectangle
		w	1...10000	Width of detected face
		h	1...10000	Height of detected face
	main		true, false	Whether it is the main face/eye or not type: Always true for eye and object
	track		true, false	Whether it is tracking or not
	disp ^[35]	frame	true, false	Whether to display the frame or not
		arrow	true, false	Whether to display the direction arrows for the selection of the principal subject or not

Item	Sub Item	Sub-sub Item	Value Type/Range	Description
fguide				Focus guide (1 only)
	status		true, false	Enable/disable focus guide indication true: Enabled false: Disabled
	level		0...2	Whether focusing is being done 0: Focusing
	angle		0...60	Score of focusing 0: Focusing
	dir		front, behind	Focus information front: front pin behind: back pin
	pos	x	0...9999	x coordinate of focus guide Center of rectangle
		y	0...9999	y coordinate of focus guide Center of rectangle
		w	1...10000	Width of focus guide
		h	1...10000	Height of focus guide

B. Error response

Livescope status return value:

Livescope Status	Meaning
401 Unknown Operator	Undefined command specified.

3.2.6. Preset/Trace

Command preset/set for saving control parameters of the camera and commands trace/set and trace/control for recording/posturing traces are described below.

Note that there is no dedicated command for executing and stopping the saved preset. It is necessary to specify parameters "Preset Information [p]" by the camera control command control.cgi. For more information on the preset control commands, see '[Commands \(Preset Control\)](#)' and for details on the parameter 'Preset Information [p]' related to preset control, see '[Parameter list of info.cgi/control.cgi/configuration.cgi](#)'.

3.2.6.1. Saving Preset [preset/set]

This is used to save the current camera angles such as pan, tilt, and zoom and a part or all of the camera control parameters such as focus and exposure as preset. The command is also used for deleting saved presets. Things that can be saved as preset include pan, tilt, zoom, focus, exposure, white balance, IS (image stabilizer), CP (image quality adjustment), and lens correction.

If the preset number (p) is not specified, 406 is returned as the Livescope status. If setting of the preset name (name) fails, 403 is returned as the Livescope status, and the other parameters specified at the same time are not set.

3.2.6.1.1. Commands

Syntax:

```
http://<ipaddress>/-vvhttp-01-/preset/set?[s=<session-id>][&p=<Value>][&name=<Value>][&cmd=delete][&all=<Value>][&thumbnail=<Value>]
```

Parameters:

Parameter	Value Type/Range	Description
s	<string>	Session ID
p	1...100	Preset number [Mandatory] Deletes the specified preset number when cmd=delete. Multiple preset numbers can be specified, separated by commas, in any order, with one comma allowed at the end. Returns livescope-status 403 (Invalid Parameter Value) for non commas and numbers, empty characters (,), and numbers out of range.
name	<unicode>	Preset name (UTF-8) Null value specification or omission allowed.
cmd	delete	Control preset saving delete: Delete the preset specified by p. Ignores specifications other than p. ^[36]

Parameter	Value Type/Range	Description
all	enabled, disabled, ignored	All the parameters to be saved are saved as preset or deleted. enabled: Saved to preset. disabled: Deleted from preset. ignored: Nothing happens. When "all" and parameters besides "all" are specified, the latter will be prioritized. "ignored" when omitted.
ptz	enabled, disabled	The PTZ parameter is saved/deleted. enabled: Saved to trace start position. disabled: Deleted from trace start position. When "all" and parameters besides "all" are specified, the latter will be prioritized. "disabled" when omitted.
focus	enabled, disabled, ignored	The focus parameter is saved/deleted. enabled: Saved to preset. disabled: Deleted from preset. ignored: Nothing happens. "ignored" when omitted.
exp	enabled, disabled, ignored	The exposure parameter is saved/deleted. enabled: Saved to preset. disabled: Deleted from preset. ignored: Nothing happens. "ignored" when omitted.
wb	enabled, disabled, ignored	The WB parameter is saved/deleted. enabled: Saved to preset. disabled: Deleted from preset. ignored: Nothing happens. "ignored" when omitted.
is	enabled, disabled, ignored	The IS (image stabilizer) parameter is saved/deleted. enabled: Saved to preset. disabled: Deleted from preset. ignored: Nothing happens. "ignored" when omitted.

Parameter	Value Type/Range	Description
cp	enabled, disabled, ignored	The CP (image quality adjustment) parameter is saved/deleted. enabled: Saved to preset. disabled: Deleted from preset. ignored: Nothing happens. "ignored" when omitted.
lenscorrect	enabled, disabled, ignored	Saving/deleting lens correction parameters enabled: Save to preset disabled: Remove from preset ignored: Do nothing "ignored" when omitted.
pan.speed	c.<c>.pan.speed.m in... c.<c>.pan.speed.m ax e.g. 10...10000	Pan speed If the parameter is omitted when "all=enabled" or "ptz=enabled" is specified, the maximum speed is set. If the parameter is omitted in other cases, the speed does not change.
tilt.speed	c.<c>.tilt.speed.mi n... c.<c>.tilt.speed.ma x e.g. 10...10000	Tilt speed If the parameter is omitted when "all=enabled" or "ptz=enabled" is specified, the maximum speed is set. If the parameter is omitted in other cases, the speed does not change.
zoom.speed	c.<c>.zoom.speed. min... c.<c>.zoom.speed. max e.g. 0...15	Zoom speed If the parameter is omitted when "all=enabled" or "ptz=enabled" is specified, the maximum speed is set. If the parameter is omitted in other cases, the speed does not change.
ptz.speed	p.<p>.ptzspeed.mi n... p.<p>.ptzspeed.m ax	Synchroized PTZ speed If omitted when "all=enabled" or "ptz=enabled" is specified, the maximum speed is set Do not change if omitted otherwise If pan.speed, tilt.speed, zoom.speed, or ptz.time are specified at the same time, ignore ptz.speed even if specified.

Parameter	Value Type/Range	Description
ptz.time	p.ptztime.min... p.ptztime.max e.g. 2000...99000	Synchronized PTZ movement time to the preset position If the parameter is omitted, the time does not change. If pan.speed, tilt.speed, or zoom.speed are specified, ignore ptz.time even if specified.
thumbnail	enabled, disabled, ignored	Generates a thumbnail image of the preset position. enabled: Generates a thumbnail image and stores it in the preset. disabled: Remove thumbnail image from preset ignored: Do nothing "ignored" when omitted.

3.2.6.1.2. Response

A. Successful response

This indicates the content of the response.

HTTP Code : 200 OK

Content-Type : text/plain;charset=utf-8

Livescope-Status : 0

MessageBody :

```
p:=1
p.1.name.utf8:=Preset1
p.1.content.ptz:=enabled
p.1.content.focus:=enabled
p.1.content.exp:=enabled
p.1.content.wb:=enabled
p.1.content.is:=enabled
p.1.content.cp:=enabled
p.1.content.lenscorrect:=enabled
p.1.pan.speed=<pan speed>
p.1.tilt.speed=<tilt speed>
p.1.zoom.speed=<zoom speed>
p.1.ptz.speed=<synchronized PTZ speed>
p.1.ptz.time=<synchronized PTZ movement time to the preset position>
```

NOTE

The pan, tilt, and zoom, Synchronized PTZ speed, and Synchronized PTZ movement time to the preset position are not included in the response in the case of p.<p>.content.ptz=disabled.

The Synchronized PTZ movement time to the preset position is included in the

response only when it is set.

Livescope status return value:

Livescope Status	Meaning
403 Invalid Parameter Value	Invalid parameter value specified. ! Preset name setting failed.
406 Parameter Missing	Mandatory parameter not specified. ! Preset number not specified.
408 Conflict	An exclusive operation was requested. ! Execute preset/set before the preset save is complete.
501 Unknown Connection ID	Specified session does not exist. ! Invalid session ID(s) specified.

3.2.6.2. Recording Traces [trace/set]

This is used to record traces (camera operation details and timing).

Start command (cmd=start) is sent to start recording at the current camera position, and stop command (cmd=stop) is sent to stop the recording. During a period from the start command to the stop command reception, the executed PTZ control and the manual focus control command are saved.

The contents recorded when the stop command is received are saved in the camera.

When recording is started (cmd=start), the current camera state can be specified as a start position, and the items to be saved can be selected from pan, tilt, zoom, focus, exposure, white balance, IS (image stabilizer), CP (image quality adjustment), and lens correction, or can be chosen from all of them..

Interrupt command (cmd=cancel) can be sent to stop the recording after it is started.

If cmd is omitted, or if trace number (t) is not specified during cmd=start or cmd=delete, 406 is returned as the Livescope status.

If a non-executable command is sent (for example, if the trace record start command is sent during the trace playback), 408 is returned as the Livescope status.

If setting of the name fails, 403 is returned, and the other parameters specified at the same time are not set. ===== Commands

Syntax:

```
http://<ipaddress>/-wvhttp-01-/trace/set?[s=<session-id>][&t=<Value>][&cmd=<Value>][&all=<Value>][&thumbnail=<Value>]
```

Parameters:

Parameter	Value Type/Range	Description
s	<string>	Session ID
t	1...10	Trace number [Mandatory] May be omitted for "cmd=stop" or "cmd=cancel".
name	<unicode>	Trace name (UTF-8) Null value specification or omission allowed. The trace name can be set when specification of "cmd=start" or "cmd" is omitted.
cmd	start, stop, cancel, delete	This operates trace recording. start: This starts trace recording. stop: This stops trace recording (saves it in the camera). cancel: This interrupts trace recording (does not save it in the camera). delete: This deletes traces recording (the trace name also becomes a null value). When this is omitted, no trace recording operation is performed and only the trace name can be set.
all	enabled, disabled, ignored	All the parameters to be saved are saved to the trace start position or deleted from the trace start position. enabled: Saved to trace start position. disabled: Deleted from trace start position. When "all" and parameters besides "all" are specified, the latter will be prioritized. "disabled" when omitted.
ptz	enabled, disabled	The PTZ parameter is saved to the trace start position or deleted from the trace start position. enabled: Saved to trace start position. disabled: Deleted from trace start position. When "all" and parameters besides "all" are specified, the latter will be prioritized. "disabled" when omitted.
focus	enabled, disabled, ignored	The focus parameter is saved to the trace start position or deleted from the trace start position. enabled: Saved to trace start position. disabled: Deleted from trace start position. When "all" and parameters besides "all" are specified, the latter will be prioritized. "disabled" when omitted.

Parameter	Value Type/Range	Description
exp	enabled, disabled, ignored	The exposure parameter is saved/deleted. enabled: Saved to preset. disabled: Deleted from preset. ignored: Nothing happens. "ignored" when omitted.
wb	enabled, disabled, ignored	The WB parameter is saved to the trace start position or deleted from the trace start position. enabled: Saved to trace start position. disabled: Deleted from trace start position. When "all" and parameters besides "all" are specified, the latter will be prioritized. "disabled" when omitted.
is	enabled, disabled, ignored	The IS (image stabilizer) parameter is saved to the trace start position or deleted from the trace start position. enabled: Saved to trace start position. disabled: Deleted from trace start position. When "all" and parameters besides "all" are specified, the latter will be prioritized. "disabled" when omitted.
cp	enabled, disabled, ignored	The CP (image quality adjustment) parameter is saved to the trace start position or deleted from the trace start position. enabled: Saved to trace start position. disabled: Deleted from trace start position. When "all" and parameters besides "all" are specified, the latter will be prioritized. "disabled" when omitted.
lenscorrect	enabled, disabled, ignored	Save Lens Correction Parameters to Trace Start Position/Remove from Trace Start Position. enabled: Save at trace start position disabled: Delete from trace start position If "all" and other than "all" are specified at the same time, the latter takes precedence. "disabled" when omitted.

Parameter	Value Type/Range	Description
thumbnail	enabled, disabled, ignored	Generates a thumbnail image of Trace Start Position. enabled: Generates a thumbnail image and stores it in the trace. disabled: Remove thumbnail image from trace ignored: Do nothing "ignored" when omitted.

3.2.6.2.1. Response

A. Successful response

This indicates the content of the response.

HTTP Code : 200 OK

Content-Type : text/plain;charset=utf-8

Livescope-Status : 0

MessageBody :

```
t:=<t>
t.<t>.name.utf8:=<UTF-8 character string> *1
t.<t>.content.ptz:=<Value> *2
t.<t>.content.focus:=<Value> *2
t.<t>.content.exp:=<Value> *2
t.<t>.content.wb:=<Value> *2
t.<t>.content.is:=<Value> *2
t.<t>.content.cp:=<Value> *2
```

NOTE

The trace name is returned during cmd=start or cmd=delete.
"ptz", "focus", "exp", "wb", "is", and "cp" are returned during cmd=start.

B. Error response

Livescope status return value:

Livescope Status	Meaning
403 Invalid Parameter Value	Invalid parameter value specified. ! Trace number outside specification rage. ! Trace name setting failed.
406 Parameter Missing	Mandatory parameter not specified. ! Trace number not specified in mandatory case.

Livescope Status	Meaning
408 Conflict	An exclusive operation was requested. ! Trace recording start command sent during trace playback.
501 Unknown Connection ID	Specified session does not exist. ! Invalid session ID(s) specified.

3.2.6.3. Trace Playback [trace/control]

This is used to playback recorded traces (camera operation details and timing).

Preparation command (cmd=prepare) for moving to the camera position where the trace recording started, start command (cmd=start) for starting the trace playback, and stop command (cmd=stop) for stopping the trace playback are sent.

To correctly playback the recorded trace, a preparation command is mandatory beforehand, but this is not mandatory under the protocol. However, in such as case, there is no guarantee that the trace playback will be done correctly.

If trace number (t) is not specified during "cmd=prepare" or "cmd=start", 406 is returned as the Livescope status.

If trace number (t) of which no trace recording is performed is specified during "cmd=prepare" or "cmd=start", 403 is returned as the Livescope status.

If a command that cannot be executed by the camera is sent (for example, if the trace playback start command is sent during the trace recording), 408 is returned as the Livescope status.

3.2.6.3.1. Commands

Syntax:

```
http://<ipaddress>/-wwhttp-01-/trace/control?[s=<session-id>][&t=<Value>][&cmd=<Value>]
```

Parameters:

Parameter	Value Type/Range	Description
s	<string>	Session ID
t	1...10	Trace number [Mandatory] May be omitted for "cmd=stop".
cmd	prepare, start, stop	This operates trace playback. prepare: Moves to trace start position. start: Starts trace playback. stop: Stops trace playback.

3.2.6.3.2. Response

A. Successful response

This indicates the content of the response.

HTTP Code : 200 OK

Content-Type : text/plain;charset=utf-8

Livescope-Status : 0

MessageBody :

```
t:=<t>
```

B. Error response

Livescope status return value:

Livescope Status	Meaning
403 Invalid Parameter Value	Invalid parameter value specified. ! Trace number outside specification rage.
406 Parameter Missing	Mandatory parameter not specified. ! Trace number not specified to the parameter.
408 Conflict	An exclusive operation was requested. ! Trace playback command sent during trace recording.
501 Unknown Connection ID	Specified session does not exist. ! Invalid session ID(s) specified.

3.2.7. Standby

The standby transition/restoration command standby.cgi of cameras under the XC control protocol is described below.

3.2.7.1. Standby Transition/Restoration [standby.cgi]

This is used to change the camera status to the standby mode (power saving mode) or restores the status from the standby mode.

During the transition from the normal camera state to the standby camera state, during the standby mode, and during the restoration to the normal state from the standby state, camera behaviors and limitation of each state are as follows.

- During transition to standby mode
 - Video transmission (video.cgi, image.cgi) is stopped.
 - Notification on the standby state is sent to each application (info.cgi), and all the sessions

are deleted.

- When the standby restoration command is received, 510 is returned as the Livescope status.
- If the standby transition command is received again, it is ignored.
- Regarding receivable commands, refer to the following standby state.
- Standby state
 - Acceptable commands are open.cgi, close.cgi, session.cgi, info.cgi, and standby.cgi only.
 - When other commands are received, 509 is returned as the Livescope status.
 - Only the video-less session (v=null) can be accepted by open.cgi.
 - All the parameters are returned by info.cgi.
 - Command standby.cgi only accepts the restoration command from the standby state.
- Restoration from Standby
 - All the sessions are deleted.
 - When a standby transition command is received, 511 is returned as the Livescope status.
 - If the standby restoration command is received again, it is ignored.
- Normal state
 - Notification on restoration to the normal state is sent by info.cgi.
 - If the standby restoration command is sent, the success is returned.
 - When a standby transition command is received during backup, 408 is returned as Livescope status.

If the cmd parameter is not specified, 406 is returned as the Livescope status.

3.2.7.1.1. Commands

Syntax:

```
http://<ipaddress>/-vvhttp-01-/standby.cgi?[s=<session-id>][&cmd=<Value>]
```

Parameters:

Parameter	Value Type/Range	Description
s	<string>	Session ID

Parameter	Value Type/Range	Description
cmd	standby, idle	This is used for transition to the standby state and restoration from the standby state [Mandatory]. standby: Transition to standby state. idle: Restoration from standby state.

3.2.7.1.2. Response

A. Successful response

This indicates the content of the response.

HTTP Code : 200 OK

Content-Type : text/plain;charset=utf-8

Livescope-Status : 0

MessageBody :

OK.

B. Error response

Livescope status return value:

Livescope Status	Meaning
406 Parameter Missing	Mandatory parameter not specified. ! cmd parameter not specified.
408 Conflict	Exclusive operation requested ! A standby transition command was received during backup.
501 Unknown Connection ID	Specified session does not exist. ! Invalid session ID(s) specified.
509 Standby	Access limited during standby state. ! Command control.cgi received during standby state.
510 Switching Standby	Access limited during transition from normal state to standby state. ! Standby restoration command received during standby transition.
511 Switching Idle	Access limited during restoration from standby state to normal state. ! Standby transition command received during standby restoration.

3.2.8. Monitoring Assist

This is used for the configuration of Monitoring Assist and the registration, deletion, and total deletion of LUT.

3.2.8.1. Monitoring Assist Setting [configuration.cgi]

3.2.8.1.1. Command

Syntax:

```
http://<ipaddress>/-wvhttp-01-  
/configuration.cgi?[s=<sessionID>][&s.priority=<Priority>][&<Name>=<Value>]...
```

Parameters:

Parameter	Value Type/Range	Description
s	<string>	Session ID
s.priority	0...50	Session priority

3.2.8.1.2. Response

A. Successful response

The content of the response is as follows.

HTTP Code : 200 OK

Content-Type : text/plain;charset=utf-8

Livescope-Status : 0

MessageBody :

OK

B. Error response

Livescope status return value:

Livescope Status	Meaning
403 Invalid Parameter Value	Invalid parameter value specified
406 Parameter Missing	Mandatory parameter not specified.
408 Conflict	Exclusive operation requested

Livescope Status	Meaning
501 Unknown Connection ID	Specified session does not exist.

3.2.8.1.3. Control Parameters

Since there are many types of parameters that can be controlled by `configuration.cgi`, they are explained '[Parameter list of info.cgi/control.cgi/configuration.cgi](#)'.

3.2.8.2. User LUT Setting [configuration/userlut]

3.2.8.2.1. Command

Registration

Syntax:

```
Method : POST
URI :
http://<ipaddress>/-wvhttp-01-/configuration/userlut?[s=<session-id>]
&cmd=register&number=<UserLutNumber>[&colorSpace=<ColorSpace>][&range=<Range>][userlutname=<Value>]

Multipart/form-data format
Content-Disposition: form-data; name="file"; filename="<userlutname>"
```

The filename= part also accepts the format filename*=utf-8" "<userlut name>" (RFC6266)

Deletion

Syntax:

```
Method : POST or GET
URI :
http://<ipaddress>/-wvhttp-01-/configuration/userlut?[s=<session-id>]&cmd=unregister
&number=<UserLutNumber>
```

Parameters:

Parameter	Value Type/Range	Description
s	<string>	Session ID
cmd	register, unregister	Registering/deleting User LUT settings register: Registration unregister: Deletion

Parameter	Value Type/Range	Description
number	1...4	User LUT number Can be specified only when cmd=register, unregister
colorspace	gamut_bt709, gamut_bt2020, none	Color space output by the corresponding User LUT Can be specified only when cmd=register
range	narrow, full	Corresponding User LUT output range Can be specified only when cmd=register
userlutname	<string>	User LUT name Can be specified only when cmd=register Only the User LUT name can be changed with monitoring.{output}.userlut{N}.name

3.2.8.2.2. Response

A. Successful response

The content of the response is as follows.

HTTP Code : 200 OK

Content-Type : text/plain;charset=utf-8

Livescope-Status : 0

MessageBody :

OK

B. Error response

Livescope status return value:

Livescope Status	Meaning
403 Invalid Parameter Value	Invalid parameter value specified
406 Parameter Missing	Mandatory parameter not specified.
408 Conflict	Exclusive operation requested
410 Invalid Data	Invalid data specified
501 Unknown Connection ID	Specified session does not exist.

3.2.9. Custom Picture

Command cpfile/set that saves and resets custom picture parameters are described below. For custom picture control such as custom picture file selection and protection, the parameter "custom picture information [u]" is specified in the camera control command control.cgi. For details on custom picture control commands, see "3.2.3.1.5 Commands (custom picture control)", and for details on the parameter "custom picture information[u]" related to custom picture control, see '[Parameter list of info.cgi/control.cgi/configuration.cgi](#)'.

3.2.9.1. Custom Picture Setting [cpfile/set]

Save and reset custom picture control parameters. Use cmd=save to save and cmd=reset to reset.

3.2.9.1.1. Command

Syntax:

```
http://<ipaddress>/-wvhttp-01-/cpfile/set?[s=<session-id>] [&cmd=<Value>][&cpitem=<Value>]
```

Parameters:

Parameter	Value Type/Range	Description
s	<string>	Session ID
cmd	save, reset	Save and reset custom picture control parameters [required] save:Save reset:Reset
cpitem	normal1_bt709, widedr_bt709, standard_bt709, clog3, pq, hlg, eos_standard, eos_neutral, user	Only when cmd=reset [required] Reset the custom picture settings of the number specified by u to the settings specified by cpitem Specifiable values can be referenced in c.<c>.cp.list of info.cgi

3.2.9.1.2. Response

A. Successful response

The content of the response is as follows.

HTTP Code : 200 OK

Content-Type : text/plain;charset=utf-8

Livescope-Status : 0

MessageBody :

OK

B. Error response

Livescope status return value:

Livescope Status	Meaning
403 Invalid Parameter Value	Invalid parameter value specified
406 Parameter Missing	Mandatory parameter not specified.
408 Conflict	Exclusive operation requested
501 Unknown Connection ID	Specified session does not exist. ! Invalid session id(s) specified

3.2.9.2. Look File Setting [cpfile/lookfile]

Register and delete Look Files. Use cmd=register to register and cmd=unregister to delete.

3.2.9.2.1. Command

Look File registration

Syntax:

```
Method : POST
URI :
http://<ipaddress>/-vvhttp-01-/cpfile/lookfile?[s=<session-id>][&cmd=register][&gamma=<Value>]

Multipart/form-data format
Content-Disposition: form-data; name="file"; filename="<Look File name>"
```

The part for filename= also accepts the format filename*=utf-8' "<userlut name>" (RFC6266)

Look File deletion

Syntax:

```
Method : POST or GET
URI :
http://<ipaddress>/-vvhttp-01-/cpfile/lookfile?[s=<session-id>] [&cmd=unregister]
```

Parameters:

Parameter	Value Type/Range	Description
s	<string>	Session ID
cmd	register, unregister	Registering/deleting Look File settings register: Registration unregister: Deletion
gamma	cp, sdr_bt709, sdr_bt2020, hdr_pq_bt2100, hdr_hlg_bt2100	Can be specified only when cmd=register Specifiable values of gamma/colorspace after applying Look File can be referred in c.<c>.lookfile.after.gamma.list

3.2.9.2.2. Response

A. Successful response

The content of the response is as follows.

HTTP Code : 200 OK

Content-Type : text/plain;charset=utf-8

Livescope-Status : 0

MessageBody :

OK

B. Error response

Livescope status return value:

Livescope Status	Meaning
403 Invalid Parameter Value	Invalid parameter value specified
406 Parameter Missing	Mandatory parameter not specified.
408 Conflict	Exclusive operation requested
410 Invalid Data	Invalid data specified
501 Unknown Connection ID	Specified session does not exist. ! Invalid session id(s) specified

3.2.10. Initialize Parameters

Initialize parameters in the XC control protocol.

3.2.10.1. Obtain initializable parameters/Initialize Parameters [reset.cgi]

Obtains a list of parameters that can be initialized, or sets the specified parameter to its initial value. A single command may contain control requests for multiple items if the parameter is set to its initial value.^[37]

3.2.10.1.1. Command

Syntax: <http://<ipaddress>/-wvhttp-01-/reset.cgi?>

Parameters:

Parameter	Value Type/Range	Description
param	<item name>	Items to initialize If omitted, obtain the list of initializable parameters.

3.2.10.1.2. Response

The response to reset.cgi is param.

A. Successful response [Obtain a list of parameters that can be initialized]

The content of the response is as follows.

HTTP Code : 200 OK

Content-Type : text/plain;charset=utf-8

Livescope-Status : 0

MessageBody :

```
c.1.wb.value  
c.1.wb.kelvin  
c.1.wb.kelvin.cc  
c.1.blacklevel  
c.1.blacklevel.red  
c.1.blacklevel.green  
c.1.blacklevel.blue  
c.1.blackgamma  
c.1.blackgamma.range  
c.1.blackgamma.point  
c.1.lowkeysaturation.level  
c.1.knee.slope  
c.1.knee.point  
c.1.knee.saturation  
c.1.nr.spatialfilter  
c.1.nr.framecorrelation  
c.1.ac  
c.1.ac.detailfreq  
c.1.ac.coringlevel
```

```
c.1.ac.limit  
c.1.skindetail.hue  
c.1.skindetail.chroma  
c.1.skindetail.area  
c.1.skindetail.ylevel  
c.1.wb.shift.rgain  
c.1.wb.shift.ggain  
c.1.wb.shift.bgain  
c.1.colormatrix.gain  
c.1.colormatrix.phase  
c.1.colormatrix.rg  
c.1.colormatrix.rb  
c.1.colormatrix.gr  
c.1.colormatrix.gb  
c.1.colormatrix.br  
c.1.colormatrix.bg  
c.1.colorcorrection.a.phase  
c.1.colorcorrection.a.chroma  
c.1.colorcorrection.a.area  
c.1.colorcorrection.a.ylevel  
c.1.colorcorrection.a.revision.level  
c.1.colorcorrection.a.revision.phase  
c.1.colorcorrection.b.phase  
c.1.colorcorrection.b.chroma  
c.1.colorcorrection.b.area  
c.1.colorcorrection.b.ylevel  
c.1.colorcorrection.b.revision.level  
c.1.colorcorrection.b.revision.phase
```

B. Successful response [Initialize parameters]

The content of the response is as follows.

HTTP Code : 200 OK

Content-Type : text/plain;charset=utf-8

Livescope-Status : 0

MessageBody :

```
OK.
```

NOTE

In the case of parameter initialization, the above response occurs even if the parameter is not initialized unless it is an error response.

C. Error response

Livescope status return value:

Livescope Status	Meaning
403 Invalid Parameter Value	Invalid parameter value specified

- [1] If-Modified-Since is referenced with a get still image command.
- [2] To get or release the control privilege with claim.cgi or yield.cgi, a session must be started.
- [3] Most parameters can be abbreviated under the XC control protocol. Parameters that cannot be abbreviated are indicated with "Mandatory".
- [4] 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.
- [5] menu, preset, trace, standby, configuration, cfile
- [6] This refers to the session connection time, and "(Limited)" is limited by the model specific "Maximum connection time".
- [7] In cases of "(Limited)", the video transmission time is limited by the session connection time.
- [8] This refers to the camera control time, and "(Limited)" is limited by the model specific "Camera control time".
- [9] Functions permitted only in a privileged or administrator session, and functions permitted only in an administrator session. This is determined by the created session type.
- [10] In sessionless cases, the video transmission time is not limited by the session connection time, so this is "(Unlimited)". (*However, the video attribute has a restriction on sharing among sessionless clients.)
- [11] In sessionless cases, camera control privileges are acquired and operated in the priority specified by commands. Even for users with privileged camera control, the usable functions are limited to the range of general camera control when the priority specified to Commands is a general value instead of a session.
- [12] In sessionless cases, the usable functions are limited to the range of privileged camera control.
- [13] "Multiple element joint type" is a character string with multiple elements joined with a delimiter as in "<IP address>:<port>". e.g. "192.168.100.1:80"
- [14] The value ranges have the following meanings. 0: General session; 1 - 4: Reserved (if specified, it is treated as "5"); 5 - 50: Privileged session; *This is ignored when an administrator session is specified.
- [15] Specify <video parameter> with the format shown below. <jpg or h264>[:<video width>[x<video height>[:<frame rate>]]] The video width and height are expressed in pixels. Specify the frame rate by the number of frames per 1000 seconds. e.g. "jpg:480x270::30000" *Do not specify <video width>, <video height>, and <frame rate> for H.264 data. e.g. "h264" *H.265 cannot be specified. If "h265" is specified, a 403 error will occur. Specify H.265 by w.<Video>.type. *For details on combinations that can be selected, see ['H.264/H.265 Image Parameter Specifications'](#).
- [16] The video parameter (v) exists only for backward compatibility, whereas the video-stream parameter (w) offers richer functionality. Development of the (v) parameter has ended, and no further features will be added to it. Any new video-stream features will be implemented in the (w) parameter instead. Furthermore, the (v) parameter is slated for removal in future product releases. Therefore, use of the (w) parameter is strongly recommended for all new implementations.
- [17] The client protocol type determines whether to use IPv4 or IPv6 notation. If multiple addresses are defined, the manually configured ones have priority for return, and those not configured manually are returned in the order obtained, starting with the first address. IPv6 [<IPv6 Address>]:<port> e.g. "[3FFE:2A00:100:7031::1]:80" IPv4 [<IPv4 Address>]:<port> e.g. "192.168.100.1:80"
- [18] The maximum value of the remaining session connection time is the model specific "Maximum connection time".
- [19] The video stream parameters are returned for <video parameter> with the format shown below. <jpg or h264>:<video width>x<video height>:<video quality>:<frame rate>
- [20] It is returned when the video codec of <video parameter> is "h264".
- [21] The video stream number is a subscript indicating the video stream shown with the continually returned item w.<Video>.
- [22] It is returned when the video codec of <video parameter> is "h264" or "h265".
- [23] The maximum number of connections is limited by the model specific "Maximum number of clients".
- [24] The camera control time is limited by the setting value of the model specific "Camera control time". However, unless another client has requested camera control privileges, control privileges can exceed the assigned time. The camera control time can also be set to an unlimited time.
- [25] This shows the camera control privileges status of your own session. If "enabled" (or "waiting"), the remaining assigned time (or remaining standby time until privileges are obtained) is added in milliseconds only when both are limited. s.control:=enabled : Obtaining camera control privileges; s.control:=waiting : Waiting to obtain camera control privileges
- [26] This shows the camera control privileges status of your own session. If "enabled" (or "waiting"), the remaining assigned time (or remaining standby time until privileges are obtained) is added in milliseconds only when both are limited. s.control:=enabled : Obtaining camera control privileges; s.control:=waiting : Waiting to obtain camera control privileges;

s.control==disabled : Failed to obtain camera control privileges

[27] It is returned when the video codec of <video parameter> is "h264" or "h265".

[28] The names of information items are hierarchically organized and are specified with the following format.; item=c : Specify item c (camera) or lower to the acquisition target; item=c! : Exclude item c (camera) or lower from the acquisition target; The specification of information items can be enumerated, and in this case, the specified items are evaluated in the enumeration order. e.g. Specification with one item "info.cgi?item=s,c..."; e.g. Specification with multiple items "info.cgi?item=s&item=c..."; Specify the second numerical value that divides the information item by dot with *. item=p.*.content : p.1.content... p.2.content...; Specify dot at the end of the information item. item=p.1.content. : p.1.content.ptz other than p.1.content, etc. The details of the return values of the information items are described in the information categories that follow.

[29] If control is requested for multiple items at one time, not all control may be executed as requested, depending on the camera operation status. In particular, it is important to note that control that performs mechanical operations, such as pan, tilt, and zoom operation, requires time until the operation is completed. To perform control requests separately, it is recommended that an interval of 33 ms or more be used between requests.

[30] If control is requested for multiple items at one time, not all control may be executed as requested, depending on the camera operation status.

[31] The following are examples of behavior that include specification of video parameter specification (v). First, create a XC control protocol session with the following command. `http://<ipaddress>/-wvhttp-01/-open.cgi?v=jpg:480x270` Next, execute the following command. `http://<ipaddress>/-wvhttp-01/-image.cgi?s=<SessionID>&v=jpg:1280x960` When these commands are executed, the static image of "v=jpg:480x270" specified with the first executed command, open.cgi, is obtained. The same result applies to video stream number specification (w).

[32] If a change in the settings occurs, notification is sent by an event using info.cgi. The changed setting is maintained even after image.cgi processing is completed and is not restored automatically to the original setting.

[33] The maximum value for the video send time is the maximum value of the session connection time. Session connection time is limited by the model specific "Maximum connection time".

[34] Not supported depending on the combinations of "model" and "version of metadata".

[35] Some models are not supported.

[36] For models that can execute "cmd=delete", this command is recommended for deleting presets. For other models that cannot execute "cmd=delete", the preset can be deleted by executing "all=disabled&name=&thumbnail=disabled".

[37] When the control is requested for a plurality of items at a time, all the control may not be executed as requested depending on the operating state of the camera. In particular, in the case of control for performing a mechanical operation such as a pan/tilt operation or a zoom operation, attention should be paid to the fact that time is required until the operation is completed. When individual control requests are made, it is recommended that there be an interval of at least 33 ms between requests.

Chapter 4. XC Settings Protocol Specification

The XC settings protocol provides the functionality needed to acquire information about camera settings and apply changes to the camera.

According to the GraphQL specification, data is acquired and changed via HTTP requests from clients and subsequent responses from the camera.

This chapter assumes readers are familiar with both HTTP and GraphQL.

NOTE

GraphQL is a query language designed for APIs that enables clients to request only the necessary data from the server.

It is strictly an API specification, independent of any specific communication protocol implementation.

Visit [the official GraphQL website](#) for more information.

4.1. Restrictions on models and firmware versions

For cameras, only certain combinations of models and firmware versions support the XC settings copy protocol.

For the model categories and models, refer to "[Models and Firmware Versions](#)."

4.2. Interface Specifications

The interface specifications of the XC settings protocol are described in the following.

- Protocol command structure and syntax format
- Specifiable HTTP keys
- The relationship between HTTP methods and GraphQL operations

4.2.1. Request

The XC settings protocol uses XC settings commands to request the acquisition of or changes to camera settings. The camera's HTTP server receives the XC settings copy command as an HTTP request in JSON format.

- The XC settings protocol is not dependent on a specific HTTP version.
- The devices supported by this document are HTTP/1.1 and HTTP/2-compliant.
- GET or POST can be used as the HTTP method.
- The URI is made up of a XC control command or parameter that starts with `"/-wvcgi-/param"`.
- The system administrator requires Basic or Digest authentication.

Syntax:

```
GET|POST /-wv cgi-/param HTTP/1.1
```

4.2.2. Response

The XC settings protocol response is sent as an HTTP response from the camera's HTTP server and is returned in JSON format. The details are explained in ["Interface Details"](#) and ["Input/Output Examples."](#) The returned statuses are explained in ["HTTP Status and Application Errors."](#)

4.2.3. Interface Details

As previously mentioned, the XC settings protocol requests and responses are sent and received in JSON format. This adheres to HTTP while conforming to the GraphQL specification.

Although HTTP and GraphQL are independent technologies, it is recommended that GraphQL request parameters, referred to hereafter as "keys," be specified at the HTTP level when implementing or using a GraphQL API.

The appropriate HTTP method must also be used, corresponding to the nature of the GraphQL operation.

4.2.3.1. Keys

The following keys can be included in the request to specify the name and type of the operation.

Table 14. Keys that can be included in the request

Name	Description
operationName	Specify the name of the operation to be executed This is used when multiple operations are defined within the same request This can be omitted if there is only one operation
query	Write the query or mutation for the GraphQL operation to be executed in GraphQL query string format This is created based on the GraphQL schema provided by the server
variables	Specify the variables to be used in the query in object format This is used to maintain consistency within the query or to reuse the query This can be omitted if the operation containing the variables is specified as a query string with a "query" key

4.2.3.2. HTTP Method

The following two GraphQL operations are performed using the XC settings protocol:

- Query: Acquire camera settings
- Mutation: Change camera settings

The appropriate HTTP method must be selected for each operation.

Examples of the request syntax and the corresponding response syntax for each GraphQL operation are provided below.

The details of the query and mutation specifications are described in ["API Specifications and Input/Output Examples."](#)

NOTE

Note that the "query" key in GraphQL request parameters and the "query" in GraphQL operations have the same name but are not actually the same. The former is an HTTP container, and the latter is an instruction within that container.
Unless otherwise specified, any mention of "query" or "queries" hereafter refers to the latter.

NOTE

The term "settings" refers collectively to the camera setting items and setting values handled by the settings protocol and the settings copy protocol, which is described in the next chapter.
Individual items within the settings are referred to as "setting items."
The values (numbers, strings, etc.) in a setting item are referred to as "setting values."
Details regarding each setting item and setting value are explained in the ["Setting Items."](#)

■ Examples of cases in which queries are used

A query is a GraphQL operation used to query camera setting values.

It can be used with both GET and POST requests.

In the syntax examples below, note that the first "query" is the HTTP key and the second "query" is the entry point for the GraphQL operation.

Syntax (example using GET):

```
[URL]
GET /-wvcgi-/param?query=query{getCameraConfig{parameters{nodes{name,value}}}}
```

Syntax (example using POST):

```
[URL]
POST /-wvsgi-/param HTTP/1.1

[body]
{
  "query": "query {
    getCameraConfig{
      parameters{
        nodes{
          name
          value
        }
      }
    }
  }",
}
```

■ Examples of cases in which mutations are used

Mutation is a GraphQL operation used to change the camera's setting values.
This operation only works with POST.^[1]

Syntax (example using POST):

```
[URL]
POST /-wvsgi-/param HTTP/1.1

[body]
{
  "query": "mutation connectPolicy {
    updateParameters(inputs: [{name: \"connectPolicy\", value: \"https\"}]) {
      name
      value
      type
      attribute
    }
  }",
}
```

Sending a mutation request using GET returns a 406 error.

Syntax (example of GET used incorrectly):

```
[URL]
GET /-wvsgi-/param/?query=
mutation {
  updateParameters(inputs: [{name: \"connectPolicy\", value: \"http/https\"}]) {
    name
    value
  }
}
```

```

    type
    attribute
  }
}

```

Response (406 error)

```

{
  "errors": [
    {
      "message": "GET requests only allow query operations"
    }
  ],
  "data": null
}

```

4.3. API Specifications and Input/Output Examples

4.3.1. API Specifications

This section explains the GraphQL API for the XC settings protocol and its associated data. Camera settings handled by the XC settings protocol are of the "CameraConfig" data type and are internally structured as shown in the schema diagram below.

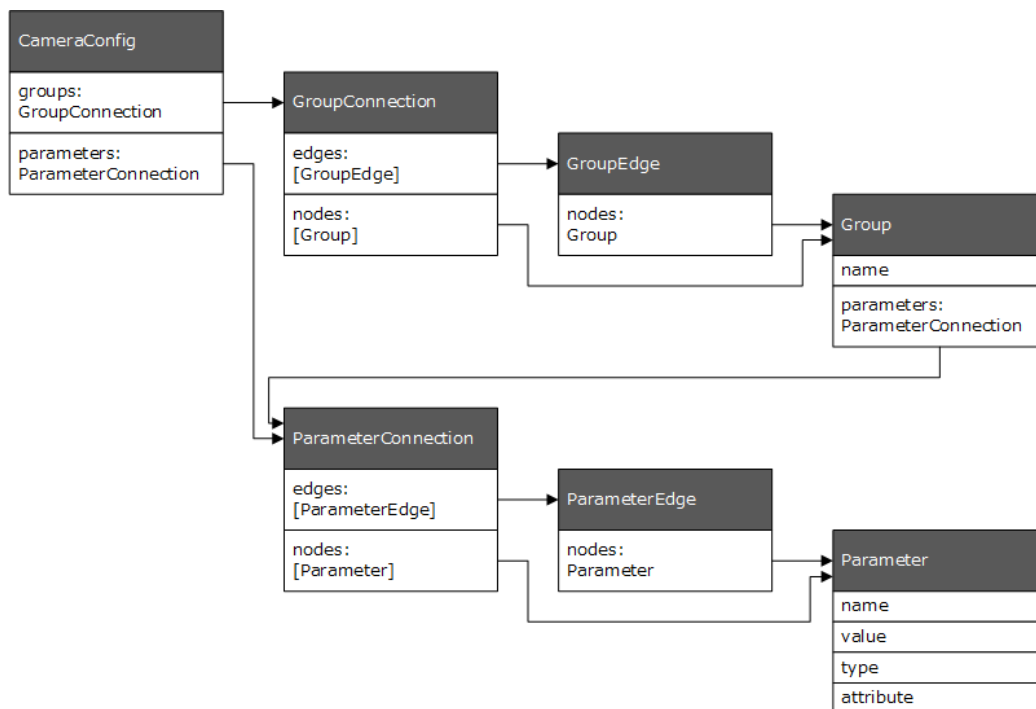


Figure 14. Internal structure of CameraConfig

The GraphQL operations and schema components, including their data types, are described in the following order.

- Queries
- Mutations
- Objects
- Interfaces
- Input objects
- Scalars

NOTE

The type descriptions in the ER diagram and the following table in the component description adhere to the following notation rules. A type name enclosed in square brackets ([]) indicates that multiple elements can be specified in array format. Additionally, an exclamation point (!) after a type name indicates that null values are not permitted.

4.3.2. Queries

An object type for root and a GraphQL entry point for acquiring data.

This executes a query operation to acquire camera settings.

4.3.2.1. getCameraConfig

This query field is used to acquire "CameraConfig," which contains the camera settings.

The detailed fields to be acquired are specified, and the specified parameters or groups are returned.

For more information on "CameraConfig," see the ["CameraConfig."](#)

4.3.3. Mutations

An object type for root and a GraphQL entry point for updating the data state.

This executes a mutation operation to change the camera settings.

4.3.3.1. updateParameters

This mutation field is used to update the values of the camera's setting items.

The field for the operation to be executed and the arguments to be passed (inputs) are specified, and the updated settings and processing results (returns) are returned.

■ Input fields

Name	Type	Description
inputs	[ParameterUpdateInput]	Arguments for executing a mutation

■ Returns

Name	Type	Description
attribute	String	Attributes of setting items The attributes of setting items are described as strings e.g. RWBOP (For the meaning of each digit in an attribute, see the "Attributes")
name	ID!	Names of setting items
type	String	Data type of setting items
value	String	Values of setting items (setting values)

4.3.4. Objects

A list of the fields possessed by a GraphQL object type. These are actual resources accessed in a query or mutation request.

Each field has a name and a type, which together define the structure of the object.

Each field is explained below.

4.3.4.1. CameraConfig

A field for camera settings.

"Parameters" are settings items, and details for each item are described in ["Settings items."](#)

"Groups" are the groups to which settings items belong, and the relationship between settings items and groups is described in ["Groups."](#)

■ Fields

Name	Type	Description	Arguments (Name and Type of argument)	
groups	GroupConnection	Group to which the setting item belongs	names	[String]
parameters	ParameterConnection	Setting item	names	[String]

4.3.4.2. Group

A field for a group that includes setting items.

■ Fields

Name	Type	Description	Arguments (Name and Type of argument)	
name	ID!	Group name		
parameters	ParameterConnection	Setting value belonging to the group	names	[String]

4.3.4.3. Group Connection

A field that indicates the connection type of a group.

■ Fields

Name	Type	Description	Arguments (Name and Type of argument)	
edges	[GroupEdge]	List edge		
nodes	[Group]	List node		

4.3.4.4. GroupEdge

A field that indicates the edge of a group.

■ Fields

Name	Type	Description	Arguments (Name and Type of argument)	
node	Group	Edge-connected node		

4.3.4.5. ParameterConnection

A field that indicates the connection type of a setting item.

■ Fields

Name	Type	Description	Arguments (Name and Type of argument)	
edges	[ParameterEdge]	List edge		
nodes	[Parameter]	List node		

4.3.4.6. ParameterEdge

A field that indicates the edge of a setting item.

■ Fields

Name	Type	Description	Arguments (Name and Type of argument)	
node	Parameter	Edge-connected node		

4.3.4.7. UniversalParameter

A field for universally applicable setting items.

It functions as a **child object inherited from "Parameter."**

■ Fields

Name	Type	Description	Arguments (Name and Type of argument)	
attribute	String	Attributes of setting items The attributes of setting items are described as strings e.g. RWBOP (For the meaning of each digit in an attribute, see the " Attributes ")		
name	ID!	Names of setting items		
type	String	Data type of setting items		
value	String	Values of setting items (setting values)		

NOTE

To use a setting item, a "Parameter" that inherits "UniversalParameter" must be used.

4.3.5. Interfaces

A common interface for fields shared by multiple object types.

It functions as a parent object that can inherit other objects.

4.3.5.1. Parameter

A field that serves as an interface for setting items.

It is a parent object that inherits "UniversalParameter."

■ Fields

Name	Type	Description	Arguments (Name and Type of argument)	
attribute	String	Attributes of setting items The attributes of setting items are described as strings e.g. RWBOP (For the meaning of each digit in an attribute, see the " Attributes ")		
name	ID!	Names of setting items		
type	String	Data type of setting items		
value	String	Values of setting items (setting values)		

4.3.6. Input objects

A structured input data type is used to pass a query or mutation argument. It contains a set of input fields that define the object.

4.3.6.1. ParameterUpdateInput

An input field for updating the value of a parameter.

■ Input fields

Name	Type	Description
name	String!	Names of setting items
value	String	Values of setting items (setting values)

4.3.7. Scalars

A single-value, minimal unit data type.

When calling a GraphQL API, nested subfields must be specified explicitly as needed until the desired response data type is a scalar.

4.3.7.1. Boolean

A scalar that represents a binary value of true or false.

4.3.7.2. Float

A scalar representing a signed double-precision floating-point value.

4.3.7.3. ID

A scalar that represents a unique identifier between the server and the client. During serialization, it is treated as a string.

4.3.7.4. Int

A scalar that represents a signed 32-bit integer.

4.3.7.5. String

A scalar that represents a text string encoded in UTF-8.

4.3.8. Input/Output Examples

The examples below show the requests and responses for different GraphQL operations.

4.3.8.1. Input/Output Examples for a query

4.3.8.1.1. A query of all the settings items

Request:

```
query {
  getCameraConfig{
    parameters {
      nodes{
        name
        value
      }
    }
  }
}
```

Response:

```
{
  "data": {
    "getCameraConfig": {
      "parameters": {
```

```

      "nodes": [
        {
          . . .
        }
      ]
    }
  }
}

```

4.3.8.1.2. A query of the specified setting items

Specify the name of the setting item you want to reference.

For the names of setting items, refer to ["Setting Information Items."](#)

Request:

```

query getRtmpSetting{
  getCameraConfig{
    parameters(names:["rtmpUrl","rtmpStreamKey"]){
      nodes{
        name
        value
      }
    }
  }
}

```

Response:

```

{
  "data": {
    "getCameraConfig": {
      "parameters": {
        "nodes": [
          {
            "name": "rtmpUrl",
            "value": ""
          },
          {
            "name": "rtmpStreamKey",
            "value": ""
          }
        ]
      }
    }
  }
}

```

4.3.8.1.3. A query of the group list

Request:

```
query groupName{
  getCameraConfig{
    groups {
      nodes{
        name
      }
    }
  }
}
```

Response:

```
{
  "data": {
    "getCameraConfig": {
      "groups": {
        "nodes": [
          ...
        ]
      }
    }
  }
}
```

4.3.8.1.4. A query of all the settings items within the specified group

Specify the name of the group you want to reference. For group names, refer to ["Group."](#)

Request:

```
query groupsdiFormat{
  getCameraConfig{
    groups(names:["sdiFormat"]){
      edges{
        node{
          name
          parameters{
            nodes{
              name
              value
            }
          }
        }
      }
    }
  }
}
```



```
}

```

Response:

```
{
  "data": {
    "getCameraConfig": {
      "groups": {
        "edges": [
          {
            "node": {
              "name": "sdiFormat",
              "parameters": {
                "nodes": [
                  {
                    "name": "12gSdiFormat",
                    "value": "2160p"
                  },
                  {
                    "name": "hdmi3gSdiFormat",
                    "value": "1080p"
                  }
                ]
              }
            }
          }
        ]
      }
    }
  }
}
```

4.3.8.2. Input/Output Examples for a mutation

4.3.8.2.1. A change of the specified setting item

Request:

```
mutation videoTargetBitrate1 {
  updateParameters(inputs:{name:"videoTargetBitrate1", value:"2000"}){
    name
    value
    type
  }
}
```

Response:

```
{

```

```
"data": {
  "updateParameters": [
    {
      "name": "videoTargetBitrate1",
      "value": "2000",
      "type": "int(1000,80000)"
    }
  ]
}
```

4.4. Setting items and groups

This section explains the specifications for camera setting items. It also provides explanations of the notation legends for the table detailing these specifications.

4.4.1. Notation legend

A legend of the table for setting item specifications is shown below.

Legend for the table of setting items

Setting Item	Type	Initial Value	Attributes	Description	Model Specific Information
pmtNameXX	int(0,3)	0	RWB--	Non-array-type integers with a range of 0 to 3	
pmtNameYY	name	20	RW-OP	Array-type string Note: xxxxxxxxxxxxxxxxx	

- Type: Shows the item data type.
- Initial value: Shows the initial value for the item. If this is blank, it indicates that there is no initial value.
- Attributes: The attribute is expressed in 5 digits. Each digit has the different meaning. Refer to ["Attribute."](#)
- Description: Shows a description of item value ranges, restrictions, etc.
- Model Specific Information: Shows the differences between models that are new functions or significantly added functions.

The description policy of this chapter is as follows.

- Cover all specifications of supported products.

e.g. For items that are in an exclusive relationship in terms of function selection, both are described in this chapter.

- For values, ranges, and selection options, the minimum and maximum values within all supported products are described. However, the models within those ranges may not exist.

e.g. When the models within the type range exist

Specifications of Model A

Item	Type	Initial Value	Attributes	Description
pmtNameXX	int(0,2)	0	RWB--	Non-array-type integers with a range of 0 to 2

Specifications of Model B

Item	Type	Initial Value	Attributes	Description
pmtNameXX	int(0,1)	0	RWB--	Non-array-type integers with a range of 0 to 1

Description in this chapter

Item	Type	Initial Value	Attributes	Description
pmtNameXX	int(0,2)	0	RWB--	Non-array-type integers with a range of 0 to 2

e.g. When the models within the type range do not exist

Specifications of Model A

Item	Type	Initial Value	Attributes	Description
pmtNameYY	int(0,1)	1	RWB--	Non-array-type integers with a range of 0 to 1

Specifications of Model B

Item	Type	Initial Value	Attributes	Description
pmtNameYY	int(1,2)	1	RWB--	Non-array-type integers with a range of 1 to 2

Description in this chapter

Item	Type	Initial Value	Attributes	Description
pmtNameYY	int(0,2)	1	RWB--	Non-array-type integers with a range of 0 to 2

4.4.1.1. Data type

The value formats and ranges for each setting item are specified for each setting value that is handled by the settings protocol. When changing settings, the values are checked based on the rules for that item.

The settings protocol data types and data type notation specifications are explained below.

■ Numerical value types:

There are 'int' decimal types and 'fixed' fixed-point types. The minimum value and maximum value sets (min, max) are added to the type name and shown as int(-5, 5) or fixed(0.00, 10.00). The maximum value for int and uint are shown as '-'.

Table 15. Data Type Specification - Integer Type

Type	Description	Example of values/Range
int	Signed decimal integer type, maximum value 2147483647	e.g. int(-65536, 65535) int(10, -)
uint	Unsigned decimal integer type, maximum value 4294967295	e.g. uint(0, 256) uint(256, -)
fixed	Signed decimal fixed point number type	e.g. fixed(-270.00, 270.00)
boolean	Logical Note: Same as int(0, 1)	

■ Bit type:

'hex' specifically states the maximum number of bytes. For example, it is shown as hex[4]. It is possible to set a bit string with less than the maximum number of bytes.

Table 16. Data Type Specification - Bit Type

Type	Description	Example of values/Range
hex	Hexadecimal. Setting values can be omitted by the byte.	e.g. hex[24] : 24Byte

■ Obfuscated password type:

Hexadecimal string corresponding to bit string with obfuscated password. A combination of the minimum and maximum character lengths (min,max) after obfuscation cancellation is added to the type name as the character length range specification and is expressed as hpass[36](8,32).

Table 17. Data Type Specification - Obfuscated Password Type

Type	Description	Example of values/Range
hpass	Obfuscated password type	e.g. hpass[36](8,32)

■ Character string type:

The type name is defined according to the application, and the character set for each type is different. They are all single-byte characters, the maximum length is explicitly shown, and they are expressed as pass[15], mail[63] (multi-line strings are [line length x number of lines]).

Table 18. Data Type Specification - Character String Type

Type	Description	Example of values/Range
name	Name	Range (alphanumeric character, '-'(hyphen), and '_'(underscores))
pass	Password Note: The character length specified range may be added and expressed as pass[31](8,31).	Range (0x20 to 0x7E)
host	Host name	Range (alphanumeric character, '-'(hyphen), '_'(underscores), '.'(period), and ','(comma))
uri	URI type	0x21 ~ 0x7E
const	Constant Note: A return-specific item type that cannot be changed	
uname	User name	Range (alphanumeric character, '-'(hyphen) and '_'(underscores) (except first character))

■ Name type:

Used for applications such as the camera name and preset names. The character set for each is

different and type names are defined for each character set.

Table 19. Data Type Specification - Name Type

Type	Description	Example of values/Range
ascii	ASCII	Range (0x20 to 0x7E) Except for ‘ ’’ (double quotation marks)
char	CHARACTER	Range (0x20 to 0x7E)
unicode	UNICODE	Multibyte strings with UTF-8 encoding
nchar	NCHARACTER	Range (0x20 to 0x7E) Except for ‘,’ (comma)

Example: Camera name (multibyte characters) (db02-0) unicode

```
GET /admin/-set-?db02-0=%E3%82%AB%E3%83%A1%E3%83%A9 HTTP/1.1
```

■ Date and time type:

date is used to set the expiration period of SSL and the date. time is used to set the time.

Table 20. Data Type Specification - Date Time Type

Type	Description	Example of values/Range
date	Date type “yyyymmdd” notation	Range (20010101 to 20311231)
yyyymmdd:HHMMSS	Date and time type	e.g. 20250930:123456

■ Network address type:

Used to set network IP addresses. It is possible to specify both IPv4/v6 but setting items are prepared individually.

Table 21. Data Type Specification - Network Address Type

Type	Description	Example of values/Range
inaddr	IPv4 address type “xxx.xxx.xxx.xxx” decimal notation Note: It is impossible to specify 0.0.0.0 or 255.255.255.255.	

Type	Description	Example of values/Range
inaddr6	IPv6 address type “xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx” hexadecimal notation Note: It is possible to omit a sequence of zeros. For example, fd00::1.	
inaddrx	IPv4 / IPv6 address shared type Note: The notation is based on inaddrand inaddr6.	
mcaddrx	IPv4 / IPv6 address shared type Note: The notation is based on inaddrand inaddr6.	

■ Local port type:

Local port number. It is the same as int(1,65535). However, it has a unique value in the server, and multiple local port type setting values cannot have the same value.

Table 22. Data Type Specification - Local Port Type

Type	Description	Example of values/Range
lport	Local port	
hport	HTTP port	It is possible to only specify 80 or 1024 to 65535.
hspport	HTTPS port	It is possible to only specify 443 or 1024 to 65535.
rport	RTSP port	It is possible to only specify 554 or 1024 to 65535.
mcport	RTSP Multicast port	It is possible to only specify even numbers in the range of 1024 to 65535.
amcport	Audio Multicast port	It is possible to only specify 1024 to 65530.

■ User account type:

Management list element type for registered users.

Expressed in the format “username” or “username=<password>” (“username” is a name type and “<password>” is a pass type). Specify the “<password>” portion as a numeric string in ASCII character encoding, showing the name characters as three-digit decimals. It is impossible to view the set password.

Table 23. Data Type Specification - User Account Type

Type	Description	Example of values/Range
uaccent	User account type	e.g. “username=1120971151151191111 14100”“password”
obuaccent	User account type “username” is a name type and “password” is an hpass type. Set an obfuscated password for “password”.	

■ List type:

This is a general composite data type that uses a ‘,’ separated CSV format to combine multiple elements. The element type can be used as a variable length list for the same type, in an elementary data type defined elsewhere. The maximum number of items is added to the type and expressed as uaccent <15>. Element duplication and order are not defined in the type.

Table 24. Data Type Specification - List Type

Type	Description	Example of values/Range
< >	List	e.g. uaccent<15> User (+ password) List

4.4.1.2. Attribute

Each settings item has different behaviors depending on the role, such as items that can only be viewed, items that can be viewed and updated, and items that require a reboot to apply the updated value.

These behaviors are called attributes. They are shown as abbreviations of the attribute value, as shown in the following table.

Table 25. Attribute list

Attribute	Attribute Value	Description
Can be referenced	R	Shows items that can be read by READ transactions
Can be set	W	Shows items that can be written by WRITE transactions
Automatic reboot when set	B	Shows items that automatically reboot at the time of a SAVE transaction
A null value can be set	O	Shows items that can take a null value in a WRITE transaction

Attribute	Attribute Value	Description
Values are retained even when resetting to the factory default settings	P	Shows items that retain the values prior to a REVERT when a REVERT is performed
Not possible/not required	-	Shows that each attribute behavior is not possible, or does not need to be considered

4.4.2. Settings items

Settings items of the camera are explained by function.

4.4.2.1. System

Table 26. Setting Items - System Information

Item	Type	Initial Value	Attributes	Description	Model Specific Information
adminName	uname[15](5, 15)		RW--P	Name of system administrator	
adminPassKey	pass[32](8, 32)		-W--P	Administration password ^[2] Note: For null values, the value is not changed	
adminPassVerify	pass[32](8, 32)		-W--P	Administration password (for confirmation) ^[2] Note: Specify the same value as "adminPassKey"	
adminMaskedKey	hpass[36](8, 32)		-W-OP	Administration password (obfuscation) ^[3] Note: Save the password with an obfuscated "adminPassKey" value	

4.4.2.2. Device Attribute

Table 27. Setting Items - Device Attribute Information

Item	Type	Initial Value	Attributes	Description	Model Specific Information
modelName	const	CR-xxxxx	R----	Model Name	
firmwareVersion	const	Ver. x.x.x	R----	Firmware version ^[4]	
language	const	en, ja, zh	R----	Supports multiple languages	
serialNum	const	xxxxxx	R----	Serial number ^[5]	
buildNum	const	xxxxxx	R----	Build number ^[4]	

4.4.2.3. Clocks and Time Zones

Table 28. Setting Items - Clocks and Time Zones

Item	Type	Initial Value	Attributes	Description	Model Specific Information
clockSetup	manual, ntpServer	manual	RW--P	Procedure for setting the clock 0: Specify the time based on "dateTime" 1: NTP server ^[6]	
ntpHostname	host[63]		RW-OP	IP address of the NTP server Note: This can only be specified when the procedure for setting the clock "clockSetup" is "ntpServer". This is ignored for null values.	
ntpDhcp	disable, dhcp, dhcpv6, dhcpDhcpv6	disable	RW--P	Procedure for using DHCP ^[7] disable: Do not use dhcp: Use DHCP dhcpv6: Use DHCPv6 dhcpDhcpv6: Use both DHCP/DHCPv6	
ntpDhcp Hostname	const		R--O-	The NTP address reported from the DHCP server (DHCP address)	

Item	Type	Initial Value	Attributes	Description	Model Specific Information
ntpDhcpv6 Hostname	const		R--O-	The NTP address reported from the DHCP server (DHCPv6 address)	
ntpInterval Minutes	int(5, 1440)	60	RW--P	NTP sync interval Note: The unit is [minutes]	
ntpLastSync	yyyymmdd:HHMMSS		R--O-	NTP last sync time	
dateTime	yyyymmdd:HHMMSS		RW--P	Date and time Note: Valid if the procedure for setting the clock "clockSetup" is "manual". Ignored if any other value. ^[8]	
daylightSaving Time	disable, enable	disable	RW--P	Daylight Saving Time disable: Do not use enable: Use	
timezone Identifier	ascii[63]	Asia/Tokyo	RW--P	City name (zoneinfo) ^[9]	

4.4.2.4. Networks

When using the settings protocol to specify an IPv4/IPv6 address, note that it will no longer be possible to access the camera if you set an invalid address.

4.4.2.4.1. Networks / wired LAN

Table 29. Setting Items - Networks / wired LAN

Item	Type	Initial Value	Attributes	Description	Model Specific Information
lanIpv4Setup	manual, dhcp	dhcp	RWB-P	IPv4 address setting method 0: Manual setting 1: Automatic setting (DHCP)	
lanIpv4Addr	inaddr	192.168. 100.1	RWB-P	IPv4 address	

Item	Type	Initial Value	Attributes	Description	Model Specific Information
lanIpv4Subnet	inaddr	255.255.255.0	RWB-P	Subnet mask	
lanIpv6	disable, enable	disable	RWB-P	Use IPv6 ^[10] disable: Do not use enable: Use	
lanIpv6AutoAddr 1	const		R--O-	IPv6 address (auto set) ^[11]	
lanIpv6AutoAddr 2					
lanIpv6AutoAddr 3					
lanIpv6AutoAddr 4					
lanIpv6AutoAddr 5					
lanIpv6AutoAddr 6					
lanIpv6RouterAdv	disable, enable	enable	RWB-P	Auto set (router advertisement) disable: Disable enable: Enable	
lanIpv6Manual Addr	inaddr6		RWBOP	IPv6 address (manual setting)	
lanIpv6PrefixLen	int(16,128)	64	RWB-P	Prefix length	

Item	Type	Initial Value	Attributes	Description	Model Specific Information
lanIpv6AutoPrefixLen1	const		R--O-	Prefix length (auto set) ^[12]	
lanIpv6AutoPrefixLen2					
lanIpv6AutoPrefixLen3					
lanIpv6AutoPrefixLen4					
lanIpv6AutoPrefixLen5					
lanIpv6AutoPrefixLen6					
lanIpv4AutoAddr	const		R--O-	IPv4 address (AutoIP)	
lanIpv4DhcpAddr	const		R--O-	IPv4 Address (DHCP)	
lanIpv4DhcpSubnet	const		R--O-	Subnet mask Note: Value reported from the DHCP server	
lanIpv4DhcpDefaultGw	const		R--O-	Gateway Note: Value reported from the DHCP server	
lanIpv6LinklocalAddr	const		R--O-	IPv6 address (link-local)	
lanIpv6RouterAdvAddr1	const		R--O-	IPv6 address (router advertisement)	
lanIpv6RouterAdvAddr2					
lanIpv6RouterAdvAddr3					
lanIpv6RouterAdvAddr4					
lanIpv6RouterAdvAddr5					

Item	Type	Initial Value	Attributes	Description	Model Specific Information
lanIpv6DhcpAddr1	const		R--O-	IPv6 address (DHCPv6)	
lanIpv6DhcpAddr2					
lanIpv6DhcpAddr3					
lanIpv6DhcpAddr4					
lanIpv6DhcpAddr5					
lanIpv6LinklocalPrefixLen	const		R--O-	Prefix length (link-local)	
lanIpv6RouterAdvPrefixLen1	const		R--O-	Prefix length (router advertisement)	
lanIpv6RouterAdvPrefixLen2					
lanIpv6RouterAdvPrefixLen3					
lanIpv6RouterAdvPrefixLen4					
lanIpv6RouterAdvPrefixLen5					
lanIpv6DhcpPrefixLen1	const		R--O-	Prefix length (DHCPv6)	
lanIpv6DhcpPrefixLen2					
lanIpv6DhcpPrefixLen3					
lanIpv6DhcpPrefixLen4					
lanIpv6DhcpPrefixLen5					

Item	Type	Initial Value	Attributes	Description	Model Specific Information
lanAutoIp	disable, enable	enable	RW--P	Use AutoIP disable: Do not use enable: Use	
lanDhcpv6	disable, enable	enable	RWB-P	Use DHCPv6 disable: Do not use enable: Use	
lanMulticastDns	disable, enable	enable	RW--P	Use mDNS disable: Do not use enable: Use	
lanIpv4DefaultGw	inaddr		RW-OP	IPv4 default gateway address ^[13]	
lanIpv6DefaultGw	inaddr6		RW-OP	IPv6 default gateway address ^[14]	
lanMaxPacketSize	int(576, 1500)	1500	RWB-P	Maximum packet size ^[10]	
lanMacAddr	const		R----	MAC address ^[5]	
autoFirmUp	disable, enable	enable	RW---	Use of automatic firmware updates disable: Do not use enable: Use	

4.4.2.4.2. Proxy

Table 30. Setting Items - Proxy

Item	Type	Initial Value	Attributes	Description	Model Specific Information
proxy	disable, enable	disable	RW--P	Use of proxy settings disable: Do not use enable: Use Note: Enabled only during automatic firmware updates	
proxyUrl	uri[256]		RW-OP	Proxy address Note: Enabled only during automatic firmware updates	

Item	Type	Initial Value	Attributes	Description	Model Specific Information
proxyPort	int(1, 65535)		RW-OP	Proxy port number Note: Enabled only during automatic firmware updates	
proxyUser	char[32]		RW-OP	Proxy server user ID Note: Enabled only during automatic firmware updates	
proxyPassKey	pass[64]		-W-OP	Proxy server password Note: Enabled only during automatic firmware updates	
proxyMaskedKey	hpass[64]		-W-OP	Proxy server password (obfuscation) Note: Enabled only during automatic firmware updates	

4.4.2.4.3. Wireless LAN

Table 31. Setting Items - Wireless LAN

Item	Type	Initial Value	Attributes	Description	Model Specific Information
wlan	disable, enable	disable	RW--P	Use of wireless LAN disable: Do not use enable: Use	
wlanIpv4Addr	inaddr	192.168.101.1	RWB-P	IPv4 address (Wireless LAN)	
wlanSubnetMask	inaddr	255.255.255	RWB-P	Subnet mask (Wireless LAN)	
wlanChannel	int(1,11)	1	RW---	Channel settings (Wireless LAN)	
wlanSsid	char[32]		RW-OP	SSID ^[15]	
wlanPassKey	pass[63](8, 63)		-W--P	Encryption key ^[15] Note: If the value is null, the value is not changed.	

Item	Type	Initial Value	Attributes	Description	Model Specific Information
wlanMaskedKey	hpass[67](8, 63)		-W--P	Encryption key(obfuscation) ^{[15][16]} Note: The obfuscated value of "wlanPassKey"	
wlanEncType	none, WPA-PSK, WPA2-PSK, WPA3-SAE, WPA2/WPA3 Personal	WPA2/WPA3 Personal	R---P	Encryption method	
wlanMacAddr	const		R----	MAC address (Wireless LAN) ^[5]	

4.4.2.4.4. DNS/DDNS

Table 32. Setting Items - DNS/DDNS

Item	Type	Initial Value	Attributes	Description	Model Specific Information
dnsAddr1	inaddrx		RW-OP	Name server address 1	
dnsAddr2	inaddrx		RW-OP	Name server address 2	
dnsHostname	host[63]		RW-OP	Host name	
dnsDhcp	disable, dhcp, dhcpv6, both	both	RW--P	Retrieve the DNS setting from DHCP ^[17] disable: Do not use dhcp: Use DHCP dhcpv6: Use DHCPv6 both: Use both DHCP/DHCPv6	
dnsIpv4DhcpAddr	const		R--O-	DNS address reported from DHCP server (for DHCP)	
dnsIpv6DhcpAddr	const		R--O-	DNS address reported from DHCP server (for DHCPv6)	
dnsDomainList	host[63]<6>		RW-OP	Domain name	

4.4.2.5. Camera

4.4.2.5.1. Camera Settings

Table 33. Setting Items - Camera Settings

Item	Type	Initial Value	Attributes	Description	Model Specific Information
deviceName	unicode[15]	Camera	RW-O-	Camera name (multibyte characters)	
tallyLampCtrl	disable, enable	enable	RW---	Tally lamp control disable: Do not use enable: Use	
tallyLampBright	weak, medium, strong	medium	RW---	Brightness of tally lamp weak: Low medium: Medium strong: High	
maxDigitalZoom	int(40, 400)	400	RW---	Maximum digital zoom ratio	
fanSpeed	auto, low, mid	mid	RW---	Fan operation auto: Auto mode low: Always on mode (low) mid: Always on mode (mid)	
freezeOnPreset	disable, enable	disable	RW---	Output still image during preset execution disable: Do not output enable: Output	
presetWithCustomPicture	disable, enable	disable	RW---	Save preset CP file disable: Do not use enable: Use	
videoFlip	enable, disable	disable	RW---	Video flip enable: Flip disable: Do not flip	
usbCameraMode	disable, enable	disable	RW\P	IP connection for USB camera disable: Do not use enable: Use	

4.4.2.6. Video

4.4.2.6.1. Capture Video

Table 34. Setting Items - Capture Video

Item	Type	Initial Value	Attributes	Description	Model Specific Information
videoCodec1	JPEG, H.264/AVC, H.265/HEVC	H.264/AVC	RW---	Video codec of stream 1 (mainstream)	
videoCodec2	JPEG, H.264/AVC, H.265/HEVC	H.264/AVC	RW---	Video codec of stream 2 (sub-stream 1)	
videoCodec3	JPEG, H.264/AVC, H.265/HEVC	JPEG	RW---	Video codec of stream 3 (sub-stream 2)	
framerateQuality1	int(1, 8)	7	RW---	Frame rate of Stream 1 (mainstream) ^[18] 1 to 8: Frame rate Small to Large	
framerateQuality2	int(1, 6)	6	RW---	Frame rate of Stream 2 (sub-stream 1) ^[18] 1 to 6: Frame rate Small to Large	
framerateQuality3	int(1, 8)	5	RW---	Frame rate of Stream 3 (sub-stream 2) ^[18] 1 to 8: Frame rate Small to Large	
frameInterval1	all, 0.5, 1, 2	1	RW---	I Frame Interval all: I Frame for all 0.5: 5 seconds 1: 10 seconds 2: 20 seconds Note: The trailing value corresponds to the stream number.	
frameInterval2					
frameInterval3					

Item	Type	Initial Value	Attributes	Description	Model Specific Information
videoBitrateCtrl1	cbr, vbr	vbr	RW---	Bitrate Control cbr: CBR vbr: VBR Note: The trailing value corresponds to the stream number.	
videoBitrateCtrl2					
videoBitrateCtrl3					
videoTargetBitrate1	int(1000, 80000)	20000	RW---	Target bitrate Note: The trailing value corresponds to the stream number.	
videoTargetBitrate2	int(1000, 80000)	6000			
videoTargetBitrate3	int(1000, 80000)	1000			
videoSize1	640x360, 1280x720, 1920x1080, 3840x2160, 1080x1920, 720x1280	1920x1080	RW---	Video size Width x Height Note: The trailing value corresponds to the stream number.	
videoSize2	640x360, 360x640	640x360			
videoSize3	1280x720	1280x720			
maxVideoSize	1920x1080, 3840x2160	3840x2160	RWB--	Maximum video size Width x Height	
frameFrequency	23.98, 25, 29.97, 50, 59.94	59.94	RWB--	Frame frequency[Hz]	
12gSdiFormat	720p, 1080p, 1080i, 2160p, 480i	2160p	RW---	12G-SDI output signal format	CR-N400 only
hdmi3gSdiFormat	720p, 1080p, 1080i, 2160p, 480i	1080p	RW---	HDMI/3G-SDI output signal format	
12gSdiMapping	LevelA, LevelB	LevelA	RW---	12G-SDI mapping	CR-N400 only

Item	Type	Initial Value	Attributes	Description	Model Specific Information
3gSdiMapping	LevelA, LevelB	LevelA	RW---	3G-SDI mapping	
sdiTimeCode	disable, enable	enable	RW---	Timecode overlay on SDI output disable: Do not overlay enable: Overlay	
colorBarType	smppte, ebu, arib	smppte	RW---	Color bar type smppte: SMPTE ebu: EBU arib: ARIB	
colorBarTestTone	off, -12db, -18db, -20db	off	RW---	Color bar test tone	
videoCropSize1	HD, FHD	FHD	RW---	Crop output resolution HD: 1280x720 FHD: 1920x1080 Note: The trailing value corresponds to crop 1-3.	
videoCropSize2					
videoCropSize3					
videoCropRotateDir	clockwise, counterClockwise	clockwise	RW---	Vertical crop rotation clockwise: Rotate clockwise by 90 degrees counterClockwise: Rotate counterclockwise by 90 degrees	
ptzRangeLimit	disable, enable	disable	RW---	Pan/tilt range of motion limit disable: Do not limit enable: Limit	
ptzRangeTiltUpper	int(-36000, 36000)		RW-O-	Tilt range of motion: upper end	
ptzRangeTiltLower	int(-36000, 36000)		RW-O-	Tilt range of motion: lower end	
ptzRangePanLeft	int(-18000, 18000)		RW-O-	Pan range of motion: left end	
ptzRangePanRight	int(-18000, 18000)		RW-O-	Pan range of motion: right end	

The set of possible values for "framerateQuality1", "framerateQuality2", and "framerateQuality3" varies with the frame frequency "frameFrequency". The dependencies are shown in the two

tables below:

Table 35. Relationship between frame frequency and the frame rates of stream 1 and stream 3

Frame frequency[Hz] "frameFrequency"		23.98	25	29.97	50	59.94
Framerate[fps] "framerateQuality1" or "framerateQuality3"	1	5.99	5	5	5	5
	2	5.99	5	5	5	5
	3	5.99	5	5	5	5
	4	5.99	5	5	5	5
	5	11.99	12.5	14.99	12.5	14.99
	6	23.98	25	29.97	25	29.97
	7	23.98	25	29.97	50	59.94
	8	23.98	25	29.97	50	59.94

Table 36. Relationship between frame frequency and the frame rates of stream 2

Frame frequency[Hz] "frameFrequency"		23.98	25	29.97	50	59.94
Framerate[fps] "framerateQuality2"	1	5.99	5	5	5	5
	2	5.99	5	5	5	5
	3	5.99	5	5	5	5
	4	5.99	5	5	5	5
	5	11.99	12.5	14.99	12.5	14.99
	6	23.98	25	29.97	25	29.97

4.4.2.7. Servers

4.4.2.7.1. Audio Server

Table 37. Setting Items - Audio Server

Item	Type	Initial Value	Attributes	Description	Model Specific Information
audioInputVolume	int(1, 100)	50	RW---	Input volume	

Item	Type	Initial Value	Attributes	Description	Model Specific Information
audioAttenuator	disable, enable	disable	RW---	Attenuator disable: Disable enable: Enable	
audioInputType	MIC/LINE, MIC/MIC, MIC/MICwith Power, INPUT/LINE, INPUT/MIC, INPUT/MIC+48V	MIC/LINE	RW---	Audio input connection method MIC/LINE: MIC terminal/LINE MIC/MIC: MIC terminal/MIC MIC/MICwithPower: MIC terminal/MIC(MIC power-ON) INPUT/LINE: INPUT terminal/LINE INPUT/MIC: INPUT terminal/MIC INPUT/MIC+48V: INPUT terminal/MIC+48V	CR-N400 only
	MIC/LINE, MIC/MIC, MIC/MICwith Power				CR-N350 only
audioInput	disable, enable	enable	RW---	Use of audio input disable: Do not use enable: Use	
audioAacBitrate	int(64,192)	128	RW---	Sound bit rate[kbps] Note: On the settings page, selection is from the following list. 64, 128, 192	

4.4.2.7.2. HTTP Server

Table 38. Setting Items - HTTP Server

Item	Type	Initial Value	Attributes	Description	Model Specific Information
httpPort	hport	80	RW--P	HTTP port number ^[19] Note: It is possible to only specify 80 or in the range of 1024 to 65535.	

Item	Type	Initial Value	Attributes	Description	Model Specific Information
httpsPort	hsport	443	RW--P	HTTPS port number ^[19] Note: It is possible to only specify 443 or in the range of 1024 to 65535.	
authMethod	basic, digest	digest	RW--P	Authentication method basic: Basic authentication digest: Digest authentication	

4.4.2.7.3. RTP/RTSP

Table 39. Setting Items - RTP/RTSP

Item	Type	Initial Value	Attributes	Description	Model Specific Information
rtp	disable, enable	disable	RW---	Use of RTSP disable: Do not use enable: Use	
rtpAuthMethod	none, basic, digest	digest	RW---	RTSP authentication method none: No authentication basic: Basic authentication digest: Digest authentication	
rtpPort	rport	554	RW---	RTSP port number Note: It is possible to only specify 554 or in the range of 1024 to 65535.	
rtpVideoMulticast Addr1	mcaddrx	0.0.0.0	RW---	Multicast address(For video) Note: The trailing value corresponds to the stream number.	
rtpVideoMulticast Addr2					
rtpVideoMulticast Addr3					

Item	Type	Initial Value	Attributes	Description	Model Specific Information
rtpVideoMulticast Port1	mcport	0	RW---	Multicast port number(For video) Note: It is possible to only specify 0 or even numbers in the range 1024–65534. Note: The trailing value corresponds to the stream number.	
rtpVideoMulticast Port2					
rtpVideoMulticast Port3					
rtpVideoMulticast Ttl1	int(0, 255)	1	RW---	Multicast TTL(For video) ^[20] Note: The trailing value corresponds to the stream number.	
rtpVideoMulticast Ttl2					
rtpVideoMulticast Ttl3					
rtpAudioStream1	disable, enable	enable	RW---	Use of audio transmission disable: Do not use enable: Use Note: The trailing value corresponds to the stream number.	
rtpAudioStream2					
rtpAudioStream3					
rtpAudioMulticast Addr	mcaddrx	0.0.0.0	RW---	Multicast address(For audio) ^[21]	
rtpAudioMulticast Port	amcport	0	RW---	Multicast port number(For audio) ^[21] Note: It is possible to only specify 0 or even numbers in the range 1024–65530.	
rtpAudioMulticast Ttl	int(0, 255)	1	RW---	Multicast TTL(For audio) ^{[20][21]}	
rtpAudioCodec	const	2	RW---	Audio codec 1: G.711 2: AAC-LC	
rtpPacketize	disable, enable	enable	RW---	Use of packetization to improve streaming performance disable: Do not use enable: Use	

4.4.2.8. Communication

4.4.2.8.1. Standard Communication

Table 40. Setting Items - Standard Communication

Item	Type	Initial Value	Attributes	Description	Model Specific Information
standardComSerial	disable, enable	enable	RW---	Use of standard communication (serial communication) disable: Do not use enable: Use	
standardComSerialAddr	auto, 1, 2, 3, 4, 5, 6, 7	auto	RW-O-	Serial device address auto: Auto 1-7: Set manually	
standardComIp	disable, enable	enable	RW---	Use of standard communication (over IP) disable: Do not use enable: Use	
standardComRespPort	specified, source	specified	RW---	Command response method specified: Use the standard IP communication command response port(52381) source: Use the source port number	
standardComIpQueryPerm	disable, enable	enable	RW---	Refer to camera IP settings disable: Do not allow enable: Allow	
standardComIpUpdatePer	disable, enable	enable	RW---	Change camera IP settings disable: Do not allow enable: Allow	

4.4.2.8.2. NDI|HX

Table 41. Setting Items - NDI|HX

Item	Type	Initial Value	Attributes	Description	Model Specific Information
ndiHx	disable, enable	disable	RW---	Use of NDI HX disable: Do not use enable: Use	
ndiHxDiscovery Server	disable, enable	disable	RW---	Use of discovery server disable: Do not use enable: Use	
ndiHxDiscovery ServerAddr	inaddr		RW-O-	Discovery server address	
ndiHxGroup Setting	disable, enable	disable	RW---	Use of group setting disable: Do not use enable: Use	
ndiHxGroupName	nchar[16] <10>	-	RW---	Group name	
ndiHxMulticast	disable, enable	disable	RW---	Use of multicast disable: Do not use enable: Use	
ndiHxMulticast Prefix	inaddr	239.255.0.0	RW---	Multicast address prefix	
ndiHxMulticast NetMask	inaddr	255.255.0.0	RW---	Multicast address netmask	
ndiHxMulticastTtl	int(1, 255)	1	RW---	Multicast TTL	
ndiHxAudio	disable, enable	enable	RW---	Audio transmission disable: Do not use enable: Use	

4.4.2.8.3. RTMP

Table 42. Setting Items - RTMP

Item	Type	Initial Value	Attributes	Description	Model Specific Information
rtmp	disable, enable	disable	RW---	Use of RTMP disable: Do not use enable: Use	

Item	Type	Initial Value	Attributes	Description	Model Specific Information
rtmpVideo	mainStream, subStream	mainStream	RW---	Use of video stream mainStream: Stream 1(mainstream) subStream: Stream 2(sub-stream 1)	
rtmpAudio	disable, enable	disable	RW---	Use of audio stream disable: Do not use enable: Use stream 1(mainstream)	
rtmpUrl	uri[256]		RW-O-	RTMP URL	
rtmpStreamKey	uri[256]		RW-O-	RTMP stream key	
rtmpsCertVerify	disable, enable	disable	RW---	Verification of the server certificate during RTMPS disable: Do not verify enable: Verify	
rtmpReconnect	disable, enable	enable	RW---	Reconnect on disconnect disable: Do not use enable: Use	
rtmpReconnect Duration	int(3,300)	10	RW---	Reconnect attempt interval Note: The unit is [s].	

4.4.2.8.4. SRT

Table 43. Setting Items -SRT

Item	Type	Initial Value	Attributes	Description	Model Specific Information
srt	disable, enable	disable	RW---	Use of SRT disable: Do not use enable: Use	
srtAudio	disable, enable	enable	RW---	Use of audio stream disable: Do not use enable: Use	

Item	Type	Initial Value	Attributes	Description	Model Specific Information
srtConnection Mode	caller, listener	listener	RW---	Connection mode caller: Caller mode listener: Listener mode	
srtDestHostname	host[255]		RW-O-	Destination IP address (IPv4 · IPv6) Note: Used when in caller mode (required)	
srtDestPort	int(1024, 65535)		RW-O-	Destination port number Note: Used when in caller mode (required)	
srtListenPort	sport	5100	RW---	Standby port number Note: Used in listener mode (required)	
srtTtl	int(1, 255)	64	RW---	TTL	
srtLatency	int(20, 8000)	250	RW---	Latency Note: The unit is [ms].	
srtStreamId	char[64]		RW-O-	Stream ID	
srtEncAlgorithm	none, AES-128, AES-192, AES-256	none	RW---	Encryption method none: Do not encrypt AES-128: Encrypt with AES-128 AES-192: Encrypt with AES-192 AES-256: Encrypt with AES-256	
srtPassKey	pass[79](10, 79)		-W-O-	Passphrase Note: 10-79 characters	
srtMaskedKey	hpass[84](10, 79)		-W-O-	Passphrase (Obfuscation) Note: The obfuscated value of "srtPassKey"	
srtAdaptiveBitrate	disable, enable	disable	RW---	Use of ABR disable: Do not use enable: Use	
srtAutoConnect	disable, enable	disable	RW---	Auto connect disable: Do not use enable: Use	

Item	Type	Initial Value	Attributes	Description	Model Specific Information
srtReconnect	disable, enable	enable	RW---	Reconnect on disconnect disable: Do not use enable: Use	
srtReconnect Duration	int(3, 300)	10	RW---	Reconnect attempt interval Note: The unit is [s].	

4.4.2.8.5. FreeD

Table 44. Setting Items -FreeD

Item	Type	Initial Value	Attributes	Description	Model Specific Information
trackingData	disable, enable	disable	RW---	Use of FreeD disable: Do not use enable: Use	
trackingData ClientAddr1	inaddr		RW-O-	FreeD client IP address	
trackingData ClientAddr2					
trackingData ClientAddr3					
trackingData ClientAddr4					
trackingData ClientPort1	int(1024, 65535)	40000	RW---	FreeD client port number	
trackingData ClientPort2					
trackingData ClientPort3					
trackingData ClientPort4					
trackingData CameraId	int(0, 255)	255	RW---	Camera ID	

Item	Type	Initial Value	Attributes	Description	Model Specific Information
trackingDataOffset	disable, enable	disable	RW---	Use of XYZ offset disable: Do not use enable: Use	
trackingDataOffsetX	fixed(-131072.0, 131071.9)	0	RW---	X-value	
trackingDataOffsetY	fixed(-131072.0, 131071.9)	0	RW---	Y-value	
trackingDataOffsetZ	fixed(-131072.0, 131071.9)	0	RW---	Z-value	

4.4.2.8.6. Serial Port

Table 45. Setting Items - Serial Ports

Item	Type	Initial Value	Attributes	Description	Model Specific Information
serialPort	disable, enable	enable	RW---	Use of serial port disable: Do not use enable: Use	
serialPortType	const	3	R----	Serial port connection type 1: RS485 2: RS485_4 3: RS422 4: RS232C	
serialBaudRate	int(9600, 38400)	9600	RW---	Baud rate setting Note: The unit is [bps].	
serialDataLen	const	8	R----	Data length 7: 7bit 8: 8bit	
serialStartBit	const	1	R----	Start bit 1: 1bit	

Item	Type	Initial Value	Attributes	Description	Model Specific Information
serialStopBit	const	1	R---	Stop bit 1: 1bit 2: 2bit	
serialParity	const	0	R---	Parity 0: None 1: Odd 2: Even	

4.4.2.8.7. Infrared Remote Controller

Table 46. Setting Items - Infrared Remote Controller

Item	Type	Initial Value	Attributes	Description	Model Specific Information
irRemoteCtrl	disable, enable	enable	RW---	Use of infrared remote controller disable: Do not use enable: Use	

4.4.2.8.8. Genlock

Table 47. Setting Items - Genlock

Item	Type	Initial Value	Attributes	Description	Model Specific Information
genlockTerminal	disable, genlockInput, hdSyncOutput	disable	RW---	Use of GenLock Input/HD Sync Output disable: Do not use genlockInput: Use of Genlock Input hdSyncOutput: Use of HD Sync Output	
genlockPhase	int(-1023, 1023)	0	RW---	Genlock adjustment Note: The unit is 10ms.	

Item	Type	Initial Value	Attributes	Description	Model Specific Information
genlockSyncScan Type	Progressive, PsF	Progressive	RW---	SYNC scan mode Progressive: Progressive PsF: Progressive segmented Frame	

4.4.2.8.9. Timecode

Table 48. Setting Items -Timecode

Item	Type	Initial Value	Attributes	Description	Model Specific Information
timeCode Terminal	input, output	input	RW---	Timecode terminal setting	

4.4.2.9. Security

4.4.2.9.1. User Access Control

Table 49. Setting Items - User Access Control

Item	Type	Initial Value	Attributes	Description	Model Specific Information
authUserList	uaccent<15>		RW-O-	User (+ password) List	
maskedAuthUser List	obuaccent<15>		RW-O-	User (+password) List (password obfuscation) Note: Save the obfuscated password within "authUserList"	
authUserPerm	none, videoDistribution, full	full	RW---	Set camera permissions for registered users ^[22] none: No access privileges videoDistribution: Video transmission only full: General camera control + video transmission	

Item	Type	Initial Value	Attributes	Description	Model Specific Information
guestUserPerm	none, videoDistribution, full	full	RW---	Set camera permissions for general users ^[22] none: No access privileges videoDistribution: Video transmission only full: General camera control + video transmission	

The behavior and constraints related to "authUserList" and "maskedAuthUserList" are as follows:

- For new user registrations, the username must be specified as username=password.
- The password string is represented by a sequence of three-digit decimal ASCII codes, one for each character.

Example with username "testerA" and password "password1":

p:112 a:097 s:115 s:115 w:119 o:111 r:114 d:100 1:049

Thus, it would be as shown above.

```
testerA=112097115115119111114100049, testerB=112097115115119111114100049
```

- When referencing setting items, the password strings are not shown in the response.
- User registration, deletion, and password changes are performed as a single batch; regardless of whether an entry is new or already registered, entries present in the list will overwrite existing ones.
- Duplicate usernames are prohibited.
- A password is required when registering a new user and when changing the password of an existing user.

Additionally, for "maskedAuthUserList" only, the following behaviors are added:

- When not changing an existing user's password, the password can be omitted and only the username provided in maskedAuthUserList.
In authUserList, however, the password cannot be omitted.

Both testerA and testerB are registered, and when changing testerB's password, it will be as follows.

```
testerA, testerB=0dd680e87db7f39b0ad881ff3bd881ff3bd881ff3bd881ff3bd881ff3bd881ff3bd881ff
```

Also, with both testerA and testerB registered, and when only a reference is performed, it will be as follows.

```
testerA, testerB
```

4.4.2.9.2. Host Access Restrictions

Table 50. Setting Items - Host Access Restrictions

Item	Type	Initial Value	Attributes	Description	Model Specific Information
ipv4AccCtrl	disable, enable	disable	RW---	Apply host access restrictions (IPv4) disable: Do not use enable: Use	
ipv6AccCtrl	disable, enable	disable	RW---	Apply host access restrictions (IPv6) disable: Do not use enable: Use	
ipv4AccCtrlDefaultPolicy	allow, deny	allow	RW--P	Default policy (IPv4) allow: Allow access deny: Prohibit access	
ipv6AccCtrlDefaultPolicy	allow, deny	allow	RW--P	Default policy (IPv6) allow: Allow access deny: Prohibit access	
ipv4AccCtrlAddr1	inaddr		RW-OP	Network address (IPv4)	
ipv4AccCtrlAddr2					
...					
ipv4AccCtrlAddr19					
ipv4AccCtrlAddr20					

Item	Type	Initial Value	Attributes	Description	Model Specific Information
ipv4AccCtrlSubnetLen1	int(1, 32)	32	RW--P	Subnet mask (IPv4)	
ipv4AccCtrlSubnetLen2					
...					
ipv4AccCtrlSubnetLen19					
ipv4AccCtrlSubnetLen20					
ipv4AccCtrlPolicy1	allow, deny	allow	RW--P	Policy (IPv4) allow: Allow access deny: Prohibit access	
ipv4AccCtrlPolicy2					
...					
ipv4AccCtrlPolicy19					
ipv4AccCtrlPolicy20					
ipv6AccCtrlAddr1	inaddr6		RW-OP	Prefix (IPv6)	
ipv6AccCtrlAddr2					
...					
ipv6AccCtrlAddr19					
ipv6AccCtrlAddr20					

Item	Type	Initial Value	Attributes	Description	Model Specific Information
ipv6AccCtrlPrefixLen1	int(16,128)	128	RW--P	Prefix length (IPv6)	
ipv6AccCtrlPrefixLen2					
...					
ipv6AccCtrlPrefixLen19					
ipv6AccCtrlPrefixLen20					
ipv6AccCtrlPolicy1	allow, deny	allow	RW--P	Policy (IPv6) allow: Allow access deny: Prohibit access	
ipv6AccCtrlPolicy2					
...					
ipv6AccCtrlPolicy19					
ipv6AccCtrlPolicy20					

4.4.2.9.3. SSL

Table 51. Setting Items - SSL

Item	Type	Initial Value	Attributes	Description	Model Specific Information
connectPolicy	http, http/https, https	http/https	RW--P	SSL communication ^[23]	
certCountry	char[2]		RW-OP	Country name (c) ^[24]	
certState	char[128]		RW-OP	State/Province name (ST)	
certLocality	char[128]		RW-OP	Locality name (L)	
certOrganization	char[64]		RW-OP	Organization name (O)	

Item	Type	Initial Value	Attributes	Description	Model Specific Information
certCommon Name	char[64]		RW-OP	Common name (CN)	
certValidFrom	date		RW-OP	Validity period start date ^[25]	
certValidTo	date		RW-OP	Validity period end date ^[25]	

4.4.3. Groups

Some setting items belong to groups. Groups can be queried or mutated as a whole. The groups and the setting items they contain are described below.

Table 52. Group and the setting items belonging to the group

group	settingitem
ntpDhcpHostname	ntpDhcpHostname
	ntpDhcpv6Hostname
lanIpv6AutoAddr	lanIpv6AutoAddr1
	lanIpv6AutoAddr2
	lanIpv6AutoAddr3
	lanIpv6AutoAddr4
	lanIpv6AutoAddr5
	lanIpv6AutoAddr6
lanIpv6AutoPrefixLen	lanIpv6AutoPrefixLen1
	lanIpv6AutoPrefixLen2
	lanIpv6AutoPrefixLen3
	lanIpv6AutoPrefixLen4
	lanIpv6AutoPrefixLen5
	lanIpv6AutoPrefixLen6
lanIpv6RouterAdvAddr	lanIpv6RouterAdvAddr1
	lanIpv6RouterAdvAddr2
	lanIpv6RouterAdvAddr3
	lanIpv6RouterAdvAddr4
	lanIpv6RouterAdvAddr5

group	settingitem
lanIpv6DhcpAddr	lanIpv6DhcpAddr1
	lanIpv6DhcpAddr2
	lanIpv6DhcpAddr3
	lanIpv6DhcpAddr4
	lanIpv6DhcpAddr5
lanIpv6RouterAdvPrefixLen	lanIpv6DhcpPrefixLen1
	lanIpv6DhcpPrefixLen2
	lanIpv6DhcpPrefixLen3
	lanIpv6DhcpPrefixLen4
	lanIpv6DhcpPrefixLen5
videoCodec	videoCodec1
	videoCodec2
	videoCodec3
framerateQuality	framerateQuality1
	framerateQuality2
	framerateQuality3
frameInterval	frameInterval1
	frameInterval2
	frameInterval3
videoBitrateCtrl	videoBitrateCtrl1
	videoBitrateCtrl2
	videoBitrateCtrl3
videoTargetBitrate	videoTargetBitrate1
	videoTargetBitrate2
	videoTargetBitrate3
videoSize	videoSize1
	videoSize2
	videoSize3
sdiFormat	12gSdiFormat
	hdmi3gSdiFormat

group	settingitem
sdiMapping	12gSdiMapping
	3gSdiMapping
videoCropSize	videoCropSize1
	videoCropSize2
	videoCropSize3
dnsDhcpAddr	dnsIpv4DhcpAddr
	dnsIpv6DhcpAddr
rtpVideoMulticastAddr	rtpVideoMulticastAddr1
	rtpVideoMulticastAddr2
	rtpVideoMulticastAddr3
rtpVideoMulticastPort	rtpVideoMulticastPort1
	rtpVideoMulticastPort2
	rtpVideoMulticastPort3
rtpVideoMulticastTtl	rtpVideoMulticastTtl1
	rtpVideoMulticastTtl2
	rtpVideoMulticastTtl3
rtpAudioStream	rtpAudioStream1
	rtpAudioStream2
	rtpAudioStream3
trackingDataClientAddr	trackingDataClientAddr1
	trackingDataClientAddr2
	trackingDataClientAddr3
	trackingDataClientAddr4
trackingDataClientPort	trackingDataClientPort1
	trackingDataClientPort2
	trackingDataClientPort3
	trackingDataClientPort4

group	settingitem
ipv4AccCtrlAddr	ipv4AccCtrlAddr1
	ipv4AccCtrlAddr2
	...
	ipv4AccCtrlAddr19
	ipv4AccCtrlAddr20
ipv4AccCtrlSubnetLen	ipv4AccCtrlSubnetLen1
	ipv4AccCtrlSubnetLen2
	...
	ipv4AccCtrlSubnetLen19
	ipv4AccCtrlSubnetLen20
ipv4AccCtrlPolicy	ipv4AccCtrlPolicy1
	ipv4AccCtrlPolicy2
	...
	ipv4AccCtrlPolicy19
	ipv4AccCtrlPolicy20
ipv6AccCtrlAddr	ipv6AccCtrlAddr1
	ipv6AccCtrlAddr2
	...
	ipv6AccCtrlAddr19
	ipv6AccCtrlAddr20
ipv6AccCtrlPrefixLen	ipv6AccCtrlPrefixLen1
	ipv6AccCtrlPrefixLen2
	...
	ipv6AccCtrlPrefixLen19
	ipv6AccCtrlPrefixLen20
ipv6AccCtrlPolicy	ipv6AccCtrlPolicy1
	ipv6AccCtrlPolicy2
	...
	ipv6AccCtrlPolicy19
	ipv6AccCtrlPolicy20

4.5. HTTP Status and Application Errors

The results of referencing and modifying settings are sent as HTTP responses from the remote camera's HTTP server.

If an error occurs, there are two cases:

- (1) an HTTP status is returned, and
- (2) HTTP 200 OK is returned, and the response body contains an errors array with the details of the application error.

The following describes each case.

4.5.1. HTTP Status

The processing result at the HTTP protocol layer is returned as an HTTP status code.

The main return values and their descriptions are shown below.

Table 53. HTTP Status

HTTP Status	Description
200 OK	The request succeeded. ^[26]
400 Bad Request	The request was malformed or invalid. - The Content-Type and the message body format do not match. - The Content-Length does not match the actual length.
401 Unauthorized	Authentication is required or has failed.
403 Forbidden	The request is denied when the user is determined to lack access rights.
404 Not Found	The resource corresponding to the requested URI does not exist.
406 Not Acceptable	The request is denied because GET was used in a mutation.
422 Unprocessable Entity	Unable to process the instructions described in the message body.
429 Too Many Requests	Limited by access rate limits. ^[27]
500 Internal Server Error	The request is denied due to an internal processing error.
501 Not Implemented	The HTTP method used for the request is not supported.
503 Service Unavailable	The request is rejected due to a temporary overload.

4.5.2. Application Errors

An HTTP connection succeeds and the camera correctly accepts the request; during the reading/updating of the settings of the camera at the application layer, application errors may

occur that conform to the GraphQL specification in the error response.

That is, HTTP status 200 OK is returned, but the response body contains an errors array describing the errors.

There are two types of application errors: request errors and field errors. The following explains each.

4.5.2.1. Request Errors

A request error occurs when there is an error in the request sent by the client, in accordance with the GraphQL specification.

The structure of the errors array for a request error is as follows:

- message: Description of the error
- location: Location of the error
- extension: Additional information
 - code: Error code

4.5.2.1.1. Request

Example of using an incorrect input name in a Mutation request:

Correct: updateParameters Incorrect: AAAupdateParameters

Syntax:

```
mutation videoTargetBitrate1 {
  AAAupdateParameters(inputs:{name:"videoTargetBitrate1", value:"5678.1"}){
    name
    value
    type
  }
}
```

4.5.2.1.2. Response

Syntax:

```
{
  "errors": [
    {
      "message": "Cannot query field \"AAAupdateParameters\" on type \"Mutation\". Did you mean \"updateParameters\"?",
      "locations": [
        {
          "line": 239,
          "column": 3
        }
      ]
    }
  ]
}
```

```

    ],
    "extensions": {
      "code": "GRAPHQL_VALIDATION_FAILED"
    }
  ],
  "data": null
}

```

4.5.2.1.3. List of request error codes

The major error codes documented in the code field of the request error extension, along with their descriptions, are shown below.

Table 54. List of request error codes

code	description
GRAPHQL_PARSE_FAILED	The received query string has invalid syntax and failed to parse.
GRAPHQL_VALIDATION_FAILED	The received query is syntactically correct, but failed validation against the schema due to type or field mismatches.
INTERNAL_SERVER_ERROR	An unexpected exception or processing failure occurred on the server.
COMPLEXITY_LIMIT_EXCEEDED	The query cost exceeded the allowable limit, so the request was denied. Note: Refer to "Query cost limiting" for more information.>>

4.5.2.2. Field Errors

A field error occurs when the server receives a client request to modify a configuration value and that value contains errors such as being outside the allowed range or having an invalid character length.

While conforming to the GraphQL response format, the error is defined independently by the XC protocol.

The structure of the errors array for a field error is as follows.

- message: Description of the error
- path: Location of the error
- extensions: Additional information
 - code: Error code
 - info: Additional information about the error
 - parameters: setting values related to the error

4.5.2.2.1. Request

An example of configuring videoTargetBitrate1 (type int(1000,80000)) with 5678.1.

Syntax:

```
mutation videoTargetBitrate1 {
  updateParameters(inputs:{name:"videoTargetBitrate1", value:"*5678.1*"}){
    name
    value
    type
  }
}
```

4.5.2.2.2. Response

Syntax:

```
{
  "errors": [
    {
      "message": "invalid format",
      "path": [
        "updateParameters"
      ],
      "extensions": {
        "code": "C002",
        "info": "The value format is invalid.",
        "parameters": [
          "videoTargetBitrate1"
        ]
      }
    }
  ],
  ...
}
```

4.5.2.2.3. List of field error codes

The error codes documented in the field error extension, along with their codes and information, and their descriptions, are shown below.

There are two types of parameter errors: single-item errors and combination errors.

- single-item error: Errors detected by type-based validation during the configuration-change verification process.
- combination error: Errors detected by consistency checks of dependent setting value combinations during verification of configuration changes.

Table 55. List of field error codes

code	info	description
A001	The specified parameter is not recognized.	An unknown setting name was specified.
A002	The specified group is not recognized.	An unknown group name was specified.
A003	The specified value is not recognized.	An unknown value was specified for the setting.
A004	The internal processing of settings timed out.	An internal operation related to the setting timed out.
C000	This setting is read-only.	single-item error A value change was made to a constant-type setting item that cannot be modified.
C001	A required setting received a null value.	single-item error An empty value was specified for a setting item that does not allow empty values.
C002	The value format is invalid.	single-item error A value that does not conform to the setting item's data type was specified.
C003	The value is outside the allowable range.	single-item error A value outside the allowed range was specified for a setting item with range constraints.
C004	The specified value is not allowed.	single-item error A value that does not match the format of the setting item was specified.
C005	There is an inconsistency among the settings.	combination error An inconsistency was detected among the combination of setting items.
C006	Duplicate values are not permitted.	combination error The same value was specified for multiple setting items where duplicates are not allowed.
C007	The value conflicts with other configuration items.	combination error A setting value that contradicts other settings, such as the visibility range, was detected.

code	info	description
C008	The administrator password does not match.	combination error The administrator password and the confirmation input do not match.
C009	A required system file is missing.	combination error The required system file for the configuration could not be found.
C021	The string exceeds the maximum permitted length.	single-item error A string-type setting was assigned a string exceeding the maximum allowed length.
C022	The string contains invalid characters.	single-item error A string-type setting was assigned a value that contains invalid characters. ^[28]
C023	The string does not meet the minimum length requirement.	single-item error A string-type setting was assigned a value below the minimum length.
C025	The password is too weak.	single-item error A weak password was specified.
C201	The number of list entries exceeds the allowable limit.	single-item error A list entry exceeding the maximum limit was specified for the list-type setting.
C601	The number of users exceeds the limit.	single-item error A number of users exceeding the maximum was specified for the user list "authUserList".
C602	An invalid username was encountered in the list.	single-item error An invalid username was specified for the user list "authUserList". ^[29]
C603	An invalid password was encountered in the list.	single-item error An invalid password was specified for the user list "authUserList". ^[30]
C619	The username and password should not be identical.	single-item error The same value was specified for both the username and the password in the user list "authUserList".

4.6. Limitations and Unsupported features

Describe the feature limitations applied to the XC settings protocol to ensure stable and secure

operation.

Also describe the GraphQL features that are **not supported**.

4.6.1. Access Rate Limiting

Manage and control the volume and frequency of access to ensure stable availability of services related to the XC settings protocol.

4.6.1.1. Limitation specification

The request rate refers to the average number of requests that are allowed.

The burst capacity refers to the maximum number of requests that can be admitted temporarily.

The following settings are configured:

- Request rate: 1 request per second
- Burst capacity: 10 requests

The throttling behavior according to these settings is as follows:

- Tokens are charged at 1 per second, with a maximum bucket capacity of 10 tokens.
- Responding to a request consumes 1 token.
- When the bucket is full, up to 10 requests can be processed in a burst.
- If a request arrives with 0 tokens in the bucket, an HTTP status "429 Too Many Requests" is returned.

4.6.2. Query Cost Limiting

To keep XC settings protocol services responsive, high-cost queries are restricted.

Specifically, high-cost queries refer to:

- Requests that reference a number of settings that is greater than or equal to the total number of settings.
- Batch-processing requests that reference all settings multiple times within a single request.

4.6.2.1. Limitation specification

For each request query, the query cost is calculated, and queries whose cost exceeds the allowable limit are restricted.

For the queries below,

```
query {  
  getCameraConfig {  
    parameters {
```



```

edges{
  node{
    name
    value
    type
    attribute
  }
}
}
}
}

```

the upper limit for the query-cost restriction is calculated using the following formula.

$$\text{getCameraConfig} + \text{Number of setting items} * (\text{edges} + \text{node} + \text{name} + \text{value} + \text{type} + \text{attribute})$$

For example, if the total number of setting items is 418, the calculation below yields an allowable upper limit for the query-cost restriction of 2509.

$$\begin{aligned}
 &\text{getCameraConfig} + \text{Number of setting items} * (\text{edges} + \text{node} + \text{name} + \text{value} + \text{type} + \text{attribute}) \\
 &= 1 + 418 * (1 + 1 + 1 + 1 + 1 + 1 + 1) \\
 &= 2509
 \end{aligned}$$

When a query exceeds the query-cost limit, the server does not return an error HTTP status; instead, it returns HTTP status 200 OK and includes a cost-limit error in the errors array.

```

{
  "errors": [
    {
      "message": "operation has complexity 9534, which exceeds the limit of 2509",
      "extensions": {
        "code": "COMPLEXITY_LIMIT_EXCEEDED"
      }
    }
  ],
  "data": null
}

```

4.6.3. Unsupported GraphQL features

Describe the GraphQL features that are not supported by the XC settings protocol.

4.6.3.1. Introspection

GraphQL Introspection is the ability to query the server schema information by requesting specific fields that start with a double underscore "__".

The XC settings protocol does not support this introspection; if these fields are queried, an error response is returned.

Response when querying `__schema` and `__type`

```
{
  "errors": [
    {
      "message": "introspection disabled",
      "path": [
        "__schema"
      ]
    }
  ],
  "data": {
    "__schema": null
  }
}
```

Response when querying `__typename`

```
{
  "errors": [
    {
      "message": "Prohibit __typename"
    }
  ],
  "data": null
}
```

4.6.3.2. Directive

GraphQL Directives are metadata that specify additional behavior or conditions for specific parts of a query or schema; they can control processing at execution time for certain fields or fragments and are used to customize the schema definition.

The XC settings protocol does not support directives; if a directive is provided, an error response is returned.

```
{
  "errors": [
    {
      "message": "Prohibit directives"
    }
  ],
  "data": null
}
```

- [1] Mutation is a GraphQL operation that involves changing data. From an HTTP security and idempotency perspective, calling data with GET is not recommended.
- [2] The administration password "adminPassKey" and administration password (for confirmation) "adminPassVerify" must be updated with a single mutation. Values are only updated for the same string. Null values are not updated.
- [3] In case the obfuscated password information is necessary, contact the sales company or distributors from which the product was purchased.
- [4] The firmware version and build number values depend on the firmware version installed at the time that the values are retrieved.
- [5] The MAC address and serial number values depend on the individual camera.
- [6] When specifying "NTP server", IP address of the NTP server "ntpHostname" also need to be specified.
- [7] When specifying either "dhcpv6" or "dhcpDhcpv6", specify "enable" for the following two items : "lanIpv6" "lanDhcpv6"
- [8] Specify in the format yyyyymmdd:HHMMSS (four digits for the year, and two digits for the month, day, hour, minute, and second).
- [9] For the description method, see the database of 'IANA'.
- [10] For specifying "enable", set the maximum packet size "lanMaxPacketSize" to 1280 or higher.
- [11] The IPv6 address that is currently operating is set. If an IPv6 address has not been assigned, the value is null.
- [12] The prefix length of the IPv6 address that is currently operating is set. If an IPv6 address has not been assigned, the value is null.
- [13] It is necessary to specify a value that is different from the IPv4 address "lanIpv4Addr."
- [14] It is necessary to specify a value that is different from the IPv6 address "lanIpv6LinklocalAddr."
- [15] SSID "wlanSsid" and encryption key "wlanPassKey" or obfuscated encryption key "wlanMaskedKey" must be changed simultaneously.
- [16] In case the obfuscated password information is necessary, contact the sales company or distributors from which the product was purchased.
- [17] When specifying "dhcp" for using DHCP, "Automatic setting (DHCP)" needs to be set for IPv4 address setting method "lanIpv4Setup.">>
- [18] The frame rate is determined by the frame frequency "frameFrequency". For dependencies, see ["Relationship between frame frequency and the mainstream and sub-stream 2 frame rates"](#) and ["Relationship between frame frequency and sub-stream 1 frame rate"](#)
- [19] Specify a port other than HTTP port number "rtpPort"
- [20] This specification is ignored when using IPv6.
- [21] This specification is ignored except when Audio transmission "rtpAudioStream*" is set to "enable"
- [22] For registered users, specify higher camera permissions than general users.
- [23] If SSL communication "connectPolicy" is "http/https" or "https", certificates must already be installed.
- [24] The country code is specified in the ISO 3166-1 alpha-2 two uppercase Roman characters. e.g. Japan : JP United States : US Great Britain : GB
- [25] When configuring the validity period, both "certValidFrom" and "certValidTo" must be set, and "certValidFrom" ≤ "certValidTo".
- [26] The response may contain an errors array describing application errors and still return 200 OK.
- [27] Refer to ["Access rate limiting"](#) for more information.
- [28] This applies, for example, when a string contains characters not permitted in any string type. e.g. Include "*" in the DDNS host name (host type).
- [29] This applies when the user name of type "name" (name-type set to pass-type) contains characters not permitted by the name type. e.g. Include '@' in the access control user name (name type).
- [30] This applies, for example, when the password of type "pass" (uaccent type where name-type = pass-type) contains characters or character codes that are not permitted.e.g.Include control codes such as CR (13) in the access control password (pass type).

Chapter 5. XC Settings Copy Protocol Specification

The XC settings copy protocol acquires settings information from a camera using a settings copy command and reflects that settings information in the camera.

The camera to which the changed settings are reflected can be the same camera from which the original settings were acquired, or it can be a different camera, provided that both cameras are the same model.

5.1. Restrictions on models and firmware versions

Models that support the XC settings copy protocol are limited to the cameras in the remote camera model category.

For the model categories and models, refer to '[Models and Firmware Versions](#)'.

The copy source and copy destination cameras must be of the same model.

Furthermore, it is recommended that the firmware versions of the copy source and copy destination cameras be the latest and the same.

5.2. Interface Specifications

The interface specifications of the XC settings copy protocol are described in the following.

- Request format and content
- Response format and content, and list of status codes
- Protocol command configuration, syntax format

5.2.1. Request

In the XC settings copy protocol, XC settings copy commands are used to acquire information about camera settings and reflect the acquired settings in the camera. The XC settings copy command is received by the HTTP server of the camera as an HTTP request.

The XC settings copy protocol is not dependent on a specific HTTP version.

The devices supported by this document are HTTP/1.1 and HTTP/2-compliant.

GET or POST can be used as the HTTP method.

The URL is made up of a XC settings copy command or parameter that starts with `"/-wvsgi-/copy/"`. With the exception of the starting `"wvhttp"`, the URL and message body are not case-sensitive.

Syntax:

```
GET /-wvsgi-/copy/category HTTP/1.1
```

NOTE

The XC settings copy protocol does not support pipelining even when conforming with HTTP/1.1.

5.2.1.1. HTTP Request Header

The following is the HTTP request header field related to the operation of the XC settings copy protocol.

All other HTTP request headers are ignored.

- Authorization
- Connection
- Content-Length

5.2.2. Response

Responses regarding the XC settings copy protocol are sent as HTTP responses from the camera's HTTP server.

Responses are returned in binary data format or JSON format, depending on the command. For details, refer to the individual command items in the '[Command specifications](#)'.

For status to be returned, refer to '[HTTP status and detailed status](#)'.

5.2.3. Settings information and settings categories

The following shows examples of settings information (setting.dat) that can be acquired and reflected using the XC settings copy protocol command.

The setting categories that broadly classify each setting information and their descriptions are also presented.

Table 56. Setting categories and examples of setting information

Settings category	Description	Examples of setting information (setting.dat)
system	Settings category related to system	<p>Settings information related to camera(camera name, installation conditions, color bars, tally lamps, infrared remote control, GenLock, etc.)</p> <p>Settings information related to video and audio</p> <p>Settings information related to the distribution server (excluding HTTP port numbers and HTTPS port numbers)</p> <p>Settings information related to add-ons</p> <p>Settings information related to DNS, mDNS, and external connections</p>

Settings category	Description	Examples of setting information (setting.dat)
preset	Settings category related to preset and CP	Settings information related to preset and thumbnail images for preset Settings information related to CP (custom picture) Settings information related to User LUT Settings information related to Look files
display	Settings category related to display	Settings information related to monitoring Settings information related to OSD Settings information related to assist functions
network	Settings category related to network	Settings information related to IPv4/v6 Settings information related to wireless LAN Settings information related to administrators, registered users, passwords, and user privileges HTTP port number and HTTPS port number Settings information related to certificate management, SSL/TLS, and host access restrictions Settings information related to firewalls Settings information related to date and time
trace	Settings category related to trace	Settings information related to trace and thumbnail images for trace

5.2.4. Protocol Configuration

5.2.4.1. Command List

The following are the functions provided by the XC settings copy protocol and the corresponding commands.

Table 57. Commands and Functions of XC Settings Copy Protocol

Commands	Functions
copy/download	This acquires settings information from the camera.
copy/upload	This reflects settings information in the camera.
copy/category	This acquires a list of settings categories.

5.3. Command specifications

The requests and responses of individual commands supported as the XC settings copy protocol are described.

The functions of individual request commands and the request and response data formats of

these commands are as follows.

5.3.1. Settings Information Acquisition [copy/download]

Acquiring settings information from the camera.

The Content-type of a response is binary data format (application/octet_stream) when successfully completed, but becomes JSON format when an error occurs.

To encrypt the settings information to be acquired, it is also possible to specify an encryption password. The encryption password must be between 8 and 32 characters long and must use at least two of the following: alphabetic characters, numeric characters, and symbols.

Request:

Attribute	Description
HTTP Method	GET/POST ^[1]
URL	/-wv cgi-/copy/download
Content-type	Application/json ^[2]
Body	{ “pass” : *****Specifying an encryption password] }

Response(Success):

Attribute	Description
Content-type	application/octet_stream
Body	Settings information in binary data format(settings.dat)

Response(Error):

Attribute	Description
Content-type	Application/json ^[2]
Body	{ “status” : “B102”, “description” : “download failed.” }

Preconditions and precautions:

- For status and descriptions, refer to '[HTTP status and detailed status](#)'.

5.3.2. Settings Information Reflection [copy/upload]

Acquired settings information can be reflected in another camera.

The settings information reflection command reflects settings information after specifying include/exclude for each settings category. If “include” is specified, the acquired information will be included in the settings information reflection targets. If “exclude” is specified, the acquired information will be excluded from the settings information reflection targets.

When specifying include/exclude for settings categories, it is possible to group multiple settings categories together for each include and exclude.

If settings information has been encrypted, it needs to be decrypted by specifying the encryption password. If an incorrect encryption password is specified, decryption will fail and an error will be returned.

Request:

Attribute	Description
HTTP Method	POST
URL	/-wv cgi-/copy/upload
Content-type	multipart/form-data
Body	<pre>--[boundary string] Content-Disposition: form-data; name="pass" ***** *Specifying an encryption password --[boundary string] Content-Disposition: form-data; name="include" preset --[boundary string] Content-Disposition: form-data; name="exclude" network --[boundary string] Content-Disposition: form-data; name="copy" Content-Type: application/octet_stream Salted_***** *Specify the contents of setting.dat --[boundary string] —</pre>

Response(Success):

Attribute	Description
Content-type	Application/json ^[2]

Attribute	Description
Body	{ “status”:”B000”, “description”:”upload successful.” }

Preconditions and precautions:

- For status and descriptions, refer to '[HTTP status and detailed status](#)'.
- include and exclude are mutually exclusive.

Request (For Multiple Setting Categories):

Attribute	Description
HTTP Method	POST
URL	/-wv cgi-/copy/upload
Content-type	multipart/form-data
Body	<pre>--[boundary string] Content-Disposition: form-data; name="pass" ***** *Specifying an encryption password --[boundary string] Content-Disposition: form-data; name="include" system, preset, display --[boundary string] Content-Disposition: form-data; name="exclude" network --[boundary string] Content-Disposition: form-data; name="copy" Content-Type: application/octet_stream Salted_***** *Specify the contents of setting.dat --[boundary string] —</pre>

Preconditions and precautions:

- When specifying multiple settings categories, separate them with commas (,) and do not include spaces or other characters between them.
- include and exclude are mutually exclusive.

5.3.3. Settings Category Acquisition [copy/category]

Acquiring a list of settings categories from the camera.

Request:

Attribute	Description
HTTP Method	GET
URL	/-wv.cgi/-copy/category
Body	None

Response:

Attribute	Description
Content-type	Application/json ^[2]
Body	<pre>{ "data" : { "category" : ["system", "preset", "display", "network", "trace"] } }</pre>

5.4. HTTP status and detailed status

The execution results of the XC settings copy protocol commands on the HTTP protocol are returned as HTTP statuses.

In addition to the HTTP status, a proprietary detailed status representing more specific information is managed and returned.

The main return values and their meanings are shown below.

In the event of an error, the Content-Type of the response is always in JSON format.

Table 58. HTTP status and detailed status

HTTP status	Detailed status		Description
200 OK	B000	download successful. / upload successful.	Settings information was successfully acquired. / Settings information was successfully reflected.
400 Bad Request	B120	decryption failed.	Decryption failed.
	B121	character string is too short.	Character string is too short.
	B122	character string is too long.	Character string is too long.
	B123	Password is weak.	Password is weak.
	B124	request is invalid.	An invalid request format was detected.
405 Method Not Allowed	B130	this method is not supported.	The method on the sending client has not been authorized.
415 Unsupported Media Type	B114	illegal file format	File format is not supported. ^[3]
	B115	mismatch of model name	Camera model mismatch occurred.
	B116	mismatch of version	Firmware version mismatch occurred.
500 Internal Server Error	B101	No space left on device.	Insufficient capacity is available.
	B102	download failed.	Acquisition of settings information failed.
	B103	download or upload is running.	Settings information is being acquired or reflected.
	B110	file not found	The specified file cannot be found.
	B112	insufficient memory for upload.	The memory space required to reflect the settings information is insufficient.
	B113	upload failed.	Reflection of the settings information failed.

[1] When specifying an encryption password, it is necessary to use POST.

[2] charset parameter shall not be added

[3] This code is returned also when file verification such as tamper detection fails.

Appendix A: Model Specific Information

A.1. CR-N700/N500/N300/N100/X300-dependent Information

A.1.1. Command Specifications

The supported/not-supported information of CR-N700 / N500 / N300 / N100 /X300 with respect to each command under the XC control protocol is shown in the table below.

Table 59. Support for CR-N700 / N500 / N300 / N100 / X300 Commands under XC Control Protocol

Commands	Functions	Support requirements	Support
open.cgi	This creates a session.	Optional	Supported
close.cgi	This closes a session.	Optional	Supported
claim.cgi	This requests camera control privileges.	Optional	Supported
yield.cgi	This releases camera control privileges.	Optional	Supported
session.cgi	This retrieves and changes a session-specific attribute.	Optional	Supported
info.cgi	This is used to obtain camera information.	Mandatory	Supported
control.cgi	This is used to control a camera or presets.	Mandatory	Supported
menu.cgi	This is used to control the camera's menu, etc.	Optional	Not supported ^[1]
image.cgi	This is used to retrieve a JPEG still image.	Optional	Supported
video.cgi	This is used to retrieve a video stream.	Optional	Supported
thumbnail.cgi	This is used to retrieve a thumbnail image.	Optional	Supported ^[2]
meta.cgi	This is used to obtain metadata related to focus.	Optional	Supported
preset/set	This stores camera control parameters as a preset.	Optional	Supported
trace/set	This records traces.	Optional	Supported
trace/control	This plays back traces.	Optional	Supported
standby.cgi	This is used to perform standby transition/restoration.	Optional	Supported

Commands	Functions	Support requirements	Support
configuration.cgi	Allows for making monitoring and assist settings	Optional	Not supported ^[1]
configuration/userlut	This is used to register, delete, and reset User LUT	Optional	Not supported ^[1]
cpfile/set	This is used to control custom picture	Optional	Not supported ^[1]
cpfile/lookfile	This is used to register and delete Look File	Optional	Not supported ^[1]
reset.cgi	This initializes camera control parameters.	Optional	Not supported

A.1.2. Parameter Specifications of info.cgi/control.cgi

CR-N700 / N500 / N300 / N100 / X300-dependent specifications of parameters info.cgi and control.cgi under the XC control protocol will be described in APPENDIX ‘[Parameter list of info.cgi/control.cgi/configuration.cgi](#)’.

A.1.3. H.264/H.265 Image Parameter Specifications

The following are the H.264/H.265 image parameters that are supported by the H.264/H.265 video transmission functions of CR-N700 / N500 / N300 / N100 / X300. Note that the permissible range of certain parameters varies depending on the frame rate of the camera.

Table 60. H.265 Image Parameters

Parameter	Value Range	Default Value
Video Resolution [pxl]	For frame frequency of 59.94 and 50 Hz: 1920x1080, 1280x720, 640x360 For frame frequency of 29.97, 23.98, and 25 Hz: 3840x2160, 1920x1080, 1280x720, 640x360	1920x1080
Frame Rate [fps]	For frame frequency of 59.94 Hz: 59.94, 29.97, 14.98, 4.99 For frame frequency of 29.97 Hz: 29.97, 14.98, 4.99 For frame frequency of 23.98 Hz: 23.98, 11.99, 5.99 For frame frequency of 50 Hz: 50.00, 25.00, 12.50, 5.00 For frame frequency of 25 Hz: 25.00, 12.50, 5.00	59.94

Parameter	Value Range	Default Value
I Frame Interval [sec]	0.5, 1, 2	1
Bit Rate Control	VBR, CBR	VBR
Target Bit Rate [Mbps]	1...80 Depends on the video resolution/frame rate.	20

Table 61. H.264 Image Parameters

Parameter	Value Range	Default Value
Video Resolution	640x360	640x360
Frame Rate [fps]	For frame frequency of 59.94 Hz: 59.94, 29.97, 14.98, 4.99 For frame frequency of 29.97 Hz: 29.97, 14.98, 4.99 For frame frequency of 23.98 Hz: 23.98, 11.99, 5.99 For frame frequency of 50 Hz: 50.00, 25.00, 12.50, 5.00 For frame frequency of 25 Hz: 25.00, 12.50, 5.00	29.97
I Frame Interval [sec]	ALL I, 0.5, 1, 2	1
Bit Rate Control	VBR, CBR	VBR
Target Bit Rate [Mbps]	1...10 Depends on the video resolution/frame rate.	6

A.2. C500mk2/C400/C300mk3/C80/C70/C50/XF605-dependent Information

A.2.1. Command Specifications

The supported/not-supported information with respect to each command under the XC control protocol is shown in the table below.

Table 62. Support for C500mk2 / C400 / C300mk3 / C80 / C70 / C50 / XF605 Commands under XC Control Protocol

Command	Functions	Support requirements	Support
open.cgi	This creates a session.	Optional	Supported
close.cgi	This closes a session.	Optional	Supported

Command	Functions	Support requirements	Support
claim.cgi	This requests camera control privileges.	Optional	Not supported
yield.cgi	This releases camera control privileges.	Optional	Not supported
session.cgi	This retrieves and changes a session-specific attribute.	Optional	Supported
info.cgi	This is used to obtain camera information.	Mandatory	Supported
control.cgi	This is used to control a camera or presets.	Mandatory	Supported
menu.cgi	This is used to control the camera's menu, etc.	Optional	Supported
image.cgi	This is used to retrieve a JPEG still image.	Optional	Supported
video.cgi	This is used to retrieve a video stream.	Optional	Not supported
thumbnail.cgi	This is used to retrieve a thumbnail image.	Optional	Not supported
meta.cgi	This is used to obtain metadata related to focus.	Optional	Supported
preset/set	This stores camera control parameters as a preset.	Optional	Supported
trace/set	This records traces.	Optional	Not supported
trace/control	This plays back traces.	Optional	Not supported
standby.cgi	This is used to perform standby transition/restoration.	Optional	Not supported
configuration.cgi	This sets monitoring and assist functions.	Optional	Supported
configuration/use rlut	This is used to register, delete, and reset User LUT	Optional	Not supported
cpfile/set	This is used to control custom picture	Optional	Not supported
cpfile/lookfile	This is used to register and delete Look File	Optional	Not supported
reset.cgi	This initializes camera control parameters.	Optional	Not supported

A.2.2. Parameter Specifications of info.cgi/control.cgi

C500mk2 / C400 / C300mk3 / C80 / C70 / C50 / XF605-dependent specifications of parameters info.cgi and control.cgi under the XC control protocol will be described in APPENDIX [‘Parameter list of info.cgi/control.cgi/configuration.cgi’](#).

A.3. RC-IP1000-dependent Information

A.3.1. Command Specifications

The supported/not-supported information of RC-IP1000 with respect to each command under the XC control protocol is shown in the table below.

To connect to RC-IP1000, the user name and password must be set at the RC-IP1000 side.

NOTE When an info/control.cgi command is executed on the RC-IP1000 without a configured username and password, the error code "405 Method Not Allowed" is returned.
Note that this behavior and error code are unique to the RC-IP1000 and are not common features of the XC control protocol. It does not apply to other devices.

Table 63. Support for RC-IP1000 Commands under XC Control Protocol

Command	Functions	Support requirements	Support
open.cgi	This creates a session.	Optional	Not Supported
close.cgi	This closes a session.	Optional	Not Supported
claim.cgi	This requests camera control privileges.	Optional	Not supported
yield.cgi	This releases camera control privileges.	Optional	Not supported
session.cgi	This retrieves and changes a session-specific attribute.	Optional	Not Supported
info.cgi	This is used to obtain camera information.	Mandatory	Supported
control.cgi	This is used to control a camera or presets.	Mandatory	Supported
menu.cgi	This is used to control the camera’s menu, etc.	Optional	Not Supported
image.cgi	This is used to retrieve a JPEG still image.	Optional	Not Supported

Command	Functions	Support requirements	Support
video.cgi	This is used to retrieve a video stream.	Optional	Not supported
thumbnail.cgi	This is used to retrieve a thumbnail image.	Optional	Not supported
meta.cgi	This is used to obtain metadata related to focus.	Optional	Not Supported
preset/set	This stores camera control parameters as a preset.	Optional	Not Supported
trace/set	This records traces.	Optional	Not supported
trace/control	This plays back traces.	Optional	Not supported
standby.cgi	This is used to perform standby transition/restoration.	Optional	Not supported
configuration.cgi	This sets monitoring and assist functions.	Optional	Not Supported
configuration/use rlut	This is used to register, delete, and reset User LUT	Optional	Not supported
cpfile /set	This is used to control custom picture	Optional	Not supported
cpfile/lookfile	This is used to register and delete Look File	Optional	Not supported
reset.cgi	Initialize camera control parameters.	Optional	Not supported

A.3.2. Information Acquisition [info.cgi]

Acquires various information from the remote camera controller. The stream format is not supported.

A.3.2.1. Command

Syntax:

```
http://<ipaddress>:<port>/-vvhttp-01-/info.cgi
```

Preconditions and precautions:

- In RC-IP1000, parameters cannot be specified, and all information is acquired at once.
- The port number must be entered.
The port number is fixed: 50080 (HTTP), 50443 (HTTPS).

Parameters:

Parameter	Type/Range	Description
camno	1...camno.count	Selected camera number
camno.count	200	Maximum camera number selectable
f.assign.min	1	Minimum assign number available
f.assign.max	10	Maximum assign number available

A.3.2.2. Response**A. Successful response**

Shows the response when the command is issued as needed.

As the stream format is not supported, timestamp and realtime are not included in the return value.

HTTP Code : 200 OK

Content-Type : text/plain;charset=utf-8

Livescope-Status : 0

MessageBody :

```
camno:=1  
camno.count:=200  
f.assign.min:=1  
f.assign.max:=10
```

A.3.3. Switching Control for the Selected Camera [control.cgi]

Controls the remote camera controller to switch the camera to be selected.

A.3.3.1. Command

Syntax

```
http://<ipaddress>:<port>/-vvhttp-01-/control.cgi?[camno=<value>]
```

Preconditions and precautions:

- If any other parameters are included, an error is returned.
- The port number must be entered.
The port number is fixed: 50080 (HTTP), 50443 (HTTPS).

Parameters:

Parameter	Type/Range	Description
camno	1...camno.count	Selected camera number

A.3.4. Assignment Function Control [control.cgi]

Executes the command assigned to the USER button on the remote camera controller.

A.3.4.1. Command

Syntax

```
http://<ipaddress>:<port>/-wvhttp-01-/control.cgi?[f.assign=<value>]
```

Preconditions and precautions:

- If any other parameters are included, an error is returned.
- The port number must be entered.
The port number is fixed: 50080 (HTTP), 50443 (HTTPS).

Parameters:

Parameter	Type/Range	Description
f.assign	f.assign.min...f.assign.max	Assign number

A.3.5. Designated Camera Presets/Tally Lamp Control [control.cgi]

Controls preset/tally for the camera with the designated camera number (camno.target).^[3]
Whether or not the preset or tally can be controlled depends on the specification of the designated camera.

A.3.5.1. Command

Syntax

```
http://<ipaddress>:<port>/-wvhttp-01-  
/control.cgi?[p=<value>][&p.ptztime=<value>][&p.ptzspeed=<value>]  
[&p.action=stop][&p.ptzspeed.saved=on][&p.freeze=on][&f.tally=on/off][&f.tally.mode=<value>][&camn
```

```
o.target=<value>]
```

Preconditions and precautions:

- If any other parameters are included, an error is returned.
- The port number must be entered.
The port number is fixed: 50080 (HTTP), 50443 (HTTPS).
- If the designated camera number (camno.target) is not specified, the selected camera on the remote camera controller side is controlled.
- Parameters delivered to the selected camera via the remote camera controller and values returned from the camera are limited to those beginning with "p." or "f.tally." The propriety of the control depends on the specification of the selected camera. The detailed specifications of each camera are described in APPENDIX '[Parameter list of info.cgi/control.cgi/configuration.cgi](#)' .

Parameters:

Parameter	Type/Range	Description
camno.target	1...camno.count	Designated camera number ^[3] *If not specified, the value of selected camera number (camno) is used.
Parameters beginning with "p." e.g. p, p.count, p.action, p.ptzspeed, p.ptzspeed.saved, p.freeze...	See ' Parameter list of info.cgi/control.cgi/configuration.cgi ' *Whether control is possible depends on the specification of the selected camera.	
Parameters beginning with "f.tally." e.g. f.tally, f.tally.mode...	See ' Parameter list of info.cgi/control.cgi/configuration.cgi ' *Whether control is possible depends on the specification of the selected camera.	

[1] Supported by CR-N700.

[2] Not supported by CR-N100.

[3] The designated camera number does not have to match the camera number selected on the remote camera controller side, and can be set independently. However, if the designated camera number is not specified, the selected camera on the remote camera controller side is controlled.

Appendix B: APPENDIX

B.1. Fragmented MP4

The H.264/H.265 transmission function of cameras transmits image data in the fragmented MP4 format. A stream with only one video track can be handled, and this video stream forms a stream in the fragmented MP4 format. Namely, a moov header and moof header are created, and these are sent coupled with the picture data.

NOTE

A stream in the fragmented MP4 format conforms to ‘ISO/IEC 14496-10’ and ‘ISO/IEC 14496-15’. For details on the moov and moof headers, see these documents.

- Fragment data structure
- The following shows the fragmented data structure of models supported by this document. In addition to the HTTP header, there are moov and moof headers, and picture data for the first fragment is sent for the mdat header.

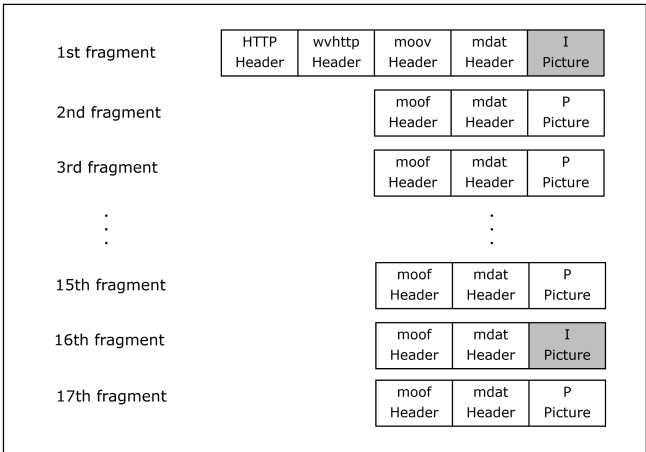


Figure 15. Fragment Data Structure within a Fragmented MP4 Format Stream

- moov header
- The moov header is transmitted only once at the start of the fragment transmission. This header mainly contains the initial setting items required for video playback. For example, the setting values for the video image size, frame rate, and time information are included in the moov header.
- In addition, the file size of the pictures transmitted together with the moov header is included in the stsz box, and the starting picture is always the I picture. On the supported models, to enable H.264/H.265 playback the moov header includes [SPS], [PPS], and [VUI] fields. All of these fields are within the [avcC] box.
- Time information at transmission start
- The current time (in seconds) is stored in [mvhd][tkhd] in the MP4 header at the start of transmission. This time varies for each client. This is not the video image capture time.

The current-time epoch is 1900-01-01 00:00 UTC.

- SPS (Sequence Parameter Set) field
SPS contains the profile and level for all sequences.
- PPS (Picture Parameter Set) field
PPS contains information related to all pictures.
However, PPS does not contain the setting value of the Q value.
- VUI (Video Usability Information) field
VUI contains information on the aspect ratio, brightness, and color space.
- moof header
The moof header contains the sequence number and frame type. The file size of each picture transmitted together with the moof header is included in the trun box.
When [first_sample_flags] in the trun box is 0x0, the starting picture of the fragment is the I picture; otherwise, it is the P picture.

B.2. Device Search

For device search, the mDNS (Multicast DNS) function, which is specified in RFC6762, is supported.

mDNS notifies other hosts on the network of the host name and the IP address by multicast transmission of the IP address of the device and the information of the host name that is automatically generated.

The automatically set host name is canon-<MACADDRESS>.local. The "MACADDRESS" is the MAC address of the device.

The multicast address uses the following in IPv4 and IPv6.

- IPv6 : ff02::fb
- IPv4 : 224.0.0.251

B.3. Settings for RTP/RTSP Video Transmission

This appendix explains the procedure for starting video transmission using RTP/RTSP.

The procedure assumes that IP address settings are completed and it is possible to access the front page of the camera. For details about how to access the front page, refer to "Settings Guide". When authentication is requested in each process, authentication is performed using the user name and password of the administrator or registered user, and the description in the procedure is omitted.

* In this appendix, all IP addresses are described as "192.168.100.1".
When implementing, replace the IP address to suit your environment.
In addition, there is no particular specificat

B.3.1. Settings Parameters Relating to RTP/RTSP Video Transmission

For the settings parameters for RTP/RTSP, see '[RTP/RTSP](#)'.

B.3.2. Initial Settings Values and Starting Video Transmission

Table 64. Initial Settings Values

Stream	Video codec	Video size	Target bit rate	Frame rate	I Frame Interval
Stream 1 (Mainstream)	H.264	1920x1080	20Mbps	59.94fps	1 sec
Stream 2 Sub-stream 1	H.264	640x360	6Mbps	29.97fps	1 sec
Stream 3 Sub-stream 2	JPEG	1280x720	1Mbps	15fps	-

NOTE

The default values of the video size, target bit rate, and frame rate vary depending on the model.

Start up a media player supporting RTSP and open the URL below.

```
rtsp://192.168.100.1:554/rtpstream/config(1|2|3)
```

The mainstream corresponds to config 1, and the sub-streams correspond to config 2 to 3. For the transmission protocol, follow the media player settings.

NOTE

The RTSP port number specified with the URL is the same value as "rtpPort".
The HTTP port number specified with the URL is the same value as "httpPort".
The HTTPS port number specified with the URL is the same value as "httpsPort".

B.3.3. Commands to Use Keep-alive

When transmitting video, the default session time is 60 seconds. To keep a session, you need to perform a Keep-alive.

It is possible to use the following commands in a streaming Keep-alive.

Table 65. Commands for Keep-alive

Protocol	Commands
RTSP	anyRTSP method
RTSP	SET_PARAMETER (Recommended)

Protocol	Commands
RTCP	Receiver Reports

B.4. Parameter List of `info.cgi/control.cgi/configuration.cgi`

Parameters that can be acquired by `info.cgi` and parameters used for control by `control.cgi` are as follows.

- System information [s]
- Video information [v]
- Video information [w]
- Camera information [c]
- Light amount correction information [c]
- Color correction information [c]
- Custom picture information [u]
- IS/NR/Sharpness [c]
- Focus information [c]
- Zoom information [c]
- Pan/Tilt information [c]
- Preset information [p]
- Trace information [t]
- Audio device information [a]
- Contact input/output information [i/o]
- Tally lamp information [f]
- Standby information [f]
- Mode information [f]
- Video recording information [f]
- Timecode information [f]
- Assign button information [f]
- Wiper information [f]
- Framerate information [f]
- Output video information [f]

- Menu information [m]
- Crop information [k]
- Lens information [c]
- Alert information [b]

In addition, regarding the monitoring assist settings, there are the following types of parameters that can be obtained with `info.cgi` and parameters that are used for control with `configuration.cgi`.

- Monitoring settings [monitoring]
- Assist setting [assist]

These parameters are described respectively in tables from the next page onwards. Note the following points.

- With `info.cgi`, parameters with attribute "G" can be acquired from the camera among the following parameters.
- With `control.cgi` and `configuration.cgi`, parameters with attribute "C" can be used to control the camera among the following parameters.
- Follow the notation conventions in '[Command Specifications](#)' for other information and notation method.
- If the parameter has information specific to the model, the model name is written in the column "Model Specific Information" and its details are written in "Value Type/Value Range" or "Description".
- For the parameter specifications common to all XC control protocol compatible models regardless of the model, "-" is entered in the column "Model Specific Information".
- If neither "-" nor model name is entered in the "Model Specific Information" column, the parameter is not supported.
- Parameters for which ae/me are defined (e.g., `c.<c>.ae.brightness`, `c.<c>.me.brightness`) are valid under the following conditions, respectively.
 - ae : When `c.<c>.exp` = auto, av, tv
 - me : When `c.<c>.exp` = manual
- For the parameter specifying {output}, only the video output IF identifiers (output 1, output 2, ...) obtained from `f.output.list` can be specified.
- For parameters where min/max/list can be obtained, control and status acquisition are possible within this range.^[1] The behavior, when a value outside the range is specified, depends on the camera specifications.
 - When min/max can be obtained: Setting value between min (minimum value) to max (maximum value)

- When list can be obtained: The obtained setting value
- It is recommended not to hard-code these values but retrieve min/max/list at runtime. This ensures that even if the camera's supported ranges differ by model or change due to firmware updates, no client-side code modifications are required, allowing a single code base to handle all cases.
- The order of the values shown in the “list” of the table is not guaranteed. The sequence returned by an actual list may differ from that shown here, and even the same list can appear in different orders on different models.

Table 66. Parameters of info.cgi/control.cgi

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
System Information [s]	s	-	<int>	--P-	Session ID
System Information [s]	s.action	CR-N700 CR-N500 CR-N300 CR-N100 CR-X300	Selected from s.action.list	-C--	System action
System Information [s]	s.action.list	CR-N700 CR-N500 CR-N300 CR-N100 CR-X300	save	G--U	System action list save: Saves camera information in a batch
System Information [s]	s.system.status	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	idle, busy	G--U	System operation status idle: Idle state busy: Busy state
System Information [s]	s.origin	-	<IP address>:<port number> e.g. 192.168.10.1:80	--P-	Camera server IP address and port number
System Information [s]	s.duration	-	0...<Maximum connection time>	G-PU	Remaining session time * Unit: second 0: Unlimited * The maximum remaining connection time for a session is the model-specific "maximum connection time"

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
System Information [s]	s.priority	-	0...50	GCPU	Session priority 0: General session 1...4: Reserved (*) 5...50: Privileged session (*) If specified, it is treated as "5"
System Information [s]	s.control	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	enabled [:<assigned time>] waiting [:<standby time>] disabled e.g. enabled:500	G-PU	Indicates the state of camera control privileges Unit: millisecond enabled: Obtaining camera control privileges waiting: Waiting to obtain camera control privileges disabled: Failed to obtain camera control privileges
System Information [s]	s.epoch	-	<day of the week>, <day> <month> <year> <hour>:<minute>: <second> <time zone> e.g. Wed, 24 Jun 2020 17:07:45 +0900	G--U	Start time
System Information [s]	s.hardware	-	e.g. CR-N500	G---	Model name
System Information [s]	s.hardware.id	-	e.g. 110	G---	Hardware ID
System Information [s]	s.hardware.address	-	e.g. 000085000000	G---	MAC address

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
System Information [s]	s.hardware.maxsize	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	3840x2160	G---	Maximum image size
System Information [s]	s.firmware	-	e.g. 1.0.0	G---	Firmware version
System Information [s]	s.protocol	-	e.g. 5.0.0	G---	Protocol version
System Information [s]	s.maxsize	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	1920x1080 3840x2160	G--U	Maximum resolution
System Information [s]	s.power.source	C500mk2 C400 C300mk3 C80 C70 XF605	dc battery checking	G--U	Power supply type dc: DC power supply battery: battery checking: Checking in progress, analysis in progress
		C50	dc battery usb checking		Power supply type dc: DC coupler battery: battery usb:USB power adapter checking: Checking in progress, analysis in progress

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
System Information [s]	s.power.volt	C500mk2 C400 C300mk3 C80 C70 XF605	e.g. 160 Null value if there is no information.	G--U	Power supply voltage value * The unit is the number of volts multiplied by 10 (100 mV units). Null value: No information
System Information [s]	s.power.minute	C500mk2 C400 C300mk3 C80 C70 C50 XF605	e.g. 50 Null value if there is no information.	G--U	Power supply time remaining * The unit is minutes (0 to 9999). Null value: No information
System Information [s]	s.power.percent	C500mk2 C400 C300mk3 C80 C70 C50 XF605	e.g. 50 Null value if there is no information.	G--U	Power supply remaining * The unit is % (0 to 100). Null value: No information
Video Information [v]	v	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300 C500mk2 C400 C300mk3 C80 C70 XF605	<jpg h264>: <video width>x<video height>: <video quality>: <frame rate> e.g. h264:1920x1080:0:59940 e.g. jpg:1280x720:6:14980	G-PU	Stream being selected * <video quality> is a step value (Same as setting value: 1...10) * The policy is to support new features only with "w," not with "v." For example, H.265 is no longer supported with "v." * "v" is maintained for backward compatibility. Since future releases of devices are planned to discontinue "v," the use of "w" is strongly recommended.

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Video Information [v]	v.list	CR-N700 CR-N500 CR-N300 CR-N100 CR-X300	<jpg h264>: <video width>x<video height>: <video quality>: <frame rate> e.g. h264:1920x1080:0:59940 e.g. jpg:1280x720:6:14980	G--U	Parameter list of video stream * <video quality> is 0: Fixed bit rate (CBR) 1...10: Variable bit rate (value is Q value)
		C500mk2 C400 C300mk3 C80 C70 XF605	<jpg>: <video width>x<video height>: <video quality>: <frame rate> e.g. jpg:1024x576:8:29970		
Video Information [v]	v.h264.cbr	CR-N700 CR-N500 CR-N300 CR-N100 CR-X300	e.g. 15000	G--U	H.264 target bit rate * Unit: kbps
Video Information [w]	w	-	1...w.count	G-PU	Stream being selected

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Video Information [w]	w.maxsize	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	3840x2160	G---	Maximum video size of stream
		C500mk2 C300mk3 C80 C70 XF605	1024x576		
		C400 C50	1088x576 1024x576 960x640		
Video Information [w]	w.count	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	3	G--U	Number of stream lists
		C500mk2 C400 C300mk3 C80 C70 C50 XF605	1		
Video Information [w]	w.<w>.status	-	enabled disabled	G--U	Status of stream

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Video Information [w]	w.<w>.type	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	jpg h264 h265	G--U	Stream video codec
		C500mk2 C400 C300mk3 C80 C70 C50 XF605	jpg		
Video Information [w]	w.<w>.type.profile	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	baseline main high	G--U	Profile of video codec baseline: Baseline profile main: Main profile high: High profile
Video Information [w]	w.<w>.kind	-	overview	G--U	By stream video type

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Video Information [w]	w.<w>.size	CR-N700 CR-N500 CR-N300 CR-N100 CR-X300	e.g. 640x360 1280x720 1920x1080 3840x2160	G--U	Video size of stream
		CR-N400 CR-N350	e.g. 640x360 1280x720 1920x1080 3840x2160 360x640 720x1280 1080x1920		
		C500mk2 C300mk3 C80 C70 XF605	1024x576		
		C400 C50	1088x576 1024x576 960x640		
Video Information [w]	w.<w>.quality	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	1...10	G--U	Q value of stream * Low quality 1 ← → 10 High quality
		C500mk2 C400 C300mk3 C80 C70 C50 XF605	8		

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Video Information [w]	w.<w>.cbr	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	64...16384	G--U	Stream target bit rate * Unit = kbps
Video Information [w]	w.<w>.frate	-	w.<w>.frate.min... w.<w>.frate.max	G-PU	Frame rate value of stream * Frame rate multiplied by 1000
Video Information [w]	w.<w>.frate.min	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	100	G--U	Minimum configurable stream frame rate value * Frame rate multiplied by 1000
		C500mk2 C400 C300mk3 C80 C70 C50 XF605	e.g. 29970 * w.<w>.frate.min and w.<w>.frate.max are the same value		
Video Information [w]	w.<w>.frate.max	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	30000	G--U	Maximum configurable stream frame rate value * Frame rate multiplied by 1000
		C500mk2 C400 C300mk3 C80 C70 C50 XF605	e.g. 29970 * w.<w>.frate.min and w.<w>.frate.max are the same value		

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Video Information [w]	w.<w>.crop	-	off	G--U	If cropped or not
Camera Information [c]	c	-	1	G--U	Selected camera number * Always 1.
Camera Information [c]	c.count	-	1	G---	Number of cameras * Always 1.
Camera Information [c]	c.<c>.type	-	e.g. CR-N500	G---	Type of camera
Camera Information [c]	c.<c>.status	-	enabled disabled	G--U	Camera controllable status * "disabled" is displayed immediately after startup. After initialization, "enabled" is displayed.
Camera Information [c]	c.<c>.platform.status	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	initialized uninitialized	G--U	Pan tilt head operation status
Camera Information [c]	c.<c>.platform.error	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	0 1	G--U	Pan tilt head deviation information 0: No error 1: Error
Camera Information [c]	c.<c>.name.utf8	-	<unicode>	G--U	Camera name (UTF-8)

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Light Amount Correction Information [c]	c.<c>.shooting	-	Selected from c.<c>.shooting.list	GC-U	Shooting mode
Light Amount Correction Information [c]	c.<c>.shooting.list	CR-N700 CR-N500 CR-N400 CR-N350 XF605	fullauto, manual	G--U	Shooting mode list
		CR-N300 CR-N100 CR-X300	fullauto, manual, scene		
		C500mk2 C400 C300mk3 C80 C70 C50	manual		
Light Amount Correction Information [c]	c.<c>.scene	CR-N300 CR-N100 CR-X300	Selected from c.<c>.scene.list	GC-U	Scene mode
Light Amount Correction Information [c]	c.<c>.scene.list	CR-N300 CR-N100 CR-X300	portrait, sports, lowlight, spotlight	G--U	Scene mode list
Light Amount Correction Information [c]	c.<c>.exp	-	Selected from c.<c>.exp.list	GC-U	Exposure mode list * When c.<c>.shooting is "manual" and c.<c>.exp is "auto," the camera's behavior is P (program AE)

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Light Amount Correction Information [c]	c.<c>.exp.list	CR-N700 CR-N500 CR-N400 CR-N350 XF605	auto, manual	G--U	Exposure mode list
		CR-N300 CR-N100 CR-X300	auto, av, tv, manual		
		C500mk2 C400 C300mk3 C80 C70 C50	manual		
Light Amount Correction Information [c]	c.<c>.ae.brightness	-	c.<c>.ae.brightness.min... c.<c>.ae.brightness.max	GC-U	Exposure compensation value * EV value multiplied by 4
Light Amount Correction Information [c]	c.<c>.ae.brightness.min	-	-8	G--U	Minimum configurable exposure compensation value (dark) * EV value multiplied by 4
Light Amount Correction Information [c]	c.<c>.ae.brightness.max	-	8	G--U	Maximum configurable exposure compensation value (bright) * EV value multiplied by 4
Light Amount Correction Information [c]	c.<c>.ae.brightness.list	-	-8, -7, -6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6, 7, 8	G--U	Exposure compensation list * EV value multiplied by 4

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Light Amount Correction Information [c]	c.<c>.me.brightness	-	c.<c>.me.brightness.min... c.<c>.me.brightness.max	GC-U	Exposure compensation value * EV value multiplied by 4
Light Amount Correction Information [c]	c.<c>.me.brightness.min	-	-8	G--U	Minimum configurable exposure compensation value (dark) * EV value multiplied by 4
Light Amount Correction Information [c]	c.<c>.me.brightness.max	-	8	G--U	Maximum configurable exposure compensation value (bright) * EV value multiplied by 4
Light Amount Correction Information [c]	c.<c>.ae.photometry	-	Selected from c.<c>.ae.photometry.list	GC-U	Metering mode
Light Amount Correction Information [c]	c.<c>.ae.photometry.list	-	center, spotlight, backlight	G--U	Metering mode list center: Center-weighted average metering backlight: Metering mainly on low exposure part spotlight: Metering mainly on high exposure part
Light Amount Correction Information [c]	c.<c>.me.photometry	-	Selected from c.<c>.me.photometry.list	GC-U	Metering mode

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Light Amount Correction Information [c]	c.<c>.me.photometry.list	-	center, spotlight, backlight	G--U	Metering mode list center: Center-weighted average metering backlight: Metering mainly on low exposure part spotlight: Metering mainly on high exposure part
Light Amount Correction Information [c]	c.<c>.ae.resp	-	c.<c>.ae.resp.min ... c.<c>.ae.resp.max	GC-U	AE response * Convergence speed when c.<c>.exp is "auto".
Light Amount Correction Information [c]	c.<c>.ae.resp.min	-	0	G--U	Minimum configurable AE response value
Light Amount Correction Information [c]	c.<c>.ae.resp.max	-	2	G--U	Maximum configurable AE response value
Light Amount Correction Information [c]	c.<c>.me.resp	-	c.<c>.me.resp.min ... c.<c>.me.resp.max	GC-U	AE response (convergence speed for manual exposure) * Convergence speed when c.<c>.exp is "manual".
Light Amount Correction Information [c]	c.<c>.me.resp.min	-	0	G--U	Minimum configurable AE response value


Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Light Amount Correction Information [c]	c.<c>.me.resp.max	-	2	G--U	Maximum configurable AE response value
Light Amount Correction Information [c]	c.<c>.me.diaphragm.mode	-	Selected from c.<c>.me.diaphragm.mode.list	GC-U	Aperture mode (F-number/T-number)
Light Amount Correction Information [c]	c.<c>.me.diaphragm.mode.list	-	auto, manual	G--U	Aperture mode (F-number/T-number) list
Light Amount Correction Information [c]	c.<c>.me.diaphragm.increment	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from diaphragm.increment.list	GC-U	Iris increment
Light Amount Correction Information [c]	c.<c>.me.diaphragm.increment.list	CR-N700 CR-N400 CR-N350 XF605	3, 4	G--U	Iris increment * Inverse of set value
		C500mk2 C400 C300mk3 C80 C70 C50	2, 3		

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Light Amount Correction Information [c]	c.<c>.me.diaphragm.fine	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from c.<c>.me.diaphragm.fine.list	GC-U	Iris fine
Light Amount Correction Information [c]	c.<c>.me.diaphragm.fine.list	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	off, on	G--U	Iris fine list
Light Amount Correction Information [c]	c.<c>.me.diaphragm.ft	C500mk2 C400 C300mk3 C80 C70 C50	Selected from c.<c>.me.diaphragm.ft.list	G--U	Iris indicator (F-number/T-number) * In cameras where this setting value cannot be obtained, it is interpreted as fixed at "f".
Light Amount Correction Information [c]	c.<c>.me.diaphragm.ft.list	C500mk2 C400 C300mk3 C80 C70 C50	f, t	G--U	Iris indicator list

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Light Amount Correction Information [c]	c.<c>.ae.diaphragm	CR-N300 CR-N100 CR-X300 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from c.<c>.ae.diaphragm.list	GC-U	Aperture value (F-number)
Light Amount Correction Information [c]	c.<c>.ae.diaphragm.list	CR-N300 CR-N100	e.g. 180...2200 * The list changes depending on the value of c.<c>.nd.mode	G--U	Aperture value (F-number) list * F-number multiplied by 100 65535: Close * Includes the amount of compensation by an ND filter if the ND filter is dynamically inserted or removed during iris adjustment
		CR-X300	e.g. 180...65535 * The list changes depending on the value of c.<c>.nd.mode and c.<c>.ae.diaphragm.restrict		
		C500mk2 C400 C300mk3 C80 C70 C50 XF605	e.g. 100...9100, 65535 * The list changes depending on the value of c.<c>.me.diaphragm.increment		

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Light Amount Correction Information [c]	c.<c>.me.diaphragm	-	Selected from c.<c>.me.diaphragm.list	GC-U	Aperture value (F-number)

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Light Amount Correction Information [c]					

XC Protocol Specifications BPE-7216400		CR-N700 C500mk2 C400	e.g. 100...9100, 65535		
		C300mk3 C80	* List changes depending on the		
Type	Name	Model Specific Info	Value of Type/Range	Attribute	Description
		CR-N400 CR-N350	e.g. 180...2500, 65535 * List changes depending on the values of c.<c>.nd.mode, c.<c>.ae.diaphragm.restrict, c.<c>.me.diaphragm.restrict, and c.<c>.me.diaphragm.increment.		
Light Amount Correction Information [c]	c.<c>.me.diaphragm.shift	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	c.<c>.me.diaphragm.shift.min ... c.<c>.me.diaphragm.shift.max	-C--	Relative control of iris (F-number) * Specifies the amount of shift to the valid value using the current value as a reference * The unit is not F * 1... : F value decreases (bright) * ...-1: F value increases (dark)
Light Amount Correction Information [c]	c.<c>.me.diaphragm.shift.min	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	-100	G--U	Limit of the amount of shift on the minus side of the iris relative control

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Light Amount Correction Information [c]	c.<c>.me.diaphragm.shift.max	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	100	G--U	Limit of the amount of shift on the plus side of the iris relative control
Light Amount Correction Information [c]	c.<c>.me.diaphragm.t	C500mk2 C400 C300mk3 C80 C70 C50	Selected from c.<c>.me.diaphragm.t.list	GC-U	Iris (T-number) * T-number multiplied by 100
Light Amount Correction Information [c]	c.<c>.me.diaphragm.t.list	C500mk2 C400 C300mk3 C80 C70 C50	e.g. 100...9100, 65535 List changes depending on the value of c.<c>.me.diaphragm.increment	G--U	Iris (T-number) list * T-number multiplied by 100
Light Amount Correction Information [c]	c.<c>.me.diaphragm.t.shift	C500mk2 C400 C300mk3 C80 C70 C50	c.<c>.me.diaphragm.t.shift.min... c.<c>.me.diaphragm.t.shift.max	-C--	Relative control of iris (T-number) * Specifies the amount of shift to the valid value using the current value as a reference * The unit is not T * 1... : T value increases (bright) * ...-1 : T value decreases (dark)

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Light Amount Correction Information [c]	c.<c>.me.diaphragm.t.shift.min	C500mk2 C400 C300mk3 C80 C70 C50	-100	G--U	Limit of the amount of shift on the minus side of the iris (T-number) relative control.
Light Amount Correction Information [c]	c.<c>.me.diaphragm.t.shift.max	C500mk2 C400 C300mk3 C80 C70 C50	100	G--U	Limit of the amount of shift on the plus side of the iris (T-number) relative control.
Light Amount Correction Information [c]	c.<c>.ae.iris	CR-N300 CR-N100 CR-X300	c.<c>.ae.iris.min... c.<c>.ae.iris.max	GC-U	Iris (abstract value) * A granularity setting expressed as an abstract value when it cannot be expressed by F-/T-numbers.
Light Amount Correction Information [c]	c.<c>.ae.iris.min	CR-N300 CR-N100 CR-X300	36	G--U	Minimum value for iris (abstract value) * This is the minimum configurable aperture value, and the F-number/T-number is the maximum.
Light Amount Correction Information [c]	c.<c>.ae.iris.max	CR-N300 CR-N100 CR-X300	296	G--U	Maximum value for Iris (abstract value) * This is the maximum configurable aperture value, and the F-number/T-number is the minimum

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Light Amount Correction Information [c]	c.<c>.me.iris	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	c.<c>.me.iris.min ... c.<c>.me.iris.max * The value may be rounded up or rounded down when used in camera control. e.g. 112 ⇒ 108 e.g. 113 ⇒ 117	GC-U	Iris (abstract value) * A granularity setting expressed as an abstract value when it cannot be expressed by F-/T-numbers.
Light Amount Correction Information [c]	c.<c>.me.iris.min	CR-N500 CR-N300 CR-N100 CR-N700 CR-N400 CR-N350 CR-X300	108 36 * The list changes depending on the value of c.<c>.me.diaphragm.restrict	G--U	Minimum value for iris (abstract value) * Aperture side; F-number is maximum
Light Amount Correction Information [c]	c.<c>.me.iris.max	CR-N500 CR-N300 CR-N100 CR-N400 CR-N350 CR-X300 CR-N700	250 296 252	G--U	Maximum value for Iris (abstract value) * Open side; F-number is minimum

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Light Amount Correction Information [c]	c.<c>.ae.fno	CR-N300 CR-N100 CR-X300 C500mk2 C400 C300mk3 C80 C70 C50 XF605	e.g. 180	G--U	Iris (F-number) * Read-only * It does not include the amount of compensation by an ND filter even if the filter is dynamically inserted or removed during iris adjustment.
Light Amount Correction Information [c]	c.<c>.me.fno	-	e.g. 180	G--U	Aperture (F-number) * Read-only * Does not include the amount of compensation by an ND filter even if the ND filter is dynamically inserted or removed during iris adjustment
Light Amount Correction Information [c]	c.<c>.ae.diaphragm.restrict	CR-X300 XF605	Selected from c.<c>.ae.diaphragm.restrict.list	GC-U	Iris limit
Light Amount Correction Information [c]	c.<c>.ae.diaphragm.restrict.list	CR-X300 XF605	off, on	G--U	Iris limit list
Light Amount Correction Information [c]	c.<c>.me.diaphragm.restrict	CR-N700 CR-N400 CR-N350 CR-X300 XF605	Selected from c.<c>.me.diaphragm.restrict.list	GC-U	Iris limit

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Light Amount Correction Information [c]	c.<c>.me.diaphragm.restrict.list	CR-N700 CR-N400 CR-N350 CR-X300 XF605	off, on	G--U	Iris limit list
Light Amount Correction Information [c]	c.<c>.me.shutter.mode	-	Selected from c.<c>.me.shutter.mode.list	GC-U	Shutter speed mode
Light Amount Correction Information [c]	c.<c>.me.shutter.mode.list	CR-N500	auto, speed, slow, clearscan	G--U	Shutter speed mode list
		CR-N300 CR-N100 CR-X300	When c.<c>.exp = tv: speedslow		
			When other than c.<c>.exp = tv: auto, speed, slow, clearscan		
		C500mk2 C400 C300mk3 C80 C70	speed, slow, clearscan, angle, off		
		CR-N700 CR-N400 CR-N350 C50 XF605	auto, speed, slow, clearscan, angle, off		

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Light Amount Correction Information [c]	c.<c>.me.shutter.increment	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from c.<c>.me.shutter.increment.list	GC-U	Shutter increment * Valid only when c.<c>.me.shutter.mode is set "speed"
Light Amount Correction Information [c]	c.<c>.me.shutter.increment.list	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	3, 4	G--U	Shutter increment list * Inverse of set value
Light Amount Correction Information [c]	c.<c>.ae.shutter	CR-N300 CR-N100 CR-X300 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from c.<c>.ae.shutter.list	GC-U	Shutter speed * Valid when c.<c>.me.shutter.mode is set to a setting other than "clearscan" and "angle"

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Light Amount Correction Information [c]	c.<c>.ae.shutter.list	CR-N300 CR-N100 CR-X300	e.g. 2...2000	G--U	Shutter speed list
		C500mk2 C400 C300mk3 C80 C70 C50 XF605	e.g. 12...2000		
Light Amount Correction Information [c]	c.<c>.me.shutter	-	Selected from c.<c>.me.shutter.list	GC-U	Shutter speed * Valid when me.shutter.mode is set to a setting other than "clearscan" and "angle"
Light Amount Correction Information [c]	c.<c>.me.shutter.list	CR-N500	e.g. 60...2000	G--U	Shutter speed list * Changes by the value of c.<c>.me.shutter.mode and the camera frame rate.
		CR-N300 CR-N100 CR-X300	e.g. 2...2000		
		CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	e.g. 12...2000		

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Light Amount Correction Information [c]	c.<c>.me.clearscan	-	c.<c>.me.clearscan.min... c.<c>.me.clearscan.max * The value may be rounded up or rounded down when used in camera control. e.g. 6001 ⇒ 5994 e.g. 6002 ⇒ 6010	GC-U	Shutter speed during clear scan * Value obtained by multiplying 100 to Hz
Light Amount Correction Information [c]	c.<c>.me.clearscan.min	-	e.g. 5994 * Changes depending on camera frame frequency	G--U	Minimum configurable shutter speed value during clear scan * Value obtained by multiplying 100 to Hz
Light Amount Correction Information [c]	c.<c>.me.clearscan.max	-	e.g. 25038 * Changes depending on camera frame frequency	G--U	Maximum configurable shutter speed value during clear scan * Value obtained by multiplying 100 to Hz
Light Amount Correction Information [c]	c.<c>.me.clearscan.shift	-	c.<c>.me.clearscan.shift.min... c.<c>.me.clearscan.shift.max	-C--	Relative control of shutter speed during clear scan * Specifies the amount of shift to the valid value using the current value as a reference * The unit is not Hz * Obtain the clearscan value (Hz) from c.<c>.me.clearscan

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Light Amount Correction Information [c]	c.<c>.me.clearscan.shift.min	-	-100	G--U	Limit of the amount of shift on the minus side of the clear scan relative control
Light Amount Correction Information [c]	c.<c>.me.clearscan.shift.max	-	100	G--U	Limit of the amount of shift on the plus side of the clear scan relative control
Light Amount Correction Information [c]	c.<c>.me.angle	-	Selected from c.<c>.me.shutter.angle.list	GC-U	Shutter speed when in "angle" * Value obtained multiplied by 100 to angle * Valid only when the value in c.<c>.me.shutter.mode is "angle"
Light Amount Correction Information [c]	c.<c>.me.angle.list	-	e.g. 36000, 24000, 18000, 12000, 9000, 6000, 4500, 3000, 2250, 1500, 1125	G--U	Shutter angle list * Value obtained multiplied by 100 to angle * Valid only when the value in c.<c>.me.shutter.mode is "angle" * Changes depending on the camera system frequency
Light Amount Correction Information [c]	c.<c>.ae.shutter.restrict	CR-N300 CR-N100 CR-X300 XF605	Selected from c.<c>.ae.shutter.restrict.list	GC-U	Auto slow shutter

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Light Amount Correction Information [c]	c.<c>.ae.shutter.restrict.list	CR-N300 CR-N100 CR-X300 XF605	off, on	G--U	Auto slow shutter list
Light Amount Correction Information [c]	c.<c>.me.shutter.restrict	CR-N700 CR-N300 CR-N100 CR-X300 XF605	Selected from c.<c>.me.shutter.restrict.list	GC-U	Auto slow shutter
Light Amount Correction Information [c]	c.<c>.me.shutter.restrict.list	CR-N700 CR-N300 CR-N100 CR-X300 XF605	off, on	G--U	Auto slow shutter list
Light Amount Correction Information [c]	c.<c>.ae.flickerreduct	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300 C50 XF605	Selected from c.<c>.ae.flickerreduct.list	GC-U	Flicker reduction
Light Amount Correction Information [c]	c.<c>.ae.flickerreduct.list	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300 C50 XF605	off, auto	G--U	Flicker reduction list

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Light Amount Correction Information [c]	c.<c>.me.flickerreduce	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300 C50 XF605	Selected from c.<c>.me.flickerreduce.list	GC-U	Flicker reduction
Light Amount Correction Information [c]	c.<c>.me.flickerreduce.list	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300 C50 XF605	off, auto	G--U	Flicker reduction list
Light Amount Correction Information [c]	c.<c>.me.isogain.mode	CR-N700 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from c.<c>.me.isogain.mode.list	GC-U	ISO/gain mode
Light Amount Correction Information [c]	c.<c>.me.isogain.mode.list	CR-N700 C500mk2 C400 C300mk3 C80 C70 C50 XF605	iso, gain	G--U	ISO/gain mode list

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Light Amount Correction Information [c]	c.<c>.me.gain.mode	-	Selected from c.<c>.me.gain.mode.list	GC-U	Gain mode
Light Amount Correction Information [c]	c.<c>.me.gain.mode.list	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300 C400 C300mk3 C80 C70 C50 XF605 C500mk2	auto, manual manual	G--U	Gain mode list
Light Amount Correction Information [c]	c.<c>.me.gain.extended	C500mk2 C400 C300mk3 C80 C70 C50	Selected from c.<c>.me.gain.extended.list	GC-U	ISO/Gain sensitivity extension * Received when c.<c>.me.isogain.mode is "iso" or "gain"
Light Amount Correction Information [c]	c.<c>.me.gain.extended.list	C500mk2 C400 C300mk3 C80 C70 C50	off, on	G--U	ISO/Gain sensitivity extension list

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Light Amount Correction Information [c]	c.<c>.me.gain.increment	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from c.<c>.me.gain.increment.list	GC-U	Gain increment
Light Amount Correction Information [c]	c.<c>.me.gain.increment.list	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	normal, fine	G--U	Gain increment list
Light Amount Correction Information [c]	c.<c>.me.gain	<div> CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300 </div> <div> CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605 </div>	<div> c.<c>.me.gain.min ... c.<c>.me.gain.max </div> <div> * Receives in 0.5 dB increments (5 for I/F) </div> <div> When c.<c>.me.gain.increment = normal: c.<c>.me.gain.list </div> <div> When c.<c>.me.gain.increment = fine: c.<c>.me.gain.min ... c.<c>.me.gain.max </div>	GC-U	Gain * Unit: dB multiplied by 10

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Light Amount Correction Information [c]	c.<c>.me.gain.min	CR-N700 CR-N500 XF605	-60	G--U	Minimum configurable gain value * Unit: dB multiplied by 10
		CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	0		
		C500mk2 C400 C300mk3 C80 C70 C50	When c.<c>.me.gain.extended = off: -20 When c.<c>.me.gain.extended = on: -60		
Light Amount Correction Information [c]	c.<c>.me.gain.max	CR-N700 CR-N500	330	G--U	Maximum configurable gain value * Unit: dB multiplied by 10
		CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	c.<c>.me.gainlimit.max		
		XF605	When c.<c>.me.gain.boost = off: 210 When c.<c>.me.gain.boost = on: 360		
		C500mk2 C400 C300mk3 C80 C70 C50	When c.<c>.me.gain.extended = off: 420 When c.<c>.me.gain.extended = on: 540		

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Light Amount Correction Information [c]	c.<c>.me.gain.list	C500mk2 C400 C300mk3 C80 C70 C50 CR-N700 CR-N400 CR-N350 XF605	e.g. -60...540 * Can be referred to only when c.<c>.me.gain.increment is normal e.g. -60...210 * Can be referred to only when c.<c>.me.gain.increment is normal	G--U	Gain list * Unit: dB multiplied by 10
Light Amount Correction Information [c]	c.<c>.me.gain.boost	CR-N700 CR-N400 CR-N350 XF605	Selected from c.<c>.me.gain.boost.list	GC-U	Gain boost
Light Amount Correction Information [c]	c.<c>.me.gain.boost.list	CR-N700 CR-N400 CR-N350 XF605	off, on	G--U	Gain boost list
Light Amount Correction Information [c]	c.<c>.me.gain.high sensitive	CR-N700 CR-N400 CR-N350 XF605	Selected from c.<c>.me.gain.high sensitive.list	GC-U	High sensitivity mode
Light Amount Correction Information [c]	c.<c>.me.gain.high sensitive.list	CR-N700 CR-N400 CR-N350 XF605	off, on	G--U	High sensitivity mode list

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Light Amount Correction Information [c]	c.<c>.me.gain.shockless	CR-N700 CR-N400 CR-N350 XF605	Selected from c.<c>.me.gain.shockless.list	GC-U	Shockless gain
Light Amount Correction Information [c]	c.<c>.me.gain.shockless.list	CR-N700 CR-N400 CR-N350 XF605	off, high, normal, low	G--U	Shockless gain list
Light Amount Correction Information [c]	c.<c>.ae.gainlimit.max	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	c.<c>.ae.gainlimit.max.min... c.<c>.ae.gainlimit.max.max * Received by increments of 0.5 dB (5 as I/F).	GC-U	Gain limit on the maximum (upper) side * Value obtained by multiplying 10 to dB
		CR-N700 C400 C300mk3 C80 C70 C50 XF605	c.<c>.ae.gainlimit.list * Received by increments of 0.5 dB (5 as I/F).		
Light Amount Correction Information [c]	c.<c>.ae.gainlimit.max.min	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	0	G--U	Minimum configurable gain limit value on maximum (upper) side * Value obtained by multiplying 10 to dB

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Light Amount Correction Information [c]	c.<c>.ae.gainlimit.max.max	CR-N700	330	G--U	Maximum configurable gain limit value on maximum (upper) side * Value obtained by multiplying 10 to dB
		CR-N500			
		CR-N400 CR-N350	300		
		CR-N300 CR-N100 CR-X300	360		
Light Amount Correction Information [c]	c.<c>.ae.gainlimit.max.list	CR-N700 CR-N500 CR-N300 CR-N100 CR-X300 XF605	-60...210	G--U	Gain limit list on maximum (upper) side * Value obtained by multiplying 10 to dB
		CR-N400 CR-N350	0...300		
		C300mk3 C70	40...540		
		C400 C80 C50	-20...540		
Light Amount Correction Information [c]	c.<c>.me.gainlimit.max	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	c.<c>.me.gainlimit.max.min... c.<c>.me.gainlimit.max.max * Received by increments of 0.5 dB (5 as I/F).	GC-U	Gain limit on the maximum (upper) side * Unit: dB multiplied by 10
		C400 C300mk3 C80 C70 C50 XF605	c.<c>.me.gainlimit.max.list		

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Light Amount Correction Information [c]	c.<c>.me.gainlimit.max.min	CR-N700 CR-N500 CR-N300 CR-N100 CR-X300	-60	G--U	Minimum configurable gain limit value on maximum (upper) side * Unit: dB multiplied by 10
		CR-N400 CR-N350	0		
Light Amount Correction Information [c]	c.<c>.me.gainlimit.max.max	CR-N500	330	G--U	Maximum configurable gain limit value on maximum (upper) side * Unit: dB multiplied by 10
		CR-N400 CR-N350	300		
		CR-N300 CR-N100 CR-X300	360		
		CR-N700	210		
Light Amount Correction Information [c]	c.<c>.me.gainlimit.max.list	XF605	-60...210	G--U	Gain limit list on maximum (upper) side * Unit: dB multiplied by 10
		C300mk3 C70	40...540		
		C400 C80 C50	-20...540		
Light Amount Correction Information [c]	c.<c>.me.iso.mode	CR-N700 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from iso.mode.list	GC-U	ISO mode

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Light Amount Correction Information [c]	c.<c>.me.iso.mode.list	CR-N700 C400 C300mk3 C80 C70 C50 XF605 C500mk2	auto, manual manual	G--U	ISO mode list
Light Amount Correction Information [c]	c.<c>.me.iso.increment	CR-N700 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from c.<c>.me.iso.increment.list	GC-U	ISO increment
Light Amount Correction Information [c]	c.<c>.me.iso.increment.list	CR-N700 C500mk2 C400 C300mk3 C80 C70 C50 XF605	1, 3	G--U	ISO increment list * Inverse of set value
Light Amount Correction Information [c]	c.<c>.me.iso	CR-N700 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from c.<c>.me.iso.list	GC-U	ISO sensitivity

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Light Amount Correction Information [c]	c.<c>.me.iso.list	CR-N700 XF605	e.g. 200...12800 * The list changes depending on the value of c.<c>.me.iso.increment	G--U	ISO sensitivity list
		C500mk2 C400 C300mk3 C80 C70 C50	e.g. 100...102400 * The list changes depending on the value of c.<c>.me.iso.increment		
Light Amount Correction Information [c]	c.<c>.me.isolimit.max	CR-N700 C400 C300mk3 C80 C70 C50 XF605	c.<c>.me.isolimit.max.list	GC-U	ISO sensitivity limit on maximum (upper) side * Unit: ISO
Light Amount Correction Information [c]	c.<c>.me.isolimit.max.list	CR-N700 XF605	200...12800	G--U	Configurable ISO limit list * Unit: ISO
		C300mk3 C70	320...102400		
		C400 C80 C50	160...102400		
Light Amount Correction Information [c]	c.<c>.me.baseiso	C400 C80 C50	Selected from c.<c>.me.baseiso.list	GC-U	Base ISO

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Light Amount Correction Information [c]	c.<c>.me.baseiso.list	C400 C80	e.g. auto, iso800_12db, iso3200_12db...	G--U	Base ISO list Listing changes that depend on gamma/colorspace and other settings iso400_6db, iso1600_6db etc
		C50	e.g. auto, iso6400_12db, iso800_12db...		
Light Amount Correction Information [c]	c.<c>.lenscorrect.diffraction	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from c.<c>.lenscorrect.diffraction.list	GC-U	Diffraction correction
Light Amount Correction Information [c]	c.<c>.lenscorrect.diffraction.list	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	off, on	G--U	Diffraction correction list
Light Amount Correction Information [c]	c.<c>.dn.mode	CR-N700 CR-X300 XF605	Selected from c.<c>.dn.mode.list	GC-U	Infrared shooting control mode
Light Amount Correction Information [c]	c.<c>.dn.mode.list	CR-N700 CR-X300 XF605	manual	G--U	Infrared shooting control mode list

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Light Amount Correction Information [c]	c.<c>.dn	CR-N700 CR-X300	Selected from c.<c>.dn.list	GC-U	Infrared shooting
		XF605	off on * Read-only	G--U	* Insertion and extraction of IR cut filter
Light Amount Correction Information [c]	c.<c>.dn.list	CR-N700 CR-X300 XF605	off, on	G--U	Infrared shooting list off: Infrared off (day; with filter) on: Infrared on (night; without filter)
Light Amount Correction Information [c]	c.<c>.dn.reccolor	CR-N700 XF605	Selected from c.<c>.dn.reccolor.list	GC-U	Infrared shooting color * Color of images when in Infrared (infrared shooting) mode
Light Amount Correction Information [c]	c.<c>.dn.reccolor.list	CR-N700	white	G--U	Infrared shooting color list
		XF605	white, green, fullcolor * "fullcolor" appears only when the function is available		
Light Amount Correction Information [c]	c.<c>.colorbar	-	Selected from c.<c>.colorbar.list	GC-U	Color bars

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Light Amount Correction Information [c]	c.<c>.colorbar.list	-	off, on	G--U	Color bars list
Light Amount Correction Information [c]	c.<c>.nd.mode	CR-N700 C500mk2 C400 C300mk3 C80 C70 XF605	Selected from c.<c>.nd.mode.list	G--U	ND filter mode
		CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300		GC-U	
Light Amount Correction Information [c]	c.<c>.nd.mode.list	CR-N700 CR-N500 C500mk2 C400 C300mk3 C80 C70 XF605	manual	G--U	ND filter mode list assist: ND filter changes following iris fixed: ND filter is fixed without following iris manual: Allows changing ND filter setting
		CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	assist, fixed		
Light Amount Correction Information [c]	c.<c>.nd.filter.extended	C500mk2 C400 C300mk3 C80 C70	Selected from c.<c>.nd.filter.extended.list	GC-U	Extended ND range

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Light Amount Correction Information [c]	c.<c>.nd.filter.extended.list	C500mk2 C400 C300mk3 C80 C70	off, on	G--U	Extended ND range list
Light Amount Correction Information [c]	c.<c>.nd.format	C400 C80	Selected from c.<c>.nd.format.list	GC-U	ND display units
Light Amount Correction Information [c]	c.<c>.nd.format.list	C400 C80	stop, transmittance, optical density	G--U	ND display units list
Light Amount Correction Information [c]	c.<c>.nd.filter	CR-N700 CR-N500 C500mk2 C400 C300mk3 C80 C70 XF605	Selected from c.<c>.nd.filter.list	GC-U	ND filter status
		CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	e.g. 400 * Read-only	G--U	

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Light Amount Correction Information [c]	c.<c>.nd.filter.list	CR-N700 CR-N500 XF605	0, 400, 1600, 6400	G--U	ND filter list 0: ND filter OFF 400: 1/4 (2 stops) 1600: 1/16 (4 stops) 6400: 1/64 (6 stops) 25600: 1/256 (8 stops) 102400: 1/1024 (10 stop)
		C500mk2 C400 C300mk3 C80 C70	When Extended ND Range is off: 0, 400, 1600, 6400 When Extended ND Range is on: 0, 400, 1600, 6400, 25600, 102400		
Light Amount Correction Information [c]	c.<c>.extnd.mode	CR-X300	Selected from c.<c>.extnd.mode.list	GC-U	Enhanced ND filter mode
Light Amount Correction Information [c]	c.<c>.extnd.mode.list	CR-X300	manual	G--U	Enhanced ND filter mode list
Light Amount Correction Information [c]	c.<c>.extnd.filter	CR-X300	Selected from c.<c>.extnd.filter.list	GC-U	Enhanced ND filter
Light Amount Correction Information [c]	c.<c>.extnd.filter.list	CR-X300	0, 3200	G--U	Enhanced ND filter list

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.wb	-	Selected from c.<c>.wb.list	GC-U	White balance mode
Color Correction Information [c]	c.<c>.wb.list	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	auto, manual, kelvin, daylight, tungsten, wb_a, wb_b	G--U	White balance mode list
		C500mk2 C400 C300mk3 C80 C70 C50 XF605	auto, kelvin, daylight, tungsten, wb_a, wb_b		
Color Correction Information [c]	c.<c>.wb.action	-	Selected from c.<c>.wb.action.list	-C--	One-shot white balance * Register custom white balance
Color Correction Information [c]	c.<c>.wb.action.list	-	one_shot_a, one_shot_b	G--U	One-shot white balance list
Color Correction Information [c]	c.<c>.wb.value	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	<R gain value>-<B gain value> e.g. 256-640	GC-U	R gain, B gain (0...1023) * Valid when c.<c>.wb = manual

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.wb.kelvin.increment	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from wb.kelvin.increment.list	GC-U	Color temperature step * Unit in which the c.<c>.wb.kelvin setting can be changed
Color Correction Information [c]	c.<c>.wb.kelvin.increment.list	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	kelvin, mired	G--U	Color temperature step list kelvin: In units of 100 kelvins mired: In units of 5 mireds
Color Correction Information [c]	c.<c>.wb.kelvin	-	Selected from c.<c>.wb.kelvin.list	GC-U	Color temperature (K)
Color Correction Information [c]	c.<c>.wb.kelvin.list	-	2000...15000 * Valid only when c.<c>.wb = "kelvin"	G--U	Color temperature list (K)
Color Correction Information [c]	c.<c>.wb.kelvin.cc	-	c.<c>.wb.kelvin.cc.min... c.<c>.wb.kelvin.cc.max	GC-U	White balance color correction value (CC) * c.<c>.wb = Valid only when not "manual"

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.wb.kelvin.cc.min	-	When c.<c>.wb = "daylight", "tungsten": -5 When c.<c>.wb = "auto", "kelvin", "wb_a", "wb_b": -20	G--U	Minimum configurable color correction value (CC) at c.<c>.wb
Color Correction Information [c]	c.<c>.wb.kelvin.cc.max	-	When c.<c>.wb = "daylight", "tungsten": 5 When c.<c>.wb = "auto", "kelvin", "wb_a", "wb_b": 20	G--U	Maximum configurable color correction value (CC) at c.<c>.wb
Color Correction Information [c]	c.<c>.wb.resp	-	c.<c>.wb.resp.min ... c.<c>.wb.resp.max	GC-U	AWB response
Color Correction Information [c]	c.<c>.wb.resp.min	-	0	G--U	Minimum configurable value for AWB response
Color Correction Information [c]	c.<c>.wb.resp.max	-	2	G--U	Maximum configurable value for AWB response
Color Correction Information [c]	c.<c>.wb.shockless	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from c.<c>.wb.shockless.list	GC-U	Shockless WB

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.wb.shockless.list	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	off, on	G--U	Shockless WB list
Color Correction Information [c]	c.<c>.wb.awbhold	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from c.<c>.wb.awbhold.list	GC-U	AWB hold
Color Correction Information [c]	c.<c>.wb.awbhold.list	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	off, on	G--U	AWB hold list on: Stops auto white balance off: Executes auto white balance

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Custom Picture Information [u]	u	CR-N700 CR-N400 CR-N350	When u.mode = "standard": 1...20 When u.mode = "extended": 0...20	GC-U	Custom Picture No.
		C500mk2 C400 C300mk3 C80 C70 C50 XF605	1...u.count		
Custom Picture Information [u]	u.count	CR-N700 CR-N400 CR-N350	When u.mode = "standard": 20 When u.mode = "extended": 21	G--U	Number of Custom Pictures
		C500mk2 C400 C300mk3 C80 C70 C50 XF605	20		
Custom Picture Information [u]	u.mode	CR-N700 CR-N400 CR-N350	standard extended	G--U	Custom Picture Mode

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Custom Picture Information [u]	u.<u>.name	CR-N700 CR-N400 CR-N350	e.g. BT.709 Normal	G--U	Custom Picture name * Name of the custom picture number [u] in selection * 16 alphanumeric characters and symbols * Range of <u> corresponds to u and varies depending on u.mode. * u.0.name cannot be changed.
		C500mk2 C400 C300mk3 C80 C70 C50 XF605			Custom Picture name * Name of the currently selected Custom Picture No. [u]. * 16 alphanumeric characters or symbols * <u> ranges from 1 to 20.
Custom Picture Information [u]	u.<u>.protect	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from u.<u>.protect.list	GC-U	Protect status of Custom Picture * Protect status of the currently selected Custom Picture No. [u] * Range of <u> corresponds to u and varies depending on u.mode.

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Custom Picture Information [u]	u.<u>.protect.list	CR-N700 CR-N400 CR-N350	When u is "0": off When u is other than "0": off, on	G--U	Protect status list for custom pictures off: Unprotected state on: Protected state * <u> ranges from 0 to 20.
		C500mk2 C400 C300mk3 C80 C70 C50 XF605	off, on		Protect status list for custom pictures off: Unprotected state on: Protected state * <u> ranges from 1 to 20.
Color Correction Information [c]	c.<c>.cp	CR-N500	Selected from c.<c>.cp.list	GC-U	Custom picture (Customized image quality mode) * When this item is specified, c.<c>.gamma, c.<c>.colorspace, and c.<c>.colormatrix are changed to predetermined combination for each custom picture.

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.cp.list	CR-N700	normal1_bt709, widedr_bt709, standard_bt709, clog3, pq, hlg, eos_standard, eos_neutral, canon709_bt709, user	G--U	Custom picture (Customized image quality mode) list
		CR-N500	normal1_bt709, normal1_bt2020, widedr_bt709, widedr_bt2020, clog3_bt2020, clog3_bt709, off		
		CR-N400 CR-N350	widedr_bt709, standard_bt709, clog3, pq, hlg, eos_standard, eos_neutral, canon709_bt709, user		
Color Correction Information [c]	c.<c>.gamma	-	Selected from c.<c>.gamma.list	GC-U	Gamma list * Specifies a combination of gamma and colorspace, depending on the product specification.

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.gamma.list	CR-N700 XF605	clog3_cgamut, clog3_bt2020, clog3_bt709, pq_bt2020, hlg_bt2020, widedr_bt2020, widedr_bt709, normal_bt2020, normal_bt709, standard_bt709, canon709_bt709	G--U	Gamma list * Sets a combination of gamma and colorspace, depending on the product specification.
		CR-N500	normal1, normal2, normal3, normal4, widedr, clog3		
		CR-N400 CR-N350	clog3_cgamut, clog3_bt2020, clog3_bt709, pq_bt2020, hlg_bt2020, widedr_bt709, standard_bt709, canon709_bt709		

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.gamma.list	CR-N300 CR-N100 CR-X300	normal1, normal3	G--U	Gamma list * Sets a combination of gamma and colorspace, depending on the product specification.
		C500mk2 C300mk3 C70	clog2_cgamut, clog3_cgamut, clog3_bt2020, clog3_bt709, pq_bt2020, hlg_bt2020, widedr_bt2020, widedr_bt709, normal_bt2020, normal_bt709, standard_bt709, canon709_bt709		
		C400 C80 C50	clog2_cgamut, clog3_cgamut, clog3_bt2020, clog3_bt709, pq_bt2020, hlg_bt2020, widedr_bt709, standard_bt709, canon709_bt709		
Color Correction Information [c]	c.<c>.colorspace	CR-N500 CR-N300 CR-N100 CR-X300	Selected from c.<c>.colorspace.list	GC-U	Color space
Color Correction Information [c]	c.<c>.colorspace.list	CR-N500 CR-N300 CR-N100 CR-X300	gamut_bt709, gamut_bt2020	G--U	Color space list

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.colormatrix	-	Selected from c.<c>.colormatrix.list	GC-U	Color Matrix
Color Correction Information [c]	c.<c>.colormatrix.list	CR-N500 CR-N300 CR-N100 CR-X300	video, neutral	G--U	Color Matrix list
		CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	video, neutral, production_camera		
Color Correction Information [c]	c.<c>.lookfile	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from c.<c>.lookfile.list	GC-U	Look file picture quality

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.lookfile.list	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	off, on	G--U	Look file picture quality list
Color Correction Information [c]	c.<c>.lookfile.name	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	<string>	G--U	Look file name * Name of the lookfile set for the selected custom picture.
Color Correction Information [c]	c.<c>.lookfile.intensity	C50	c.<c>.lookfile.intensity.min... c.<c>.lookfile.intensity.max	GC-U	Intensity of look file picture quality
Color Correction Information [c]	c.<c>.lookfile.intensity.min	C50	10	G--U	Minimum configurable value of intensity of look file picture quality
Color Correction Information [c]	c.<c>.lookfile.intensity.max	C50	100	G--U	Maximum configurable value of intensity of look file picture quality

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.lookfile.before.gamma	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	c.<c>.gamma / c.<c>.colorspace	G--U	Gamma/Color Space setting value when registering lookfile
Color Correction Information [c]	c.<c>.lookfile.before.hlgcolor	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	c.<c>.hlgcolor	G--U	HLG Color setting value when registering lookfile
Color Correction Information [c]	c.<c>.lookfile.before.over100	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	c.<c>.over100	G--U	Over 100% setting value when registering lookfile
Color Correction Information [c]	c.<c>.lookfile.before.whitelevel100	CR-N400 CR-N350 C400 C80 C50	c.<c>.knee.whitelevel100	G--U	White level 100% setting value when registering lookfile

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.lookfile.after.gamma	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	c.<c>.gamma / c.<c>.colorspace	G--U	Gamma/Color Space settings after applying lookfile
Color Correction Information [c]	c.<c>.lookfile.after.gamma.list	CR-N700 C500mk2 C400 C300mk3 C80 C70 C50 XF605 CR-N400 CR-N350	cp, sdr_bt709, sdr_bt2020, hdr_pq_bt2100, hdr_hlg_bt2100	G--U	Configurable Gamma/Color Space setting value list after lookfile is applied
Color Correction Information [c]	c.<c>.hlgcolor	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from c.<c>.hlgcolor.list	GC-U	HLG Color * Sets the HLG Color tone.

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.hlcolor.list	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	vivid, bt2100	G--U	HLG Color list
Color Correction Information [c]	c.<c>.blacklevel	-	c.<c>.blacklevel.min... c.<c>.blacklevel.max	GC-U	Black Level (Black: Master Pedestal)
Color Correction Information [c]	c.<c>.blacklevel.min	C500mk2 C400 C300mk3 C80 C70 C50 XF605	-50	G--U	Minimum configurable value of Black Level
		CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	-250		

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.blacklevel.max	C500mk2 C400 C300mk3 C80 C70 C50 XF605	50	G--U	Maximum configurable value of Black Level
		CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	250		
Color Correction Information [c]	c.<c>.blacklevel.red	-	c.<c>.blacklevel.red.min... c.<c>.blacklevel.red.max	GC-U	Black level (RED) (Black: Master Black Red)
Color Correction Information [c]	c.<c>.blacklevel.red.min	C500mk2 C400 C300mk3 C80 C70 C50 XF605	-50	G--U	Minimum configurable value of black level (RED)
		CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	-250		

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.blacklevel.red.max	C500mk2 C400 C300mk3 C80 C70 C50 XF605	50	G--U	Maximum configurable value of black level (RED)
		CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	250		
Color Correction Information [c]	c.<c>.blacklevel.green	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	c.<c>.blacklevel.green.min... c.<c>.blacklevel.green.max	GC-U	Black level (GREEN) (Black: Master Black Green)
Color Correction Information [c]	c.<c>.blacklevel.green.min	C500mk2 C400 C300mk3 C80 C70 C50 XF605	-50	G--U	Minimum configurable value of black level (GREEN)
		CR-N700 CR-N400 CR-N350	-250		

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.blacklevel.green.max	C500mk2 C400 C300mk3 C80 C70 C50 XF605	50	G--U	Maximum configurable value of black level (GREEN)
		CR-N700 CR-N400 CR-N350	250		
Color Correction Information [c]	c.<c>.blacklevel.blue	-	c.<c>.blacklevel.blue.min... c.<c>.blacklevel.blue.max	GC-U	Black level (BLUE) (Black: Master Black Blue)
Color Correction Information [c]	c.<c>.blacklevel.blue.min	C500mk2 C400 C300mk3 C80 C70 C50 XF605	-50	G--U	Minimum configurable value of black level (BLUE)
		CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	-250		

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.blacklevel.blue.max	C500mk2 C400 C300mk3 C80 C70 C50 XF605	50	G--U	Maximum configurable value of black level (BLUE)
		CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	250		
Color Correction Information [c]	c.<c>.blackgamma	-	c.<c>.blackgamma.min... c.<c>.blackgamma.max	GC-U	Black Gamma: Level
Color Correction Information [c]	c.<c>.blackgamma.min	-	-50	G--U	Minimum configurable value of Black Gamma: Level
Color Correction Information [c]	c.<c>.blackgamma.max	-	50	G--U	Maximum configurable value of Black Gamma: Level
Color Correction Information [c]	c.<c>.blackgamma.range	-	c.<c>.blackgamma.range.min... c.<c>.blackgamma.range.max	GC-U	Black Gamma: Range

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.blackgamma.range.min	-	-20	G--U	Minimum configurable value of Black Gamma: Range
Color Correction Information [c]	c.<c>.blackgamma.range.max	-	50	G--U	Maximum configurable value of Black Gamma: Range
Color Correction Information [c]	c.<c>.blackgamma.point	-	c.<c>.blackgamma.point.min... c.<c>.blackgamma.point.max	GC-U	Black Gamma: Point
Color Correction Information [c]	c.<c>.blackgamma.point.min	-	-20	G--U	Minimum configurable value of Black Gamma: Point
Color Correction Information [c]	c.<c>.blackgamma.point.max	-	50	G--U	Maximum configurable value of Black Gamma: Point
Color Correction Information [c]	c.<c>.lowkeysaturation	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from c.<c>.lowkeysaturation.list	GC-U	Low key Saturation : Activate setting

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.lowkeysaturation.list	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	off, on	G--U	Low key Saturation: Activate list
Color Correction Information [c]	c.<c>.lowkeysaturation.level	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	c.<c>.lowkeysaturation.level.min... c.<c>.lowkeysaturation.level.max	GC-U	Low key Saturation : Level
Color Correction Information [c]	c.<c>.lowkeysaturation.level.min	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	-50	G--U	Minimum configurable value of Low Key Saturation : Level

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.lowkeysaturation.level.max	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	50	G--U	Maximum configurable value of Low Key Saturation : Level
Color Correction Information [c]	c.<c>.knee	-	Selected from c.<c>.knee.list	GC-U	Knee: Activate
Color Correction Information [c]	c.<c>.knee.list	-	off, on	G--U	Knee: Activate setting list
Color Correction Information [c]	c.<c>.knee.automatic	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300 XF605	Selected from c.<c>.knee.automatic.list	GC-U	Knee: Automatic
Color Correction Information [c]	c.<c>.knee.automatic.list	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300 XF605	off, on	G--U	Knee: Automatic list

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.knee.whitelevel100	CR-N400 CR-N350 C400 C80 C50	Selected from c.<c>.knee.whitelevel100.list	GC-U	Setting to limit the knee output to 100%
Color Correction Information [c]	c.<c>.knee.whitelevel100.list	CR-N400 CR-N350 C400 C80 C50	off, on	G--U	Setting to limit the knee output to 100% list
Color Correction Information [c]	c.<c>.knee.slope	-	c.<c>.knee.slope.min... c.<c>.knee.slope.max	GC-U	Knee: Slope
Color Correction Information [c]	c.<c>.knee.slope.min	-	-35	G--U	Minimum configurable value of Knee: Slope
Color Correction Information [c]	c.<c>.knee.slope.max	-	50	G--U	Maximum configurable value of Knee: Slope
Color Correction Information [c]	c.<c>.knee.point	-	c.<c>.knee.point.min... c.<c>.knee.point.max	GC-U	Knee: Point
Color Correction Information [c]	c.<c>.knee.point.min	-	50	G--U	Minimum configurable value of Knee: Point

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.knee.point.max	-	109	G--U	Maximum configurable value of knee: point
Color Correction Information [c]	c.<c>.knee.saturation	-	c.<c>.knee.saturation.min... c.<c>.knee.saturation.max	GC-U	Knee: Saturation
Color Correction Information [c]	c.<c>.knee.saturation.min	-	-10	G--U	Minimum configurable value of Knee: Saturation
Color Correction Information [c]	c.<c>.knee.saturation.max	-	10	G--U	Maximum configurable value of Knee: Saturation
IS/NR/Sharpness [c]	c.<c>.nr	CR-N500 CR-N300 CR-N100 CR-X300	c.<c>.nr.min... c.<c>.nr.max	GC-U	Noise Reduction
IS/NR/Sharpness [c]	c.<c>.nr.min	CR-N500 CR-N300 CR-N100 CR-X300	0	G--U	Minimum configurable value of Noise Reduction level
IS/NR/Sharpness [c]	c.<c>.nr.max	CR-N500 CR-N300 CR-N100 CR-X300	12	G--U	Maximum configurable value of Noise Reduction level

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
IS/NR/Sharpness [c]	c.<c>.nr.mode	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300 C400 C80 C50 XF605	Selected from nr.mode.list	GC-U	Noise Reduction Mode
IS/NR/Sharpness [c]	c.<c>.nr.mode.list	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300 C400 C80 C50 XF605	manual, auto	G--U	Noise Reduction Mode list
IS/NR/Sharpness [c]	c.<c>.nr.spatialfilter	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	c.<c>.nr.spatialfilter.min... c.<c>.nr.spatialfilter.max	GC-U	Noise reduction spatial filter

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
IS/NR/Sharpness [c]	c.<c>.nr.spatialfilter.min	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	0	G--U	Minimum configurable value of Noise Reduction Spatial Filter 0: Off
IS/NR/Sharpness [c]	c.<c>.nr.spatialfilter.max	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	12	G--U	Maximum configurable value of Noise Reduction Spatial Filter
IS/NR/Sharpness [c]	c.<c>.nr.framecorrelation	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	c.<c>.nr.framecorrelation.min... c.<c>.nr.framecorrelation.max	GC-U	Noise Reduction Frame Correlation

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
IS/NR/Sharpness [c]	c.<c>.nr.framecorrelation.min	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	0	G--U	Minimum configurable value of Noise Reduction Frame Correlation 0: Off
IS/NR/Sharpness [c]	c.<c>.nr.framecorrelation.max	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	3	G--U	Maximum configurable value of Noise Reduction Frame Correlation
IS/NR/Sharpness [c]	c.<c>.nr.snpriority	CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	Selected from nc.<c>.nr.snpriority.list	GC-U	S/N priority mode
IS/NR/Sharpness [c]	c.<c>.nr.snpriority.list	CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	off, on	G--U	S/N priority mode list
IS/NR/Sharpness [c]	c.<c>.ac	-	c.<c>.ac.min... c.<c>.ac.max	GC-U	Sharpness: Level
IS/NR/Sharpness [c]	c.<c>.ac.min	-	-10	G--U	Minimum configurable value of Sharpness: Level

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
IS/NR/Sharpness [c]	c.<c>.ac.max	-	50	G--U	Maximum configurable value of Sharpness: Level
IS/NR/Sharpness [c]	c.<c>.ac.detailfreq	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	c.<c>.ac.detailfreq.min... c.<c>.ac.detailfreq.max	GC-U	Sharpness: Detail Frequency
IS/NR/Sharpness [c]	c.<c>.ac.detailfreq.min	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	-8	G--U	Minimum configurable value of Sharpness: Detail Frequency
IS/NR/Sharpness [c]	c.<c>.ac.detailfreq.max	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	8	G--U	Maximum configurable value of Sharpness: Detail Frequency

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
IS/NR/Sharpness [c]	c.<c>.ac.coringlevel	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	c.<c>.ac.coringlevel.min... c.<c>.ac.coringlevel.max	GC-U	Sharpness: Coring Level
IS/NR/Sharpness [c]	c.<c>.ac.coringlevel.min	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	-30	G--U	Minimum configurable value of Sharpness: Coring Level
IS/NR/Sharpness [c]	c.<c>.ac.coringlevel.max	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	50	G--U	Maximum configurable value of Sharpness: Coring Level
IS/NR/Sharpness [c]	c.<c>.ac.limit	-	c.<c>.ac.limit.min ... c.<c>.ac.limit.max	GC-U	Sharpness: Limit
IS/NR/Sharpness [c]	c.<c>.ac.limit.min	-	-50	G--U	Minimum configurable value of Sharpness Limit

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
IS/NR/Sharpness [c]	c.<c>.ac.limit.max	-	50	G--U	Maximum configurable value of Sharpness Limit
Color Correction Information [c]	c.<c>.skindetail.level	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	c.<c>.skindetail.level.min... c.<c>.skindetail.level.max	GC-U	Skin Detail: Effect Level
Color Correction Information [c]	c.<c>.skindetail.level.min	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	0	G--U	Minimum configurable value of Skin Detail: Effect Level
Color Correction Information [c]	c.<c>.skindetail.level.max	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	3	G--U	Maximum configurable value of Skin Detail: Effect Level

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.skindetail.hue	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	c.<c>.skindetail.hue.min... c.<c>.skindetail.hue.max	GC-U	Skin Detail:Hue
Color Correction Information [c]	c.<c>.skindetail.hue.min	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	-16	G--U	Minimum configurable value of Skin Detail: Hue
Color Correction Information [c]	c.<c>.skindetail.hue.max	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	16	G--U	Maximum configurable value of Skin Detail: Hue

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.skindetail.chroma	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	c.<c>.skindetail.chroma.min... c.<c>.skindetail.chroma.max	GC-U	Skin Detail: Chroma
Color Correction Information [c]	c.<c>.skindetail.chroma.min	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	0	G--U	Minimum configurable value of Skin Detail: Chroma
Color Correction Information [c]	c.<c>.skindetail.chroma.max	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	31	G--U	Maximum configurable value of Skin Detail: Chroma

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.skindetail.area	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	c.<c>.skindetail.area.min... c.<c>.skindetail.area.max	GC-U	Skin Detail: Area
Color Correction Information [c]	c.<c>.skindetail.area.min	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	0	G--U	Minimum configurable value of Skin Detail: Area
Color Correction Information [c]	c.<c>.skindetail.area.max	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	31	G--U	Maximum configurable value of Skin Detail: Area

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.skindetail.ylevel	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	c.<c>.skindetail.ylevel.min... c.<c>.skindetail.ylevel.max	GC-U	Skin Detail: Y Level
Color Correction Information [c]	c.<c>.skindetail.ylevel.min	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	0	G--U	Minimum configurable value of Skin Detail: Y Level
Color Correction Information [c]	c.<c>.skindetail.ylevel.max	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	31	G--U	Maximum configurable value of Skin Detail: Y Level
Color Correction Information [c]	c.<c>.colormatrix.gain	-	c.<c>.colormatrix.gain.min... c.<c>.colormatrix.gain.max	GC-U	Color Matrix Tuning: Gain

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.colormatrix.gain.min	-	-50	G--U	Minimum configurable value of Color Matrix Tuning: Gain
Color Correction Information [c]	c.<c>.colormatrix.gain.max	-	50	G--U	Maximum configurable value of Color Matrix Tuning: Gain
Color Correction Information [c]	c.<c>.colormatrix.phase	-	c.<c>.colormatrix.phase.min... c.<c>.colormatrix.phase.max	GC-U	Color Color Matrix Tuning: phase
Color Correction Information [c]	c.<c>.colormatrix.phase.min	-	-18	G--U	Minimum configurable value of Color Matrix Tuning: phase
Color Correction Information [c]	c.<c>.colormatrix.phase.max	-	18	G--U	Maximum configurable value of Color Matrix Tuning: phase
Color Correction Information [c]	c.<c>.colormatrix.rg	-	c.<c>.colormatrix.rg.min... c.<c>.colormatrix.rg.max	GC-U	Color Matrix Tuning R-G
Color Correction Information [c]	c.<c>.colormatrix.rg.min	-	-50	G--U	Minimum configurable R-G value of Color Matrix Tuning

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.colormatrix.rg.max	-	50	G--U	Maximum configurable R-G value of color matrix
Color Correction Information [c]	c.<c>.colormatrix.rb	-	c.<c>.colormatrix.rb.min... c.<c>.colormatrix.rb.max	GC-U	Color Matrix Tuning R-B
Color Correction Information [c]	c.<c>.colormatrix.rb.min	-	-50	G--U	Minimum configurable R-B value of Color Matrix Tuning
Color Correction Information [c]	c.<c>.colormatrix.rb.max	-	50	G--U	Maximum configurable R-B value of Color Matrix Tuning
Color Correction Information [c]	c.<c>.colormatrix.gr	-	c.<c>.colormatrix.gr.min... c.<c>.colormatrix.gr.max	GC-U	Color Matrix Tuning G-R
Color Correction Information [c]	c.<c>.colormatrix.gr.min	-	-50	G--U	Minimum configurable G-R value of Color Matrix Tuning
Color Correction Information [c]	c.<c>.colormatrix.gr.max	-	50	G--U	Maximum configurable G-R value of Color Matrix Tuning

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.colormatrix.gb	-	c.<c>.colormatrix.gb.min... c.<c>.colormatrix.gb.max	GC-U	Color Matrix Tuning G-B
Color Correction Information [c]	c.<c>.colormatrix.gb.min	-	-50	G--U	Minimum configurable G-B value of Color Matrix Tuning
Color Correction Information [c]	c.<c>.colormatrix.gb.max	-	50	G--U	Maximum configurable G-B value of Color Matrix Tuning
Color Correction Information [c]	c.<c>.colormatrix.br	-	c.<c>.colormatrix.br.min... c.<c>.colormatrix.br.max	GC-U	Color Matrix Tuning B-R
Color Correction Information [c]	c.<c>.colormatrix.br.min	-	-50	G--U	Minimum configurable B-R value of Color Matrix Tuning
Color Correction Information [c]	c.<c>.colormatrix.br.max	-	50	G--U	Maximum configurable B-R value of Color Matrix Tuning
Color Correction Information [c]	c.<c>.colormatrix.bg	-	c.<c>.colormatrix.bg.min... c.<c>.colormatrix.bg.max	GC-U	Color Matrix Tuning B-G

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.colormatrix.bg.min	-	-50	G--U	Minimum configurable B-G value of Color Matrix Tuning
Color Correction Information [c]	c.<c>.colormatrix.bg.max	-	50	G--U	Maximum configurable B-G value of Color Matrix Tuning
Color Correction Information [c]	c.<c>.wb.shift.rgain	-	c.<c>.wb.shift.rgain.min... c.<c>.wb.shift.rgain.max	GC-U	White Balance: R Gain
Color Correction Information [c]	c.<c>.wb.shift.rgain.min	-	-50	G--U	Minimum configurable value of White Balance: R Gain
Color Correction Information [c]	c.<c>.wb.shift.rgain.max	-	50	G--U	Maximum configurable value of White Balance: R Gain
Color Correction Information [c]	c.<c>.wb.shift.ggain	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	c.<c>.wb.shift.ggain.min... c.<c>.wb.shift.ggain.max	GC-U	White Balance: G Gain

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.wb.shift.ggain.min	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	-50	G--U	Minimum configurable value of White Balance: G Gain
Color Correction Information [c]	c.<c>.wb.shift.ggain.max	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	50	G--U	Maximum configurable value of White Balance: G Gain
Color Correction Information [c]	c.<c>.wb.shift.bgain	-	c.<c>.wb.shift.bgain.min... c.<c>.wb.shift.bgain.max	GC-U	White Balance: B Gain
Color Correction Information [c]	c.<c>.wb.shift.bgain.min	-	-50	G--U	Minimum configurable value of White Balance: B Gain
Color Correction Information [c]	c.<c>.wb.shift.bgain.max	-	50	G--U	Maximum configurable value of White Balance: B Gain

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.colorcorrection.area	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from c.<c>.colorcorrection.area.list	GC-U	Color Correction: Select Area
Color Correction Information [c]	c.<c>.colorcorrection.area.list	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	off, area_a, area_b, area_ab	G--U	Color Correction: Select Area list
Color Correction Information [c]	c.<c>.colorcorrection.a.phase	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	c.<c>.colorcorrection.a.phase.min... c.<c>.colorcorrection.a.phase.max	GC-U	Color Correction: Area A Setting Phase

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.colorcorrection.a.phase.min	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	0	G--U	Minimum configurable value of Color Correction: Area A Setting Phase
Color Correction Information [c]	c.<c>.colorcorrection.a.phase.max	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	31	G--U	Maximum configurable value of Color Correction: Area A Setting Phase
Color Correction Information [c]	c.<c>.colorcorrection.a.chroma	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	c.<c>.colorcorrection.a.chroma.min ... c.<c>.colorcorrection.a.chroma.max	GC-U	Color Correction: Area A Setting Chroma

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.colorcorrection.a.chroma.min	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	0	G--U	Minimum configurable value of Color Correction: Area A Setting Chroma
Color Correction Information [c]	c.<c>.colorcorrection.a.chroma.max	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	31	G--U	Maximum configurable value of Color Correction: Area A Setting Chroma
Color Correction Information [c]	c.<c>.colorcorrection.a.area	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	c.<c>.colorcorrection.a.area.min... c.<c>.colorcorrection.a.area.max	GC-U	Color Correction: Area A Setting Area

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.colorcorrection.a.area.min	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	0	G--U	Minimum configurable value of Color Correction: Area A Setting Area
Color Correction Information [c]	c.<c>.colorcorrection.a.area.max	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	31	G--U	Maximum configurable value of Color Correction: Area A Setting Area
Color Correction Information [c]	c.<c>.colorcorrection.a.ylevel	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	c.<c>.colorcorrection.a.ylevel.min... c.<c>.colorcorrection.a.ylevel.max	GC-U	Color Correction: Area A Setting Y Level

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.colorcorrection.a.ylevel.min	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	0	G--U	Minimum configurable value of Color Correction: Area A Setting Y Level
Color Correction Information [c]	c.<c>.colorcorrection.a.ylevel.max	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	31	G--U	Maximum configurable value of Color Correction: Area A Setting Y Level
Color Correction Information [c]	c.<c>.colorcorrection.a.revision.level	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	c.<c>.colorcorrection.a.revision.level.min... c.<c>.colorcorrection.a.revision.level.max	GC-U	Color Correction: Area A Revision Level

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.colorcorrection.a.revision.level.min	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	-50	G--U	Minimum configurable value of Color Correction: Area A Revision Level
Color Correction Information [c]	c.<c>.colorcorrection.a.revision.level.max	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	50	G--U	Maximum configurable value of Color Correction: Area A Revision Level
Color Correction Information [c]	c.<c>.colorcorrection.a.revision.phase	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	c.<c>.colorcorrection.a.revision.phase.min... c.<c>.colorcorrection.a.revision.phase.max	GC-U	Color Correction: Area A Revision Phase

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.colorcorrection.a.revision.phase.min	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	-18	G--U	Minimum configurable value of Color Correction: Area A Revision Phase
Color Correction Information [c]	c.<c>.colorcorrection.a.revision.phase.max	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	18	G--U	Maximum configurable value of Color Correction: Area A Revision Phase
Color Correction Information [c]	c.<c>.colorcorrection.b.phase	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	c.<c>.colorcorrection.b.phase.min... c.<c>.colorcorrection.b.phase.max	GC-U	Color Correction: Area B Setting Phase

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.colorcorrection.b.phase.min	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	0	G--U	Minimum configurable value of Color Correction: Area B Setting Phase
Color Correction Information [c]	c.<c>.colorcorrection.b.phase.max	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	31	G--U	Maximum configurable value of Color Correction: Area B Setting Phase
Color Correction Information [c]	c.<c>.colorcorrection.b.chroma	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	c.<c>.colorcorrection.b.chroma.min ... c.<c>.colorcorrection.b.chroma.max	GC-U	Color Correction: Area B Setting Chroma

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.colorcorrection.b.chroma.min	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	0	G--U	Minimum configurable value of Color Correction: Area B Setting Chroma
Color Correction Information [c]	c.<c>.colorcorrection.b.chroma.max	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	31	G--U	Maximum configurable value of Color Correction area-B chroma
Color Correction Information [c]	c.<c>.colorcorrection.b.area	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	c.<c>.colorcorrection.b.area.min... c.<c>.colorcorrection.b.area.max	GC-U	Color Correction: Area B Setting Area

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.colorcorrection.b.area.min	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	0	G--U	Minimum configurable value of Color Correction: Area B Setting Area
Color Correction Information [c]	c.<c>.colorcorrection.b.area.max	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	31	G--U	Maximum configurable value of Color Correction: Area B Setting Area
Color Correction Information [c]	c.<c>.colorcorrection.b.ylevel	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	c.<c>.colorcorrection.b.ylevel.min... c.<c>.colorcorrection.b.ylevel.max	GC-U	Color Correction: Area B Setting Y Level

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.colorcorrection.b.ylevel.min	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	0	G--U	Minimum configurable value of Color Correction: Area B Setting Y Level
Color Correction Information [c]	c.<c>.colorcorrection.b.ylevel.max	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	31	G--U	Maximum configurable value of Color Correction: Area B Setting Y Level
Color Correction Information [c]	c.<c>.colorcorrection.b.revision.level	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	c.<c>.colorcorrection.b.revision.level.min... c.<c>.colorcorrection.b.revision.level.max	GC-U	Color Correction: Area B Revision Level

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.colorcorrection.b.revision.level.min	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	-50	G--U	Minimum configurable value of Color Correction: Area B Revision Level
Color Correction Information [c]	c.<c>.colorcorrection.b.revision.level.max	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	50	G--U	Maximum configurable value of Color Correction: Area B Revision Level
Color Correction Information [c]	c.<c>.colorcorrection.b.revision.phase	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	c.<c>.colorcorrection.b.revision.phase.min... c.<c>.colorcorrection.b.revision.phase.max	GC-U	Color Correction: Area B Revision Phase

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.colorcorrection.b.revision.phase.min	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	-18	G--U	Minimum configurable value of Color Correction: Area B Revision Phase
Color Correction Information [c]	c.<c>.colorcorrection.b.revision.phase.max	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	18	G--U	Maximum configurable value of Color Correction: Area B Revision Phase
Color Correction Information [c]	c.<c>.over100	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from c.<c>.over100.list	GC-U	Over 100%

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Color Correction Information [c]	c.<c>.over100.list	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	through, clip, press	G--U	Over 100% list Through: Leave the signal unchanged Clip: Clip the signal at 100% Press: Compresses a signal of up to 108% down to 100% levels
IS/NR/Sharpness [c]	c.<c>.is	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300 XF605	Selected from c.<c>.is.list	GC-U	Image stabilizer
IS/NR/Sharpness [c]	c.<c>.is.list	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	off, on1, on2	G--U	Image stabilizer list off: Not used on1: For small amplitude on2: For large amplitude
		XF605	off, on1, on2, on3, on4		off: Not used (Image stabilizer is off and IS mode is set to Standard) on1: Standard on2: Standard + Powered on3: Dynamic on4: Dynamic + Powered
IS/NR/Sharpness [c]	c.<c>.eis	C500mk2 C400 C300mk3 C80 C70 C50	Selected from c.<c>.eis.list	GC-U	Electronic image stabilizer (Digital IS)

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
IS/NR/Sharpness [c]	c.<c>.eis.list	C500mk2 C300mk3	off, on1	G--U	Electronic image stabilizer list off: Not in use (Digital IS OFF) on1: Electronic image stabilizer ON (Digital IS ON)
		C400 C80 C50	off, on1, on2		Electronic image stabilizer list off: Not in use (Digital IS OFF) on1: Digital IS ON, Digital IS Mode: Standard on2: Digital IS ON, Digital IS Mode: High
		C70			Electronic image stabilizer list off: Not in use (Digital IS OFF) on1: Digital IS ON, Super16 Digital IS OFF on2: Digital IS ON, Super16 Digital IS ON
Focus Information [c]	c.<c>.focus	-	Selected from c.<c>.focus.list	GC-U	Focus mode
Focus Information [c]	c.<c>.focus.list	-	auto, manual	G--U	Focus mode list
Focus Information [c]	c.<c>.focus.action	-	Selected from c.<c>.focus.action.list	-C--	Focus action

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Focus Information [c]	c.<c>.focus.action.list	CR-N700 CR-N500 CR-N300 CR-N100 CR-X300 C500mk2 C400 C300mk3 C80 C70 C50	stop, one_shot, near, far	G--U	Focus action list one_shot: One-shot AF near: Focus movement to short distance side far: Focus movement to long distance side stop: Focus operation stop
		CR-N400 CR-N350	stop, one_shot, spot, near, far		
		XF605	stop, near, far		
フォーカス情報[c]	c.<c>.focus.oneshot.status	CR-N700 CR-N400 CR-N350	idle focusing	G--U	One-shot AF/Touch AF focusing operation status * Indicates the state of focusing operation immediately after one_shot or spot is specified for c.<c>.focus.action. idle: Stop focusing: Focusing in progress

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
フォーカス情報[c]	c.<c>.focus.oneshot.result	CR-N700	none in_focus out_of_focus	G--U	<p>One-shot AF/Touch AF focusing operation result</p> <p>* Indicates the result of focusing operation performed after one_shot or spot is specified for c.<c>.focus.action.</p> <p>* When c.<c>.focus.oneshot.status transitions from focusing to idle, transition to in_focus or out_of_focus occurs; then shortly thereafter (e.g., 1 second later) transition to none occurs.</p> <p>none: Reset results in_focus: Focused successfully out_of_focus: Failed to focus</p>
Focus Information [c]	c.<c>.focus.target.action	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from c.<c>.focus.target.action.list	-C--	Action for focused targets

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Focus Information [c]	c.<c>.focus.target.action.list	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	prev, next	G--U	Focused target action list prev: Moves focus back to the previous subject next: Moves focus to the next subject
Focus Information [c]	c.<c>.focus.value	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300 XF605	c.<c>.focus.value.min... c.<c>.focus.value.max	GC-U	Focus value
Focus Information [c]	c.<c>.focus.value.min	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300 XF605	0	G--U	Minimum configurable focus value
Focus Information [c]	c.<c>.focus.value.max	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300 XF605	2048	G--U	Maximum configurable focus value

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Focus Information [c]	c.<c>.focus.restrict	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300 XF605	Selected from c.<c>.focus.restrict.list	GC-U	Focus limit
Focus Information [c]	c.<c>.focus.restrict.list	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300 XF605	off, on	G--U	Focus limit list
Focus Information [c]	c.<c>.focus.speed	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	c.<c>.focus.speed.min... c.<c>.focus.speed.max	GC-U	MF speed
		C500mk2 C400 C300mk3 C80 C70 C50 XF605		-C--	
Focus Information [c]	c.<c>.focus.speed.min	-	0	G--U	Minimum configurable MF speed value

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Focus Information [c]	c.<c>.focus.speed.max	C500mk2 C400 C300mk3 C80 C70 C50 CR-N400 CR-N350 XF605 CR-N500 CR-N300 CR-N100 CR-X300 CR-N700	7 63 63 2 63 7	G--U	Maximum configurable MF speed value
Focus Information [c]	c.<c>.focus.auto	CR-N700 CR-N500 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from c.<c>.focus.auto.list	GC-U	AF mode
Focus Information [c]	c.<c>.focus.auto.list	CR-N700 CR-N500 C500mk2 C400 C300mk3 C80 C70 C50 XF605	continuous, afboosted	G--U	AF mode list continuous: Always in AF mode afboosted: Adjust the focus automatically when closing in on the focus position
Focus Information [c]	c.<c>.focus.auto.speed	-	c.<c>.focus.auto.speed.min... c.<c>.focus.auto.speed.max	GC-U	AF speed

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Focus Information [c]	c.<c>.focus.auto.speed.min	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300 XF605	0	G--U	Minimum configurable AF speed value
		C500mk2 C300mk3 C70	-7		
		C400 C80 C50	1		
Focus Information [c]	c.<c>.focus.auto.speed.max	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300 C500mk2 C300mk3 C70 XF605	2	G--U	Maximum configurable AF speed value
		C400 C80 C50	10		
Focus Information [c]	c.<c>.focus.auto.lock	C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from c.<c>.focus.auto.lock.list	GC-U	AF lock

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Focus Information [c]	c.<c>.focus.auto.lock.list	C500mk2 C400 C300mk3 C80 C70 C50 XF605	off, on	G--U	AF lock list
Focus Information [c]	c.<c>.focus.frame.pos	C500mk2 C300mk3 C70 XF605	Selected from c.<c>.focus.frame.pos.list	GC-U	AF frame position
Focus Information [c]	c.<c>.focus.frame.pos.list	C500mk2 C300mk3 C70 XF605	movable, fixed	G--U	AF frame position list movable: In operation fixed: Fixed at the center
Focus Information [c]	c.<c>.focus.frame.<f>	CR-N700 CR-N500 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from c.<c>.focus.frame.<f>.list	GC-U	AF frame size

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Focus Information [c]	c.<c>.focus.frame.<f>.list	CR-N700 CR-N500 C70 XF605	auto, large, small	G--U	AF frame size list
		C500mk2 C300mk3	large, small		
		C400 C80	auto, spot, zone, large_zone_vertical, large_zone_horizontal		
		C50	auto, spot, flexible_zone1, flexible_zone2, flexible_zone3		
Focus Information [c]	c.<c>.focus.frame.<f>.x	-	c.<c>.focus.frame.<f>.x.min... c.<c>.focus.frame.<f>.x.max	GC-U	X-coordinate of the center coordinates of the AF frame * Indicates the center coordinate of the AF frame, focus guide, and one-shot AF
Focus Information [c]	c.<c>.focus.frame.<f>.x.min	-	0	G--U	Minimum configurable x-coordinate for the center coordinates of the AF frame
Focus Information [c]	c.<c>.focus.frame.<f>.x.max	-	9999	G--U	Maximum configurable x-coordinate for the center coordinates of the AF frame
Focus Information [c]	c.<c>.focus.frame.<f>.y	-	c.<c>.focus.frame.<f>.y.min... c.<c>.focus.frame.<f>.y.max	GC-U	Y-coordinate of the center coordinates of the AF frame * Indicates the center coordinate of the AF frame, focus guide, and one-shot AF
Focus Information [c]	c.<c>.focus.frame.<f>.y.min	-	0	G--U	Minimum configurable y-coordinate for the center coordinates of the AF frame

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Focus Information [c]	c.<c>.focus.frame.<f>.y.max	-	9999	G--U	Maximum configurable y-coordinate for the center coordinates of the AF frame
Focus Information [c]	c.<c>.focus.frame.<f>.width	-	e.g. 2344	G--U	AF frame width
Focus Information [c]	c.<c>.focus.frame.<f>.height	-	e.g. 2666	G--U	AF frame height
Focus Information [c]	c.<c>.focus.frame.<f>.width.shift	C50	c.<c>.focus.frame.<f>.width.shift.min... c.<c>.focus.frame.<f>.width.shift.max	-C--	Relative control of changing the width of the AF (autofocus) frame * It is enabled only when c.<c>.focus.frame.<f> equals 'flexible_zone1', 'flexible_zone2', or 'flexible_zone3'.
Focus Information [c]	c.<c>.focus.frame.<f>.width.shift.min	C50	-1	G--U	Minimum configurable value of relative control of changing the width of the AF (autofocus) frame.
Focus Information [c]	c.<c>.focus.frame.<f>.width.shift.max	C50	1	G--U	Maximum configurable value of relative control of changing the width of the AF (autofocus) frame.
Focus Information [c]	c.<c>.focus.frame.<f>.height.shift	C50	c.<c>.focus.frame.<f>.height.shift.min... c.<c>.focus.frame.<f>.height.shift.max	-C--	Relative control of changing the height of the AF (autofocus) frame * It is enabled only when c.<c>.focus.frame.<f> equals 'flexible_zone1', 'flexible_zone2', or 'flexible_zone3'.

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Focus Information [c]	c.<c>.focus.frame.<f>.height.shift.min	C50	-1	G--U	Minimum configurable value of relative control of changing the height of the AF (autofocus) frame.
Focus Information [c]	c.<c>.focus.frame.<f>.height.shift.max	C50	1	G--U	Maximum configurable value of relative control of changing the height of the AF (autofocus) frame.
Focus Information [c]	c.<c>.focus.detect	-	Selected from c.<c>.focus.detect.list	GC-U	Face detection AF
Focus Information [c]	c.<c>.focus.detect.list	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300 C500mk2 C300mk3 C70 XF605	off, faceonly, facecatch	G--U	Face detection AF list
		C400 C80 C50	off, ppl_only, ppl_catch, anml_only, anml_catch		
Focus Information [c]	c.<c>.focus.detect.eye	CR-N700 CR-N400 CR-N350 C400 C80 C70 C50 XF605	Selected from c.<c>.focus.detect.eye.list	GC-U	Eye detection

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Focus Information [c]	c.<c>.focus.detect.eye.list	CR-N700 CR-N400 CR-N350 C400 C80 C70 XF605	off, on	G--U	Eye detection list
		C50	off, on, on_right, on_left		
Focus Information [c]	c.<c>.focus.detect.faceae	CR-N700 CR-N400 CR-N350 C400 C80 C50 XF605	Selected from c.<c>.focus.detect.faceae.list	GC-U	Face detection AE
Focus Information [c]	c.<c>.focus.detect.faceae.list	CR-N700 CR-N400 CR-N350 C400 C80 C50 XF605	off, on	G--U	Face detection AE list
Focus Information [c]	c.<c>.focus.auto.track	-	Selected from c.<c>.focus.auto.track.list	GC-U	Tracking start and stop
Focus Information [c]	c.<c>.focus.auto.track.list	-	off, on	G--U	Tracking start/stop list off: Stop on: Start, tracking in progress

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Focus Information [c]	c.<c>.focus.auto.track.mode	CR-N700 CR-N500 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from c.<c>.focus.auto.track.mode.list	GC-U	Tracking mode
Focus Information [c]	c.<c>.focus.auto.track.mode.list	CR-N700 CR-N500 C500mk2 C300mk3 C70 XF605	mode1, mode2	G--U	Tracking mode list mode1: Displays AF frame at the specified coordinates mode2: Tracks the subject at the specified coordinates
		C400 C80 C50	mode2		
Focus Information [c]	c.<c>.focus.auto.track.frame.x	-	c.<c>.focus.auto.track.frame.x.min... c.<c>.focus.auto.track.frame.x.max	-C--	X-coordinate of tracking start point (x-coordinate of the center of the tracking frame)
Focus Information [c]	c.<c>.focus.auto.track.frame.x.min	-	e.g. 0	G--U	Minimum configurable tracking start x-coordinate (center)
Focus Information [c]	c.<c>.focus.auto.track.frame.x.max	-	e.g. 9999	G--U	Maximum configurable tracking start x-coordinate (center)
Focus Information [c]	c.<c>.focus.auto.track.frame.y	-	c.<c>.focus.auto.track.frame.y.min... c.<c>.focus.auto.track.frame.y.max	-C--	Y-coordinate of tracking start point (y-coordinate of the center of the tracking frame)
Focus Information [c]	c.<c>.focus.auto.track.frame.y.min	-	e.g. 0	G--U	Minimum configurable tracking start y-coordinate (center)

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Focus Information [c]	c.<c>.focus.auto.track.frame.y.max	-	e.g. 9999	G--U	Maximum configurable tracking start y-coordinate (center)
Focus Information [c]	c.<c>.focus.auto.response	-	c.<c>.focus.auto.response.min... c.<c>.focus.auto.response.max	GC-U	AF response
Focus Information [c]	c.<c>.focus.auto.response.min	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300 XF605	0	G--U	Minimum configurable AF response value
		C50	1		
		C500mk2 C400 C300mk3 C80 C70	-3		
Focus Information [c]	c.<c>.focus.auto.response.max	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300 XF605	2	G--U	Maximum configurable AF response value
		C500mk2 C400 C300mk3 C80 C70	3		
		C50	5		

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Zoom Information [c]	c.<c>.zoom	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300 XF605	* Specifies absolute position c.<c>.zoom.min... c.<c>.zoom.max * Specifies relative position d[±]<difference>, e.g. d50 v[+]<difference>, e.g. v50 * Specifies direction tele, wide, stop	GC-U	<p>* Absolute position specification Zoom value (optical zoom ratio, digital zoom ratio, angle of view including teleconverter ratio)</p> <p>* Relative position specification Specify a relative position from the current zoom position. d: Specify by zoom position v: Specify by standard ratio (100 = current ratio) v200 is 2 times zoom v50 is 0.5 times zoom</p> <p>* Direction specification tele: move to telephoto side wide: move to wide-angle side stop: stop movement</p>
		C400 C80	* Specifies direction tele, wide, stop * Specifies absolute position Control is not possible; however, when certain RF lenses are attached, only value retrieval is available.		
		C500mk2 C300mk3 C70 C50	* Specifies direction tele, wide, stop		

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Zoom Information [c]	c.<c>.zoom.status	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 XF605	0, 1	G--U	Zoom operation status 0: During stop 1: During movement
Zoom Information [c]	c.<c>.zoom.d	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300 XF605	e.g. 570	G--U	Zoom value (absolute position) indicating the boundary between optical zoom and digital zoom (optical telephoto end)
Zoom Information [c]	c.<c>.zoom.mode	-	Selected from c.<c>.zoom.mode.list	GC-U	Digital zoom mode
Zoom Information [c]	c.<c>.zoom.mode.list	CR-N500 CR-N300 CR-N100 CR-X300 C50	off, dzoom, mag	G--U	Digital zoom mode list dzoom: Digital zoom mag: Digital teleconverter advanced: Advanced zoom
		CR-N700 CR-N400 CR-N350 XF605	off, dzoom, mag, advanced		
		C500mk2 C400 C300mk3 C80 C70	off, mag		

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Zoom Information [c]	c.<c>.zoom.dzoom	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300 C50 XF605	e.g. 150	G--U	Digital zoom magnification * Unit: % * Valid when c.<c>.zoom.mode is "dzoom"
Zoom Information [c]	c.<c>.zoom.mag	-	Selected from c.<c>.zoom.mag.list	GC-U	Digital zoom magnification (digital teleconverter) * Unit: % * Valid when c.<c>.zoom.mode is "mag"
Zoom Information [c]	c.<c>.zoom.mag.list	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300 XF605	100, 150, 300, 600	G--U	Digital zoom magnification list
		C500mk2 C400 C300mk3 C80 C70 C50	100, 150, 200, 250, 300		
Zoom Information [c]	c.<c>.zoom.diameter	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300 XF605	e.g. 350	G--U	Zoom magnification * Unit: % * Valid regardless of c.<c>.zoom.mode

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Zoom Information [c]	c.<c>.zoom.diameter.upperlimit	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	e.g. 30000	G--U	Zoom magnification upper limit * Unit: %

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Zoom Information [c]					
Canon Inc.					

			e.g. 350		
	XC Protocol Specifications BPE-7216-011		* Value changes depending on the value of		
			Value zoom.mag		
			Type/Range		
			c.<c>.zoom.mode		
Type	Name	Model Specific Info.	Value	Attribute	Description
		C500mk2 C400 C300mk3 C80 C70 C50	0		

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Zoom Information [c]					
Canon Inc.					

XC Protocol Specifications BPE-7216-011			e.g. 6430		
			* Value changes depending on the value of		
Type	Name	Model Specific Info.	Value/Range c.<c>.zoom.mag c.<c>.zoom.mode	Attribute	Description
		C500mk2 C400 C300mk3 C80 C70 C50	0		
Zoom Information [c]	c.<c>.zoom.normalized	C50	e.g. 50	G--U	Abstract value of current optical zoom position null: information not available In C50, 0 (wide-angle end)–99 (telephoto end).)
Zoom Information [c]	c.<c>.zoom.limit.min	CR-N700 CR-N500	570	G--U	Minimum configurable value of zoom telephoto end * Angle of view (1=0.01 degree)
		CR-N400 CR-N350	When framerate is 29.97Hz or lower: e.g. 360		
		CR-N300 CR-N100 CR-X300	When framerate is 59.94kHz or lower: e.g. 350		
Zoom Information [c]	c.<c>.zoom.limit.max	CR-N700 CR-N500	7300	G--U	Maximum configurable value of zoom telephoto end * Angle of view (1=0.01 degree)
		CR-N400 CR-N350	When framerate is 29.97Hz or lower: e.g. 6560		
		CR-N300 CR-N100 CR-X300	When framerate is 59.94kHz or lower: e.g. 6430		
Zoom Information [c]	c.<c>.zoom.speed	-	c.<c>.zoom.speed.min... c.<c>.zoom.speed.max	-CP-	Direction specification/position specification zoom speed

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Zoom Information [c]	c.<c>.zoom.speed.pos	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300 XF605	c.<c>.zoom.speed.min... c.<c>.zoom.speed.max	GCPU	Position specification zoom speed
Zoom Information [c]	c.<c>.zoom.speed.dir	-	c.<c>.zoom.speed.min... c.<c>.zoom.speed.max	GCPU	Direction specification zoom speed
Zoom Information [c]	c.<c>.zoom.speed.min	-	0	G--U	Minimum configurable value of zoom speed
Zoom Information [c]	c.<c>.zoom.speed.max	CR-N700	127 23	G--U	Maximum configurable value of zoom speed
		CR-N500 CR-N300 CR-N100 CR-X300	127 15		
		CR-N400 CR-N350	127		
		C500mk2 C400 C300mk3 C80 C70 C50	15		
		XF605	23		
Zoom Information [c]	c.<c>.zoom.accel	CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	Selected from c.<c>.zoom.accel.list	GC-U	Soft zoom control

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Zoom Information [c]	c.<c>.zoom.accel.list	CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	off, start, stop, both	G--U	Soft zoom control list
Pan/Tilt Information [c]	c.<c>.pt.ramp.mode	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	Selected from c.<c>.pt.ramp.mode.list	GC-U	<p>Pan/tilt acceleration specification mode</p> <p>If continuous absolute position commands for pan and tilt are issued at short intervals (e.g., 33 ms) and the operation becomes unstable, changing c.<c>.pt.ramp.mode to acceldecel may improve the situation. For more details, refer to section 3.2.3.1.8 "Pan-Tilt Acceleration/Deceleration Mode."</p>
Pan/Tilt Information [c]	c.<c>.pt.ramp.mode.list	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	ramp, acceldecel	G--U	<p>Pan/tilt acceleration specification mode list</p> <p>ramp: Normal operation mode acceldecel: Program operation mode</p> <p>In program operation mode, c.<c>.pan.ramp and c.<c>.tilt.ramp cannot be specified.</p> <p>Acceleration is fixed high and deceleration is fixed low, making it suitable for control via programs.</p>

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Pan/Tilt Information [c]	c.<c>.pan	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	<p>* Specifies absolute position</p> <p>c.<c>.pan.min... c.<c>.pan.max,</p> <p>* Specifies relative position d[±]<difference>, v[±]<difference>,</p> <p>* Specifies direction right, left, stop</p>	GC-U	<p>* Absolute position specification Specify absolute position for pan Expressed by the angle of view (1 = 0.01 degrees), the actual front is specified as 0 and the right is specified as positive.</p> <p>* Relative position specification Specify the relative position from the current camera orientation. d: Specify by angle of view (1 = 0.01 degrees) v: Specify by standard screen (100 = half screen equivalent) v100: Moves regarding the right edge of the screen as the center. v-100: Moves regarding the left edge of the screen as the center.</p> <p>* Direction specification right: move to the right left: move to the left stop: stop movement</p>
Pan/Tilt Information [c]	c.<c>.pan.status	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	0, 1	G--U	<p>Pan operation status</p> <p>0: During stop 1: During movement</p>

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Pan/Tilt Information [c]	c.<c>.pan.min	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	c.<c>.pan.limit.min... c.<c>.pan.limit.max	G--U	Left side control limit of pan operation (variable) * Angle of view (1=0.01 degree)
Pan/Tilt Information [c]	c.<c>.pan.max	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	c.<c>.pan.limit.min... c.<c>.pan.limit.max	G--U	Right side control limit of pan operation (variable) * Angle of view (1=0.01 degree)
Pan/Tilt Information [c]	c.<c>.pan.limit.min	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100	-17000	G--U	Left side movable limit of pan operation * Angle of view (1=0.01 degree)
		CR-X300	-18000		
Pan/Tilt Information [c]	c.<c>.pan.limit.max	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100	17000	G--U	Right side movable limit of pan operation * Angle of view (1=0.01 degree)
		CR-X300	18000		
Pan/Tilt Information [c]	c.<c>.pan.speed.mode	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	Selected from c.<c>.pan.speed.mode.list	-CP-	Pan operating speed mode

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Pan/Tilt Information [c]	c.<c>.pan.speed.mode.pos	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	Selected from c.<c>.pan.speed.mode.list	GCPU	Position specification pan operating speed mode
Pan/Tilt Information [c]	c.<c>.pan.speed.mode.dir	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	Selected from c.<c>.pan.speed.mode.list	GCPU	Direction specification pan operating speed mode
Pan/Tilt Information [c]	c.<c>.pan.speed.mode.list	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	manual, auto1, auto2	G--U	<p>Pan operating speed mode list</p> <p>manual: Controlled at a constant speed.</p> <p>auto1: Speed control in accordance with the ratio to the horizontal angle of view. c.<c>.pan.speed.ratio is used.</p> <p>auto2: Speed control in accordance with the ratio to the horizontal angle of view. c.<c>.pan.speed is regarded as the speed at the wide angle end, and operation is performed at a speed corresponding to the angle of view.</p>

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Pan/Tilt Information [c]	c.<c>.pan.speed	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	c.<c>.pan.speed.m in... c.<c>.pan.speed.m ax	-CP-	Pan speed during "manual" or "auto2" 100 sets the speed of movement to 1 degree per second
Pan/Tilt Information [c]	c.<c>.pan.speed.pos	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	c.<c>.pan.speed.m in... c.<c>.pan.speed.m ax	GCPU	Position specification pan speed during "manual" or "auto2"
Pan/Tilt Information [c]	c.<c>.pan.speed.dir	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	c.<c>.pan.speed.m in... c.<c>.pan.speed.m ax	GCPU	Direction specification pan speed during "manual" or "auto2"
Pan/Tilt Information [c]	c.<c>.pan.speed.min	CR-N700 CR-N500 CR-N400 CR-N350	10	G--U	Minimum configurable pan speed value during "manual" or "auto2"
		CR-N300 CR-N100	20		
		CR-X300	4		
Pan/Tilt Information [c]	c.<c>.pan.speed.max	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100	10000	G--U	Maximum configurable pan speed value during "manual" or "auto2"
		CR-X300	6000		

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Pan/Tilt Information [c]	c.<c>.pan.speed.ratio	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	c.<c>.pan.speed.ratio.min... c.<c>.pan.speed.ratio.max	-CP-	Pan speed during "auto1" * The operation speed is specified by the ratio to the horizontal angle of view. * The speed at which one screen moves per second is set to 100.
Pan/Tilt Information [c]	c.<c>.pan.speed.ratio.pos	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	c.<c>.pan.speed.ratio.min... c.<c>.pan.speed.ratio.max	GCPU	Position specification pan speed during "auto1"
Pan/Tilt Information [c]	c.<c>.pan.speed.ratio.dir	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	c.<c>.pan.speed.ratio.min... c.<c>.pan.speed.ratio.max	GCPU	Direction specification pan speed during "auto1"
Pan/Tilt Information [c]	c.<c>.pan.speed.ratio.min	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	1	G--U	Minimum configurable pan speed value during "auto1"
Pan/Tilt Information [c]	c.<c>.pan.speed.ratio.max	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	1000	G--U	Maximum configurable pan speed value during "auto1"

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Pan/Tilt Information [c]	c.<c>.pan.ramp	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	c.<c>.pan.ramp.min... c.<c>.pan.ramp.max	GC-U	Pan acceleration
Pan/Tilt Information [c]	c.<c>.pan.ramp.min	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	0	G--U	Minimum configurable pan acceleration value
Pan/Tilt Information [c]	c.<c>.pan.ramp.max	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	2	G--U	Maximum configurable pan acceleration value

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Pan/Tilt Information [c]	c.<c>.tilt	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	<p>* Specifies absolute position c.<c>.tilt.min... c.<c>.tilt.max,</p> <p>* Specifies relative position d[±]<difference>, v[±]<difference>,</p> <p>* Specifies direction up, down, stop</p>	GC-U	<p>* Absolute position specification Specify absolute position for tilt Expressed by the angle of view (1 = 0.01 degrees), the actual front is specified as 0 and up is specified as positive.</p> <p>* Relative position specification Specify the relative position from the current camera orientation. d: Specify by angle of view (1 = 0.01 degrees) v: Specify by standard screen (100 = half screen equivalent) v100: Moves regarding the upper edge of the screen as the center. v-100: Moves regarding the bottom edge of the screen as the center.</p> <p>* Direction specification up: move up down: move down stop: stop movement</p>
Pan/Tilt Information [c]	c.<c>.tilt.status	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	0, 1	G--U	<p>Tilt operation status 0: During stop 1: During movement</p>

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Pan/Tilt Information [c]	c.<c>.tilt.min	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	c.<c>.tilt.limit.min ... c.<c>.tilt.limit.max	G--U	Downward control limit of tilt operation (variable) * Angle of view (1=0.01 degree)
Pan/Tilt Information [c]	c.<c>.tilt.max	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	c.<c>.tilt.limit.min ... c.<c>.tilt.limit.max	G--U	Upward control limit of tilt operation (variable) * Angle of view (1=0.01 degree)
Pan/Tilt Information [c]	c.<c>.tilt.limit.min	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	-3000 -4000	G--U	Downward movable limit of tilt operation * Angle of view (1=0.01 degree)
Pan/Tilt Information [c]	c.<c>.tilt.limit.max	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	9000 10000 21500	G--U	Upward movable limit of tilt operation * Angle of view (1=0.01 degree)
Pan/Tilt Information [c]	c.<c>.tilt.speed.mode	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	Selected from c.<c>.tilt.speed.mode.list	-CP-	Tilt operating speed mode

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Pan/Tilt Information [c]	c.<c>.tilt.speed.mode.pos	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	Selected from c.<c>.tilt.speed.mode.list	GCPU	Tilt operating speed mode of position specification
Pan/Tilt Information [c]	c.<c>.tilt.speed.mode.dir	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	Selected from c.<c>.tilt.speed.mode.list	GCPU	Tilt operating speed mode of direction specification
Pan/Tilt Information [c]	c.<c>.tilt.speed.mode.list	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	manual, auto1, auto2	G--U	<p>Tilt operating speed mode list</p> <p>manual: Controlled at a constant speed.</p> <p>auto1: Speed control in accordance with the ratio to the vertical angle of view. c.<c>.tilt.speed.ratio is used.</p> <p>auto2: Speed control in accordance with the ratio to the vertical angle of view. c.<c>.tilt.speed is regarded as the speed at the wide angle end, and operation is performed at a speed corresponding to the angle of view.</p>

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Pan/Tilt Information [c]	c.<c>.tilt.speed	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	c.<c>.tilt.speed.min... c.<c>.tilt.speed.max	-CP-	Tilt speed during "manual" or "auto2" * 100 sets the speed of movement to 1 degree per second
Pan/Tilt Information [c]	c.<c>.tilt.speed.positions	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	c.<c>.tilt.speed.min... c.<c>.tilt.speed.max	GCPU	Position specification tilt speed during "manual" or "auto2"
Pan/Tilt Information [c]	c.<c>.tilt.speed.direction	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	c.<c>.tilt.speed.min... c.<c>.tilt.speed.max	GCPU	Direction specification tilt speed during "manual" or "auto2"
Pan/Tilt Information [c]	c.<c>.tilt.speed.min	CR-N700 CR-N500 CR-N400 CR-N350	10	G--U	Minimum configurable tilt speed value during "manual" or "auto2"
		CR-N300 CR-N100	20		
		CR-X300	4		
Pan/Tilt Information [c]	c.<c>.tilt.speed.max	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100	10000	G--U	Maximum configurable tilt speed value during "manual" or "auto2"
		CR-X300	6000		

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Pan/Tilt Information [c]	c.<c>.tilt.speed.ratio	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	c.<c>.tilt.speed.ratio.min... c.<c>.tilt.speed.ratio.max	-CP-	Tilt speed during "auto1" * The operation speed is specified by the ratio to the vertical angle of view. The speed at which one screen moves per second is set to 100.
Pan/Tilt Information [c]	c.<c>.tilt.speed.ratio.pos	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	c.<c>.tilt.speed.ratio.min... c.<c>.tilt.speed.ratio.max	GC-U	Position specification tilt speed during "auto1"
Pan/Tilt Information [c]	c.<c>.tilt.speed.ratio.dir	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	c.<c>.tilt.speed.ratio.min... c.<c>.tilt.speed.ratio.max	GC-U	Direction specification tilt speed during "auto1"
Pan/Tilt Information [c]	c.<c>.tilt.speed.ratio.min	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	1	G--U	Minimum configurable tilt speed value during "auto1"
Pan/Tilt Information [c]	c.<c>.tilt.speed.ratio.max	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	1000	G--U	Maximum configurable tilt speed value during "auto1"

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Pan/Tilt Information [c]	c.<c>.tilt.ramp	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	c.<c>.tilt.ramp.min... c.<c>.tilt.ramp.max	GC-U	Tilt acceleration
Pan/Tilt Information [c]	c.<c>.tilt.ramp.min	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	0	G--U	Minimum configurable tilt acceleration value
Pan/Tilt Information [c]	c.<c>.tilt.ramp.max	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	2	G--U	Maximum configurable tilt acceleration value
Pan/Tilt Information [c]	c.<c>.erotate	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	Selected from c.<c>.erotate.list	GC-U	Video inversion
Pan/Tilt Information [c]	c.<c>.erotate.list	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	0, 18000	G--U	Video inversion list * Angle multiplied by 100 0: Standard 18000: Flip up/down

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Pan/Tilt Information [c]	c.<c>.eflip	CR-X300	off, on	G--U	Flip status off: Not flipped on: During flipped
Preset Information [p]	p	-	1...p.count	GC-U	Preset number controlled last time *0 is returned until the first preset execution after start.
Preset Information [p]	p.count	-	100	G---	Number of preset information settings * Valid setting number is returned.
Preset Information [p]	p.status	-	0, 1	G--U	Preset operation status 0: During stop 1: During movement
Preset Information [p]	p.<p>.name.utf8	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	<unicode>	G--U	Preset name (UTF-8) * Visible only when the preset name is set.
Preset Information [p]	p.<p>.thumbnail.id	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	e.g. p.3.thumbnail.id=d41d8cd98f00b204e9800998ecf8427e p.3.thumbnail.id=	G--U	Preset thumbnail ID * Null value if no thumbnail image is registered.
Preset Information [p]	p.<p>.content	-	enabled disabled	G--U	Preset parameter saving flag * Any parameter that is registered to preset is "enabled".

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Preset Information [p]	p.<p>.content.ptz	-	enabled disabled	G--U	Preset PTZ flag
Preset Information [p]	p.<p>.content.focus	-	enabled disabled	G--U	Preset focus flag
Preset Information [p]	p.<p>.content.exp	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300 C400 C80 C50	enabled disabled	G--U	Preset exp flag
		C500mk2 C300mk3 C70 XF605	disabled		
Preset Information [p]	p.<p>.content.wb	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300 C400 C80 C50	enabled disabled	G--U	Preset wb flag
		C500mk2 C300mk3 C70 XF605	disabled		

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Preset Information [p]	p.<p>.content.is	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	enabled disabled	G--U	Preset is flag
		C500mk2 C400 C300mk3 C80 C70 C50 XF605	disabled		
Preset Information [p]	p.<p>.content.cp	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	enabled disabled	G--U	Preset cp flag
		C500mk2 C400 C300mk3 C80 C70 C50 XF605	disabled		
Preset Information [p]	p.<p>.content.lens correct	CR-N700 CR-N400 CR-N350	enabled / disabled	G--U	Preset lenscorrect flag
Preset Information [p]	p.<p>.zoom.speed	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	c.<c>.zoom.speed. min... c.<c>.zoom.speed. max	G--U	Preset zoom speed * Not return when p.<p>.content.ptz=disabled

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Preset Information [p]	p.<p>.pan.speed	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	c.<c>.pan.speed.min... c.<c>.pan.speed.max	G--U	Preset pan speed * Not return when p.<p>.content.ptz=disabled
Preset Information [p]	p.<p>.tilt.speed	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	c.<c>.tilt.speed.min... c.<c>.tilt.speed.max	G--U	Preset zoom speed * Not return when p.<p>.content.ptz=disabled
Preset Information [p]	p.<p>.ptz.speed	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	p.ptzspeed.min... p.ptzspeed.max	G--U	Preset synchronized PTZ speed (abstract value) * Not return when p.<p>.content.ptz = "disabled" * Regarding p.<p>.ptz.speed and p.<p>.ptz.time, the registered one returns a value, and the unregistered one returns an empty value.
Preset Information [p]	p.<p>.ptz.time	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	p.ptztime.min... p.ptztime.max	G--U	Preset synchronized PTZ time * Unit: millisecond * Not return when p.<p>.content.ptz = "disabled" * Regarding p.<p>.ptz.speed and p.<p>.ptz.time, the registered one returns a value, and the unregistered one returns an empty value.

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Preset Information [p]	p.action	-	Selected from p.action.list	-C--	Preset action
Preset Information [p]	p.action.list	-	stop	G--U	Preset action list stop: stops the preset operation if any preset is running
Preset Information [p]	p.ptztime	-	p.ptztime.min... p.ptztime.max	-C--	Synchronized PTZ movement time to the preset position * Unit: millisecond * p.<p>.pan.speed, p.<p>.tilt.speed, p.<p>.zoom.speed are ignored when p.ptztime is specified. * In the case of p.ptztime and p.ptzspeed, the former is preferred.
Preset Information [p]	p.ptztime.min	-	2000	G--U	Minimum configurable value of synchronized PTZ movement time to the preset position * Unit: millisecond
Preset Information [p]	p.ptztime.max	-	99000	G--U	Maximum configurable value of synchronized PTZ movement time to the preset position * Unit: millisecond

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Preset Information [p]	p.ptzspeed	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300 XF605	p.ptzspeed.min... p.ptzspeed.max	-C--	Synchronized PTZ movement speed to the preset position (abstract value) * p.<p>.pan.speed, p.<p>.tilt.speed, p.<p>.zoom.speed are ignored when p.ptzspeed is specified. * In the case of p.ptztime and p.ptzspeed, the former is preferred.
Preset Information [p]	p.ptzspeed.min	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300 XF605	1	G--U	Minimum configurable value of synchronized PTZ movement speed to the preset position
Preset Information [p]	p.ptzspeed.max	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300 XF605	100	G--U	Maximum configurable value of synchronized PTZ movement speed to the preset position
Preset Information [p]	p.ptzspeed.saved	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	Selected from p.ptzspeed.saved.list	-C--	Preset synchronized PTZ speed control

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Preset Information [p]	p.ptzspeed.saved.list	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	on	G--U	Preset synchronized PTZ speed control list on: Moves by either speed (p.<p>.ptz.speed) or time (p.<p>.ptz.time), by the registered method
Preset Information [p]	p.freeze	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	Selected from p.freeze.list	-C--	Still image output during preset playback * If not specified, the value of p.freeze.default is used.
Preset Information [p]	p.freeze.list	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	off, on	G--U	Still image output during preset playback list off: No still image output on: Still image output
Preset Information [p]	p.freeze.default	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	Setting value from p.freeze.list	G--U	Default value of still image output during preset playback
Trace Information [t]	t	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	1...t.count	G--U	Trace number controlled last time * 0 is returned until the first trace execution after start.

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Trace Information [t]	t.count	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	10	G---	Number of trace information settings * Valid setting number is returned.
Trace Information [t]	t.status	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	idle, recording, preparing, prepared, playing	G--U	Trace status idle: Not in trace status recording: Recording trace preparing: Preparing trace prepared: Trace preparation complete playing: Trace is playing
Trace Information [t]	t.<t>.name.utf8	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	<unicode>	G--U	Trace name (UTF-8) * Visible only when the trace name is set.
Trace Information [t]	t.<t>.thumbnail.id	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	e.g. t.3.thumbnail.id=d41d8cd98f00b204e9800998ecf8427e t.3.thumbnail.id=	G--U	Trace thumbnail ID * Null value if no thumbnail image is registered.
Trace Information [t]	t.<t>.recorded	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	off, on	G--U	Trace recording status

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Trace Information [t]	t.<t>.time	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	0...300	G--U	Trace time * Unit: Second
Audio Device Information [a]	a.count	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	0	G---	Number of audio devices
Audio Device Information [a]	a.level.info	-	Selected from a.level.info.list	G-CPU	Audio level notification * Specifies whether audio level is included as an information acquisition source in info.cgi.
Audio Device Information [a]	a.level.info.list	-	off, on	G-PU	Audio level notification list off: No notification on: Notification
Audio Device Information [a]	a.level.ch1	-	0...99	G-PU	Audio level of CH1 0: Minimum value 99: Maximum value If a.level.info is set to “on”, acquisition is enabled in info.cgi.
Audio Device Information [a]	a.level.ch2	-	0...99	G-PU	Audio level of CH2 0: Minimum value 99: Maximum value If a.level.info is set to “on”, acquisition is enabled in info.cgi.

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Audio Device Information [a]	a.level.ch3	C500mk2 C400 C300mk3 C80 C70 C50 XF605	0...99	G-PU	Audio level of CH3 0: Minimum value 99: Maximum value If a.level.info is set to “on”, acquisition is enabled in info.cgi.
Audio Device Information [a]	a.level.ch4	C500mk2 C400 C300mk3 C80 C70 C50 XF605	0...99	G-PU	Audio level of CH4 0: Minimum value 99: Maximum value If a.level.info is set to “on”, acquisition is enabled in info.cgi.
Audio Device Information [a]	a.level.ch1.peak	-	0...99	G-PU	Audio level peak value of CH1 0: Minimum value 99: Maximum value If a.level.info is set to “on”, acquisition is enabled in info.cgi.
Audio Device Information [a]	a.level.ch2.peak	-	0...99	G-PU	Audio level peak value of CH2 0: Minimum value 99: Maximum value If a.level.info is set to “on”, acquisition is enabled in info.cgi.
Audio Device Information [a]	a.level.ch3.peak	C500mk2 C400 C300mk3 C80 C70 C50 XF605	0...99	G-PU	Audio level peak value of CH3 0: Minimum value 99: Maximum value If a.level.info is set to “on”, acquisition is enabled in info.cgi.

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Audio Device Information [a]	a.level.ch4.peak	C500mk2 C400 C300mk3 C80 C70 C50 XF605	0...99	G-PU	Audio level peak value of CH4 0: Minimum value 99: Maximum value If a.level.info is set to “on”, acquisition is enabled in info.cgi.
Contact Input/Output Information [i/o]	i.count	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100	0	G---	Number of external device input terminal
		CR-X300	1		
Contact Input/Output Information [i/o]	i.<i>	CR-X300	0 1	G--U	Status of external device input terminal, AUX<i> * <i> indicates the number of any external device input terminal from 1 to i.count 0: off 1: on
Contact Input/Output Information [i/o]	o.count	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100	0	G---	Number of external device output terminals
		CR-X300	1		

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Contact Input/Output Information [i/o]	o.<o>	CR-X300	Selected from o.<o>.list	GC-U	Status of external device output terminal AUX<o> * <o> indicates the number of any external device output terminal from 1 to o.count
Contact Input/Output Information [i/o]	o.<o>.list	CR-X300	0, 1	G--U	Status list of external device output terminal AUX<o> 0: off 1: on
Tally Lamp Information [f]	f.tally	-	Selected from f.tally.list	GC-U	Tally lamp use
Tally Lamp Information [f]	f.tally.list	-	off, on	G--U	Tally lamp use list
Tally Lamp Information [f]	f.tally.mode	-	Selected from f.tally.mode.list	GC-U	Tally lamp mode
Tally Lamp Information [f]	f.tally.mode.list	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300 C500mk2 C400 C300mk3 C80 C70 C50 XF605	preview, program preview, program, preview_program	G--U	Tally lamp mode list

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Standby Information [f]	f.standby	-	One of the setting values of f.standby.list	G--U	Standby
Standby Information [f]	f.standby.list	CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	idle, standby	G--U	Standby list
		C500mk2 C400 C300mk3 C80 C70 C50 XF605	idle		
Mode Information [f]	f.mode	C500mk2 C400 C300mk3 C80 C70 C50 XF605	camera, recreview	G--U	Camera mode
Video Recording Information [f]	f.rec	C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from f.rec.list	GC-U	Record/Stop movie
Video Recording Information [f]	f.rec.list	C500mk2 C400 C300mk3 C80 C70 C50 XF605	off, on	G--U	Record/Stop movie list on: Record off: Stop

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Video Recording Information [f]	f.rec.status	C500mk2	idle, rec	G--U	Video recording status idle: Recording stopped rec: Recording in progress
		C400			
		C300mk3			
		C80			
Video Recording Information [f]	f.rec.continuous.status	C70	idle, rec	G--U	Continuous video recording status idle: Recording stopped rec: Recording in progress
		C50			
		XF605			
Video Recording Information [f]	f.rec.mode	C400	normal interval slowfastmotion pre slowfastmotion_audio frame continuous	G--U	Special recording mode normal: Normal recording interval: Interval recording slowfastmotion: Slow & fast motion recording pre: Pre-recording slowfastmotion_audio: Slow & fast motion recording/audio recording(WAV) frame: Frame Recording continuous: [A]normal/[B]Continuous recording
		C80			
		C70			
		C50			
Video Recording Information [f]	f.rec.format.media1	XF605	raw xfavc h264mp4 h265mp4 wav	G--U	Recording format of card A
		C70			
		C400			
		C80			
Video Recording Information [f]	f.rec.format.media1	C500mk2	raw xfavc h264mp4 h265mp4 wav	G--U	Recording format of card A
		C300mk3			
		C70			
		C400			
Video Recording Information [f]	f.rec.format.media1	C80	raw xfavc h264mp4 h265mp4 wav	G--U	Recording format of card A
		C50			

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Video Recording Information [f]	f.rec.format.media2	C500mk2 C300mk3	raw xfavc	G--U	Recording format of card B
		XF605	xfavc h264mp4 h265mp4 wav		
		C70	raw xfavc h264mp4 h265mp4 wav		
		C400 C80 C50	raw xfavc xfavc_s xfhevc_s wav		
Video Recording Information [f]	f.rec.command	C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from f.rec.command.list	GC-U	Rec command
Video Recording Information [f]	f.rec.command.list	C500mk2 C400 C300mk3 C80 C70 C50 XF605	off, on	G--U	Rec command list off: Rec command Off on: Rec command On
Video Recording Information [f]	f.rec.review	C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from f.rec.review.list	GC-U	Rec review

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Video Recording Information [f]	f.rec.review.list	C500mk2 C400 C300mk3 C80 C70 C50 XF605	off, on	G--U	Rec review list off : During stop on : During play
Video Recording Information [f]	f.rec.media.main	C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from f.rec.media.main.list	GC-U	Main recording card
Video Recording Information [f]	f.rec.media.main.list	C500mk2 C400 C300mk3 C80 C70 C50 XF605	1, 2	G--U	Main recording card 1: Card A 2 : Card B
Video Recording Information [f]	f.rec.function.double	C500mk2 C400 C300mk3 C80 C70 C50 XF605	off on	G--U	Double slot recording
Video Recording Information [f]	f.rec.function.relay	C500mk2 C400 C300mk3 C80 C70 C50 XF605	off on	G--U	Relay recording

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Video Recording Information [f]	f.rec.function.proxy	C400 C80 C70 C50 XF605	off on	G--U	Proxy recording
Video Recording Information [f]	f.rec.function.sub	C500mk2 C400 C300mk3 C80 C70 C50 XF605	off on	G--U	Sub recording
Video Recording Information [f]	f.rec.function.audio	C400 C80 C50 XF605	off on	G--U	Audio recording
Video Recording Information [f]	f.rec.function.chunk	C50 XF605	off on	G--U	Chunk recording
Video Recording Information [f]	f.rec.function.hdmiraw	C80	off on	G--U	HDMIRAW recording
Video Recording Information [f]	f.rec.function.crop	C50	off on	G--U	Crop recording

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Video Recording Information [f]	f.rec.media1.status	C500mk2 C400 C300mk3 C80 C70 C50 XF605	recordable unrecordable	G--U	Status of card A recordable: Can be recorded unrecordable: Cannot be recorded
Video Recording Information [f]	f.rec.media2.status	C500mk2 C400 C300mk3 C80 C70 C50 XF605	recordable unrecordable	G--U	Status of card B recordable: Can be recorded unrecordable: Cannot be recorded
Video Recording Information [f]	f.rec.media1.remainingtime	C500mk2 C400 C300mk3 C80 C70 C50 XF605	0...9999	G--U	Recordable Time on card A * Unit: Minutes * Valid only when f.rec.media1.status is set "recordable"
Video Recording Information [f]	f.rec.media2.remainingtime	C500mk2 C400 C300mk3 C80 C70 C50 XF605	0...9999	G--U	Recordable time on card B * Unit: Minutes * Valid only when f.rec.media2.status is set "recordable"
Video Recording Information [f]	f.rec.media1.videoinfo	C500mk2 C400 C300mk3 C80 C70 C50 XF605	<width of image>x<height of image>:<frame rate>:<scan method> e.g. 3840x2160:59980:P	G--U	Resolution and frame rate of video recorded to card A

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Video Recording Information [f]	f.rec.media2.video info	C500mk2 C400 C300mk3 C80 C70 C50 XF605	<width of image>x<height of image>:<frame rate>:<scan method> e.g. 3840x2160:59980:P	G--U	Resolution and frame rate of video recorded to card B
Timecode Information[f]	f.timecode.info	C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from f.timecode.info.list	GCPU	Timecode notification
Timecode Information[f]	f.timecode.info.list	C500mk2 C400 C300mk3 C80 C70 C50 XF605	off, on	G-PU	Timecode notification list
Timecode Information[f]	f.timecode	C500mk2 C400 C300mk3 C80 C70 C50 XF605	<hour>:<minute>:<second>:<frame> e.g. 01:23:45 : 00	G-PU	Timecode If f.timecode.info is set to “on”, acquisition is enabled in info.cgi.
Timecode Information[f]	f.timecode.mode	C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from f.timecode.mode.list	GC-U	Timecode mode

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Timecode Information[f]	f.timecode.mode.list	C500mk2 C400 C300mk3 C80 C70 C50 XF605	preset, regen	G—U	Timecode mode list
Timecode Information[f]	f.timecode.run	C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from f.timecode.run.list	GC-U	Timecode stepping mode
Timecode Information[f]	f.timecode.run.list	C500mk2 C400 C300mk3 C80 C70 C50 XF605	recrun, freerun	G—U	Timecode stepping mode list
Timecode Information[f]	f.timecode.frame	C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from f.timecode.frame.list	GC-U	DF/NDF
Timecode Information[f]	f.timecode.frame.list	C500mk2 C400 C300mk3 C80 C70 C50 XF605	df, ndf	G—U	DF/NDF list

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Timecode Information[f]	f.timecode.set	C500mk2 C400 C300mk3 C80 C70 C50 XF605	00:00:00:00 ~23:59:59:29	GC-U	Timecode initial value
Timecode Information[f]	f.timecode.term	C500mk2 C400 C300mk3 C80 C70 C50 XF605	in out	G—U	Timecode term
Assign Button Information [f]	f.assign	C500mk2 C400 C300mk3 C80 C70 C50 XF605	f.assign.min... f.assign.max	-C--	Assign button control
Assign Button Information [f]	f.assign.min	C500mk2 C400 C300mk3 C80 C70 C50 XF605	1	G--U	Minimum value of available assign buttons
Assign Button Information [f]	f.assign.max	C500mk2 C400 C300mk3 C80 C70 C50 XF605	4	G--U	Maximum value of available assign buttons

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Assign Button Information [f]	f.assign.name<N>	C500mk2 C400 C300mk3 C80 C70 C50 XF605	<string>	G--U	Nth assign button name
Wiper Information [f]	f.wiper	CR-X300	Selected from f.wipe.list	GC-U	Wiper operation status off: Stop on: During operation
Wiper Information [f]	f.wiper.list	CR-X300	off, on	G--U	Wiper operation status list
Wiper Information [f]	f.washer	CR-X300	Selected from f.washer.list	GC-U	Washer operation status * Combined operation of wiper and washer off: Stop on: During operation
Wiper Information [f]	f.washer.list	CR-X300	off, on	G--U	Washer operating status list
Wiper Information [f]	f.washer.drain	CR-X300	Selected from f.washer.drain.list	GC-U	Washer operating status * Single washer operation (drain only) off: Stopped on: In operation
Wiper Information [f]	f.washer.drain.list	CR-X300	off, on	G--U	Washer operating status list

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Output Video Information [f]	f.output.list	CR-N700 CR-N400	output1:12g-sdi, output2:hdmi_3g-sdi, output3:ip	G--U	Camera output terminal information list
		CR-N500 CR-N350 CR-N300	output1:hdmi_3g-sdi, output2:ip		
		CR-N100	output1:hdmi, output2:ip		
		C500mk2 C400 C300mk3	output1:12g-sdi, output2:3g-sdi, output3:hdmi		
		C80 XF605	output1:12g-sdi, output2:hdmi		
		C70 C50	output1:hdmi		
		CR-X300	output1:hdmi_6g-sdi, output2:ip		

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Output Video Information [f]	f.{output}.videoinfo	C500mk2 C400 C300mk3 C80 C70 C50 XF605	<width of image>x<height of image>:<frame rate>:<scan method> e.g. 3840x2160:59940:P * The value is null when outputting to HDMI or not outputting any images	G--U	Resolution and frame rate information for each output terminal * ip is the mainstream w.1 information * ip <scan method> is empty
		CR-N700 CR-N500 CR-N400 CR-N350 CR-N300 CR-N100 CR-X300	<width of image>x<height of image>:<frame rate>:<scan method> e.g. 3840x2160:59940:P * The value cannot be null		
Framerate Information[f]	f.frateconversion	CR-N700 CR-N400 CR-N350	Selected from f.frateconversion.list	GC-U	Framerate conversion
Framerate Information[f]	f.frateconversion.list	CR-N700 CR-N400 CR-N350	When frame frequency is 59.94Hz: off, on When frame frequency is other than 59.94Hz: off	G--U	Framerate conversion list off: No conversion on: Convert to the frame rate specified by f.frateconversion.target.

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Framerate Information[f]	f.frateconversion.target	CR-N700 CR-N400 CR-N350	Selected from f.frateconversion.target.list	GC-U	Framerate conversion target
Framerate Information[f]	f.frateconversion.target.list	CR-N700 CR-N400 CR-N350	24, 30	G--U	Framerate conversion target list 24: Converting to 24fps equivalent 30: Converting to 30fps equivalent
Menu Information [m]	m.menu.list	C500mk2 C400 C300mk3 C80 C70 C50 XF605	up, down, left, right, enter, cancel	G--U	Menu operation list * See menu.cgi for control menu.cgi?cmd=<Value>
Menu Information [m]	m.menu.type	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	One of the setting values of m.menu.type.list * Read-only	G--U	Menu and other setting screens
Menu Information [m]	m.menu.type.list	C500mk2 C400 C300mk3 C80 C70 C50 XF605	0, 1, 2, 3	G--U	Menu and other setting screens list 0: None 1: MENU screen 2: Custom Picture screen 3: FUNC screen
		CR-N700 CR-N400 CR-N350	0		

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Menu Information [m]	m.onscreen	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	One of the setting values of m.onscreen.list * Read-only	G--U	On-screen superimposed output * See menu.cgi for control. menu.cgi?onscreen=<Value> * When equipped with multiple output terminals, all terminals are subject to control * Notifies "on" when any of the output terminals are turned on
Menu Information [m]	m.onscreen.list	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	off, on	G--U	Onscreen superimposed output list
Menu Information [m]	m.{output}.onscreen	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	One of the setting values of m.{output}.onscreen.list * Read-only	G--U	On-screen superimposed output video output from each {output} terminal * See menu.cgi for control menu.cgi?onscreen=<Value>&output=<Value>

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Menu Information [m]	m.{output}.onscreen.list	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	off, on	G--U	List of on-screen superimposed video outputs for each {output} terminal
Crop Information [k]	k.count	CR-N700	2	G---	Number of crop areas
		CR-N400 CR-N350	3		
Crop Information [k]	k.{output}.crop	CR-N700 CR-N400 CR-N350	Selected from k.{output}.crop.list	GC-U	Image area to be output to each {output} terminal
Crop Information [k]	k.{output}.crop.list	CR-N700	overview, crop1, crop2	G--U	List of image areas to be output to each {output} terminal overview: Video area before CROP crop1: CROP video area 1 crop2: CROP video area 2 crop3: Vertical CROP video area
		CR-N400 CR-N350	overview, crop1, crop2, crop3		
Crop Information [k]	k.<k>.crop.size	CR-N700 CR-N400 CR-N350	1920x1080 / 1280x720	G--U	Crop resolution
Crop Information [k]	k.<k>.crop.frame.x	CR-N700 CR-N400 CR-N350	k.<k>.crop.frame.x.min... k.<k>.crop.frame.x.max	GC-U	X-coordinate of the center point of the crop area (abstract value)
Crop Information [k]	k.<k>.crop.frame.x.min	CR-N700 CR-N400 CR-N350	0	G--U	Minimum x-coordinate of the crop area center point (abstract value)

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Crop Information [k]	k.<k>.crop.frame.x.max	CR-N700 CR-N400 CR-N350	9999	G--U	Maximum x-coordinate of the crop area center point (abstract value)
Crop Information [k]	k.<k>.crop.frame.y	CR-N700 CR-N400 CR-N350	k.<k>.crop.frame.y.min... k.<k>.crop.frame.y.max	GC-U	Y-coordinate of the crop area center point (abstract value)
Crop Information [k]	k.<k>.crop.frame.y.min	CR-N700 CR-N400 CR-N350	0	G--U	Minimum y-coordinate of the crop area center point (abstract value)
Crop Information [k]	k.<k>.crop.frame.y.max	CR-N700 CR-N400 CR-N350	9999	G--U	Maximum y-coordinate of the crop area center point (abstract value)
Crop Information [k]	k.<k>.crop.frame.width	CR-N700 CR-N400 CR-N350	k.<k>.crop.frame.width.min... k.<k>.crop.frame.width.max	GC-U	Width of the crop area (abstract value)
Crop Information [k]	k.<k>.crop.frame.width.min	CR-N700	When <k>=1: 1333 When <k>=2: Same value as k.<k>.crop.frame.width.max, either 5000 or 3333 depending on k.<k>.crop.size	G--U	Minimum width of the crop area (abstract value)
		CR-N400 CR-N350	When <k>=1: 1333 When <k>=2: Same value as k.<k>.crop.frame.width.max, either 5000 or 3333 depending on k.<k>.crop.size		
			When <k>=3: 750		

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Crop Information [k]	k.<k>.crop.frame.width.max	CR-N700	When <k>=1: 10000 When <k>=2: Same value as k.<k>.crop.frame.width.min, with 5000 or 3333 depending on k.<k>.crop.size	G--U	Maximum width of the crop area (abstract value)
		CR-N400 CR-N350	When <k>=1: 10000 When <k>=2: Same value as k.<k>.crop.frame.width.max, either 5000 or 3333 depending on k.<k>.crop.size When <k>=3: 3094		
Crop Information [k]	k.<k>.crop.frame.height	CR-N700 CR-N400 CR-N350	e.g. 5000 * Read-only	G--U	Height of the crop area (abstract value)

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Lens Information [c]	c.<c>.lens	C500mk2 C400 C300mk3 C80 C70 C50	off on	G--U	<p>Lens connection status</p> <p>off: No connection or lens not detected on: Connected</p> <p>* The following information cannot be referred to if the setting value of c.<c>.lens cannot be obtained. c.<c>.lens.name c.<c>.lens.focus c.<c>.lens.iris c.<c>.lens.zoom</p>
Lens Information [c]	c.<c>.lens.name	C500mk2 C400 C300mk3 C80 C70 C50	<unicode>	G--U	<p>Lens name</p> <p>* When c.<c>.lens=:off, the response value is null.</p>
Lens Information [c]	c.<c>.lens.focus	C500mk2 C400 C300mk3 C80 C70 C50	af mf	G--U	<p>Lens focus switch status</p> <p>af: Focus control enabled mf: focus control disabled</p> <p>* When c.<c>.lens=:off, the response value is null * If the lens does not have a switch, it returns a setting value according to the availability of lens control</p>

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Lens Information [c]	c.<c>.lens.iris	C500mk2 C400 C300mk3 C80 C70 C50	auto manual	G--U	<p>Lens iris switch status</p> <p>auto: iris control enabled manual: iris control disabled</p> <p>* When c.<c>.lens=:off, the response value is null * If the lens does not have a switch, it returns a setting value according to the availability of lens control</p>
Lens Information [c]	c.<c>.lens.zoom	C500mk2 C400 C300mk3 C80 C70 C50	servo manual	G--U	<p>Lens zoom switch status</p> <p>servo: Zoom enabled manual: Zoom control disabled</p> <p>* When c.<c>.lens=:off, the response value is null * If the lens does not have a switch, it returns a setting value according to the availability of lens control</p>
Warning Information[b]	b.power	C500mk2 C400 C300mk3 C80 C70 C50 XF605	0...4	G--U	<p>Status of power supply</p> <p>0: Operating normally. 1: State different from normal detected. 2: Abnormal state detected (no limitation on operation). 3: Abnormal state detected (limitation on operation). 4: Abnormal state detected (operation halted).</p>

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Warning Information[b]	b.fan	C500mk2 C400 C300mk3 C80 C70 C50 XF605	0...4	G--U	Status of fan 0: Operating normally. 1: State different from normal detected. 2: Abnormal state detected (no limitation on operation). 3: Abnormal state detected (limitation on operation). 4: Abnormal state detected (operation halted).
Warning Information[b]	b.temperature	CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	0...4	G--U	Status of internal temperature 0: Operating normally. 1: State different from normal detected. 2: Abnormal state detected (no limitation on operation). 3: Abnormal state detected (limitation on operation). 4: Abnormal state detected (operation halted).
Warning Information[b]	b.lens	C500mk2 C400 C300mk3 C80 C70 C50	0...4	G--U	Status of lens 0: Operating normally. 1: State different from normal detected. 2: Abnormal state detected (no limitation on operation). 3: Abnormal state detected (limitation on operation). 4: Abnormal state detected (operation halted).

Table 67. Parameters of info.cgi/configuration

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
System Information [s]	s	-	<int>	--P-	Session ID
System Information [s]	s.priority	-	0...50	GCPU	Session priority 0: General session 1...4: Reserved (*) 5...50: Privileged session (*) If specified, it is treated as "5"
Monitoring Setting [monitoring]	monitoring.{output}.lut	CR-N700 CR-N400 C500mk2 C400 C300mk3 XF605	Selected from monitoring.{output}.lut.list	GC-U	Monitoring LUT setting for {output} terminal
Monitoring Setting [monitoring]	monitoring.{output}.lut.list	CR-N700 CR-N400 C500mk2 C400 C300mk3 XF605	off, on	G--U	List of monitoring LUT settings for {output} terminal
Monitoring Setting [monitoring]	monitoring.{output}.lut.type	CR-N700 CR-N400 C500mk2 C400 C300mk3 XF605	Selected from monitoring.{output}.lut.type.list	GC-U	Monitoring LUT type setting for {output} terminal

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Monitoring Setting [monitoring]	monitoring.{output}.lut.type.list	CR-N700 XF605	e.g. bt709, bt2020, dci, pq, hlg, cmt709, userlut1, userlut2, userlut3, userlut4	G--U	Monitoring LUT type setting list for {output} terminal
		CR-N400	e.g. cmt709, canon709, cmt dci, cmtpq, cmthlg, userlut1, userlut2, userlut3, userlut4		
		C500mk2 C300mk3	bt709, bt2020, dci, pq, hlg, acesproxy, cmt709, userlut1, userlut2, userlut3, userlut4		
		C400	acesproxy, cmt709, canon709, cmt dci, cmtpq, cmt hlg, userlut1, userlut2, userlut3, userlut4		
Monitoring Setting [monitoring]	monitoring.{output}.userlut{N}.name	CR-N700 CR-N400	<string> * Alphanumeric characters and symbols up to 8 characters	GC-U	userlut name of {output} terminal
		C500mk2 C400 C300mk3 XF605		G--U	* {N} is a number from 1 to 4 * Valid if monitoring.{output}.lut.type has userlut{N}
Monitoring Setting [monitoring]	monitoring.{output}.userlut{N}.colorspace	CR-N700 CR-N400 C500mk2 C400 C300mk3 XF605	Selected from monitoring.{output}.userlut{N}.colorspace.list	GC-U	User LUT color space setting for {output} terminal * {N} is a number from 1 to 4 * Valid when monitoring.{output}.lut.type has userlut{N}

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Monitoring Setting [monitoring]	monitoring.{output}.userlut{N}.colorspace.list	CR-N700 CR-N400 C500mk2 C400 C300mk3 XF605	gamut_bt709, gamut_bt2020, none	G--U	List of User LUT color space settings for {output} terminal * {N} is a number from 1 to 4 * Valid if monitoring.{output}.lut.type has userlut{N}
Monitoring Setting [monitoring]	monitoring.{output}.userlut{N}.range	CR-N700 CR-N400 C500mk2 C400 C300mk3 XF605	Selected from monitoring.{output}.userlut{N}.range.list	GC-U	User LUT range setting for {output} terminal * {N} is a number from 1 to 4 * Valid if monitoring.{output}.lut.type has userlut{N}
Monitoring Setting [monitoring]	monitoring.{output}.userlut{N}.range.list	CR-N700 CR-N400 C500mk2 C400 C300mk3 XF605	full, narrow	G--U	List of User LUT range settings for {output} terminal * {N} is a number from 1 to 4 * Valid if monitoring.{output}.lut.type has userlut{N}
Monitoring Setting [monitoring]	monitoring.{output}.userlut{N}.lut.name	CR-N700 CR-N400 C500mk2 C400 C300mk3 XF605	<string> * Read-only	G--U	Name of lookfile in lut setting * {N} is a number from 1 to 4 * Valid if monitoring.{output}.lut.type has userlut{N}
Monitoring Setting [monitoring]	monitoring.{output}.viewassist	CR-N700 CR-N400 CR-N350 C80 C70 C50 XF605	Selected from monitoring.{output}.viewassist.list	GC-U	View assist output for {output} terminal

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Monitoring Setting [monitoring]	monitoring.{output}.viewassist.list	CR-N700 CR-N400 CR-N350 C80 C70 C50 XF605	off, on	G--U	View assist output list for {output} terminal
Monitoring Setting [monitoring]	monitoring.{output}.viewassist.type	CR-N700 CR-N400 CR-N350 C80 C70 C50 XF605	Selected from monitoring.{output}.viewassist.type.list	GC-U	View assist type for {output} terminal
Monitoring Setting [monitoring]	monitoring.{output}.viewassist.type.list	CR-N700 C70 XF605	bt709, cmt709	G--U	List of view assist types for {output} terminal
		CR-N400 CR-N350 C80 C50	canon709, cmt709		
Monitoring Setting [monitoring]	monitoring.{output}.clog.range	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from monitoring.{output}.clog.range.list	GC-U	Range of Canon Log output for {output} terminal

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Monitoring Setting [monitoring]	monitoring.{output}.clog.range.list	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	full, narrow	G--U	List of Canon Log output ranges for {output} terminal
Monitoring Setting [monitoring]	monitoring.{output}.hdr.range	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from monitoring.{output}.hdr.range.list	GC-U	Range of HDR output for {output} terminal
Monitoring Setting [monitoring]	monitoring.{output}.hdr.range.list	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	full, narrow	G--U	Range list for HDR output to {output} terminal
Monitoring Setting [monitoring]	monitoring.hlgcolor	CR-N700 C500mk2 C300mk3 XF605	Selected from monitoring.hlgcolor.list	GC-U	Color setting for HLG

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Monitoring Setting [monitoring]	monitoring.hlgcolor.list	CR-N700 C500mk2 C300mk3 XF605	bt2100, vivid	G--U	List of color settings for HLG
Monitoring Setting [monitoring]	monitoring.hdrtosdrgain	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from monitoring.hdrtosdrgain.list	GC-U	HDR → SDR gain Adjusting the Gain Difference between HDR and SDR (Gain for HDR-to-SDR Conv.) * Unit: dB multiplied by 10
Monitoring Setting [monitoring]	monitoring.hdrtosdrgain.list	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	-75, -70, -65...70, 75	G--U	HDR → SDR gain list * Unit: dB multiplied by 10
Monitoring Setting [monitoring]	monitoring.osd.frame display	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from monitoring.frame display.list	GC-U	DISP level for frame display

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Monitoring Setting [monitoring]	monitoring.osd.frame.display.list	CR-N700 CR-N400 CR-N350	displevel1_2, displevel1, displevel2, off	G--U	List of DISP levels for frame display
		C500mk2 C400 C300mk3 C80 C70 C50 XF605	displevel1_2_3, displevel1_2, displevel1, displevel2, displevel3, off		
Monitoring Setting [monitoring]	monitoring.osd.display.level	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from monitoring.display.level.list	GC-U	Screen display level
Monitoring Setting [monitoring]	monitoring.osd.display.level.list	CR-N700 CR-N400 CR-N350	displevel1, displevel2	G--U	List of screen display levels
		C500mk2 C400 C300mk3 C80 C70 C50 XF605	displevel1, displevel2, displevel3		

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Monitoring Setting [monitoring]	monitoring.osd.displaylevel1	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from monitoring.displaylevel1.list	GC-U	Display contents of DISP level 1
Monitoring Setting [monitoring]	monitoring.osd.displaylevel1.list	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	all, all_frame	G--U	List of DISP level 1 display contents
Monitoring Setting [monitoring]	monitoring.osd.displaylevel2	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from monitoring.displaylevel2.list	GC-U	Display contents of DISP level 2

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Monitoring Setting [monitoring]	monitoring.osd.displaylevel2.list	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	recinfo, funcmenu	G--U	List of DISP level 2 display contents
Monitoring Setting [monitoring]	monitoring.osd.displaylevel3	C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from monitoring.displaylevel3.list	GC-U	Display contents of DISP level 3
Monitoring Setting [monitoring]	monitoring.osd.displaylevel3.list	C500mk2 C400 C300mk3 C80 C70 C50 XF605	rec, off	G--U	List of DISP level 3 display contents
Monitoring Setting [monitoring]	monitoring.{output}.osd.opacity	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from monitoring.{output}.osd.opacity.list	GC-U	OSD transparency for {output} terminal

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Monitoring Setting [monitoring]	monitoring.{output}.osd.opacity.list	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	off, on	G--U	OSD transparency list for {output} terminal
Monitoring Setting [monitoring]	monitoring.{output}.osd.opacity.level	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from monitoring.{output}.osd.opacity.level.list * Valid when monitoring.{output}.osd.opacity=on	GC-U	OSD opacity for {output} terminal
Monitoring Setting [monitoring]	monitoring.{output}.osd.opacity.level.list	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	250, 375, 500, 625, 750	G--U	OSD opacity list for {output} terminal
Monitoring Setting [monitoring]	monitoring.osd.opacity.screen	C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from monitoring.osd.opacity.screen.list	GC-U	OSD transparency-applied screen

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Monitoring Setting [monitoring]	monitoring.osd.opacity.screen.list	C500mk2 C400 C300mk3 C80 C70 C50 XF605	all, shoot	G--U	List of OSD transparency-applied screens
Assist Setting [assist]	assist.{output}.focusguide	CR-N700 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from assist.{output}.focusguide.list	GC-U	Focus guide display for {output} terminal
Assist Setting [assist]	assist.{output}.focusguide.list	CR-N700 C500mk2 C400 C300mk3 C80 C70 C50 XF605	off, on	G--U	Focus guide display list for {output} terminal
Assist Setting [assist]	assist.{output}.skindetail	CR-N700 CR-N400 CR-N350	Selected from assist.{output}.skindetail.list	GC-U	Skin detail for {output} terminal
Assist Setting [assist]	assist.{output}.skindetail.list	CR-N700 CR-N400 CR-N350	off, on	G--U	Skin detail list for {output} terminal
Assist Setting [assist]	assist.{output}.colorcorrection	CR-N700 CR-N400 CR-N350	Selected from assist.{output}.colorcorrection.list	GC-U	Color correction for {output} terminal
Assist Setting [assist]	assist.{output}.colorcorrection.list	CR-N700 CR-N400 CR-N350	off, area_a, area_b	G--U	Color correction list for {output} terminal

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Assist Setting [assist]	assist.{output}.peaking	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from assist.{output}.peaking.list	GC-U	Peaking for {output} terminal
Assist Setting [assist]	assist.{output}.peaking.list	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	off, on	G--U	Peaking list for {output} terminal
Assist Setting [assist]	assist.peaking.type	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from assist.peaking.type.list	GC-U	Peaking type

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Assist Setting [assist]	assist.peaking.type.list	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	peaking1, peaking2	G--U	Peaking types list
Assist Setting [assist]	assist.peaking.peaking1.color	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from assist.peaking.peaking1.color.list	GC-U	Peaking 1 : Color
Assist Setting [assist]	assist.peaking.peaking1.color.list	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	white, red, yellow, blue	G--U	Peaking 1 : Color list

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Assist Setting [assist]	assist.peaking.peaking1.gain	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	assist.peaking.peaking1.gain.min... assist.peaking.peaking1.gain.max	GC-U	Peaking 1 : Gain
Assist Setting [assist]	assist.peaking.peaking1.gain.min	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	0	G--U	Peaking 1 : Minimum configurable gain *0: Off
Assist Setting [assist]	assist.peaking.peaking1.gain.max	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	15	G--U	Peaking 1 : Maximum configurable gain

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Assist Setting [assist]	assist.peaking.peaking1.freq	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	assist.peaking.peaking1.freq.min... assist.peaking.peaking1.freq.max	GC-U	Peaking 1 : Frequency
Assist Setting [assist]	assist.peaking.peaking1.freq.min	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	1	G--U	Peaking 1 : Minimum configurable frequency
Assist Setting [assist]	assist.peaking.peaking1.freq.max	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	4	G--U	Peaking 1 : Maximum configurable frequency

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Assist Setting [assist]	assist.peaking.peaking2.color	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from assist.peaking.peaking2.color.list	GC-U	Peaking 2 : Color
Assist Setting [assist]	assist.peaking.peaking2.color.list	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	white, red, yellow, blue	G--U	Peaking 2 : Color list
Assist Setting [assist]	assist.peaking.peaking2.gain	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	assist.peaking.peaking2.gain.min... assist.peaking.peaking2.gain.max	GC-U	Peaking 2 : Gain

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Assist Setting [assist]	assist.peaking.peaking2.gain.min	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	0	G--U	Peaking 2 : Minimum configurable gain * 0: Off
Assist Setting [assist]	assist.peaking.peaking2.gain.max	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	15	G--U	Peaking 2 : Maximum configurable gain
Assist Setting [assist]	assist.peaking.peaking2.freq	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	assist.peaking.peaking2.freq.min... assist.peaking.peaking2.freq.max	GC-U	Peaking 2 : Frequency

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Assist Setting [assist]	assist.peaking.peaking2.freq.min	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	1	G--U	Peaking 2 : Minimum configurable frequency
Assist Setting [assist]	assist.peaking.peaking2.freq.max	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	4	G--U	Peaking 2 : Maximum configurable frequency
Assist Setting [assist]	assist.{output}.marker	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from assist.{output}.marker.list	GC-U	Marker for {output} terminal

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Assist Setting [assist]	assist.{output}.marker.list	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	off, on	G--U	Marker list for {output} terminal
Assist Setting [assist]	assist.marker.center	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from assist.marker.center.list	GC-U	Center marker color
Assist Setting [assist]	assist.marker.center.list	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	yellow, blue, green, red, black, gray, white, off	G--U	Center marker color list

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Assist Setting [assist]	assist.marker.center.type	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from assist.marker.center.type.list	GC-U	Center marker type
Assist Setting [assist]	assist.marker.center.type.list	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	cross1, cross2, dot1, dot2	G--U	Center marker type list
Assist Setting [assist]	assist.marker.horizontal	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from assist.marker.horizontal.list	GC-U	Horizontal marker color

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Assist Setting [assist]	assist.marker.horizontal.list	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	yellow, blue, green, red, black, gray, white, off	G--U	Horizontal marker color list
Assist Setting [assist]	assist.marker.vertical	CR-N700 CR-N400 CR-N350 C400 C80 C70 C50 XF605	Selected from assist.marker.vertical.list	GC-U	Vertical marker color
Assist Setting [assist]	assist.marker.vertical.list	CR-N700 CR-N400 CR-N350 C400 C80 C70 C50 XF605	yellow, blue, green, red, black, gray, white, off	G--U	Vertical marker color list
Assist Setting [assist]	assist.marker.grid	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from assist.marker.grid.list	GC-U	Grid marker color

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Assist Setting [assist]	assist.marker.grid.list	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	yellow, blue, green, red, black, gray, white, off	G--U	Grid marker color list
Assist Setting [assist]	assist.marker.aspect	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from assist.marker.aspect.list	GC-U	Aspect marker color
Assist Setting [assist]	assist.marker.aspect.list	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	yellow, blue, green, red, black, gray, white, mask100, mask75, mask50, mask25, off	G--U	Aspect marker color list

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Assist Setting [assist]	assist.marker.aspect.ratio	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from assist.marker.aspect.ratio.list	GC-U	Marker aspect ratio
Assist Setting [assist]	assist.marker.aspect.ratio.list	<div>CR-N700 CR-N400 CR-N350 C500mk2 C300mk3 C70 XF605</div> <div>C400 C80 C50</div>	<div>4:3, 13:9, 14:9, 16:9, 1.375:1, 1.66:1, 1.75:1, 1.85:1, 1.90:1, 2.35:1, 2.39:1, 9:16, custom</div> <div>4:3, 13:9, 14:9, 16:9, 1.375:1, 1.66:1, 1.75:1, 1.85:1, 1.90:1, 2.35:1, 2.39:1, 9:16, 4:5, 2:1, 1:1, custom</div>	G--U	Marker aspect ratio list

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Assist Setting [assist]	assist.marker.aspect.custom	CR-N700 CR-N400 CR-N350 C500mk2 C300mk3 C70 XF605	assist.marker.aspect.custom.min... assist.marker.aspect.custom.max	GC-U	Marker custom aspect ratio * In aspect ratio (width:height), the value of width when the height is 100
		C400 C80 C50			Marker custom aspect ratio * In aspect ratio (width:height), the value of width * Indicates the aspect ratio when used in conjunction with assist.marker.aspect.custom.vertical
Assist Setting [assist]	assist.marker.aspect.custom.min	CR-N700 CR-N400 CR-N350 C500mk2 C300mk3 C70 XF605	100	G--U	Marker custom aspect ratio: Minimum configurable width
		C400 C80 C50	1		
Assist Setting [assist]	assist.marker.aspect.custom.max	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	999	G--U	Marker custom aspect ratio: Maximum configurable width

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Assist Setting [assist]	assist.marker.aspect.custom.vertical	C400 C80 C50	assist.marker.aspect.custom.vertical.min... assist.marker.aspect.custom.vertical.max	GC-U	Marker custom aspect ratio: height value * In aspect ratio (width:height), the value of height * Indicates the aspect ratio when used in conjunction with assist.marker.aspect.custom
Assist Setting [assist]	assist.marker.aspect.custom.vertical.min	C400 C80 C50	1	G---	Marker custom aspect ratio Minimum configurable width
Assist Setting [assist]	assist.marker.aspect.custom.vertical.max	C400 C80 C50	999	G---	Marker custom aspect ratio height value: Maximum configurable height
Assist Setting [assist]	assist.marker.safety zone	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from assist.marker.safety zone.list	GC-U	Safety zone marker color
Assist Setting [assist]	assist.marker.safety zone.list	CR-N700 CR-N400 CR-N350 C400 C80 C70 C50 XF605	yellow, blue, green, red, black, gray, white, mask100, mask75, mask50, mask25, off	G--U	Safety zone marker color list
		C500mk2 C300mk3	yellow,blue,green, red,black,gray,white,off		

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Assist Setting [assist]	assist.marker.safe area.basis	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from assist.marker.safe area.basis.list	GC-U	Marker safety zone reference
Assist Setting [assist]	assist.marker.safe area.basis.list	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	whole_picture, aspect_marker	G--U	Marker safety zone reference list
Assist Setting [assist]	assist.marker.safe area.type	CR-N700 CR-N400 CR-N350 C500mk2 C400 C300mk3 C80 C70 C50 XF605	Selected from assist.marker.safe area.type.list	GC-U	safety zone area

Type	Name	Model Specific Info.	Value Type/Range	Attribute	Description
Assist Setting [assist]	assist.marker.safe area.type.list	CR-N700 CR-N400 CR-N350 C500mk2 C300mk3 C70 XF605	side_length_8000, side_length_8800, side_length_9000, side_length_9300, side_length_9500, area_8000, area_9000, area_9250, area_9500	G--U	Safety zone area list
		C400 C80 C50	side_length_8000,s ide_length_8800,si de_length_9000,si de_length_9300,si de_length_9500		

(End)

[1] For certain camera models and parameter combinations, even if they are within the allowable range, control and status acquisition may be impossible depending on the camera's specifications.