

RCP+ Commands for Standard Integration Package

Bosch Video IP



BOSCH

en Specification

Table of Contents

1	Introduction	5
1.1	RCP+ SDK	5
1.2	CGI	5
1.3	Access Levels	5
1.4	Payload in general	5
1.4.1	Read request	5
1.4.2	Write request	5
1.5	RCP errors	6
1.6	Basic principle	7
1.6.1	Corresponding CGI-Code of the write command	7
2	RCP+ commands	9
2.1	CONF_BICOM_COMMAND - BICOM message over RCP command	9
2.1.1	General description	9
2.1.2	Payload options	9
2.1.3	RCP+ over CGI examples	11
2.2	CONF_BICOM_COMMAND - BICOM event over RCP message	13
2.2.1	General description	13
2.2.2	Payload options	13
2.2.3	RCP+ over CGI example	14
2.3	CONF_GET_RTSP_SESSION_ID	15
2.3.1	General description	15
2.3.2	RCP+ over CGI example	15
2.4	CONF_HD_PARTITION_FILE_INFO	16
2.4.1	General description	16
2.4.2	Payload options	17
2.4.3	Reply	17
2.4.4	RCP+ over CGI example	18
2.5	CONF_HD_REPLAY_SEEK_TIME	19
2.5.1	General description	19
2.5.2	Payload options	19
2.5.3	RCP+ over CGI example	20
2.6	CONF_HD_REPLAY_START	21
2.6.1	General description	21
2.6.2	Payload options	21
2.6.3	RCP+ over CGI example	21
2.7	CONF_INPUT_PIN_STATE	22
2.7.1	General description	22
2.7.2	Payload options	22
2.7.3	RCP+ over CGI example	22

2.8	CONF_JPEG_BANDWIDTH_KBPS	23
2.8.1	General description	23
2.8.2	Payload options	23
2.8.3	RCP+ over CGI example	23
2.9	CONF_JPEG_STREAM_SETUP	25
2.9.1	General description	25
2.9.2	Payload options	25
2.9.3	RCP+ over CGI example	26
2.10	CONF_MOTION_ALARM_STATE	27
2.10.1	General description	27
2.10.2	Payload options	27
2.10.3	RCP+ over CGI example	27
2.11	CONF_MPEG4_BANDWIDTH_KBPS	28
2.11.1	General description	28
2.11.2	Payload options	28
2.11.3	RCP+ over CGI example	28
2.12	CONF_MPEG4_BANDWIDTH_KBPS_SOFT_LIMIT	30
2.12.1	General description	30
2.12.2	Payload options	30
2.12.3	RCP+ over CGI example	30
2.13	CONF_MPEG4_CURRENT_PARAMS_REL_CODER	32
2.13.1	General description	32
2.13.2	Payload options	32
2.13.3	Reply	33
2.13.4	RCP+ over CGI example	33
2.14	CONF_MPEG4_FRAME_SKIP_RATIO	34
2.14.1	General description	34
2.14.2	Payload options	34
2.14.3	RCP+ over CGI example	34
2.15	CONF_MPEG4_RESOLUTION	35
2.15.1	General description	35
2.15.2	Payload options	35
2.15.3	RCP+ over CGI example	36
2.16	CONF_RCP_TRANSFER_TRANSPARENT_DATA	37
2.16.1	General description	37
2.16.2	Payload options	37
2.16.3	Write reply packet	38
2.16.4	Read request	38
2.16.5	Serial IN -> RCP Client	38
2.16.6	RCP+ over CGI example	39
2.17	CONF_RELAY_OUTPUT_STATE	40
2.17.1	General description	40
2.17.2	Payload options	40
2.17.3	RCP+ over CGI example	40

2.18	CONF_VIDEO_ALARM_STATE	41
2.18.1	General description	41
2.18.2	Payload options	41
2.18.3	RCP+ over CGI example	41
2.19	CONF_VIDEO_H264_ENC_BASE_OPERATION_MODE	42
2.19.1	General description	42
2.19.2	Payload options	42
2.19.3	RCP+ over CGI example	43
2.20	CONF_VIDEO_INPUT_FORMAT_EX	44
2.20.1	General description	44
2.20.2	Payload options	44
2.20.3	RCP+ over CGI example	45
2.21	CONF_VIRTUAL_ALARM_STATE	46
2.21.1	General description	46
2.21.2	Payload options	46
2.21.3	RCP+ over CGI example	46

1 Introduction

This document shall give you an overview of the RCP+ (Remote Control Protocol) commands used within the Starter Integration Package. Each command and available options are described in detail. Furthermore this document explains the identification of the opcode and the usage of the CGI (Common Gateway Interface) for transmitting RCP+ commands.

1.1 RCP+ SDK

RCP+ SDK is the appropriate tool to program your Bosch IP video equipment in detail using the commands of the Remote Control Protocol. It requires the Windows based Bosch Software Development Kit (SDK).

1.2 CGI

By means of CGI you may send RCP+ commands via your standard web browser or a web server based application.

1.3 Access Levels

In RCP+ SDK commands there are four different kinds of access levels.

Access level	Permission
No protection	On this access level there is full access for everyone to the relevant command.
Live	This access level grants you to read information, e. g. read out the camera name.
User	This access level gives you the permission to use write commands, e. g. define the position of the name stamping.
Service	This access level is reserved for administrator use and allows you to change the device settings in detail.

1.4 Payload in general

1.4.1 Read request

The returned payload represents the values that are currently set on the device.

1.4.2 Write request

The payload represents the values that are set on the device after the command was successfully executed.

1.5 RCP errors

The packet will have the standard layout with the method field set to “Error”. The first byte of the payload section contains error cause.

If the error code is RCP_ERROR_COMMAND_SPECIFIC, then the command specific error (see RCP command for details) is included in the second byte.

The following generic error codes are defined:

Error code	
RCP_ERROR_UNKNOWN	0xFF
RCP_ERROR_INVALID_VERSION	0x10
RCP_ERROR_NOT_REGISTERED	0x20
RCP_ERROR_INVALID_CLIENT_ID	0x21
RCP_ERROR_INVALID_METHOD	0x30
RCP_ERROR_INVALID_CMD	0x40
RCP_ERROR_INVALID_ACCESS_TYPE	0x50
RCP_ERROR_INVALID_DATA_TYPE	0x60
RCP_ERROR_WRITE_ERROR	0x70
RCP_ERROR_PACKET_SIZE	0x80
RCP_ERROR_READ_NOT_SUPPORTED	0x90
RCP_ERROR_INVALID_AUTH_LEVEL	0xa0
RCP_ERROR_INVALID_SESSION_ID	0xb0
RCP_ERROR_TRY_LATER	0xc0
RCP_ERROR_TIMEOUT	0xd0
RCP_ERROR_NO_LICENCE (used by NVR only)	0xe0
RCP_ERROR_COMMAND_SPECIFIC	0xf0
RCP_ERROR_ADDRESS_FORMAT	0xf1



Note!

The error code 0xc0 RCP_ERROR_TRY_LATER indicates that the VideoJet recognizes the command, but it cannot be processed immediately. The client should repeat this command later.

1.6 Basic principle

The examples at the end of each command just cover sending the RCP+ commands over CGI.

1.6.1 Corresponding CGI-Code of the write command

```
http://160.10.0.100/rcp.xml?command=0x0607  
&type=T_DWORD&direction=WRITE&payload=10000&num=1
```

consisting of

http://	=	introduction of Hypertext Transfer Protocol (HTTP)
160.10.0.100	=	exemplary IP address
rcp.xml	=	CGI script
command=0x0607	=	tag code of the RCP+ command
type=T_DWORD	=	datatype of the RCP+ command
direction=WRITE	=	direction of the RCP+ command
payload=10000	=	payload value 10000 (target bit rate in kbps)
num=1	=	numeric descriptor 1 (profile preset)

**Note:**

The values for type and direction are case-sensitive.

2 RCP+ commands

Following the RCP+ commands are described in alphabetical order.

2.1 CONF_BICOM_COMMAND - BICOM message over RCP command

Requires firmware version 3.00 or higher.



Note:

This command is also sent as a message every second.

2.1.1 General description

This command redirects the payload to the BICOM interface of the analog camera part. The BICOM protocol can be used only for pure IP devices. Analog cameras connected to PTZ units require the OSRD protocol. Refer to the separate BICOM documentation for details and command syntax.

For some BICOM commands an access level higher than **User** is required.

Tag code: 0x09a5

Numeric descriptor: Not used

Direction	Read request	Write request
Access level	No protection	User
Data type	P_OCTET	P_OCTET

2.1.2 Payload options

Payload structure

Without Lease Time:

8	24	40	48
Flags 1 Byte	BICOM Server ID 2 Bytes	Object ID 2 Bytes	Operation 1 Byte
BICOM Payload n Bytes			

With Lease Time:

8	24	56	
Flags 1 Byte	Lease time 2 Bytes	Lease time id 4 Bytes	
BICOM Server ID 2 Bytes	Object ID 2 Bytes	Operation 1 Byte	BICOM Payload n Bytes

Flags

Transmission flags:

Values	
Return_Payload (must be set to 1 if return payload is expected)	Bit 0
Best_Effort (set to 1 to transmit as best effort frame)	Bit 1
Native_Errors (set to 1 to receive the native BICOM errors)	Bit 2
Lease_Time_Available (set to 1 if a lease time is included in the request)	Bit 3
Unused set to 0	Bit 4
Unused set to 0	Bit 5
Unused set to 0	Bit 6
Flags_Available (must be always set to 1)	Bit 7

Lease time

Time period in seconds the access should be blocked for other clients.

Lease time id

Random number generated by the client. If a lease time > 0 is provided with the first access, further accesses during the lease time are only possible if the same lease time id is provided.

BICOM server ID

Server ID, e.g. 0x0002 for “Device Server” (see BICOM documentation).

Object ID

Object ID, e.g. 0x0100 for “Type” (see BICOM documentation).

Operation

See BICOM documentation.

Values	
GET	0x01
SET	0x02
SET_GET	0x03
INC	0x04
INC_GET	0x05
DEC	0x06
DEC_GET	0x07
SET_DFLT	0x08
SET_GET_DFLT	0x09

2.1.3 RCP+ over CGI examples

Get payload

The example below returns the zoom position.

```
http://<Device IP>/rcp.xml?command=0x09a5
&type=P_OCTET&direction=WRITE&payload=0x810006011401
```

RCP request payload description

81	Return payload expected
00 06	Server ID = 6 ("PTZ server")
01 14	Object "IdString"RCP+
01	Operation GET

RCP reply

81	Return payload expected
00 06	Server ID = 6 ("PTZ server")
01 14	Object "IdString"
01	Operation GET
00 68 00 68 00 68 00 68 00 20	
00 20 00 20 00 20 00 20 00 20	
00 20 00 20 00 20 00 20 00 20	
00 20 00 20	34 Bytes Unicode ID String

Set payload

In the example below, the PTZ device turns left where x is the speed (15 speeds are possible from 0x1 to 0xF).

```
http://<Device IP>/rcp.xml?command=0x09a5
&type=P_OCTET&direction=WRITE&payload=0x8000060110850X0000
```

RCP request payload description

80	Return payload
00 06	Server ID = 6 ("PTZ server")
01 10	Object "IdString"
85	MoveContVarSpeed
0F	pan (1 = right, 0 = left)
00	tilt (1 = up, 0 = down)
00	zoom (1 = in, 0 = out)



Note:

Please see BICOM documentation for the command syntax.

2.2 CONF_BICOM_COMMAND - BICOM event over RCP message

Requires firmware version 3.00 or higher.



Note:

This command is also sent as a message every second.

2.2.1 General description

This command redirects the payload to the BICOM interface of the analog camera part. The BICOM protocol can be used only for pure IP devices. Analog cameras connected to PTZ units require the OSRD protocol. Refer to the separate BICOM documentation for details and command syntax.

For some BICOM commands an access level higher than **User** is required.

Tag code: 0x09a5

Numeric descriptor: Not used

Direction	Read request	Write request
Access level	No protection	User
Data type	P_OCTET	P_OCTET

2.2.2 Payload options

Payload structure

24	40	48
BICOM Server ID 2 Bytes	Object ID 2 Bytes	Operation 1 Byte
BICOM Payload n Bytes		

BICOM server ID

Server ID, e.g. 0x0004 for “Camera Server” (see BICOM documentation).

Object ID

Object ID, e.g. 0x0190 for “Color” (see BICOM documentation).

Operation

See BICOM documentation.

Values	
EVENT	0x70 ... 0x7F

2.2.3 RCP+ over CGI example

Receive message

Register to a message.

```
http://<Device IP>/rcp.xml?command=0x09a5
&type=P_OCTET&direction=WRITE&payload=0x00040190700000
```

RCP message

00 04	Server ID = 4 (“Camera Server”)
01 90	Object “Color”
70	Operation EVENT
00 00	2 Byte unsigned short: Color mode is B/W

**Note:**

Please see BICOM documentation for the command syntax.

2.3 CONF_GET_RTSP_SESSION_ID

Requires firmware version 5.70 or higher.



Note:

Replay of recorded video over RTSP only works for locally managed recordings, not for centrally managed (by VRM) recordings.

This command is NOT writeable.

2.3.1 General description

This command gets the RTSP session ID of the RTSP session, identified by the random value. Precondition is the setup of a replay connection via RTSP:

```
rtsp://<Device IP>/rtsp_tunnel?rec=1&rnd=718
```

Tag code: 0x0ae8

Numeric descriptor: Random value from RTSP session setup

Direction	Read request		Write request
Access level	No protection		Not supported
Data type	T_DWORD		

2.3.2 RCP+ over CGI example

Read request

In the example below, the session ID for the RTSP connection number 718 is checked. In this case, the session ID is 154861654.

```
http://<Device IP>/rcp.xml?command=0x0ae8
&type=T_DWORD&num=718&direction=READ
```

```
<rcp>
  <command>
    <hex>0x0ae8</hex>
    <dec>2792</dec>
  </command>
  <type>T_DWORD</type>
  <direction>READ</direction>
  <num>718</num>
  <idstring/>
  <payload/>
  <cltid>0x038a</cltid>
  <sessionid>0x00000000</sessionid>
  <auth>2</auth>
  <protocol>TCP</protocol>
  <result>
    <dec>154861654</dec>
  </result>
</rcp>
```

2.4 CONF_HD_PARTITION_FILE_INFO

Requires firmware version 5.70 or higher.



Note:

Replay of recorded video over RTSP only works for locally managed recordings, not for centrally managed (by VRM) recordings.

This command is NOT writeable.

2.4.1

General description

This RPC+ command is used to get a recording list for locally or centrally managed recording.



Note:

If this command is used to get file information on a span formatted disk, the session ID parameter must be set (a connect primitive must have been preceded). The num paramter (partition) has no meaning then, since a span has always only one partition. Alarm Recording and Time Recording flags changed semantic. Alarm Recording flag marks a file that includes a pre-alarm recording configured by a pre-alarm time in the recording profiles. Time Recording flag marks the files including normal time recording and/or post-alarm. That means a closed file including pre- and post-alarm recordings will always have alarm and time recording flag set. The file ID always increases on span recording regions if new files will be created.

Tag code: 0x0901

Numeric descriptor: Not used

Direction	Read request	Write request
Access level	No protection	Not supported
Data type	P_OCTET	

2.4.2 Payload options

Payload structure

	16	32
Start time 4 Bytes		
Stop time 4 Bytes		
maxEntries 4 Bytes		
Reserved 4 Bytes		
8	24	

Start time = seconds since 2000

Stop time = seconds since 2000

maxEntries = maximum number of entries

Reserved = not used

2.4.3 Reply

Payload structure (sequence of)

	16	32
Start time 4 Bytes		
Stop time 4 Bytes		
Flags 4 Bytes		
File ID 4 Bytes		
8	24	

Start time = seconds since 2000

Stop time = seconds since 2000

Flags

Values	
Bit 0	Recording running (actual recording is running on this file or recording not closed regularly)
Bit 1	Recording overwriting (recording takes place in a ring and old recording data will be overwritten)
Bit 2	Alarm input (there are input alarms in this file)
Bit 3	Alarm motion (there are motion alarms in this file)
Bit 4	New alarm (only file info message)
Bit 5	Video loss (there are video loss in this file)

Values	
Bit 6 ... 7	Recording mode: 1 - Time recording 2 - Alarm recording pre-alarm 3 - Alarm recording post-alarm
Bit 8 ... 15	Track fill level (fill level in percent, always 100 % on filled ring recording)
Bit 16	Alarm remote (there are virtual/remote alarms in this file), see CONF_HD_MGR_SIGNAL_ALARM
Bit 17 ... 20	Reserved
Bit 21	Offline (VRM only)
Bit 22	Protected (VRM only)
Bit 23 ... 28	Time zone (quarter hours)
Bit 29	Time zone sign
Bit 30 ... 31	Reserved

2.4.4 RCP+ over CGI example

Read request

In the example below, the recorded slices are requested. The start and end time of the search is defined in seconds since 01.01.2000 00:00 h. Also the maximum entry number must be set. The start time is set to 29.11.2012 06:00:00 and the end time is set to 29.11.2012 06:00:00. The maximum entry number is 4.

```
http://<Device IP>/rcp.xml?command=0x0901
&type=P_OCTET&direction=READ&protocol=TCP
&payload=0x1849B660184A0AC00000000400000000
&num=1&sessionId=154861654
```

2.5 CONF_HD_REPLAY_SEEK_TIME

Requires firmware version 5.70 or higher.



Note:

Replay of recorded video over RTSP only works for locally managed recordings, not for centrally managed (by VRM) recordings.

2.5.1 General description

This command gets the current replay time position. Precondition is the setup of a replay connection via RTSP:

```
rtsp://<Device IP>/rtsp_tunnel?rec=1&rnd=718
```

This command will return a write error if the time position is outside a recording set. The session ID is needed.

Tag code: 0x0905

Numeric descriptor: Not used

Direction	Read request		Write request	
Access level	No protection		Service	
Data type	P_OCTET		P_OCTET	

2.5.2 Payload options

Payload structure

Seconds 4 Bytes
RTP time stamp 4 Bytes

Seconds = Absolute time in seconds since 1.1.2000 00:00 h.

RTP time stamp = Only in message. RTP time stamp of the first replayed RTP packet of this second. On devices with transcoding functionality, an extended payload can be provided in the write request to specify the Region of Interest.

Extended payload structure

Seconds 4 Bytes	
Milliseconds 2 Bytes	Reserved 2 Bytes
conf_roi: hPos 2 Bytes	conf_roi: vPos 2 Bytes
conf_roi: hSize 2 Bytes	conf_roi: vSSize 2 Bytes

Seconds	= Absolute time in seconds since 1.1.2000 00:00 h.
Milliseconds	= Milliseconds
RTP time stamp	= Only in message. RTP time stamp of the first replayed RTP packet of this second. On devices with transcoding functionality, an extended payload can be provided in the write request to specify the Region of Interest.
conf_roi	= Select region of interest hPos, vPos, hSize, vSize (each entry 2 bytes): starting left upper edge, each 2bytes 0...32768, vSize==0 means: keep aspect ratio.

2.5.3 RCP+ over CGI example

Read request

In the example below, returns the replay seek time for the session ID 154861654. The replay time is an absolute time in seconds since 01.01.2000 00:00 h.

```
http://<Device IP>/rcp.xml?command=0x0905
&type=P_OCTET&direction=READ&sessionid=0x45ae0022
```

```
<rcp>
  <command>
    <hex>0x0905</hex>
    <dec>2309</dec>
  </command>
  <type>P_OCTET</type>
  <direction>READ</direction>
  <num>0</num>
  <idstring/>
  <payload/>
  <cltid>0x1b5a</cltid>
  <sessionid>0x45ae0022</sessionid>
  <auth>2</auth>
  <protocol>TCP</protocol>
  <result>
    <len>4</len>
    <str>19 b1 e8 2b</str>
  </result>
</rcp>
```

Write request

In the example below, the seek time is set as absolute time in seconds since 01.01.2000 00:00 h, here: 29.11.2012 11:38:20 (local time).

```
http://<Device IP>/rcp.xml?command=0x0905
&type=P_OCTET&direction=WRITE&sessionid=154861654&payload=0x45ae0022
```

2.6 CONF_HD_REPLAY_START

Requires firmware version 5.70 or higher.



Note:

Replay of recorded video over RTSP only works for locally managed recordings, not for centrally managed (by VRM) recordings.

This command is also sent as a message.

2.6.1 General description

This command returns the `t_int` parameter in percent of real-time replay (default +100%); 0 if suspended or stopped. The session ID is needed.

The command starts a HD replay at the current position; `t_int` parameter in percent of real-time replay (default +100%). Negative values will result in a reverse replay.

Tag code: 0x0902

Numeric descriptor: Not used

Direction	Read request		Write request	
Access level	No protection		User	
Data type	T_INT		T_INT	

2.6.2 Payload options

Replay speed

Values	
0	Stopped/suspended
100	Real-time replay with 1x speed (100%)
<0	Reverse replay
N × 100	N × speed

2.6.3 RCP+ over CGI example

Read request

In the example below, returns the replay speed.

```
http://<Device IP>/rcp.xml?command=0x0902
&type=T_INT&direction=READ&sessionID=152
```

Write request

In the example below, the current replay speed of real-time replay is set to 100 %.

```
http://<Device IP>/rcp.xml?command=0x0902
&type=T_INT&direction=WRITE&sessionID=152&payload=0x64
```

2.7 CONF_INPUT_PIN_STATE

Requires firmware version 2.52 or higher.

2.7.1 General description

This command enables you to retrieve the status of the device alarm inputs.



Note:

This command is also sent as a message.

Tag code: 0x01c0

Numeric descriptor: Alarm input

Direction	Read request	Write request
Access level	No protection	Not supported
Data type	F_FLAG	

2.7.2 Payload options

0 = Alarm input is off

1 = Alarm input is on

2.7.3 RCP+ over CGI example

Read request

In the example below, the status of the first alarm input is retrieved.

`http://<Device IP>/rcp.xml?command=0x01c0&type=F_FLAG&direction=READ&num=1`

2.8 CONF_JPEG_BANDWIDTH_KBPS

Requires firmware version 4.00 or higher.

2.8.1 General description

This command enables you to get and set the JPEG bandwidth.



Note:

This command is valid for CPP-ENC devices only. For other devices, use the **CONF_JPEG_STREAM_SETUP** command.

Tag code: 0x061d

Numeric descriptor: Profile preset

Direction	Read request		Write request	
Access level	No protection		Service	
Data type	T_DWORD		T_DWORD	

2.8.2 Payload options

Get or set the JPEG bandwidth (in KBPS) of the selected preset for the JPEG streaming.

2.8.3 RCP+ over CGI example

Read request

In the example below the JPEG bandwidth of the first preset is retrieved. In this case it is set to 6000 kbps.

```
http://<Device IP>/rcp.xml?command=0x061d
&type=T_DWORD&num=1&direction=READ
```

```
<rcp>
  <command>
    <hex>0x061d</hex>
    <dec>1565</dec>
  </command>
  <type>T_DWORD</type>
  <direction>READ</direction>
  <num>1</num>
  <idstring/>
  <payload/>
  <cltid>0x038a</cltid>
  <sessionid>0x00000000</sessionid>
  <auth>2</auth>
  <protocol>TCP</protocol>
  <result>
    <hex>0x00001770</hex>
    <dec>6000</dec>
```

```
</result>  
</rcp>
```

Write request

In the example below the JPEG bandwidth of the first preset is set to 5000 kbps.

```
http://<Device IP>/rcp.xml?command=0x061d  
&type=T_DWORD&num=1&direction=WRITE&payload=5000
```

2.9 CONF_JPEG_STREAM_SETUP

Requires firmware version 4.21.19 or higher.

2.9.1 General description

This command represents the JPEG stream configuration.



Note:

This command is not valid for CPP-ENC devices. For CPP-ENC devices use the **CONF_JPEG_BANDWIDTH_KBPS** command instead.

Tag code: 0x0ad5

Numeric descriptor: Not used

Direction	Read request		Write request	
Access level	No protection		Service	
Data type	P_OCTET		P_OCTET	

2.9.2 Payload options

Payload structure

Resolution	Frames in MHz	Quality
4 Bytes	4 Bytes	4 Bytes

Resolution

Values	
0	QCIF
1	CIF
2	2CIF
3	4CIF
6	QVGA
7	VGA
12	720p
14	1080p
15	5MP
16	1280x960
17	1440x1080

Frames in MHz

Frames in MHz. To get fps, the value has to be divided by 1000.

Quality

Quality of the JPEG in the range 1 ... 100.

0 = Automatic quality settings

1 = Worst quality

100 = Best quality

2.9.3**RCP+ over CGI example****Read request**

In the example below, the jpeg stream configuration is retrieved.

```
http://<Device IP>/rcp.xml?command=0x0ad5&type=P_OCTET&direction=READ
```

Write request

In the example below, the jpeg resolution is set to 720p with full 30 fps and medium quality settings.

```
http://<Device IP>/rcp.xml?command=0x0ad5  
&type=P_OCTET&direction=WRITE&payload=0000001200007530000000032
```

2.10 CONF_MOTION_ALARM_STATE

Requires firmware version 2.52 or higher.

2.10.1 General description

This command enables you to retrieve the status of the device motion detection.

If Intelligent Video Alarm (IVA) is enabled, this command reports a motion alarm when at least one of the IVA tasks is triggered. For detailed IVA alarms, please see the **CONF_VIPROC_ALAM** section (see page 134).



Note:

This command is also sent as a message.

Tag code: 0x01c3

Numeric descriptor: Video line

Direction	Read request	Write request
Access level	No protection	Not supported
Data type	F_FLAG	

2.10.2 Payload options

0 = Motion is off

1 = Motion is on

2.10.3 RCP+ over CGI example

Read request

In the example below, the status of the motion detection is retrieved.

```
http://<Device IP>/rcp.xml?command=0x01c3&type=F_FLAG&direction=READ&num=1
```

Message

In the example below, status changes are retrieved as a message.

```
http://<Device IP>/rcp.xml?message=0x01c3&collectms=5000
```

2.11 CONF_MPEG4_BANDWIDTH_KBPS

Requires firmware version 3.00 or higher.

2.11.1 General description

This command reads out and sets the target bit rate (in kbps) of the selected preset.

Tag code: 0x0607

Numeric descriptor: Profile preset

Direction	Read request		Write request	
Access level	No protection		Service	
Data type	T_DWORD		T_DWORD	

2.11.2 Payload options

Payload is the target bit rate in kbps.

2.11.3 RCP+ over CGI example

Read request

In the example below the bandwidth of the first preset is retrieved. In this case it is set to 600 kbps.

```
http://<Device IP>/rcp.xml?command=0x0607
&type=T_DWORD&num=1&direction=READ
```

```
<rcp>
  <command>
    <hex>0x0607</hex>
    <dec>1543</dec>
  </command>
  <type>T_DWORD</type>
  <direction>READ</direction>
  <num>1</num>
  <idstring/>
  <payload/>
  <cltid>0x038a</cltid>
  <sessionid>0x00000000</sessionid>
  <auth>2</auth>
  <protocol>TCP</protocol>
  <result>
    <hex>0x00000258</hex>
    <dec>600</dec>
  </result>
</rcp>
```

Write request

In the example below, the bandwidth of the first preset is set to 3000 kbps.

```
http://<Device IP>/rcp.xml?command=0x0607  
&type=T_DWORD&num=1&direction=WRITE&payload=3000
```

2.12 CONF_MPEG4_BANDWIDTH_KBPS_SOFT_LIMIT

Requires firmware version 3.00 or higher.

2.12.1 General description

By means of this command you may read out and set the maximum bit rate (in kbps) of the selected preset.

Tag code: 0x0612

Numeric descriptor: Profile preset

Direction	Read request		Write request	
Access level	No protection		Service	
Data type	T_DWORD		T_DWORD	

2.12.2 Payload options

Payload is the maximum bit rate in kbps.

2.12.3 RCP+ over CGI example

Read request

In the example below the bandwidth soft limit of the first preset is retrieved. In this case it is set to 22528 kbps.

```
http://<Device IP>/rcp.xml?command=0x0612
&type=T_DWORD&num=1&direction=READ
```

```
<rcp>
  <command>
    <hex>0x0612</hex>
    <dec>1554</dec>
  </command>
  <type>T_DWORD</type>
  <direction>READ</direction>
  <num>1</num>
  <idstring/>
  <payload/>
  <cltid>0x038a</cltid>
  <sessionId>0x00000000</sessionId>
  <auth>2</auth>
  <protocol>TCP</protocol>
  <result>
    <hex>0x00005800</hex>
    <dec>22528</dec>
  </result>
</rcp>
```

Write request

In the example below, the bandwidth soft limit of the first preset is set to 20000.


```
http://<Device IP>/rcp.xml?command=0x0612  
&type=T_DWORD&num=1&direction=WRITE&payload=20000
```

2.13 CONF_MPEG4_CURRENT_PARAMS_REL_CODER

Requires firmware version 3.00 or higher.

2.13.1 General description

This command gets/sets a video configuration profile for a specified video stream.

Tag code: 0x061c

Numeric descriptor: Not used

Direction	Read request		Write request	
Access level	No protection		Service	
Data type	P_OCTET		P_OCTET	

2.13.2 Payload options

Payload structure

Line 1 Byte	Coder 1 Byte	Coder capabilities 2 Bytes
Preset 1 Byte	Reserved 3 Bytes	

Line = Video input line

Coder = 1= First video stream
2= Second video stream
3= Third video stream (JPEG)



Note:

This command needs a payload in the read request.

On read requests the coder capabilities and preset parameters can be ignored. The according bytes will be set in the reply payload.

Coding capabilities

Values	
0x0002	H.263
0x0004	MPEG 4
0x0008	MPEG 2
0x0040	H.264
0x0080	JPEG

Preset

Number of the profile the coder is set to/has to be set to.

2.13.3 Reply

Reply Payload Structure

The replay payload structure is identical to the request payload structure, please see above.

2.13.4 RCP+ over CGI example

Read request

In the example below, the profile for the second stream on video input 1 is requested.

```
http://<Device IP>/ rcp.xml?command=0x061c
&type=P_OCTET&direction=READ&payload=0x0102000000000000
```

Write request

In the example below, profile 4 is assigned to video stream 1.

```
http://<Device IP>/ rcp.xml?command=0x061c
&type=P_OCTET&direction=WRITE&payload=0x0101000004000000
```

2.14 CONF_MPEG4_FRAME_SKIP_RATIO

Requires firmware version 2.52 or higher.

2.14.1 General description

With this command the number of encoded frames can be changed/retrieved for a video profile.

First, the device base frame rate has to be retrieved with the command **CONF_VIDEO_INPUT_FORMAT_EX** (see page 44), according to the formula:

base frame rate/**MPEG4_FRAME_SKIP_RATIO** = frames per second

The value **1** means all frames are encoded.

Tag code: 0x0606

Numeric descriptor: Video profile preset number

Direction	Read request		Write request	
Access level	No protection		Service	
Data type	T_DWORD		T_DWORD	

2.14.2 Payload options

Payload structure

Payload is encoding interval. 1 means all frames are encoded, 2 every second frame is skipped, etc.

2.14.3 RCP+ over CGI example

Read request

In the example below, the frame skip value is retrieved for the second video profile.

```
http://<Device IP>/rcp.xml?command=0x0606
&type=T_DWORD&direction=WRITE&num=1&payload=3
```

2.15 CONF_MPEG4_RESOLUTION

Requires firmware version 2.52 or higher.

2.15.1 General description

This command gets/sets the resolution for a video profile.



Note:

The resolution in the video profile are only valid for SD streams, not for HD streams. For changing HD resolution please use the **CONF_VIDEO_H264_ENC_BASE_OPERATION_MODE** command (see page 42).

Tag code: 0x0608

Numeric descriptor: Video profile preset

Direction	Read request		Write request	
Access level	No protection		Service	
Data type	T_DWORD		T_DWORD	

2.15.2 Payload options

Values	
0	QCIF
1	CIF
2	2CIF
3	4CIF
4	1/2 D1
5	2/3 D1
6	QVGA
7	VGA
8	WD144 (256 × 144)
9	WD288 (512 × 288)
10	WD432 (768 × 432)
12	720p
14	1080p
15	5MP

2.15.3 RCP+ over CGI example

Read request

In the example below, the resolution of profile 7 is checked.

```
http://<Device IP>/rcp.xml?command=0x0608  
&type=T_DWORD&direction=READ&num=7
```

Write request

In the example below, VGA resolution is assigned for profile 6.

```
http://<Device IP>/rcp.xml?command=0x0608  
&type=T_DWORD&direction=WRITE&num=6&payload=7
```

2.16 CONF_RCP_TRANSFER_TRANSPARENT_DATA

Requires firmware version 3.00 or higher.



Note:
This command is also send as a message.

2.16.1 General description

The transparent data from and to the serial interfaces is handled by the RCP to achieve reliable transfer of information. To gather control over the remote serial interface a successful registration is necessary.

Tag code: 0xffdd

Numeric descriptor: COM port

Direction	Read request	Write request	
Access level	Not supported	User	
Data type		P_OCTET	

2.16.2 Payload options

Payload structure

Options 1 Byte	Reserved 1 Byte	Lease time 2 Bytes
Trans. data 1 1 Byte	N × 1 Byte	Trans. data N 1 Byte

Options

Currently no options used.

Lease time

Time in seconds the lease is requested.

Values	
0x0000	Only this packet should be sent out; no further control is requested.
0xFFFF	Indefinite lease time; request lease as long as the current registration is valid.



Note:
The lease time should be treated as a request; the VideoJet may switch leases before the requested time is over due to a higher prioritized RCP client.

For this direction, an RCP write command to a specific port (addressed by the numeric descriptor) is necessary.

Once the VideoJet has received a **TRANSFER_TRANSPARENT_DATA** command, it checks whether the RCP client is in control or not. If the RCP client is allowed to send data to the serial interface, the reply will present an **OK**. If the RCP client is not allowed to send data, a **FAIL** will be returned. In this case another RCP client is controlling the serial out. The timeout and priority handling of the serial ports is beyond the scope of this document.

2.16.3 Write reply packet

Write request

Code	Reserved	Reserved
1 Byte	1 Byte	2 Bytes

Code

Values	
0x00	Access to the serial port denied.
0x01	Access to the serial port granted.

2.16.4 Read request

The reply to the read request command will be the same as the reply to the write request command. The returned code will present the availability of the serial port.



Note:

Despite a positive reply to a read command, the port may be locked by another RCP client in the time slice between the read and a following write command.

2.16.5 Serial IN -> RCP Client

The data coming from the serial input is delivered using an RCP message. All RCP clients which want to receive this data must be registered for the message 0xFFDD. Data is posted if the corresponding RCP client is in control only.

If no client has a lease on the serial port, a message to all registered clients will be generated.



Note:

The received message will carry NO header.

2.16.6 RCP+ over CGI example

Write request

In the example below, the Bosch Autodome protocol is used to continuous pan to the left with maximum speed.

For other options and the command syntax, please check the OSRD documentation.

```
http://<Device IP>/rcp.xml?command=0xFFDD&
type=P_OCTET&direction=WRITE&num=1&payload=0x000000058700000500780206
```

2.17 CONF_RELAY_OUTPUT_STATE

Requires firmware version 2.52 or higher.

2.17.1 General description

This command enables you to set and retrieve the status of the device alarm output (relay).



Note:

This command is also sent as a message.

Tag code: 0x01c1

Numeric descriptor: Video line

Direction	Read request		Write request	
Access level	No protection		User	
Data type	F_FLAG		F_FLAG	

2.17.2 Payload options

0 = Relay logical value is off

1 = Relay logical value is on

2.17.3 RCP+ over CGI example

Read request

In the example below, the logical value of the first relay is retrieved.

```
http://<Device IP>/rcp.xml?command=0x01c1
&type=F_FLAG&direction=READ&num=1
```

Write request

In the example below, the logical value of the second relay is set to 1.

```
http://<Device IP>/rcp.xml?command=0x01c1
&type=F_FLAG&direction=WRITE&num=2&payload=1
```

Event message

In the example below, status changes are retrieved as a message.

```
http://<Device IP>/rcp.xml?message=0x01c1&collectms=5000
```

2.18 CONF_VIDEO_ALARM_STATE

Requires firmware version 2.52 or higher.

2.18.1 General description

This command enables you to check the current video connection. It applies to encoders, where the video input is connected to an analog camera. In case this connection is broken, the video alarm is raised.



Note:

This command is also sent as a message.

Tag code: 0x01c2

Numeric descriptor: Video line

Direction	Read request	Write request
Access level	No protection	Not supported
Data type	F_FLAG	

2.18.2 Payload options

0 = Video alarm is off, which means video signal is available

1 = Video alarm is on, no video signal detected at the video input

2.18.3 RCP+ over CGI example

Read request

In the example below, the video alarm status on the second video input is retrieved.

```
http://<Device IP>/rcp.xml?command=0x01c2&type=F_FLAG&direction=READ&num=2
```

Message

In the example below, status changes are retrieved as a message.

```
http://<Device IP>/rcp.xml?message=0x01c2&collectms=5000
```

2.19 CONF_VIDEO_H264_ENC_BASE_OPERATION_MODE

Requires firmware version 4.50 or higher.

2.19.1 General description

This command enables you to retrieve and set the base operation mode, consisting of resolution and corresponding frame rate of the h.264 encoders per video input, of the video over IP device.

Tag code: 0x0ad3

Numeric descriptor: Video line

Direction	Read request		Write request	
Access level	No protection		Service	
Data type	P_OCTET		P_OCTET	

2.19.2 Payload options

Payload structure

Stream 1 mode	Stream 2 mode
2 Bytes	2 Bytes

Get or set the base operation mode of the H.264 encoders per line. The first DWORD is stream 1 and the second stream 2.



Note:

To get the possible modes for setting see command **CONF_VIDEO_H264_ENC_BASE_OPERATION_MODE_CAPS**.

Encoder mode

Values	Types
0	Copy other stream
1	Compatibility mode to H.264 BP + (bit rate limited)
3	H264 MP SD
4	H264 MP fixed 720p
5	H264 MP fixed 720p full framerate
6	H264 MP fixed 1080p
7	H264 MP fixed 720p skip=3
8	H264 MP fixed 720p skip=4
9	H264 MP fixed 1080p skip=7
10	H264 MP SD ROI PTZ
11	H264 MP HD 2592 × 1944

Values	Types
12	H264 MP SD upright format (cropped)
13	H264 MP SD 4CIF resolution 4:3 format (cropped)
14	H264 MP SD (max. 288p) dual stream with independent ROI PTZ

2.19.3 RCP+ over CGI example

Read request

In the example below, the base operation mode of the encoder for stream 1 and 2 on video line 1 is retrieved. In this case, stream 1 is set to **H264 MP fixed 1080p** and stream 2 to **H264 MP fixed 720p skip=3**.

```
http://<Device IP>/rcp.xml?command=0x0ad3
&type=P_OCTET&num=1&direction=READ
```

```
<rcp>
  <command>
    <hex>0x0ad3</hex>
    <dec>2771</dec>
  </command>
  <type>P_OCTET</type>
  <direction>READ</direction>
  <num>1</num>
  <idstring/>
  <payload/>
  <cltid>0x038a</cltid>
  <sessionid>0x00000000</sessionid>
  <auth>2</auth>
  <protocol>TCP</protocol>
  <result>
    <len>8</len>
    <str>00 00 00 06 00 00 00 07 </str>
  </result>
</rcp>
```

Write request

In the example below, the base operation mode for video line 1 is set. For stream 1 to **H264 MP fixed 720p** and stream 2 to **copy stream**.

```
http://<Device IP>/rcp.xml?command=0x0ad3
&type=P_OCTET&num=1&direction=WRITE&payload=0x0000000400000000
```

2.20 CONF_VIDEO_INPUT_FORMAT_EX

Requires firmware version 5.50 or higher.

2.20.1 General description

This command enables you to get and set the video input format.

Tag code: 0x0b10

Numeric descriptor: Video line

Direction	Read request		Write request	
Access level	No protection		Service	
Data type	P_OCTET		P_OCTET	

2.20.2 Payload options

Payload structure

Video mode	Video format	Reserved
1 Byte	2 Bytes	18 Bytes

Video mode

Values	Modes
0	fixed
1	auto-detect

Video format

Values	Types
0	No
1	PAL
2	NTSC
3	VGA
4	720P
5	1080P
6	QVGA
7	720P25
8	720P30
9	720P50
10	720P60
11	1080P25
12	1080P30
13	2592x1944P12

Values	Types
14	1440x1080P25

2.20.3 RCP+ over CGI example

In the example below, the video input format is retrieved for video line one. In this case it is **1080P30**.

```

http://<Device IP>/rcp.xml?command=0x0b10
&type=P_OCTET&num=1&direction=READ

<rcp>
  <command>
    <hex>0x0b10</hex>
    <dec>2832</dec>
  </command>
  <type>P_OCTET</type>
  <direction>READ</direction>
  <num>1</num>
  <idstring/>
  <payload/>
  <cltid>0x038a</cltid>
  <sessionid>0x00000000</sessionid>
  <auth>2</auth>
  <protocol>TCP</protocol>
  <result>
    <len>20</len>
    <str>00 0c 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 </str>
  </result>
</rcp>

```

Write request

In the example below, the video input format on line 1 is set to **1080P25**.

```

http://<Device IP>/rcp.xml?command=0x0b10
&type=P_OCTET&num=1&direction=WRITE&payload=0x000b

```

2.21 CONF_VIRTUAL_ALARM_STATE

Requires firmware version 4.00 or higher.

2.21.1 General description

This command enables you to get and set the virtual alarm state.



Note:

This command is also sent as a message.

Tag code: 0x0a8b

Numeric descriptor: Virtual alarm number

Direction	Read request	Write request
Access level	No protection	Service
Data type	F_FLAG	F_FLAG

2.21.2 Payload options

Values	
0	Virtual alarm off
1	Virtual alarm on

2.21.3 RCP+ over CGI example

Read request

In the example below, the virtual alarm state of the first virtual alarm is received. In this case, the status is set to **off**.

```
http://<Device IP>/rcp.xml?command=0x0a8b&type=F_FLAG&num=1&direction=READ
```

```
<rcp>
  <command>
    <hex>0x0a8b</hex>
    <dec>2699</dec>
  </command>
  <type>F_FLAG</type>
  <direction>READ</direction>
  <num>1</num>
  <idstring/>
  <payload/>
  <cltid>0x038a</cltid>
  <sessionid>0x00000000</sessionid>
  <auth>2</auth>
  <protocol>TCP</protocol>
  <result>
```



```
<hex>0x00</hex>  
<dec>0</dec>  
</result>  
</rcp>
```

Write request

In the example below, the virtual alarm state of the first virtual alarm is set to **on**.

```
http://<Device IP>/rcp.xml?command=0x0a8b  
&type=F_FLAG&num=1&direction=WRITE&payload=1
```


Bosch Sicherheitssysteme GmbH

Robert-Bosch-Ring 5
85630 Grasbrunn
Germany

www.boschsecurity.com

© Bosch Sicherheitssysteme GmbH, 2013