ANTRICA

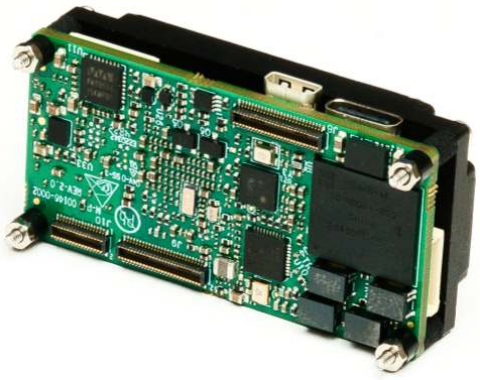
encoders | decoders

ICD Requirements
version 1.0.8.a

For

ANT-1776 family

ANT-1776



ANT-1776ZB

Version	Date	Change Description	SW Version	Name
1.0.0	20/10/2022			Nehama Novick
1.0.2	12/09/2023	Change Set/Get Video Quality Remove unused parameters		Itamar Levit
1.0.3	19/09/2023	update commands 16,17,18,21,22 according to SW changes. Add cameras codes table. change command - “get storage info” (100)	1.0.9.2	
1.0.4	26/09/2023	Change “get CSI Camera Name” (Command 18)	1.0.9.2	Nehama Novick
1.0.5	27/02/2024	Update / Add Commands: • Set/Get PIP (64,65) • Set/Get Jitter Buffer (68,69) • Set/Get ONVIF parameters (183,184) • Set/Get AI Discovery level (78,79) • Get system info (113) • Set/Get audio source mode (45,46) • Set/Get Split parameters (89,90) • Get Version (11) • Set/Get record mode (87,88) • Set/Get SONY command (221,222) • Get fast encode (39)	1.1.1.0.06	Nehama Novick
1.0.6	10/06/2024	Update / Add Commands: • Set/Get user overlay mode (53,54) • Set/Get GPS Device (143,144) • Get GPS Status (147) • Set/Get playback mux (74,75) • Set/Get Quad Params (256,257) • Set/Get Network streaming (241,242) • Set/Get GIGE State (258,259) • Set/Get Sony Params (260,261)	1.1.2.0.05	Dvory levit

		• Set/Get fake KLV (263,264)		
1.0.7	10.09.2024	Add Set/Get Data Source parameters (106,107)	1.1.2.0.16	Nehama Novick
1.0.8	03.06.2025	Fixed UART To ETH (commands 102,103)	1.1.7.0.64	Nehama Novick
1.0.8a	11-Aug-25	Layout edits to 1.0.8 no technical change		David Mason

Table of Contents

Contents

1 General

1.1 LAN Broadcast message for identifying the board from different networks

The board sends a broadcast message once a second to identify the board from different networks, broadcast address: 255.255.255.255:30003

1.2 Remote LAN protocol that controls and operate the LDVC board

Sending the commands for controlling and operate the board will be on port 3100. (Details of the commands see section 2 – API Messages)

1.3 RS232 Interface

- Bits per second: 115200
- Data bits: 8
- Parity: None
- Stop Bit: 1
- Flow Control: None

1.4 Definitions

- **Mux** - Object that is linked to the camera and unites 3 tracks within it – one for video, one for audio and one for data, through this object you can control, operate and configure the camera.
- **Stream File** – transport stream file including video, audio and metadata
- **Data File** – data file in the User's configuration

1.5 Message Encoding

Hexadecimal values will be preceded by a '0x' and the hex-digits (such as 0xAB) and decimal values will appear normally without any header.

The API Protocol is Binary Encoded, Little Endian (least significant byte is stored first).

1.6 Message Format

The message format is comprised of a fixed length Message Header and a variable length Message Data as follows:

Message Section	Field Name	Data Type	Value
Message Header	Message Sync	Byte	0xA5
	Message ID	Byte	
	Checksum	Byte	
	Data Length	Byte	

Message Data	Parameter 1	According to Message	
	…		
	Parameter N	According to Message	

Message Fields:

- **Message Sync** – A Sync byte (0xA5**)**
- **Message ID** – A unique message identifier
- **Checksum –** A Sum of all the Message **(**not include itself**)**
- **Data Length –** Total number of bytes in Message Data
- **Parameters 1 to N** – Message parameters

1.7 ACK/NAK Message Format

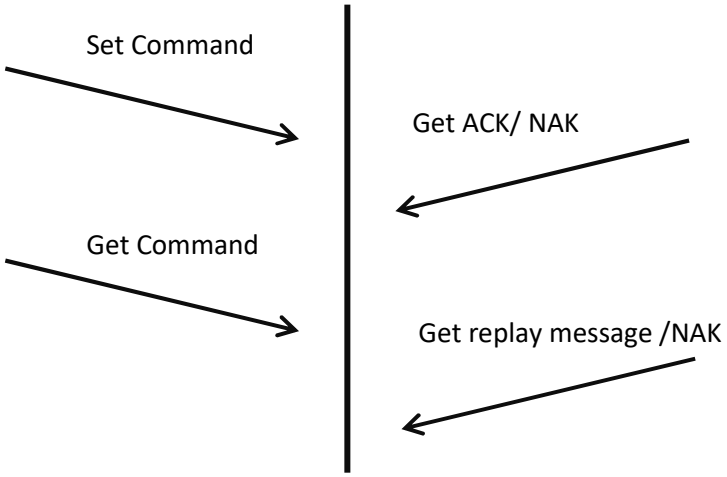
The message format is comprised of a fixed length Message Header and data as follows:

Message Section	Field Name	Data Type	Value
Message Header	Message Sync	Byte	0xA5
	ACK/NAK Message ID	Byte	0xFF
	Checksum	Byte	
	Data Length	Byte	3
	ACK/NAK	Byte	ACK - 0xBB NAK - 0xCC
	Message ID	Byte	
	Error Number	Byte	Not implemented now

Message Fields:

- **Message Sync** – A Sync byte (0xA5**)**
- **Data Number** – A unique message identifier for ack/nack message
- **Checksum –** A Sum of all the Message **(**not include itself**)**
- **Data Length –** Total number of bytes in Message Data
- **Data 0 -** ACK (0xBB) or NACK (0xCC)
- **Data 1** –Message ID we ACK/NAK
- **Data 2** – A unique error identifier

1.8 Data Flow



A message sequence:

- The user sends a message to the board.
- In the case of “set command” the program returns the acknowledge (ACK) for success or not acknowledge (NAK) for failure.
- In the case of “get command” the program returns replay message for success or not acknowledge (NAK) for failure.

2 API Messages

Note: Each command that configs the system is written to a configuration file.

2.1 Power Off (1)

Not implemented, future development.

Note: Shutting down the system after sending an ACK.

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 1 Data Length = 4
4	MAGIC ID1	Byte	1	0xD
5	MAGIC ID2	Byte	1	0xE
6	MAGIC ID3	Byte	1	0xA
7	MAGIC ID4	Byte	1	0xD

Reply Message Structure: ACK/NAK

2.2 Set Time & Date (9)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 9 Data Length = 6
4	Hour	Byte	1	Value: 0 – 23
5	Minute	Byte	1	Value: 0 – 59
6	Second	Byte	1	Value: 0 – 59
7	Day	Byte	1	Value: 1 – 31
8	Month	Byte	1	Value: 1 – 12
9	Year	Byte	1	2 last digits of year, start from 2000 (13...)

Reply Message Structure: ACK/NAK

2.3 Get Time & Date (10)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 10 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 10 Data Length = 6
4	Hour	Byte	1	Value: 0 – 23
5	Minute	Byte	1	Value: 0 – 59
6	Second	Byte	1	Value: 0 – 59
7	Day	Byte	1	Value: 1 – 31
8	Month	Byte	1	Value: 1 – 12
9	Year	Byte	1	Year - 1900

2.4 Get Version (11)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 11 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 11 Data Length = 4
4-7	Version	Byte	4	

2.5 Set Factory Default (12)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 12 Data Length = 4
4	MAGIC ID1	Byte	1	0xD
5	MAGIC ID2	Byte	1	0xE
6	MAGIC ID3	Byte	1	0xA
7	MAGIC ID4	Byte	1	0xD

Reply Message Structure: ACK/NAK

2.6 Set Configuration Number (13)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 13 Data Length = 1
4	Config Number	Byte	1	0 – Config 1 (default) 1 – Config 2 2 – Config 3 3 – Config 4

Reply Message Structure: ACK/NAK

2.7 Get Configuration Number (14)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 14 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 14 Data Length = 1
4	Config Number	Byte	1	0 – Config 1 (default) 1 – Config 2 2 – Config 3 3 – Config 4

2.8 Reboot System (15)

Note: Rebooting system after sending an ACK.

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 15 Data Length = 4
4	MAGIC ID1	Byte	1	0xD
5	MAGIC ID2	Byte	1	0xE
6	MAGIC ID3	Byte	1	0xA
7	MAGIC ID4	Byte	1	0xD

Reply Message Structure: ACK/NAK

Note: The following commands (16,17,18,21,22) are used for information about the board's cameras,
Here is a cameras codes table for each board (use the appropriate camera code in the places marked in the commands).
this table changes often, make sure you are on the latest version.

Board Name	Cameras
JUPITER-NANO	CSI_1: 0 = ANALOG 1 = QANALOG 2 = HDSDI 3 = HDMI 4 = SONY_PS2802 5 = BOSON CSI_2: 0 = ANALOG 1 = QANALOG 2 = HDSDI 3 = HDMI 4 = SONY_PS2802 5 = BOSON
JUPITER-AI	CSI_1: 0 = QANALOG CSI_2: 0 = HDSDI
JUPITER-RUGED	CSI_1: 0 = QANALOG CSI_2: 0 = HDSDI
JUPITER-SB	CSI_1: 0 = SONYBLOCK CSI_2: 0 = Analog
JUPITER-DROWN	CSI_1: 0 = ANALOG CSI_2: 0 = HDMI
JUPITER-ELBIT	CSI_1: 0 = ANALOG CSI_2: No Cameras

2.9 Set Camera Interface Config (16)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 16 Data Length = 2

4	CSI 1 – Camera Number	Byte	1	See Cameras Codes Table. -1 = None Camera
5	CSI 2 – Camera Number	Byte	1	See Cameras Codes Table. -1 = None Camera

Reply Message Structure: ACK/NAK

2.10 Get Camera Interface Config (17)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 17 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 17 Data Length = 2
4	CSI 1 – Camera Number	Byte	1	See Cameras Codes Table. -1 = None Camera
5	CSI 2 – Camera Number	Byte	1	See Cameras Codes Table. -1 = None Camera

2.11 Get CSI Camera Name (18)

The function returns one device by ID from list.
When ID is wrong, it retunes NAK.

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 18 Data Length = 2
4	CSI Number	Byte	1	0 = CSI_0 1 = CSI_1
5	Camera Number	Byte	1	See Cameras Codes Table

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 18 Data Length = 22
4	CSI Number	Byte	1	0 = CSI_0 1 = CSI_1
5	Camera Number	Byte	1	See Cameras Codes Table
6-25	Camera Name	String	20	

2.12 Set Log Bits (19)

Bits for Error info and Debug message put in log files.

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 19 Data Length = 4
4-7	Bits Mask	Int	4	

2.13 Get Log Bits (20)

Bits for Error info and Debug message put in log files.

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 20 Data Length = 0

Replay Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 20 Data Length = 4
4-7	Bits Mask	Int	4	

2.14 Get Cameras Count (21)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 21 Data Length = 0

Replay Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 21 Data Length = 1
4-7	Count	Byte	1	Maximum Cameras Count

2.15 Get Camera Info (22)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 22 Data Length = 1
4	Camera Index	Byte	1	0 – N (N = “Count” from Command 21) 0 – 3 = CSI_0 4 – 7 = CSI_1 8 = Virtual Camera

				9 – 12 = USB 13 – 16 = Ethernet

Replay Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 22 Data Length = 22
4	Index	Byte	1	0 – N (N = "Count" from Command 21) Cameras Index: 0 – 3 = CSI_0 4 – 7 = CSI_1 8 = Virtual Camera 9 – 12 = USB 13 – 16 = Ethernet
5	Device Type	Byte	1	0 – CSI 1 – USB 2 – Virtual Camera 3 – Ethernet
6	Linux Device Index	Byte	1	Linux video capture device
7	Multi-Channel	Byte	1	For Quad Analog
8	Device Status	Byte	1	0 – Not Exist 1 – None Lock 2 - Lock
9	Mode	Byte	1	0 – Progressive 1 – Interlaced 2 – Multi Channel
10	FPS	Byte	1	
11	DevId	Byte	1	
12-15	Format	Int	4	
16-17	Width	Short	2	
18-19	Height	Short	2	
20-23	Ethernet IP	Int	4	
24-25	Ethernet Port	Short	2	

2.16 Set UART Config (23)

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 23 Data Length = 12
4	UART Number	Byte		Values between 0 – 9

5	State	Byte	1	0 – Off 1 – On (default)
6	Baud Rate	Byte	1	0 – 2400 1 – 4800 2 – 9600 3 – 19200 4 – 38400 5 – 57600 6 – 115200 (default) 7 – 230400
7	Flow Control	Byte	1	0 – None (default) 1 – Hardware
8	Parity	Byte	1	0 – None 1 – Odd 2 – Even 3 – Mark 4 – Space
9	Data Size	Byte	1	7 – 7 bits 8 – 8 bits
10-15	Reserved	Byte	6	

Reply Message Structure: ACK/NAK

2.17 Get UART Config (24)

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
	Header		4	Message ID – 24 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 24 Data Length = 12
4	UART Number	Byte	1	Values between 0 – 9
5	State	Byte	1	0 – Off 1 – On
6	Baud Rate	Byte	1	0 – 2400 1 – 4800 2 – 9600 (default) 3 – 19200 4 – 38400 5 – 57600 6 – 115200 7 – 230400

7	Flow Control	Byte	1	0 – None (default) 1 – Hardware
8	Parity	Byte	1	0 – None 1 – Odd 2 – Even 3 – Mark 4 – Space
9	Size	Byte		7- 7 bits 8 -8 bits
10-15	Reserved	Byte	6	

2.18 Set Generic Camera (25) Not yet implemented

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 25 Data Length = 11
	CSI Number	Byte	1	0 = CSI_1 1 = CSI_2
	Width	Short	2	
	Height	Short	2	
	FPS	Byte	1	
	Lanes	Byte	1	
	Mode	Byte	1	
	Interface	Byte	1	
	Toshiba Reg4	Short	2	

Reply Message Structure: ACK/NAK

2.19 Get Generic Camera (26) Not yet implemented

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 26 Data Length = 0

Replay Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 26

				Data Length = 11
4-7				

2.20 Set Network Interface (27)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 27 Data Length = 28
4	Network ID	Byte	1	0 – eth0 1 – usb0 2 – wlan0 3 – eth1
5	Type	Byte	1	For usb0: 0 – CDC Client 1 – CDC OST
6	Enabled	Byte	1	0 – Off 1 – On
7	Mode	Byte	1	0 – DHCP 1 – Manual 2 – DHCP Server
8-11	IP Address	Byte	4	For Manual mode
12-15	Mask Address	Byte	4	For Manual mode
16-19	Gateway Address	Byte	4	For Manual mode
20-23	Subnet	Byte	4	For DHCP Server mode
24-27	Range Min	Byte	4	For DHCP Server mode
28-31	Range Max	Byte	4	For DHCP Server mode

Reply Message Structure: ACK/NAK

2.21 Get Network Interface (28)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 28 Data Length = 1
4	Network ID	Byte		0 – eth0 1 – usb0 2 – wlan0

				3 – eth1

Replay Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 28 Data Length = 28
4	Network ID	Byte	1	0 – eth0 1 – usb0 2 – wlan0 3 – eth1
5	Type	Byte	1	For usb0: 0 – CDC Client 1 – CDC OST
6	Enabled	Byte	1	0 – Off 1 – On
7	Mode	Byte	1	0 – DHCP 1 – Manual 2 – DHCP Server
8-11	IP Address	Byte	4	For Manual mode
12-15	Mask Address	Byte	4	For Manual mode
16-19	Gateway Address	Byte	4	For Manual mode
20-23	Subnet	Byte	4	For DHCP Server mode
24-27	Range Min	Byte	4	For DHCP Server mode
28-31	Range Max	Byte	4	For DHCP Server mode

2.22 Set Record Auto Delete (30)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 30 Data Length = 5
4	Auto Delete Files	Byte	1	0 – Off 1 – On
5-8	Disk Limit Size	Byte	4	In MB

Reply Message Structure: ACK/NAK

2.23 Set Fast Encode Params (38)

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 38 Data Length = 6
4	Mux Number	Byte	1	0 – mux 0 1 – mux 1 … N-1 mux N-1
5	Active flag	Byte	1	Bit 0 – kbps Bit 1 – fps Bit 2 – scale
6	Bitrate	Byte	1	Out of 100 (for example - 70 for 7000 kbps)
7	Fps	Byte	1	
8	Width	Byte	1	Out of 8 (for example - 60 for 480)
9	Height	Byte	1	

Reply Message Structure: ACK/NAK

2.24 Get Record Auto Delete (31)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 31 Data Length = 0

Replay Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 31 Data Length = 5
4	Auto Delete Files	Byte	1	0 – Off 1 – On
5-8	Disk Limit Size	Byte	4	In MB

2.25 Get Fast Encode Params (39)

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 39 Data Length = 1
4	Mux Number	Byte	1	0 – N

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 39 Data Length = 6
4	Mux Number	Byte	1	0 – mux 0 1 – mux 1 … N-1 mux N-1
5	Active flag	Byte	1	Bit 0 – kbps Bit 1 – fps Bit 2 – scale
6	Bitrate	Byte	1	Out of 100 (for example - 70 for 7000 kbps)
7	Fps	Byte	1	
8	Width	Byte	1	Out of 8 (for example - 60 for 480)
9	Height	Byte	1	

2.26 Get Capture Camera Status (40)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 40 Data Length = 1
4	Channel Number	Byte	1	Camera logical Channel Depend on the camera CSI and USB camera devices

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description

0-3	Header		4	Message ID – 40 Data Length = 9
4	Channel Number	Byte	1	Camera logical Channel Depend on the camera CSI and USB camera devices
5	Status	Byte	1	0 – Not Exist 1 – Unlock 2 – Lock
6	Resolution - std	Byte	1	Reserved
7	Interlaced	Byte	1	0 – Unknown 1 – Noninterlaced 2 – Interlaced
8	Fps	Byte	1	0 – Unknown 30,60,25,50
9-10	Resolution - Width	Byte	2	
11-12	Resolution - Height	Byte	2	

2.27 Setup Streaming Mux (41)

1. When the user selects unicast, the system can transmit broadcast if the IP destination is broadcast IP, for example (192.168.0.255)
   Or multicast when the IP is multicast example(240.1.1.2)
2. In RTSP protocol the user needs to enable the RTSP server because the IP transition and ports are selected by the client.

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 41 Data Length = 16
4	Mux Number	Byte	1	0 – N
5	Auto	Byte	1	BIT 0 – Auto Streaming BIT 1 – Auto Recording BIT 2 – Auto Display BIT 3 - VMD 0 – Off 1 – On
6	Video Channel	Byte	1	-1 None, See **Table 5** at the document end.
7	Audio Channel	Byte	1	-1 – None 0 – Channel1 1 – Channel2

8	Data Channel	Byte	1	-1 – None 0 – Data1 1 – Data2 2 – Data3 3 – Data4
9	Interface	Byte	1	-1 – None 0 – Network 1 – Data Clock 2 – UART 3 – SPI (Stream View)
10	Protocol	Byte	1	When Interface = Network 0 – Private 1 – TS 2 – RTP 3 – RTSP/RTMP 4- GIGE 5- AI_ENCODER
11	Net Mode	Byte	1	When Interface = Network Reserved
12-15	IP Address	4 Byte	4	When Interface = Network
16-17	Port Address	2 Byte	2	When Interface = Network
18	UART Port	Byte	1	When Interface = UART
19	FB Number	Byte	1	For display

Reply Message Structure: ACK/NAK

2.28 Get Streaming Mux (42)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 42 Data Length = 1
4	Mux Number	Byte	1	0 – N

Replay Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 42 Data Length = 16
4	Mux Number	Byte	1	0 – N
5	Auto	Byte	1	Bits Mask: BIT 0 – Auto Streaming

				BIT 1 – Auto Recording BIT 2 – Auto Display BIT 3 - VMD 0 – Off 1 – On
6	Video Channel	Byte	1	-1 None, See **Table 5** at the document end
7	Audio Channel	Byte	1	-1 – None 1 – Channel1 2 – Channel2
8	Data Channel	Byte	1	-1 – None 1 – Data1 2 – Data2
9	Interface	Byte	1	-1 – None 0 – Network 1 – Data Clock 2 – UART
10	Protocol	Byte	1	When Interface = Network: 0 – Private 1 – TS 2 – RTP 3 – RTSP/RTMP 4- GIGE 5- AI_ENCODER
11	Net Mode	Byte	1	When Interface = Network 0 – Unicast 1 – Multicast
12	IP Address #1	Byte	1	When Interface = Network 1st Value
13	IP Address #2	Byte	1	When Interface = Network 2nd Value
14	IP Address #3	Byte	1	When Interface = Network 3rd Value
15	IP Address #4	Byte	1	When Interface = Network 4th Value
16	Port Address #1	Byte	1	When Interface = Network 1st Value
17	Port Address #2	Byte	1	When Interface = Network 2nd Value
18	UART Port	Byte	1	When Interface = UART
19	FB Number	Byte	1	

2.29 Set Streaming Operation (43)

After setting the mux and all other parameters the user can start / stop any stream.

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 43 Data Length = 2
4	Mux Number	Byte	1	0 – N
5	Operation	Byte	1	0 – Stop 1 – Start

Reply Message Structure: ACK/NAK

2.30 Set Audio Source mode (45)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 45 Data Length = 11
4	Volume	Byte	1	(Default 20)
5	Channel	Byte	1	0 – Channel1 1 – Channel2
6	Codec	Byte	1	Values between 0 – 9
7	Sample Rate	Byte	1	0 – 8000 1 – 44100 (default) 2 – 48000
8-10	Bitrate	Byte	4	
11	Bit Per Sample	Byte	1	8 Or 16 (16 is default)
12	Channels	Byte	1	1 – Mono (default) 2 – Stereo
13	Input	Byte	1	0 – Line In 1 – Mic

Reply Message Structure: ACK/NAK

2.31 Get Audio Source mode (46)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 46 Data Length = 1
4	Channel Number	Byte	1	0 – Channel 1 1 – Channel 2

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 46 Data Length = 11
4	Volume	Byte	1	(Default 20)
5	Channel Number	Byte	1	0 – Channel 1 1 – Channel 2
6	Codec	Byte	1	Values between 0 – 9
7	Sample Rate	Byte	1	0 – 8000 1 – 44100(default) 2 – 48000
8-10	Bitrate	Byte	4	
11	Bit per sample	Byte	1	8 Or 16 (16 is default)
12	Channels	Byte	1	1 – Mono (default) 2 – Stereo
13	Input	Byte	1	0 – Line In 1 – Mic

2.32 Set Video Encoding Params (47)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 47 Data Length = 5
4	Mux Number	Byte	1	0 – N
5	Encode Mode	Byte	1	0 – VBR 1 – CBR (default) 2 – VBR Block
6	Bitrate	Short	2	Kbit / sec
7	GOP	Byte	1	Default: 30

Reply Message Structure: ACK/NAK

2.33 Get Video Encoding Quality (48)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 48

				Data Length = 1
4	Mux Number	Byte	1	See video channels

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 48 Data Length = 5
4	Mux Number	Byte	1	0 – N
5	Encode Mode	Byte	1	0 – VBR 1 – CBR
6	Bitrate	Short	2	Kbits / sec
7	GOP	Byte	1	GOP

2.34 Set Video Frame Rate (49)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 49 Data Length = 4
4	Mux Number	Byte	1	0 – N
5	User Frame Rate	Byte	1	FPS (Between 1 to 30, in decimal)
6	Is User Frame Rate	Byte	1	0 – disable (set full frame rate) 1 – enable (set user frame rate)
7	deinterlace	Byte	1	

Reply Message Structure: ACK/NAK

2.35 Get Video Frame Rate (50)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 50 Data Length = 1

4	Mux Number	Byte	1	0 – N

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 50 Data Length = 4
4	Mux Number	Byte	1	0 – N
5	User Frame Rate	Byte	1	FPS (Between 1 to 30, in decimal)
6	Is User Frame Rate	Byte	1	0 – disable (set full frame rate) 1 – enable (set user frame rate)
7	Reserved	Byte	1	

2.36 Set ROI (51)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 51 Data Length = 8
4	Mux Number	Byte	1	
5	Mode	Byte	1	0 – Disabled(default) 1 – ROI Zoom 2 – Auto Full D1 3 – Auto 4CIF 4 – Auto CIF 5 - Scale
6	Source Width	Byte	1	[1-255] 1= 8,2-16, ...
7	Source Height	Byte	1	[1-255] 1= 8,2-16, ...
8	Source X	Byte	1	[1-255] 1= 8,2-16, ...
9	Source Y	Byte	1	[1-255] 1= 8,2-16, ...
10	Dist Width	Byte	1	[1-255] 1= 8,2-16, ...
11	Dist Height	Byte	1	[1-255] 1= 8,2-16, ...

Reply Message Structure: ACK/NAK

2.37 Get ROI (52)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 52 Data Length = 1
	Mux Number	Byte		0 – N

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 52 Data Length = 8
4	Mux Number	Byte	1	0 – N
5	Mode	Byte	1	0 – Disabled(default) 1 – ROI Zoom 2 – Scale
6	Source Width	Byte	1	[1-255] 1= 8,2-16, ...
7	Source Height	Byte	1	[1-255] 1= 8,2-16, ...
8	Source X	Byte	1	[1-255] 1= 8,2-16, ...
9	Source Y	Byte	1	[1-255] 1= 8,2-16, ...
10	Dist Width	Byte	1	[1-255] 1= 8,2-16, ...
11	Dist Height	Byte	1	[1-255] 1= 8,2-16, ...

2.38 Set Capture Overlay (53)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 53 Data Length = 9 + text length
4	Mux ID	Byte	1	0 – N
5	Overlay ID	Byte	1	Number from 0 – 3
6	Mode	Byte	1	0 – Disabled(default) 1 – Enabled
7	Location	Byte	1	0 – Top-R 1 – Top-L 2 – Bottom-R (default) 3 – Bottom-L 4 – Defined
8	Type	Byte	1	0 – user text 1 – time + frame no 2 – GPS
9	Color	Byte	1	0 – Black 1 – White

				2 – Red 3 – Green 4 – Blue 5 – Yellow 6 – Orange
10	Font Size	Byte	1	0 – small 1 – medium 2 - large
11	H Pixel Position	Byte	1	When Location = Defined
12	V Pixel Position	Byte	1	When Location = Defined
13	Order by	Byte	1	0 – One Line 1 – Lines
14-93	Text	String	80	ASCII String

Reply Message Structure: ACK/NAK

2.39 Get Capture Overlay (54)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 54 Data Length = 2
4	Mux ID	Byte	1	0 – N
5	Overlay ID	Byte	1	Number from 0 – 3

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 54 Data Length = 9 + text length
4	Mux ID	Byte	1	0 – N
5	Overlay ID	Byte	1	Number from 0 – 3
6	Mode	Byte	1	0 – Disabled(default) 1 – Enabled
7	Location	Byte	1	0 – Top-R 1 – Top-L 2 – Bottom-R (default) 3 – Bottom-L 4 – Defined
8	Type	Byte	1	0 – user text 1 – time + frame no 2 – GPS
9	Color	Byte	1	0 – Black 1 – White

				2 – Red 3 – Green 4 – Blue 5 – Yellow 6 – Orange
10	Font Size	Byte	1	0 – small 1 – medium 2 - large
11	H Pixel Position	Byte	1	When Location = Defined
12	V Pixel Position	Byte	1	When Location = Defined
13	Order by	Byte	1	0 – One Line 1 – Lines
14-93	Text	String	80	ASCII String

2.40 Get Active Interface Network (55)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 55 Data Length = 1
4	Network ID	Byte	1	0 – eth0 1 – eth1

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 55 Data Length = 12
4	Network ID	Byte	1	0 – eth0 1 – eth1 2-3 - USB#
5	Is Exist	Byte	1	0 – No 1 – Yes
6-11	MAC Address	Byte	6	Little endian
12-15	IP Address	Byte	4	Little endian

2.41 Set Recording Operation (58)

After setting the mux and all other parameters, the user can start / stop each stream

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 58 Data Length = 2
4	Mux Number	Byte	1	0 – N
5	Operation	Byte	1	0 – Stop 1 – Start record 2 – Start record TS

Reply Message Structure: ACK/NAK

2.42 Get Active Mux State (59)

Returns byte of status bits for each mux (ON/OFF).

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 59 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 59 Data Length = 4
4-N	Mux 1-N	Byte	1	Bits mask: BIT 0 – Streaming BIT 1 – Recording BIT 2 – JPEG BIT 3 – Display 0 – Off 1 – On

2.43 Get Audio Codec (61)

If Codec does not exist, return NAK

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 61 Data Length = 1
4	Codec ID	Byte	1	Values between 0 – 9

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 61 Data Length = 21
4	Codec ID	Byte	1	Values between 0 – 9
5-24	Codec Name	String	20	

2.44 Set PIP (64)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 64 Data Length = 15
4	Mux Number	Byte	1	0 – N
5	Mode	Byte	1	0 – Disable 1 – Source 2 – Destination
6-9	Mux Mask	Byte	4	Bit 0 = mux 0 Bit 1 = mux 1 … Bit N = mux N 0 – Off 1 – On
10-13	Width	Byte	4	
14-17	Height	Byte	4	
18	FPS	Byte	1	

Reply Message Structure: ACK/NAK

2.45 Get PIP (65)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 65 Data Length = 1
4	Mux Number	Byte	1	0 - N

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 65 Data Length = 15
4-N	Mux Number	Byte	1	
5	Mode	Byte	1	0 – Disable 1 – Source 2 – Destination
6-9	Mux Mask	Byte	4	Bit 0 = mux 0 Bit 1 = mux 1 … Bit N = mux N 0 – Off 1 – On
10-13	Width	Byte	4	
14-17	Height	Byte	4	
18	FPS	Byte	1	

2.46 Set Deinterlace Params (66)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 66 Data Length = 3
4	Mux Number	Byte	1	0 – N
5	Mode	Byte	1	0 – Disable 1 – Low 2 – Medium 3 – High
6	Operational	Byte	1	0 – Hardware 1 – Software

Reply Message Structure: ACK/NAK

2.47 Get Deinterlace params (67)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 67 Data Length = 1
	Mux Number	Byte	1	0 – N

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 67 Data Length = 3
4	Mux	Byte	1	0 – N
5	Mode	Byte	1	0 – Disable 1 – Low 2 – Medium 3 – High
6	Operational	Byte	1	0 – Hardware 1 – Software

2.48 Set Jitter Buffer (68)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 68 Data Length = 6
4	Mux Number	Byte	1	0 – N
5	Mode	Byte	1	0 – Disable 1 – Manual 2 – Auto
6-7	Bitrate	Byte	2	Use when “Manual” mode.
8-9	Buffer size (millisecond)	Byte	2	Use when “Manual” mode.

Reply Message Structure: ACK/NAK

2.49 Get Jitter Buffer (69)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 69 Data Length = 1
4	Mux Number	Byte	1	0 - N

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 69 Data Length = 6
4-N	Mux Number	Byte	1	0 – N
5	Mode	Byte	1	0 – Disable 1 – Manual 2 – Auto
6-7	Bitrate	Byte	2	Use when “Manual” mode.
8-9	Buffer size (millisecond)	Byte	2	Use when “Manual” mode.

2.50 Network Stream Player Operation (70)

Note: The player can display each channel on several displays.

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 70 Data Length = 2
4	Mux Number	Byte	1	0 – N
5	Operation	Byte	1	0 – Stop 1 – Start

Reply Message Structure: ACK/NAK

2.51 Get Network Player State (72)

Note: Each bit from 0 to 5 represents a channel.
Bit 0: stops the activity of the channel.
Bit 1: starts the channel activity.
(Start/Stop Network streaming switch for each channel)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 72 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 72 Data Length = 1
	Demux ID	Byte	1	Bits Mask. Demux Number 0 – N 0 – Off 1 – On

2.51 Set Network Playback Parameters (74)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 74 Data Length = 25
4	Demux ID	Byte	1	0-N Demuxer Number
5	Auto	Byte	1	0 – Off 1 – On
6	Stream Enable Mask	Byte	1	BIT 0 – Display BIT 1 – Record
7	Volume	Byte	1	Values between 0 - 100
8	URL Length	Byte	1	Values between 0 - 200
9… URL Length	URL	Byte	URL Length	**URL of the input stream** **udp://@<MCastIP>:<PORT>** **Example: udp://@:1235** **rtsp://<siteip>:<port>/sdp** **Example:** **rtsp://192.168.0.100:554/mux1.sdp**

Reply Message Structure: ACK/NAK

2.52 Get Playback Parameters (75)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 75 Data Length = 1
4	Demux ID	Byte	1	0 – N

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 75 Data Length = 25
4	Demux ID	Byte	1	0 – N
5	Auto	Byte	1	0 – Off 1 – On
6	Stream Enable Mask	Byte	1	BIT 0 – Display BIT 1 – Record
7	Volume	Byte	1	Values between 0 - 100
8	URL Length	Byte	1	Values between 0 - 200
9… URL Length	URL	Byte	URL Length	**URL of the input stream** **udp://@<MCastIP>:<PORT>** **Example: udp://@:1235** **rtsp://<siteip>:<port>/sdp** **Example:** **rtsp://192.168.0.100:554/mux1.sdp**

2.53 Load AI Module (76)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 76 Data Length = 54
4-53	Module File	String	50	

	Name			
54-55	Width	Short	2	
56-57	Height	Short	2	

Reply Message Structure: ACK/NAK

2.54 Get AI Module (77)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 77 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 77 Data Length = 54
4-53	Module File Name	String	50	
54-55	Width	Short	2	
56-57	Height	Short	2	

2.55 Set AI Discovery Level (78)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 78 Data Length = 12
4	Mux Number	Byte	1	0 – N
5	Enable	Byte	1	0 = Off 1 = On
6	Discovery Level	Byte	1	0 – 10
7	AI Model	Byte	1	1 = people
8	Draw Rectangle	Byte	1	0 = Off 1 = On

9	Send Warning	Byte	1	0 = Off 1 = On
10-11	Send Warn Port	Byte	2	Port number (for sending warning)
12-15	Send Warn IP	Byte	4	IP Address (for sending warning)

Reply Message Structure: ACK/NAK

2.56 Get AI Discovery Level (79)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 79 Data Length = 1
4	Mux Number	Byte	1	0 – N

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 79 Data Length = 12
4	Mux Number	Byte	1	0 – N
5	Enable	Byte	1	0 = Off 1 = On
6	Discovery Level	Byte	1	0 – 10
7	AI Model	Byte	1	1 = people
8	Draw Rectangle	Byte	1	0 = Off 1 = On
9	Send Warning	Byte	1	0 = Off 1 = On
10-11	Send Warn Port	Byte	2	Port number (for sending warning)
12-15	Send Warn IP	Byte	4	IP Address (for sending warning)

2.57 Get Video Codec Name (81)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description

0-3	Header		4	Message ID – 81 Data Length = 1
4	Index			0 – N

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 81 Data Length = 21
4	Index	Byte	1	
4	Codec Name	String	20	

2.58 Set Extended Video Codec (82)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 78 Data Length = 2
4	Mux	Byte	1	0 – N
5	Codec	Byte	1	
6	File Format	Byte	1	
7	Color	Byte	1	
8	Ts flush	Byte	1	
9	Mirror	Byte	1	
10	Rotate	Byte	1	

Reply Message Structure: ACK/NAK

2.59 Get Extended Video Codec (83)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 79 Data Length = 0
4	Mux	Byte	1	0 – N

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 79 Data Length = 2
4	Mux	Byte	1	
5	Codec	Byte	1	
6	File Format	Byte	1	
7	Color	Byte	1	
8	Ts flush	Byte	1	
9	Mirror	Byte	1	
10	Rotate	Byte	1	

2.60 Get Current Mount (86)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 86 Data Length = 0

Replay Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 86 Data Length = 1
4	Device	Byte	1	0 – No Device 1 – sd1 2 – sda1

2.61 Set Record Mode (87)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 87 Data Length = 21
4	Mux ID	Byte	1	Mux Number 0 - N
5	Index Mode	Byte	1	0 – Off 1 – On
6	Encryption mode	Byte	1	Not in used

7	Split Mode	Byte	1	0 – Auto 1 – User 2 – None
8-11	Split Time	Byte	4	In Seconds
12	Split Naming	Byte	1	0 – Time + Index 1 – New Time
13	Protocol	Byte	1	0 – TS 1 – RAW 2 – JPEG
14-15	Sync Cycle (millisecond)	Byte	2	Not in used
16	Cycle mode	Byte	1	0 – Off 1 – On
17-18	Cycle time (sec)	Byte	4	Cycle mode = On
19	Before event	Byte	1	Not in used
20	After event	Byte	1	Not in used
21	Space between event	Byte	1	Not in used
22	Delete auto	Byte	1	Not in used

Reply Message Structure: ACK/NAK

2.62 Get Record Mode (88)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 88 Data Length = 1
4	Mux ID	Byte	1	0 – N

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 88 Data Length = 21
4	Mux ID	Byte	1	Mux Number 0 - N
5	Index Mode	Byte	1	0 – Off 1 – On
6	Encryption mode	Byte	1	Not in used
7	Split Mode	Byte	1	0 – Auto 1 – User 2 – None

8-11	Split Time	Byte	4	In Seconds
12	Split Naming	Byte	1	0 – Time + Index 1 – New Time
13	Protocol	Byte	1	0 – TS 1 – RAW 2 – JPEG
14-15	Sync Cycle (millisecond)	Byte	2	Not in used
16	Cycle mode	Byte	1	0 – Off 1 – On
17-18	Cycle time (sec)	Byte	4	Cycle mode = On
19	Before event	Byte	1	Not in used
20	After event	Byte	1	Not in used
21	Space between event	Byte	1	Not in used
22	Delete auto	Byte	1	Not in used

2.63 Set Split Parameters (89)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 89 Data Length = 6
4	Mux Number	Byte	1	Mux Number 0 - N
5	X Overlay	Byte	1	Possible values: 0, 8, 16, 32
6	Y Overlay	Byte	1	Possible values: 0, 8, 16, 32
7	Count W	Byte	1	Between 1 to 5
8	Count H	Byte	1	Between 1 to 5
9	Net Protocol	Byte	1	0 = UDP 1 = TCP

Reply Message Structure: ACK/NAK

2.64 Get Split Parameters (90)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 90 Data Length = 1
0	Mux Number	Byte	1	0 – N

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 90 Data Length = 6
4	Mux Number	Byte	1	Mux Number 0 - N
5	X Overlay	Byte	1	Possible values: 0, 8, 16, 32
6	Y Overlay	Byte	1	Possible values: 0, 8, 16, 32
7	Count W	Byte	1	Between 1 to 5
8	Count H	Byte	1	Between 1 to 5
9	Net Protocol	Byte	1	0 = UDP 1 = TCP

2.65 Get HW Error Count (94)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 94 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 94 Data Length = 1
4	Errors Count	Byte	1	

2.66 Get HW Error Info (95)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 95 Data Length = 1
4	Error Index	Byte	1	Values between 0 to Errors Count

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 95 Data Length = 63
4	Error Index	Byte	1	
5	Type	Byte	1	0 – Analog Camera 1 – Digital Camera 2 – Display 3 – Flash 4 – Memory 5 – Disk 6 – SD 7 – UART 8 – Ethernet
6	Error	Byte	1	0 – None 1 – Chip IO 2 – Memory
7-46	Name	String	40	
46-65	Reserved	Byte	20	

Note: If the device does not exist Replay Message is NAK

2.67 Reset HW Errors (96)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 96 Data Length = 0

Reply Message Structure: ACK/NAK

2.68 Set TTL (97)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 97 Data Length = 1
4	TTL	Byte	1	

Reply Message Structure: ACK/NAK

2.69 Get TTL (98)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 98 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 98 Data Length = 1
4	TTL	Byte	1	

2.70 Get Storage Information (100)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 100 Data Length = 1
4	Device Index	Byte	1	0 = SD 1 = USB 2 = Internal Memory

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 100 Data Length = 29
4	Device Index	Byte	1	0 = SD 1 = USB 2 = Internal Memory
5 - 14	Device Name	String	10	
15	Status	Byte	1	0 = No Device 1 = No Partition 2 = No Format 3 = Active
16	Format Type	Byte	1	0 = NONE 1 = VFAT 2 = Linux EXT4 3 = EXFAT
17-20	Total Size kb	Int	4	in MB
21-24	Partition Size kb	Int	4	in MB
25-28	Use Size kb	Int	4	0 – FAT 1 – EXT (x)
29-32	Free Size kb	Int	4	

2.71 Get UART Device (101)

If UART driver is not exists return NAK

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 101 Data Length = 1
4	UART Number	Byte	1	Values between 0 – 9

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 101 Data Length = 21
4	UART Number	Byte	1	Values between 0 – 9
5-24	UART Name	String	20	

2.72 Set UART to ETH Parameters (102)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 102 Data Length = 23
4	State	Byte	1	0 – Off (default) 1 – On
5	UART Number	Byte	1	Values between 0 – 9
6	Baud Rate	Byte	1	0 – 2400 1 – 4800 2 – 9600 (default) 3 – 19200 4 – 38400 5 – 57600 6 – 115200 7 – 230400 8 – 921600 9 – 1000000 10 – 1152000 11 – 2000000 12 – 2500000

				13 – 3000000 14 – 3500000 15 – 4000000
7	Flow Control	Byte	1	0 – None(default) 1 – HW
8	Source IP #1	Byte	1	1st Value
9	Source IP #2	Byte	1	2st Value
10	Source IP #3	Byte	1	3st Value
11	Source IP #4	Byte	1	4st Value
12	Source Port #1	Byte	1	1st Value
13	Source Port #2	Byte	1	2nd Value
14	Net Protocol	Byte	1	0 – UDP 1 – TCP
15	Destination IP #1	Byte	1	1st Value
16	Destination IP #2	Byte	1	2st Value
17	Destination IP #3	Byte	1	3st Value
18	Destination IP #4	Byte	1	4st Value
19	Destination Port #1	Byte	1	1st Value
20	Destination Port #2	Byte	1	2nd Value
21	Delay	Byte	1	
22	Data Size	Byte	1	0 - 7 bits 1 - 8 bits (default)
23	Parity	Byte	1	0 – None (default) 1 – Odd 2 – Even 3 – Mark 4 – Space

Reply Message Structure: ACK/NAK

2.73 Get UART To Ethernet Parameters (103)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 103 Data Length = 1
4	UART Number	Byte	1	Values between 0 – 9

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 103

				Data Length = 23
4	State	Byte	1	0 – Off (default) 1 – On
5	UART Number	Byte	1	Values between 0 – 9
6	Baud Rate	Byte	1	0 – 2400 1 – 4800 2 – 9600 (default) 3 – 19200 4 – 38400 5 – 57600 6 – 115200 7 – 230400 8 – 921600 9 – 1000000 10 – 1152000 11 – 2000000 12 – 2500000 13 – 3000000 14 – 3500000 15 – 4000000
7	Flow Control	Byte	1	0 – None(default) 1 – HW
8	Source IP #1	Byte	1	1st Value
9	Source IP #2	Byte	1	2st Value
10	Source IP #3	Byte	1	3st Value
11	Source IP #4	Byte	1	4st Value
12	Source Port #1	Byte	1	1st Value
13	Source Port #2	Byte	1	2nd Value
14	Net Protocol	Byte	1	0 – UDP 1 – TCP
15	Destination IP #1	Byte	1	1st Value
16	Destination IP #2	Byte	1	2st Value
17	Destination IP #3	Byte	1	3st Value
18	Destination IP #4	Byte	1	4st Value
19	Destination Port #1	Byte	1	1st Value
20	Destination Port #2	Byte	1	2nd Value
21	Delay	Byte	1	
22	Data Size	Byte	1	0 - 7 bits 1 - 8 bits (default)
23	Parity	Byte	1	0 – None (default) 1 – Odd 2 – Even 3 – Mark 4 – Space

2.74 Set Data Source parameters (106)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 106 Data Length = 13
4	ID	Byte	1	Maximum 4
5	Source Type	Byte	1	0 = UNICAST 1 = MULTICAST 2 = UART
6-9	Source IP	Int	4	(if source type = MULTICAST)
10-11	Source Port	Short	2	
12	Protocol			0 = UDP 1 = TCP (if source type = UNICAST)
13	UART Number	Byte	1	0 = TTYMXC0 1 = TTYMXC2 2 = TTYMXC3 (if source type = UART)
14	Baud Rate	Byte	1	0 – 2400 1 – 4800 3 – 9600 4 – 19200 5 – 38400 6 – 57600 7 – 115200 8 – 230400 (if source type = UART)
15	Flow Control	Byte	1	0 = None 1 = Hardware (if source type = UART)
16	Record Option	Byte	1	Bit 0 – Add to mux

				Bit 1 – Record separately Bit 0 and Bit 1 – Add to Mux & Record separately.

Reply Message Structure: ACK/NAK

2.75 Get Data Source parameters (107)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 107 Data Length = 1
4	Data ID	Byte	1	

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 107 Data Length = 13
4	Data ID	Byte	1	Maximum 4
5	Source Type	Byte	1	0 = UNICAST 1 = MULTICAST 2 = UART
6-9	Source IP	Int	4	
10-11	Source Port	Short	2	
12	Protocol	Byte	1	0 = UDP 1 = TCP
13	UART Number	Byte	1	0 = TTYMXC0 1 = TTYMXC2 2 = TTYMXC3
14	Baud Rate	Byte	1	0 – 2400 1 – 4800 3 – 9600 4 – 19200 5 – 38400 6 – 57600 7 – 115200 8 – 230400
15	Flow Control	Byte	1	0 = None 1 = Hardware

16	Record Option	Byte	1	Bit 0 – Add to mux Bit 1 – Record separately Bit 0 & Bit 1 – Add to Mux & Record separately.

2.76 Get Temperature (110)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 110 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 110 Data Length = 1
4	Temperature	Byte	1	Celsius

2.77 Set RTSP Server (111)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 111 Data Length = 70
4	Mode	Byte	1	0 – Off 1 – On
5-6	RTSP Port	Short	2	
7	Authentication	Byte	1	0 – Off 1 – On
8-39	User Name	String	32	
40-71	Password	String	32	
72-73	RTMP Port	Short	2	

Reply Message Structure: ACK/NAK

2.78 Get RTSP Server (112)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 112 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 112 Data Length = 70
4	Mode	Byte	1	0 – Off 1 – On
5	RTSP Port	Byte	2	
7	Authentication	Byte	1	0 – Off 1 – On
8-39	User Name	String	32	
40-71	Password	String	32	
72-73	RTMP Port	Short	2	

2.79 Get System Info (113)

If Codec is not existing return NAK

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 113 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 113 Data Length = 149
4-23	Board Version	String	20	
24-33	CPU Type	String	10	
34	CPU Number	Byte	1	
35-36	CPU Speed	Short	2	

37-66	Linux date	String	30	
67-76	LIBUDVP Version	String	10	
77-80	LDVC Version	Short	4	
81	FPGA	Byte	1	
82-100	IP Address	String	20	
102-121	MAC Address	String	20	
122	Camera Interface	Byte	1	
123-152	Board Name	String	30	

2.80 Get Display Driver Config (118)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 118 Data Length = 2
4	Frame Buffer ID	Byte	1	Values between 0 – 1
5	Display Driver ID	Byte	1	Values between 0 – 4

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 118 Data Length = 12(+20)
4	Frame Buffer ID	Byte	1	Values between 0 – 1
5	Display Driver ID	Byte	1	Values between 0 – 4
6-15	Driver Name	String	10	
16-25	Reserved	Byte	20	

2.81 Setup Display Config (119)

Select display

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 119 Data Length = 2(+50)
4	FB 0 Driver ID	Byte	1	-1 = None Values between 0 – 9
5	FB 1 Driver ID	Byte	1	-1 = None

				Values between 0 – 9
6-55	Reserved	String	50	

Reply Message Structure: ACK/NAK

2.82 Get Display Config (120)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 120 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 120 Data Length = 2(+50)
4	FB 0 Driver ID	Byte	1	-1 = None Values between 0 – 9
5	FB 1 Driver ID	Byte	1	-1 = None Values between 0 – 9
6-55	Reserved	Byte	50	

2.83 Get Display modes (121)

If Codec does not exist, return NAK.

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 121 Data Length = 2
4	Frame Buffer ID	Byte	1	Values between 0 – 2
5	Mode Number	Byte	1	Values between 0 – 9

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description

0-3	Header		4	Message ID – 121 Data Length = 43 (+50)
4	Frame Buffer ID	Byte	1	Values between 0 – 2
5	Mode Number	Byte	1	Values between 0 – 9
6-45	Mode Name	Byte	40	
46-95	Reserved	Byte	50	

2.84 Get Current Display mode (122)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 122 Data Length = 1
4	Frame Buffer ID	Byte	1	Values between 0 – 2

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 122 Data Length = 42 (+50)
4	Frame Buffer ID	Byte	1	Values between 0 – 2
5	Mode State	Byte	1	0 – None 1 – Off 2 – Active
6-45	Mode Name	Byte	40	When Mode State = Active
46-95	Reserved	Byte	50	

2.85 Set Display Mode (123)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 123 Data Length = 42(+50)
4	Frame Buffer ID	Byte	1	Values between 0 – 2
5	Mode State	Byte	1	0 – None 1 – Off 2 – Active
6-45	Mode Name	Byte	40	Active
46-95	Reserved	Byte	50	

Reply Message Structure: ACK/NAK

2.86 Set Snapshot Quality (127)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 127 Data Length = 2
4	Mux Number	Byte	1	0 – N
5	Quality	Byte	1	Values between 1 – 10

Reply Message Structure: ACK/NAK

2.87 Get Snapshot Quality (128)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 128 Data Length = 1
4	Mux Number	Byte	1	0 – N

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 128 Data Length = 2
4	Mux Number	Byte	1	0 – N
5	Quality	Byte	1	Values between 1 – 10

2.88 Start Snapshot (129)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 129 Data Length = 1

4	Mux Number	Byte	1	0 – N

Reply Message Structure: ACK/NAK

2.89 Set Display Operation (134)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 134 Data Length = 2
4	Mux Number	Byte	1	0 – N
5	Mode	Byte	1	0 – Stop 1 – Start

Reply Message Structure: ACK/NAK

2.90 Set Time Source (141)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 141 Data Length = 2
4	Source	Byte	1	0 – User (default) 1 – GPS
5	Offset	Byte	1	

Reply Message Structure: ACK/NAK

2.91 Get Time Source (142)

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 142 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description

0-3	Header		4	Message ID – 142 Data Length = 2
4	Source	Byte	1	0 – User (default) 1 – GPS
5	Offset	Byte	1	

2.92 Set GPS Device (143)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 143 Data Length = 2
4	State	Byte	1	0 – OFF 1 – ON
5	UART Length	Byte	1	UART Length
6-N	Uart	Byte	UART Length	Example: "/dev/ttymxc0"
	Delay	Byte	2	
	Speed	Byte	1	0 – 2400 1 – 4800 2 – 9600 3 – 19200 4 – 38400 5 – 57600 6 – 115200 7 – 230400
	Parity	Byte	1	0 – None 1 – Odd 2 – Even 3 – Mark 4 - Space
	Data Size	Byte	1	0 – 7 bit 1 – 8 bit
	Flow Control	Byte	1	0 – None 1 - Hardware

Reply Message Structure: ACK/NAK

2.93 Get GPS Device (144)

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 144

				Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 144 Data Length = 2
4	State	Byte	1	0 – OFF 1 – ON
5	UART Length	Byte	1	UART Length
	Delay	Byte	2	
	Speed	Byte	1	0 – 2400 1 – 4800 2 – 9600 3 – 19200 4 – 38400 5 – 57600 6 – 115200 1 – 230400
	Parity	Byte	1	0 – None 1 – Odd 2 – Even 3 – Mark 4 – Space
	Data Size	Byte	1	0 – 7 bit 1 – 8 bit
	Flow Control	Byte	1	0 – None 1 – Hardware

2.94 Get USB To Disk Mode (145)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 145 Data Length = 0

Reply Message Structure: (145)

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 145 Data Length = 1

4	Mode	Byte	1	0 – Disable 1 – Enable

2.95 Enable/Disable USB disk mode (146)

Enable to see the board as disk on key

Message Structure:

D-BYTE	Field Name		Data Type	Field Length (bytes)	Description
0-3	Header			4	Message ID – 146 Data Length = 1
4	Mode		Byte	1	0 – Disable 1 – Enable

Reply Message Structure: ACK/NAK

2.96 Get GPS Status(147)

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 147 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 147 Data Length = 2
4	Signal	Byte	1	
5	Satellites	Byte	1	
6 - 35	System Time	Byte	30	
36 - 65	GPS Time	Byte	30	
66 - 75	Speed	Byte	10	
76 - 125	Coordinate	Byte	50	

2.97 Format Device (164)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 164 Data Length = 4
4	Device Number	Byte	1	0 = SD 1 = USB 2 = Internal Memory
5	Format Type	Byte	1	1 = FAT32 2 = EXT4 3 = EXFAT
6	Initialize Disk	Byte	1	0 = Not Initialize 1 = Initialize Disk
7	Wipe Disk	Byte	1	0 = Not Wipe 1 = Wipe

Reply Message Structure: ACK/NAK

2.98 Get Format Device Status (165)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 165 Data Length = 0

Reply Message Structure: (165)

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 165 Data Length = 1
4	Format Status	Byte	1	0 – Not Formatting 1 – Formatting

2.99 Maris private Messages (168-169)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description

0-3	Header		4	Message ID – 168

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 169

Reply Message Structure: ACK/NAK

2.100 Set Display Rotate (172)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 172 Data Length = 4
4	FB Number	Byte	1	0 Or 1
5	Rotate	Byte	1	0 – None 1 – Rotate 90 2 – Rotate 180 3 – Rotate 270
6	Mirror	Byte	1	0 - None 1- Vertical 2 - Horizontal 3 - Vertical - Horizontal
7	Output	Byte	1	0 – Output Mode 1 – Input Size

Reply Message Structure: ACK/NAK

2.101 Get Display Rotate (173)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 173 Data Length = 1
4	FB Number	Byte	1	0 Or 1

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 173 Data Length = 1
4	FB Number	Byte	1	0 Or 1
5	Rotate	Byte	1	0 – None 1 – Rotate 90 2 – Rotate 180 3 – Rotate 270
6	Mirror	Byte	1	0 - None 1- Vertical 2 - Horizontal 3 - Vertical - Horizontal
7	Output	Byte	1	0 – Output Mode 1 – Input Size

2.102 Set ONVIF Enable Mode (183)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 183 Data Length = 1
4	Mode	Byte	1	0 – Disable 1 – Enable
5	TX Protocol type	Byte	1	0 = PELCO-D 1 = SONY BLOCK 2 = UDP Forward
6-7	Forward port	Short	2	Use for “UDP forward”

Reply Message Structure: ACK/NAK

2.103 Get ONVIF Enable Mode (184)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 184 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 184 Data Length = 1
4	Mode	Byte	1	0 – Disable 1 – Enable
5	TX Protocol type	Byte	1	0 = PELCO-D 1 = SONY BLOCK 2 = UDP Forward
6-7	Forward port	Short	2	Use for “UDP forward”

Reply Message Structure: ACK/NAK

2.104 Get Active Sensors Count (185)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 185 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 185 Data Length = 1
4	Count	Byte	1	

2.105 Get Sensor Info (186)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 186 Data Length = 1
4	Device Number	Byte	1	Value between 0 – N

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 186 Data Length = 4
4	Device Number	Byte	1	Same as the request
5	Modes Count	Byte	1	The number of modes the sensor has. Like: Resolution, fps, video formats
6	Selected Mode Index	Byte	1	User selected mode index
7	Logical Device Number	Byte	1	(Logical Number) 0 - CSI 0, 1- CSI 1, 2-N USB

2.106 Set Sensor Mode by ID (187)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 187 Data Length = 2
4	Device Number	Byte	1	Value between 0 – N
5	Mode Index	Byte	1	Mode Index

Reply Message Structure: ACK/NAK

2.107 Get Sensor Mode by ID (188)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 188 Data Length = 2
4	Device Number	Byte	1	Value between 0 – N
5	Mode ID	Byte	1	

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 188 Data Length = 9
4	Device Number	Byte	1	
5	Mode Index	Byte	1	
6	Is Select	Byte	1	0 – False 1 – True
7-8	Width	Byte	2	
9-10	Height	Byte	2	
11	Fps	Byte	1	
12	Frame type	Byte	1	0 – MJPEG 1 – YUV

2.108 Set Virtual Video (195)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 195 Data Length = 3
4	Mux Number	Byte	1	0 – N
5	Resolution	Byte	1	0 = 1080 P 30 1 = 720 P 60 2 = 575 P 30
6	FPS	Byte	1	0 – 10 1 – 30 2 – 40

Reply Message Structure: ACK/NAK

2.109 Get Virtual Video (196)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 196 Data Length = 1
4	Mux Number	Byte	1	0 – N

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 196 Data Length = 3
4	Mux Number	Byte	1	0 – N
5	Resolution	Byte	1	0 = 1080 P 30 1 = 720 P 60 2 = 575 P 30
6	FPS	Byte	1	0 – 10 1 – 30 2 – 40

2.110 Get Application Name (204)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 204 Data Length = 1
4	App Number	Byte	1	0 = None 1 = Quad DVR 2 = DVRU 3 = Nas Control

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 204 Data Length = 25
4	App Name	String	25	

2.111 Set VMD Params (205)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 205 Data Length = 8
4	Mux Number	Byte	1	0 – N
5	Size Sensitivity	Byte	1	

6	Motion Sensitivity	Byte	1	
7	Frame Distance	Byte	1	
8	Activity (MS)	Byte	1	
9	Stop Action After (sec)	Byte	1	
10	Event Flags	Byte	1	BIT 0 – Start action BIT 1 – Stop action
11	Show rectangle	Byte	1	Disabled – 0 Enabled – 1

Reply Message Structure: ACK/NAK

2.112 Get VMD Params (206)

Message Structure:

D-Byte	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 206 Data Length = 1
4	Mux Number	Byte	1	0 – N

Reply Message Structure:

D-Byte	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 206 Data Length = 8
4	Mux Number	Byte	1	0 – N
5	Size Sensitivity	Byte	1	
6	Motion Sensitivity	Byte	1	
7	Frame Distance	Byte	1	
8	Activity(ms)	Byte	1	
9	Stop Action After(sec)	Byte	1	
10	Event Flags	Byte	1	BIT 0 – Start action BIT 1 – Stop action
11	Show rectangle	Byte	1	Disabled – 0 Enabled – 1

2.113 Set Next Vision Camera (219)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 219 Data Length = 26
4	State	Byte	1	0 = 1 =
5	Laser Enable	Byte	1	0 = 1 =
6	Laser Mode	Byte	1	0 = 1 = 2 = 3 =
7	Mode	Byte	1	0/3/4/8/10/30/31
8-11	Pitch	Int	4	0 - 4095
12-15	Roll	Int	4	0 - 4095
16-19	Yaw	Int	4	0
20	Rate calc	Byte	1	0 = 1 =
21	Zoom	Byte	1	0 / 0x64 / 0x80
22	EO IR	Byte	1	0 = 1 =
23	Polarity	Byte	1	0 = 1 =
24	NUC	Byte	1	0 = 1 =
25	Type	Byte	1	0 = 1 = 2 = 3 =
26	OSD Text	Byte	1	0 = 1 =
27	OSD Graphics	Byte	1	0 = 1 =
28	Freese	Byte	1	0 = 1 =
29	Normal	Byte	1	0 / 1

Reply Message Structure: ACK/NAK

2.114 Get Next Vision Camera (220) Not yet implemented.

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 220 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 220 Data Length = 0

2.115 Set Sony Block Command (221)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 221 Data Length = N
4-N	String command	String	N	Examples: For the 'change mode' command: the string will be "81010424720007ff". For the 'get zoom value' command: "81090447ff" (to get the response from the camera you have send message 222, and you will receive the last response from the camera)

Reply Message Structure: ACK/NAK

2.116 Get Sony Block Response (222)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 222 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 222 Data Length = N
4-N	Camera Response	String	N	The last response from the camera will be returned, if there was never a response from the camera - an empty string will be received.

2.117 Get Update Status (253)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 253 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 253 Data Length = 1
4	Status	Byte	1	0 – Off 1 – Busy

2.118 Set Camera Lose mode (233)

Select behavior when camera video become unlock lock during recording/streaming.

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 233 Data Length = 2
4	Mux Number	Byte	1	0 – N
5	Action	Byte	1	0 – wait video 1 – stop 2 – virtual video 1 (black on white) 3 – virtual video 2 (white on black)

				Message: No Video on the video.

Reply Message Structure: ACK/NAK

2.119 Get Camera Lose mode (234)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 234 Data Length = 0
4	Mux Number	Byte	1	0 – N

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 234 Data Length = 2
4	Mux Number	Byte	1	0 – N
5	Action	Byte	1	0 – wait video 1 – stop 2 – virtual video 1 (black on white) 3 – virtual video 2 (white on black)

2.120 Set Quad Params (241)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 233 Data Length = 25
4-5	Telemetry Port	Short	2	
6-9	Telemetry IP	Int	4	
10	Add To Video	Byte	1	

11-12	Stream Audio Port	Short	2	
13-16	Stream Audio IP	Int	4	
17	Stream Audio Protocol	Byte	1	0 = MPEG2TS 1= RTP
18-19	Sample Rate	Short	2	
20-21	TCP Server Port	Short	2	
22-23	UDP Server Port	Short	2	
24	Display Camera Source	Byte	1	0 = Gunner 1 = Raw 2 = External 3 = TAS 4 = HD
25-26	Deletion Threshold	Short	2	In GB
27	Auto Delete	Byte	1	0 = Enable 1 = Disable
28	Ethernet Speed	Byte	1	0 = 1000 MB 1 = 100 MB
29	API version	Byte	1	0 = OPAL API 1 1 = OPAL API 2

Reply Message Structure: ACK/NAK

2.121 Get Quad Params (242)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 242 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 242 Data Length = 25
4-5	Telemetry Port	Short	2	
6-9	Telemetry IP	Int	4	
10	Add To Video	Byte	1	0 = Disable 1 = Enable
11-12	Stream Audio Port	Short	2	
13-16	Stream Audio IP	Int	4	
17	Stream Audio	Byte	1	0 = MPEG2TS

	Protocol			1= RTP
18-19	Sample Rate	Short	2	
20-21	TCP Server Port	Short	2	
22-23	UDP Server Port	Short	2	
24	Display Camera Source	Byte	1	0 = Gunner 1 = Raw 2 = External 3 = TAS 4 = HD
25-26	Deletion Threshold	Short	2	In GB
27	Auto Delete	Byte	1	0 = Enable 1 = Disable
28	Ethernet Speed	Byte	1	0 = 1000 MB 1 = 100 MB
29	API version	Byte	1	0 = OPAL API 1 1 = OPAL API 2

3 Extension Commands

Extension Command comes to be compatible with old command
But overcame limitation of byte opcode that limit to 250 commands.
The header is the same as the old command header but use command opcode 3 to be the extension.

Message Section	Field Name	Data Type	Value
Message Header	Message Sync	Byte	0xA5
	Message ID	Byte	**3**
	Checksum	Byte	
	Data Length	Byte	
.	Opcode	2 Bytes	
	Parameter 1		
	Parameter …		
	Parameter N		

3.1 Set Network Camera (256)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-6	Header		4	Message ID – 256 Data Length = 3+ URL Length
7	Mux Number	Byte	1	0 – N
8	Is Convert	Byte	1	**Convert =1**

				This option converts the video and the audio to the video type and audio type that setup for the mux. For example, the input video may be h264 5Mbit/Sec The mux video is h265 1Mbit/Sec. The Metadata is pass as is to the new stream. the protocol and the stream container is also sets to the according to the mux setup. **Convert=0** Only the Stream Container and the protocol are change according to the mux setup. and the video, audio and the data are copy to the new stream.
9	URL Length	Byte	1	**URL Length**
10-	URL	Byte	URL Length	**URL of the input stream** **udp://@<MCastIP>:<PORT>** **Example: udp://@:1235** **rtsp://<siteip>:<port>/sdp** **Example:** **rtsp://192.168.0.100:554/mux1.sdp**

3.2 Get Network Camera (257)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-6	Header		4	Message ID – 257 Data Length = 1
7	Mux Number	Byte	1	0 - N

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-6	Header		4	Message ID – 257 Data Length =3+ URL Length
7	Mux Number	Byte	1	0 – N
8	Is Convert	Byte	1	**Convert =1** This option converts the video and the audio to the video type and audio type that setup for the mux. For

				example, the input video may be h264 5Mbit/Sec The mux video is h265 1Mbit/Sec. The Metadata is pass as is to the new stream. the protocol and the stream container is also sets to the according to the mux setup. **Convert=0** Only the Stream Container and the protocol are change according to the mux setup. and the video, audio and the data are copy to the new stream.
9	URL Length	Byte	1	URL Length
10 -	URL	Byte	URL Length	URL of the input stream udp://@<MCastIP>:<PORT> Example: udp://@:1235 rtsp://<siteip>:<port>/sdp Example: rtsp://192.168.0.100:554/mux1.sdp

3.3 Set GIGE State (258)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-6	Header		4	Message ID – 258 Data Length = 1
7	Mode	Byte	1	0 – OFF 1 - ON

3.4 Get GIGE State (259)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-6	Header		4	Message ID – 259 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-6	Header		4	Message ID – 257 Data Length =1

7	Mode	Byte	1	0 – OFF 1 – ON

3.5 Set Sony Params (260)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-6	Header		4	Message ID – 256 Data Length = 1
7	External Control	Byte	1	0 – OFF 1 - ON

3.6 Get Sony Params (261)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-6	Header		4	Message ID – 257 Data Length = 0

3.7 Set Fake KLV (263)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-6	Header		4	Message ID – 263 Data Length = 1
7	Fake KLV	Byte	1	0 – OFF 1 - ON

3.8 Get Fake KLV (264)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-6	Header		4	Message ID – 264 Data Length = 1
7	Mux Number	Byte	1	0 - N

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-6	Header		4	Message ID – 264 Data Length =2
7	Mux Number	Byte	1	0 – N
7	Fake KLV	Byte	1	0 – OFF 1 – ON

Table5 Video Input Table

CH Index	Channel Interface	Description
0-3	**CSI0 CH0-3**	**MIPI CSI0**
4-7	**CSI1 CH4-7**	**MIPI CSI1**
8-13	**USB0 - USB5**	**USB Camera Devices**
14	**Ethernet Place point**	**See** Set Network Camera command
15-18	**GIGE**	**GIGE Input Camera**
19	**Virtual Video**	**Synthetic video frame**
-1	**NONE**	**None**

4 LDVC Config File

The ldvc.cfg file save the parameters that the user sets by command or by self-editing and the system uses them.
If the user doesn't put values the system uses the default values we set.

That is example of ldvc.cfg file:

```
ldvc :
{
 network_mode :
 {
  mode = 1;
  ip = "192.168.0.40";
  mask = "255.255.255.0";
```

```
  gateway = "192.168.0.8";
  mac_addr = "0a:3a:4e:db:47:38";
};
camera_setup :
{
  csi1 = -1;
  csi2 = -1;
};
mux_0 :
{
  mux_setup :
  {
    auto_activ = 0;
    video_src = 1;
    audio_src = 1;
    data_src = -1;
    interface = 0;
    netmode = 0;
    protocol = 1;
    ip = "192.168.0.8";
    port = 1235;
    uart_no = 0;
    pretend_auto = 0;
  };
  video_frame_rate :
  {
    frame_rate = 0;
    time_laps = 30;
    deinterlace = 0;
  };
  video_encode_quality :
  {
    encodemode = 1;
    bitrate = 7000;
    gop = 30;
    iq = 255;
    ql = 23;
  };
  bitrate_setup :
  {
    bitrate_pres = 0;
    jitter_flag = 0;
  };
  roi :
  {
    mode = 0;
    source_width = 720;
    source_height = 480;
    source_x = 0;
    source_y = 0;
```

```
    dist_width = 720;
    dist_height = 480;
   };
   video_stabilizer :
   {
    mode = 0;
    margin_w = 10;
    margin_h = 10;
   };
};
mux_1 :
{
 mux_setup :
 {
  auto_activ = 0;
  video_src = 1;
  audio_src = 1;
  data_src = -1;
  interface = 0;
  netmode = 0;
  protocol = 1;
  ip = "192.168.0.8";
  port = 1238;
  uart_no = 0;
  pretend_auto = 0;
 };
};
mux_2 :
{
 mux_setup :
 {
  auto_activ = 0;
  video_src = 1;
  audio_src = -1;
  data_src = -1;
  interface = 0;
  netmode = 0;
  protocol = 1;
  ip = "192.168.0.8";
  port = 1240;
  uart_no = 0;
  pretend_auto = 0;
 };
};
rtsp_setup :
{
 mode = 0;
 port = 9999;
};
data_source :
```

```
{
 data_0 :
 {
  type = 1;
  ip = "225.0.0.1";
  port = 0;
  buad_rate = 6;
  flow_ctl = 0;
 };
};
serial_port :
{
 uart_0 :
 {
  state = 0;
  s_ip = "0.0.0.0";
  port = 0;
  delay = 10;
  speed = 9600;
  flow_control = 0;
 };
};
ch_0 :
{
 audio_source :
 {
  volume = 30;
  quality = 1;
  codec = 2;
  sample_rate = 1;
  bitrate = 32000;
  channels = 1;
  bits_per_sample = 16;
 };
};
tv_1 :
{
 display_setup :
 {
  mode = 1;
 };
};
tv_0 :
{
 display_setup :
 {
  mode = 1;
 };
};
};
```