

MonitorWall RCP+ Reference

Version 6.23

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General Notes

The document is divided in sections according to the commands' purpose:

For All commands where "access level" is specified as "noprot" in Monitor Wall there is no check for access level.

Glossary

Layout	Representation of multiple tiles inside a view. Layout is configured as a table of specified size with main tile probably spanning over multiple cells. See command <code>DECODER_LAYOUT</code> description for details.
Monitor Matrix	View consisting of multiple physical monitors. It has width and height, which can be specified using <code>MONITOR_LAYOUT</code> command.
Monitor Wall	The main application designed for showing streams (video, audio and metadata) from different video sources.
Tile	A single cell in View's layout showing single video stream and related metadata information such as movements. Tile has its own unique ID.
View	A part of Monitor Wall user interface with its own layout, list of tiles and unique ID. Layout can be configured using <code>DECODER_LAYOUT</code> command. Layout may correspond to a single monitor or monitor matrix.

Identification

CONF_HARDWARE_VERSION

	Tag code	NumDes	Message	SNMP Support
	0x002e	No	no	yes
	Datatype	Access Level	Description	
Read	p_string	Noprot	read the hardware version	
Write	Void	Noprot	not supported	

Gets the system hardware version.

Read command returns String.

For devices “BOSCH CCTV HWD EL” or “BOSCH CCTV HWD HE” the result value is 0xf1004940.

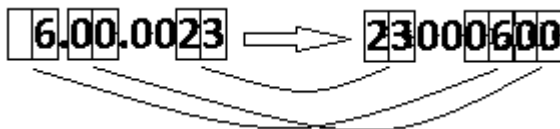
For other devices the result value is 0xf100fe40

CONF_SOFTWARE_VERSION

	Tag code	NumDes	Message	SNMP Support
	0x002f	no	no	yes
	Datatype	Access Level	Description	
Read	p_string	noprot	read the software version	
Write	Void	Noprot	not supported	

Gets the system software version.

For example: For build 6.00.0023 result is 23000600:



CONF_DEVICE_TYPE_IDS

	Tag code	NumDes	Message	SNMP Support
	0x0b07	no	No	no
	Datatype	Access Level	Description	
Read	p_octet	noprot	read the device type ids (hexadecimal).	
Write	void	I_serv	not supported	

Gets the device type IDs.

1st four bytes: Product ID (0x49 for MW); 2nd four bytes: Variant ID. 3rd four bytes: (Bicom) Frontend Family ID.

CONF_SERIAL_NUMBER

	Tag code	NumDes	Message	SNMP Support
	0x0ae7	no	no	no
	Datatype	Access Level	Description	
Read	p_string	noprot	returns the serial number of the device	
Write	void	I_serv	not supported	

Gets the system serial number.

If it is not defined the result is "000000000000000000". Max length is 127characters.

CONF_UNIT_NAME

	Tag code	NumDes	Message	SNMP Support
	0x0024	no	no	yes
	Datatype	Access Level	Description	
Read	p_unicode	no prot	read the unit name	
Write	p_unicode	l_serv	set unit name	

Specifies the unit name(max 32 unicode characters).

CONF_UNIT_ID

	Tag code	NumDes	Message	SNMP Support
	0x0025	No	no	yes
	Datatype	Access Level	Description	
Read	p_unicode	no prot	read the unit ID	
Write	p_unicodes	l_serv	set unit ID	

Specifies the unit name(max 32 unicode characters).

CONF_MONITOR_NAME

	Tag code	NumDes	Message	SNMP Support
	0x028a	View ID	no	no
	Datatype	Access Level	Description	
Read	p_unicode	no prot	read the video monitor name	
Write	p_unicode	l_serv	not supported	

Gets the name of each View.

Monitor name has such format - "Monitor ID (IPAddress)". ID is the number of monitor. IPAddress is IP of Monitor Wall. Write command value is ignored.

CONF_CAPABILITY_LIST

	Tag code	NumDes	Message	SNMP Support
	0xff10	no	no	no
	Datatype	Access Level	Description	
Read	p_octet	no prot	see detailed description	
Write	%	no prot	not supported	

Gets the list of system capabilities.

Reply payload Structure

OxBABA 2 Bytes	Version 2 Bytes	NbSection 2 Bytes	Section 1	...	Section N
--------------------------	---------------------------	-----------------------------	------------------	-----	------------------

Version

current version of the capabilities (0x0001)

NbSection

Number of following sections. Hardcoded (0x0019)

Section Structure

Type	Size	NbElement	Element	...	Element
2 Bytes	2 Bytes	2 Bytes	1		N

Type

Type of Element

Values:

Video 0x0001

Size

Size of the section including SectionType, Size and NbElement. If the section is unknown, you can skip to the next using the size.

NbElement

Determines how many Elements are following. The definition of each Element depends on the type of the section.

Element Structure

For section type Video

Type	Identifier	Compr	InputNo	Resolution
2 Bytes	2 Bytes	2 Bytes	2 Bytes	2 Bytes

Type

is one of the following

Values:

VIDEO_DECODER 0x0002

Identifier

Identifier is the RCP numeric descriptor to use to address the entity. It should be unique when associated with the type and the compression.

Compression

is one or multiple of the following

Values:

VIDEO_COMP_MPEG2 0x0001

VIDEO_COMP_MPEG4 0x0002

VIDEO_COMP_H264 0x0004

The result value is 0x0007

InputNo

InputNo is the number of the physical input from which the entity gets or puts its video

Resolution

is one or multiple of the following

Values:

VIDEO_RESO_QCIF 0x0001

VIDEO_RESO_CIF	0x0002
VIDEO_RESO_2CIF	0x0004
VIDEO_RESO_4CIF	0x0008
VIDEO_RESO_CUSTOM	0x0010

The result value is 0x001f.

Other sections are not supported by Monitor Wall.

The number of decoders reported is by default 25. It can be influenced by the NUMBER_OF_DECODERS command.

Network

CONF_MAC_ADDRESS

	Tag code	NumDes	Message	SNMP Support
	0x00bc	no	no	yes
	Datatype	Access Level	Description	
Read	p_octet	noprot	read out the systems MAC address	
Write	void	noprot	not supported	

Gets the system MAC address.

CONF_IP_STR

	Tag code	NumDes	Message	SNMP Support
	0x007c	no	no	yes
	Datatype	Access Level	Description	
Read	p_string	noprot	read the unit's IP address using string notation (xxx.xxx.xxx.xxx)	
Write	p_string	noprot	set unit's IP address using string notation (xxx.xxx.xxx.xxx)	

Specifies the system IP address

Note: Monitor Wall should be started with administrative rights.

CONF_GATEWAY_IP_STR

	Tag code	NumDes	Message	SNMP Support
	0x007f	no	no	yes
	Datatype	Access Level	Description	
Read	p_string	noprot	read the gateway IP using string notation (xxx.xxx.xxx.xxx)	
Write	p_string	noprot	set gateway IP using string notation (xxx.xxx.xxx.xxx)	

Specifies the system gateway IP address.

Note: Monitor Wall should be started with administrative rights.

SUBNET_STR

	Tag code	NumDes	Message	SNMP Support
	0x007d	no	no	no
	Datatype	Access Level	Description	
Read	p_string	-	get current subnet mask as "xxx.xxx.xxx.xxx"	
Write	p_string	-	set subnetmask value presented as string "xxx.xxx.xxx.xxx"	

Specifies current system subnet mask.

Subnet mask should be correct according to IP address.

Note: Monitor Wall should be started with administrator rights

Time

CONF_DATE_WDAY

	Tag code	NumDes	Message	SNMP Support
	0x0027	no	No	no
	Datatype	Access Level	Description	
Read	p_string	noprot	"Sunday" ... "Saturday"; read the weekday according to the systems date setting	
Write	void	l_serv	not supported	

Gets the current system weekday.

For example if date is 01/17/2013, result will be "Thursday".

CONF_DATE_DAY

	Tag code	NumDes	Message	SNMP Support
	0x0028	no	no	no
	Datatype	Access Level	Description	
Read	t_octet	noprot	read the day of month	
Write	t_octet	l_serv	not supported	

Gets the current system day.

Example: Date is 1/17/2013. Result is 17

CONF_DATE_MONTH

	Tag code	NumDes	Message	SNMP Support
	0x0029	no	no	no
	Datatype	Access Level	Description	
Read	t_octet	noprot	read the month	
Write	t_octet	l_serv	not supported	

Gets the current system month.

Example: Date is 1/17/2013. Result is 1

CONF_DATE_YEAR

	Tag code	NumDes	Message	SNMP Support
	0x002a	no	no	no
	Datatype	Access Level	Description	
Read	t_word	noprot	read the year	
Write	t_word	l_serv	not supported	

Gets the current system year;

Example: Date is 1/17/2013. Result is 2013

CONF_TIME_HRS

	Tag code	NumDes	Message	SNMP Support
	0x002d	no	no	no
	Datatype	Access Level	Description	
Read	t_octet	noprot	read the hours	
Write	t_octet	l_serv	not supported	

Gets the current system count of hours;

Example: Time is 14:35:48. Result is 14

CONF_TIME_MIN

	Tag code	NumDes	Message	SNMP Support
	0x002c	no	no	no
	Datatype	Access Level	Description	
Read	t_octet	noprot	read the minutes	
Write	t_octet	l_serv	not supported	

Gets the current system count of minutes.

Example: Time is 14:35:48. Result is 35

CONF_TIME_SEC

	Tag code	NumDes	Message	SNMP Support
	0x002b		no	no
	Datatype	Access Level	Description	
Read	t_octet	noprot	read the seconds	
Write	t_octet	l_serv	not supported	

Gets the current system count of seconds.

Example: Time is 14:35:48. Result is 48

CONF_TIMEZONE

	Tag code	NumDes	Message	SNMP Support
	0x024e	no	no	yes
	Datatype	Access Level	Description	
Read	t_int	noprot	the timezone in which the unit has to operate (UTC +- nbr of seconds +- nbr of seconds DLS)	
Write	t_int	l_serv	not supported	

Gets the current system time zone as difference in seconds from UTC.

For example UTC+0200 is represented as 7200; UTC-0100 is represented as -3600

Connection

CONF_PASSWORD_SETTINGS

	Tag code	NumDes	Message	SNMP Support
	0x028b	password level	No	no
	Datatype	Access Level	Description	
Read	p_string	I_serv	get the unit password (scrambled). num parameter sets the password levels; 1=user, 2=service, 3=live. Max length is 19 characters. See issue MW-69.	
Write	p_string	I_serv	set the unit password. num parameter sets the password levels; 1=user, 2=service, 3=live Max length is 127 characters. See issue MW-69.	

Configures password for specified access level.

Type: Read command returns obfuscated password.

There are three different password levels:

- user;
- service;
- live.

CONF_ALARM_CONNECT_TO_IP_STR

	Tag code	NumDes	Message	SNMP Support
	0x0081	destination IP number	no	no
	Datatype	Access Level	Description	
Read	p_string	Noprot	read alarm IP using string notation (xxx.xxx.xxx.xxx)	
Write	p_string	I_serv	set alarm IP using string notation (xxx.xxx.xxx.xxx)	

Specifies the IP addresses of password-protected device to connect to Monitor Wall.

The number of device in the internal array should be specified in NumDes. Device numbers 1 to 9 are supported. If password protected devices should be connected, their IP addresses should be added by this command, and the corresponding passwords should be added by command CONF_REMOTE_PASSWORD.

CONF_REMOTE_PASSWORD

	Tag code	NumDes	Message	SNMP Support
	0x010c	destination IP number	no	no
	Datatype	Access Level	Description	
Read	void	I_serv	password	
Write	p_string	I_serv	deposit the password of the called station. Max length is 19 characters.	

Specifies the passwords of password-protected device to connect to Monitor Wall.

Read command returns obfuscated password.

The number of device in the internal array should be specified in NumDes. Device numbers 1 to 9 are supported. If password protected devices should be connected, their IPs should be added by

CONF_ALARM_CONNECT_TO_IP_STR or CONF_ALARM_CONNECT_TO_IP command, and the corresponding passwords should be added by this command.

If password with NumDes equal to 10 is set, it will be used for all devices except of having the password specified individually.

CONF_NBR_OF_ALTERNATIVE_ALARM_IPS

	Tag code	NumDes	Message	SNMP Support
	0x0303	no	no	no
	Datatype	Access Level	Description	
Read	t_dword	noprot	get the number of available alarm ip addresses (total presets)	
Write	void	I_serv	not supported	

Returns the number of supported passwords for devices. Hardcoded to 10.

Influences the commands CONF_ALARM_CONNECT_TO_IP_STR, CONF_ALARM_CONNECT_TO_IP and CONF_REMOTE_PASSWORD.

CONF_ALARM_CONNECT_TO_IP

	Tag code	NumDes	Message	SNMP Support
	0x0041	destination IP number	no	no
	Datatype	Access Level	Description	
Read	t_dword	noprot	specifies the connect on alarm event IP address .	
Write	t_dword	I_serv	specifies the connect on alarm event IP address	

Specifies the IP addresses of password-protected devices to connect to Monitor Wall.

The number of device in the internal array should be specified in NumDes. Device numbers 1 to 9 are supported. If password protected devices should be connected, their IPs should be added by this command, and the corresponding passwords should be added by command CONF_REMOTE_PASSWORD.

Note: Read of this command does not working in Monitor Wall.

CONF_CONNECT_TO

	Tag code	NumDes	Message	SNMP Support
	0xffcc	no	yes	yes
	Datatype	Access Level	Description	
Read	%	I_live	not supported	
Write	p_octet	I_serv, I_user	see detailed description	

Connects streams from device.

Write Packet

16		32	
Destination IP Address 4 Bytes			
Reserved 1 Byte	Line 1 Byte	Flags 2 Bytes	
Local Coder 1 Byte	Local Line 1 Byte	Put Channels 2 Bytes	
Remote Coder 1 Byte	Remote Line 1 Byte	Get Channels 2 Bytes	
8		24	

Destination IP Address

The reception of this command will force the host to connect to the mentioned destination IP address.

Line

Not used

Flags

NOTE: Only one video standard (MPEG2/4) can be used; setting all bits will result in best currently available mode.

Values:

Bit1	Request video mode MPEG-4
Bit2	Request video mode MPEG-2
Bit3	Force the use of TCP as transportation protocol
Bit6	Connect a VCA meta data stream
Bit8	Use SSL for the RCP control connection; if no destination port is specified, the remote port defaults to 443 (HTTPS) in case of SSL is requested otherwise 80(HTTP)
Bit9	Request video mode H.264
Bit10	Request video mode JPEG
Bit11	Allow audio.

Local Coder

This parameter carries the number of the local video input number. A wildcard of '0' will result in first match
This parameter defines Tile ID.

Local Line

This parameter carries the number of the local video coder number. A wildcard of '0' will result in first match. This parameter defines View ID.

Put Channels

Not supported

Remote Coder

Not supported

Remote Line

Not supported

Get Channels

Values:

Bit0	Video. Ignored in this command.
------	---------------------------------

Bit1	Audio
Bit2	Data. Ignored in this command.
Bit3-Bit15	Reserved

NOTE: For audio connections, the local and remote line parameter are taken from the video settings.

If this command is extended with the optional appendix, the remote port number for RCP login must be specified. This can be either 1756 for the normal RCP port or any available HTTP port at the remote host. When a port number different to 1756 is used, the login will use a HTTP tunneling.

Optional Appendix

16	Dest. Port 2 Bytes	Reserved 2 Bytes	32
	Reserved 4 Bytes		
	8	24	

Dest. Port

This parameter carries the number of the remote TCP port number used for RCP login.

Reply / Read / Message

The reply to this command will have the same content as the request..

A message will be generated if all requested channels are established; if a channel fails, the appropriate bit will be cleared in the channel section.

CONF_DISCONNECT_PRIMITIVE

	Tag code	NumDes	Message	SNMP Support
	0xff0d	no	Yes	yes
	Datatype	Access Level	Description	
Read	%	I_live	not supported	
Write	p_octet, f_flag	I_serv, I_user	see detailed description	

Disconnecting video streams from the application

Reply Payload Structure

16	Status 1 Byte	Cause 1 Byte	Reserved 2 Bytes	32
	Remote Host IP 4 Bytes			
	8	24		

Status

Values:

Connection disconnected	0x01
Connection identified by the given Session ID not found on this host	0x02

Cause

Values:

Not closed	0x00
Normal termination	0x01

Abnormal termination	0x02
No response	0x03
Remote host terminated	0x04
Timed out	0x05
Remote login rejected	0x06
No common media channels	0x07
Connection substituted	0x08
Automatic disconnect	0x09
Stop streaming	0x0a

NOTE: Now "Not Closed" is always returned. Please see issue MW-67

Remote Host IP

IP address of the remote connected host.

NOTE: This command is NOT readable.

CONF_ACTIVE_CONNECTION_LIST

	Tag code	NumDes	Message	SNMP Support
	0xffc1	no	no	no
	Datatype	Access Level	Description	
Read	p_octet	noprot	see detailed description	
Write	%	l_user	not supported	

Gets list of all active connections.

Payload Structure

Sequence of:

Destination IP Address			16	32
4 Bytes				
Local Coder	Local Line	Flags		
1 Byte	1 Byte	2 Bytes		
Session ID				
4 Bytes				
Remote Coder	Remote Line	Destination Port		
1 Byte	1 Byte	2 Bytes		
TX Channels				
4 Bytes				
RX Channels				
4 Bytes				

Destination IP Address

IP address to which the unit is connected.

Local Coder

The ID of the Tile where stream will be connected. Count of tiles depends on current value of DECODER_LAYOUT command

Local Line

The ID of the View where stream will be connected. Count of views depends on parameters of MONITOR_LAYOUT command

Flags

Values:

Bit0	Connection is MPEG2 VES
Bit2	Connection is MPEG4
Bit8	Connection is H.264
Bit9	Connection is Jpeg

Session ID

Session identifier.

Remote Coder

The remote connected coder (relative to line).

Remote Line

The remote connected line.

Destination Port

Contains the optional port passed to the ConnectTo command. Default is zero.

TX Channels

The value is 0x00000004. See CONNECT_TO command for bit mask.

RX Channels

The value is 0x00000007. See CONNECT_TO command for bit mask.

CONF_CONNECT_URL

	Tag code	NumDes	Message	SNMP Support
	0xe20c	No	no	no
	Datatype	Access Level	Description	
Read	t_string	-	Not supported	
Write	t_string	-	URL with optional parameters	

Connect a tile to a url. For a list of supported urls please check the VideoSDK documentation.

String format:

<url> [<option1>=<value1>] ... [<optionN>=<valueN>]

Options:

screen=<No>	Connect to screen (default = 1)
tile=<No>	Connect to tile (default = 1)
line=<No>	Remote input line number (default = 1). Not supported for all urls.
type=<ID>	Use specific VideoSDK proxy. Defined values are "VIP", "RTSP", "ONVIF", "DiBos", "Divar700".

DISCOVERY_PORT

	Tag code	NumDes	Message	SNMP Support
	0x0976	No	no	no
	Datatype	Access Level	Description	
Read	t_word	-	reading current value of port	
Write	t_word	-	set port for application discovery via multicast	

Specifies the discovery port.

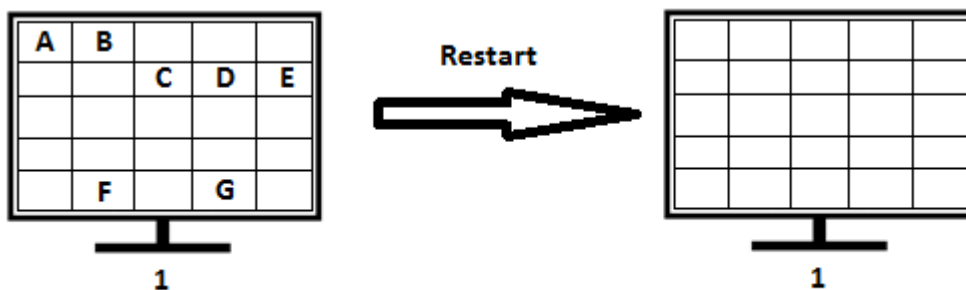
NOTE: Default value is 1800.

RECONNECT

	Tag code	NumDes	Message	SNMP Support
	0xe20a	No	no	no
	Datatype	Access Level	Description	
Read	t_int	-	get current value	
Write	t_int	-	set reconnect 0=Disable; 1=Enable	

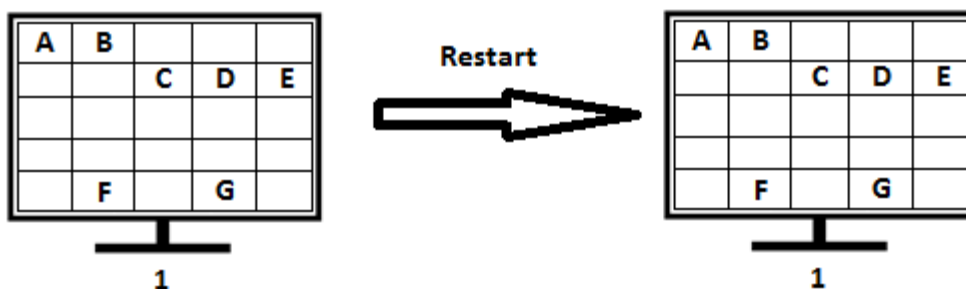
Specifies whether all streams should be reconnected after application restart.

If the parameter is equal 0, after restart all video streams will be lost:



A-G – connected video streams

If the parameter is equal 1, after restart all video streams will be reconnected at the same places:



Monitor

CONF_BOARD_RESET

	Tag code	NumDes	Message	SNMP Support
	0x0811	No	no	yes
	Datatype	Access Level	Description	
Read	flag	Noprot	not supported	
Write	void	I_serv	Resets the board.	

This command restarts Monitor Wall after returning the result.

Write command returns 0x01 value.

CONF_DECODER_LAYOUT_LIST

	Tag code	NumDes	Message	SNMP Support
	0x09a1	View ID	no	no
	Datatype	Access Level	Description	
Read	p_octet	Noprot	list of supported layouts (0001=single view, 0002=quad view). Each element has 2 bytes	
Write	p_octet	I_user	not supported	

Gets the layout list for specified view (with ID passed in NumDes).

The layouts are defined via a 16 bit layout descriptor. This descriptor can be used to set and get the current layout as well as to get all layouts supported by the device.

The scheme defined below in detail describes the Monitor Wall consisting of an array with same number of columns and rows. This base concept is extended by a set of smaller tiles that always occupy a vertical and a horizontal edge in order to keep the overall aspect ratio.

For monitors deviating from the camera aspect ratio extra columns are inserted to the right. It is not possible to control this insertion via the API. So for programming the 'extra' information can be safely ignored.

The concept defines a main area containing a monitor array plus an optional thumbnail border pair. A monitor layout is specified via a 16 bit value that is assembled from four times four bit values

15	12	11	8	7	4	3	0
extra		orientation		thumbs		array	

The table below describes the meaning of sixteen possible values of the four four-bit codes.

value	thumb orientation	thumb count	array	extra columns
0	top and left	no thumbs	reserved	None
1	left and bottom	reserved	single	1
2	bottom and right	reserved	2x2	2
3	right and top	reserved	3x3	3
4	reserved	reserved	4x4	4
5	reserved	5	5x5	5
6	reserved	reserved	6x6	5
7	reserved	7	7x7	7
8	reserved	reserved	8x8	6
9	reserved	9	reserved	9
10	reserved	reserved	reserved	10
11	reserved	11	reserved	11
12	reserved	reserved	reserved	12
13	reserved	13	reserved	13
14	reserved	reserved	reserved	14
15	reserved	15	reserved	15

Supported layouts depend on physical characteristics of monitor and on aspect ratio set.

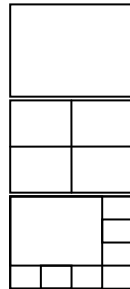
For example for monitor with optimal resolution 1920 X 1080 the following layouts are supported. Other resolutions can have different values. Any monitor resolutions are supported.

Aspect ratio	Layouts										
16:9	1 x 1	2 x 2	3 x 3	4 x 4	5 x 5	1 + 5	1 + 7	1 + 9	1 + 11	1 + 13	1 + 15
4:3	1 x 1	2 x 2	4 x 3	5 x 4	6 x 5	1 + 8	1 + 11	1 + 14	1 + 23	1 + 27	1 + 31
9:16	3 x 1	6 x 2	9 x 3	12 x 4	15 x 5	1 + 23	1 + 39	1 + 59	1 + 83	1 + 118	1 + 152
3:4	2 x 1	4 x 2	7 x 3	9 x 4	11 x 5	1 + 17	1 + 27	1 + 39	1 + 59	1 + 76	1 + 95

The corresponding layout codes are:

Aspect ratio	Layout's codes								
16:9	0x0001	0x0002	0x0003	0x0004	0x0005	0x0251	0x0271	0x0291	0x02b1
	0x02d1	0x02f1							
4:3	0x0001	0x0002	0x1003	0x1004	0x1005	0x1251	0x1271	0x1291	0x22b1
	0x22d1	0x22f1							
9:16	0x2001	0x4002	0x6003	0x8004	0xa005	0x6251	0x8271	0xa291	0xc2b1
	0xf2d1	0x112f1f							
3:4	0x1001	0x2002	0x4003	0x5004	0x6005	0x4251	0x5271	0x6291	0x82b1
	0x92d1	0xa2f1							

Examples:



ID: 0x0001

ID: 0x0002

ID: 0x0271

NOTE: layout 1+153 (70385) cannot be correctly added to list because 2 bytes are used (Max = 65535).

CONF_DECODER_LAYOUT

	Tag code	NumDes	Message	SNMP Support
	0x09a2	ViewID	yes	no
	Datatype	Access Level	Description	
Read	p_octet	no prot	first 2 bytes are the layout, followed by the coder list in bytes (000101 for first monitor single view, 000201020304 for quad view with chronological order)	
Write	p_octet	I_serv, I_user	First 2 bytes are the layout, followed by the coder list	

Gets the current layout for specified view (with ID passed in NumDes).

Command uses the same layout codes as CONF_DECODER_LAYOUT_LIST command

MONITOR_LAYOUT

	Tag code	NumDes	Message	SNMP Support
	0xe206	no	no	no
	Datatype	Access Level	Description	
Read	t_int	-	see detailed description	
Write	t_int	-	see detailed description	

Specifies current screen layout.

Monitor Wall supports one matrix of monitors having specified number of rows and columns and specified number of additional single monitors. Every matrix cell and every single monitor are mapped to sequent physical monitors. Monitor matrix always goes first.

Payload structure

		16	32
Single Monitors	Array Height	Array Width	Reserved
1 Byte	1 Byte	1 Byte	1 Byte
8		24	

Single monitors

Count of single monitors.

Array Height

Number of rows in monitor matrix.

Array Width

Number of columns in monitor matrix.

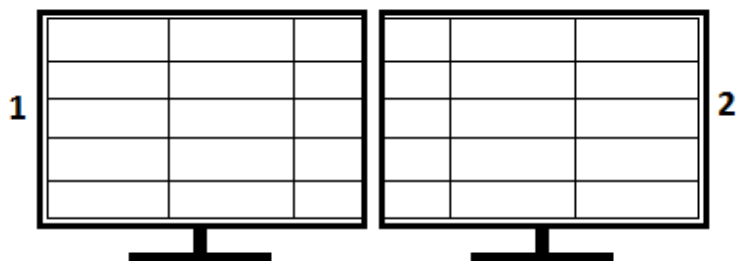
For example there are 5 monitors and command was sent with these parameters:

Single monitors = 3;

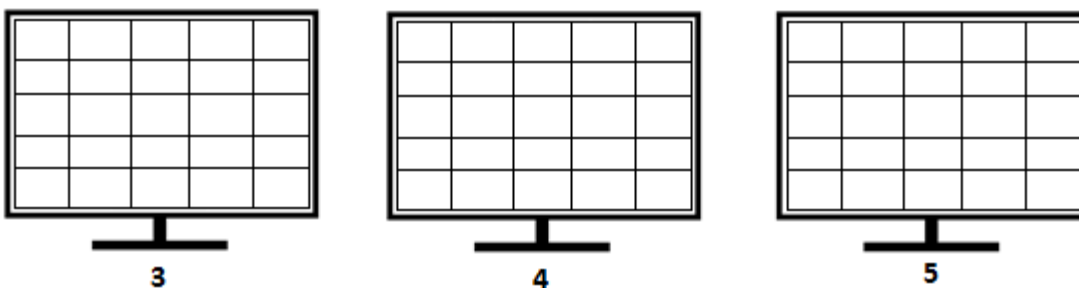
Array Height = 1;

Array Width = 2.

Result in Monitor Wall will be:



Matrix (H = 1; W = 2)



Single monitors (S = 3)

1-5 – number of physical monitors.

In this case ViewIDs will be 1-4:

ID = 1 for matrix;

ID = 2..4 for single monitors.

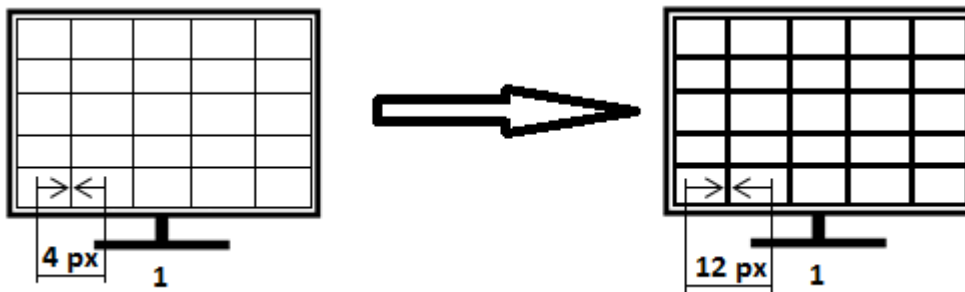
NOTE: This command restarts Monitor Wall.

CAMEO_DISTANCE

	Tag code	NumDes	Message	SNMP Support
	0xe209	no	no	no
	Datatype	Access Level	Description	
Read	t_int	-	get current value	
Write	t_int	-	set distance between cameos in MW (px)	

Specifies the cameo distance. Default value = 4px.

For example parameter was set to 4px and 12px:



NOTE: Value can't be less than 4 px.

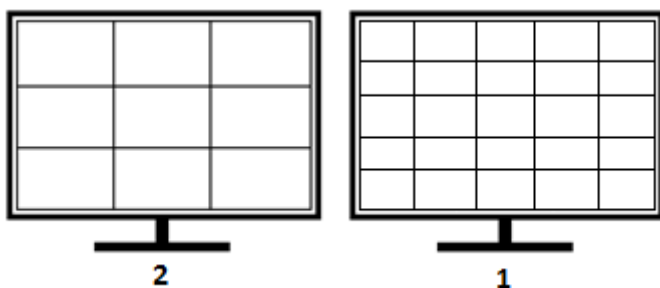
SWAP_MONITOR

	Tag code	NumDes	Message	SNMP Support
	0xe207	no	no	no
	Datatype	Access Level	Description	
Read	p_octet	-	not supported	
Write	p_octet	-	see detailed description	

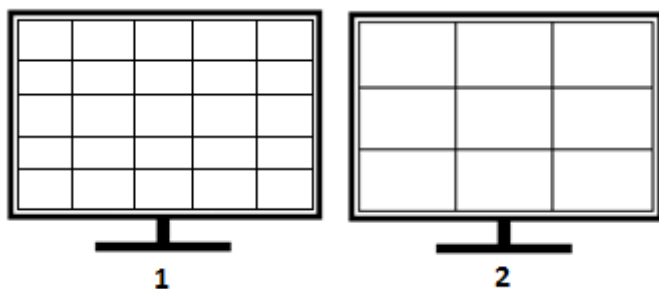
Specifies, which monitors should be swapped.

This command is used to change monitors order in application by using swapping of monitors.

For example there are 2 monitors which were defined in this order:

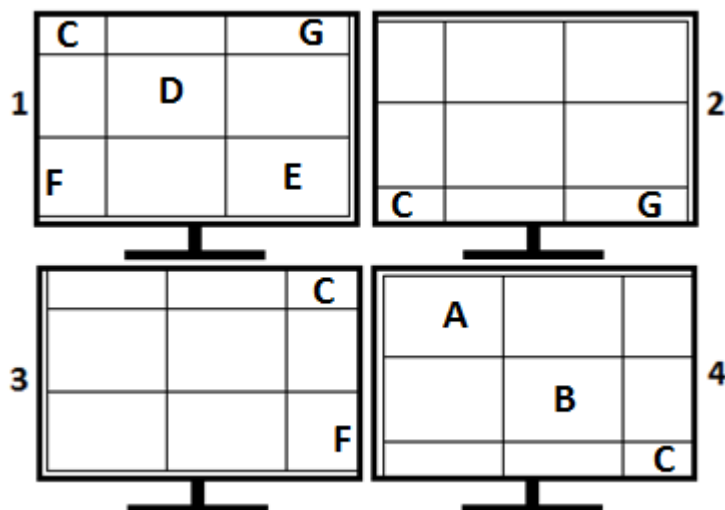


If command with first octet = 1 and second octet = 2 was sent, result will be:

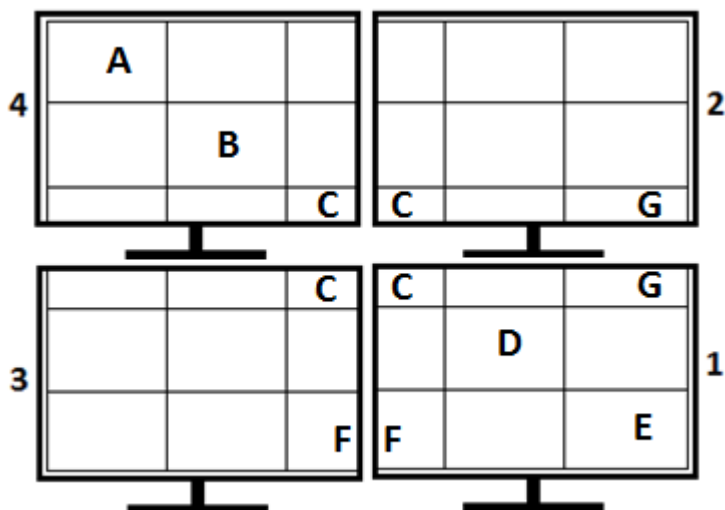


This was about single monitors.

As well this command is very important for monitor matrix:



A-G – connected video streams. In this example video stream “C” was split on 4 monitor and video streams “F”, “G” were split on 2 monitors each. In this case is good to swap first and fourth monitors:



Payload structure

16	
First Monitor	Second Monitor
1 Byte	1 Byte
8	

First monitor

First monitor ID.

Second Monitor

Second monitor ID.

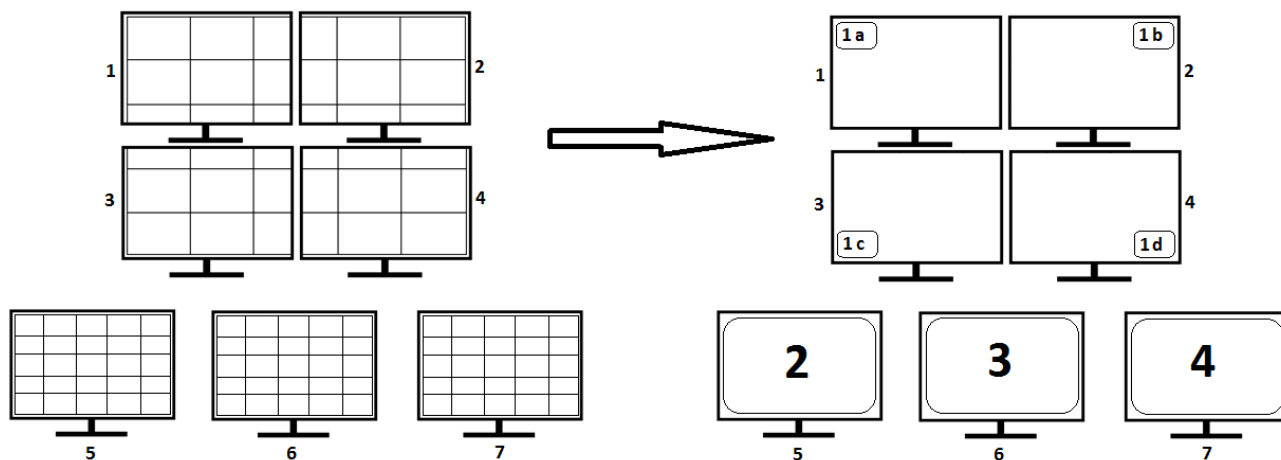
Note: This command restarts Monitor Wall after returning the result.

MONITOR_TEST_PATTERN

	Tag code	NumDes	Message	SNMP Support
	0x2e08	no	no	no
	Datatype	Access Level	Description	
Read	t_octet	-	get current value	
Write	t_octet	-	set test pattern. 0=Disable; 1=Enable	

Specifies view for convenient monitor order detection.

If "Test pattern" view is enabled, the result will be:



SHOW_METADATA

	Tag code	NumDes	Message	SNMP Support
	0xe201	no	no	no
	Datatype	Access Level	Description	
Read	f_flag	-	get current value	
Write	f_flag	-	set rendering of VCA overlay	

Specifies whether movement metadata should be shown.

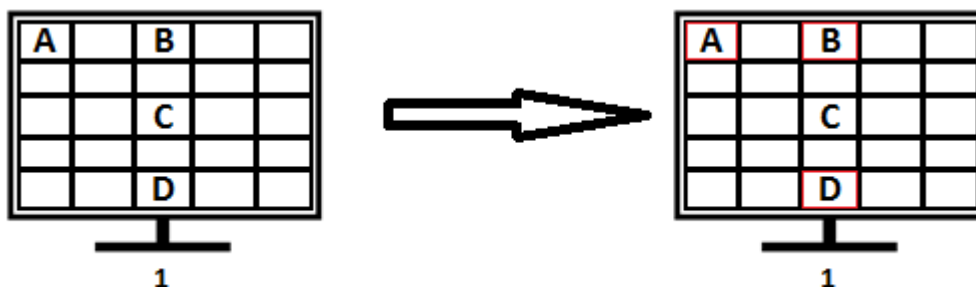
This command allows Monitor Wall show visual effects if there is any movement on video stream. There are two visual effects:

- Red frame;
- Overlay.

Parameter value: 1 – Enable; otherwise – Disable.

Red frame is default visual effect; overlay should be set by using CONNECT_TO command.

Example of red frame:



A-D – connected video streams.

A, B, D – video streams where is some movement.

AUTO_RESOLUTION_CHANGE

	Tag code	NumDes	Message	SNMP Support
	0xe204	no	no	no
	Datatype	Access Level	Description	
Read	f_flag	-	get current value	
Write	f_flag	-	set automatic monitor resolution. 0=Disable; 1=Enable	

Specifies whether monitor resolution should be set to optimal.

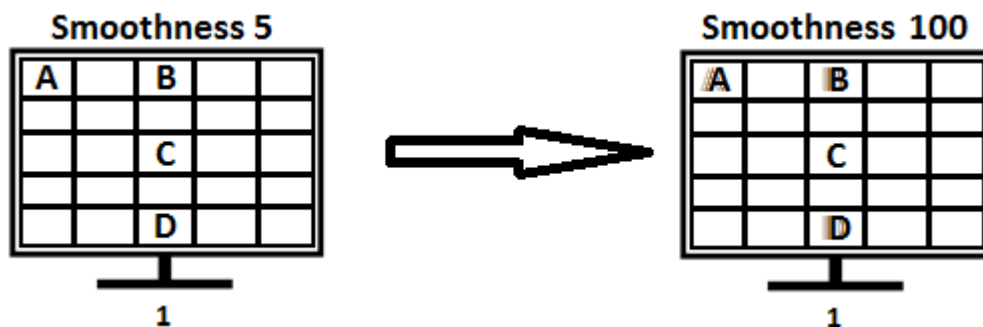
For example if current resolution – 800 X 600, but optimal resolution is 1920 X 1080 – resolution will be automatically changed to 1920 X 1080.

SMOOTHNESS

	Tag code	NumDes	Message	SNMP Support
	0xe202	no	no	no
	Datatype	Access Level	Description	
Read	t_int	-	get current value	
Write	t_int	-	set latency smoothness for slow video connections	

Specifies the smoothness of video from devices.

This command allows changing of smoothness for all connected video streams to Monitor Wall. The changes can be seen on video streams with some movement:



A-D – connected video streams.

A, B, D – video streams where is some movement.

Usually on static object it's a little hard to see difference.

NOTE: Default value is 5.

PREFERRED_ASPECT_RATIO

	Tag code	NumDes	Message	SNMP Support
	0xe203	no	no	no
	Datatype	Access Level	Description	
Read	t_octet	-	get current value	
Write	t_octet	-	set current aspect ratio. 0='4:3'; 1='16:9'; 2='9:16'; 3='3:4'	

Specifies the current aspect ratio.

This command is changing aspect ratio of Monitor Wall tiles (Width:Height).

The standard values zero to three are defined as enumeration:

0='4:3';

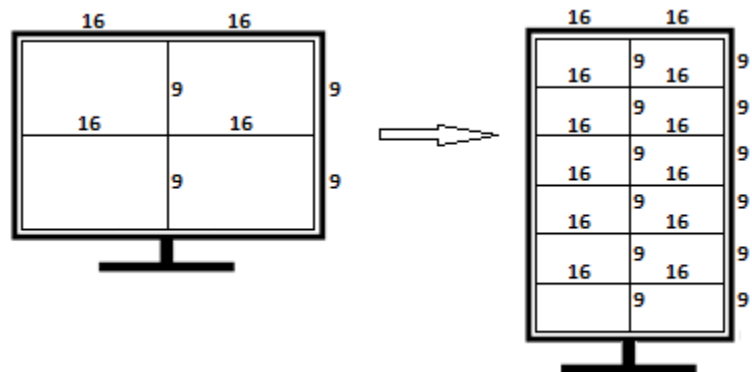
1='16:9';

2='9:16';

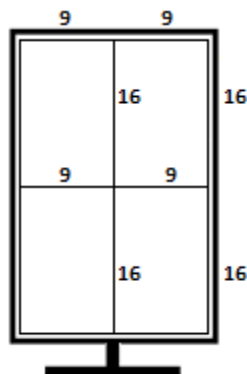
3='3:4'

Any values above are defined as width percentage of the height. So 4:3 can also be defined as 133.

For example Parameter = 1 (16:9) is rendered on horizontal and vertical monitors as:



The aspect ratios 9:16 and 3:4 are primarily defined for rotated monitors as shown in the picture below:



NUMBER_OF_DECODERS

	Tag code	NumDes	Message	SNMP Support
	0xe20b	no	no	no
	Datatype	Access Level	Description	
Read	t_int	-	get current limit	
Write	t_int	-	set current limit	

Specifies the maximum number of decoder instances supported by the device. The limit per view is obtained by deviding the value into the number of views.

The number of layouts and decoders reported by the device will only contain layouts that do not exceed the limit per view by 20 percent.

Changing the value has no effect on the current layout setting. Since clients may not expect the capabilities and decoder layout list to change during device operation a reboot of the device and optionally the client may be required.

VIDEO_ZOOM_MODE

	Tag code	NumDes	Message	SNMP Support
	0xe20c	no	no	no
	Datatype	Access Level	Description	
Read	t_int	-	get current value	
Write	t_int	-	set mode	

The following modes are currently defined:

- 0 Show all Video content and keep aspect ratio. Black bars may be shown left and right or top and bottom. This mode is the default.
- 1 Stretch the Video to the Cameo. The aspect ratio may not be kept.

CONF_MONITOR_INFO

	Tag code	NumDes	Message	SNMP Support
	0xe20d	View ID	no	no
	Datatype	Access Level	Description	
Read	p_octet	noprot	see detailed description	
Write	%	NA	not supported	

Get information about the view as a list of four byte DWORD values. The current implementation relates a view to a physical monitor output.

Info Structure

Width	Height	RefreshRate	reserved	
4 Bytes	4 Bytes	4 Bytes		...	

Width

Horizontal number of display pixel

Height

Vertical number of display pixel

RefreshRate

Display refresh rate in Hz

Revisions history

Date	Version	Description	Author
08-01-2013	1.0	Initial version	Viktor Oleksyshyn
18-01-2013	1.1	Review and style fixes	Alexander Turevskiy
24-01-2013	1.2	Fixes according to remarks from Bosch	Alexander Turevskiy, Viktor Oleksyshyn
06-03-2013	1.3	Update Layout	Hans Busch
12-03-2013	1.4	Add NUMBER_OF_DECODERS	Hans Busch
13-05-2013	1.5	Add VIDEO_ZOOM_MODE	Hans Busch
20-06-2013	6.22	Add CONNECT_URL	Hans Busch
28-08-2013	6.23	Add flexible aspect ratio Add port documentation to ACTIVE_CONNECTION_LIST	Hans Busch
12-11-2013	8.0	Add CONF_MONITOR_INFO	Hans Busch