ELIUM Player RS232/Network Remote Control Description

1. General

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Scope: The goal of this document is to describe how ELIUM Player Device can be controlled through RS232 connector (RS232-RC mode) or via network TCP connection (NET-RC mode).

2. The RS232/Network attachment

One of the many features implemented in ELIUM Player Device application is the possibility of bidirectional controlling the device through RS232 connection or via network TCP connection according to this Remote Control description.

3. Example application

ELIUM Player Device can be controlled from your PC. Be aware that only two wires of nine are used (RX and TX) in the case of RS232-RC mode. The TCP port 26 is the default communication port in the case of NET-RC mode.

4. Working conditions

The communication can work correctly only if the following conditions are fulfilled.

For the RS232-RC mode (via RS232 connection):

- Baud: 115.200 (default)
- Parity: none
- Data Bits: 8
- Stop Bits: 1
- Flow Control: none

For the NET-RC mode (via network TCP connection):

The TCP communication port is configurable by the server side (ELIUM Player Device) but selected port number should not be used by other applications. The client (PC) connects to the server (ELIUM Player Device) with its network address and port via TCP and fulfils the commands described below to control the device.

5. Attention:

Please mention that after switching on the unit by pushing the Power Switch, the unit is starting and during this procedure should not be disturbed. If you send anything during the starting procedure, the unit can go to Firmware update procedure. So it is recommended waiting until receive text information from application part - "#READY".

6. Note:

In certain moments ELIUM Player Device sent other "#" lines too.
The syntax is: #?/text/?#

They give information about: Boot, Application Version etc. These lines should not be taken into account.

7. Commands without additional return value

Each command starts with "<" char and ends with ">". Immediately after ">" sign is received, command will be performed.

If command is not recognized (for example, if <ABC> command is sent), the following text should appear on your terminal window:

#COMMAND: <ABC>
#ERROR: Command not supported

If command is supported and was received correctly you should get something like:

#COMMAND : <ON>
#OK

The line "#COMMAND:" is sent before command is performed. It only indicates that certain string of chars was received by Receiver. After that, command is performed and, if this action is finished, the line "#OK" should be sent.

In order to simplify (from programmer point of view) the reception of responses (so called confirmations) the first sign sent from Receiver is always "#". So, host should wait for "#", the next letter should indicate whether everything was all right or not (#C, #E or #C, #O)

Command	Description
<ON>	Turn on Device (doesn´t work in normal mode) Examples: #COMMAND: <ON> #OK or #COMMAND: <ON> #ERROR: Not in standby
<OFF>	Turn off Device (doesn´t work in Standby mode) Examples: #COMMAND: <OFF> #OK or #COMMAND: <OFF> #ERROR: Already in standby
<REB>	Reboot Device

<PLAY s>	Start playback for the stream URL link defined in 's' parameter s = stream URL to play (see the following examples) If the device was already playing some stream it automatically stops the previous playback and starts playing the stream from new URL. Examples: For HTTP/RTSP (and other unicast) streams #COMMAND: <PLAY http://10.1.1.56:31339> #OK or #COMMAND: <PLAY rtsp://192.168.1.5:5454/some_stream> #OK For broadcast UDP/RTP streams #COMMAND: <PLAY udp://255.255.255.255:1234> #OK or #COMMAND: <PLAY rtp://255.255.255.255:1234> #OK For multicast UDP/RTP streams #COMMAND: <PLAY udp://239.35.10.55:1234> #OK or #COMMAND: <PLAY rtp://239.35.10.55:1234> #OK For file playback from previously connected network share #COMMAND: <PLAY file:///media/network/some_file_path> #OK For file playback from USB drive #COMMAND: <PLAY file:///media/usb/some_file_path> #OK For file playback from SD card #COMMAND: <PLAY file:///media/sdcard/some_file_path> #OK

<MPTS n;s>	Start playback for the stream id (SID) defined in 'n' parameter from the MPEG MPTS stream URL link defined in 's' parameter n = stream id (SID) in decimal form s = MPEG MPTS stream URL to play (see the following examples) Command should be used only in the case of Multi Program MPEG Transport Stream (MPTS) playback source. It will not start playback successfully if the playback source does not provide MPEG MPTS. If the device was already playing some stream it automatically stops the previous playback and starts playing the stream with new SID from the new URL. Examples: For HTTP/RTSP (and other unicast) streams #COMMAND: <MPTS 28721;http://10.1.1.56:31339> #OK or #COMMAND: <MPTS 28721;rtsp://192.168.1.5:5454/stream> #OK For broadcast UDP/RTP streams #COMMAND: <MPTS 28721;udp://255.255.255.255:1234> #OK or #COMMAND: <MPTS 28721;rtp://255.255.255.255:1234> #OK For multicast UDP/RTP streams #COMMAND: <MPTS 28721;udp://239.35.10.55:1234> #OK or #COMMAND: <MPTS 28721;rtp://239.35.10.55:1234> #OK
<SPTS s>	Start playback for the MPEG SPTS stream URL link defined in 's' parameter s = MPEG SPTS stream URL to play (see the following example) Command should be used only in the case of Single Program MPEG

	Transport Stream (SPTS) playback source. It may not start playback successfully if the playback source does not provide MPEG SPTS. If the device was already playing some stream it automatically stops the previous playback and starts playing the stream from new URL. Example: #COMMAND: <SPTS udp://239.50.12.94:4444> #OK
<STOP>	Stop the current playback
<PR U>	Select previous program in MPEG MPTS Command should be used only together with <PLAY s> command. It does not work for playback started with <MPTS n;s> command. Command should be used only in the case of Multi Program MPEG Transport Stream (MPTS) playback. It does not work if the playback wasn't started before or if the current playback stream is not MPTS. The commands <GPL> and <GCP> can also be used to list all available MPTS programs and to get the current playing program from MPTS (see commands description below). Example: #COMMAND: <PR U> #OK or #COMMAND: <PR U> #ERROR: Not MPTS stream
<PR D>	Select next program in MPEG MPTS Command should be used only together with <PLAY s> command. It does not work for playback started with <MPTS n;s> command. Command should be used only in the case of Multi Program MPEG Transport Stream (MPTS) playback. It does not work if the playback wasn't started before or if the current playback stream is not MPTS. The commands <GPL> and <GCP> can also be used to list all available MPTS programs and to get the current playing program from MPTS (see commands description below). Example: #COMMAND: <PR D>

	#OK or #COMMAND: <PR D> #ERROR: Not MPTS stream
<PR n>	Select program by number in MPEG MPTS n = program number in MPTS program list (received with <GPL>) Command should be used only together with <PLAY s> command. It does not work for playback started with <MPTS n;s> command. Command should be used only in the case of Multi Program MPEG Transport Stream (MPTS) playback. It does not work if the playback wasn't started before or if the current playback stream is not MPTS. The program number parameter should not exceed the range of all available MPTS programs. The commands <GPL> and <GCP> can also be used to list all available MPTS programs and to get the current playing program from MPTS (see commands description below). Example: #COMMAND: <PR 2> #OK or #COMMAND: <PR 2> #ERROR: Not MPTS stream
<PAUSE>	Pause the current file playback Command should be used only in the case of previously started FILE playback (see above examples for <PLAY> command). Example: #COMMAND: <PAUSE> #OK or #COMMAND: <PAUSE> #ERROR: Not FILE Stream
<RESUME>	Resume previously paused file playback Command should be used only in the case of previously started FILE playback (see above examples for <PLAY> command). Example:

	#COMMAND: <RESUME> #OK or #COMMAND: <RESUME> #ERROR: Not FILE Stream
<SETPLAYPOS n>	Seek inside the current file playback n = [+/-] seconds n without a leading sign – set the absolute position from start. n with a leading sign – relative seek from the current position. Example: #COMMAND: <SETPLAYPOS -120> #OK
<RMC n>	Simulates an input via remote control n = remote control keycode for the given key Possible keycodes (for device remote control) are: 22 Key ON/OFF 2 Key '1' 5 Key '2' 6 Key '3' 9 Key '4' 10 Key '5' 13 Key '6' 14 Key '7' 17 Key '8' 18 Key '9' 21 Key '0' 34 Key MODE 37 Key RADIO/TV 38 Key MUTE 41 Key LAST 25 Key UP 26 Key DOWN 29 Key LEFT 33 Key RIGHT 30 Key OK 42 Key MENU 45 Key EXIT 58 Key Red (DVR / PVR) 61 Key Green (DVD / MOVIE) 62 Key Yellow (MP3/FPEG / MUSIC) 65 Key Blue (GAME / MEDIA) 46 Key << (rew. back)

	49 Key PLAY/PAUSE 50 Key >> (rew. forward 53 Key |<< (go prev.) 54 Key REC/STOP 57 Key >>| (go next) 66 Key INFO 69 Key EPG 70 Key TIMER 73 Key TXT 74 Key PIP 77 Key SEARCH/FREEZE 78 Key TECH.INFO/ZOOM 81 Key AUDIO VIDEO It is also possible to emulate any other user defined keys with the key-codes in decimal form different from the above values. Example: #COMMAND: <RMC 30> #OK

<SIP s>	Change device network configuration
	
	s = list of string attributes separated with ";" delimiter in format:
	
	  ipaddr;netmask;gateway;dns
	
	where
	
	  ipaddr = device IP-address or
	                     "-" if no change;
	  netmask = device network mask or
	                     "-" if no change;
	  gateway = network gateway IP-address or
	                     "-" if no change;
	  dns = DNS server IP-address or
	                     "-" if no change;
	Example:
	#COMMAND: <SIP 10.1.1.54;-;10.1.1.1;10.1.1.1>
	#OK

<SSMB s>	Set NetShare (network remote drive) configuration s = list of string attributes separated with ";" delimiter in format: *server_ip;share_name;username;password;autocon*

	where
	
	  server_ip = IP-address of the network file server;
	  share_name = network shared resource name;
	
	  username = network file server user name or
	                  "-" if empty for anonymous (guest) login;
	  password = network file server user password or
	                  "-" if empty (no password);
	  autocon = [on/off] automatically connect on boot;
	
	Example:
	#COMMAND: <SSMB 10.1.1.5;Public;user;pass;off>
	#OK

<SIRADDR n>	Set device IR remote control address n = IR remote control address [0 | 1 .. 4] n = 0 - disable IR remote control address check (any address valid) n = 1 .. 4 - only IR remote control with the same address valid Current IR remote control address can be found with <GIRADDR> command (see below). Example: #COMMAND: <SIRADDR 2> #OK
<SDM n>	Set HDMI video display mode n = decimal code for HDMI video display mode Possible decimal codes for HDMI video display mode are: 0 : 480i 1 : 576i 2 : 480p 3 : 576p 4 : 720p 50Hz 5 : 720p 60Hz 6 : 1080i 50Hz 7 : 1080i 60Hz 8 : 1080p 24Hz 9 : 1080p 50Hz 10 : 1080p 60Hz 11 : 1080p 25Hz

	12 : 1080p 30HZ Command should be used only in Working Mode (out of Standby) and when playback is stopped. Otherwise command fails with the following error message: #ERROR: Command not allowed Example: #COMMAND: <SDM 7> #OK
<SDT n>	Set video playback display output Possible decimal codes for video playback display output are: 0 : HDMI 1 : CVBS Example: #COMMAND: <SDT 1> #OK
<SENDRS s>	Send text command from NET-RC network connection to RS232-RC serial port s = text command string (which has not to contain '<' or '>') Command should be used only via NET-RC mode network connection. It does not work in case of RS232-RC mode Example: #COMMAND: <SENDRS ka 01 00> #OK

<PIG s>	Set playback Picture-In-Graphic (PIG) rectangle configuration
	
	s = list of PIG rectangle parameters separated with ";" delimiter
	in format:
	  rect_x;rect_y;rect_width;rect_height
	where:
	  rect_x = horizontal coordinate of PIG rectangle top left point;
	  rect_y = vertical coordinate of PIG rectangle top left point;
	  rect_width = width of PIG rectangle;

	rect_height = height of PIG rectangle; All PIG rectangle parameters are set in ELIUM WebApp Engine TV screen resolution pixel units (please, refer ELIUM Player App Development Guide for details). ELIUM WebApp Engine TV screen resolution is 1920x1080 pixel. PIG rectangle position and size are automatically recalculated in case when display is configured to some other mode than those with 1920x1080 pixel resolution. Example: #COMMAND: <PIG 1450;660;440;248> #OK

<WEBAPP SYNC n s>	Update ELIUM WebApp Engine GUI Application
	Please, refer ELIUM Player App Development Guide for details.
	
	n = [NET | SDC | USB] – update container
	s = list of parameters depending of n (see below)
	
	Possible update containers are:
	
	1. n = NET
	Update GUI WebApp from network share (file server).
	In this case *'s'* is the list of string attributes separated with ";" delimiter in format:
	
	  server_ip;share_name;webapp_path;username;password
	where
	  server_ip = IP-address of the network file server;
	  share_name = network shared resource name;
	  webapp_path = relative path to GUI WebApp folder inside shared folder;
	  username = network file server user name or "-" if empty for anonymous (guest) login;
	  password = network file server user password or "-" if empty (no password);
	
	2. n = SDC
	Update GUI WebApp from SD card.
	In this case *'s'* is relative path to GUI WebApp folder inside the SD card root filesystem.

	3. n = USB Update GUI WebApp from USD drive. In this case *'s'* is relative path to GUI WebApp folder inside the USB drive root filesystem. Device sends error message if update fails for some reasons: #ERROR: *error_description* Examples: To update GUI WebApp from network share #COMMAND: <WEBAPP SYNC NET 10.1.1.5;Public;MP280HD/webapp_v0.11;-;-> #OK To update GUI WebApp from SD card #COMMAND: <WEBAPP SYNC SDC MP280HD/webapp_v0.11> #OK To update GUI WebApp from USB drive #COMMAND: <WEBAPP SYNC USB MP280HD/webapp_v0.11> #OK

<APPDATA SYNC n s>	(Re)write ELIUM WebApp Engine GUI Application data file
	(e.g. TV/Radio channellists, GUI WebApp configuration etc)
	Please, refer ELIUM Player App Development Guide for details.
	
	n = [NET | SDC | USB] – data file container
	s = list of parameters depending of n (see below)
	
	Possible data file containers are:
	
	1. n = NET
	(Re)write GUI WebApp data from network share (file server).
	In this case *'s'* is the list of string attributes separated with ";" delim-iter in format:
	
	  server_ip;share_name;file_path;username;password
	where
	  server_ip = IP-address of the network file server;
	  share_name = network shared resource name;
	  file_path = relative path to GUI WebApp data file inside
	                              shared folder;
	  username = network file server user name or

	"-" if empty for anonymous (guest) login;
	  password = network file server user password or
	          "-" if empty (no password);
	
	2. n = SDC
	(Re)write GUI WebApp data from SD card.
	In this case *'s'* is relative path to GUI WebApp data file inside the SD card root filesystem.
	
	3. n = USB
	(Re)write GUI WebApp data from USD drive.
	In this case *'s'* is relative path to GUI WebApp data file inside the USB drive root filesystem.
	
	Device sends error message if (re)write fails for some reasons:
	#ERROR: *error_description*
	
	Examples:
	(Re)write GUI WebApp TV channellist from network share
	#COMMAND:
	<APPDATA SYNC NET 10.1.1.2;Public;MP280HD/webapp_tv_list;-;->
	#OK
	
	(Re)write GUI WebApp Radio channellist from SD card
	#COMMAND: <APPDATA SYNC SDC MP280HD/webapp_radio_list>
	#OK
	
	(Re)write GUI WebApp TV channellist from USB drive
	#COMMAND: <APPDATA SYNC USB webapp_tv_list>
	#OK

<EVC n;s>	Send user defined event (command) to WebApp GUI Application (please, refer ELIUM Player App Development Guide for details)
	
	n = decimal event code;
	s = event string ("-" if empty);
	
	Examples:
	#COMMAND: <EVC 1;SHOW:Notification(100,50,1720,500)>
	#OK
	#COMMAND: <EVC 3;TITLE:Warning!>
	#OK

	#COMMAND: <EVC 3;TEXT:This is the test notification event> #OK #COMMAND: <EVC 3;TEXT:Bye> #OK #COMMAND: <EVC 2;HIDE> #OK
<SNMPTRAP HOST s>	Set SNMP TRAP notifications host address (see <SNMPTRAP n> and <SNMPTRAP HOST ?> commands below) s = SNMP TRAP host IP-address (or DNS name); Example: #COMMAND: <SNMPTRAP HOST 10.1.1.220> #OK

8. Commands with additional return value

Each command starts with "<" char and ends with ">". Immediately after ">" sign is received, command will be performed.

If command is not recognized (for example, if <ABC> command is sent), the following text should appear on your terminal window:

#COMMAND: <ABC>
#ERROR: Command not supported

If command is supported and was received correctly you should get something like:

#COMMAND: <GCS>
#RET: on
#OK

Command	With Return Value
<VER>	Get device firmware and hardware information Example: #COMMAND: <VER> #Mainboard: Rev.01.00 #Firmware: Ver.01.00 #S/N: 01928374657410 #OK
<FWINFO>	Get extended device firmware information Example: #COMMAND: <FWINFO> #Firmware: Ver.01.00 build 03 (12.05.2014 14:56) #OK
<IPC>	Get device network configuration Example: #COMMAND: <IPC> #MACADDR: EA:E7:72:B3:0B:31 #IP: 10.1.1.52 #MASK: 255.255.255.0 #GW: 10.1.1.1 #DNS: 10.1.1.1 #OK
<GCS>	Get current device state (On or Standby)

	Examples: #COMMAND: <GCS> #RET: on #OK or #COMMAND: <GCS> #RET: off #OK
<GETPLAY>	Get current playback state Return: on – playback is disabled (stopped) off – playback is enabled (playing something) Example: #COMMAND: <GETPLAY> #RET: on #OK

<PLAYINFO>	Get current playback information
	
	Return format:
	  s1;s2;n
	where:
	  s1 – playback type string
	   s1 = NONE – playback is stopped
	   s1 = URL – custom url playback started with <PLAY> command
	   s1 = MPTS – MPTS playback started with <MPTS> command
	   s1 = FILE – file playback started with <PLAY> command
	   s1 = SPTS – SPTS playback started with <SPTS> command
	  s2 – stream URL of the previously started playback
	  n – stream id (SID) of the previously started MPTS playback
	    or 0 in case of not MPTS playback
	
	Example:
	#COMMAND: <PLAYINFO>
	#RET: MPTS;rtp://239.35.10.55:1234;28721
	#OK

<PLAYSTATE>	Get current playback play state
	
	Return format:
	  n;s
	where:
	  n - play state decimal code
	  s – play state title string
	Possible play state codes are:
	0 : Playback stopped, s = Stopped
	1 : Starting playback, s = Starting

	2 : Probing play stream (stays here if stream is not ok), s = Probing 3 : Playing (stream is ok), s = Playing 4 : Playback is paused (only valid for file playback), s = Paused 5 : Stream EOF reached (only valid for file playback), s = Eof Example: #COMMAND: <PLAYSTATE> #RET: 2;Probing #OK
<ISPAUSE>	Check whether the file playback is paused 0 : playback is playing (no pause) 1 : playback is paused Command should be used only in the case of previously started FILE playback (see above examples for <PLAY> command). Example: #COMMAND: <ISPAUSE> #RET: 1 #OK
<GETDURATION>	Get the current file playback duration (total time) in seconds Command should be used only in the case of previously started FILE playback (see above examples for <PLAY> command). Example: #COMMAND: <GETDURATION> #RET: 5131 #OK
<GETPLAYPOS>	Get the current file playback position (elapsed time) in seconds Command should be used only in the case of previously started FILE playback (see above examples for <PLAY> command). Example: #COMMAND: <GETPLAYPOS> #RET: 68 #OK
<GPC>	Get the count of the available programs in MPEG MPTS Check whether the current playback is MPEG MPTS Command should be used only together with <PLAY s> command. It returns 0 for playback started with <MPTS n;s> command.

	Command should be used only in the case of Multi Program MPEG Transport Stream (MPTS) playback. It returns 0 if the playback wasn't started before or if the current playback stream is not MPTS. Examples: Stream is MPEG MPTS (started with <PLAY>) #COMMAND: <GPC> #RET: 5 #OK Stream is not MPEG MPTS #COMMAND: <GPC> #RET: 0 #OK
<GPL>	List all available programs in MPEG MPTS Command should be used only together with <PLAY s> command. It does not work for playback started with <MPTS n;s> command. Command should be used only in the case of Multi Program MPEG Transport Stream (MPTS) playback. It does not work if the playback wasn't started before or if the current playback stream is not MPTS. Examples: #COMMAND: <GPL> #RET: 1;ZDF HD; #RET: 2;zdf_neo HD; #RET: 3;zdf.kultur HD; #OK or #COMMAND: <PR 2> #ERROR: Not MPTS stream
<GCP>	Get the current playing program in MPEG MPTS Command should be used only together with <PLAY s> command. It does not work for playback started with <MPTS n;s> command. Command should be used only in the case of Multi Program MPEG Transport Stream (MPTS) playback. It does not work if the playback wasn't started before or if the current playback stream is not MPTS. Examples: #COMMAND: <GCP> #RET: 2;zdf_neo HD;

	#OK or #COMMAND: <PR 2> #ERROR: Not MPTS stream
<GDM>	Get current HDMI video display mode Possible decimal codes for HDMI video display mode are: 0 : 480i 1 : 576i 2 : 480p 3 : 576p 4 : 720p 50Hz 5 : 720p 60Hz 6 : 1080i 50Hz 7 : 1080i 60Hz 8 : 1080p 24Hz 9 : 1080p 50Hz 10 : 1080p 60Hz 11 : 1080p 25Hz 12 : 1080p 30HZ Example: #COMMAND: <GDM> #RET: 9;1080p 50Hz #OK
<GDT>	Get current video playback display output Possible decimal codes for video playback display output are: 0 : HDMI 1 : CVBS Example: #COMMAND: <GDT> #RET: 0;HDMI #OK
<GCV>	Get current volume (mute state and volume level) Example: #COMMAND: <GCV> #RET: on;100

	#OK
<VOL n>	Set/change volume (mute state or volume level) n = [+/-][0 .. 100] | [ON,OFF] n set to ON and n set to OFF turns mute on or off. n without a leading sign sets the volume absolute. n with a leading sign sets the volume relative to the current value. Example: #COMMAND: <VOL -10> #RET: on;90 #OK

<UPDATE n s>	Update device firmware
	
	n = [NET | SDC | USB] - update container (firmware image container)
	s = list of parameters depending of n (see below)
	
	Possible update containers are:
	
	1. n = NET
	Update from network share (file server).
	In this case 's' is the list of string attributes separated with ";" delimiter in format:
	
	  image_file;server_ip;share_name;username;password
	
	where
	  image_file = relative path to firmware image file inside shared folder;
	  server_ip = IP-address of the network file server;
	  share_name = network shared resource name;
	  username = network file server user name or "-" if empty for anonymous (guest) login;
	  password = network file server user password or "-" if empty (no password);
	
	2. n = SDC
	Update from SD card.
	In this case 's' is relative path to firmware image file inside the SD card root filesystem.

	3. n = USB Update from USD drive. In this case *'s'* is relative path to firmware image file inside the USB drive root filesystem. The operation progress can also be observed during the update process. Device sends progress information as: #RET: *progress_percent* Device also sends error message if the update process fails for some reason: #ERROR: *error_description* Examples: To update from network share #COMMAND: <UPDATE NET elium_mp280hd_v01.00.img;10.1.1.5;Public;-;-> #RET: 20% #RET: 40% #RET: 60% #RET: 80% #RET: 100% #OK To update from SD card #COMMAND: <UPDATE SDC elium_mp280hd_v01.00.img> #RET: 20% … #RET: 80% #RET: 100% #OK To update from USB drive #COMMAND: <UPDATE USB elium_mp280hd_v01.00.img> … #OK
<SMBC>	Get current NetShare (network remote drive) configuration Example: #COMMAND: <SMBC> #SERVER: 10.1.1.5 #SHARE: Public #USR:

	#PWD: #AUTOCON: on #OK
<SMB n>	Enable/disable NetShare (network remote drive) connection Get current NetShare (network remote drive) connection status n = [ON,OFF] | [?] ? returns the current state of NetShare connection ON and OFF turns NetShare connected or disconnected. NetShare should be configured (see <SSMB s> command) before it's turned ON. Examples: #COMMAND: <SMB ON> #RET: on #OK or #COMMAND: <SMB ?> #RET: off #OK
<GIRADDR>	Get current device IR remote control address IR remote control address can be set with <SIRADDR n> command (see the command description above). Example: #COMMAND: <GIRADDR> #RET: 0 #OK
<PIG n>	Enable/disable playback Picture-In-Graphic (PIG) Get current PIG state (enabled/disabled) n = [ON,OFF] | [?] ? returns the current PIG state (on/off) ON and OFF turns PIG enabled or disabled. PIG rectangle should be configured (see <PIG s> command) before it's turned ON. Examples: #COMMAND: <PIG ON> #RET: on

	#OK or #COMMAND: <PIG ?> #RET: off #OK
<DVI n>	Enable/disable HDMI video display DVI mode Get HDMI video display DVI mode status n = [ON,OFF] | [?] ? returns the current state of HDMI video display DVI mode ON and OFF enables or disables HDMI video display DVI mode. <DVI ON> should be used only if the device HDMI output is connected to DVI monitor/TV (via HDMI-to-DVI converter cable). Command should be used only in Working Mode (out of Standby) and when playback is stopped. Otherwise command fails with the following error message: #ERROR: Command not allowed Examples: #COMMAND: <DVI ON> #RET: on #OK or #COMMAND: <DVI ?> #RET: off #OK
<ARMODE n>	Set/change Aspect Ratio Adjustment Mode for 4:3 video format Get current Aspect Ratio Adjustment Mode for 4:3 video format n = [0..2] | [?] n = ? - return the current aspect ratio adjustment mode. Possible decimal codes for aspect ratio adjustment mode are: 0 : Fullscreen 1 : Letterbox 2 : Pan&Scan n = 0..2 - change aspect ratio adjustment mode accordingly. Examples: #COMMAND: <ARMODE 1> #RET: 1;Letterbox

	#OK or #COMMAND: <ARMODE ?> #RET: 0;Fullscreen #OK
<SNMPTRAP n>	Enable/disable device SNMP TRAP notifications Get current device SNMP TRAP notifications status n = [ON,OFF] | [?] ? returns the current state of the device SNMP TRAP notifications ON and OFF turns SNMP TRAP notifications enabled or disabled. SNMP TRAP host address should be configured before SNMP TRAP notifications are turned ON (see <SNMPTRAP HOST s> command). Examples: #COMMAND: <SNMPTRAP ON> #RET: on #OK or #COMMAND: <SNMPTRAP ?> #RET: off #OK
<SNMPTRAP HOST ?>	Get SNMP TRAP notifications host address (see <SNMPTRAP n> and <SNMPTRAP HOST s> commands below) Example: #COMMAND: <SNMPTRAP HOST ?> #RET: 10.1.1.220 #OK
<SNMPTRAP firmwareReady n>	Enable/disable SNMP firmwareReady TRAP Get current SNMP firmwareReady TRAP status n = [ON,OFF] | [?] ? returns the current state of SNMP firmwareReady TRAP ON and OFF turns SNMP firmwareReady TRAP enabled or disabled. The firmwareReady notification is generated after the MP280HD device software startup. It notifies

	that the device software is initialized and the device is ready for use. Examples: #COMMAND: <SNMPTRAP firmwareReady ON> #RET: on #OK or #COMMAND: <SNMPTRAP firmwareReady ?> #RET: off #OK
<SNMPTRAP firmwareFault n>	Enable/disable SNMP firmwareFault TRAP Get current SNMP firmwareFault TRAP status n = [ON,OFF] | [?] ? returns the current state of SNMP firmwareFault TRAP ON and OFF turns SNMP firmwareFault TRAP enabled or disabled. The firmwareFault notification is generated when the MP280HD device software reaches hard fault. It is normally followed by the software restart. Examples: See <SNMPTRAP firmwareReady n> command above.
<SNMPTRAP playStateChange n>	Enable/disable SNMP playStateChange TRAP Get current SNMP playStateChange TRAP status n = [ON,OFF] | [?] ? returns the current state of SNMP playStateChange TRAP ON and OFF turns SNMP playStateChange TRAP enabled or disabled. The playStateChange notification is generated for every device playback state change. It notifies the current playback stage (also see <PLAYSTATE> command for more details). Examples: See <SNMPTRAP firmwareReady n> command above.

<SNMPTRAP noStream n>	Enable/disable SNMP noStream TRAP Get current SNMP noStream TRAP status n = [ON,OFF] | [?] ? returns the current state of SNMP noStream TRAP ON and OFF turns SNMP noStream TRAP enabled or disabled. The noStream notification is generated by the device WebApp Engine HTML5 app's request. It notifies that the playback was started by the app but there is nothing to display on the screen due to the bad input stream (please, refer ELIUM Player App De- velopment Guide for details). Examples: See <SNMPTRAP firmwareReady n> command above.
<SNMPTRAP appEvent n>	Enable/disable SNMP appEvent TRAP Get current SNMP appEvent TRAP status n = [ON,OFF] | [?] ? returns the current state of SNMP appEvent TRAP ON and OFF turns SNMP appEvent TRAP enabled or disabled. The appEvent notification is generated by the device WebApp Engine HTML5 app's request. It notifies custom user defined WebApp event (please, refer ELIUM Player App Development Guide for details). Examples: See <SNMPTRAP firmwareReady n> command above.