

VISION EXTERNAL CONTROL PROTOCOL

How to communicate with the Escient Vision from serial or IP based control systems

Commands and Responses Overview

Version 20090115

The external control protocol is standard ASCII based. ESCX is the four-letter preamble that is used for all commands. This preamble must be uppercase. The commands provided in this protocol allow an external control system to navigate the Escient products, get library information to build custom user interfaces, perform transport controls, and receive unsolicited feedback on system status.

All external control commands are made up of the preamble (ESCX), command group (01,02,10,20,50,70), sub command (specific task), specific data (# of data items, and a size of data packet then the actual data packet repeated for the # of data items), and a carriage return end marker.

Connecting to the Vision

There are two ways to connect to a Vision: direct serial connection (RS-232) or over TCP/IP. Use the following information to establish the proper connection for your implementation.

RS232

Keyspan USB RS-232 adapter -> Null-modem cable -> your equipment

Pin Configuration

2-3 (Rx<-Tx)

3-2 (Tx->Rx)

5-5 (Ground)

Settings:

Bits per second: 9600

Databits: 8

Parity: None

Stop bits: 1

Flow control: None

TCP/IP

Telnet on port 1275 (you can also use port 251 the same port that FireBall uses)

External Control Command Structure

DESCRIPTION	PREAMBLE	COMMAND GROUP	SUB COMMAND	# DATA ITEMS	DATA ITEM #1 SIZE	DATA #1	DATA ITEM #2 SIZE	DATA #2	END MARKER
Bytes	4	2	2	3	4	5	4	3	1
Example	ESCX	01	08	002	0005	Hello	0003	Bye	Carriage Return

The external control commands are broken down into the following Command Groups:

- 01 – Command Responses
- 02 – Unsolicited Events
- 10 – Remote Button / Keyboard Commands
- 20 – Movie and Music Database Commands
- 21 – Rhapsody Commands
- 50 – Status Commands
- 70 – Misc. Control Commands

All commands will cause one of the following response numbers to be issued. Some commands, such as database commands will also send back additional responses that contain more detailed information.

Command Responses

COMMAND GROUP	RESPONSE NUMBER	RESPONSE DESCRIPTION
01	01	OK
01	02	Bad Command Structure
01	03	Empty Library or Bad Range
01	04	Wrong Number of Command Arguments
01	05	Invalid Subcommand
01	06	Invalid Command
01	07	Not Available During Standby (deprecated – all external control commands now turn on the unit)
01	08	Requested data not available
01	09	External control command not yet implemented (possible future implementation)
01	10	Not Available at This Time due to special screen active
01	11	Invalid Security Password
01	12	Resource currently not available

Response Format: ESCX01xx, where xx = Command response

Response 07 has been deprecated due to the new auto-on function. Whenever a valid command is received (with two exceptions), the system will automatically enter the “on” mode,

if it is in standby. A client may still handle response 07, but it is no longer sent from the host for any reason.

Response 10 will be sent when a normally valid command is sent to the host, but it cannot be processed due to the system's mode. For example, a database play will not be processed while the system is in setup or options mode, AutoBuilding a changer, etc. Note that a key press command will never return this response, as even audio transport keys (play, stop) have alternate functions in various modes.

Unsolicited status events can be sent to report the state changes of the Escient products. There are two currently defined message levels: 5 - track changes, and 10 - all (including 1-second playing time updates). Clients are registered at level 5 by default. Clients may change their message level using the ESCX7002 command. See the control commands section for instructions on how to register and unregister for unsolicited status event levels.

Unsolicited Status Events

COMMAND GROUP	EVENT NUMBER	EVENT DESCRIPTION
02	01	Power status changed. When the system has booted into an off state you will receive a "RDY" status indicating it is ready to be powered on and from then on an "OFF" or an "ON " status or a "USB" pass-through mode (FirePod only)
02		<i>Event Format:</i> ESCX02010010003xxx, Where xxx = a 3 character string "RDY" = when power is first applied and it boots into the off state (standby mode) – ready for power on. "ON " = if power on turned on (GUI appears) "OFF" = if power is off (standby mode) (Video out off)
02	02	Play Mode changed (normal, random, etc)
02		<i>Event Format:</i> ESCX02020010002xx, Where xx = the new play mode 01 = Repeat Off, Random Off 02 = Repeat On, Random Off 05 = Repeat Off, Random On 06 = Repeat On, Random On
02	03	Deprecated
02	04	Playing Artist/Title/Song has changed

02

Event Format:

There are 2 response types. The response type is determined using the ESCX7002 command. Response Type 1 is the default. See the ESCX7002 command for other details.

Response Type 1 – no cover URL:

ESCX02040070002aa0003bbbccccdddeeeefffgggghhhiiiijjj0002k
k

aa = the play state

01 = Play, 02 = Stop, 03 = Pause

bbb = current chapter or track number

cccc = length of artist name

ddd = artist name

eeee = length of title name

fff = title name

gggg = length of track name

hhh = track name (aspect ratio if Movie Mode)

Aspect Ratio (Movie Mode only):

00 = Unknown

01 = Standard 1.33

02 = Standard 1.78

03 = Standard 1.85

04 = Standard 2.35

05 = Anamorphic 1.33

06 = Anamorphic 1.78

07 = Anamorphic 1.85

08 = Anamorphic 2.35

iiii = length of track time

jjj = current track time (0 if Movie Mode)

kk = current media type

00 = unknown, 01 = CD, 02 = DATACD, 03 = MP3,

04 = playlist, 05 = DVD, 07 = Rhapsody Channel

The current track, artist name, title name, track name, current track time, and media type are only returned for the play event. The stop and pause events just signify that the state has changed.

02		<p><i>Event Format:</i> <i>Response Type 2 – with cover URL.</i></p> <p>ESCX02040080002aa0003bbccccddeeeeffffgggghhiiiijjj0002k k xxxxyyyy</p> <p>aa = the play state 01 = Play</p> <p>bbb = current chapter or track number</p> <p>cccc = length of artist name</p> <p>ddd = artist name</p> <p>eeee = length of title name</p> <p>fff = title name</p> <p>gggg = length of track name</p> <p>hhh = track name (aspect ratio if Movie Mode) Aspect Ratio (Movie Mode only): 00 = Unknown 01 = Standard 1.33 02 = Standard 1.78 03 = Standard 1.85 04 = Standard 2.35 05 = Anamorphic 1.33 06 = Anamorphic 1.78 07 = Anamorphic 1.85 08 = Anamorphic 2.35</p> <p>iiii = length of track time</p> <p>jjj = current track time</p> <p>kk = current media type 00 = unknown, 01 = CD, 02 = DATA CD, 03 = MP3, 04 = playlist, 05 = DVD, 07 = Rhapsody Channel</p> <p>xxxx = length of coverart url string</p> <p>yyyy = coverart url string</p> <p>The current track, artist name, title name, track name, current track time, and media type are only returned for the play event. The stop and pause events just signify that the state has changed.</p>
02	07	Database has changed. The external control system should re-read the library information.
02	10	Security Password changed. The system is now locked (password protected mode) until the user unlocks it.
02	11	<p>Video Mode changed. ESCX0211000100020x</p> <p>x = video mode code video mode Code is: 0 = vision GUI active 1 = video pass-through mode active</p>

02	15	FrontPanelStatusChanged: ESCX02150010001x x = front panel code Front Panel Code is: 0 = disc removed (ejected) 1 = disc inserted
02	16	Play queue has changed.

The Remote Button / Keyboard commands are used when the video output of the FireBall system is displayed on a TV or large screen projector and it is desired to directly select the FireBall control functions through an external control system.

The up, down, left, right, and select functions can be used to navigate objects on the screen and select them. The active FireBall control function is highlighted and the selection cursor is moved over it.

Various other commands are used to mimic the operation of the remote control. Note that the command response will be "OK" as long as the key code is a valid one, even though the system may ignore the key if the system is in a mode where the key would not normally be processed.

Remote Button / Keyboard Commands

COMMAND GROUP	SUB COMMAND NUMBER	COMMAND DESCRIPTION
10	00	N/A
10	01	Left
10	02	Up
10	03	Right
10	04	Down
10	05	Select
10	06	Move To X and Y Coordinates and Select
10		The upper left point on the screen is (0,0) and the resolution of the screen is 720 by 480 pixels.
10	07	Power Toggle
10	08	Power On
10	09	Power Off
10	10	"0"
10	11	"1"
10	12	"2"
10	13	"3"
10	14	"4"
10	15	"5"
10	16	"6"

10	17	"7"
10	18	"8"
10	19	"9"
10	20	"~"
10	21	" "
10	22	"/'"
10	23	" "
10	24	"?"
10	25	"@"
10	26	"_"
10	27	" "
10	28	"*"
10	29	"#"
10	30	Page +
10	31	Page -
10	32	N/A
10	33	Mode Play – Repeat Off, Random Off
10	34	Mode Play – Repeat On, Random Off
10	35	Mode Play – Repeat On, Random Off
10	36	Mode Play – Repeat Off, Random On
10	37	Mode Play – Repeat Off, Random On
10	38	Mode Play – Repeat On, Random On
10	39	Setup
10	40	Option
10	41	Home
10	42	N/A
10	43	N/A
10	44	Back
10	45	Info
10	46	Menu (DVD Menu and Music Now Playing)
10	47	N/A
10	48	N/A
10	49	N/A
10	50	N/A
10	51	N/A
10	52	Repeat Toggle
10	53	Macro
10	54	Play
10	55	Stop
10	56	Pause
10	57	Previous Chapter / Previous Track (<<)
10	58	Next Chapter / Next Track (>>)
10	59	Record
10	60	Movies Menu
10	61	Music Menu
10	62	Radio Menu (Rhapsody)

10	63	N/A
10	64	N/A
10	65	N/A
10	66	N/A
10	67	Add Favorites
10	68	Play Favorites
10	69	Random Toggle
10	70	Fast Forward (>>) (Space)
10	71	Rewind (<<) (Backspace)
10	72	N/A
10	73	Photos Menu
10	74	"A"
10	75	"B"
10	76	"C"
10	77	"D"
10	78	"E"
10	79	"F"
10	80	"G"
10	81	"H"
10	82	"I"
10	83	"J"
10	84	"K"
10	85	"L"
10	86	"M"
10	87	"N"
10	88	"O"
10	89	"P"
10	90	"Q"
10	91	"R"
10	92	"S"
10	93	"T"
10	94	"U"
10	95	"V"
10	96	"W"
10	97	"X"
10	98	"Y"
10	99	"Z"

Command Format: ESCX10xx

01 – ESCX1001

02 – ESCX1002

03 – ESCX1003

04 – ESCX1004

05 – ESCX1005

06 – ESCX10060020003aaa0003bbb

aaa = X coordinate

bbb = Y coordinate

10 – ESCX1010

20 – ESCX1020

21 – ESCX1021

22 – ESCX1022

etc...

Movie and Music Database Commands

The Vision database is mainly organized by source and groups. The primary sources are Movies and Music and the primary groups are System and User. The System Music Groups (sorted by Artist/Title) have groupings such as the All group, CDs group, MP3 group, and Playlists groups. The User Music Groups (sorted by Artist/Title) contain the genres for music such as Blues, Jazz, Pop, and Rock. The System HardDrive Music Groups (sorted by Artist/Title) are a subset of the System Music Groups (sorted by Artist/Title) and filter out media that does not exist on the hard drive. The User HardDrive Music Groups (sorted by Artist/Title) are a subset of the User Music Groups (sorted by Artist/Title) and also filter out media external to the hard drive. The All movie group is in the movie system group while all other movie genres are in the user groups. Titles are returned listed in alphabetical order by title regardless of the state of the user interface.

NOTE: The following is the list of the System and User group numbers:

- aa** = which list to get groups from, where
 - 01 = System Music Groups (sorted by Artist/Title)
 - 02 = User Music Groups (sorted by Artist/Title)
 - 05 = System Movie Groups
 - 06 = User Movie Groups
 - 07 = System HardDrive Music Groups (sorted by Artist/Title)
 - 08 = User HardDrive Music Groups (sorted by Artist/Title)
 - 71 = System Music Groups (Artist only)
 - 72 = User Music Groups (Artist only)
 - 77 = System HardDrive Music Groups (Artist only)
 - 78 = User HardDrive Music Groups (Artist only)
 - 81 = System Music Groups (sorted by Title/Artist)
 - 82 = User Music Groups (sorted by Title/Artist)
 - 87 = System HardDrive Music Groups (sorted by Title/Artist)
 - 88 = User HardDrive Music Groups (sorted by Title/Artist)
 - 91 = System Music Groups (sorted by Song/Artist)
 - 92 = User Music Groups (sorted by Song/Artist)
 - 97 = System HardDrive Music Groups (sorted by Song/Artist)
 - 98 = User HardDrive Music Groups (sorted by Song/Artist)

Anywhere **aa** is referenced for a Database command, use one of the group numbers from above.

Database Command Reference:

Command	Number
Get System and User Group Counts	2001
Get Group Title Counts	2002
Get Title Names and Track Counts	2003
Get Music Track Names	2004
Play Titles	2005
Get Group Index using Group Name	2006
Get Title Index using Title Name	2007
Get Title Cover Art URL	2008
Get Title Detailed Information	2009
Get Group Names	2010
Playlist Rename	2011
Playlist Delete	2012
Playlist Bulk Add / Remove	2013
Playlist Add Track	2014
Playlist Remove Track	2015
Playlist Create New	2016
Random Track List from Group	2017
Get Titles for an Artist	2018
Playlist Copy and Rename	2019
Playlist Swap Two Tracks	2020
Front Panel Drive Information	2021

Database Command Examples:

Database Command Details:

COMMAND GROUP	SUB COMMAND	DESCRIPTION
20	01	Get number of groups (genres) in the database
20		<p>ESCX20010010002aa</p> <p><i>Reply Format:</i> ESCX20010010004xxxx, Where xxxx = total number of groups in the specified list</p> <p>Once the total number of groups is known, you can ask information for a range of groups using the 02 subcommand</p>
20	02	Get group information
20		<p>ESCX20020030002aa0004bbbb0004cccc</p> <p>bbbb = starting group number cccc = ending group number</p>
20		<p><i>Reply Format:</i> ESCX2002xxxGROUP1GROUP2etc..., Where xxx = total number of groups multiplied by 2, Each group is made up two items so</p>
20		GROUP1 above = XXXXxxxxYYYYyyyyyyyy where

		<p>XXXX = length of item #1, by default this is 0003 but may be 0004 if there are more than 999 titles in the group</p> <p>xxxx = number of titles in the group</p> <p>YYYY = length of item #2 (length of group name)</p> <p>yyyyyyyyy = group name (length depends on YYYY)</p>
		GROUP2, etc... have the same format as GROUP1
20	03	<p>Get title (music or movie) information (includes Playlists because they are virtual CD titles).</p> <p>Get song name for groups 91-98, where 'title' is actually the song name and 'title number' is the song number.</p> <p>Get artist name for groups 71-78, where the 'title' is actually the artist's name and 'title number' is the artist number.</p>
20		<p>ESCX20030040002aa0004bbbb0004cccc0004dddd</p> <p>bbbb = group number to get titles for</p> <p>0001 – For Vision systems set the group number to this for the playlist queue (use the System Music Group list 01)</p> <p>cccc = starting title number</p> <p>dddd = ending title number</p>
		<p><i>Reply Format:</i> ESCX2003xxxTITLE1TITLE2etc...,</p> <p>Where xxx = total number of titles multiplied by 2,</p> <p>Each title is made up of two items so</p>
		<p>TITLE1 above = 0003xxxyyyyzzzzzzzzzz</p> <p>0003 = length of item #1 (always 3)</p> <p>xxx = number of tracks in the title for Music, running time of title for Movie, set to 0000 for this artist if the list number in the request is 71-78</p> <p>yyyy = length of item #2 (length of title)</p> <p>zzzzzzzzzz = music artist-title(artist name for groups 71-78, title-artist or song-artist)/movie title (length depends on yyyy)</p>
		TITLE2, etc... have the same format as TITLE1
20		<p>ESCX20030050002aa0004bbbb0004cccc0004dddd0002ff</p> <p>bbbb = group number to get titles for</p> <p>cccc = starting title number</p> <p>dddd = ending title number</p> <p>ff = reply format</p> <p>00 = Reply format same as above</p> <p>01 = Reply format separates Title/Artist info (or Song/Artist info)</p> <p>02 = Reply format same as '00' plus field for changer status</p> <p>03 = Reply format same as '01' plus field for changer status</p>
		<p><i>Reply Format of '01' is as follows</i></p> <p><i>Reply Formats:</i> ESCX2003xxxINFO1 INFO2 etc...,</p> <p>Where xxx = total number of info items multiplied by 3,</p> <p>Each info item is made up of three items so</p>
		<p>INFO1 above = 0003aaabbbccccccddddeeeeeee</p> <p>0003 = length of item #1 (always 3)</p> <p>aaa = number of tracks in the title for Music, running time of</p>

		<p>title for Movie, number of titles for this artist if the list number in the request is 71-78</p> <p>bbbb = length of item #2 (length of title), set to 0000 if the list number in the request is 71-78</p> <p>cccccc = title (length depends on bbbb)</p> <p>dddd = length of item #3 (length of artist name)</p> <p>eeeeee = artist name for Music (length depends on dddd)</p>
		TITLE_ARTIST2, etc... have the same format as TITLE_ARTIST1
		<i>Reply Format of '02' is as follows:</i>
		<i>Reply Format: ESCX2003xxxTITLE1TITLE2etc...,</i> Where xxx = total number of titles multiplied by 3, Each title is made up of three items so
		<p>TITLE1 above = 0003xxxyyyzzzzzzzzzz0002aa</p> <p>0003 = length of item #1 (always 3)</p> <p>xxx = number of tracks in the title for Music, running time of title for Movie, number of titles for this artist if the list number in the request is 71-78</p> <p>yyyy = length of item #2 (length of title)</p> <p>zzzzzzzz = music artist-title(artist name, title-artist or song-artist)/movie title (length depends on yyyy)</p> <p>0002 = length of item #3 (always 2)</p> <p>aa = availability code</p> <p>00 = Unavailable (inuse)</p> <p>01 = Available</p>
		TITLE2, etc... have the same format as TITLE1
		<i>Reply Format of '03' is as follows</i>
		<i>Reply Formats: ESCX2003xxxINFO1 INFO2 etc...,</i> Where xxx = total number of info items multiplied by 4, Each info item is made up of three items so
		<p>INFO1 above = 0003aaabbbccccccddddeeeeeee0002ff</p> <p>0003 = length of item #1 (always 3)</p> <p>aaa = number of tracks in the title for Music, running time of title for Movie, number of titles for this artist if the list number in the request is 71-78</p> <p>bbbb = length of item #2 (length of title), set to 0000 if the list number in the request is 71-78</p> <p>cccccc = title (length depends on bbbb)</p> <p>dddd = length of item #3 (length of artist name)</p> <p>eeeeee = artist name for Music (length depends on dddd)</p> <p>0002 = length of item #4 (always 2)</p> <p>ff = availability code</p> <p>00 = Unavailable (inuse)</p> <p>01 = Available</p>
		TITLE_ARTIST2, etc... have the same format as TITLE_ARTIST1
20	04	Get track information
20		ESCX20040050002 aa 0004 bbbb 0004 cccc 0004 dddd 0004 eeee
		<p>bbbb = group number to get tracks for</p> <p>0001 – For Vision systems set the group number to this for the</p>

		<p>playlist queue (use the System Music Group list 01 and starting and number should be 0001 and ending track number should be the number of items in the queue)</p> <p>cccc = title number to get tracks for (ignored if sorted by Song/Artist)</p> <p>0001 – if getting tracks for the playlist queue.</p> <p>dddd = starting track number</p> <p>eeee = ending track number</p>
		<p><i>Reply Format:</i> ESCX2004xxxTRACK1TRACK2etc..., Where xxx = total number of tracks, Each TRACK is made of one item so: TRACK1 = yyyyzzzzzzz yyyy = length of track name zzzzzzz = track name (length depends on yyyy) TRACK2, etc... have the same format as TRACK1</p>
20		<p>ESCX20040060002aa0004bbbb0004cccc0004dddd0004eeee0002ff</p>
		<p>bbbb = group number to get tracks for</p> <p>cccc = title number to get tracks for (ignored if sorted by Song/Artist)</p> <p>dddd = starting track number</p> <p>eeee = ending track number</p> <p>ff = reply format</p> <p>00 = Reply format uses track names (same as above)</p> <p>01 = Reply format uses file urls</p> <p>02 = Reply format uses detailed track info</p>
		<p><i>Reply Formats of '00' and '01' are as follows</i></p> <p><i>Reply Format:</i> ESCX2004xxxTRACK1INFOTRACK2INFOetc..., Where xxx = total number of tracks, Each TRACK is made of one item so: TRACK1INFO = yyyyzzzzzzz yyyy = length of track info zzzzzzz = track info (length depends on yyyy) TRACK2INFO, etc... have the same format as TRACK1INFO</p> <p><i>Reply Format of '02' is as follows</i></p> <p><i>Reply Format:</i> ESCX2004xxxTRACK1INFOTRACK2INFOetc..., Where xxx = total number of tracks multiplied by 4 Each TRACK is made of four items so: TRACK1INFO = xxxxXXXXXXXXYyyyYYYYYYzzzzZZZZaaaaAAAA xxxx = length of track name XXXXXXXX = track name (length depends on xxxx) Yyyy = length of track url YYYYYYY = track url (length depends on yyyy) Zzzz = length of track bitrate ZZZZ = track bitrate (length depends on zzzz) Aaaa = length of track length AAAA = track length in seconds (length depends on aaaa) TRACK2INFO, etc... have the same format as TRACK1INFO</p>

20	05	Play Movie (Note: Use 2049 to play Music)
20		ESCX20050040002aa0004 bbbb 0004 cccc 0004 dddd bbbb = group number cccc = movie number dddd = 0
20	06	Get group number for a specific music or movie genre by name.
20		ESCX20060020002aa BBBB bbbbbbbb BBBB = length of the group name bbbbbbbb = which group you want the number for
20		01 – System Music group name examples are: All, Playlists, CDs, MP3s
20		02 –User Music group name examples are: Blues/Folk Classical Country Dance Easy Listening Family HipHop-Rap Jazz Latin New Age Other Pop R&B/Soul Rock Soundtracks
20		<i>Reply Format:</i> ESCX20060010004 xxxx , Where xxxx = group number for the group specified by aaaa
20		Once group number is known, use the 02 subcommand for info.
20	07	Get title (music or movie) information by name (includes Playlists also, because they are virtual CD titles). Partial strings can be used. Case does not matter. For groups 91-98 the 'title' is actually the song name and 'title number' is the song number.
20		ESCX20070030002aa0004 bbb cccc dddd bbb = group number to get title for cccc = length of the title/Playlist name dddd = name of title/Playlist you want the number for
		<i>Reply Format:</i> ESCX2007 xxx TITLE1TITLE2etc..., Where xxx = total number of titles/Playlists that match Multiplied by 2, each title is made up of two items so
		TITLE1 above = 0003 xxx 0004 yyyy 0003 = length of item #1 (always 3) xxx = number of tracks in the title for Music, or number of Albums for the Artist for Music groups 71-78, running time of title for Movie 0004 = length of item #2 (always 4)

		zzzz = title number
		Most likely only one title will be returned for this command, however if you have duplicate titles, TITLE2, etc... have the same format as TITLE1
		Once the title/Playlist number and the number of tracks are known you can use the 04 – Get track information command or the 05 – Play music track/Playlist command.
20		Get title (music or movie) information by name (includes Playlists also, because they are virtual CD titles). Partial strings can be used. Case does not matter. For groups 91-98 the 'title' is actually the song name and 'title number' is the song number.
		ESCX20070030002 aa 0004 bbbb cccc ddde bbbb = group number to get title for cccc = length of the title/Playlist name dddd = name of title/Playlist you want the number for ee = reply format 00 = as above 01 = with changer availability codes (see below)
		<i>Reply Format:</i> ESCX2007 xxx TITLE1TITLE2etc..., Where xxx = total number of titles/Playlists that match Multiplied by 3, each title is made up of three items so
		TITLE1 above = 0003 xxx 0004 yyyy 0002 zz 0003 = length of item #1 (always 3) xxx = number of tracks in the title for Music, running time of title for Movie 0004 = length of item #2 (always 4) yyyy = title number 0002 = length of item #3 (always 2) zz = changer availability 00 = in-use 01 = available
		Most likely only one title will be returned for this command, however if you have duplicate titles, TITLE2, etc... have the same format as TITLE1
20	08	Once the title/Playlist number and the number of tracks are known you can use the 04 – Get track information command or the 05 – Play music track/Playlist command.
20		ESCX20080040002 aa 0004 bbbb 0004 cccc 0004 dddd bbbb = group number to get titles for cccc = starting title number dddd = ending title number
		<i>Reply Format:</i> ESCX2008 xxx TITLE1TITLE2etc..., Where xxx = total number of titles Each title is made up of one item so
		TITLE1 above = xxxx yyyyyyyyyy xxxx = length of cover art url yyyyyyyyyy = cover art url
		TITLE2, etc... have the same format as TITLE1

20		Once the title/Playlist number and the number of tracks are known you can use the 04 – Get track information command or the 05 – Play music track/Playlist command.
		ESCX20080050002aa0004bbbb0004cccc0004dddd0002ee bbbb = group number to get titles for cccc = starting title number dddd = ending title number ee = Reply format 00 = reply as above format 01 = Add availability codes (see below)
		<i>Reply Format:</i> ESCX2008xxxTITLE1TITLE2etc..., Where xxx = total number of titles Each title is made up of one item so
		TITLE1 above = xxxxyyyyyyyyyy0002zz xxxx = length of cover art url yyyyyyyyyy = cover art url 0002 = length of item #2 (always 2) zz = availability code 00 = in use 01 = available
		TITLE2, etc... have the same format as TITLE1
20	09	Get title (music or movie) detailed information (includes Playlists because they are virtual CD titles)
20		ESCX20090040002aa0004bbbb0004cccc0004dddd bbbb = group number to get titles for cccc = starting title number dddd = ending title number
		<i>Reply Format:</i> ESCX2009xxxTITLE1TITLE2etc..., Where xxx = total number of titles multiplied by 2, Each title is made up of two or four items so
		For Music, TITLE1 above = xxxxXXXXyyyyYYYY xxxx = length of item #1 (length of year/channels) XXXX = year of title for Music (length depends on xxxx) yyyy = length of item #2 (length of label/location) YYYY = record label for Music (length depends on yyyy)
		For Movies, TITLE1 above = wwwWWWWxxxxXXXXyyyyYYYYzzzzZZZZ www = length of item #1 (length of year) WWW = year of title for Movies (length depends on www) xxxx = length of item #2 (length of rating) XXXX = rating of title for Movies (length depends on xxxx) yyyy = length of item #3 (length of cast) YYYY = cast list of title for Movies (length depends on yyyy) zzzz = length of item #4 (length of description) ZZZ = description of title for Movies (length depends on zzzz)
		TITLE2, etc... have the same format as TITLE1
20		ESCX20090050002aa0004bbbb0004cccc0004dddd0002ee

		<p>bbbb = group number to get titles for cccc = starting title number dddd = ending title number ee = reply format 00 = same response as above 01 = return year, label, title, artist, number of tracks, total length, genre and coverart url 02 = same response as '00' plus changer availability code 03 = same response as '01' plus changer availability code (Music only, Movies will have same response as above)</p>
		<p><i>Reply Format '00' and '02':</i> ESCX2009xxxTITLE1TITLE2etc..., Where xxx = total number of titles multiplied by 2 (Music) or multiplied by 4 (Movies) for Format 00. or xxx = total number of titles multiplied by 3 (Music) or multiplied by 5 (Movies) for Format 02. Each title is made up of multiple items so</p>
		<p>For Music TITLE1 above = xxxxXXXXyyyyYYYY (Format '00') TITLE1 above = xxxxXXXXyyyyYYYY0002zz (Format '02') xxxx = length of item #1 (length of year/channels) XXXX = year of title for Music (length depends on xxxx) yyyy = length of item #2 (length of label/location) YYYY = record label for Music (length depends on yyyy) 0002 = length of item #3 (always 2) zz = availability code 00 = in use 01 = available</p>
		<p>For Movies, TITLE1 above = jjjjJJJJxxxxXXXXyyyyYYYYzzzzZZZZ ('00') TITLE1 above = jjjjJJJJxxxxXXXXyyyyYYYYzzzzZZZZ0002aa ('02') jjjj = length of item #1 (length of year) JJJJ = year of title for Movies (length depends on jjjj) xxxx = length of item #2 (length of rating) XXXX = rating of title for Movies (length depends on xxxx) yyyy = length of item #3 (length of cast) YYYY = cast list of title for Movies (length depends on yyyy) zzzz = length of item #4 (length of description) ZZZ = description of title for Movies (length depends on zzzz) 0002 = length of item #5 (always 2) aa = availability code 00 = in use 01 = available</p>
		<p>TITLE2, etc... have the same format as TITLE1</p>
		<p><i>Reply Formats '01' and '03' for Music is as follows:</i> <i>Reply Format:</i> ESCX2009xxxTITLE1TITLE2etc..., Where xxx = total number of titles multiplied by 8: (Format '01') or xxx = total number of titles multiplied by 9: (Format '03') NOTE: this implies a limit of 124 items since $8 \times 125 > 999$</p>

		Each title is made up of eight items so TITLE1 above = ssssSSSSttttTTTTuuuuUUUUvvvvVVVVwwwWWWWxxxxXXXxyyyYYYYzzzzZZZZ (Format '01') TITLE1 above = ssssSSSSttttTTTTuuuuUUUUvvvvVVVVwwwWWWWxxxxXXXxyyyYYYYzzzzZZZZ0002aa (Format '03') ssss = length of item #1 (length of year) SSSS = year of title (length depends on ssss) tttt = length of item #2 (length of label) TTTT = record label (length depends on tttt) uuuu = length of item #3 (length of title) UUUU = record title (length depends on uuuu) vvvv = length of item #4 (length of artist) VVVV = record artist (length depends on vvvv) www = length of item #5 (number of tracks) WWWW = total number of tracks (length depends on www) xxxx = length of item #6 (length of total music length in minutes) XXXX = total length all tracks in seconds (length depends on xxxx) yyy = length of item #7 (length of genre) YYYY = record genre (length depends on yyy) zzzz = length of item #8 (length of coverart url) ZZZZ = record coverart url (length depends on zzzz) aa = availability code 00 = in use 01 = available
		TITLE2, etc... have the same format as TITLE1
20	10	Get group names
20		ESCX20100030002 aa 0004 bbbb 0004 cccc bbbb = starting group number cccc = ending group number
20		<i>Reply Format:</i> ESCX2010 xxx GROUP1GROUP2etc..., Where xxx = total number of groups. If the starting group number and ending group number are both equal to zero, all groups in the list are returned. Each group is made up of one item so
20		GROUP1 above = xxxxyyyyyyyy where xxxx = length of group name yyyyyyyy = group name (length depends on xxxx)
20	11	Change music playlist name (can be used for Jukebox also)
20		ESCX20110020004 aaa bbb cccccccc aaa = which playlist to rename (number in System Music's Playlists group). If aaa =0000, this indicates Jukebox playlist bbb = length of new playlist name cccc = new name of the playlist
20		ESCX20110030004 aaa bbb cccccccc 0002 dd aaa = which playlist to rename (number in the indicated

		<p>groupings Playlists group). If aaaa=0000, this indicates Jukebox playlist and dd is ignored.</p> <p>bbbb = length of new playlist name</p> <p>cccc = new name of the playlist</p> <p>dd = which group the Playlist is from, where</p> <p>01 = System Music Groups (sorted Artist/Title) (same as above)</p> <p>07 = System HardDrive Music Groups (sorted by Artist/Title)</p> <p>81 = System Music Groups (sorted by Title/Artist)</p> <p>87 = System HardDrive Music Groups (sorted by Title/Artist)</p> <p>91 = System Music Groups (sorted by Song/Artist)</p> <p>97 = System HardDrive Music Groups (sorted by Song/Artist)</p>
20	12	Delete music playlist (can be used for Jukebox also)
20		<p>ESCX20120010004aaaa</p> <p>aaaa = which playlist to delete (number in System Music's Playlists group). If aaaa=0000, this indicates Jukebox playlist</p>
20		<p>ESCX20120020004aaaa0002bb</p> <p>aaaa = which playlist to delete (number in the indicated groupings Playlists group). If aaaa=0000, this indicates Jukebox playlist and bb is ignored.</p> <p>bb = which group the Playlist is from, where</p> <p>01 = System Music Groups (sorted Artist/Title) (same as above)</p> <p>07 = System HardDrive Music Groups (sorted by Artist/Title)</p> <p>81 = System Music Groups (sorted by Title/Artist)</p> <p>87 = System HardDrive Music Groups (sorted by Title/Artist)</p> <p>91 = System Music Groups (sorted by Song/Artist)</p> <p>97 = System HardDrive Music Groups (sorted by Song/Artist)</p>
20	13	<p>Bulk Add / remove music in the Jukebox playlist</p> <p>Add / remove can be at the group level, artist level, title level and track level. If a bulk add determines that more than 100 tracks are available, a subset of tracks are added so that at most 100 tracks are added at a time.</p>
20		<p>Below with 004 parameters will ALWAYS ADD for legacy support:</p> <p>ESCX20130040002aa0004bbbb0004cccc0004dddd</p> <p>bbbb = group number</p> <p>cccc = title number (song number if sorted by Song/Artist, artist number if sorted by Artist only list 71-72)</p> <p>If set to 0000, a random list of 100 tracks will be added from the list specified by aa and bbbb above.</p> <p>dddd = track number. If set to 0000, all title tracks in the title will be added to the jukebox playlist.</p> <p>(ignored if sorted by Song/Artist or Artist only list 71-72 or if cccc is set to 0000)</p>
20		ESCX20130050002 aa 0004 bbbb 0004 cccc 0004 dddd 0002 ee
20		<p>bbbb = group number</p> <p>cccc = title number (song number if sorted by Song/Artist,</p>

		<p>artist number if sorted by Artist only list 71-72) If set to 0000, a random list of 100 tracks will be added (if ee=00) from the list specified by aa above. dddd = track number If set to 0000, all title tracks in the title will be added to the jukebox playlist. (ignored if sorted by Song/Artist or Artist only list 71-72 or if cccc is set to 0000) ee = add / remove flag. Note that if removing by group number, the entire playlist could be deleted, if only items from that group exist in the playlist. 00 = Add 01 = Remove</p>
20		ESCX20130060002aa0004bbbb0004cccc0004dddd0002ee0002ff
20		<p>bbbb = group number cccc = title number (song number if sorted by Song/Artist, artist number if sorted by Artist only list 71-72) If set to 0000, a random list of 100 tracks will be added (if ee=00) from the list specified by aa above. dddd = track number If set to 0000, all title tracks in the title will be added to the jukebox playlist. (ignored if sorted by Song/Artist or Artist only list 71-72 or if cccc is set to 0000) ee = add / remove flag. Note that if removing by group number, the entire playlist could be deleted, if only items from that group exist in the playlist. 00 = Add 01 = Remove ff = position in playlist or queue to add track or tracks. Use -1 to add to end and -2 to next after current playing.</p>
20		ESCX20130070002aa0004bbbb0004cccc0004dddd0002ee0002ff0002gg
20		<p>bbbb = group number cccc = title number (song number if sorted by Song/Artist, artist number if sorted by Artist only list 71-72) If set to 0000, a random list of 100 tracks will be added (if ee=00) from the list specified by aa above. dddd = track number If set to 0000, all title tracks in the title will be added to the jukebox playlist. (ignored if sorted by Song/Artist or Artist only list 71-72 or if cccc is set to 0000) ee = add / remove flag. Note that if removing by group number, the entire playlist could be deleted, if only items from that group exist in the playlist. 00 = Add 01 = Remove ff = position in playlist or queue to add track or tracks. Use -1 to add to end and -2 to add next after current playing.</p>

		gg = -1 to play now.
20	14	Add music track to a playlist (can be used for Jukebox also)
20		<p>ESCX20140050004aaaa0002bb0004cccc0004dddd0004eeee</p> <p>aaaa = which playlist to change (number in the Playlists group) If set to 0000, this indicates the Jukebox playlist.</p> <p>bb = which list to get groups from (ignored if aaaa=0000)</p> <p>01 = System Music Groups (sorted by Artist/Title) 02 = User Music Groups (sorted by Artist/Title) 07 = System HardDrive Music Groups (sorted by Artist/Title) 08 = User HardDrive Music Groups (sorted by Artist/Title) 81 = System Music Groups (sorted by Title/Artist) 82 = User Music Groups (sorted by Title/Artist) 87 = System HardDrive Music Groups (sorted by Title/Artist) 88 = User HardDrive Music Groups (sorted by Title/Artist) 91 = System Music Groups (sorted by Song/Artist) 92 = User Music Groups (sorted by Song/Artist) 97 = System HardDrive Music Groups (sorted by Song/Artist) 98 = User HardDrive Music Groups (sorted by Song/Artist)</p> <p>cccc = group number dddd = title number (song number if sorted by Song/Artist) eeee = track number (ignored if sorted by Song/Artist)</p>
20	15	Delete music track from a playlist (can be used for Jukebox also)
20		<p>ESCX20150030004aaaa0002bb0004cccc</p> <p>aaaa = which playlist to change (number in the Playlists group, which indicates both the playlist and the track if sorted by Song/Artist) If set to 0000, this indicates the Jukebox playlist</p> <p>bb = which list to get Playlist group from (ignored if aaaa=0000)</p> <p>01 = System Music Groups (sorted by Artist/Title) 07 = System HardDrive Music Groups (sorted by Artist/Title) 81 = System Music Groups (sorted by Title/Artist) 87 = System HardDrive Music Groups (sorted by Title/Artist) 91 = System Music Groups (sorted by Song/Artist) 97 = System HardDrive Music Groups (sorted by Song/Artist)</p> <p>cccc = track number (ignored if sorted by Song/Artist)</p>
20	16	Create a new empty playlist
20		<p>ESCX2016001aaaabbbbbbbb</p> <p>aaaa = length of name of the new playlist bbbb = name of the new playlist</p>
20	17	Generate a list of random tracks from a group
20		ESCX20170050002 aa 0004 bbbb 0004 cccc 0004 dddd 0004 eeee
		<p>aa = which list to get groups from, where 91 = System Music Groups (sorted by Song/Artist) 92 = User Music Groups (sorted by Song/Artist)</p>

		<p>97 = System HardDrive Music Groups (sorted by Song/Artist) 98 = User HardDrive Music Groups (sorted by Song/Artist) bbbb = group number to get tracks for cccc = starting track number (if 0, assume first track in group) dddd = ending track number (if 0, assume last track in group) eeee = max number of tracks to be returned</p>
		<p><i>Reply Format:</i> ESCX2017xxxTRACK1INFOTRACK2INFOetc..., Where xxx = total number of tracks multiplied by 2, Each TRACK is made of two items so: TRACK1INFO = wwwwwwxxxxyyyyzzzzzzzz wwwwww = length of track number xxxx = track number within the indicated group yyyy = length of track info zzzzzzzz = track info (length depends on yyyy) TRACK2INFO, etc... have the same format as TRACK1INFO</p>
20		<p>ESCX20170060002aa0004bbbb0004cccc0004dddd0004eeee0002ff</p>
		<p>aa = which list to get groups from, where 91 = System Music Groups (sorted by Song/Artist) 92 = User Music Groups (sorted by Song/Artist) 97 = System HardDrive Music Groups (sorted by Song/Artist) 98 = User HardDrive Music Groups (sorted by Song/Artist) bbbb = group number to get tracks for cccc = starting track number (if 0, assume first track in group) dddd = ending track number (if 0, assume last track in group) eeee = max number of tracks to be returned ff = reply format 00 = Reply format uses track names (same as above) 01 = Reply format uses file urls 02 = Reply format uses detailed track info</p>
		<p><i>Reply Formats of '00' and '01' are as follows</i> <i>Reply Format:</i> ESCX2017xxxTRACK1INFOTRACK2INFOetc..., Where xxx = total number of tracks multiplied by 2, Each TRACK is made of two items so: TRACK1INFO = wwwwwwxxxxyyyyzzzzzzzz wwwwww = length of track number xxxx = track number within the indicated group yyyy = length of track info zzzzzzzz = track info (length depends on yyyy) TRACK2INFO, etc... have the same format as TRACK1INFO</p> <p><i>Reply Format of '02' is as follows</i> <i>Reply Format:</i> ESCX2017xxxTRACK1INFOTRACK2INFOetc..., Where xxx = total number of tracks multiplied by 5 Each TRACK is made of five items so: TRACK1INFO = wwwwwwWWWxxxxXXXXXXXXxyyyYYYYYYYzzzzZZZZaaaaAAAA</p>

		<p>www = length of track number WWW = track number within the indicated group xxxx = length of track name XXXXXXXX = track name (length depends on xxxx) yyyy = length of track url YYYYYYY = track url (length depends on yyyy) zzzz = length of track bitrate ZZZZ = track bitrate (length depends on zzzz) aaaa = length of track length AAAA = track length in seconds (length depends on aaaa) TRACK2INFO, etc... have the same format as TRACK1INFO</p> <p>Upon receiving the response, the track number within the group can be used in an ESCX2009 query to retrieve details about the track, including the year, label, title, artist, number of tracks, total length, genre and covart url.</p>
20	18	Get titles for an artist in the Artist Only database view
20		ESCX20180050002 aa 0004 bbb 0004 cccc 0004 dddd 0004 eeee
		<p>aa = which list to get titles from, where 71 = System Music Groups (Artist only) 72 = User Music Groups (Artist only) 77 = System HardDrive Music Groups (Artist only) 78 = User HardDrive Music Groups (Artist only) bbb = group number to get titles for cccc = artist number to get titles for dddd = starting title number (relative to 1, not the database num) If 0000, defaults to first title eeee = ending title number (relative to 1, not the database num) if 0000, defaults to last title</p>
		<p><i>Reply Format 00:</i> ESCX2018xxxTITLE1TITLE2etc..., Where xxx = total number of titles multiplied by 4, Each title is made up of four items so</p>
		<p>TITLE1 above = 0003xxx0004bbbyyyyzzzzzzzzzz0002aa 0003 = length of item #1 (always 3) xxx = number of tracks in the title for Music bbb = title number of this title for groups 01-08 if group in request is 71, this is title number for group 01 if group in request is 72, this is title number for group 02 if group in request is 77, this is title number for group 07 if group in request is 78, this is title number for group 08 This number can then be used in database queries and Commands where it requires a group number 01,02,07,08. yyyy = length of item #2 (length of title) zzzzzzzzzz = music title (length depends on yyyy) aa = availability code 00 = Unavailable (inuse) 01 = Available</p>
20		TITLE2, etc... have the same format as TITLE1

20	19	Copy and save current jukebox playlist as a new playlist
20		<p>ESCX2019001aaaabbbbb</p> <p>aaaa = length of new playlist name bbbbbb = name of the playlist that is a copy of the Jukebox playlist</p>
20	20	Swap two tracks in a playlist
20		<p>ESCX20200040004aaaa0002bb0004cccc0004dddd</p> <p>aaaa = which playlist to change (number in the Playlists group, ignored if sorted by Song/Artist) If set to 0000, this indicates the Jukebox playlist</p> <p>bb = which list to get Playlist group from (ignored if aaaa=0000) 01 = System Music Groups (sorted by Artist/Title) 07 = System HardDrive Music Groups (sorted by Artist/Title) 81 = System Music Groups (sorted by Title/Artist) 87 = System HardDrive Music Groups (sorted by Title/Artist)</p> <p>cccc = first track number dddd = second track number</p>
20	21	<p>ESCX20210020016-FrontPanelDrive0001x</p> <p>x = just_mediatype flag 0 = return metadata 1 = return just the media type</p> <p><i>MediaType codes:</i> 0 – Unknown 1 – CD 2 – DATA CD (mp3cd) 5 – DVD</p> <p>The following metadata is returned when requested for the different media types:</p> <p>MediaType is DVD (5)</p> <p>Field 1: Version Number (Currently 1) Field 2: MediaType (See Above) Field 3: DVD Title Field 4: Cover URL Field 5: Genre Field 6: Year Field 7: URI URI (Future Use –use FrontPanelDrive for URI when using 2047 command to play disc in front panel) Field 8: Description Field 9: Rating Field 10: Track Count (0 for DVDs)</p> <p>MediaType is CD or Data CD (1 or 2)</p> <p>Field 1: Version Number (Currently 1) Field 2: MediaType (See Above)</p>

		<p>Field 3: CD Title Field 4: Cover URL Field 5: Genre Field 6: Year Field 7: URI (Future Use – use FrontPanelDrive for URI when using 2047 command to play disc in front panel) Field 8: Artist Name Field 9: Track Count</p> <p>There are then 3 fields returned for each track on the CD:</p> <p>Field a: Track Name Field b: Track Number Field c: Track Length</p>
20	40	Get Movie Actors
		<p>ESCX20400020004aaaa0004bbbb aaaa=starting actor number bbbb=ending actor number</p>
		<p><i>Reply Format:</i></p> <p>ESCX2040xxxStartIndexEndIndexActorSet1ActorSet2...ActorSetN xxx = total number of fields returned Start Index is the index of the first actor set End Index is the index of the last actor set ActorSet Consists of three fields: Field 1: Actor Name Field 2: Number of Movies Actor is in Field 3: Blank</p>
20	41	Get Number of Actors
		ESCX2041
		<p><i>Reply Format:</i> ESCX20410010004aaaa aaaa=total number of actors</p>
20	54	Get Movies for Actor
		<p>ESCX2054003aaaaactorname0004bbbb0004cccc</p> <p>aaaa = length of actor name actorname is the name of the actor to get movies for bbbb = index of first movie to get cccc = index of last movie to get</p>
		<p><i>Reply Format:</i></p> <p>ESCX2054xxxStartIndexEndIndexMovieSet1MovieSet2...MovieSetN xxx = total number of fields returned Start Index is the index of the first movie set End Index is the index of the last movie set MovieSet Consists of three fields:</p>

		<p>Field 1: Actor Name Field 2: Movie Name Field 3: Movie URI</p> <p>Note: Use 2047 to play Movie URI</p> <p>Note: 2054 also returns a “fullsize” parameter at the end of the data to indicate the total number of movies available for that actor</p>
20	42	Get Movie Directors
		<p>ESCX20420020004aaaa0004bbbb aaaa=starting director number bbbb=ending director number</p>
		<p><i>Reply Format:</i></p> <p>ESCX2042xxxStartIndexEndIndexDirectorSet1DirectorSet2...DirectorSetN xxx = total number of fields returned Start Index is the index of the first director set End Index is the index of the last director set DirectorSet consists of three fields: Field 1: Director Name Field 2: Number of Movies for the Director Field 3: Blank</p>
20	43	Get Number of Directors
		ESCX2043
		<p>Replay Format: ESCX20430010004aaaa aaaa=total number of directors</p>
20	55	Get Movies for Director
		<p>ESCX2054003aaaadirectorname0004bbbb0004cccc</p> <p>aaaa = length of director name actorname is the name of the director to get movies for bbbb = index of first movie to get cccc = index of last movie to get</p>
		<p><i>Replay Format:</i></p> <p>ESCX2054xxxStartIndexEndIndexMovieSet1MovieSet2...MovieSetN xxx = total number of fields returned Start Index is the index of the first movie set End Index is the index of the last movie set MovieSet Consistes of three fields: Field 1: Director Name Field 2: Movie Name Field 3: Movie URI</p>

		Note: Use 2047 to play Movie URI Note: 2055 also returns a "fullsize" parameter at the end of the data to indicate the total number of movies available for that director
20	47	Play URI
20		The 2047 command is used to play a URI returned by the 2054 or 2055 commands or to play a CD or DVD in the front panel drive. For DVD URI: ESCX204700300040001 aaaa URI bbbb playtype aaaa = length of URI URI = the URI returned by the 2054 or 2055 command bbbb = length of playtype playtype = beginning or resume For DVD in front panel drive ESCX2047003000400010016-FrontPanelDrive aaaa playtype aaaa = length of playtype playtype = beginning or resume For CD in front panel drive ESCX20470020004 aaaa 0016-FrontPanelDrive aaaa = track number on CD to play
20	49	Play Music Now (Note: Use 2013 to add music to queue)
20		ESCX20490040002 aa 0004 bbbb 0004 cccc 0004 dddd bbbb = group number cccc = album number dddd = track number
20	51	Play Track in Queue
		ESCX20510010004 aaaa aaaa = track number
20	52	Get Slideshow Names
		ESCX20520020004 aaaa 0004 bbbb aaaa =starting slideshow number bbbb =ending slideshow number
		<i>Replay Format:</i> ESCX2052 xxx StartIndexEndIndexSlideShowSet1SlideShowSet2...Sli

		<p>deShowSetN</p> <p>xxx = total number of fields returned Start Index is the index of the first slideshow set End Index is the index of the last slideshow set SlideShowSet Consists of three fields: Field 1: SlideShow Name Field 2: Blank Field 3: Blank</p> <p>Note: 2052 also returns a “fullsize” parameter at the end of the data to indicate the total number of slideshows available</p>
20	53	Get Photo URLs
		<p>ESCX20530030004aaaa0004bbbbccccslideshowname</p> <p>aaaa=starting photo number bbbb=ending photo number cccc=slideshow name length slideshowname is the name of the slideshow to get photos for</p>
		<p><i>Replay Format:</i></p> <p>ESCX2053xxxStartIndexEndIndexPhotoSet1PhotoSet2...PhotoSetN</p> <p>xxx = total number of fields returned Start Index is the index of the first photo set End Index is the index of the last photo set PhotoSet Consists of three fields: Field 1: Photo Name Field 2: Blank Field 3: URL</p> <p>Note: 2053 also returns a “fullsize” parameter at the end of the data to indicate the total number of slideshows available</p>

Rhapsody Interface Commands

Rhapsody Command Reference:

Command	Number
Get Root Genre	2110
Get Key Albums For Genre	2111
Get Top Albums For Genre	2112
Get Key Artists For Genre	2113
Get Top Artists For Genre	2114
Get Top Tracks For Genre	2115
Get Top Albums For Artist	2116
Get Top Tracks For Artist	2117
Get Top Albums	2118
Get Top Artists	2119
Get Top Tracks	2120
Get Top Radio Stations	2121
Get Top Radio Stations For Genre	2122
Get Programmed Radio Stations	2123
Get Programmed Radio Stations For Genre	2124
Get Genres In Library	2125
Get Albums In Library	2126
Get Artists In Library	2127
Get Albums For Genre Tree In Library	2128
Get Artists For Genre Tree In Library	2129
Get Albums For Artists In Library	2130
Get All Tracks For Album In Library	2131
Get Tracks In Library	2132
Get Playlists In Library	2132
Get Stations In Library	2133
Get Tracks For Playlist	2134
Get Sub Genres	2136
Get New Releases	2137
Get Albums For You	2138
Get Staff Picks	2139
Get Tracks For Genre Sampler	2140
Get Tracks For Artist Sampler	2141
Get Artist Stations	2142
Get Artists For Genre By Priority	2143
Search Albums By Keywords	2144
Search Artists By Keywords	2145
Search Tracks By Keywords	2146
Search Composers By Keywords	2147
Fast Find Albums	2148
Fast Find Artists	2149
Fast Find Tracks	2150

Get Image For Artist	2151
Get Image For Album	2152
Get Record (album)	2180
Add Tracks To Playlist	2181
Play Rhapsody Station	2182

Rhapsody Command Details:

Send Command Format:

Each Rhapsody command consists of the ESCX preamble, the command number, the number of parameters and one, two or three command parameters. The command parameters are the start and end index and the Rhapsody ID. Depending on the command type, the parameters can be just the start and end index, the start and end index plus the Rhapsody ID, or just the Rhapsody ID. All Rhapsody indexes are zero based.

Here are several examples:

Note: The blank spaces in the following commands are for readability only and should not be included in the actual commands.

Range only (2 parameters):

ESCX2110 002 0004 0000 0004 0008

Range and Rhapsody ID (3 parameters):

ESCX2111 003 0006 g.1234 0004 0000 0004 0008

Rhapsody ID Only (1 parameter):

ESCX21800 001 0009 Art.12345

The following table provides the Send format for each Rhapsody command

CMD #	Description	Count	First Parameter	Second Parameter	Third Parameter
2110	Get Root Genre	2	Start Index	End Index	
2111	Get Key Albums For Genre	3	Genre ID	Start Index	End Index
2112	Get Top Albums For Genre	3	Genre ID	Start Index	End Index
2113	Get Key Artists For Genre	3	Genre ID	Start Index	End Index
2114	Get Top Artists For Genre	3	Genre ID	Start Index	End Index
2115	Get Top Tracks For Genre	3	Genre ID	Start Index	End Index
2116	Get Top Albums For Artist	3	Artist ID	Start Index	End Index
2117	Get Top Tracks For Artist	3	Artist ID	Start Index	End Index
2118	Get Top Albums	2	Start Index	End Index	
2119	Get Top Artists	2	Start Index	End Index	
2120	Get Top Tracks	2	Start Index	End Index	

2121	Get Top Radio Stations	2	Start Index	End Index	
2122	Get Top Radio Stations For Genre	3	Genre ID	Start Index	End Index
2123	Get Programmed Radio Stations	2	Start Index	End Index	
2124	Get Programmed Radio Stations For Genre	3	Genre ID	Start Index	End Index
2125	Get Genres In Library	2	Start Index	End Index	
2126	Get Albums In Library	2	Start Index	End Index	
2127	Get Artists In Library	2	Start Index	End Index	
2128	Get Albums For Genre Tree In Library	3	Genre ID	Start Index	End Index
2129	Get Artists For Genre Tree In Library	3	Genre ID	Start Index	End Index
2130	Get Albums For Artists In Library	3	Artist ID	Start Index	End Index
2131	Get All Tracks For Album In Library	3	Album ID	Start Index	End Index
2132	Get Tracks In Library	2	Start Index	End Index	
2133	Get Playlists In Library	2	Start Index	End Index	
2134	Get Stations In Library	2	Start Index	End Index	
2135	Get Tracks For Playlist	3	Album ID	Start Index	End Index
2136	Get Sub Genres	3	Genre ID	Start Index	End Index
2137	Get New Releases	2	Start Index	End Index	
2138	Get Albums For You	2	Start Index	End Index	
2139	Get Staff Picks	2	Start Index	End Index	
2140	Get Tracks For Genre Sampler	3	Genre ID	Start Index	End Index
2141	Get Tracks For Artist Sampler	3	Artist ID	Start Index	End Index
2142	Get Artist Stations	1	Artist ID		
2143	Get Artists For Genre By Priority	3	Genre ID	Start Index	End Index
2144	Search Albums By Keywords	3	Keyword	Start Index	End Index
2145	Search Artists By Keywords	3	Keyword	Start Index	End Index
2146	Search Tracks By Keywords	3	Keyword	Start Index	End Index
2147	Search Composers By Keywords	3	Keyword	Start Index	End Index
2148	Fast Find Albums	3	Search String	Start Index	End Index
2149	Fast Find Artists	3	Search String	Start Index	End Index
2150	Fast Find Tracks	3	Search String	Start Index	End Index
2151	Get Image For Artist	1	Artist ID		
2152	Get Image For Album	1	Album ID		
2180	Get Record (album)	1	Album ID		
2181	Add Tracks To Playlist	5or 6	See details below		
2182	Play Rhapsody Station	1	Station ID		

2181 - Add Tracks To Playlist Details:

Parameter 1: Album ID or Album ID with Track reference (e.g. Alb.123 ?item=3)

Parameter 2: Track number (use 0 if adding entire Album or if track ref included in Parameter 1)

Parameter 3: Number of Tracks to add (use -1 to add entire Album)

Parameter 4: Playlist Name (use [QUEUE] to add to Now Playing Queue)

Parameter 5: Position in playlist (use -1 for next and -2 for end)

Parameter 6: Send -1 to play now or only send 5 parameters to just add tracks

Return Data Format:

All data returned from a Rhapsody command start with the ESCX preamble, the command number, and the number of fields returned. For most Rhapsody commands (all commands except for 2151, 2152, 2180, 2181, and 2182) the returned fields are organized in 3 field sets. The first and second fields are always metadata such as Genre, Artist, Album, and Track name and the third field is always the Rhapsody ID. The data in one or two of the fields may be blank but the fields are still represented. Each field begins with 4 integers that indicate the size of the data in the remainder of the field. Here are several examples:

Three complete data fields:

```
0010ArtistName0009Album0009NameArt.12345
```

Second data field is blank:

```
0004Rock00000005g.123
```

In addition to the field data, all Rhapsody commands that include a start and end index in the corresponding Send command also provide the start and end index at the beginning of the returned data and also provide a "fullsize" parameter at the end of the returned data. The "fullsize" parameter is the number of indexes in the requested set. Note: the sent indexes are 0 based but the returned indexes are 1 based.

Here is an example of a Rhapsody send and return data format:

Note: The blank spaces in the following commands are for readability only and should not be included in the actual commands.

Get Root Genre: (starting at index 1 and ending at index 1)

Command Sent:

```
ESCX2110 002 0004 0000 0004 0001
```

Data Received:

ESCX2110 011 0001 1 0001 2 0008 Rock/Pop 0000 0003 g.5 0011 Rap/Hip-Hop 0000 0005 g.146 0001 1 0008 fullsize 0002 19

Here is a breakdown of the above returned data:

ESCX2110 Preamble and command number
 0011 Number of returned fields is 11
 0001 1 The beginning index is 1
 0001 2 The ending index is 2

Starting field data in 3 field sets:

0008 Rock/Pop First field is the Genre name (Rock/Pop)
 0000 Second field is blank
 0003 g.5 Third field is the Genre ID (g.5)

0011 Rap/Hip-Hop First field is the Genre name (Rap/Hip-Hop)
 0000 Second field is blank
 0003 g.146 Third field is the Genre ID (g.146)

Fullsize parameter:

0001 1 The number of sub parameters returned
 0008 fullsize The parameter type is fullsize
 0002 19 The value of the parameter is 19 (19 genres in this index)

The following table indicates the data in each of the three fields in the Rhapsody field sets

CMD #	Description	First Field	Second Field	Third Field
2110	Get Root Genre	Genre Name	Blank	Genre ID
2111	Get Key Albums For Genre	Album Name	Artist Name	Album ID
2112	Get Top Albums For Genre	Album Name	Artist Name	Album ID
2113	Get Key Artists For Genre	Artist Name	Blank	Artist ID
2114	Get Top Artists For Genre	Artist Name	Blank	Artist ID
2115	Get Top Tracks For Genre	Track Name	Album Name	AlbumID?item=#
2116	Get Top Albums For Artist	Album Name	Artist Name	Album ID
2117	Get Top Tracks For Artist	Track Name	Album Name	AlbumID?item=#
2118	Get Top Albums	Album Name	Artist Name	Album ID
2119	Get Top Artists	Artist Name	Blank	Artist ID
2120	Get Top Tracks	Track Name	Album Name	AlbumID?item=#
2121	Get Top Radio Stations	Station Name	Blank	Station ID
2122	Get Top Radio Stations For Genre	Station Name	Blank	Station ID
2123	Get Programmed Radio Stations	Station Name	Blank	Station ID

2124	Get Programmed Radio Stations For Genre	Station Name	Blank	Station ID
2125	Get Genres In Library	Genre Name	Blank	Genre ID
2126	Get Albums In Library	Album Name	Artist Name	Album ID
2127	Get Artists In Library	Artist Name	Blank	Artist ID
2128	Get Albums For Genre Tree In Library	Album Name	Artist Name	Album ID
2129	Get Artists For Genre Tree In Library	Artist Name	Blank	Artist ID
2130	Get Albums For Artists In Library	Album Name	Artist Name	Album ID
2131	Get All Tracks For Album In Library	Track Name	Album Name	AlbumID?item=#
2132	Get Tracks In Library	Track Name	Album Name	AlbumID?item=#
2133	Get Playlists In Library	Playlist Name	Blank	Playlist ID
2134	Get Stations In Library	Station Name	Blank	Station ID
2135	Get Tracks For Playlist	Track Name	Playlist Name	AlbumID?item=#
2136	Get Sub Genres	Genre Name	Blank	Genre ID
2137	Get New Releases	Album Name	Artist Name	Album ID
2138	Get Albums For You	Album Name	Artist Name	Album ID
2139	Get Staff Picks	Album Name	Artist Name	Album ID
2140	Get Tracks For Genre Sampler	Track Name	Album Name	AlbumID?item=#
2141	Get Tracks For Artist Sampler	Track Name	Album Name	AlbumID?item=#
2142	Get Artist Stations	Station Name	Blank	Station ID
2143	Get Artists For Genre By Priority	Artist Name	Blank	Artist ID
2144	Search Albums By Keywords	Album Name	Artist Name	Album ID
2145	Search Artists By Keywords	Artist Name	Blank	Artist ID
2146	Search Tracks By Keywords	Track Name	Album Name	AlbumID?item=#
2147	Search Composers By Keywords	Composer Name	Blank	Composer ID
2148	Fast Find Albums	Album Name	Artist Name	Album ID
2149	Fast Find Artists	Artist Name	Blank	Artist ID
2150	Fast Find Tracks	Track Name	Album Name	AlbumID?item=#

Data returned for the other Rhapsody commands:

#	Description	Field
2151	Get Image For Artist	Cover URL
2152	Get Image For Album	Cover URL
2180	Get Record (album)	See Below
2181	Add Tracks To Playlist	No Data Returned
2182	Play Rhapsody Station	No Data Returned

The Rhapsody 2180 command returns the meta and ID data for a Rhapsody Album. The first 10 fields contain general metadata for the album. These general fields will be referred to below as Album fields. The 11th field contains the track count. The remaining fields contain

the track data for each track on the album. Each track field set consists of 6 fields. There will be a track field set for each track on the Album. Below are the meta and ID data information for each field:

Album Field 1: Version Number*
Album Field 2: Album ID
Album Field 3: Album Name
Album Field 4: Artist ID
Album Field 5: Artist Name
Album Field 6: Large Cover URL
Album Field 7: Small Cover URL
Album Field 8: Genre Name
Album Field 9: Genre ID
Album Field 10: Release Year

Album Field 11: Track Count

Track Field 1: Track Name
Track Field 2: Track ID
Track Field 3: Album ID
Track Field 4: Track Number on Current Album
Track Field 5: Track Number on Current Album Set**
Track Field 6: Track Length in Seconds

Version number is currently always 1 but may change if the format of the data returned is changed in a software update.

If the Album is part of a multi-CD set then the track number in field 5 is for the complete set. For example, if the track number is 3 in field 4 but is on Album 2 of a set and the first album has 10 tracks then the value in field 5 will be 13.

Status Commands

COMMAND GROUP	SUB COMMAND	DESCRIPTION
50	01	Get power state
50		<i>Reply Format:</i> ESCX50010010003 xxx , Where xxx = a 3 character string "ON " if power on "OFF" if power is off (standby mode)
50	02	Get music play mode
50		<i>Reply Format:</i> ESCX50020010002 xx , Where xx = music play mode, where 01 = Repeat Off, Random Off 02 = Repeat On, Random Off 05 = Repeat Off, Random On 06 = Repeat On, Random On
50	06	Get Security State
50		<i>Reply Format:</i> ESCX50060010002 xx Where xx = 01 = Not Protected. 02 = Protected
50	07	Get FireBall manufacture information
50		<i>Reply Format:</i> ESCX5007002 xxxxaaaayyyybbbb Where xxxx,yyyy = length of the respective strings aaaa = Production model # (IE FireBall-E2) bbbb = Software Version # (usually of the format x.x.x.x)
50	08	Get current playing information
		<i>Reply Format:</i> ESCX5008aaa0002bb0002ccData1Data2...DataN aaa = number of items returned bb = media type cc = play state The type and number of Data fields depends on media type and is defined below. Media types: 00 = Unknown 01 = CD in Front Panel 02 = CD in Changer 03 = DVD in Front Panel 04 = DVD in Changer 05 = Data CD in Front Panel

06 = Data CD in Changer
07 = Movie on Hard Drive
08 = Music on Hard Drive
09 = Rhapsody Music
10 = Rhapsody Channel
11 = Internet Radio Station

Play State

00 = Unknown
01 = Play
02 = Stop
03 = Pause
04 = Locating Station
05 = Buffering Station

Data Field Definitions:

01 = CD in Front Panel

Data 1: Artist
Data 2: Album
Data 3: Track Name
Data 4: Main Genre
Data 5: Cover Art URL
Data 6: Track Number
Data 7: Track Length
Data 8: Current playback time

02 = CD in Changer

Data 1: Artist
Data 2: Album
Data 3: Track Name
Data 4: Main Genre
Data 5: Cover Art URL
Data 6: Track Number
Data 7: Track Length
Data 8: Current playback time
Data 9: Changer Number
Data 10: Slot Number

03 = DVD in Front Panel

Data 1: Title
Data 2: Main Genre
Data 3: Rating
Data 4: Year
Data 5: Length

		<p>Data 6: Description Data 7: Cover Art URL</p> <p>04 = DVD in Changer</p> <p>Data 1: Title Data 2: Main Genre Data 3: Rating Data 4: Year Data 5: Length Data 6: Description Data 7: Cover Art URL Data 8: Title Number in All Group Data 9: Changer Number Data 10: Slot Number</p> <p>05 = Data CD in Front Panel</p> <p>Data 1: Artist Data 2: Album Data 3: Track Name Data 4: Main Genre Data 5: Cover Art URL Data 6: Track Number Data 7: Track Length Data 8: Current playback time</p> <p>06 = Data CD in Changer</p> <p>Data 1: Artist Data 2: Album Data 3: Track Name Data 4: Main Genre Data 5: Cover Art URL Data 6: Track Number Data 7: Track Length Data 8: Current playback time Data 9: Changer Number Data 10: Slot Number</p> <p>07 = Movie on Hard Drive</p> <p>Data 1: Title Data 2: Main Genre Data 3: Rating Data 4: Year Data 5: Length Data 6: Description Data 7: Cover Art URL</p>
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		<p>Data 8: Title Number in All Group</p> <p>08 = Music on Hard Drive</p> <p>Data 1: Artist Data 2: Album Data 3: Track Name Data 4: Main Genre Data 5: Cover Art URL Data 6: Track Number on the album in the All group Data 7: Track Length Data 8: Current playback time Data 9: Play List Song Number Data 10: Title Number in the All Group</p> <p>09 = Rhapsody Music</p> <p>Data 1: Artist Data 2: Album Data 3: Track Name Data 4: Main Genre Data 5: Cover Art URL Data 6: Track Number Data 7: Track Length Data 8: Current playback time Data 9: Play List Song Number Data 10: Rhapsody Album ID</p> <p>10 = Rhapsody Channel</p> <p>Data 1: Artist Data 2: Album Data 3: Track Name Data 4: Channel Genre Data 5: Cover Art URL Data 6: Rhapsody Station ID Data 7: Track Length Data 8: Current playback time Data 9: Rhapsody Album-Track ID Data 10: Rhapsody Channel Name</p> <p>11 = Internet Radio Station</p> <p>Data 1: Artist Data 2: Album Data 3: Track Name Data 4: Station Name Data 5: Station Genre Data 6: Cover Art URL</p>
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		Data 7: Station URL Data 8: Track Length Data 9: Current playback time

Control Commands

COMMAND GROUP	SUB COMMAND	DESCRIPTION
70	01	Select guide source
70		ESCX70010010002 xx xx = guide source, where 01 = Music 02 = Rhapsody 03 = Movies
70	02	Register for unsolicited events (by default you are registered to receive the unsolicited events for level 5)
70		ESCX7002 ESCX70020010002 xx xx = event level, where 05 = All events except 1-second updates while playing 10 = All level 5 events, plus one-second track playing time updates during music play If the short version of the command is used, event level 5 will be used as the default level. Vision Note: use ESCX700200100031 xx if you want to receive 0216 events for play queue changes. 0216 events are off by default. Example: Send ESCX70020010003105 once at the start of your program to receive all events except 1 sec updates while playing and receive cover art URLs on status events.
70	03	Unregister for unsolicited events (prevent unsolicited events)
70		ESCX7003
70	04	Set Music Play Mode
70		ESCX70040010002 xx xx = music play mode, where 01 = repeat off, shuffle off 02, 03 and 04 = repeat on, shuffle off 05 = repeat off, shuffle on 06 = repeat on, shuffle on Vision also adds the following: 07 = repeat off 08 = repeat on 09 = shuffle off 10 = shuffle on
70	06	Lock this control interface (enter password protected mode)
70		ESCX7006

70	07	Unlock this control interface (leave password protected mode)
70		ESCX7007001 aaaabbbb aaaa = length of security password bbbb = security password

Note that when the host is in power standby mode, any command will cause the unit to enter the power on mode before executing the command. There are two exceptions to this: a client may register and unregister for unsolicited events without turning the host on, and the Status Command "Get Power State" (ESCX5001) will return the current state of the unit without turning it on.