

Communication Protocol Guide

Version 1.4.0

IR, RS-232, and Ethernet Interface Guide



Table of Contents

Table of Contents.....	I
Revision History	II
Introduction.....	1
Conventions Used	1
Part 1: IR Control.....	2
Rear IR Pinout	2
Learning IR Codes into Other Systems.....	2
List of Basic IR Commands	3
List of Advanced IR Commands	3
Part 2: Serial/Ethernet Protocol	5
Rear Serial Port Pinout.....	5
Serial Cable.....	5
COM Settings.....	5
Using Ethernet	6
Communicating with the VideoReQuest.....	6
Sending Commands	6
Breakdown of Each Command Portion:	6
Initializing the Connection.....	8
Calculating Checksum	8
Data Commands:.....	9
Examples of Strings to Send:.....	11
Calculating the 4 Byte Number Argument:	11
Handling Feedback	12
Appendix A – Sample Setups	A1
Appendix B – The GUI.....	B1

Revision History

Revision Number	Changes
1.1.2	Initial Version
1.1.10	Added DVD-MENU Updated to reflect changes in FW 1.1.10
1.1.15	Added CoverArt, Aspect Ratio, and DVD Lookup Progress feedback Updated graphics and fonts
1.4.0	Added additional Serial/IP Data commands and discrete IR commands.

Introduction

This document describes how to communicate with the VideoReQuest via IR, Serial, or Ethernet. For Serial and Ethernet, we will also explain how data feedback is formatted. Serial and Ethernet protocol is identical in terms of commands sent to the VideoReQuest and feedback received from the VideoReQuest. For the purpose of simplicity, Serial and Ethernet communication will be referred to as Serial in this document.

Conventions Used

- 1) Throughout this document, we will use the lowercase 'H' (*h*) notation when we wish to denote a Hexadecimal number. Multi-Byte strings will be written as "*XXh, YYh, ...*".

Examples:

- The Hex number 39 will be written as *39h*, which is 57 in ASCII, or the number 9
 - The Hex string 4AC5 will be written as *4Ah, C5h*.
- 2) **VRQ** and **VideoReQuest** will be used synonymously to describe the VideoReQuest line of products.

Part 1: IR Control

There are 2 ways to control the VideoReQuest via IR. The simplest method is to use a handheld remote aimed at the IR receiver on the front of the unit. For more advanced installations, there is a 1/8th inch mini jack on the rear of the unit for integration with IR based control systems. No matter which method you choose, this portion of the document will describe the commands available.

Rear IR Pinout

The rear IR jack is designed for a 2 conductor 1/8th inch mini plug from a powered connecting block or control system. You CAN NOT plug a dinkylink directly into the back of the VideoReQuest.

2 Conductor Pinout	
Tip	Signal
Ring	Ground
Sleeve	<i>Not Connected</i>

Learning IR Codes into Other Systems

For any advanced commands (2 button key combinations), the proper method for teaching the system the VideoReQuest IR codes is as follows:

1. Aim the VideoReQuest Remote **AWAY** from the learner
2. Press **AND HOLD** the **Alt** or **Shift** button (depending on command)
3. Aim the remote **AT** the learner
4. Press the second button
5. Release **BOTH** buttons

Most advanced commands are written on the IR remote in GREEN text. To access these commands, press and hold the **Alt** button prior to pressing the desired command button. Other advanced commands not written on the remote are listed in the table below.

All the basic and advanced IR commands are also available as a Pronto compatible CCF file from the ReQuest website. This file is compatible with many IR learning systems for easy integration.

List of Basic IR Commands

Action	Description
Edit	Edit the currently highlighted movie
Eject	Eject the currently highlighted movie
Power	Toggles Power On/Off
1-0	Number in edit, Jump to first character with number in browse
DVD Menu	Jumps to the menu of the currently active DVD
VRQ Menu	Jumps to the VRQ Configuration Menu
DVD	Switches control to active DVD changer (also switches video if applicable)
VRQ	Switches control to VRQ (also switches video if applicable)
Play	Acts as "Play" in DVD mode Acts as "Play Movie" for currently highlighted movie in VRQ mode
Pause	Toggles Pause of current DVD
Stop	Stops the current DVD and returns to VRQ
Up	Moves cursor up in VRQ Mode and in DVD menus
Down	Moves cursor down in VRQ Mode and in DVD menus
Left	Acts as "Cursor Left" in VRQ Mode & DVD Menu Acts as "Rewind" in DVD Playback
Right	Acts as "Cursor Right" in VRQ Mode & DVD Menu Acts as "Fast Forward" in DVD Playback
Enter	Acts as "Enter" in VRQ Browse, VRQ Menu, & DVD Menu. Acts as "Play Movie" in VRQ Movie Info
Page Up	Jumps up 6 lines in VRQ Browse
Page Down	Jumps down 6 lines in VRQ Browse
Chapter +	Skips to the next Chapter in DVD playback
Chapter -	Goes to the start of the current chapter, hit twice quickly to go to previous chapter
All Discs	Jumps to the All Movies list
Genres	Jumps to the Genres List
Ratings	Jumps to the Ratings List
Search	Currently not implemented
Now Playing	Jumps to the Movie Info of the currently playing DVD
a-z	Letter entering for edits, jump to movie title starting with letter pressed
A-Z	Press Shift and letter for capital letters
Space	Space used for editing
Shift	Hold for Advanced Commands
Alt	Hold for Advanced Commands

List of Advanced IR Commands

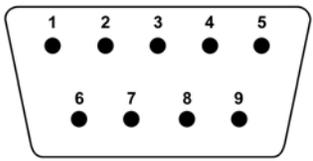
Action	Description	Alt/Shift	2 nd Button
Refresh DVD Details	Performs a lookup on the current DVD (only works in Player mode)	Shift	EDIT
Change View/Theme	Changes the theme of the TV/VGA interface	Alt	D
Discrete Power On	Power On	Alt	Power
Discrete Power Off	Power Off	Shift	Power
Home	Jumps to the top of the main browser screen	Alt	VRQ
Directors	Jumps to the Directors List	Shift	Ratings
Actors	Jumps to the Actors List	Shift	Genres
Recently Played	Jumps to the Recently Play List	Alt	Now Playing
Recently Added	Jumps to the Recently Added List	Alt	Ratings
Changers	Jumps to Browse by Changer	Alt	All Discs
Now Playing Chapters	Jumps to the Now Playing Movie's Chapter List	Shift	Now Playing
DVD Cursor Left	Discrete DVD cursor left	Shift	Left
DVD Cursor Right	Discrete DVD cursor right	Shift	Right
DVD Cursor Up	Discrete DVD cursor up	Shift	Up
DVD Cursor Down	Discrete DVD cursor down	Shift	Down
DVD Rewind	Discrete rewind on active DVD Changer	Shift	DVD Menu
DVD Fast Forward	Discrete fast forward on active DVD Changer	Shift	VRQ Menu

DVD Play	Discrete play on active DVD Changer	Shift	Play
DVD Pause	Discrete pause on active DVD Changer	Shift	Pause
DVD Audio	Changes the audio channel of the active DVD changer	Alt	A
DVD Subtitle	Changes the subtitle mode of the active DVD changer	Alt	B
DVD Angle	Changes the angle of the active DVD changer	Alt	C
Video Switch Channel 1	Change the connected video switch to channel 1 (Default VRQ)	Shift	1
Video Switch Channel 2	Change the connected video switch to channel 2	Shift	2
Video Switch Channel 3	Change the connected video switch to channel 3	Shift	3
Video Switch Channel 4	Change the connected video switch to channel 4	Shift	4
TVMMode NTSC	Change the TV Mode to composite/S-Video	Alt	1
TVMMode SDTV	Changes the TV Mode to 480i composite/component	Alt	2
TVMMode 720p	Changes the TV Mode to 720p component only	Alt	3
TVMMode Pal	Changes the TV Mode to PAL composite/component	Alt	4
TVMMode Disable	Disables TV out (VGA only)	Alt	0

Part 2: Serial/Ethernet Protocol

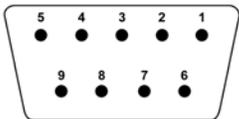
This section describes how to communicate with the VideoReQuest via Ethernet or Serial. Ethernet and Serial protocols are identical in terms of sending commands and receiving feedback. For simplicity, we will refer to Ethernet and Serial communication as Serial, though it can be used for Ethernet as well.

Rear Serial Port Pinout

	Pin	Purpose	Pin	Purpose
	1	Not Used	6	Not Used
	2	Receive	7	RTS
	3	Transmit	8	CTS
	4	Not Used	9	Not Used
	5	Ground		

Serial Cable

Cable Type	Usage
Female→Female NULL MODEM cable	VRQ→Control System VRQ→DVD Changer
Male→Female STRAIGHT cable	VRQ→Video Switcher

	VRQ Side	Control System/ DVD Changer	Video Switcher
	2	3	2
	3	2	3
	5	5	5
	7	8	7
	8	7	8

COM Settings

The serial port NOT used for changer control is used for integrating the VideoReQuest with a control system. This port supports four possible configurations (see table below). These settings can be found by going to **Menu→Configuration→Control Port** on the VideoReQuest.

Parameter	Value	Value	Value	Value
Baud	9600	19200	38400	57600
Data Bits	8	8	8	8
Stop Bits	1	1	1	1
Parity	None	None	None	None
Flow Control	None	HW	HW	HW
				<i>default</i>

Using Ethernet

The default port used to communicate with the VideoReQuest via Ethernet is port **3663**. If you open a connection to the VideoReQuest's IP address at port 3663, you can communicate with the unit just as if you connected serially.

Communicating with the VideoReQuest

Before you can communicate with the VideoReQuest, you must initialize the connection. A "Start Communications" command is similar to all other commands, with a few exceptions. See **Initializing the Connection** on page 6 for more information.

Sending Commands

Commands are sent to the VideoReQuest in strings of Hexadecimal (or Hex) numbers. Depending on the command, these strings are anywhere from 13 bytes to 17 or more bytes.

All commands are in the following format:

HEADER									DATA			
Marker	Command Type	Command Subtype	Flags		Data Size		Chk Sum	Engine	Mode	Data	Chk Sum	
FC h	A0 h	0A h	1 Byte	00 h	00 h	Byte 1	Byte 2	00 h	FF h	FF h	1+ Bytes	00 h

Breakdown of Each Command Portion:

Marker:

The **Marker** bytes are ALWAYS FC h , A0 h . These bytes tell the VideoReQuest the data that follows is valid.

Command Type:

The **Command Type** will almost always be 0A h when sending commands to the VideoReQuest. All possible command types are as follows:

Command Type	Description
05 h	Start Communications (see Initializing the Connection on page 6 for more information)
0A h	Command (most commands sent to the VRQ)
0F h	Data (not typically used)
14 h	Acknowledgement (used only if ACK flag is turned ON)
19 h	End Communications (used to terminate connection)

Command Subtype:

The 4 possible subtypes are as follows:

Command Subtype	Description	Data Length (bytes)*
01 h	1 byte command, no arguments	4
02 h	2 bytes (1 for command, 1 for character argument)	5
03 h	5 bytes (1 for command, 4 for integer argument)	8
04 h	Multi-byte string argument	TBD

* The data length includes the **Engine**, **Mode**, and **Data Checksum** bytes.

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Flags:

The 2 flag bytes are used to tell the VideoReQuest whether you do or do not want to use certain features. Setting both to 00h turns off all options. Each byte is broken up into 8 bits. Each bit is a flag for a certain feature. The possible options are as follows:

Byte 1								Byte 2							
Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1
														ACK	Chk Sum

Example:

To turn on the use of Check Sums, but not Acknowledgments, send 00h, 01h for the flag bytes. This should be done on initialization of the connection as well as for any subsequent command sent.

Data Size:

2 byte value that contains the length (in bytes) of the data portion of the command string. For **Command Subtypes 1, 2, or 3**, use the *Subtype* table on page 4 to determine the data length. For **Command Subtype 4**, the following example illustrates how to calculate the **Data Size**:

Assume the length of the string is 25 bytes (25 characters, including spaces and punctuation). This means that the full **Data Size** is 25 bytes PLUS 3 bytes for the **Engine, Mode, and Checksum**, or 28 bytes total.

$$\text{BYTE 1} = \frac{28}{255} = 0, \text{ or } 00h$$

$$\text{BYTE 2} = 28 \text{ MOD } 255 = 28, \text{ or } 1Ch$$

Header Check Sum:

If you are not using Check Sum (based on your Flag settings), then set this byte to 00h. Otherwise, see *Calculating Checksum* on page 6 for more information.

Engine:

The Engine is simply the page that the VideoReQuest is currently on. Setting the Engine byte to FFh sends the command to whatever the current Engine is. Setting the Engine byte to a specific engine (see table) sends the command to that engine ONLY.

Engine	Description
00h	Sends command to Browse mode
01h	Sends command to Player mode
02h	Sends command to DVD player
FFh	Sends command to default (current) engine

Mode:

The Mode is reserved for future use, and should always be set to FFh.

Data:

These byte(s) are the actual command and possible arguments that you are sending to the VideoReQuest. See *Data Commands* on the next page for a complete list of commands.

Data Check Sum:

If you are not using Check Sum (based on your Flag settings), then set this byte to **00h**. Otherwise, see *Calculating Checksum* below for more information.

Initializing the Connection

Before the VideoReQuest will respond to commands OR send you feedback, you must initialize the connection. This tells the VideoReQuest a number of things, including whether or not you wish to calculate Check Sum, how many lines of feedback you want at a time, etc. The format for a "Start Communications" command is as follows:

HEADER									DATA		
Marker	Command Type	Command Subtype	Flags		Data Size		Chk Sum	Cmd	Lines	Chk Sum	
FC ^h	A0 ^h	05 ^h	01 ^h	Byte 1	Byte 2	00 ^h	03 ^h	00 ^h	01 ^h	06 ^h	00 ^h

Currently, the only variable in this string is **Flags**, which you can set to whatever you want depending on whether or not you want to use Acknowledgements or Check Sum (see *Flags* on the previous page for more information). To simplify programming, it is recommended that you use **00h, 00h** for the flag bytes, which turns OFF both Acknowledgements and Check Sum calculation.

Lines:

The **Lines** portion of the data section is a 1 byte value that tells the VideoReQuest how many lines of text you want to receive at once on the Browse and Chapters pages. Currently, the only supported value is **06h**.

Calculating Checksum

The Checksum can be calculated as follows:

1. Take the value of each byte in the string, up to but NOT including the checksum, and multiply it by the position in the string from left to right (the leftmost byte is byte 1)
2. Add all the values calculated in step 1
3. Convert the result to Hex
4. The rightmost Hex byte is the checksum

This is done the same way for both the Header and the Data checksums.

Example Header Checksum:

	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8	Byte 9
Incoming String	FC	A0	05	01	00	00	00	03	67
Integer value	252	160	5	1	0	0	0	3	n/a
Position Multiplier	1	2	3	4	5	6	7	8	9
Result	252	320	15	4	0	0	0	24	n/a

$$\text{Sum of all Results} = 252+320+15+4+0+0+0+24 = 615 = \mathbf{02h, 67h}$$

The *rightmost* byte of the result is **67h**, which is the calculated checksum. As we can see, that matches the incoming checksum, so no data was lost.

Data Commands:

Command	Hex String	Description	Cmd Subtype
Cursor Down	00h	Moves cursor down 1 line at a time	01h
Cursor Left	01h	Moves cursor left or moves back 1 level on Browse page. Acts as Rewind in DVD mode.	01h
Cursor Right	02h	Moves cursor right or moves down 1 level on Browse page. Acts as Fast Forward in DVD mode.	01h
Cursor Up	03h	Moves cursor up 1 line at a time	01h
Refresh	04h	Requests all data from VideoReQuest	01h
Page Up	05h	Moves up 6 lines at a time	01h
Page Down	06h	Moves down 6 lines at a time	01h
All Movies	07h	Jumps to All Movies list	01h
Genres	08h	Jumps to Genres list	01h
Ratings	09h	Jumps to Ratings list	01h
Now Playing	0Ah	Jumps to Player, displays currently playing movie info	01h
Enter	0Bh	Issues Enter command	01h
Home	0Ch	Returns to top of Browse page (Now Playing, All Movies, etc)	01h
VRQ Mode	0Dh	When in DVD mode, returns to VRQ mode	01h
Power Toggle	10h	Toggles soft power ON/OFF	01h
Power ON	11h	If unit is soft powered OFF, turns unit ON	01h
Power OFF	12h	If unit is soft powered ON, turns unit OFF	01h
Number	13h	Sends the 4 byte number in the argument portion	03h
DVD Menu	14h	When playing a DVD, enters the DVD Menu	01h
Play	15h	Plays the current selection or unpauses playback	01h
Pause Toggle	16h	Toggles playback between Pause and Unpause	01h
Pause ON	17h	Discrete Pauses playback	01h
Pause OFF	18h	Discrete Resumes playback from a Paused state	01h
Stop	19h	Stops playback, returns to VRQ mode	01h
DVD Mode	1Bh	When in VRQ mode, switches to DVD mode	01h
Next Chapter	1Ch	Plays the next chapter	01h
Previous Chapter	1Dh	Resumes current chapter or plays previous chapter	01h
Goto Top	1Eh	Jumps to top of current list in Browse page	01h
Goto Bottom	1Fh	Jumps to bottom of current list in Browse page	01h
Move to Line	21h	Moves to the line number indicated by 4 byte integer argument	03h
Letter	22h	Sends the letter indicated by the 1 byte character argument	02h
Backspace	23h	Deletes the last character entered in text entry	01h
Audio	24h	Toggles the Audio options in DVD playback	01h
Subtitles	25h	Toggles subtitle options in DVD playback	01h
Angle	26h	Toggles angle options in DVD playback on enabled DVDs	01h
Enter Line	2Bh	Issues an Enter command on the line number indicated by the 4 byte integer argument	03h
Directors	2Eh	Jumps to Directors list	01h
Actors	2Fh	Jumps to Actors list	01h
Player Detail Request	37h	Requests a certain Player Detail, based on string argument	04h
Cancel Lookup	52h	Cancel currently running DVD Lookup	01h
Changers	51h	Browse to the Changers list	01h
Close Alert	54h	Closes the current alert dialog	01h
Lookup All Discs	53h	Looks up all discs in all changers	01h
Lookup Player	4Eh	<p>Lookup disc range on a particular player. Format is as follows:</p> <ul style="list-style-type: none"> • Takes string argument X_Y_Z where: <ul style="list-style-type: none"> ○ X = Changer Number (1-4) ○ Y = Starting Slot (1 <= Y <= 400) ○ Z = Ending Slot (Y <= Z <= 400) • Example: <ul style="list-style-type: none"> ○ "1_32_54" will scan all discs between 32 and 54 in changer 1 	04h
Media Refresh	38h	Checks online for the latest info on the currently displayed movie (only works in Player screen)	01h
Now Playing Chapters	4Dh	Browse to the chapters list of the Now Playing movie	01h
Recently Added	50h	Browse to the Recently Added list	01h
Recently Played	4Fh	Browse to the Recently Played list	01h

Restart	85h	Reboots the VideoReQuest	01h
Shutdown	86h	Shuts down the VideoReQuest	01h
Software Update	87h	Checks for a software update and displays dialog if one is available	01h
TVMode NTSC	39h	Switch to NTSC TV Mode (Composite/S-Video)	01h
TVMode 480i Component	3Ah	Switch to 480i Component TV Mode (Composite/Component)	01h
TVMode 720p	38h	Switch to 720p TV Mode (Component only)	01h
TVMode PAL	46h	Switch to PAL TV Mode (Composite/Component)	01h
TVMode Disable	3Ch	Turn off TV Mode (VGA Only)	01h
Video Switch	3Dh	Switches to the channel on the video switch indicated by the INT argument	03h
DVD Cursor Left	3Eh	Discrete DVD Cursor left for DVD Menus	01h
DVD Cursor Right	3Fh	Discrete DVD Cursor right for DVD Menus	01h
DVD Cursor Up	40h	Discrete DVD Cursor up for DVD Menus	01h
DVD Cursor Down	41h	Discrete DVD Cursor down for DVD Menus	01h
DVD Enter	42h	Discrete DVD Enter command for DVD Menus	01h
DVD Rewind	43h	Discrete DVD Playback Rewind	01h
DVD Fast Forward	44h	Discrete DVD Playback Fast Forward	01h
DVD Play	45h	Discrete DVD Play command. Note: If Stop is pressed, you must select a movie to play from the VRQ mode. Discrete Play will be ignored.	01h

Examples of Strings to Send:

Subtype 01h – Cursor Up:

The command for Cursor Up is **03h**. Send the following:

Marker	Cmd Type	Sub type	Flags	Data Size	Chk Sum	Engine	Mode	Data	Chk Sum			
FC <h>h</h>	A0 <h>h</h>	0A <h>h</h>	01 <h>h</h>	00 <h>h</h>	00 <h>h</h>	00 <h>h</h>	04 <h>h</h>	00 <h>h</h>	FF <h>h</h>	FF <h>h</h>	03 <h>h</h>	00 <h>h</h>

Subtype 02h – Letter ‘A’:

The command for any Letter is **22h**. Send the following:

Marker	Cmd Type	Sub type	Flags	Data Size	Chk Sum	Engine	Mode	Data	Chk Sum				
FC <h>h</h>	A0 <h>h</h>	0A <h>h</h>	02 <h>h</h>	00 <h>h</h>	00 <h>h</h>	00 <h>h</h>	05 <h>h</h>	00 <h>h</h>	FF <h>h</h>	FF <h>h</h>	22 <h>h</h>	41 <h>h</h>	00 <h>h</h>

Subtype 03h – Number ‘3’:

The command for any Number is **13h**. Send the following:

Marker	Cmd Type	Sub type	Flags	Data Size	Chk Sum	Engine	Mode	Data*	Chk Sum						
FC <h>h</h>	A0 <h>h</h>	0A <h>h</h>	03 <h>h</h>	00 <h>h</h>	00 <h>h</h>	00 <h>h</h>	08 <h>h</h>	00 <h>h</h>	FF <h>h</h>	FF <h>h</h>	13 <h>h</h>	00 <h>h</h>	00 <h>h</h>	03 <h>h</h>	00 <h>h</h>

* See below for more information on calculating the 4 byte number in the Data Argument

Subtype 04h – Requesting Player Detail “Genres”:

The command for Player Detail Request is **37h**. Send the following:

Marker	Cmd Type	Sub type	Flags	Data Size**	Chk Sum	Engine	Mode	Data	Chk Sum				
FC <h>h</h>	A0 <h>h</h>	0A <h>h</h>	03 <h>h</h>	00 <h>h</h>	00 <h>h</h>	00 <h>h</h>	0A <h>h</h>	00 <h>h</h>	FF <h>h</h>	FF <h>h</h>	37 <h>h</h>	Genres	00 <h>h</h>

** Data Size for Subtype 04h is a variable that depends on the length of the argument

Calculating the 4 Byte Number Argument:

- 1) Assume that the number you wish to send is an ASCII value, NOT the actual number
- 2) Determine the Hex value of the number you wish to send (see table below for examples)
 - a. For example, the number 3 would be **03h**, NOT **33h**
 - b. If the number is less than 4 bytes (i.e. less than 4311810304), append **00h** to the beginning of the number to complete the 4 byte requirement

Num	Hex												
0	00	16	10	32	20	48	30	64	40	79	50		
1	01	17	11	33	21	49	31	65	41	80	51		
2	02	18	12	34	22	50	32	66	42	81	52		
3	03	19	13	35	23	51	33	67	43	82	53		
4	04	20	14	36	24	52	34	68	44	83	54		
5	05	21	15	37	25	53	35	69	45	84	55		
6	06	22	16	38	26	54	36	70	46	85	56		
7	07	23	17	39	27	55	37	71	47	86	57		
8	08	24	18	40	28	56	38	72	48	87	58		
9	09	25	19	41	29	57	39	73	49	88	59		
10	0A	26	1A	42	2A	58	3A	74	4A	89	5A		
11	0B	27	1B	43	2B	59	3B	75	4B	90	5B		
12	0C	28	1C	44	2C	60	3C	76	4C	91	5C		
13	0D	29	1D	45	2D	61	3D	77	4D	92	5D		
14	0E	30	1E	46	2E	62	3E	78	4E	93	5E		
15	0F	31	1F	47	2F	63	3F	79	4F	94	5F		

Handling Feedback

Before the VideoReQuest will send feedback data, you must send a command to the VideoReQuest that initializes communication. See *Initializing the Connection* on Page 6 for more information.

All feedback is formatted in the same manner as commands sent TO the VideoReQuest. In general, the format is as follows:

HEADER								DATA		
Marker	Command Type	Command Subtype	Flags		Data Size		Chk Sum	Data	Chk Sum	
FC h	A0 h	0A h	1 Byte	00 h	00 h	Byte 1	Byte 2	00 h	1+ Bytes	00 h

In this case, the **Subtype** determines what data you are receiving (i.e. Movie Title, Genre, etc) and the **Data** portion contains the actual data (i.e. the actual Movie Title, the actual Genre name, etc). The length of the Data portion is determined by the 2 byte **Data Size** in the Header.

For help understanding what each **Subtype** is, see **Appendix B**.

Possible Subtypes:

Hex	Integer	Description	Data Size
80	128	Browse Window Title ("Welcome", "Total: 46", etc)	TBD
81	129	Browse List Title (Home, Genres, etc)*	TBD
82	130	Browse Extra Info 1 Header (Total)	TBD
83	131	Browse Extra Info 2 Header (Genre, Rating, etc)	TBD
84	132	Browse Extra Info 1 Data	TBD
85	133	Browse Extra Info 2 Data	TBD
86	134	Browse List Size, Page UP/DOWN Flags and Cursor Position*	8
8A	138	Browse Long Description	TBD
8B	139	Engine Mode 0: On Browse Page 1: On Player Page 2: DVD Pass-thru (Playing a movie)	2
8C	140	View Mode, Changer Number, Slot Number*	5
8D	141	Browse Cover Art image filename**	TBD
90	144	Browse Text Line 1*	TBD
91	145	Browse Text Line 2*	TBD
...
9F	159	Browse Text Line 16*	TBD
A0	160	Player Long Description (not used)	TBD
A1	161	Player List Size, Page UP/DOWN Flags and Cursor Position (which chapter is selected)*	8
A2	162	Player Movie Title	TBD
A3	163	Player State 0: Stopped 1: Playing 2: Paused	2
A4	164	Player Title Icon (not used)	2
A5	165	Player Window Title ("More Info", "Chapters")	TBD
A6	166	Player Detail Headers*	TBD
A7	167	Player Detail Text*	TBD
A8	168	Player Mode (on Chapters or on Details) 0: Details 1: Chapters	2
A9	169	Player List Size, Page UP/DOWN Flags and Now Playing Cursor Position (which chapter is playing)*	8
AA	170	Player Cover Art image filename**	TBD
AB	171	DVD Lookup Progress*	TBD
AC	172	Movie Aspect Ratio (i.e. 1.77, etc)	TBD
B0	176	Player Chapter Line 1 Text	TBD
B1	177	Player Chapter Line 2 Text	TBD
...
BF	191	Player Chapter Line 16 Text	TBD

* - Format of this data is explained on the next page under **Special Data Formats**

** - The path to each image file is always http://vrq_ip_address:2992/images/coverart/

Example:

Let's say you received the following string from the VideoReQuest:

FC*h*, **A0***h*, **0A***h*, **84***h*, **00***h*, **00***h*, **00***h*, **07***h*, **00***h*, **Horror**, **00***h*

We know from the format explained on the previous page that **84h** is the **Command Subtype**. From the table of subtypes on the previous page, we know that **84h** indicates that you are receiving the **Browse Extra Info 1 Data**. Therefore, we extract **Horror** from the data portion and save that in our **Browse Extra Info 1 Data** variable.

Special Data Formats:

Browse List Title:

The **Browse List Title** is sent in chunks, delimited by a NULL character (**00h**). For example, if you are inside the Genres list, the data portion of the string sent by the VideoReQuest will look like this: **Home[00h]Genres[00h]**. This allows you to use just the final portion to show the current list title, or the entire thing to show the full hierarchy.

List Size, Page UP/DOWN Flags, and Cursor Position:

The **List Size**, **Page UP/DOWN Flags** and **Cursor Position** for the Browse and Player pages are sent by the VideoReQuest in 1 string. The first 4 bytes of the string are the **List Size**, the next byte is the **Page UP/DOWN Flag**, and the final 2 bytes are for the **Cursor Position**.

List size is calculated as follows:

$$256^3 \times \text{BYTE1} + 256^2 \times \text{BYTE2} + 256 \times \text{BYTE3} + \text{BYTE4}$$

Page UP/DOWN flags could be one of the following:

Value	Description
00h	No more lines exist above or below the current view
01h	More lines exist below the current view
02h	More lines exist above the current view
03h	More lines exist above AND below the current view

The 2 bytes for **Cursor Position** are calculated as follows:

$$256 \times \text{BYTE1} + \text{BYTE2} = \text{RESULT}$$

The following values of **RESULT** are possible:

Value	Cursor on Line
1	1
2	2
4	3
8	4
16	5
32	6
64	7
128	8

Value	Cursor on Line
256	9
512	10
1024	11
2048	12
4096	13
8192	14
16384	15
32768	16

View Mode, Changer Number, and Slot Number:

The **View Mode**, **Changer Number**, and **Slot Number** are sent by the VideoReQuest in 1 string. The first byte is the **View Mode**, followed by 1 byte for the **Changer Number** (1, 2, 3, or 4), followed by 2 bytes for the **Slot Number** (1-400).

Possible **View Modes** are as follows:

View Mode	Description
1	In VRQ Mode. Should display VRQ video output.
2	In DVD Mode. Should display DVD video output.

Slot Number is calculated in the same manner as **Cursor Position**:

$$256 \times \text{BYTE1} + \text{BYTE2} = \text{Slot Number}$$

Browse Line Text:

The first byte of the **Browse Line Text** is a 1 byte flag indicating which icon should be displayed on that line. Possible values are as follows:

Value	Description	Icon
00h	No Icon	N/A
02h	All Movies	
03h	Genres	
04h	Ratings	
05h	Actors	
06h	Directors	
07h	Recently Added	
08h	Recently Played	
09h	Changers	

Player Detail Headers:

The **Player Detail Headers** are sent by the VideoReQuest in 1 string, separated by the NULL character (00h). The data portion of the string would look similar to the following:

Genres[00h]Cast[00h]Directors[00h]Plot Summary[00h]

Player Detail Text:

The VideoReQuest will not send any **Player Detail Text** until it is requested to do so. Therefore, when you receive the **Player Detail Headers**, you should send one or more of the following commands to receive the **Player Detail Text**:

Detail	Cmd Subtype	Data Length	Data Command	Data Argument
GENRES	04h	10	37h	Genres
CAST	04h	8	37h	Cast
DIRECTORS	04h	13	37h	Directors
PLOT SUMMARY	04h	16	37h	Plot Summary

For example, to request the **Genres**, send the following:

FC h, A0 h, 0A h, 04 h, 00 h, 00 h, 00 h, 0A h, 00 h, FF h, FF h, 37 h, Genres, 00 h

The VideoReQuest will respond by sending you the **Header** you requested, followed by the NULL character (**00h**), followed by the **Detail** for that header.

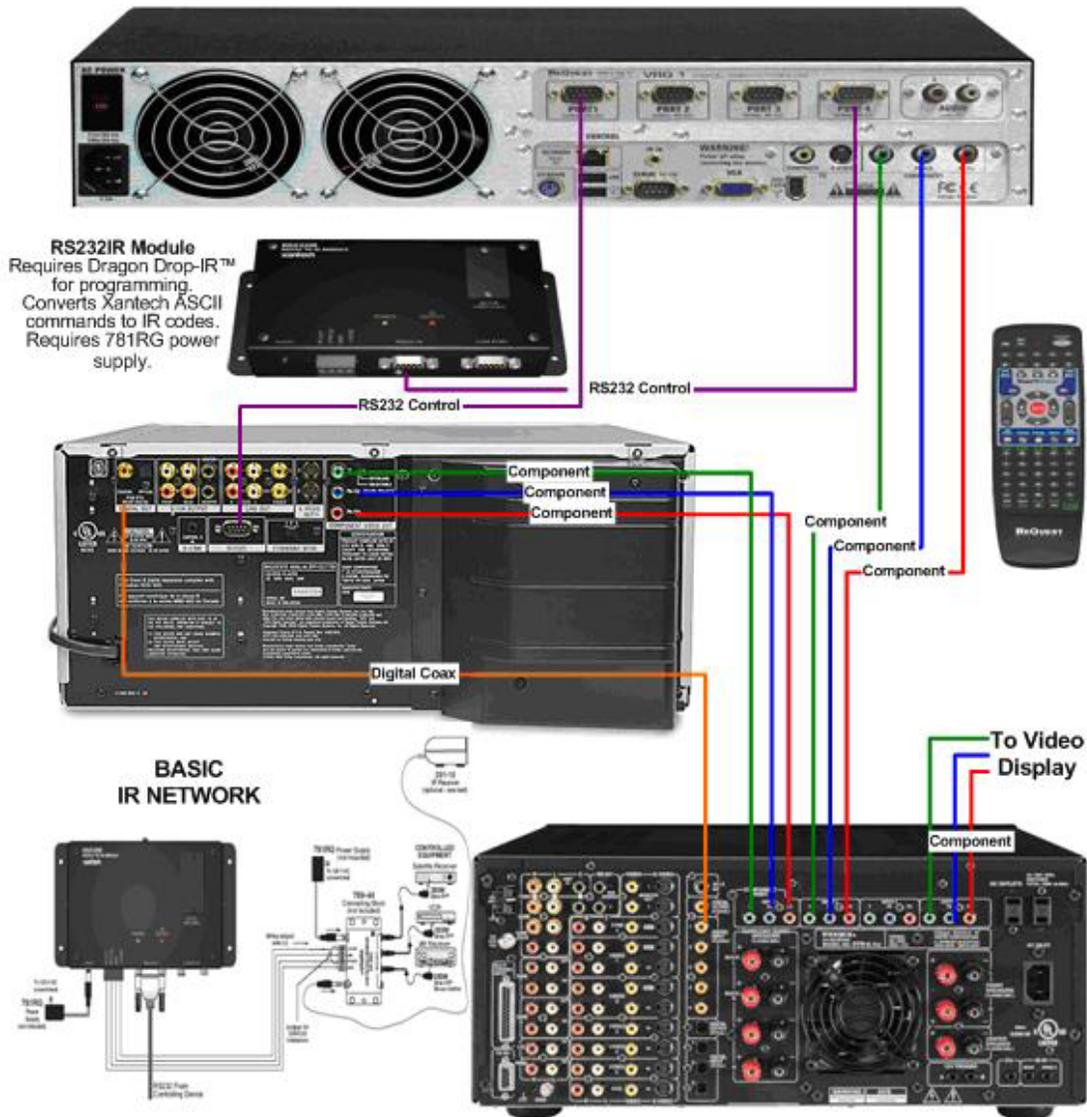
For example, if you requested the **Genres**, the VideoReQuest will respond with:

FC h, A0 h, 0A h, A7 h, 00 h, 00 h, 00 h, 0E h, 00 h, Genres, 00 h, Horror, 00 h

DVD Lookup Progress:

Byte1	Byte2	Byte3	Byte 4+
Changer Number	Total Discs	Current Disc	General Message text

VIDEO REQUEST with XANTECH CONTROL



VideoReQuest with Xantech Control

1. Connect the VideoReQuest Video output to the receiver (Can be Composite, S-Video, or Component).
2. Connect the Audio and Video from DVD Changers 1-3 to **Inputs 2-4**.
3. Connect the RS-232 cables* from the DVD changers to **Ports 1-3** of the VideoReQuest.
4. Connect the RS-232 cable† from **Port 4** of the VideoReQuest to the Xantech RS232IR module.
5. Set the Video Switch setting on the VideoReQuest to **Xantech IR Blaster** by going to **Menu→Configuration→Video Options→Video Switch** on the VideoReQuest GUI.
6. Connect the IR emitter or plug to the receiver.
7. Using Xantech Dragon Drop-IR software, load receiver codes. First code is for VideoReQuest. Code 2- 4 is for DVD changer 1-3.

* RS-232 cables should be Female→Female NULL MODEM cables (included)

† RS 232 cable should be Male→Female Straight cable (included)

VIDEO REQUEST PRONTO CONTROL



VideoReQuest with Pronto

1. Connect the VideoReQuest Audio and Video to the receiver (Can be Composite, S-Video, or Component).
2. Connect the Audio and Video from DVD Changers 1-3 to **Inputs 2-4**.
3. Connect the RS-232 cables* from the DVD changers to **Ports 1-3** of the VideoReQuest.
4. Program the Pronto with the VideoReQuest sample program. Program the VRQ, DVD, Play, Stop, and Pause command to the appropriate receiver command.

* All RS-232 cables should be Female → Female NULL MODEM cables (included)

Appendix B – The GUI

This section shows what each portion of feedback is and where it is located on the TV Out GUI.



Figure 1 – The Browse Page

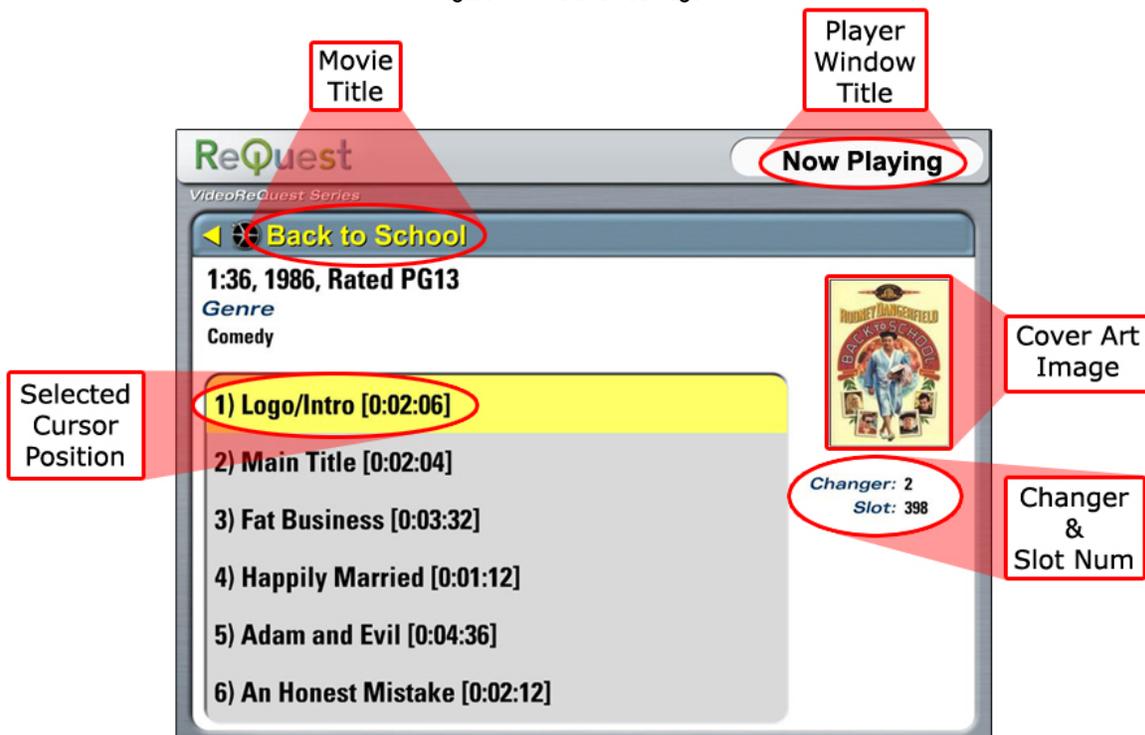


Figure 2 – The Chapters Page



Figure 3 – The Player Details Page