Multi-Zone Communication Protocol Guide
Version 2.2.0

IR, RS-232, and Ethernet Interface Guide

Table of Contents

Revision History

Revision Number	Changes
2.2.0	Multi-Zone IR commands added
2.1.0	Initial Version

Introduction

This document describes how to communicate via IR, Serial, or Ethernet with AudioReQuest Digital Music Systems running Linux firmware 2.2.0 or higher. These are the ONLY versions that are supported. In order to communicate with an AudioReQuest running an older firmware, you must download the AudioReQuest_Communications_Protocol_Guide_v1_9_0.pdf.

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 ReQuest and feedback received from the ReQuest. Therefore, 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 for Serial/Ethernet commands. Multi-Byte serial strings will be written as "XX*h*, YY*h*, …".

   ### Examples:
   - For Serial/Ethernet communication, the hex number 39 will be written as 39*h*, which is 57 in ASCII, or the number 9
   - For Serial/Ethernet communication, the hex string 4AC5 will be written as 4A*h*, C5*h*.

2) Some Multi-Byte feedback strings, such as Elapsed Time, are sent as Least Significant Byte First, or LSBF. This will be noted in the document as **LSBF**, and should be calculated as in the following example.

   ### Example:
   - If the Total Time is sent as 04*h*, 01*h*, 00*h*, 00*h*, the actual number of seconds would be calculated as follows:

$$(04 \times 1) + (01 \times 256) + (0 \times 256^2) + (0 \times 256^3) = (4 \times 1) + (1 \times 256) = 260 \, \text{sec}$$
$$260 \, \text{sec} = 4:20$$

Part 1: IR Control

There are 2 ways to control the AudioReQuest 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

*You **MUST** connect a powered connecting block, such as a Xantech 789-44, to the rear IR jack. It is important to make sure you are using Model **781RG** for the 12V power supply.*

The pinout is as follows:

	2 Conductor Pinout
Tip	Signal
Ring	Ground
Sleeve	*Not Connected*

Two Kinds of IR Remotes

ReQuest has two different IR Remotes that are supported. The newest addition to the IR family is the QuickPlay™ remote. The QuickPlay remote is smaller than our full featured remote and offers quick access to many commonly used features. This remote has 24 one-button commands and 20 two-button advanced commands, for a total of 44 commands. Visit http://www.request.com/Support/Manuals.html to download a quick sheet on all the commands. *This remote is only available on special request*. Contact a ReQuest Sales Representative for details.

Our main remote is a full featured 64 button remote control that allows access to every IR command available through either 1 or 2 button key combinations. For everyday use, this remote is more cumbersome than the QuickPlay remote. However, if you are creating an IR library for a control system, this remote is required.

Learning IR Codes into Other Systems

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

1. Aim the ARQ Remote **AWAY** from the learner
2. Press **AND HOLD** the **Alt** or **Shift** button, if needed
3. Aim the ARQ Remote **AT** the learner
4. Press the second button
5. Release **BOTH** buttons

In addition, the IR codes are available as a Pronto CCF file that can be imported The CCF file is available at www.request.com under Support/Integration.

List of IR Codes

The next page contains a list of advanced IR commands based on the 64 button ARQ remote. See Appendix A for a comprehensive list of IR commands for the AudioReQuest, and www.request.com under Support/Integration for a Pronto CCF file. For the F-Series, the commands will affect the current "Active Zone", which by default is Zone 1. The "Active Zone" can be changed with the commands below, or from the Enhanced GUI. For Single-Zone systems, only commands for Zone 1 are applicable.

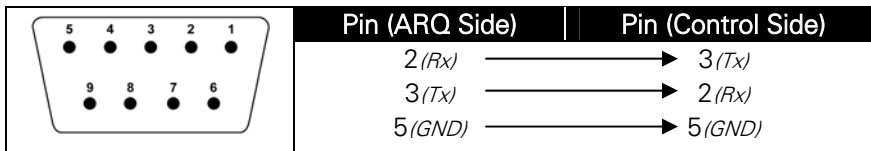| Action	Description	Alt/Shift	2nd Button
Add to Playlist	Adds item to playlist (Enhanced GUI Only)	ALT	8
Clear Now Playing	Stops the music and clears the Now Playing queue	ALT	NOW PLAYING
Continuous ON	Activates Continuous Mode	SHIFT	STOP
Delete from Playlist	Removes the selected song from the Playlist. Does not delete the song from the system. Does not prompt for confirmation	ALT	U
Deselect	Deselects all selected songs	ALT	S, SELECT
Direct Playlist 1-10	Plays Playlist number 1-10	SHIFT	1,2,3,…,0
Discrete Navigator	Go to Navigator page	ALT	1
Discrete Player	Go to Player page	ALT	2
Eject	Open the CD tray	ALT	X
Enter – No Flip	Issues an Enter command, does not flip ARQ to Player page	SHIFT	ENTER
Fast Forward	Skip ahead 5 seconds	SHIFT	FORWARD
FREEDB Reset	Resets CD information for FREEDB lookup	ALT	R
Go to Bottom of list	Navigates to the bottom of the current list	ALT	DOWN
Go to Current Album	Navigates to the Currently Playing Song's Album	ALT	5
Go to Current Artist	Navigates to the Currently Playing Song's Artist	ALT	4
Go to Current Genre	Navigates to the Currently Playing Song's Genre	ALT	V
Go to Current Playlist	Navigates to the Currently Playing Song's Playlist	ALT	W
Go to Current Song	Navigates to the Currently Playing Song in All Songs	ALT	3
Go to Top of List	Navigates to the top of the current list	ALT	UP
Line-In Play	Lets you listen to what is connected to LINE-IN	SHIFT	CD
Line-In Record	Starts a recording of what is connected to LINE-IN	SHIFT	RECORD
Next Album	Plays the next Album	ALT	ALBUM
Next Artist	Plays the next Artist	ALT	ARTIST
Next Genre	Plays the songs in the next Genre	ALT	I
Next Playlist	Playlist the next Playlist	SHIFT	JUMP-DOWN
Next Song	Plays the Next Song	SHIFT	NEXT
Next Zone	Increments Active Zone on Enhanced GUI	SHIFT	MENU
Pause OFF	Unpause music playback	ALT	PAUSE
Pause ON	Pause music playback	SHIFT	PAUSE
Play	Resumes playback from a paused or stopped state	ALT	ENTER
Play Now	Plays the list or songs selected on Navigator	SHIFT	NOW PLAYING
Play Now-no flip	Same as above, but leaves the ARQ on the Navigator page	ALT	K
Power OFF	Discrete Power OFF	ALT	Q
Power ON	Discrete Power ON	ALT	P
Previous Album	Plays the previous Album	SHIFT	ALBUM
Previous Artist	Plays the previous Artist	SHIFT	ARTIST
Previous Genre	Plays the songs in the previous Genre	ALT	H
Previous Playlist	Plays the previous Playlist	SHIFT	JUMP-UP
Previous Song	Plays the previous Song	SHIFT	PREVIOUS
Previous Zone	Decrements Active Zone on Enhanced GUI	SHIFT	MODE
Random IN	Enters Random mode	ALT	JUMP-DOWN
Repeat OFF	Turns repeat OFF	ALT	REPEAT
Repeat ON	Turns repeat ON	SHIFT	REPEAT
Restart TV Out	Forces a re-initialization of the TV Out card	ALT	T
Rewind	Skips back 5 seconds	SHIFT	REWIND
Search	Begin/Restart an extended search	ALT	A
Show Genres	Displays the Genres on the system	ALT	G
Show Playlists	Displays the Playlists on the system	ALT	F
Show Selected Songs	Displays the Selected Songs on the System	SHIFT	SELECT
Shuffle OFF	Turns shuffle OFF	ALT	SHUFFLE
Shuffle ON	Turns shuffle ON	SHIFT	SHUFFLE

Part 2: Serial/Ethernet Protocol

This section describes how to communicate with the AudioReQuest 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 (Male RS-232 Port)

Pin	Purpose
1	*Not Used*
2	Receive
3	Transmit
4	*Not Used*
5	Ground
6-9	*Not Used*
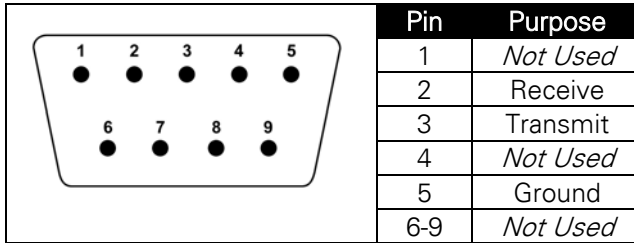
Serial Cable Pinout (Female →Female RS232 cable)

Pin (ARQ Side)	Pin (Control Side)
2 *(Rx)* ⟶	3 *(Tx)*
3 *(Tx)* ⟶	2 *(Rx)*
5 *(GND)* ⟶	5 *(GND)*

COM Settings

The **rear serial port** is used for integrating the AudioReQuest with a control system. Connection to the **rear serial port** requires a **Female→Female NULL MODEM** serial cable. The **front serial port** is used **ONLY** for configuring certain settings on the AudioReQuest, such as the IP Address. You **CANNOT** use the **front serial port** to control the ARQ.

The Baud Rate depends on the model of AudioReQuest unit. The table below shows the breakdown.

Rear Serial Port (Single Zone Units)	
Parameter	Value
Baud	9600
Data Bits	8
Stop Bits	1
Parity	None
Flow Control	None

Rear Serial Port (Multi Zone Units)	
Parameter	Value
Baud	57600
Data Bits	8
Stop Bits	1
Parity	None
Flow Control	None

Initializing Communications

Unlike previous AudioReQuest products, all connections require the following special 2 byte string to initialize the connection. This string **MUST** be the first string you send to the unit.

> 5F*h*, A1*h*

This tells the AudioReQuest that you wish to communicate using the new protocol outlined in this document. If you omit this string, the AudioReQuest will assume you are communicating via the older protocol, and you will not be able to access Zones 2-4 on an F.Series box.

Sending Commands

Commands are sent to the ReQuest in strings of Hexadecimal (or Hex) numbers. Depending on the command, these strings are anywhere from 1 byte to 3 or more bytes. For a complete listing of serial port commands, see **Appendix B**.

All commands sent to the AudioReQuest **MUST** contain a 3 byte footer that indicates with which zone you are communicating. The footer is formatted as follows:

Zone 1	Zone 2	Zone 3	Zone 4	Current Active Zone
F1h, FFh, FBh	F2h, FFh, FBh	F3h, FFh, FBh	F4h, FFh, FBh	F0h,FFh, FBh

As an example, to send the "Go to Albums" command to Zone 2, you would send the following:
30h, 21h, F2h, FFh, FBh

The "Current Active Zone" is the Zone that is currently being displayed on the Enhanced GUI.

Switching Active Zone on Enhanced GUI

These commands will switch the "Active Zone" that the Enhanced GUI displays, and should be followed by the "Current Active Zone" Footer:

Command	Hex	Description
Get Current Active Zone	4Ch, 00h	Request feedback on the current zone (type 4C data)
Set Zone 1 Active	4Ch, 01h	Set Zone 1 Active on Enhanced GUI
Set Zone 2 Active	4Ch, 02h	Set Zone 2 Active on Enhanced GUI
Set Zone 3 Active	4Ch, 03h	Set Zone 3 Active on Enhanced GUI
Set Zone 4 Active	4Ch, 04h	Set Zone 4 Active on Enhanced GUI
Set Previous Zone Active	4Ch, FEh	Set Previous Zone Active (decrement Zone number). Zone numbers will wrap around (using Previous Zone on Zone 1 will return the unit to Zone 4 on an F4).
Set Next Zone Active	4Ch, FFh	Set Next Zone Active (increment Zone number). Zone numbers will wrap around (using Next Zone on Zone 4 will return the unit to Zone 1).

Requesting Feedback

Before the AudioReQuest will send feedback data, you must send a command to the ReQuest that initializes data feedback. All commands are formatted as follows:

Command Header 1 Byte (**33***h*)	Command 1-2 Bytes

The **Command Header** is always **33***h*.

It is recommended that the initialization string you choose to use be sent to the ReQuest any time the ReQuest is selected from the sources page. This ensures that if the previous connection was lost, it is regained and all data is refreshed.

The following commands may be sent to the ReQuest to initialize feedback (**bold** lines are typical and recommended):

Command	Hex String	Symbol/Letter equivalent	Description
Feedback OFF	6E*h*	n	Turns off Data Feedback
Compressed LCD ON	**4C***h,* **66***h*	**Lc**	**Same as 'Lc', except that no more than 20 characters will be sent for each line**
LCD OFF	4C*h,* 30*h*	L0	Turns OFF LCD Data feedback
Compressed GUI ON	**47***h,* **63***h*	**Gc**	**GUI Data should be sent in compressed format (same as sending 'c', then 'g')**
GUI OFF	47*h,* 30*h*	G0	Turns OFF GUI Data feedback
Elapsed Time ON	**2B***h,* **74***h*	**+t**	**Elapsed time should be sent during playback**
Elapsed Time OFF	2D*h,* 74*h*	-t	Elapsed time should NOT be sent during playback
Constant Player Data ON	**6D***h,* **2B***h*	**m+**	**Turns ON constant player feedback so you get player data on any page**
Constant Player Data OFF	6D*h,* 2D*h*	m-	Turns OFF constant player feedback
Status Messages ON	**73***h,* **2B***h*	**s+**	**Enables Status messages**
Status Messages OFF	73*h,* 2D*h*	s-	Disables Status messages
Active Zone Feedback ON	33*h,* 7A*h,* 2B*h*	3z+	Receive Active Zone Feedback messages
Active Zone Feedback OFF	33*h,* 7A*h,* 2D*h*	3z-	Stop receiving Active Zone Feedback messages
IR Action Feedback ON	3B*h,* 00*h*	*none*	Begin "IR Action Feedback" messages (i.e. IR button presses are sent to clients as feedback messages)
IR Action Feedback OFF	3B*h,* 01*h*	*none*	Restore IR functions; resume processing IR commands
Reset IR	3B*h,* FF*h*	*none*	Restore IR Functions and Set Zone 1 Active (aka "Get the IR to make the LCD change again!")

Example: This command will turn on Compressed GUI data, Elapsed Time, Constant Player Feedback, and Status messages on Zone 1:

33*h,* 47*h,* 63*h,* F1*h,* FF*h,* FB*h,* 33*h,* 2B*h,* 74*h,* F1*h,* FF*h,* FB*h,*

33*h*, 6D*h*, 2B*h,* F1*h*, FF*h*, FB*h*, 33*h*, 73*h*, 2B F1*h*, FF*h*, FB*h*

Receiving Feedback

When the AudioReQuest sends data, the first byte is **ALWAYS** one of the following data types:

Data Type		
Hex Value	ASCII Value	Description
31*h*	49	LCD Data
32*h*	**50**	**GUI Data (most common)**
36*h*	54	Status Message
37*h*	55	Cover Art/Stream Path
38*h*	56	Timed Dialog Message
39*h*	57	Player Song has changed
3A*h*	58	Navigator Selection has changed
3B*h*	59	IR Action Feedback
47*h*	71	Ethernet Ping response
4C*h*	76	Which Zone is active

Each feedback item is terminated (delimited) by the same 3 byte string used to send commands to the unit (see **Page 5**).

Breakdown of Each Data Type

1) LCD Data (31h):

Data Type 31*h*	Unused 1 Byte	Cursor Position (X) 1 Byte	Cursor Position (Y) 1 Byte	Line Number 1 Byte	Data 32 Bytes Max	Footer 3 Bytes (**Fx*h*, FF*h*, FB*h***)

2) GUI Data (32h):

Data Type 32*h*	Screen Type 1 Byte	Data Header 1 Byte	Data 32 Bytes Max	Footer 3 Bytes (**Fx*h*, FF*h*, FB*h***)

Screen Types (Only sent when **Data Type** = 32*h*):

Hex Value	ASCII Value	Description
11*h*	17	Player Data is being sent
12*h*	18	Navigator Data is being sent

Data Headers (Only sent when **Data Type** = 32*h*):
The Data Header depends on the **Screen Type

When Screen Type is 11*h* (Player Data):

Data Header				Length of the
Hex Value	ASCII Value	Description		following Data (Bytes)
01*h*	1	Playlist Name		32 max

02*h*	2	Shuffle State
		    0 = Shuffle OFF
		    1 = Shuffle ON
				1

03*h*	3	Repeat/Continuous State
		    0 = OFF
		    1 = Repeat ON
		    2 = Continuous ON
				1

04*h*	4	Intro State 0 = Intro OFF		1

Hex Value	ASCII Value	Description	Length of the following Data (Bytes)
		1 = Intro ON	

05h	5	Player State
		  1 = Stopped
		  2 = Playing
		  3 = Paused
			1

06h	6	Elapsed Time	4 (LSBF)
07h	7	Total Time	4 (LSBF)

08h	8	Current Song Selected
		  0 = Song NOT Selected
		  1 = Song IS Selected
			1

0Ah	10	Next Song Selected
		  0 = Song NOT Selected
		  1 = Song IS Selected
			1

0Bh	11	Next Song Title	32 max
0Ch	12	Current Song Title	32 max
0Dh	13	Current Artist Name	32 max
0Eh	14	Current Album Name	32 max
0Fh	15	Current Genre	32 max
10h	16	Current Track Number	4 (LSBF)
12h	18	Total Tracks	4 (LSBF)
13h	19	Next Track Artist	32 max
14h	20	Next Track Album	32 max
15h	21	Next Track Genre	32 max

When Screen Type is 12h (Navigator Data):

Data Header			Length of the
Hex Value	ASCII Value	Description	following Data (Bytes)
01h	1	Cursor Position (1 bit for each of the 8 lines)	2
02h	2	Window Title	32 max

03h	3	Up Arrow (Byte 1)
		  0 = no lines above line 1
		  1 = more lines above line 1
		Down Arrow (Byte 2)
		  0 = no lines below line 8
		  1 = more lines below line 8
			2 Total
			
			1 for UP
			1 for DOWN

06h	6	Line 1	32 max
07h	7	Line 2	32 max
08h	8	Line 3	32 max
09h	9	Line 4	32 max
0Ah	10	Line 5	32 max
0Bh	11	Line 6	32 max
0Ch	12	Line 7	32 max
0Dh	13	Line 8	32 max
0Eh	14	Selected Artist	32 max
0Fh	15	Selected Album	32 max
10h	16	Selected Genre	32 max
11h	17	Selected Playlist	32 max
12h	18	Num Items in List	4 (LSBF)
13h	19	Total Time	4 (LSBF)

3) *Status Message (36h):*

Data Type 36*h*	State 2 Bytes	NetSync 1 Byte	SW Update 1 Byte	Search 1 Byte	Screen Saver 1 Byte	Vol Level 1 Byte	Footer 3 Bytes (F**x***h*, FF*h*, FB*h*)

State

The 2 bytes for the state value are **LSBF**. Valid states are as follows:

Value*	Mode	Description
100	Navigator	The ARQ is on the Navigator page.
101	Power	The ARQ is Soft Powered OFF.
102	Edit	The ARQ is on the Edit screen.
103	Info	The ARQ is on the Info screen.
105	Day/Time	The ARQ is on the Edit Day/Time page.
106	Line In Rec	The ARQ is recording from LINE-IN.
107	Line In Info	The ARQ is on the edit screen for LINE-IN.
108	Edit (listbox)	The ARQ is on an edit page with a list of choices, such as EDIT GENRE.
240/241	Player	The ARQ is on the Player page.
303	Non-Timed Dialog	There is a message being displayed on the ARQ that will not go away until Enter or Cancel is pressed.
400	Menu	The ARQ is on the Menu page.
500/502	Encoder	The ARQ is encoding music.
501	Encoder Edit	The ARQ is on the edit page prior to encoding.
503	Genre Lookup	The ARQ is looking up genres for your music.
504	Transcode	The ARQ is converting WAV to FLAC.
600	Visuals	The ARQ is in Visuals Mode.
700	Unusable State	The ARQ is installing a software update and the unit is unusable.
701	Unusable State	The ARQ has booted into Safe Mode due to a HW or SW failure. Call Tech Support for further assistance.

NetSync

If this Byte contains a value of 1, the AudioReQuest is NetSyncing to its master. This will only be the case on an ARQ Zone or a Pro configured as a Zone.

SW Update

If this Byte contains a value of 1, the AudioReQuest is downloading a Software Update

Search

If this Byte contains a value of 1, the AudioReQuest is in Extended Search mode, allowing you to enter multiple characters to narrow your search.

Screen Saver

If this Byte contains a value of 1, the AudioReQuest is in Screen Saver mode.

Vol Level

This Byte contains the Volume Level of the Analog Audio output on the ARQ. The valid range of values is 0-100 (or 00*h* – 64*h*). If the level returned is FF*h*, then the volume is muted. There is essentially no difference between a value of 00*h* and a value of FF*h*. 00*h* will be sent when the volume is *turned down* all the way, whereas a value of FF*h* will be returned when the MUTE command is sent.

NOTE: This value is NOT valid for either of the Digital outputs, which are always at MAX.

4) Cover Art/Stream Path (37h):

Data Type	Path Type	Path Data	Footer
37*h*	1 Bytes	255 Bytes Max	3 Bytes (Fx*h*, FF*h*, FB*h*)

The Cover Art or Stream paths are **ONLY** sent when they are requested. Refer to the **Other Advanced Serial Port Codes** section on page 10 for further information.

Path Types

Hex Value	ASCII Value	Description
01*h*	1	Player AlbumArt™ path, large picture
02*h*	2	Player AlbumArt™ path, small picture
03*h*	3	Player Stream path*
04*h*	4	Navigator AlbumArt™ path, large picture
05*h*	5	Navigator AlbumArt™ path, small picture
06*h*	6	Navigator Song Stream path*
07*h*	7	Currently playing Song ID**
08*h*	8	Next Song ID**
09*h*	9	Next Song AlbumArt™ path, large picture
0A*h*	10	Next Song AlbumArt™ path, small picture
0B*h*	11	Next Song Stream path*

* ——— Path to music files, used for streaming audio.
** ——— The Song ID can be found by exporting the catalog information from the WebServer

5) Timed Dialog Message (38h):

Data Type	Dialog Title	Delimiter	Dialog Message	Delimiter	Display Time	Footer
38*h*	32 Bytes Max	00*h*	256 Bytes Max	00*h*	4 Bytes (**LSBF**)	3 Bytes (Fx*h*, FF*h*, FB*h*)

6) Player Song has changed (39h):

Data Type	Footer
39*h*	3 Bytes (Fx*h*, FF*h*, FB*h*)

This data is sent whenever the currently playing song on the AudioReQuest changes. This will happen whenever one of the following occurs:
- The current song ends and the next song in the queue begins
- The user selects a new song to play

This is useful for knowing when to request a new AlbumArt™ or Stream path.

7) Navigator Selection has changed (3Ah):

Data Type	Footer
3A*h*	3 Bytes (Fx*h*, FF*h*, FB*h*)

This data is sent whenever the currently highlighted item on the Navigator page (Song, Artist, Album, etc) changes.

This is useful for knowing when to request a new AlbumArt™ or Stream path.

8) *IR Feedback Action Messages (3Bh):*

Data Type	Data
3B*h*	2 Bytes (**XX***h*, **YY***h*)

The data contains the 2 Byte (Serial) command of the IR command that was sent. For example, "3Bh, 30h, 15h" means "Cursor Up Pressed", and "3Bh, 30h, 2Ah" means "'q' Key Pressed". See Appendix B for a full list of Serial commands.

9) *Ethernet Ping Response (47h):*

Data Type	Footer
47*h*	3 Bytes (**Fx***h*, **FF***h*, **FB***h*)

This data is sent in response to an Ethernet Ping Request (see **Other Advanced Serial Port Codes** on page 10 for more information).

NOTE: An Ethernet Ping Response will **ONLY** be sent to TCP/IP connections. Serial connections will not get a response.

9) *Zone Active Feedback (4Ch):*

Data Type	Data
4C*h*	XX*h*,<name>

This data contains the number of the Zone that is active (01h, 02h, 03h,04h), followed by the user given name of the Zone (ASCII).

Appendix A – IR Commands

The following tables list all the available IR commands and a brief description of what each command does. This list is meant as a reference only. For a library of the commands in CCF format, please visit www.request.com and click on Support along the top.

Setting Active Zone

Command	Description
Set Active Zone 1	Sets Zone 1 as the active Zone
Set Active Zone 2	Sets Zone 2 as the active Zone
Set Active Zone 3	Sets Zone 3 as the active Zone
Set Active Zone 4	Sets Zone 4 as the active Zone
Decrement Active Zone	Decreases Active Zone Number
Increment Active Zone	Increases Active Zone Number

Basic Commands

Command	Description
Backspace	Deletes the last character entered in text entry
Cancel	Exit from any menu or from Visuals
CD Tray Eject/Close Toggle Symbol ","	Opens/Closes the CD Drawer, Comma in text entry
Copy	Copy items from "Selected Songs" list into highlighted user Playlist
Cursor Down	Move cursor down
Cursor Left	Move cursor left
Cursor Right	Move cursor right
Cursor Up	Move cursor up
Delete	Deletes selected item
Edit	Edits the current selection
EQ/Add to Playlist	Add to playlist w/ Enhanced TV Interface
Fast Forward	Fast forward current playing song
Help	Help function
Info	Display information about currently highlighted song
Intro Toggle	Toggles Intro mode (plays first 7 seconds of each song queued)
Jump Down	Navigates down a page
Jump Up	Navigates up a page
Letter "a"	Lowercase 'a'
Letter "A"	Uppercase 'A'
Letter "b"	Lowercase 'b'
Letter "B"	Uppercase 'B'
Letter "c"	Lowercase 'c'
Letter "C"	Uppercase 'C'
Letter "d"	Lowercase 'd'
Letter "D"	Uppercase 'D'
Letter "e"	Lowercase 'e'
Letter "E"	Uppercase 'E'

Letter "f"	Lowercase 'f'
Letter "F"	Uppercase 'F'
Letter "g"	Lowercase 'g'
Letter "G"	Uppercase 'G'
Letter "h"	Lowercase 'h'
Letter "H"	Uppercase 'H'
Letter "i"	Lowercase 'i'
Letter "I"	Uppercase 'I'
Letter "j"	Lowercase 'j'
Letter "J"	Uppercase 'J'
Letter "k"	Lowercase 'k'
Letter "K"	Uppercase 'K'
Letter "l"	Lowercase 'l'
Letter "L"	Uppercase 'L'
Letter "m"	Lowercase 'm'
Letter "M"	Uppercase 'M'
Letter "n"	Lowercase 'n'
Letter "N"	Uppercase 'N'
Letter "o"	Lowercase 'o'
Letter "O"	Uppercase 'O'
Letter "p"	Lowercase 'p'
Letter "P"	Uppercase 'P'
Letter "q"	Lowercase 'q'
Letter "Q"	Uppercase 'Q'
Letter "r"	Lowercase 'r'
Letter "R"	Uppercase 'R'
Letter "s"	Lowercase 's'
Letter "S"	Uppercase 'S'
Letter "t"	Lowercase 't'
Letter "T"	Uppercase 'T'
Letter "u"	Lowercase 'u'
Letter "U"	Uppercase 'U'
Letter "v"	Lowercase 'v'
Letter "v"	Uppercase 'V'
Letter "V"	Lowercase 'w'
Letter "w"	Uppercase 'W'
Letter "W"	Lowercase 'x'
Letter "X"	Uppercase 'X'
Letter "y"	Lowercase 'y'
Letter "Y"	Uppercase 'Y'
Letter "z"	Lowercase 'z'
Letter "Z"	Uppercase 'Z'
Menu Toggle	Invoke/exit from ARQ Menu
Mode Switch	Toggles between Player and Navigator
Number '0'	Number '0'
Number '1'	Number '1'
Number '2'	Number '2'

Number '3'	Number '3'
Number '4'	Number '4'
Number '5'	Number '5'
Number '6'	Number '6'
Number '7'	Number '7'
Number '8'	Number '8'
Number '9'	Number '9'
Pause	Pauses playback
Play Now - Flip	Plays the current selection immediately. Flips the ARQ to the Player page
Play Now - No Flip & Symbol "("	Plays the current selection immediately. Leaves the ARQ on the Navigator page
Play/Enter	Acts as Enter in edits or on the Navigator page. Acts as Play/Pause toggle on the Player page
Power Toggle	Toggles soft-power on the ARQ
Queue	Adds the current selection to the end of the Now Playing queue
Repeat/Continuous/Normal Toggle	Toggles either Repeat mode on, Continuous mode on, or both off.
Reset IR Control w/ Enhanced GUI	Reset IR control if Enhanced GUI becomes out of sync
Rewind	Rewinds current playing song
Search	Enters Search mode
Select	Adds highlighted song to "Selected Songs" list
Shuffle Toggle	Toggles Shuffle mode on/off
Sort	*Not currently used*
Stop	Stops currently playing song
Symbol " _"	Symbol " _"
Symbol "-"	Symbol "-"
Symbol ")"	Symbol ")"
Symbol "."	Symbol "."
Symbol "+"	Symbol "+"
Themes	Changes the look of the ARQ GUI, toggling through available themes
Visuals	Enters Visuals mode
Volume Down	Raises analog audio level
Volume Up	Lowers analog audio level

Discrete Commands

Command	Description
Clear Now Playing	Clears the Now Playing queue
Continuous On	Turns Continuous Mode on
Delete User Playlist & Symbol "&"	Deletes playlist without confirmation
Discrete Play	Starts music playing if music is stopped or paused
Discrete Record	Begin Line-In Recording
Edit Genre & Symbol "/"	Edit Genre Field
Enter/Play No Flip	Plays selection without flipping to Player page
Go to Album	Go to Album listing in Navigator
Go to All Songs	Go to All Songs listing in Navigator

Go to Artist	Go to Artist listing in Navigator
Go to CD	Go to songs on a CD in the CD drive
Go to Current Playing Album	Go to Current Playing Album
Go to Current Playing Artist	Go to Current Playing Artist
Go to Current Playing Genre & Symbol "!"	Go to Current Playing Genre, "!" Symbol in text entry
Go to Current Playing Playlist & Symbol "?"	Go to Current Playing Playlist, "?" Symbol in text entry
Go to Genres	Go to Genre listing
Go to Navigator	Go to Navigator page
Go to Now Playing	Go to Now Playing list
Go to Player	Go to Player page
Go to Playlists	Go to Playlist listing
Go to Selected Songs	Go to Selected Songs list
Line In Play	Play source connected to analog line-input
Move To Bottom of List	Navigate to the bottom of the current navigational list
Move To Top of List	Navigate to the top of the current navigational list
Next Album	Plays the next album alphabetically
Next Artist	Plays the next artist alphabetically
Next Genre & Symbol "*"	Plays the next genre alphabetically, "*" symbol in text entry
Next Track	Plays next track
Next Playlist	Plays next playlist
Pause Off	Pauses playback
Pause On	Un-pauses playback
Play Playlist 1	Play Playlist 1
Play Playlist 10	Play Playlist 10
Play Playlist 2	Play Playlist 2
Play Playlist 3	Play Playlist 3
Play Playlist 4	Play Playlist 4
Play Playlist 5	Play Playlist 5
Play Playlist 6	Play Playlist 6
Play Playlist 7	Play Playlist 7
Play Playlist 8	Play Playlist 8
Play Playlist 9	Play Playlist 9
Previous Artist	Play previous artist
Previous Genre & Symbol "$"	Play previous genre, "$" symbol in text entry
Previous Track	Plays next track
Previous Playlist	Play previous playlist
Pervious Album	Play previous album
Random Off	Turn random-play feature off
Random On	Turn random-play feature on
Reboot	Reboot ARQ
Refresh TV Outputs & Symbol "="	Force TV outputs to refresh, "=" symbol in text entry
Repeat Off (also Continuous Off)	Turn Repeat or Continuous modes off
Repeat On	Turn Repeat mode on
Reset CD Info & Symbol '	Reset Pending look ups, apostrophe symbol in text entry
Select All & Symbol "	Select All, quotation mark symbol in text entry
Shuffle Off	Turn shuffle mode off
Shuffle On	Turn shuffle mode on

Soft Power Off & Symbol ":"	Soft Power off, ":" symbol in text entry
Soft Power On & Symbol "~"	Soft Power on, "~" symbol in text entry

Zone Specific Commands

The following are commands that can be discretely sent to each Zone.   For a description of a particular command, see the tables above.

Command
Play
Pause
Stop
Repeat/Continuous/Normal Toggle
Continuous On
Repeat On
Repeat Off (also Continuous Off)
Shuffle Toggle
Shuffle On
Shuffle Off
Random On
Random Off
Next Artist
Next Album
Next Genre
Next Playlist
Next Track

Command
Fast Forward
Rewind
Play Playlist 01
Play Playlist 02
Play Playlist 03
Play Playlist 04
Play Playlist 05
Play Playlist 06
Play Playlist 07
Play Playlist 08
Play Playlist 09
Play Playlist 10
Previous Artist
Previous Album
Previous Genre
Previous Playlist
Previous Track

Appendix B – Serial/Ethernet Commands

Basic Serial Port Codes

Command	Hex String	Description
Back Space	30*h*, 3F*h*	Deletes the last character entered in text entry
Cancel	30*h*, 13*h*	Exit from any menu or from Visuals
Continuous Toggle	30*h*, AF*h*	Toggles Continuous playback mode ON/OFF
Copy	30*h*, 66*h*	Copies any Selected Songs to the current location
Delete	30*h*, 65*h*	Deletes the current selection
Delete from Playlist	30*h*, B1*h*	Removes the current selection from the Playlist
Edit	30*h*, 7D*h*	Edits the current selection
Edit Genre	30*h*, 6D*h*	Edits the Genre of the current selection
Enter/Pause	30*h*, 19*h*	Acts as Enter in edits or on the Navigator page Acts as Play/Pause toggle on the Player page
Enter – No Flip	30*h*, 8D*h*	Same as Enter/Pause, but will not flip the ARQ to the Player page if issuing command on a song
Forward/Right	30*h*, 16*h*	Acts as Move Right on the Navigator page Acts as Fast Forward on the Player page
Go to Albums	30*h*, 21*h*	Displays the list of Albums
Go to All Songs	30*h*, 1F*h*	Displays All Songs
Go to Artists	30*h*, 20*h*	Displays the list of Artists
Go to CD	30*h*, 1E*h*	Displays the contents of a CD in the CD tray
Go to Genres	30*h*, 6A*h*	Displays the Genre list
Go to Now Playing	30*h*, 22*h*	Displays the songs in the Now Playing queue
Go to Playlists	30*h*, 69*h*	Displays the Playlists on the system
Go to Selected Songs	30*h*, A6*h*	Displays the list of selected songs
Info	30*h*, 5E*h*	Displays information about the current selection
Intro Toggle	30*h*, 5F*h*	Toggles Intro Mode (plays first 7 seconds of any song)
Jump Down	30*h*, 1D*h*	Acts as Page Down on the Navigator page Acts as Random Mode ON on the Player page
Jump Down X	46*h*, XX*h*	Same as Jump Down, except jumps X lines at a time (01*h* – 08*h*). Useful for having different numbers of lines on different touch panels.
Jump Up	30*h*, 1C*h*	Acts as Page Up on the Navigator page Acts as Random Mode OFF on the player page
Jump Up X	45*h*, XX*h*	Same as Jump Up, except jumps X lines at a time (01*h* – 08*h*). Useful for having different numbers of lines on different touch panels.
Letter "a"	30*h*, 23*h*	Lowercase 'a'
Letter "A"	30*h*, 41*h*	Uppercase 'A'
Letter "b"	30*h*, 24*h*	Lowercase 'b'
Letter "B"	30*h*, 42*h*	Uppercase 'B'
Letter "c"	30*h*, 25*h*	Lowercase 'c'
Letter "C"	30*h*, 43*h*	Uppercase 'C'
Letter "d"	30*h*, 26*h*	Lowercase 'd'
Letter "D"	30*h*, 44*h*	Uppercase 'D'
Letter "e"	30*h*, 27*h*	Lowercase 'e'

Letter "E"	30h, 45h	Uppercase 'E'
Letter "f"	30h, 28h	Lowercase 'f'
Letter "F"	30h, 46h	Uppercase 'F'
Letter "g"	30h, 29h	Lowercase 'g'
Letter "G"	30h, 47h	Uppercase 'G'
Letter "h"	30h, 2Ah	Lowercase 'h'
Letter "H"	30h, 48h	Uppercase 'H'
Letter "i"	30h, 2Bh	Lowercase 'i'
Letter "I"	30h, 49h	Uppercase 'I'
Letter "j"	30h, 2Ch	Lowercase 'j'
Letter "J"	30h, 4Ah	Uppercase 'J'
Letter "k"	30h, 2Dh	Lowercase 'k'
Letter "K"	30h, 4Bh	Uppercase 'K'
Letter "l"	30h, 2Eh	Lowercase 'l'
Letter "L"	30h, 4Ch	Uppercase 'L'
Letter "m"	30h, 2Fh	Lowercase 'm'
Letter "M"	30h, 4Dh	Uppercase 'M'
Letter "n"	30h, 30h	Lowercase 'n'
Letter "N"	30h, 4Eh	Uppercase 'N'
Letter "o"	30h, 31h	Lowercase 'o'
Letter "O"	30h, 4Fh	Uppercase 'O'
Letter "p"	30h, 32h	Lowercase 'p'
Letter "P"	30h, 50h	Uppercase 'P'
Letter "q"	30h, 33h	Lowercase 'q'
Letter "Q"	30h, 51h	Uppercase 'Q'
Letter "r"	30h, 34h	Lowercase 'r'
Letter "R"	30h, 52h	Uppercase 'R'
Letter "s"	30h, 35h	Lowercase 's'
Letter "S"	30h, 53h	Uppercase 'S'
Letter "t"	30h, 36h	Lowercase 't'
Letter "T"	30h, 54h	Uppercase 'T'
Letter "u"	30h, 37h	Lowercase 'u'
Letter "U"	30h, 55h	Uppercase 'U'
Letter "v"	30h, 38h	Lowercase 'v'
Letter "V"	30h, 56h	Uppercase 'V'
Letter "w"	30h, 39h	Lowercase 'w'
Letter "W"	30h, 57h	Uppercase 'W'
Letter "x"	30h, 3Ah	Lowercase 'x'
Letter "X"	30h, 58h	Uppercase 'X'
Letter "y"	30h, 3Bh	Lowercase 'y'
Letter "Y"	30h, 59h	Uppercase 'Y'
Letter "z"	30h, 3Eh	Lowercase 'z'
Letter "Z"	30h, 5Ah	Uppercase 'Z'
Menu	30h, 02h	Enters the Main Menu
Mode	30h, 01h	Toggles between Player and Navigator pages
Move to Bottom	30h, B4h	Navigates to the bottom of the current list
Move to Top	30h, B3h	Navigates to the top of the current list
Next/Down	30h, 17h	Acts as Cursor Down on the Navigator page Acts as Next Song on the Player page

Number '0'	30*h,* 0D*h*	Number '0'
Number '1'	30*h,* 04*h*	Number '1'
Number '2'	30*h,* 05*h*	Number '2'
Number '3'	30*h,* 06*h*	Number '3'
Number '4'	30*h,* 07*h*	Number '4'
Number '5'	30*h,* 08*h*	Number '5'
Number '6'	30*h,* 09*h*	Number '6'
Number '7'	30*h,* 0A*h*	Number '7'
Number '8'	30*h,* 0B*h*	Number '8'
Number '9'	30*h,* 0C*h*	Number '9'
Pause Toggle	30*h,* 0F*h*	Toggles Pause ON and OFF
Play Now	30*h,* AE*h*	Plays the current selection immediately. Flips the ARQ to the Player page
Play Now-NoFlip	30*h,* 6E*h*	Plays the current selection immediately. Leaves the ARQ on the Navigator page
Power Toggle	30*h,* 03*h*	Toggles Soft Power ON and OFF
Previous/Up	30*h,* 15*h*	Acts as Cursor Up on the Navigator page Acts as Previous Song on the Player page
Queue	30*h,* 68*h*	Adds the current selection to the end of the Now Playing queue
Record	30*h,* 10*h*	Rips the CD in the CD Tray onto the hard drive
Record – No Edit	30*h,* 90*h*	Begins ripping the CD in the CD tray without prompting user for information
Repeat Toggle	30*h,* 12*h*	Toggles Repeat On and OFF
Repeat/Continuous Toggle	30*h,* B0*h*	Cycles between Repeat, Continuous, and OFF
Rewind/Left	30*h,* 18*h*	Acts as Move Left on the Navigator page Acts as Rewind on the Player page
Search	30*h,* 64*h*	Enters extended search mode
Select Toggle	30*h,* 14*h*	Selects/Deselects the currently highlighted item
Shuffle Toggle	30*h,* 11*h*	Toggles Shuffle ON and OFF
Space	30*h,* 3D*h*	Enters a Space in text entry
Stop	30*h,* 0E*h*	Stops music from playing
Symbol " " "	30*h,* 75*h*	Symbol " " "
Symbol " ! "	30*h,* 79*h*	Symbol " ! "
Symbol " # "	30*h,* 6A*h*	Symbol " # "
Symbol " $ "	30*h,* 6B*h*	Symbol " $ "
Symbol " & "	30*h,* 78*h*	Symbol " & "
Symbol " ("	30*h,* 6E*h*	Symbol " ("
Symbol ") "	30*h,* 6F*h*	Symbol ") "
Symbol " * "	30*h,* 6C*h*	Symbol " * "
Symbol " , "	30*h,* 7B*h*	Symbol " , "
Symbol " . "	30*h,* 7C*h*	Symbol " . "
Symbol " / "	30*h,* 6D*h*	Symbol " / "
Symbol " : "	30*h,* 74*h*	Symbol " : "
Symbol " ? "	30*h,* 7A*h*	Symbol " ? "
Symbol " @ "	30*h,* 69*h*	Symbol " @ "
Symbol " _ "	30*h,* 70*h*	Symbol " _ "
Symbol " ~ "	30*h,* 73*h*	Symbol " ~ "
Symbol " - "	30*h,* 71*h*	Symbol " - "

Symbol " + "	30*h, 72h*	Symbol " + "
Symbol " = "	30*h, 77h*	Symbol " = "
Symbol " ' "	30*h, 76h*	Symbol " ' "
Themes	30*h, 5Ch*	Changes the look of the GUI display
Visuals	30*h, 5Bh*	Enters Visuals mode
Volume Down	30*h, 1Bh*	Lowers the volume of the Analog output
Volume Up	30*h, 1Ah*	Raises the volume of the Analog output

Discrete Serial Port Codes

Command	Hex String	Description
Auto Rip Off	30*h, 93h*	Turns off Auto Ripping mode
Auto Rip On	30*h, 92h*	Turns on Auto Ripping mode
Cancel Netsync	30*h,* BE*h*	Cancels in-progress Netsync. Only works on Zone or Pro set as a Zone.
Clear Now Playing	30*h, A0h*	Empties the Now Playing queue
Continuous ON	30*h, 3Ch*	Turns on Continuous playback mode
Create Empty Playlist	30*h, A7h*	Creates an empty Playlist. Prompts for a name.
Create Now Playing Playlist	30*h, A8h*	Creates a Playlist from the songs in the Now Playing queue
Create Selected Songs Playlist	30*h, A9h*	Creates a Playlist of the songs in the Selected Songs list. Prompts for a name
Deselect	30*h, 76h*	Deselects any selected songs
Direct Playlist Access – Flip	42*h,* N*h*	Plays songs in the *N*th Playlist, where *N* is any Hex number from 01*h* to FF*h* (total of 255 playlists). ARQ flips to Player page
Direct Playlist Access – No Flip	43*h,* N*h*	Plays songs in the *N*th Playlist, where *N* is any Hex number from 01*h* to FF*h* (total of 255 playlists). ARQ stays on current page (Player or Navigator)
Eject	30*h, 8Bh*	Opens/Closes the CD Drawer
Fast Forward	30*h, 88h*	Skips ahead 5 seconds on the current song
FreeDB Reset	30*h, 75h*	Resets pending CD lookups
Get Current Active Zone	4Ch, 00h	Request feedback on the current zone (type 4C data)
Go to Current Album	30*h,* BA*h*	Navigates to the Currently Playing Song's Album
Go to Current Artist	30*h,* B9*h*	Navigates to the Currently Playing Song's Artist
Go to Current Genre	30*h, 79h*	Navigates to the Currently Playing Song's Genre
Go to Current Playlist	30*h, 7Ah*	Navigates to the Currently Playing Song's Playlist
Go to Current Song	30*h,* B8*h*	Navigates to the Currently Playing Song in All Songs
Go to Navigator	30*h, 8Eh*	Flips the ARQ to the Navigator page
Go to Player	30*h, 8Fh*	Flips the ARQ to the Player page
Line-In Play	30*h,* B5*h*	Lets you listen to what is connected to Line-In
Line-In Record	30*h,* B6*h*	Starts a recording of what is connected to Line-In (requires you enter a name and begin the recording)
Next Album	30*h,* AC*h*	Plays songs on the next Album, alphabetically
Next Artist	30*h,* AA*h*	Plays songs by the next Artist, alphabetically
Next Genre	30*h, 6Ch*	Plays songs in the next Genre, alphabetically
Next Playlist	30*h, 9Eh*	Plays songs in the next Playlist, numerically
Next Song	30*h, 89h*	Plays the Next song in the play queue
Pause-OFF	30*h, 81h*	Un-pauses music playback
Pause-ON	30*h, 84h*	Pauses music playback
Play	30*h, 8Ch*	Starts music playing if music is stopped or paused

Play/Pause Toggle	30*h*, B2*h*	Toggles between Play and Pause. Discrete because it works on the Navigator page also
Play Playlist 1	30*h*, 94*h*	Plays songs in the first Playlist on the system
Play Playlist 2	30*h*, 95*h*	Plays songs in the second Playlist on the system
…	…	…
Play Playlist 10	30*h*, 9D*h*	Plays songs in the tenth Playlist on the system
Power-OFF	30*h*, 74*h*	Soft Powers OFF the ARQ
Power-ON	30*h*, 73*h*	Powers ON the ARQ from a Soft Power OFF state
Previous Album	30*h*, AD*h*	Plays songs on the previous Album, alphabetically
Previous Artist	30*h*, AB*h*	Plays songs by the previous Artist, alphabetically
Previous Genre	30*h*, 6B*h*	Plays songs in the previous Genre, alphabetically
Previous Playlist	30*h*, 9F*h*	Plays songs in the previous Playlist, numerically
Previous Song	30*h*, 87*h*	Plays the Previous song in the play queue
Random-IN	30*h*, 80*h*	Turns on Random play mode
Random-OUT	30*h*, 7F*h*	Turns off Random play mode
Repeat/Continuous OFF	30*h*, 83*h*	Turns off Repeat and Continuous modes
Repeat-ON	30*h*, 86*h*	Turns on Repeat
Rewind	30*h*, 8A*h*	Skips back 5 seconds on the current song
Set Pro as "Pro Only"	30*h*, BB*h*	Sets a Pro unit to "Pro Only" (verses "Pro as Zone")
Set Pro as "Pro as Zone"	30*h*, BC*h*	Sets a Pro unit to "Pro as Zone" (verses "Pro Only")
Set Zone 1 Active	4Ch, 01h	Set Zone 1 Active on Enhanced GUI
Set Zone 2 Active	4Ch, 02h	Set Zone 2 Active on Enhanced GUI
Set Zone 3 Active	4Ch, 03h	Set Zone 3 Active on Enhanced GUI
Set Zone 4 Active	4Ch, 04h	Set Zone 4 Active on Enhanced GUI
Set Previous Zone Active	4Ch, FEh	Set Previous Zone Active (decrement Zone number). Zone numbers will wrap around (using Previous Zone on Zone 1 will return the unit to Zone 4 on an F4).
Set Next Zone Active	4Ch, FFh	Set Next Zone Active (increment Zone number). Zone numbers will wrap around (using Next Zone on Zone 4 will return the unit to Zone 1).
Shuffle-OFF	30*h*, 82*h*	Turns off Shuffle
Shuffle-ON	30*h*, 85*h*	Turns on Shuffle (reorders the current play queue)
Start Netsync	30*h*, BD*h*	Begins a Netsync. Only works on Zone or Pro set as a Zone.
Start-TVout	30*h*, 77*h*	Re-initializes the Composite and S-Video outputs

Other Advanced Serial Port Codes

Command	Hex String	Description
LCD/GUI Data Request	3F*h*	Request for updated Player info (used when Constant Player Feedback is not turned ON)
Jump to Line *X* – Flip	5D*h*, XX*h*	Moves the cursor to line XX and issues an "Enter" command on that line. If that line contains a song, the ARQ will flip to the Player page.
Jump to Line *X* – No Flip	3E*h*, XX*h*	Moves the cursor to line XX and issues an "Enter" command on that line. Does NOT flip the ARQ to the Player page.
Move to Line X	3D*h*, XX*h*	Moves the cursor to line XX, but does NOT issue an "Enter" command
Ethernet Ping Request	47*h*	Request a ping response for TCP/IP connections. Used to determine if ARQ is still online.
Reboot	30*h*, B7*h*	Reboots the AudioReQuest
Refresh	48*h*	Requests all current LCD/GUI/Status information be sent from the ARQ
Set Volume Level	49*h*, XX*h*	Sets the volume level of the Analog audio output to the value of XX. Values of XX may be: • Between 00*h* and 64*h* (0-100 in ASCII) • FF*h* (mute) • FE*h* (unmute)
Seek	44*h*, time	Seeks to a certain time in the current song. See below for an example.

Path Request	4A*h*, XX*h*	Requests a Song path, Song ID, or AlbumARQ™ path be sent from the ARQ. The value of XX determines which path will be sent.
		    01*h* – Player Current Song image – large
		    02*h* – Player Current Song image – small
		    03*h* – Player Current Song path
		    04*h* – Navigator image – large
		    05*h* – Navigator image – small
		    06*h* – Navigator path
		    07*h* – Player Current Song ID
		    08*h* – Player Next Song ID
		    09*h* – Player Next Song image – large
		    0A*h* – Player Next Song image – small
		    0B*h* – Player Next Song path

Queue by Song ID	4B*h*, ID*h*	Adds to the Now playing queue the song with Song ID equal to **ID**. See next page for more info.
Queue by Song Path	4D*h*, LL*h*, path	Adds to the Now Playing Queue the song with Song Path equal to **path**. See next page for more info.

Seek Example:

Let's assume the current song is 2:30 long, or 150 seconds. To seek to the middle of the song (1:15 or 75 seconds), you would do the following.

BYTE 1 = $\dfrac{75}{255}$ = 0, or 00*h*   **BYTE 2** = 75 MOD 255 = 75, or B4*h*

Therefore, you would send **44***h*, **00***h*, **B4***h*

Queue by Song ID:

The format of this command is as follows

Command Header 1 Byte (4B*h*)	ID Byte 1	ID Byte 2	ID Byte 3	ID Byte 4

Song IDs start at 1001 and should be formatted as **LSBF**. The Song IDs can be found by doing an export of the music database from the WebServer. The following example shows how to format the Song ID correctly.

Example: Let's assume that the song ID is 1001 (the lowest possible number). The bytes should be calculated as follows:

$$\text{Byte 4} = \frac{1001}{256^3} = 0 \quad \text{(remainder dropped)}$$

$$\text{Byte 3} = \frac{1001 - \left(Byte4 \times 256^3\right)}{256^2} = 0 \quad \text{(remainder dropped)}$$

$$\text{Byte 2} = \frac{1001 - \left(Byte4 \times 256^3\right) - \left(Byte3 \times 256^2\right)}{256} = 3 \quad \text{which equals } 03h \text{ (remainder dropped)}$$

$$\text{Byte 1} = 1001 - \left(Byte4 \times 256^3\right) - \left(Byte3 \times 256^2\right) - \left(Byte2 \times 256\right) = 233 \quad \text{which equals E9}h$$

Therefore, the string you would send to the ReQuest would be as follows:
 4B*h*, E9*h*, 03*h*, 00*h*, 00*h*

Queue by Song Path:

The format of this command is as follows

Command Header 1 Byte (4D*h*)	Path Length 1 Byte	Path 255 Bytes Max

The path should **ALWAYS** start with "/MP3", as that is the root directory for all files on the AudioReQuest. The paths can be found by doing an export of the music database from the WebServer.

Example: Let's say we want to play "Two Step" by Dave Matthews Band. The path to this file is "/MP3/6C45AFD354BE/dave_matthews_band/crash/two_step.mp3". This path is 51 characters long, which is **33***h*. The following command will queue this song:
 4D*h*, 33*h*, /MP3/6C45AFD354BE/dave_matthews_band/crash/two_step.mp3