Hammerkop Message Definitions

Version 1.0

**Table of Contents**

Serial Packet Format From HAMMERKOP to M-KOPA Unit 3

Messages From Hammerkop To M-KOPA Unit 4

Messages From Hammerkop To M-KOPA Server 5

Messages From M-KOPA Unit To HAMMERKOP 8

Messages From M-KOPA Server To HAMMERKOP 9

### Serial Packet Format From HAMMERKOP to M-KOPA Unit

The packet contains binary data and is sent as a sequence tuples so unused parameters need not be included. Each tuple is made up of an identifier, length and data field.

The identifier and length fields will each be 1 byte. The Length field will indicate the number of bytes to follow in the data field.

Note the Length may be 0x00 in which case the data field will be absent.

The packet format is a sequence of tuples:

<PID><LENGTH><DATABYTES><PID><LENGTH><DATABYTES>

**PID**

The table below shows the possible identifiers, the length of data associated with each

|  |  |  |
| --- | --- | --- |
| Application Record | Identifier | Length of Data |
| App ID Record ID  App ID Request Enable  App ID Status  App ID Current Media  App ID Viewing Settings  App ID TV Error  App ID Message Displayed | 0x21  0x50  0x51  0x52  0x53  0x54  0x55 | 0x02  0x00  0x01  0x02  0x02  0x01  0x02 |

**LENGTH**

The LENGTH is one byte and identifies the number of data bytes following.

### Messages From Hammerkop To M-KOPA Unit

The interface between HAMMERKOP to M-KOPA Unit is via a Serial (RS232) datagram, the format of which is defined below.

Note that the TV should address these messages to 0000000000000001.

**APPPID\_REQUEST ENABLE**

|  |  |
| --- | --- |
| Byte | Description |
| 0  1 | App Id Request Enable  Length (0x00) |

When the TV is powered on by the M-KOPA Unit the M-KOPA Unit will send a message indicating whether the TV is enabled for operation or not. If this message is not received within 30 seconds of the TV powering on then the TV can send the Request Enable message to request an Enable status. This message can be repeated up to 3 times after which the TV should be locked and a message displayed on screen that says “Connect to your M-KOPA control unit”.

### Messages From Hammerkop To M-KOPA Server

The interface between HAMMERKOP to M-KOPA Server is via a Serial (RS232) datagram that is received by the M-KOPA unit and then translated into the UDP datagram for transmission to the M-KOPA server, the format of which is defined below.

Note that the TV should address these messages to 0000000000000000.

**APPPID\_STATUS**

|  |  |
| --- | --- |
| Byte | Description |
| 0  1  2 | App Id Status  Length (0x01)  TV Status |

When the TV is powered on it will generate a message that indicates if it ready for use. If the TV encounters an event that results in the TV being locked the Status message will indicate what event has been encountered.

Status:

|  |  |
| --- | --- |
| Status | Identifier |
| ENABLED  NO CREDIT  DECYPTION FAILURE  DESTINATION MISMATCH | 0  1  2  3 |

**APPPID\_CURRENT\_MEDIA**

|  |  |
| --- | --- |
| Byte | Description |
| 0  1  2  3 | App Id Current Media  Length (0x02)  Media  TV channel |

Each time the customer changes the media that they are viewing (e.g. broadcast TV, DVD, USB) or the channel that they are watching and that new media/channel has been stable for 3 minutes the TV will generate a Current Media message to report what the new media/channel status is.

Media:

|  |  |
| --- | --- |
| Media | Identifier |
| BROADCAST TV  DVD  USB  FLASH MEMORY | 0  1  2  3 |

**APPPID\_VIEWING\_SETTINGS**

|  |  |
| --- | --- |
| Byte | Description |
| 0  1  2  3 | App Id Viewing Settings  Length (0x02)  Volume  Brightness |

This message is generated to report the current use profile of the TV. It should be reported once per hour.

**APPPID\_TV\_ERROR**

|  |  |
| --- | --- |
| Byte | Description |
| 0  1  2 | App Id TV Error  Length (0x01)  TV Error |

This message allows the TV to record errors that are experienced during operation for remote troubleshooting and performance tracking. Additional errors can be defined by TopTech

Errors:

|  |  |
| --- | --- |
| Error | Identifier |
| DECRYPTION FAILURE  NO\_ENABLE\_MSG\_RETURNED | 0  1 |

**APPPID\_MESSAGE\_DISPLAYED**

|  |  |
| --- | --- |
| Byte | Description |
| 0  1  2  3 | App Id Message Displayed  Length (0x02)  Message on/off  Message Index |

The Message Displayed is returned in response to a message display update message received from the M-KOPA unit. Message on/off indicates if a message is current displayed on screen (0 for no message current displayed, 1 for a message current displayed). If a message is displayed then the index indicates which message is currently on screen.

|  |  |
| --- | --- |
| Messages | Identifier |
| No Message  “Connect to M-KOPA Control Unit”  “No credit – Please Top Up”  “Top Up Soon” | 0  1  2  3  4  5  6 |

### Messages From M-KOPA Unit To HAMMERKOP

The interface between M-KOPA Unit To HAMMERKOP is via a Serial (RS232) datagram, the format of which is defined below.

The packet format is a sequence of tuples:

<PID><LENGTH><DATABYTES><PID><LENGTH><DATABYTES>

**PID**

The table below shows the possible identifiers, the length of data associated with each

|  |  |  |  |
| --- | --- | --- | --- |
| Application Record | Identifier | | Length of Data |
| App ID Enable | | 0x56 | 0x02 |

**LENGTH**

The LENGTH is one byte and identifies the number of data bytes following.

**APPPID\_ENABLE**

|  |  |
| --- | --- |
| Byte | Description |
| 0  1  2 | App Id Enable  Length (0x01)  Enable State |

When the TV is powered on by the M-KOPA unit this message will automatically be sent to the TV to enable or disable operation.

|  |  |
| --- | --- |
| Enable State | Identifier |
| DISABLED  ENABLED | 0  1 |

When the TV receives the enabled state it should allow access to all media and channels.

If the TV receives the disabled state then it should block access to all media and display the message on screen “No Credit – Please Top Up”.

If decryption fails on the Enable message then the TV should block access to all media and display the message on screen “Connect to M-KOPA unit”.

### Messages From M-KOPA Server To HAMMERKOP

The interface between M-KOPA Server To HAMMERKOP is via UDP datagram transmitted to the M-KOPA unit that will be translated into a Serial (RS232) datagram for transmission to HAMMERKOP, the format of which is defined below.

Note that the source address of these messages will be 0000000000000000.

The packet format is a sequence of tuples:

<PID><LENGTH><DATABYTES><PID><LENGTH><DATABYTES>

**PID**

The table below shows the possible identifiers, the length of data associated with each

|  |  |  |  |
| --- | --- | --- | --- |
| Application Record | Identifier | | Length of Data |
| App ID Display Message  App ID Setting Update | | 0x57  0x58 | 0x02  Variable |

**LENGTH**

The LENGTH is one byte and identifies the number of data bytes following.

**APPPID\_DISPLAY\_MESSAGE**

|  |  |
| --- | --- |
| Byte | Description |
| 0  1  2  3 | App Id Display Message  Length (0x02)  Message on/off  Message Index |

Allows a state change to be sent to the device

The Display Message requests that the TV turn on or off a message on the screen. Message on/off is 0 if the message is to be cleared from the screen and 1 if the message is to be displayed. If a message is to be displayed then the index indicates which message should be put on screen.

|  |  |
| --- | --- |
| Messages | Identifier |
| No Message  “Connect to M-KOPA Control Unit”  “No credit – Please Top Up”  “Top Up Soon” | 0  1  2  3  4  5  6 |

**APPPID\_SETTINGS\_UPDATE**

|  |  |
| --- | --- |
| Byte | Description |
| 0  1  2  3  4 - N | App Id Settings Update  Length (Variable)  Location to be updated  Length of data to update  Data to update |

Allows for an update to the settings stored in non-volatile memory. For example, this allows an update on the frequency at which viewing settings are reported.