

IP AV Sender

IP Command 説明文件

V0.5

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1. 前言

1.1 編寫目的

介紹 IP AV Sender IP Command 說明。

1.2 適用範圍

使用於 IP AV Sender 相關 Tx/Rx 產品。

1.3 適用人員

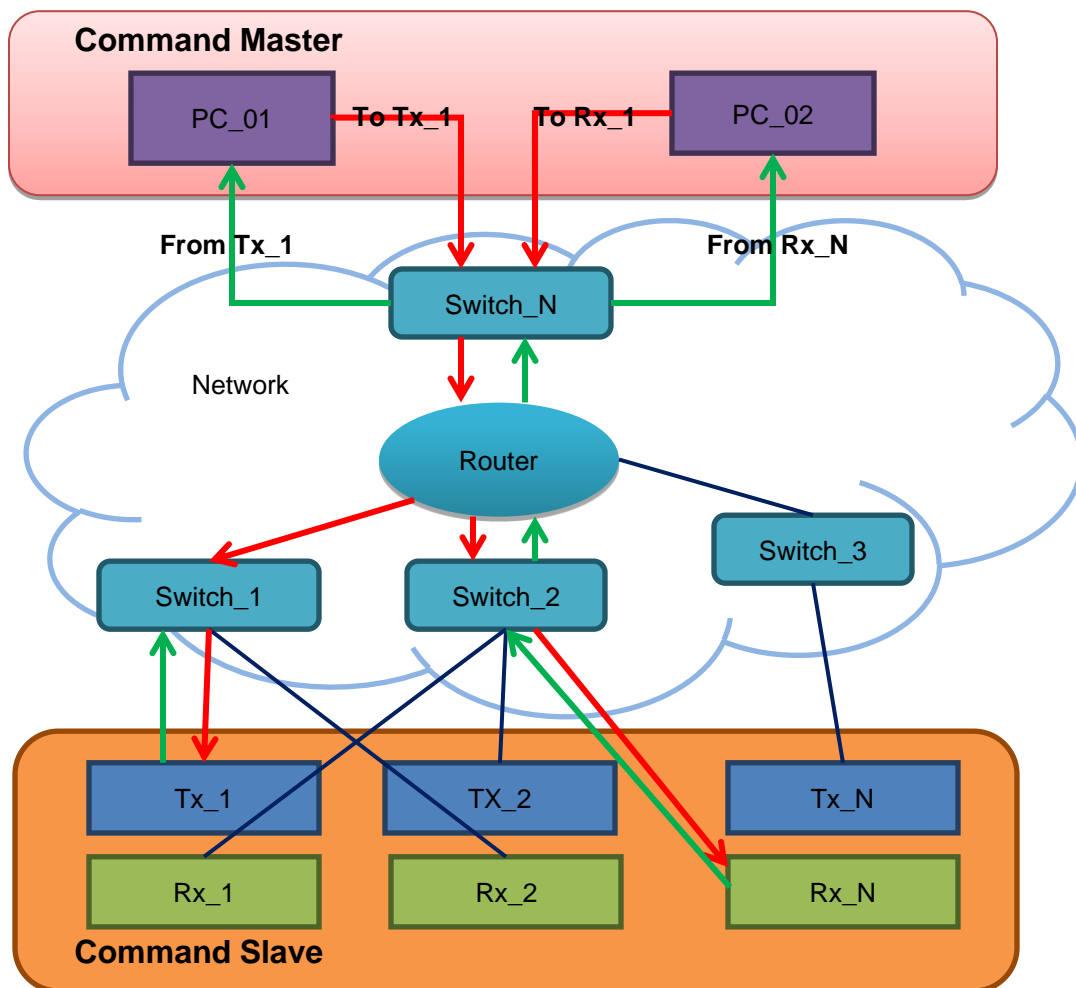
適用於開發 IP AV Sender 之軟件編譯相關人員。

2. IP AV Sender IP Command收送簡介

2.1 IP AV Sender IP Control Command 行為介紹

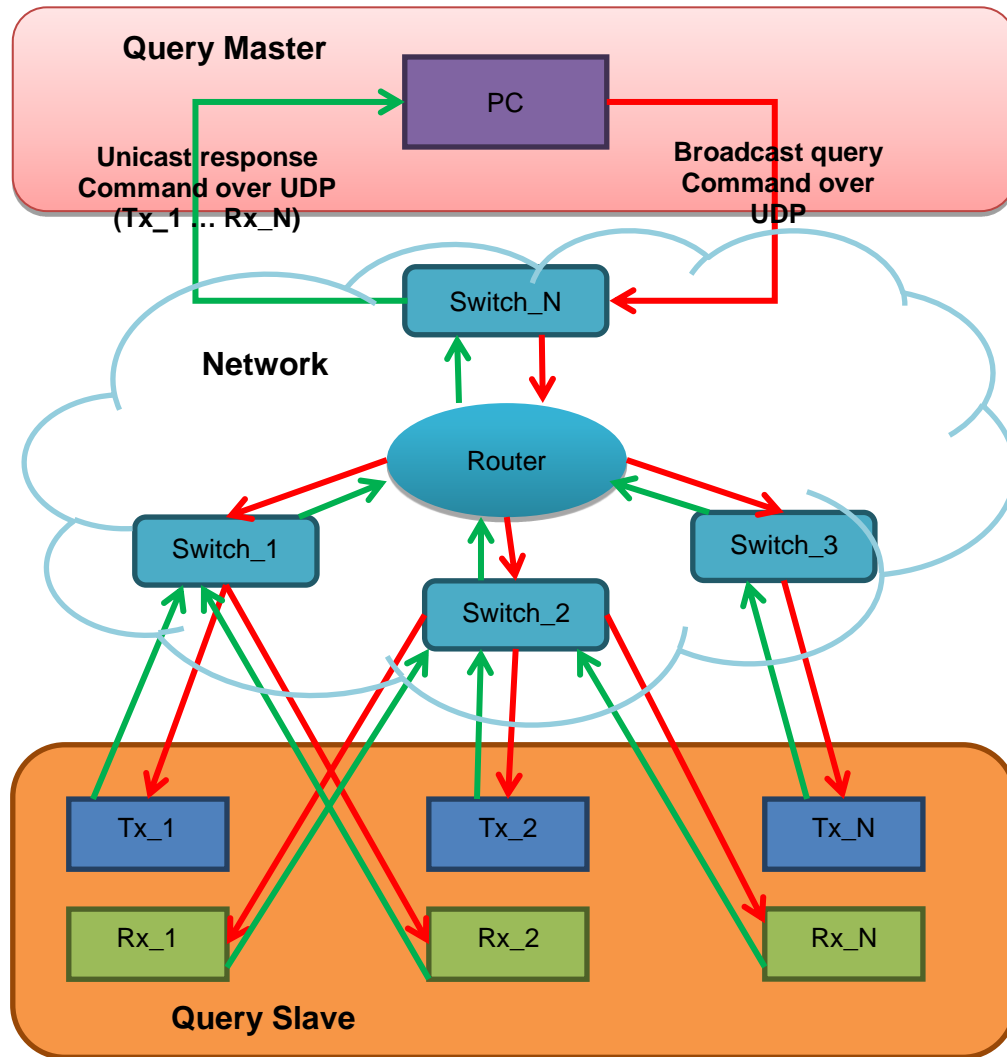
- 將 Get/Set Command 承載在 TCP/IP 上, 以便簡易透過網路設定 Tx/Rx Device 功能, 與取得目前狀況與相關設定之資訊.
- 將 Device Query Command 承載在 UDP/IP 上, 以便收集網路上相關 Device 的資訊.

2.2 IP AV Sender TCP Command 收送示意圖與說明:



- 所有的 Control Command(Get/Set)都限定只由 Command Master 發起, 也就是如上示意圖,Command Master 透 TCP/IP 發送 Request Command 給特定 Device, 而由該 Device 接收並回覆 Response Command. 也就是並不會有 Slave 主動發送 Command 到 Master 的狀況.

2.3 IP AV Sender Query Command 收送示意圖與說明:



- Query Command 如上示意圖，由 Query Master 根據設定的 Query Rule Broadcast Query Request Command over UDP/IP 給所有在網路上的 Device。而接收到的 Device 如果符合 Query Rule，就會透過 Unicast Response Command over UDP/IP 給 Query Master。

2.4 IP AV Sender 定義之 Command Byte Stream Format

Sync Word (1 Byte)	Command Id (2 Byte)	Payload Size (2 Byte)	Header Checksum (1 Byte)	Command Payload (1...N Byte)	Command Payload Checksum (1 Byte)
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- Sync Word: 用於識別 Command 起始碼，長度為 1 Byte，內容值為固定 0x74。

- Command Id: 用於識別傳送的 Command 種類, 長度為 2 Byte, 通常回復的 Command Id 為發送的 Command Id +1.
- Payload Size: 用於記錄後續傳送 Command Payload 的長度, 長度為實際傳送 Command Payload 長度 + Command Payload Checksum 長度. 也就是內容值為 N+1.
- Header Checksum: 用於確保 Command Id 與 Payload Size 是否正常值. 長度為 1 Byte, 內容值為 Byte[1] + Byte[2] + Byte[3] + Byte[4].
- Command Payload: 相關 Command 的 Payload. 其長度不定, 由各自 Command 決定.
- Command Payload Checksum: 用於確保 Command Payload 內容是否正常, 長度為 1 Byte, 假設 Payload 總共有 N 個 Byte, 內容值為 Payload[0] + Payload[1] +.....Payload[N-1].

2.5 Command Prototype

- 透過解析 Command Byte Stream, 基本 Command 是由 Command Id 與 Command Payload 組成. 以下結構為每個 Command 解譯過的基本原型.

Syntax	Byte Size
command_prototype(){	
command_id	2
command_payload	1...N
}	

- command_id: 用於識別 command 的識別碼.
- command_payload: 該 command 的內容.

2.6 Command Over IP Format

IP Command Sync Word (8 Byte)	Sender's IP (4 Byte)	Sender's Receive Port (2 Byte)	IP AV Sender Command (N Byte)
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- IP Command Sync Word: 用於識別 IP AV Sender Command Over IP 的起始碼, 長度為 8 Byte, 內容值為 "IPTV_CMD".
- Sender's IP: Command 來源的 IP.
- Sender's Receive Port: 來源 IP 的接收 Command Port Number.
- IPTV Command: 如 2.4 所定義的 Command Format.

3. IP AV Sender Tx/Rx共用TCP Command說明

3.1 Tx and Rx 共用之 Command Id List

Request Command	Mapped Command Id	Response Command	Mapped Command Id
COMMAND_SET_GROUP_ID	0x0005	COMMAND_SET_GROUP_ID_RET	0x0006
COMMAND_GET_GROUP_ID	0x0013	COMMAND_GET_GROUP_ID_RET	0x0014
COMMAND_GET_MAC_ADDRESS	0x001B	COMMAND_GET_MAC_ADDRESS_RET	0x001C
COMMAND_SET_DEVICE_NAME	0x001D	COMMAND_SET_DEVICE_NAME_RET	0x001E
COMMAND_GET_DEVICE_NAME	0x001F	COMMAND_GET_DEVICE_NAME_RET	0x0020
COMMAND_SET_DEVICE_ID	0x0033	COMMAND_SET_DEVICE_ID_RET	0x0034
COMMAND_GET_DEVICE_ID	0x0035	COMMAND_GET_DEVICE_ID_RET	0x0036
COMMAND_SET_IP_ADDRESS	0x0003	COMMAND_SET_IP_ADDRESS_RET	0x0004
COMMAND_GET_IP_ADDRESS	0x0019	COMMAND_GET_IP_ADDRESS_RET	0x001A
COMMAND_SET_DHCP_MODE	0x0001	COMMAND_SET_DHCP_MODE_RET	0x0002
COMMAND_GET_DHCP_MODE	0x0015	COMMAND_GET_DHCP_MODE_RET	0x0016
		TIMEOUT_COMMAND_ID	0xFFFFD
		UNSUPPORT_COMMAND_ID	0xFFFFE
		CORRUPTED_COMMAND_ID	0xFFFFF

3.2 異常 Reponse Command

- 上述表格有三個特別的 Command Id, 分別代表異常回傳的結果.

- Abnormal Response Command:

Syntax	Byte Size
abnormal_response_command(){	
command_id	2
null_payload	1
}	

- command_id: 當內容值為 0xFFFFD 代表 Master 端並無接收到 Slave 的回傳訊息.
當內容值為 0xFFFFE 代表 Slave 端並無法識別該 Request Command Id.
當內容值為 0xFFFFF 代表 Slave 端比較 Master 的 Command 訊息之 checksum 失敗.
- null_payload: 內容值為 0x0, 以便符合基本 command prototype 定義.

3.3 Set Multicast Group Id Command (COMMAND_SET_GROUP_ID & COMMAND_GET_GROUP_ID_RET)

- 功能: 於 Tx 端用於設定其發送 Multicast Group Id (0~1023), 於 Rx 端用於設定想要接收的 Multicast Group Id.

- Request Command(COMMAND_SET_GROUP_ID)格式:

Syntax	Byte Size
set_multicast_group_id_command(){	
command_id	2
group_id	2
}	

- command_id: 內容值為 0x0005
- group_id: 發送(Tx)或接收(Rx)的 Multicast Group Id, 合法範圍為 0~1023.

- Response Command(COMMAND_SET_GROUP_ID_RET)格式:

Syntax	Byte Size
set_multicast_group_id_command_ret(){	
command_id	2
set_result	1
}	

- command_id: 內容值為 0x0006.
- set_result: 0 – 設定成功, 0xFF – HDMI Sink 不存在, 0xFE – 無連線之 TX Device.

3.4 Get Group ID Command (COMMAND_GET_GROUP_ID & COMMAND_GET_GROUP_ID_RET)

- 功能: 取得目前 Device 設定的 Multicast Group ID.

- Request Command(COMMAND_GET_GROUP_ID)格式:

Syntax	Byte Size
get_group_id_command(){	
command_id	2
null_payload	1
}	

- command_id: 內容值為 0x0013
- null_payload: 內容值為 0x0, 以便符合基本 command prototype 定義.

- Response Command(COMMAND_GET_GROUP_ID_RET)格式:

Syntax	Byte Size
get_group_id_command_ret(){	
command_id	2
get_result	1
group_id	2
}	

- command_id: 內容值為 0x0014
- get_result: 0 – 讀取成功, -1 – 讀取失敗.
- group_id: 目前 Device 使用的 Group id.

3.5 Get MAC Address Command (COMMAND_GET_MAC_ADDRESS & COMMAND_GET_MAC_ADDRESS_RET)

- 功能: 取得目前 Device 的 MAC Address.

- Request Command(COMMAND_GET_MAC_ADDRESS)格式:

Syntax	Byte Size
get_mac_address_command(){	
command_id	2
null_payload	1
}	

- command_id: 內容值為 0x001B
- null_payload: 內容值為 0x0, 以便符合基本 command prototype 定義.

- Response Command(COMMAND_GET_MAC_ADDRESS_RET)格式:

Syntax	Byte Size
get_mac_address_command_ret(){	
command_id	2
get_result	1
mac_address	6
}	

- command_id: 內容值為 0x001C
- get_result: 0 – 讀取成功, -1 – 讀取失敗.
- mac_address: 目前 Device 的 MAC Address.

3.6 Set Device Name Command (COMMAND_SET_DEVICE_NAME & COMMAND_SET_DEVICE_NAME_RET)

- 功能: 設定目前 Device 的識別名稱.

- Request Command(COMMAND_SET_DEVICE_NAME)格式:

Syntax	Byte Size
set_device_name_command(){	
command_id	2
device_name	32
}	

- command_id: 內容值為 0x001D
- device_name: 預設之 Device 的識別名稱, 長度最長為 32 Bytes.

- Response Command(COMMAND_SET_DEVICE_NAME_RET)格式:

Syntax	Byte Size
set_device_name_command_ret(){	
command_id	2
set_result	1
}	

- command_id: 內容值為 0x001E
- set_result: 0 – 設定成功, -1 – 設定失敗.

3.7 Get Device Name Command (COMMAND_GET_DEVICE_NAME & COMMAND_GET_DEVICE_NAME_RET)

- 功能: 取得目前 Device 的識別名稱.

- Request Command(COMMAND_GET_DEVICE_NAME)格式:

Syntax	Byte Size
get_device_name_command(){	
command_id	2

null_payload	1
}	

- command_id: 內容值為 0x001F
- null_payload: 內容值為 0x0, 以便符合基本 command prototype 定義.

- Response Command(COMMAND_GET_DEVICE_NAME_RET)格式:

Syntax	Byte Size
get_device_name_command_ret(){	
command_id	2
device_name	32
}	

- command_id: 內容值為 0x0020
- device_name: 所取得 Device 的識別名稱, 長度最長為 32 Bytes.

3.8 Set Device ID Command (COMMAND_SET_DEVICE_ID & COMMAND_SET_DEVICE_ID_RET)

- 功能: 設定目前 Device 的 ID.

- Request Command(COMMAND_SET_DEVICE_ID)格式:

Syntax	Byte Size
set_device_id_command(){	
command_id	2
device_id	1
}	

- command_id: 內容值為 0x0033
- device_id: 預設之 Device 的 ID, 合法範圍為 0~99.

- Response Command(COMMAND_SET_DEVICE_ID_RET)格式:

Syntax	Byte Size
set_device_id_command_ret(){	
command_id	2
set_result	1

}	
---	--

- command_id: 內容值為 0x0034
- set_result: 0 – 設定成功, -1 – 設定失敗.

3.9 Get Device ID Command (COMMAND_GET_DEVICE_ID & COMMAND_GET_DEVICE_ID_RET)

- 功能: 取得目前 Device 的 ID.

- Request Command(COMMAND_GET_DEVICE_ID)格式:

Syntax	Byte Size
get_device_id_command(){	
command_id	2
null_payload	1
}	

- command_id: 內容值為 0x0035
- null_payload: 內容值為 0x0, 以便符合基本 command prototype 定義.

- Response Command(COMMAND_GET_DEVICE_ID_RET)格式:

Syntax	Byte Size
get_device_id_command_ret(){	
command_id	2
device_id	1
}	

- command_id: 內容值為 0x0036
- device_id: 所取得 Device 的 ID, 範圍為 0~99.

3.10 Set IP Address Command (COMMAND_SET_IP_ADDRESS & COMMAND_SET_IP_ADDRESS_RET)

- 功能: 設定 static IP 的相關設定, 包括 Device IP Address, Netmask,和 Default Gateway IP Address.

- Request Command(COMMAND_SET_IP_ADDRESS)格式:

Syntax	Byte Size
set_ip_address_command(){	

command_id	2
ip_address	4
netmask	4
gateway	4
}	

- command_id: 內容值為 0x0003.
- ip_address: Device 的 IPv4 位址. 例如設定值為 192.168.1.100. 則實際儲存值為 Byte[0]: 192, Byte[1]: 168, Byte[2]: 1, Byte[3]: 100.
- netmask: LAN 的 netmask 設定. 例如設定值為 255.255.255.0. 則實際儲存值為 Byte[0]: 255, Byte[1]: 255, Byte[2]: 255, Byte[3]: 0.
- gateway: LAN 的 default gateway address 設定. 例如設定值為 192.168.1.1. 則實際儲存值為 Byte[0]: 192, Byte[1]: 168, Byte[2]: 1, Byte[3]: 1.

- Response Command(COMMAND_SET_IP_ADDRESS_RET)格式:

Syntax	Byte Size
set_ip_address_command_ret(){	
command_id	2
set_result	1
}	

- command_id: 內容值為 0x0004.
- set_result: 0 – 設定成功, -1 – Command 結果儲存失敗.

3.11 Get IP Address Command (COMMAND_GET_IP_ADDRESS & COMMAND_GET_IP_ADDRESS_RET)

- 功能: 取得目前 Device Static IP Address 的設定.

- Request Command(COMMAND_GET_IP_ADDRESS)格式:

Syntax	Byte Size
get_ip_address_command(){	
command_id	2
null_payload	1
}	

- `command_id`: 內容值為 0x0019
- `null_payload`: 內容值為 0x0, 以便符合基本 `command prototype` 定義.

● Response Command(COMMAND_GET_IP_ADDRESS_RET)格式:

Syntax	Byte Size
<code>get_ip_address_command_ret(){</code>	
<code>command_id</code>	2
<code>get_result</code>	1
<code>ip_address</code>	4
<code>netmask</code>	4
<code>gateway</code>	4
<code>}</code>	

- `command_id`: 內容值為 0x001A
- `get_result`: 0 – 讀取成功, -1 – 讀取失敗.
- `ip_address`: 目前 Device 的 Static IP Address 設定.
- `netmask`: 目前 Device 的 Static IP 之 Netmask 設定.
- `Gateway`: 目前 Device 的 Static IP Default gateway 設定

3.12 Set Dhcp Mode Command (COMMAND_SET_DHCP_MODE & COMMAND_SET_DHCP_MODE_RET)

- 功能: 開啟或關閉 Device DHCP mode.

● Request Command(COMMAND_SET_DHCP_MODE)格式:

Syntax	Byte Size
<code>set_dhcp_mode_command(){</code>	
<code>command_id</code>	2
<code>dhcp_mode</code>	1
<code>}</code>	

- `command_id`: 內容值為 0x0001.
- `dhcp_mode`: 內容值: 1 – 開啟 DHCP, 0 – 關閉 DHCP.

● Response Command(COMMAND_SET_DHCP_MODE_RET)格式:

Syntax	Byte Size
set_dhcp_mode_command_ret(){	
command_id	2
set_result	1
}	

- command_id: 內容值為 0x0002
- set_result: 0 – 設定成功, -1 – Command 結果儲存失敗

3.13 Get DHCP Setting Command (COMMAND_GET_DHCP_MODE & COMMAND_GET_DHCP_MODE_RET)

- 功能: 取得目前 Device 是否有開啟 DHCP 的功能.
- Request Command(COMMAND_GET_DHCP_MODE_STATUS)格式:

Syntax	Byte Size
get_dhcp_mode_command(){	
command_id	2
null_payload	1
}	

- command_id: 內容值為 0x0015
- null_payload: 內容值為 0x0, 以便符合基本 command prototype 定義.

- Response Command(COMMAND_GET_DHCP_MODE_STATUS_RET)格式:

Syntax	Byte Size
get_dhcp_mode_command_ret(){	
command_id	2
get_result	1
dhcp_mode	1
}	

- command_id: 內容值為 0x0016
- get_result: 0 – 讀取成功, -1 – 讀取失敗.
- dhcp_mode: 目前 Device 是否有開啟 DHCP mode.

4. IP AV Sender Tx/Rx Query UDP Command說明

4.1 UDP Query Command Id List

Request Command	Mapped Command Id	Response Command	Mapped Command Id
COMMAND_DEV_INFO_QUERY	0x00FE	COMMAND_DEV_INFO_QUERY_RET	0x00FF
COMMAND_BROADCAST_SET_GROUP_ID	0x0050	COMMAND_BROADCAST_SET_GROUP_ID_RET	0x0051
COMMAND_BROADCAST_GET_GROUP_ID	0x0052	COMMAND_BROADCAST_GET_GROUP_ID_RET	0x0053
COMMAND_BROADCAST_SET_DEVICE_NAME	0x0054	COMMAND_BROADCAST_SET_DEVICE_NAME_RET	0x0055
COMMAND_BROADCAST_GET_DEVICE_NAME	0x0056	COMMAND_BROADCAST_GET_DEVICE_NAME_RET	0x0057
COMMAND_BROADCAST_SET_DEVICE_ID	0x0058	COMMAND_BROADCAST_SET_DEVICE_ID_RET	0x0059
COMMAND_BROADCAST_GET_DEVICE_ID	0x005A	COMMAND_BROADCAST_GET_DEVICE_ID_RET	0x005B
COMMAND_BROADCAST_SET_IP_ADDRESS	0x005C	COMMAND_BROADCAST_SET_IP_ADDRESS_RET	0x005D
COMMAND_BROADCAST_GET_IP_ADDRESS	0x005E	COMMAND_BROADCAST_GET_IP_ADDRESS_RET	0x005F
COMMAND_BROADCAST_REBOOT	0x0064	COMMAND_BROADCAST_REBOOT_RET	0x0065

4.2 Query Device Information Command (COMMAND_DEV_INFO_QUERY & COMMAND_DEV_INFO_QUERY_RET)

- 功能：透過設定之搜尋條件，取得目前網路上 IP AV Sender 符合之 Device 相關資訊。

- Request Command(COMMAND_DEV_INFO_QUERY)格式：

Syntax	Byte Size
query_device_command(){	
command_id	2
check_device_type	1
device_type_rule	1
check_group_id	1
group_id_rule	1
check_device_ip	1
device_ip_rule	4

}	
---	--

- command_id: 內容值為 0x00FE.
- check_device_type: 內容值 0 – 不開啟 Device Type 判別. 1 – 開啟判斷 Device Type 規則.
- device_type_rule: 當 check_device_type 為 1 時. 內容值 0 – Rx Device, 1 – Tx Device.
- check_group_id: 內容值 0 – 不開啟 Group ID 判別. 1 – 開啟判斷 Group ID 規則.
- group_id_rule: 當 check_group_id 為 1 時. 內容值為預搜尋之 Group ID.
- check_device_ip: 內容值 0 – 不開啟特定 IP 判別. 1 – 開啟判斷特定 IP 規則.
- device_ip_rule: 當 check_device_ip 為 1 時. 內容值為預搜尋之 Device IP.

● Response Command(COMMAND_DEV_INFO_QUERY_RET)格式:

Syntax	Byte Size
query_device_command_ret(){	
command_id	2
device_name	32
device_ip	4
device_tcp_cmd_receive_port	2
device_group_id	2
device_type	1
device_state	1
device_stream_type	1
device_streaming_mode	1
macAddress	6
deviceId	2
}	

- command_id: 內容值為 0x00FF.
- device_name: Device 的識別名稱.
- device_ip: Device 所使用的 IP.
- device_tcp_cmd_receive_port: Device TCP Command 的接收 Port Number.
- device_group_id: 目前 Device 的 Group ID.
- device_type: 內容值 0 – Rx Device, 1 – Tx Device.
- device_state: 內容值 0 – Idle State, 1 – Running State.
- device_stream_type: 內容值 0 – AV Over UDP, 1 – AV Over RTP.
- device_streaming_mode: 內容值 1 – Streaming Through Multicast.

- **macAddress**: MAC 地址
- **deviceId**: 设备 ID

4.3 Set Multicast Group Id Command (COMMAND_BROADCAST_SET_GROUP_ID & COMMAND_BROADCAST_SET_GROUP_ID_RET)

- 功能: 於 Tx 端用於設定其發送 Multicast Group Id (0~1023), 於 Rx 端用於設定想要接收的 Multicast Group Id.
- Request Command(COMMAND_BROADCAST_SET_GROUP_ID)格式:

Syntax	Byte Size
set_multicast_group_id_command(){	
command_id	2
mac address	6
group_id	2
}	

- **command_id**: 內容值為 0x0050
- **mac address**: 6BYTE MAC
- **group_id**: 發送(Tx)或接收(Rx)的 Multicast Group Id, 合法範圍為 0~99.

- Response Command(COMMAND_BROADCAST_SET_GROUP_ID_RET)格式:

Syntax	Byte Size
set_multicast_group_id_command_ret(){	
command_id	2
set_result	1
}	

- **command_id**: 內容值為 0x0051.
- **set_result**: 0 – 設定成功, 0xFF – HDMI Sink 不存在, 0xFE – 無連線之 TX Device.

4.4 Get Group ID Command (COMMAND_BROADCAST_GET_GROUP_ID & COMMAND_BROADCAST_GET_GROUP_ID_RET)

- 功能: 取得目前 Device 設定的 Multicast Group ID.
- Request Command(COMMAND_BROADCAST_GET_GROUP_ID)格式:

Syntax	Byte Size
get_group_id_command(){	
command_id	2
mac address	6
}	

- command_id: 內容值為 0x0052
- mac address: 6BYTE MAC

- Response Command(COMMAND_BROADCAST_GET_GROUP_ID_RET)格式:

Syntax	Byte Size
get_group_id_command_ret(){	
command_id	2
get_result	1
group_id	2
}	

- command_id: 內容值為 0x0053
- get_result: 0 – 讀取成功, -1 – 讀取失敗.
- group_id: 目前 Device 使用的 Group id.

4.5 Set Device Name Command (COMMAND_BROADCAST_SET_DEVICE_NAME & COMMAND_BROADCAST_SET_DEVICE_NAME_RET)

- 功能: 設定目前 Device 的識別名稱.
- Request Command(COMMAND_BROADCAST_SET_DEVICE_NAME)格式:

Syntax	Byte Size
set_device_name_command(){	
command_id	2
mac address	6
device_name	32
}	

- command_id: 內容值為 0x0054
- mac address: 6BYTE MAC
- device_name: 預設之 Device 的識別名稱, 長度最長為 32 Bytes.

- Response Command(COMMAND_BROADCAST_SET_DEVICE_NAME_RET)格式:

Syntax	Byte Size
set_device_name_command_ret(){	
command_id	2
set_result	1
}	

- command_id: 內容值為 0x0055
- set_result: 0 – 設定成功, -1 – 設定失敗.

4.6 Get Device Name Command (COMMAND_BROADCAST_GET_DEVICE_NAME & COMMAND_BROADCAST_GET_DEVICE_NAME_RET)

- 功能: 取得目前 Device 的識別名稱.

- Request Command(COMMAND_BROADCAST_GET_DEVICE_NAME)格式:

Syntax	Byte Size
get_device_name_command(){	
command_id	2
mac address	6
}	

- command_id: 內容值為 0x0056
- mac address: 6BYTE MAC

- Response Command(COMMAND_BROADCAST_GET_DEVICE_NAME_RET)格式:

Syntax	Byte Size
get_device_name_command_ret(){	
command_id	2
device_name	32
}	

- command_id: 內容值為 0x0057
- device_name: 所取得 Device 的識別名稱, 長度最長為 32 Bytes.

4.7 Set Device ID Command (COMMAND_BROADCAST_SET_DEVICE_ID & COMMAND_BROADCAST_SET_DEVICE_ID_RET)

- 功能: 設定目前 Device 的 ID.

- Request Command(COMMAND_BROADCAST_SET_DEVICE_ID)格式:

Syntax	Byte Size
set_device_id_command(){	
command_id	2
mac address	6
device_id	1
}	

- command_id: 內容值為 0x0058
- mac address: 6BYTE MAC
- device_id: 預設之 Device 的 ID, 合法範圍為 0~99.

- Response Command(COMMAND_BROADCAST_SET_DEVICE_ID_RET)格式:

Syntax	Byte Size
set_device_id_command_ret(){	
command_id	2
set_result	1
}	

- command_id: 內容值為 0x0059
- set_result: 0 – 設定成功, -1 – 設定失敗.

4.8 Get Device ID Command (COMMAND_BROADCAST_GET_DEVICE_ID & COMMAND_BROADCAST_GET_DEVICE_ID_RET)

- 功能: 取得目前 Device 的 ID.

- Request Command(COMMAND_BROADCAST_GET_DEVICE_ID)格式:

Syntax	Byte Size
--------	-----------

get_device_id_command(){	
command_id	2
mac address	6
}	

- command_id: 內容值為 0x005a
- mac address: 6BYTE MAC

- Response Command(COMMAND_BROADCAST_GET_DEVICE_ID_RET)格式:

Syntax	Byte Size
get_device_id_command_ret(){	
command_id	2
device_id	1
}	

- command_id: 內容值為 0x005b
- device_id: 所取得 Device 的 ID, 範圍為 0~99.

4.9 Set IP Address Command (COMMAND_BROADCAST_SET_IP_ADDRESS & COMMAND_BROADCAST_SET_IP_ADDRESS_RET)

- 功能: 設定 static IP 的相關設定, 包括 Device IP Address, Netmask,和 Default Gateway IP Address.

- Request Command(COMMAND_BROADCAST_SET_IP_ADDRESS)格式:

Syntax	Byte Size
set_ip_address_command(){	
command_id	2
mac address	6
ip_address	4
netmask	4
gateway	4
}	

- command_id: 內容值為 0x005C.
- mac address: 6BYTE MAC

- ip_address: Device 的 IPv4 位址. 例如設定值為 192.168.1.100. 則實際儲存值為 Byte[0]: 192, Byte[1]: 168, Byte[2]: 1, Byte[3]: 100.
- netmask: LAN 的 netmask 設定. 例如設定值為 255.255.255.0. 則實際儲存值為 Byte[0]: 255, Byte[1]: 255, Byte[2]: 255, Byte[3]: 0.
- gateway: LAN 的 default gateway address 設定. 例如設定值為 192.168.1.1. 則實際儲存值為 Byte[0]: 192, Byte[1]: 168, Byte[2]: 1, Byte[3]: 1.

- Response Command(COMMAND_BROADCAST_SET_IP_ADDRESS_RET)格式:

Syntax	Byte Size
set_ip_address_command_ret(){	
command_id	2
set_result	1
}	

- command_id: 內容值為 0x005D.
- set_result: 0 – 設定成功, -1 – Command 結果儲存失敗.

4.10 Get IP Address Command (COMMAND_BROADCAST_GET_IP_ADDRESS & COMMAND_BROADCAST_GET_IP_ADDRESS_RET)

- 功能: 取得目前 Device Static IP Address 的設定.

- Request Command(COMMAND_BROADCAST_GET_IP_ADDRESS)格式:

Syntax	Byte Size
get_ip_address_command(){	
command_id	2
mac address	6
}	

- command_id: 內容值為 0x005E
- mac address: 6BYTE MAC

- Response Command(COMMAND_BROADCAST_GET_IP_ADDRESS_RET)格式:

Syntax	Byte Size
get_ip_address_command_ret(){	
command_id	2

get_result	1
ip_address	4
netmask	4
gateway	4
}	

- command_id: 內容值為 0x005F
- get_result: 0 – 讀取成功, -1 – 讀取失敗.
- ip_address: 目前 Device 的 Static IP Address 設定.
- netmask: 目前 Device 的 Static IP 之 Netmask 設定.
- Gateway: 目前 Device 的 Static IP Default gateway 設定

4.11 Set Dhcp Mode Command (COMMAND_BROADCAST_SET_DHCP_MODE & COMMAND_BROADCAST_SET_DHCP_MODE_RET)

- 功能: 開啟或關閉 Device DHCP mode.

- Request Command(COMMAND_BROADCAST_SET_DHCP_MODE)格式:

Syntax	Byte Size
set_dhcp_mode_command(){	
command_id	2
mac address	6
dhcp_mode	1
}	

- command_id: 內容值為 0x0062.
- mac address: 6BYTE MAC
- dhcp_mode: 內容值: 1 – 開啟 DHCP, 0 – 關閉 DHCP.

- Response Command(COMMAND_BROADCAST_SET_DHCP_MODE_RET)格式:

Syntax	Byte Size
set_dhcp_mode_command_ret(){	
command_id	2
set_result	1

}	
---	--

- command_id: 內容值為 0x0063
- set_result: 0 – 設定成功, -1 – Command 結果儲存失敗

4.12 Get DHCP Setting Command (COMMAND_BROADCAST_GET_DHCP_MODE & COMMAND_BROADCAST_GET_DHCP_MODE_RET)

- 功能: 取得目前 Device 是否有開啟 DHCP 的功能.

- Request Command(COMMAND_BROADCAST_GET_DHCP_MODE)格式:

Syntax	Byte Size
get_dhcp_mode_command(){	
command_id	2
mac address	6
}	

- command_id: 內容值為 0x0060
- mac address: 6BYTE MAC

- Response Command(COMMAND_BROADCAST_GET_DHCP_MODE_RET)格式:

Syntax	Byte Size
get_dhcp_mode_command_ret(){	
command_id	2
get_result	1
dhcp_mode	1
}	

- command_id: 內容值為 0x0061
- get_result: 0 – 讀取成功, -1 – 讀取失敗.
- dhcp_mode: 目前 Device 是否有開啟 DHCP mode.

4.13 Set System Reboot Command (COMMAND_BROADCAST_REBOOT & COMMAND_BROADCAST_REBOOT_RET)

- 功能: 用以重新開啟系統.

- Request Command(COMMAND_BROADCAST_REBOOT)格式:

Syntax	Byte Size
system_reboot_command(){	
command_id	2
mac address	6
}	

- command_id: 內容值為 0x0064
- mac address: 6BYTE MAC

● Response Command(COMMAND_BROADCAST_REBOOT_RET)格式:

Syntax	Byte Size
system_reboot_command_ret(){	
command_id	2
set_result	1
}	

- command_id: 內容值為 0x0065
- set_result: 0 – 設定成功, -1 – Command 結果儲存失敗