Channel in a box

Device Control Protocol

Version 3.7

* **Document Revision History**

|  |  |  |  |
| --- | --- | --- | --- |
| **Version** | **Date** | **Changes** | **Writer** |
| 1.0 | 02-10-2017 | First document for general distribution | Sangbong, Lee |
| 1.1 | 02-28-2017 | Add MCS(Master Switch) protocol | Sangbong, Lee |
| 1.2 | 06-27-2017 | Add get device number function  Modify MCS crosspoint take function  Add MCS key functions | Sangbong, Lee |
| 1.3 | 07-08-2019 | Add "command" to the beginning of every response packet. | Sangbong, Lee |
| 1.4 | 07-22-2019 | * Add MCS functions “get\_status\_key” assign key to bus response | Sangbong, Lee |
| 1.5 | 07-23-2019 | * Add MCS functions “key\_assign” assign key to bus “get\_key\_assign” get assigned key to bus * Modify MCS function “get\_crosspoint\_take” bus parameter delete “get\_status\_key” -> “get\_key\_take” * Add all play device function “get\_rate” get play rate | Sangbong, Lee |
| 1.6 | 07-24-2019 | * Modify MCS functions Delete “key\_assign, “get\_key\_assign” functions   “key\_take” set multi bus and key turn on/off  “get\_key\_take” get multi bus and key on/off information | Sangbong, Lee |
| 1.7 | 10-02-2019 | - Integrate the CG control protocol. | Sangbong, Lee |
| 1.8 | 10-07-2019 | - Set\_Page command is delete.  - Added object\_id to Set\_Data & Set\_Rate command | Sangbong, Lee |
| 1.9 | 01-17-2020 | - Organize document | Sangbong, Lee |
| 2.0 | 01-27-2020 | * Add video encoder/decoder functions “get\_clip\_exit” get clip exist state “get\_clip\_duration” get clip duration timecode | Sangbong, Lee |
| 2.1 | 02-05-2020 | * Modify video encoder/decoder functions “get\_timecode” add “type” parameter | Sangbong, Lee |
| 2.2 | 12-04-2020 | * Delete CG functions “set\_rate”, “get\_rate”, “set\_timecode”, “get\_timecode”, “play\_cue\_data” * Add CG functions “get\_clip\_exist” get clip exist state | Sangbong, Lee |
| 3.0 | 03-03-2021 | * Add MCS functions “key\_transition”, “set\_key\_transition\_type”, “set\_key\_transition\_rate”, “get\_key\_transition\_type”, “get\_key\_transition\_rate” | Sangbong, Lee |
| 3.1 | 03-18-2021 | * Element “parameters” added to: set\_transition\_type, get\_transition\_type, set\_key\_transition\_type, get\_key\_transition\_type | Dmitry Sinitsyn |
| 3.2 | 09-01-2021 | * Add Media functions “set\_scte35”, “get\_scte35” | Sangbong, Lee |
| 3.3 | 07-07-2022 | * Element “parameters” added to: record\_cue, record\_cue\_data | Sangbong, Lee |
| 3.4 | 11-14-2023 | * Add MCS functions “send\_dtmf”, “set\_dtmf\_channel”, “get\_dtmf\_channel” | Sangbong, Lee |
| 3.5 | 01-10-2024 | * remove key support from Output1 and Output2, thus delete them from commands: “key\_transition” “key\_take” “get\_key\_take” | Dmitry Sinitsyn |
| 3.6 | 04-19-2024 | * add commands: “set\_audio\_routing” “get\_audio\_routing” | Dmitry Sinitsyn |
| 3.7 | 05-27-2024 | * remove unused “start\_dtmf” and “stop\_dtmf” * add “set\_dve” and “get\_dve” | Dmitry Sinitsyn |

1. **Introduction**

Defines a protocol for a device to be used in a channel in a box (CIB).

CIB Device consists of Video Encoder / Decoder, CG (Cut & Page), Sequence CG, Scroll CG, Logo, Closed Caption & Sub Title, MCS and describes control protocol for each device in this document.

1. **Interface System Overview**

* The protocol is based on JSON
* Confirming to UDP & RS-422
* Data is transmitted asynchronously, with data exchange between devices.
* Standard transmission UDP port on see the below :

Video Encoder/Decoder : 1000 ~ 1999

CG (Cut & Page, Sequence, Scroll, Logo, Closed Caption & Sub Title : 2000 ~ 2999

Master Control Switch : 3000~3999

1. **JSON Protocol Format**

* Command Default  
  {  
   “command” : “”   
  }
* Response Default  
  If success  
  {  
   “command” : “”  
   “response” : “success”  
  }  
    
  If fail  
  {  
   “command” : “”  
   “response” : “fail”,  
   “errorcode” : 0  
  }
* Depending on the type of command, the convention for JSON objects is different.
* Response also define additional JSON objects depending on the type of command.
* The command is classified according to the mode of operation. See the below :  
  System Control  
  Immediate Control  
  Preset/Select Control  
  Sens Request
* It should be noted that the response of all commands except “Sense Request” is not a result of the command but a command that is normally received.

1. **Command**
2. **Command Table (Video Encoder/Decoder)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Command** | | **Response** | |
| **JSON Object** | **Description** | **JSON Object** | **Description** |
| **System Control** | | | |
| open | Device open | Success | Command success |
| close | Device close | Success | Command success |
| **Immediate Control** | | | |
| stop | Stop | Success | Command success |
| play | Play or Record | Success | Command success |
| pause | Pause | Success | Command success |
| set\_rate | Set play rate | Success | Command success |
| set\_timecode | Go to timecode position | Success | Command success |
| set\_scte35 | Set scte35 marker(Encoder only) | Success | Command success |
| set\_audio\_routing | Set audio routing mode | Success | Command success |
| **Preset/Select Control** | | | |
| play\_cue | Play cue | Success | Command success |
| play\_cue\_data | Play cue & Start & Duration | Success | Command success |
| record\_cue | Record cue | Success | Command success |
| record\_cue\_data | Record cue & Duration | Success | Command success |
| **Sense Request** | | | |
| get\_device\_no | Get device number | Success & Data | Command success & device number data |
| get\_status | Get device status | Success & Data | Command success & status data |
| get\_rate | Get play rate | Success & Data | Command success & play rate data |
| get\_timecode | Get timecode | Success & Data | Command success & timecode data |
| get\_clip\_exist | Get clip exist | Success & Data | Command success & clip exist data |
| get\_clip\_size | Get clip duration timecode | Success & Data | Command success & clip duration timecode data |
| get\_scte35 | Get scte35 information | Success & Data | Command success & scte35 time, duration timecode data |
| get\_audio\_routing | Get audio routing mode | Success & Data | Command success & audio routing mode |

1. **Command Table (CG)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Command** | | **Response** | |
| **JSON Object** | **Description** | **JSON Object** | **Description** |
| **System Control** | | | |
| open | Device open | Success | Command success |
| close | Device close | Success | Command success |
| **Immediate Control** | | | |
| stop | Stop | Success | Command success |
| play | Play | Success | Command success |
| pause | Pause | Success | Command success |
| set\_data | Set the value of object property of the cued template | Success | Command success |
| set\_content | Set the content of object property of the cued template | Success | Command success |
| **Preset/Select Control** | | | |
| play\_cue | Play cue | Success | Command success |
| **Sense Request** | | | |
| get\_device\_no | Get device number | Success & Data | Command success & device number data |
| get\_status | Get device status | Success & Data | Command success & status data |
| get\_data | Get the value of object property of the cued template | Success & Data | Command success & value of object property of the cued template |
| get\_content | Get the content of object property of the cued template | Success & Data | Command success & content of object property of the cued template |
| get\_clip\_exist | Get clip exist | Success & Data | Command success & clip exist data |

1. **Command Table (MCS – Master Control Switch)**

|  |  |  |  |
| --- | --- | --- | --- |
| **“Command” JSON Object** | | **“Response” JSON Object** | |
| **JSON Value** | **Description** | **JSON Value** | **Description** |
| **System Control** | | | |
| open | Device open | Success | Command success |
| close | Device close | Success | Command success |
| **Immediate Control** | | | |
| next\_transition | Next transition | Success | Command success |
| start\_transition | Start transition | Success | Command success |
| crosspoint\_take | Crosspoint take | Success | Command success |
| key\_take | Key take | Success | Command success |
| key\_transition | Key transition take | Success | Command success |
| set\_dve | DVE mode set | Success | Command success |
| **Preset/Select Control** | | | |
| set\_transition\_type | Set transition type | Success | Command success |
| set\_transition\_rate | Set transition rate | Success | Command success |
| set\_enable\_key | Set enable key | Success | Command success |
| set\_key\_transition\_type | Set key transition type | Success | Command success |
| set\_key\_transition\_rate | Set key transition rate | Success | Command success |
| set\_dtmf\_channel | Set dtmf signal channel number | Success | Command success |
| **Sense Request** | | | |
| get\_transition\_type | Get transition type | Success & Data | Command success & transition type data |
| get\_transition\_rate | Get transition rate | Success & Data | Command success & transition rate data |
| get\_crosspoint\_take | Get crosspoint take | Success & Data | Command success & crosspoint take data |
| get\_enable\_key | Get enable key | Success & Data | Command success & key enable data. |
| get\_key\_transition\_type | Get key transition type | Success & Data | Command success & transition type data |
| get\_key\_transition\_rate | Get key transition rate | Success & Data | Command success & transition rate data |
| get\_key\_take | Get key take | Success & Data | Command success & key take data |
| get\_dtfm\_channel | Get dtmf signal channel number | Success & Data | Command success & key take data |
| get\_status | Get device status | Success & Data | Command success & status data |
| get\_dve | Get DVE mode status | Success & Data | Command success & status data |

1. **Command Description**
2. **Video Encoder/Decoder**

**System Control**

* **open**Open to use device.  
  No other commands can be executed before this command is executed.  
    
  {   
   “command” : “open”  
  }
* **close**  
  Close the device.  
  No other commands can be executed after this command.  
    
  {   
   “command” : “close”  
  }

**Immediate Control**

* **stop**The [stop] command stops playback or recording.  
    
  {   
   “command” : “stop”  
  }
* **play**Start playback or recording.  
  If the decoder in PAUSE state, the [play] command start playback or recording at current position.
* Play Cue before you start playback.
* Record Cue before you start record.

{   
 “command” : “play”  
}

* **pause**The [pause] command pause playback or recording.  
  If the decoder in PLAY or PLAY CUE state, the [pause] command causes the currently playing ID to pause and display a still video frame.  
  If the encoder in RECORD or RECORD CUE state, the PAUSE command causes the currently recording ID to pause.  
    
  {   
   “command” : “pause”  
  }
* **set\_rate**Specifies the playback speed  
  If it is positive, it is forward.  
  If it is negative, it is rewind.  
  If it is 0, it is pause.  
  This command can be used to implement the Jog & Shuttle function.

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | set\_rate | String |  |
| rate | 0 | Number (float) | 0 : pause  Greater then 0 : forward play  Less then 0 : rewind play |

{   
 “command” : “set\_rate”,  
 “rate” : 0  
}

* **set\_timecode**If playback is in progress, position the video in timecode.  
  If the time code is larger than the video duration, it moves to the back of the video.

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | set\_timecode | String |  |
| timecode | 00:00:00:00 | String | Timecode (DF & NDF) |

{   
 “command” : “set\_timecode”,  
 “timecode” : “00:00:00:00”  
}

* **set\_scte35**Set scte35 marker. This function use only encoder mode.  
  Insert scte35 marker when recording.

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | set\_scte35 | String |  |
| id | marker id | String | Marker event id |
| time | 00:00:00:00 | String | Scte35 start timecode |
| duration | 00:59:59:29 | String | Scte35 duration timecode |

{   
 “command” : “set\_timecode”,  
 “id” : “id”,  
 “time” : “00:10:00:00”,  
 “duration” : “00:00:30:00”  
}

* **set\_audio\_routing**Set audio routing mode.

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | set\_audio\_routing | String |  |
| mode | afv | String | “afv”, “on” |

{   
 “command” : “set\_audio\_routing”,  
 “mode” : “afv”  
}

**Preset/Select Control**

* **play\_cue**The [play\_cue] command prepares for playback.  
  If the ID is not found, an error occurs and state returns STOP.  
  When the CUE is complete, the CUE-DONE flag is set in status.

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | play\_cue | String |  |
| id | id | String | Video material id |

{   
 “command” : “play\_cue”,  
 “id” : “id”  
}

* **play\_cue\_data**Performs similar to [play\_cue].  
  In addition, you can specify playback start timecode and playback duration.

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | play\_cue\_data | String |  |
| id | id | String | Video material id |
| start | 00:00:00:00 | String | Playback start timecode |
| duration | 00:59:59:29 | String | Playback duration timecode |

{   
 “command” : “play\_cue\_data”,  
 “id” : “id”,  
 “start” : “00:00:00:00”,  
 “duration” : “00:59:59:29”  
}

* **record\_cue**The [record\_cue] command prepares for record.  
  If there is an existing ID, it overwrites it, and immediately the ID has a length of 0.  
  When the CUE is complete, the CUE-DONE flag is set in status.

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | record\_cue | String |  |
| id | id | String | Video material id |
| ignore\_errors | true | Boolean | Restart recording task in a case of error Default true |

{   
 “command” : “record\_cue”,  
 “id” : “id”  
 “ignore\_errors: “true”  
}

* **record\_cue\_data**Performs similar to [record\_cue].  
  In addition, you can specify record duration.  
  When recording is done for the specified duration, it stops automatically.

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | play\_cue\_data | String |  |
| id | Id | String | Video material id |
| duration | 00:59:59:29 | String | Playback duration timecode |
| ignore\_errors | True | Boolean | Restart recording task in a case of error Default true |

{   
 “command” : “play\_cue\_data”,  
 “id” : “id”,  
 “duration” : “00:59:59:29”  
 “ignore\_errors: “true”  
}

**Sense Request**

* **get\_device\_no**The [get\_device\_no] command get device number.  
    
  {   
   “command” : “get\_device\_no”  
  }  
    
  **Response**

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | get\_device\_no | String |  |
| response | success | String | Success or Fail |
| no | 0 | Number | Get PCS the set device number. |

* **get\_status**The [get\_status] command get device status.  
    
  {   
   “command” : “get\_status”  
  }  
    
  **Response**

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | get\_status | String |  |
| response | success | String | Success or Fail |
| * status idle cueing cue\_done play pause | true  false  false  false  false | Boolean  Boolean  Boolean  Boolean  Boolean | Not doing anything or stopped  Preparing play or record  Completed prepare play or record  Playing  Paused |

* **get\_rate**The [get\_rate] command get current play rate.  
    
  {   
   “command” : “get\_rate”  
  }  
    
  **Response**

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | get\_timecode | String |  |
| response | success | String | Success or Fail |
| rate | 0 | Number (float) | 0 : pause  Greater then 0 : forward play  Less then 0 : rewind play |

* **get\_timecode**The [get\_timecode] command get current timecode.

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | get\_timecode | String |  |
| type | current | String | current : play or record current timecode  remain : play or record remain timecode |
| duration | 00:59:59:29 | String | Playback duration timecode |

* {   
   “command” : “get\_timecode”  
   “type” : “current”  
  }  
    
  **Response**

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | get\_timecode | String |  |
| response | success | String | Success or Fail |
| timecode | 00:00:00:00 | String |  |

* **get\_clip\_exist**The [get\_clip\_exist] command get clip exist state.  
    
  {   
   “command” : “get\_clip\_exist”  
   “id” : “id”  
  }  
    
  **Response**

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | get\_clip\_exist | String |  |
| response | success | String | Success or Fail |
| exists | true | Boolean |  |

* **get\_clip\_size**The [get\_clip\_size] command get clip duration timecode.  
    
  {   
   “command” : “get\_clip\_size”  
   “id” : “id”  
  }  
    
  **Response**

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | get\_clip\_size | String |  |
| response | success | String | Success or Fail |
| duration | 00:00:00:00 | String |  |

* **get\_scte35**The [get\_scte35] command get scte35 marker time & duration timecode.  
    
  {   
   “command” : “get\_scte35”  
   “id” : “id”  
  }  
    
  **Response**

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | get\_scte35 | String |  |
| response | success | String | Success or Fail |
| time | 00:00:00:00 | String |  |
| duration | 00:00:00:00 | String |  |

* **get\_audio\_routing**Get audio routing mode.  
    
  {   
   “command” : “get\_audio\_routing”  
  }  
    
  **Response**

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | get\_audio\_routing | String |  |
| response | success | String | Success or Fail |
| mode | afv | String | “afv”,  “on” |

1. **CG**

**System Control**

* **open**Open to use device.  
  No other commands can be executed before this command is executed.  
    
  {   
   “command” : “open”  
  }
* **close**  
  Close the device.  
  No other commands can be executed after this command.  
    
  {   
   “command” : “close”  
  }

**Immediate Control**

* **stop**The [stop] command stops playback.  
    
  {   
   “command” : “stop”  
  }
* **play**Start playback CG.
* Play Cue before you start playback.

{   
 “command” : “play”  
}

* **pause**The [pause] command pause playback. This command is only used [scroll, closed caption] types.   
  If the device in PLAY or PLAY CUE state, the [pause] command causes the currently playing ID to pause and display a still video frame.  
    
  {   
   “command” : “pause”  
  }
* **set\_data**Set the value of object property of the cued template.  
  Template data is string.

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | set\_data | String |  |
| object\_id | object\_id | String | ID of object in template |
| name | name | String | name of object property |
| value | value | String | value of property |

{   
 “command” : “set\_data”,  
 “object\_id” : “static\_text1”,  
 “name” : “cg-props::pos-x”,  
 “value” : “134”  
}

* **set\_content**Set the content of object the cued template.  
  Template data is string.

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | set\_data | String |  |
| object\_id | object\_id | String | ID of object in template |
| content | content | String | content of object property |

{   
 “command” : “set\_data”,  
 “object\_id” : “static\_text1”,  
 “content” : “title”  
}

**Preset/Select Control**

* **play\_cue**The [play\_cue] command prepares for playback.  
  If the ID is not found, an error occurs and state returns STOP.  
  When the CUE is complete, the CUE-DONE flag is set in status.

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | play\_cue | String |  |
| id | id | String | Template id |

{   
 “command” : “play\_cue”,  
 “id” : “id”  
}

**Sense Request**

* **get\_device\_no**The [get\_device\_no] command get device number.  
    
  {   
   “command” : “get\_device\_no”  
  }  
    
  **Response**

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | get\_device\_no | String |  |
| response | success | String | Success or Fail |
| no | 0 | Number | Get PCS the set device number. |

* **get\_status**The [get\_status] command get device status.  
    
  {   
   “command” : “get\_status”  
  }  
    
  **Response**

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | get\_status | String |  |
| response | success | String | Success or Fail |
| * status idle cueing cue\_done play | true  false  false  false | Boolean  Boolean  Boolean  Boolean | Not doing anything or stopped  Preparing play  Completed prepare play  Playing |

* **get\_data**The [get\_data] command get property value of object in template.

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | get\_data | String |  |
| object\_id | object\_id | String | ID of object in template |
| name | name | String | name of object property |

{   
 “command” : “get\_data”  
 “object\_id: : “static\_text1”,  
 “name” : “cg-props::pos-x”  
}  
  
**Response**

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | get\_data | String |  |
| response | success | String | Success or Fail |
| value | value | String | value of property |

* **get\_content**The [get\_content] command get content of object in template.

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | get\_data | String |  |
| object\_id | object\_id | String | ID of object in template |

{   
 “command” : “get\_data”  
 “object\_id: : “static\_text1”,  
}  
  
**Response**

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | get\_data | String |  |
| response | success | String | Success or Fail |
| content | content | String | content of object |

* **get\_clip\_exist**The [get\_clip\_exist] command get clip exist state.  
    
  {   
   “command” : “get\_clip\_exist”  
   “id” : “id”  
  }  
    
  **Response**

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | get\_clip\_exist | String |  |
| response | success | String | Success or Fail |
| exists | true | Boolean |  |

1. **MCS – Master Control Switch**

**System Control**

* **open**Open to use device.  
  No other commands can be executed before this command is executed.  
    
  {   
   “command” : “open”  
  }
* **close**  
  Close the device.  
  No other commands can be executed after this command.  
    
  {   
   “command” : “close”  
  }

**Immediate Control**

* **next\_transition**The [next\_transition] command sets the next transition of the background or key.

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | next\_transition | String |  |
| background | true | Boolean | Background selected |
| key | true | Boolean | Keyers selected |

{   
 “command” : “next\_tranition”  
 “background” : “true”,  
 “key” : “true”  
}

* **start\_transition**The start of the next transition.
* Next Transition before you start transition.

{   
 “command” : “start\_transition”  
}

* **crosspoint\_take**This command set crosspoint take.  
  The [crosspoint\_take] command will clear any overs that may be selected.  
  The number of bus parameter can be change.

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | crosspoint\_take | String |  |
| * bus program preset output1 output2 | true true true true | Boolean Boolean Boolean Boolean | Select program bus Select preset bus Select output1 Select output2 |
| crosspoint | 0 | Number (integer) | 0 : No change  1~16 : Crosspoint number (Device number) |

{   
 “command” : “crosspoint\_take”,  
 “bus” : {  
 “program” : true,  
 “preset” : true,  
 “output1” : true,  
 “output2” : true  
 },  
 “crosspoint” : 0  
}

* **key\_transition**This command set key transition take.  
  The [key\_transntion] command turns the key on/off with key transition type & rate.  
  The number of key and bus parameter can be change.

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | key\_transition | String |  |
| * keys - key1  program  preset  - key2 - key3 - key4 - key5 - key6 - key7 - key8 | true true | Boolean Boolean | Set the key turns on/off of each bus with key transition type & rate. |

{   
 “command” : “key\_transition”,  
 “keys” : {  
 “key1” : {  
 “program” : true,  
 “preset” : true   
 }  
 “key2” : {  
 “program” : true,  
 “preset” : false  
 }  
 }  
}

* **key\_take**This command set key direct take.  
  The [key\_take] command turns the key on/off.  
  The number of key and bus parameter can be change.

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | key\_take | String |  |
| * keys - key1  program  preset - key2 - key3 - key4 - key5 - key6 - key7 - key8 | true true | Boolean Boolean | Set the key turns on/off of each bus. |

{   
 “command” : “key\_take”,  
 “keys” : {  
 “key1” : {  
 “program” : true,  
 “preset” : true   
 }  
 “key2” : {  
 “program” : true,  
 “preset” : false  
 }  
 }  
}

* **send\_dtmf**The [send\_dtmf] command send DTMF signal at assign audio channel number.  
    
  {   
   “command” : “send\_dtmf”,  
   “name” : “tone”  
  }
* **set\_dve**This command set key DVE mode and preset.  
  The number of key elements can be change.

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | set\_dve | String |  |
| * key1   enable  preset  rate   * key2 * key3 * key4 * key5 * key6 * key7 * key8 | true somePresetName slow | Boolean String String | Set DVE mode on with specified preset or off  slow,  medium,  fast,  rate : 0 ~ 65535 frames |

{   
 “command” : “set\_dve”,  
 “keys” : {  
 “key1” : {  
 “enable” : true,  
 “preset” : somePresetName,  
 “rate” : “slow”  
 }  
 “key2” : {  
 “program” : false,  
 “rate” : “0”

}  
 }  
}

**Preset/Select Control**

* **set\_transition\_type**This command set transition type.

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | set\_transition\_type | String |  |
| type | barn | String | cut  fade-fade  fade-cut  cut-fade  barn  blinds  checkboard  gradiantwipe  inset  iris  pixelate  … |
| parameters | Motion=In Orientation=horizontal | String | Optional transition parameters |

{   
 “command” : “set\_transition\_type”,  
 “type” : “barn”,

“parameters” : “Motion=In Orientation=horizontal”  
}

* **set\_transition\_rate**This command set transition rate.

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | set\_transition\_rate | String |  |
| rate | slow | String | slow,  medium,  fast,  rate : 0 ~ 65535 frames |

{   
 “command” : “set\_transition\_rate”,  
 “rate” : “slow”  
}

* **set\_enable\_key**This command set enable key.  
  The [set\_enable\_key] command sets whether the key is transited together during transition.  
  Key can be assigned only CG (Cut & Page), Sequence CG, Scroll CG, Logo, Closed Caption & Sub Title devices. Allocate devices from the PCS.

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | set\_enable\_key | String |  |
| * keys key1 key2 key3 key4 key5 key6 key7 key8 | true true true true true true true true | Boolean Boolean Boolean Boolean Boolean Boolean Boolean Boolean | Set the key enable. |

{   
 “command” : “set\_enable\_key”,  
 “keys” : {  
 “key1” : true,  
 “key2” : true,  
 “key3” : true,  
 “key4” : true,  
 “key5” : true,  
 “key6” : true,  
 “key7” : true,  
 “key8” : true  
 }  
}

* **set\_key\_transition\_type**This command set key transition type.

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | set\_transition\_type | String |  |
| * keys - key1  type  parameters * key2 -key3 -key4 -key5 -key6 -key7 -key8 | barn Motion=In Orientation=horizontal |  | cut  fade-fade  fade-cut  cut-fade  barn  blinds  checkboard  gradiantwipe  inset  iris  pixelate  … |

{   
 “command” : “set\_transition\_type”,  
 “keys” : {  
 “key1” : {  
 “type” : “barn”,

“parameters” : “Motion=In Orientation=horizontal”

},  
 “key2” : {  
 “type” : “cut”,

},  
 }  
}

* **set\_key\_transition\_rate**This command set key\_transition rate.

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | set\_transition\_rate | String |  |
| * keys key1 key2 key3 key4 key5 key6 key7 key8 | slow slow slow slow slow slow slow slow | String | slow,  medium,  fast,  rate : 0 ~ 65535 frames |

{   
 “command” : “set\_transition\_rate”,  
 “keys” : {  
 “key1” : “slow”,  
 “key2” : “slow”,  
 “key3” : “slow”,  
 “key4” : “slow”,  
 “key5” : “slow”,  
 “key6” : “slow”,  
 “key7” : “slow”,  
 “key8” : “slow”  
 }  
}

* **set\_dtmf\_channel**This command set DTMF audio channel number.

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | set\_stmf\_channel | String |  |
| channel | 0 | Number (Int) | 0 ~ 15, default 2 |

{   
 “command” : “set\_transition\_rate”,  
 “channel” : 2

}

**Sense Request**

* **get\_transition\_type**The [get\_transition type] command get currently set the transition type.  
    
  {   
   “command” : “get\_transition\_type”  
  }  
    
  **Response**

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | get\_transition\_type | String |  |
| response | success | String | Success or Fail |
| type | cut | String | cut  fade-fade  cut-fade  mix  fade-cut |
| parameters |  | String | Transition parameters |

* **get\_transition\_rate**The [get\_transition\_rate] command get currently set the transition rate.  
    
  {   
   “command” : “get\_transition\_rate”  
  }  
    
  **Response**

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | get\_transition\_rate | String |  |
| response | success | String | Success or Fail |
| rate | slow | String | slow,  medium,  fast,  rate : 0 ~ 65535 frames |

* **get\_crosspoint\_take**The [get\_crosspoint\_take] command get currently set the crosspoint take information.

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | get\_crosspoint\_take | String |  |

{   
 “command” : “get\_crosspoint\_take”  
}  
  
**Response**

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | get\_crosspoint\_take | String |  |
| response | success | String | Success or Fail |
| program | 1 | Number  (integer) | 1~16 : Crosspoint number (Device number) |
| preset | 2 |
| output1 | 3 |
| output2 | 4 |

* **get\_enable\_key**The [get\_enable\_key] command get currently key enable information.

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | get\_enable\_key | String |  |

{   
 “command” : “get\_enable\_key”

}  
  
**Response**

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | get\_enable\_key | String |  |
| response | success | String | Success or Fail |
| * keys key1 key2 key3 key4 key5 key6 key7 key8 | true true true true true true true true | Boolean Boolean Boolean Boolean Boolean Boolean Boolean Boolean | Get the key enable information. |

* **get\_key\_transition\_type**The [get\_key\_transition\_type] command get currently set the key transition type.

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | get\_key\_transition\_type | String |  |

{   
 “command” : “get\_key\_transition\_type”

}  
  
**Response**

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | get\_key\_transition\_type | String |  |
| response | success | String | Success or Fail |
| * keys - key1  type  parameters  - key2  type - key3 - key4 - key5 - key6 - key7 - key8 | barn ‘Motion=In Orientation=horizontal’  cut | String String   String | cut  fade-fade  cut-fade  mix  fade-cut |

* **get\_key\_transition\_rate**The [get\_key\_transition\_rate] command get currently set the key transition rate.

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | get\_key\_transition\_rate | String |  |

{   
 “command” : “get\_key\_transition\_rate”

}  
  
**Response**

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | get\_enable\_key | String |  |
| response | success | String | Success or Fail |
| * keys key1 key2 key3 key4 key5 key6 key7 key8 | slow slow slow slow slow slow slow slow | String String String String String String String String | slow,  medium,  fast,  rate : 0 ~ 65535 frames |

* **get\_key\_take**The [get\_key\_take] command get key on/off status.  
    
  {   
   “command” : “get\_key\_take”  
  }  
    
  **Response**

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | get\_key\_take | String |  |
| response | success | String | Success or Fail |
| * keys - key1  program  preset - key2 - key3 - key4 - key5 - key6 - key7 - key8 | true true | Boolean Boolean | Get the key on/off information of each bus. |

* **get\_dtmf\_channel**The [get\_dtmf\_channel] command get DTMF signal channel number and start state.  
    
  {   
   “command” : “get\_dtmf\_channel”  
  }  
    
  **Response**

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | get\_key\_take | String |  |
| response | success | String | Success or Fail |
| channel | 0 | Number (Int) | 0 ~ 15 |

* **get\_status**The [get\_status] command get device status.  
    
  {   
   “command” : “get\_status”  
  }  
    
  **Response**

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | get\_status | String |  |
| response | success | String | Success or Fail |
| status | quiescent | String | quiescent, transitional, fadingtoblack, fadingfromblack, inblack |

* **get\_dve**The [get\_dve] command get key DVE mode status.  
    
  {   
   “command” : “get\_dve”  
  }  
    
  **Response**

|  |  |  |  |
| --- | --- | --- | --- |
| **JSON Object** | **JSON Value** | **Value Type** | **Description** |
| command | get\_dve | String |  |
| response | success | String | Success or Fail |
| * key1   enable  preset   * key2   enable   * key3 * key4 * key5 * key6 * key7 * key8 | true somePresetName  false | Boolean String | Get the DVE mode state of each key |