

DIRECTOR

COMMAND GUIDE

LIGHTNING





DIRECTOR LIGHTNING COMMAND GUIDE V4.3.4

DIRECTOR





DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

Table of Contents

1 Introduction	22
1.1 Licence Requirements	22
1.2 Telnet Connection and API Commands	22
1.3 HTTP Requests	22
2 Command Overview	22
3 System Commands	23
3.1 Command default	23
3.1.1 Command usage	23
3.1.2 Description	23
3.1.3 Arguments	23
3.1.4 Notes	23
3.1.5 Return Value	23
3.1.6 Command Examples	23
3.1.7 Return Examples	23
3.2 Command reboot	24
3.2.1 Command usage	24
3.2.2 Description	24
3.2.3 Arguments	24
3.2.4 Notes	24
3.2.5 Return Value	24
3.2.6 Command Examples	24
3.2.7 Return Examples	24
4 Command join	25
4.1 Command join fast	26
4.1.1 Command usage	26
4.1.2 Description	26
4.1.3 Arguments	26
4.1.4 Notes	26
4.1.5 Return Value	26
4.1.6 Command Examples	28
4.1.7 Return Examples	28
4.2 Command join sync	29
4.2.1 Command usage	29
4.2.2 Description	29
4.2.3 Arguments	29
4.2.4 Notes	29
4.2.5 Return Value	29
4.2.6 Command Examples	29
4.2.7 Return Examples	29
4.3 Command join sync_scale	30
4.3.1 Command usage	30
4.3.2 Description	30
4.3.3 Arguments	30
4.3.4 Notes	30
4.3.5 Return Value	24
4.3.6 Command Examples	31
4.3.7 Return Examples	31
4.4 Command join adv	32
4.4.1 Command usage	32
4.4.2 Description	32
4.4.3 Arguments	32
4.4.4 Notes	32
4.4.5 Return Value	32
4.4.6 Command Examples	33
4.4.7 Return Examples	33



DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

Table of Contents continued...

4.5 Command join audio_a	
4.5.1 Command usage	34
4.5.2 Description	34
4.5.3 Arguments	34
4.5.4 Notes	34
4.5.5 Return Value	34
4.5.6 Command Examples	34
4.5.7 Return Examples	34
4.6 Command join audio_d	35
4.6.1 Command usage	35
4.6.2 Description	35
4.6.3 Arguments	35
4.6.4 Notes	35
4.6.5 Return Value	35
4.6.6 Command Examples	35
4.6.7 Return Examples	35
4.7 Command join ir	36
4.7.1 Command usage	36
4.7.2 Description	36
4.7.3 Arguments	36
4.7.4 Notes	36
4.7.5 Return Value	36
4.7.6 Command Examples	36
4.7.7 Return Examples	36
4.8 Command join serial	37
4.8.1 Command usage	37
4.8.2 Description	37
4.8.3 Arguments	37
4.8.4 Notes	37
4.8.5 Return Value	37
4.8.6 Command Examples	37
4.8.7 Return Examples	37
4.9 Command join usb	39
4.9.1 Command usage	39
4.9.2 Description	39
4.9.3 Arguments	39
4.9.4 Notes	39
4.9.5 Return Value	39
4.9.6 Command Examples	39
4.9.7 Return Examples	39
4.10 Command join usb_hid	40
4.10.1 Command usage	40
4.10.2 Description	40
4.10.3 Arguments	40
4.10.4 Notes	40
4.10.5 Return Value	40
4.10.6 Command Examples	40
4.10.7 Return Examples	40
4.11 Command join multi	41
4.11.1 Command usage	41
4.11.2 Description	41
4.11.3 Arguments	41
4.11.4 Notes	41
4.11.5 Return Value	41
4.11.6 Command Examples	41
4.11.7 Return Examples	42



DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

Table of Contents continued...

4.12 Command join wall	43
4.12.1 Command join wall	43
4.12.1.1 Command usage	43
4.12.1.2 Description	43
4.12.1.3 Arguments	43
4.12.1.4 Notes	43
4.12.1.5 Return Value	44
4.12.1.6 Command Example	44
4.12.1.7 Return Examples	44
4.12.2 Command join walladv	46
4.12.2.1 Command usage	46
4.12.2.2 Description	46
4.12.2.3 Arguments	46
4.12.2.4 Notes	46
4.12.2.5 Return Value	47
4.12.2.6 Command Example	47
4.12.2.7 Return Examples	47



DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

Table of Contents continued...

5 Command leave	48
5.1 Command leave video	48
5.1.1 Command usage	48
5.1.2 Description	48
5.1.3 Arguments	48
5.1.4 Notes	48
5.1.5 Return Value	48
5.1.6 Command Examples	48
5.1.7 Return Examples	48
5.2 Command leave sub	49
5.2.1 Command usage	49
5.2.2 Description	49
5.2.3 Arguments	49
5.2.4 Notes	49
5.2.5 Return Value	49
5.2.6 Command Examples	49
5.2.7 Return Examples	49
5.3 Command leave av	50
5.3.1 Command usage	50
5.3.2 Description	50
5.3.3 Arguments	50
5.3.4 Notes	50
5.3.5 Return Value	50
5.3.6 Command Examples	50
5.3.7 Return Examples	50
5.4 Command leave audio_a	51
5.4.1 Command usage	51
5.4.2 Description	51
5.4.3 Arguments	51
5.4.4 Notes	51
5.4.5 Return Value	51
5.4.6 Command Examples	51
5.4.7 Return Examples	51
5.5 Command leave audio_d	52
5.5.1 Command usage	52
5.5.2 Description	52
5.5.3 Arguments	52
5.5.4 Notes	52
5.5.5 Return Value	52
5.5.6 Command Examples	52
5.5.7 Return Examples	52
5.6 Command leave all	53
5.6.1 Command usage	53
5.6.2 Description	53
5.6.3 Arguments	53
5.6.4 Notes	53
5.6.5 Return Value	53
5.6.6 Command Example	53
5.6.7 Return Examples	53



DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

Table of Contents continued...

6 Command stop	54
6.1 Command stop video	55
6.1.1 Command usage	55
6.1.2 Description	55
6.1.3 Arguments	55
6.1.4 Notes	55
6.1.5 Return Value	55
6.1.6 Command Example	55
6.1.7 Return Examples	55
6.2 Command stop sub	57
6.2.1 Command usage	57
6.2.2 Description	57
6.2.3 Arguments	57
6.2.4 Notes	57
6.2.5 Return Value	57
6.2.6 Command Example	57
6.2.7 Return Examples	57
6.3 Command stop av	58
6.3.1 Command usage	58
6.3.2 Description	58
6.3.3 Arguments	58
6.3.4 Notes	58
6.3.5 Return Value	58
6.3.6 Command Example	58
6.3.7 Return Examples	58
6.4 Command stop audio_a	60
6.4.1 Command usage	60
6.4.2 Description	60
6.4.3 Arguments	60
6.4.4 Notes	60
6.4.5 Return Value	60
6.4.6 Command Example	60
6.4.7 Return Examples	60
6.5 Command stop audio_d	61
6.5.1 Command usage	61
6.5.2 Description	61
6.5.3 Arguments	61
6.5.4 Notes	61
6.5.5 Return Value	61
6.5.6 Command Example	61
6.5.7 Return Examples	61
6.6 Command stop ir	62
6.6.1 Command usage	62
6.6.2 Description	62
6.6.3 Arguments	62
6.6.4 Notes	62
6.6.5 Return Value	62
6.6.6 Command Example	62
6.6.7 Return Examples	62
6.7 Command stop serial	63
6.7.1 Command usage	63
6.7.2 Description	63
6.7.3 Arguments	63
6.7.4 Notes	63
6.7.5 Return Value	63
6.7.6 Command Examples	63
6.7.7 Return Examples	63



DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

Table of Contents continued...

6.8 Command stop usb	64
6.8.1 Command usage	64
6.8.2 Description	64
6.8.3 Arguments	64
6.8.4 Notes	64
6.8.5 Return Value	64
6.8.6 Command Example	64
6.8.7 Return Examples	64
6.9 Command stop usb_hid	65
6.9.1 Command usage	65
6.9.2 Description	65
6.9.3 Arguments	65
6.9.4 Notes	65
6.9.5 Return Value	65
6.9.6 Command Example	65
6.9.7 Return Examples	65
6.10 Command stop all	66
6.10.1 Command usage	66
6.10.2 Description	66
6.10.3 Arguments	66
6.10.4 Notes	66
6.10.5 Return Value	66
6.10.6 Command Example	66
6.10.7 Return Examples	66



DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

Table of Contents continued...

7 Command start	67
7.1 Command start video	67
7.1.1 Command usage	67
7.1.2 Description	67
7.1.3 Arguments	67
7.1.4 Notes	67
7.1.5 Return Value	67
7.1.6 Command Examples	67
7.1.7 Return Examples	67
7.2 Command start sub	68
7.2.1 Command usage	68
7.2.2 Description	68
7.2.3 Arguments	68
7.2.4 Notes	68
7.2.5 Return Value	68
7.2.6 Command Examples	68
7.2.7 Return Examples	68
7.3 Command start av	69
7.3.1 Command usage	69
7.3.2 Description	69
7.3.3 Arguments	69
7.3.4 Notes	69
7.3.5 Return Value	69
7.3.6 Command Examples	69
7.3.7 Return Examples	69
7.4 Command start audio_a	71
7.4.1 Command usage	71
7.4.2 Description	71
7.4.3 Arguments	71
7.4.4 Notes	71
7.4.5 Return Value	71
7.4.6 Command Examples	71
7.4.7 Return Examples	71
7.5 Command start audio_d	72
7.5.1 Command usage	72
7.5.2 Description	72
7.5.3 Arguments	72
7.5.4 Notes	72
7.5.5 Return Value	72
7.5.6 Command Examples	72
7.5.7 Return Examples	72

Table of Contents continued...

8 Command set	74
8.1 Command set audio_io	74
8.1.1 Command usage	74
8.1.2 Description	74
8.1.3 Arguments	74
8.1.4 Notes	74
8.1.5 Return Value	74
8.1.6 Command Example	74
8.1.7 Return Example	74
8.2 Command set audio_out	75
8.2.1 Command usage	75
8.2.2 Description	75
8.2.3 Arguments	75
8.2.4 Notes	75
8.2.5 Return Value	75
8.2.6 Command Example	75
8.2.7 Return Example	75
8.3 Command set audio_source	76
8.3.1 Command usage	76
8.3.2 Description	76
8.3.3 Arguments	76
8.3.4 Notes	76
8.3.5 Return Value	76
8.3.6 Command Example	76
8.3.7 Return Example	76
8.4 Command set edid	77
8.4.1 Command usage	77
8.4.2 Description	77
8.4.3 Arguments	77
8.4.4 Notes	77
8.4.5 Return Value	77
8.4.6 Command Example	77
8.4.7 Return Example	77
8.5 Command set frame_converter	78
8.5.1 Command usage	78
8.5.2 Description	78
8.5.3 Arguments	78
8.5.4 Notes	78
8.5.5 Return Value	78
8.5.6 Command Examples	78
8.5.7 Return Examples	78
8.6 Command set listener *licenced feature	79
8.6.1 Command usage	79
8.6.2 Description	79
8.6.3 Arguments	79
8.6.4 Notes	79
8.6.5 Return Value	79
8.6.6 Command Example	79
8.6.7 Return Example	79
8.7 Command set presenter	81
8.7.1 Command usage	81
8.7.2 Description	81
8.7.3 Arguments	81
8.7.4 Notes	81
8.7.5 Return Value	81
8.7.6 Command Example	81
8.7.7 Return Example	81



DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

Table of Contents continued...

8.8 Command set scaler	82
8.8.1 Command usage	82
8.8.2 Description	82
8.8.3 Arguments	82
8.8.4 Notes	82
8.8.5 Return Value	82
8.8.6 Command Examples	82
8.8.7 Return Examples	82
8.9 Command set security	83
8.9.1 Command usage	83
8.9.2 Description	83
8.9.3 Arguments	83
8.9.4 Notes	83
8.9.5 Return Value	83
8.9.6 Command Example	83
8.9.7 Return Example	83
8.10 Command set video_compress	84
8.10.1 Command usage	84
8.10.2 Description	84
8.10.3 Arguments	84
8.10.4 Notes	84
8.10.5 Return Value	84
8.10.6 Command Example	84
8.10.7 Return Example	84
8.11 Command set video_mode	85
8.11.1 Command usage	85
8.11.2 Description	85
8.11.3 Arguments	85
8.11.4 Notes	85
8.11.5 Return Value	85
8.11.6 Command Example	85
8.11.7 Return Example	85
8.12 Command set video_mute	86
8.12.1 Command usage	86
8.12.2 Description	86
8.12.3 Arguments	86
8.12.4 Notes	86
8.12.5 Return Value	86
8.12.6 Command Example	86
8.12.7 Return Example	86
8.13 Command set video_source	87
8.13.1 Command usage	87
8.13.2 Description	87
8.13.3 Arguments	87
8.13.4 Notes	87
8.13.5 Return Value	87
8.13.6 Command Example	87
8.13.7 Return Example	87
8.14 Command set ui	88
8.14.1 Command usage	88
8.14.2 Description	88
8.14.3 Arguments	88
8.14.4 Notes	88
8.14.5 Return Value	88
8.14.6 Command Example	88
8.14.7 Return Example	88



DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

Table of Contents continued...

8.15 Command set ui_button	90
8.15.1 Command usage	90
8.15.2 Description	90
8.15.3 Arguments	90
8.15.4 Notes	90
8.15.5 Return Value	90
8.15.6 Command Example	90
8.15.7 Return Example	91
8.16 Command set ui_label	92
8.16.1 Command usage	92
8.16.2 Description	92
8.16.3 Arguments	92
8.16.4 Notes	92
8.16.5 Return Value	92
8.16.6 Command Example	92
8.16.7 Return Example	92
8.17 Command set ui_image	94
8.17.1 Command usage	94
8.17.2 Description	94
8.17.3 Arguments	94
8.17.4 Notes	94
8.17.5 Return Value	94
8.17.6 Command Example	94
8.17.7 Return Example	94
8.18 Command set ui_page	95
8.18.1 Command usage	95
8.18.2 Description	95
8.18.3 Arguments	95
8.18.4 Notes	95
8.18.5 Return Value	95
8.18.6 Command Example	95
8.18.7 Return Example	95
8.19 Command set var	96
8.19.1 Command usage	96
8.19.2 Description	96
8.19.3 Arguments	96
8.19.4 Notes	96
8.19.5 Return Value	96
8.19.6 Command Example	96
8.19.7 Return Example	96
8.20 Command set events	97
8.20.1 Command usage	97
8.20.2 Description	97
8.20.3 Arguments	97
8.20.4 Notes	97
8.20.5 Return Value	97
8.20.6 Command Example	97
8.20.7 Return Example	97



DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

Table of Contents continued...

9 Command get	98
9.1 Command get api	98
9.1.1 Command usage	98
9.1.2 Description	98
9.1.3 Arguments	98
9.1.4 Notes	98
9.1.5 Return Value	98
9.1.6 Command Example	98
9.1.7 Return Examples	98
9.2 Command get audio_io	99
9.2.1 Command usage	99
9.2.2 Description	99
9.2.3 Arguments	99
9.2.4 Notes	99
9.2.5 Return Value	99
9.2.6 Command Example	99
9.2.7 Return Examples	99
9.3 Command get audio_out	100
9.3.1 Command usage	100
9.3.2 Description	100
9.3.3 Arguments	100
9.3.4 Notes	100
9.3.5 Return Value	100
9.3.6 Command Example	100
9.3.7 Return Examples	100
9.4 Command get audio_source	101
9.4.1 Command usage	101
9.4.2 Description	101
9.4.3 Arguments	101
9.4.4 Notes	101
9.4.5 Return Value	101
9.4.6 Command Example	101
9.4.7 Return Examples	101
9.5 Command get bandwidth / get rt_bandwidth	102
9.5.1 Command usage	102
9.5.2 Description	102
9.5.3 Arguments	102
9.5.4 Notes	102
9.5.5 Return Value	102
9.5.6 Command Example	102
9.5.7 Return Examples	102
9.6 Command get devices	103
9.6.1 Command usage	103
9.6.2 Description	103
9.6.3 Arguments	103
9.6.4 Notes	103
9.6.5 Return Value	103
9.6.6 Command Example	103
9.6.7 Return Examples	103
9.7 Command get display_status	104
9.7.1 Command usage	104
9.7.2 Description	104
9.7.3 Arguments	104
9.7.4 Notes	104
9.7.5 Return Value	104
9.7.6 Command Example	104
9.7.7 Return Examples	104



DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

Table of Contents continued...

9.8 Command get edid	105
9.8.1 Command usage	105
9.8.2 Description	105
9.8.3 Arguments	105
9.8.4 Notes	105
9.8.5 Return Value	105
9.8.6 Command Example	105
9.8.7 Return Examples	105
9.9 Command get joins	106
9.9.1 Command usage	106
9.9.2 Description	106
9.9.3 Arguments	106
9.9.4 Notes	106
9.9.5 Return Value	106
9.9.6 Command Example	106
9.9.7 Return Examples	106
9.10 Command get frame_converter	107
9.10.1 Command usage	107
9.10.2 Description	107
9.10.3 Arguments	107
9.10.4 Notes	107
9.10.5 Return Value	107
9.10.6 Command Examples	107
9.10.7 Return Examples	107
9.11 Command get preferred	108
9.11.1 Command usage	108
9.11.2 Description	108
9.11.3 Arguments	108
9.11.4 Notes	108
9.11.5 Return Value	108
9.11.6 Command Example	108
9.11.7 Return Examples	108
9.12 Command get presenter	109
9.12.1 Command usage	109
9.12.2 Description	109
9.12.3 Arguments	109
9.12.4 Notes	109
9.12.5 Return Value	109
9.12.6 Command Example	109
9.12.7 Return Examples	109
9.13 Command get scaler	110
9.13.1 Command usage	110
9.13.2 Description	110
9.13.3 Arguments	110
9.13.4 Notes	110
9.13.5 Return Value	110
9.13.6 Command Examples	110
9.13.7 Return Examples	110
9.14 Command get security	111
9.14.1 Command usage	111
9.14.2 Description	111
9.14.3 Arguments	111
9.14.4 Notes	111
9.14.5 Return Value	111
9.14.6 Command Example	111
9.14.7 Return Examples	111



DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

Table of Contents continued...

9.15 Command get status	112
9.15.1 Command usage	112
9.15.2 Description	112
9.15.3 Arguments	112
9.15.4 Notes	112
9.15.5 Return Value	112
9.15.6 Command Example	112
9.15.7 Return Examples	112
9.16 Command get temp	113
9.16.1 Command usage	113
9.16.2 Description	113
9.16.3 Arguments	113
9.16.4 Notes	113
9.16.5 Return Value	113
9.16.6 Command Example	113
9.16.7 Return Examples	113
9.17 Command get ver	114
9.17.1 Command usage	114
9.17.2 Description	114
9.17.3 Arguments	114
9.17.4 Notes	114
9.17.5 Return Value	114
9.17.6 Command Example	114
9.17.7 Return Examples	114
9.18 Command get video / get rt_video	115
9.18.1 Command usage	115
9.18.2 Description	115
9.18.3 Arguments	115
9.18.4 Notes	115
9.18.5 Return Value	115
9.18.6 Command Examples	115
9.18.7 Return Examples	115
9.19 Command get video_compress	116
9.19.1 Command usage	116
9.19.2 Description	116
9.19.3 Arguments	116
9.19.4 Notes	116
9.19.5 Return Value	116
9.19.6 Command Example	116
9.19.7 Return Examples	116
9.20 Command get video_mode	117
9.20.1 Command usage	117
9.20.2 Description	117
9.20.3 Arguments	117
9.20.4 Notes	117
9.20.5 Return Value	117
9.20.6 Command Example	117
9.20.7 Return Examples	117
9.21 Command get video_mute	118
9.21.1 Command usage	118
9.21.2 Description	118
9.21.3 Arguments	118
9.21.4 Notes	118
9.21.5 Return Value	118
9.21.6 Command Example	118
9.21.7 Return Examples	118



DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

Table of Contents continued...

9.22 Command get video_source	119
9.22.1 Command usage	119
9.22.2 Description	119
9.22.3 Arguments	119
9.22.4 Notes	119
9.22.5 Return Value	119
9.22.6 Command Example	119
9.22.7 Return Examples	119
9.23 Command get video_status / get rt_video_status	120
9.23.1 Command usage	120
9.23.2 Description	120
9.23.3 Arguments	120
9.23.4 Notes	120
9.23.5 Return Value	120
9.23.6 Command Example	120
9.23.7 Return Examples	120
9.24 Command get window / get rt_window	121
9.24.1 Command usage	121
9.24.2 Description	121
9.24.3 Arguments	121
9.24.4 Notes	121
9.24.5 Return Value	121
9.24.6 Command Examples	121
9.24.7 Return Examples	121
9.25 Command get ui	122
9.25.1 Command usage	122
9.25.2 Description	122
9.25.3 Arguments	122
9.25.4 Notes	122
9.25.5 Return Value	122
9.25.6 Command Examples	122
9.25.7 Return Examples	122
9.26 Command get ui_button	123
9.26.1 Command usage	123
9.26.2 Description	123
9.26.3 Arguments	123
9.26.4 Notes	123
9.26.5 Return Value	123
9.26.6 Command Examples	123
9.26.7 Return Examples	123
9.27 Command get var	125
9.27.1 Command usage	125
9.27.2 Description	125
9.27.3 Arguments	125
9.27.4 Notes	125
9.27.5 Return Value	125
9.27.6 Command Examples	125
9.27.7 Return Examples	125
9.28 Command get events	126
9.28.1 Command usage	126
9.28.2 Description	126
9.28.3 Arguments	126
9.28.4 Notes	126
9.28.5 Return Value	126
9.28.6 Command Examples	126
9.28.7 Return Examples	126



DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

Table of Contents continued...

9.29 Command get matrix	127
9.29.1 Command usage	127
9.29.2 Description	127
9.29.3 Arguments	127
9.29.4 Notes	127
9.29.5 Return Value	127
9.29.6 Command Examples	127
9.29.7 Return Examples	127
9.30 Command get json	128
9.30.1 Command usage	128
9.30.2 Description	128
9.30.3 Arguments	128
9.30.4 Notes	128
9.30.5 Return Value	128
9.30.6 Command Examples	128
9.30.7 Return Examples	128



DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

Table of Contents continued...

10 Command send	129
10.1 Command send infrared	129
10.1.1 Command usage	129
10.1.2 Description	129
10.1.3 Arguments	129
10.1.4 Notes	129
10.1.5 Return Value	129
10.1.6 Command Examples	129
10.1.7 Return Examples	130
10.2 Command send serial	131
10.2.1 Command usage	131
10.2.2 Description	131
10.2.3 Arguments	131
10.2.4 Notes	131
10.2.5 Return Value	133
10.2.6 Command Examples	133
10.2.7 Return Examples	133
10.3 Command send cec	134
10.3.1 Command usage	134
10.3.2 Description	134
10.3.3 Arguments	134
10.3.4 Notes	134
10.3.5 Return Value	134
10.3.6 Command Examples	134
10.3.7 Return Examples	134
10.4 Command send gc *licenced feature	135
10.4.1 Command usage	135
10.4.2 Description	135
10.4.3 Arguments	135
10.4.4 Notes	135
10.4.5 Return Value	135
10.4.6 Command Examples	137
10.4.7 Return Examples	137
10.5 Command send tcp	138
10.5.1 Command usage	138
10.5.2 Description	138
10.5.3 Arguments	138
10.5.4 Notes	138
10.5.5 Return Value	138
10.5.6 Command Examples	138
10.5.7 Return Examples	138



DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

Table of Contents continued...

11 Commands for Multiview	140
11.1 Command multiview	140
11.1.1 Command usage	140
11.1.2 Description	140
11.1.3 Arguments	140
11.1.4 Notes	140
11.1.5 Return Value	140
11.1.6 Command Examples	140
11.1.7 Return Examples	140
11.2 Command layout	141
11.2.1 Command layout new	141
11.2.1.1 Command usage	141
11.2.1.2 Description	141
11.2.1.3 Arguments	141
11.2.1.4 Notes	141
11.2.1.5 Return Value	141
11.2.1.6 Command Examples	141
11.2.1.7 Return Examples	141
11.2.2 Command layout window	143
11.2.2.1 Command usage	143
11.2.2.2 Description	143
11.2.2.3 Arguments	143
11.2.2.4 Notes	143
11.2.2.5 Return Value	143
11.2.2.6 Command Examples	143
11.2.2.7 Return Examples	143
11.2.3 Command layout black	144
11.2.3.1 Command usage	144
11.2.3.2 Description	144
11.2.3.3 Arguments	144
11.2.3.4 Notes	144
11.2.3.5 Return Value	144
11.2.3.6 Command Examples	144
11.2.3.7 Return Examples	144
11.3.4 Command layout delete	145
11.3.4.1 Command usage	145
11.3.4.2 Description	145
11.3.4.3 Arguments	145
11.3.4.4 Notes	145
11.3.4.5 Return Value	145
11.3.4.6 Command Examples	145
11.3.4.7 Return Examples	145



DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

Table of Contents continued...

12 Message notify	146
12.1 Message notify serial	146
12.1.1 Message received	146
12.1.2 Description	146
12.1.3 Arguments	146
12.1.4 Notes	146
12.1.5 Received Value	146
12.1.6 Examples	146
12.2 Message notify network	147
12.2.1 Message received	147
12.2.2 Description	147
12.2.3 Arguments	147
12.2.4 Notes	147
12.2.5 Received Value	147
12.2.6 Examples	147
12.3 Message notify display	148
12.3.1 Message received	148
12.3.2 Description	148
12.3.3 Arguments	148
12.3.4 Notes	148
12.3.5 Received Value	148
12.3.6 Examples	148
12.4 Message notify source	149
12.4.1 Message received	149
12.4.2 Description	149
12.4.3 Arguments	149
12.4.4 Notes	149
12.4.5 Received Value	149
12.4.6 Examples	149
12.5 Message notify stream	150
12.5.1 Message received	150
12.5.2 Description	150
12.5.3 Arguments	150
12.5.4 Notes	150
12.5.5 Received Value	150
12.5.6 Examples	150

Table of Contents continued...

13 Command preset	151
13.1 Command preset add	151
13.1.1 Command usage	151
13.1.2 Description	151
13.1.3 Arguments	151
13.1.4 Notes	151
13.1.5 Return Value	151
13.1.6 Command Examples	151
13.1.7 Return Examples	151
13.2 Command preset load *	152
13.2.1 Command usage	152
13.2.2 Description	152
13.2.3 Arguments	152
13.2.4 Notes	152
13.2.5 Return Value	152
13.2.6 Command Examples	152
13.2.7 Return Examples	152
13.3 Command preset delete	153
13.3.1 Command usage	153
13.3.2 Description	153
13.3.3 Arguments	153
13.3.4 Notes	153
13.3.5 Return Value	153
13.3.6 Command Examples	153
13.3.7 Return Examples	153
13.4 Command preset delay	154
13.4.1 Command usage	154
13.4.2 Description	154
13.4.3 Arguments	154
13.4.4 Notes	154
13.4.5 Return Value	154
13.4.6 Command Examples	154
13.4.7 Return Example	154
13.5 Command preset wait	155
13.5.1 Command usage	155
13.5.2 Description	155
13.5.3 Arguments	155
13.5.4 Notes	155
13.5.5 Return Value	155
13.5.6 Command Example	155
13.5.7 Return Example	155
13.6 Command preset dynamic	156
13.6.1 Command usage	156
13.6.2 Description	156
13.6.3 Arguments	156
13.6.4 Notes	156
13.6.5 Return Value	156
13.6.6 Command Example	156
13.6.7 Return Example	156
Appendix A - How to Multiview	157
Appendix B - How to Video wall	163
Appendix C - How to Video Wall with Multiview	181
Appendix D - How to HTTP request	184
Appendix E - Preset logic	187

1 Introduction

This document describes everything that a developer needs to be aware of to use the DIRECTOR command guide and develop client control applications for SDVoE devices.

1.1 Licence Requirements

The SDVoE Director Controller must have a valid licence key entered before use or trying to connect to the TCP control port 6980.

If no valid licence is active the SDVoE Director Controller will return 'Invalid License' and terminate the TCP connection. Contact iMAGsystems or your local distributor for licencing information.

1.2 Telnet Connection

Third party controllers connect to the SDVoE Director Controller and issue commands using ASCII strings terminated with a carriage return. This allows any Telnet client to be used with the system.

The SDVoE Director Controller listens on TCP port 6980. Once a successful TCP connection is established you will receive a welcome message 'Connection Successful'.

A constant TCP connection to the SDVoE Director Controller is recommended to maintain status changes of the system from notification events.

An optional security key can be used with all TCP API commands made to port 6980. The keyword 'key:' along with the security key are added to the API command before any parameters.

1.3 HTTP requests

It is also possible to control the SDVoE Director Controller with HTTP GET and POST requests.

A security key must be sent with any request. Security keys are generated by 'admin' level UI users on the Global Settings / Security Key tab.

GET = `http://<controllerURL>/api/command/<DIRECTOR_API_COMMAND>/<KEY>`

POST = `http://<controllerURL>/api/command{"cmd":"<DIRECTOR_API_COMMAND>","key":"<KEY>"}`

Refer Appendix D - How to HTTP request

2 Command Overview

Commands are in a simple ASCII text format. For each command, the SDVoE Director Controller responds with a response which contains the return status (i.e. whether the command succeeded or not) and, if successful, the return value of the command if required. The API is to be used synchronous communication.

- All commands and returns are terminated with a carriage return <cr> 0x0D
- Commands are not case sensitive
- Invalid commands will return **error [Unknown]<cr>**
- Missing security key will return **error [security key missing]<cr>**
- Invalid security key will return **error [security key invalid]<cr>**



DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

- Invalid security key will return **error [security key invalid]<cr>**

ToC

3 System Commands

3.1 Command default

The **default** command is used to set the default video resolution and frame rate used for join fast and wall modes. By default this setting is 1920 1080 60. During fast and wall joins the controller may request the current input resolution and frame rate on the incoming video signal if not specified and use this information to control the switching of streams. If no video is present and no resolution specified with the command then this **default** value will be used.

When the **join** parameter **lock** is present this default value is always used.

3.1.1 Command usage

`default [key:<security_key>] <width> <height> <fps><cr>`

3.1.2 Description

This command can be set once or as many times as required.

3.1.3 Arguments

<i>width</i>	Horizontal video size
<i>height</i>	Vertical video size
<i>fps</i>	Frames per Second

3.1.4 Notes

3.1.5 Return Value

command	<space>	status	terminator
default	<space>	<i>success / error [message]</i>	<cr>

3.1.6 Command Examples

```
default 1920 1080 60<cr>
default 3840 2160 30<cr>
default 3840 2160 60<cr>
default key:abc123 3840 2160 60<cr>
```

3.1.7 Return Examples

```
default success<cr>
default error [incomplete]<cr>
default error [invalid input value -X, non-negative number expected]<cr>
```

ToC

3.2 Command reboot

The **reboot** command is used to restart any or all Encoders and Decoders.

3.2.1 Command usage

```
reboot [key:<security_key>] <device_name><cr>
```

3.2.2 Description

Causes the target device(s) to restart. The target device(s) becomes unavailable for a short period while restarting.

3.2.3 Arguments

<i>device_name</i>	Name of the Encoder, Decoder, Group or 'all', 'all_rx', 'all_tx'
--------------------	--

3.2.4 Notes

- **all** is used as a destination when all devices are required to reboot.
- **all_rx** is used as a destination when all Decoders are required to reboot.
- **all_tx** is used as a destination when all Encoders are required to reboot.
- **group_name** is used as a destination when all Encoders and Decoders in a group are required to reboot.

3.2.5 Return Value

command	<space>	status	terminator
reboot	<space>	success / error [message]	<cr>

3.2.6 Command Examples

```
reboot Encoder1<cr>
reboot all<cr>
reboot all_rx<cr>
reboot all_tx<cr>
reboot MyGroup<cr>
reboot key:abc123 Encoder1<cr>
```

3.2.7 Return Examples

```
reboot success<cr>
reboot error [incomplete]<cr>
reboot error [device 'Encoder1' not found]<cr>
```


4 Command join

The **join** commands are used for routing all the signals to their required destinations. Video, digital audio, analog audio, USB, infrared and serial can all be independently routed to their destinations.

join fast command provides the fastest switching possible between video streams. This is achieved by maintaining a constant resolution and frame rate to the display at all times. This does however add 1-2 frames of latency as the video is buffered in the Decoder.

In **fast** mode if the aspect ratio of the video source and the output resolution are not the same the default behaviour is to add black bars on the sides (pillarbox) or at the top and bottom (letterbox) of the image to preserve the aspect ratio. An alternate behaviour can be specified by adding the keyword **crop** or **stretch** to the command line.

- If the **crop** keyword is specified the image is cropped to preserve the aspect ratio.
- If the **stretch** keyword is specified the image is stretched to cover the entire screen without regardless of the aspect ratio.

join sync command is used to maintain source resolution and frame rate at the display. This mode also provides the lowest latency possible of just a few lines, *yes lines not frames*.

join sync_scale command is used to scale display resolution while maintaining the source format. This mode also provides the lowest latency possible of just a few lines, *yes lines not frames*.

join adv command provides a combined method of joining in either fast, sync or sync_scale modes.

join audio_a command provides independent routing of the analog audio.

join audio_d command provides independent routing of the HDMI digital audio.

join infrared command provides independent routing of infrared (IR).

join serial command provides independent routing of serial RS-232.

join usb command provides independent routing of USB.

join wall commands are used to send a cropped portion of the video source to a display in a video wall configuration.

join multi command is used to rout a video source to a portion of the display in multiview mode.

4.1 Command join fast

4.1.1 Command usage

```
join fast [key:<security_key>] <encoder_device_name> <decoder_device_name>
[<av>] [<lock>] [<exclusive>] [<auto>] [<aspect>] [size <width> <height> <fps>]<cr>
```

4.1.2 Description

The command **join fast** is used for fast switching of video and embedded audio signals whereby the display video timing is kept as a constant and resyncing with the display is not required. The Decoder will maintain a constant scaled output resolution. When the **lock** parameter is used then the resolution defined with the command **default** is set. Refer to 3.1 'Command default'. When **lock** is not used, then the optional **size width, height** and **fps** can be used. If these are not specified then the Encoder's present video resolution is used. If no video is available, then the resolution defined by the **default** command is set. When **auto** is used, the displays EDID is analysed to obtain the highest preferred resolution and is set automatically as the join resolution.

4.1.3 Arguments

<i>encoder_device_name</i>	Device name of the Encoder
<i>decoder_device_name</i>	Device name of the Decoder, Group or 'all'
av	Keyword ' av ' will also join the digital audio stream (optional)
lock	Keyword ' lock ' sets the default output resolution (optional)
exclusive	Keyword ' exclusive ' allows for only the specified Decoder to be joined with the Encoder. All other Decoders joined with the Encoder will be removed. (optional)
auto	Keyword ' auto ' will create the join to the maximum preferred displays resolution. (optional)
<i>aspect</i>	Defines the aspect ratio with keyword ' keep ' / ' crop ' / ' stretch ' (optional)
<i>size width height fps</i>	Defines the scaled video width height and frame rate (optional)

4.1.4 Notes

- **all** can be used as a destination when the Encoder is required to be joined to all Decoders.
- **group_name** is used as a destination when the Encoder is required to be joined to all Decoders in a group.
- **auto** is used in place of **lock** or **size**
- **all auto** will join the Encoder at the highest common resolution detected on the connected displays.
- **aspect** by default is keep, crop and stretch can be specified when the source aspect ratio does not match the display aspect ratio. 'size' is required for aspect crop and stretch.

4.1.5 Return Value

command	<space>	mode	<space>	status	terminator
join	<space>	fast	<space>	success / error [message]	<cr>



DIRECTOR LIGHTNING COMMAND GUIDE V4.3.4

ToC

4.1.6 Command Examples

```
join fast Encoder1 Decoder1<cr>
join fast Encoder1 Decoder1 av<cr>
join fast Encoder1 Decoder1 av lock exclusive<cr>
join fast Encoder1 Decoder1 size 3840 2160 60<cr>
join fast Encoder1 all<cr>
join fast Encoder1 all auto<cr>
join fast Encoder1 all size 3840 2160 60<cr>
join fast Encoder1 MyGroup<cr>
join fast Encoder1 Decoder1 auto<cr>
join fast Encoder1 Decoder1 av auto<cr>
join fast Encoder1 Decoder1 keep av auto<cr>
join fast Encoder1 Decoder1 keep size 3840 2160 60<cr>
join fast Encoder1 Decoder1 crop size 3840 2160 60<cr>
join fast Encoder1 Decoder1 stretch size 3840 2160 60<cr>
join fast key:abc123 Encoder1 Decoder1<cr>
```

4.1.7 Return Examples

```
join fast success<cr>

join fast error [incomplete]<cr>
join fast error [invalid input value -X, non-negative number expected]<cr>
join fast error [unsupported monitor]<cr>
join fast error [monitor not detected]<cr>
join fast error [invalid parameter]<cr>
join fast error [encoder 'Encoder1' not found]<cr>
join fast error [decoder 'Decoder1' not found]<cr>
```

4.2 Command join sync

4.2.1 Command usage

```
join sync [key:<security_key>] <encoder_device_name> <decoder_device_name> [<av>] [<exclusive>]<cr>
```

4.2.2 Description

The command **join sync** is used whenever the display device is required to maintain the same video format as the incoming video with minimum latency. The original source frame rate is always maintained.

4.2.3 Arguments

<i>encoder_device_name</i>	Device name of the Encoder
<i>decoder_device_name</i>	Device name of the Decoder, Group or 'all'
av	Keyword 'av' will also join the digital audio stream (optional)
exclusive	Keyword 'exclusive' allows for only the specified Decoder to be joined with the Encoder. All other Decoders joined with the Encoder will be removed. (optional)

4.2.4 Notes

- **all** can be used as a destination when the Encoder is required to be connected to all Decoders.
- **group_name** is used as a destination when the Encoder is required to be joined to all Decoders in a group.
- This mode can cause a delay in video switching time as the display device must sync to the current video signal. This delay time can vary depending on the display device used.

4.2.5 Return Value

command	<space>	mode	<space>	status	terminator
join	<space>	sync	<space>	success / error [message]	<cr>

4.2.6 Command Examples

```
join sync Encoder1 Decoder1<cr>
join sync Encoder1 Decoder1 av<cr>
join sync Encoder1 all<cr>
join sync Encoder1 MyGroup<cr>
join sync key:abc123 Encoder1 Decoder1<cr>
```

4.2.7 Return Examples

```
join sync success<cr>

join sync error [incomplete]<cr>
join sync error [invalid input value -X, non-negative number expected]<cr>
join sync error [invalid parameter]<cr>
join sync error [encoder 'Encoder1' not found]<cr>
join sync error [decoder 'Decoder1' not found]<cr>
```

4.3 Command join_sync_scale

4.3.1 Command usage

```
join_sync_scale [key:<security_key>] <encoder_device_name> <decoder_device_name>
[<av>] [<lock>] [<exclusive>] [<auto>] [size <width> <height>]<cr>
```

4.3.2 Description

The command **join_sync_scale** is used whenever the display device is required to have the same video format as the incoming video and allows scaling of the output resolution. This mode has the minimum latency possible. The Decoder will maintain a constant scaled output resolution. When the **locked** parameter is used then the resolution defined with the command **default** is set. Refer to 3.1 'Command default'. When **locked** is not used, then the optional **size width, height** can be used. If these are not specified then the Encoder's present video resolution is set. If no video is available, then the resolution defined by the default command is set. When **auto** is used, the displays EDID is analysed to obtain the highest preferred resolution and is set automatically as the join resolution. The original source frame rate is always maintained.

4.3.3 Arguments

<i>encoder_device_name</i>	Device name of the Encoder
<i>decoder_device_name</i>	Device name of the Decoder, Group or 'all'
<i>size width height</i>	Defines the scaled video resolution width height
av	Keyword ' av ' will also join the digital audio stream (optional)
lock	Keyword ' lock ' sets the default output resolution (optional)
exclusive	Keyword ' exclusive ' allows for only the specified Decoder to be joined with the Encoder. All other Decoders joined with the Encoder will be removed. (optional)
auto	Keyword ' auto ' will create the join to the maximum preferred displays resolution. (optional)

4.3.4 Notes

- **all** can be used as a destination when the Encoder is required to be joined to all Decoders.
- **group_name** is used as a destination when the Encoder is required to be joined to all Decoders in a group.
- This mode can cause a delay in video switching time as the display device must sync to the current video signal. This delay time can vary depending on the display device used.
- **auto** is used in place of **lock** or **size**
- **all auto** will join the Encoder at the highest common resolution detected on the connected displays.



DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

4.3.5 Return Value

command	<space>	mode	<space>	status	terminator
join	<space>	sync_scale	<space>	success / error [message]	<cr>

4.3.6 Command Examples

```
join sync_scale Encoder1 Decoder1 size 1920 1080<cr>
join sync_scale Encoder1 Decoder1 size 1920 1080 av<cr>
join sync_scale Encoder1 Decoder1 size 3840 2160 av exclusive<cr>
join sync_scale Encoder1 all size 1920 1080<cr>
join sync_scale Encoder1 all auto<cr>
join sync_scale Encoder1 MyGroup size 1920 1080<cr>
join sync_scale Encoder1 Decoder1 auto<cr>
join sync_scale key:abc123 Encoder1 Decoder1 size 1920 1080<cr>
```

4.3.7 Return Examples

```
join sync_scale success<cr>

join sync_scale error [incomplete]<cr>
join sync_scale error [invalid input value -X, non-negative number expected]<cr>
join sync_scale error [unsupported monitor]<cr>
join sync_scale error [monitor not detected]<cr>
join sync_scale error [invalid parameter]<cr>
join sync_scale error [encoder 'Encoder1' not found]<cr>
join sync_scale error [decoder 'Decoder1' not found]<cr>
```

4.4 Command join adv

4.4.1 Command usage

```
join adv [key:<security_key>] <encoder_device_name> <decoder_device_name>
[<sync>] [size <width> <height>] [<fast>] [<aspect>] [size <width> <height> <fps>] [<av>] [<exclusive>]
[<auto>]<cr>
```

4.4.2 Description

The command **join adv** is used for switching of video and embedded audio signals. This mode of join is used so the Decoder only changes modes or resolution when required and not necessarily with each join command.

4.4.3 Arguments

<i>encoder_device_name</i>	Device name of the Encoder
<i>decoder_device_name</i>	Device name of the Decoder, Group or 'all'
fast	Keyword ' fast ' sets fast mode (seamless switching with 1-2 frames of latency)
sync	Keyword ' sync ' sets sync mode (display remains in sync with the source and provides the lowest possible latency)
<i>aspect</i> (with 'fast' only)	Defines the aspect ratio with keyword ' keep ' / ' crop ' / ' stretch ' (optional)
size	Keyword ' size ' followed by width, height and fps for fast mode will set the Decoder's scaler resolution to match. (optional)
av	Keyword ' av ' will also join the digital audio stream (optional)
exclusive	Keyword ' exclusive ' allows for only the specified Decoder to be joined with the Encoder. All other Decoders joined with the Encoder will be removed. (optional)
auto	Keyword ' auto ' will create the join to the maximum preferred displays resolution. (optional)

4.4.4 Notes

- **all** can be used as a destination when the Encoder is required to be joined to all Decoders.
- **group_name** is used as a destination when the Encoder is required to be joined to all Decoders in a group.
- **auto** is used to switch at the connected displays preferred resolution.
- **all auto** will join the Encoder at the highest common resolution detected on the connected displays.
- **aspect** in fast mode by default will be keep, crop and stretch can be specified when the source aspect ratio does not match the display aspect ratio. '**size**' is required for aspect crop and stretch.

4.4.5 Return Value

command	<space>	mode	<space>	status	terminator
join	<space>	adv	<space>	success / error [message]	<cr>

4.4.6 Command Examples

```
join adv Encoder1 Decoder1 <cr>
join adv Encoder1 Decoder1 exclusive<cr>
join adv Encoder1 Decoder1 av<cr>
join adv Encoder1 Decoder1 av exclusive<cr>
join adv Encoder1 all<cr>
join adv Encoder1 Decoder1 sync<cr>
join adv Encoder1 Decoder1 size 1920 1080<cr>
join adv Encoder1 Decoder1 auto<cr>
join adv Encoder1 Decoder1 fast<cr>
join adv Encoder1 Decoder1 fast size 1920 1080 60<cr>
join adv Encoder1 Decoder1 fast keep<cr>
join adv Encoder1 Decoder1 fast keep size 1920 1080 60<cr>
join adv Encoder1 Decoder1 fast crop size 1920 1080 60<cr>
join adv Encoder1 Decoder1 fast stretch size 1920 1080 60<cr>
join adv Encoder1 Decoder1 fast auto<cr>
join adv Encoder1 Decoder1 fast auto av exclusive<cr>
```

4.4.7 Return Examples

```
join adv success<cr>

join adv error [incomplete]<cr>
join adv error [invalid input value -X, non-negative number expected]<cr>
join adv error [invalid parameter]<cr>
join adv error [encoder 'Encoder1' not found]<cr>
join adv error [decoder 'Decoder1' not found]<cr>
```



DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

4.5 Command join audio_a

4.5.1 Command usage

join audio_a [key:<security_key>] <encoder_device_name> <decoder_device_name> [<exclusive>]<cr>

4.5.2 Description

The command **join audio_a** is used for routing analog audio.
Join one or more Decoders to an Encoder's analog audio stream.

4.5.3 Arguments

<i>encoder_device_name</i>	Device name of the Encoder
<i>decoder_device_name</i>	Device name of the Decoder, Group or 'all'
exclusive	Keyword ' exclusive ' allows for only the specified Decoder to be joined with the Encoder. All other Decoders joined with the Encoder will be removed. (optional)

4.5.4 Notes

- **all** can be used as a destination when the analog audio is required to be connected to all Decoders.
- **group_name** can be used as a destination when the analog audio is required to be connected to all Decoders in a group.
- Analog audio is not routed with any other command. **join audio_a** is the only method of routing analog audio.

4.5.5 Return Value

command	<space>	mode	<space>	status	terminator
join	<space>	audio_a	<space>	success / error [message]	<cr>

4.5.6 Command Examples

```
join audio_a Encoder1 Decoder1<cr>
join audio_a Encoder1 Decoder1 exclusive<cr>
join audio_a Encoder1 all<cr>
join audio_a Encoder1 all<cr>
join audio_a Encoder1 MyGroup<cr>
join audio_a key:abc123 Encoder1 Decoder1<cr>
```

4.5.7 Return Examples

```
join audio_a success<cr>

join audio_a error [incomplete]<cr>
join audio_a error [not supported]<cr>
join audio_a error [invalid parameter]<cr>
join audio_a error [encoder 'Encoder1' not found]<cr>
join audio_a error [decoder 'Decoder1' not found]<cr>
```



DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

4.6 Command join audio_d

4.6.1 Command usage

```
join audio_d [key:<security_key>] <encoder_device_name> <decoder_device_name> [<exclusive>]<cr>
```

4.6.2 Description

The command **join audio_d** is used for routing digital audio independently of the video.

Join one or more Decoders to an Encoder's digital audio stream.

4.6.3 Arguments

<i>encoder_device_name</i>	Device name of the Encoder
<i>decoder_device_name</i>	Device name of the Decoder, Group or 'all'
exclusive	Keyword ' exclusive ' allows for only the specified Decoder to be joined with the Encoder. All other Decoders joined with the Encoder will be removed. (optional)

4.6.4 Notes

- **all** can be used as a destination when the embedded audio is required to be connected to all Decoders.
- **group_name** can be used as a destination when the embedded audio is required to be connected to all Decoders in a group.

4.6.5 Return Value

command	<space>	mode	<space>	status	terminator
join	<space>	audio_d	<space>	<i>success / error [message]</i>	<cr>

4.6.6 Examples

```
join audio_d Encoder1 Decoder1<cr>
join audio_d Encoder1 Decoder1 exclusive<cr>
join audio_d Encoder1 all<cr>
join audio_d Encoder1 all<cr>
join audio_d Encoder1 MyGroup<cr>
join audio_d key:abc123 Encoder1 Decoder1<cr>
```

4.6.7 Return Examples

```
join audio_d success<cr>
join audio_d error [incomplete]<cr>
join audio_d error [invalid parameter]<cr>
join audio_d error [encoder 'Encoder1' not found]<cr>
join audio_d error [decoder 'Decoder1' not found]<cr>
```

4.7 Command join ir

4.7.1 Command usage

```
join ir [key:<security_key>] <source> <destination><cr>
```

4.7.2 Description

The command **join ir** is used for routing infrared IR signals.
Join one or more Decoders to an Encoder's infrared stream.

4.7.3 Arguments

<i>source</i>	Device name of the source
<i>destination</i>	Name of the destination device or 'all' or 'all_rx' or 'all_tx'

4.7.4 Notes

- **all** can be used as a destination when the infrared is required to be routed to all other devices.

4.7.5 Return Value

command	<space>	mode	<space>	status	terminator
join	<space>	ir	<space>	success / error [message]	<cr>

4.7.6 Command Examples

```
join ir Encoder1 Decoder1<cr>
join ir Decoder1 Decoder2<cr>
join ir Encoder1 all<cr>
join ir key:abc123 Encoder1 Decoder1<cr>
```

4.7.7 Return Examples

```
join ir success<cr>
join ir error [incomplete]<cr>
join ir error [not supported]<cr>
join ir error [source 'Encoder1' not found]<cr>
join ir error [destination 'Decoder1' not found]<cr>
```

4.8 Command join serial

4.8.1 Command usage

```
join serial [key:<security_key>] <source> <destination> [<bi>] [<exclusive>]<cr>
```

4.8.2 Description

The command **join serial** is used for routing serial RS-232 signals. Join a devices serial port to another devices serial port or the API.

4.8.3 Arguments

<i>source</i>	Device name of the source
<i>destination</i>	Name of the destination device or ' api ' or ' all '
bi	Keyword ' bi ' for bi-directional communication, creates a 2-way connection (optional)
exclusive	Keyword ' exclusive ' will remove all other joins (optional)

4.8.4 Notes

- **api** must be used as a destination when 2-way communication is required with the control system.
- **all** can be used as a destination when the serial is required to be routed to all other devices.
- **bi** parameter is used to activate a 2-way serial point-to-point connection.
- **exclusive** parameter when true will stop any other sender connected to the destination receiver.
- When a serial reply is required, then the Encoder or Decoder's serial port must be connected to the controller. Refer to 9.1 'Command send serial'.

4.8.5 Return Value

command	<space>	mode	<space>	status	terminator
join	<space>	serial	<space>	success / error [message]	<cr>

4.8.6 Command Examples

```
join serial Encoder1 Decoder1 bi<cr>
join serial Decoder1 Decoder2 exclusive<cr>
join serial Encoder1 all<cr>
join serial Encoder1 api<cr>
join serial key:abc123 Encoder1 Decoder1<cr>
```

4.8.7 Return Examples

```
join serial success<cr>

join serial error [incomplete]<cr>
join serial error [invalid input value -X, non-negative number expected]<cr>
join serial error [not supported]<cr>
join serial error [invalid parameter]<cr>
join serial error [source 'Encoder1' not found]<cr>
join serial error [destination 'Decoder1' not found]<cr>
```



DIRECTOR LIGHTNING COMMAND GUIDE V4.3.4

ToC



DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

4.9 Command join usb

4.9.1 Command usage

join usb [key:<security_key>] <encoder_device_name> <decoder_device_name><cr>

4.9.2 Description

The command **join usb** is used for routing USB from an Encoder to a Decoder.

4.9.3 Arguments

<i>encoder_device_name</i>	Device name of the source Encoder
<i>decoder_device_name</i>	Device name of the destination Decoder

4.9.4 Notes

- Intended for point-to-point KVM (keyboard, video and mouse) routing.

4.9.5 Return Value

command	<space>	mode	<space>	status	terminator
join	<space>	usb	<space>	<i>success / error [message]</i>	<cr>

4.9.6 Command Examples

```
join usb Encoder1 Decoder1<cr>
join usb key:abc123 Encoder1 Decoder1<cr>
```

4.9.7 Return Examples

```
join usb success<cr>
join usb error [incomplete]<cr>
join usb error [encoder 'Encoder1' not found]<cr>
join usb error [decoder 'Decoder1' not found]<cr>
join usb error [not supported]<cr>
```



DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

4.10 Command join usb_hid

4.10.1 Command usage

```
join usb_hid [key:<security_key>] <encoder_device_name> <decoder_device_name><cr>
```

4.10.2 Description

The command **join usb_hid** is used for routing USB HID from an Encoder to a Decoder.

4.10.3 Arguments

<i>encoder_device_name</i>	Device name of the source Encoder
<i>decoder_device_name</i>	Device name of the destination Decoder

4.10.4 Notes

- Intended for point-to-point KVM (keyboard, video and mouse) routing.

4.10.5 Return Value

command	<space>	mode	<space>	status	terminator
join	<space>	usb_hid	<space>	<i>success / error [message]</i>	<cr>

4.10.6 Command Examples

```
join usb_hid Encoder1 Decoder1<cr>
join usb_hid key:abc123 Encoder1 Decoder1<cr>
```

4.10.7 Return Examples

```
join usb_hid success<cr>

join usb_hid error [incomplete]<cr>
join usb_hid error [encoder 'Encoder1' not found]<cr>
join usb_hid error [decoder 'Decoder1' not found]<cr>
join usb_hid error [not supported]<cr>
```


4.11 Command join multi

4.11.1 Command usage

```
join multi [key:<security_key>] <encoder_device_name> <decoder_device_name> <subscription>  
[scaled [<layout_name>]]<cr>
```

4.11.2 Description

The command **join multi** is used for routing video in a multiview configuration. The source video for any given multiview window. Multiview windows are defined with the **layout window** command. Each window has a subscription to a particular video source, so one or many windows can display the same video content.

4.11.3 Arguments

<i>encoder_device_name</i>	Device name of the source Encoder
<i>decoder_device_name</i>	Device name of the destination Decoder
<i>subscription</i>	Defines the source for multiview window(s) defined with the same subscription
scaled	Keyword ' scaled ' is used to define the use of the scaled sub stream (optional)
<i>layout_name</i>	When keyword ' scaled ' is present, the layout_name is used to find the resolution

4.11.4 Notes

- The **join multi** command will automatically start the required stream and can apply the scaled resolution.
- If **scaled** keyword is present the sub stream will be used and the scaler automatically set if a **layout_name** has been specified. Otherwise if no **layout_name** has been specified the **set scaler** command must be used to set the correct resolution of the video for the specific window size.
- The Multiview command will always use the substream if the source video is not PROGRESSIVE or 8-bit.
- Cannot be used on subscriptions greater than 0 unless the **multiview** command has been called.
- The frame rate of the sub stream will be automatically limited to 30Hz.

4.11.5 Return Value

command	<space>	mode	<space>	status	terminator
join	<space>	multi	<space>	success / error [message]	<cr>

4.11.6 Command Examples

```
join multi Encoder1 Decoder1 0 scaled MyLayout<cr>  
join multi Encoder2 Decoder1 31<cr>  
join multi Encoder1 Decoder1 0 scaled<cr>  
join multi key:abc123 Encoder2 Decoder1 31<cr>
```



DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

4.11.7 Return Examples

```
join multi success<cr>

join multi error [incomplete]<cr>
join multi error [layout 'MyLayout' not found]<cr>
join multi error [invalid subscription '32']<cr>
join multi error [subscription '3' not found]<cr>
join multi error [Only HDMI subscription index 0 can be joined in display modes other than MULTIVIEW]<cr>
join multi error [invalid parameter]<cr>
join multi error [encoder 'Encoder1' not found]<cr>
join multi error [decoder 'Decoder1' not found]<cr>
```

4.12 Command join wall

Command join wall is separated into two sub modes, **wall** and **walladv**. **wall** mode is available for easy configuration and automatically compensating for bezel correction when the keyword **size** along with **display_width** and **viewable_width** are specified. Use the **walladv** mode for advanced features like maintaining aspect ratio. A video wall can contain a maximum of 8x5 which is 8 columns and 5 rows of displays.

4.12.1 Command join wall

4.12.1.1 Command usage

```
join wall [key:<security_key>] <encoder_device_name> <decoder_device_name> <wall_type>
<display_position> [size <width> <height> <fps>]
[bezel <display_width> <viewable_width> <display_height> <viewable_height>] [<keep>]
[<wall_mode>]<cr>
```

4.12.1.2 Description

The command **join wall** is used for routing video in a video wall configuration. The size of the video portion along with the displays physical size are both used to automatically calculate the bezel compensation required. If **display_width** or **viewable_width** equal 0 then no bezel compensation will be applied. (A constant bezel size is assumed around the display.) The **size** parameter is used to set the resolution of the displays. If the displays bezel is not constant then use walladv. *Refer appendix B – How to Video wall.*

4.12.1.3 Arguments

<i>encoder_device_name</i>	Device name of the source Encoder
<i>decoder_device_name</i>	Device name of the destination Decoder
<i>wall_type</i>	Specifies the type of video wall configuration. See below
<i>display_position</i>	Specifies the position of the display within the video wall. See below
<i>size</i>	Keyword ' size ' used to specify width, height and frame rate of display (optional)
<i>width</i>	Output width resolution in pixels (eg. 3840 / 1920 / 1280) (used with size)
<i>height</i>	Output height resolution in pixels (eg. 2160 / 1080 / 720) (used with size)
<i>bezel</i>	Keyword ' bezel ' used when specifying display_width and viewable_width (optional)
<i>display_width</i>	Physical width of the display in mm (optional with bezel)
<i>viewable_width</i>	Physical width of the displays viewable width in mm (optional with bezel)
<i>display_height</i>	Physical height of the display in mm (optional with bezel)
<i>viewable_height</i>	Physical height of the displays viewable width in mm (optional with bezel)
<i>keep</i>	Keyword ' keep ' required to maintain the original image aspect ratio (optional)
<i>wall_mode</i>	Keyword ' fast ' required for seamless fast switching (optional)*

* Device firmware > 3.5.2.0 and BlueRiver™ firmware > 2.14.0 required



DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

4.12.1.4 Notes

- If the keyword **size** is not used then the system **default** values will be used as the display resolution.
- If the keyword **bezel** is used and both **display_width** and **viewable_width** values are present then bezel compensation will be automatically calculated and applied otherwise no bezel compensation will be applied.

4.12.1.5 Return Value

command	<space>	mode	<space>	status	terminator
join	<space>	wall	<space>	success / error [message]	<cr>

4.12.1.6 Command Example - 2x2 video wall with 4K source and 1080 displays

```
join wall Encoder1 Decoder1 2x2 1 size 1920 1080 60 bezel 615 595 365 335 keep<cr>
join wall Encoder1 Decoder1 2x2 2 size 1920 1080 60 bezel 615 595 365 335 keep<cr>
join wall Encoder1 Decoder1 2x2 3 size 1920 1080 60 bezel 615 595 365 335 keep<cr>
join wall Encoder1 Decoder1 2x2 4 size 1920 1080 60 bezel 615 595 365 335 keep<cr>

join wall key:abc123 Encoder1 Decoder1 2x2 1 size 1920 1080 60 bezel 615 595 365 335 keep<cr>
```

4.12.1.7 Return Examples

```
join wall success<cr>

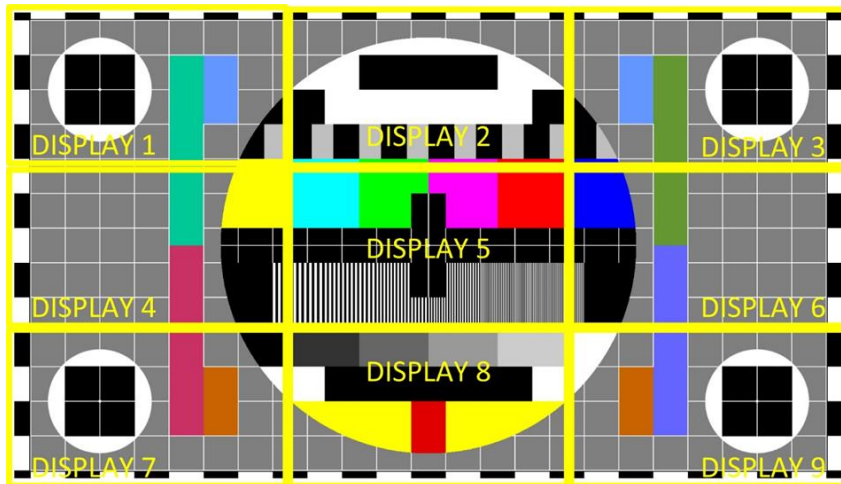
join wall error [incomplete]<cr>
join wall error [invalid input value -X, non-negative number expected]<cr>
join wall error [invalid parameter]<cr>
join wall error [encoder 'Encoder1' not found]<cr>
join wall error [decoder 'Decoder1' not found]<cr>
```

wall_type (columns x rows)

1x2 1x3 1x4 1x5
2x1 2x2 2x3 2x4 2x5
3x1 3x2 3x3 3x4 3x5
4x1 4x2 4x3 4x4 4x5
5x1 5x2 5x3 5x4 5x5
6x1 6x2 6x3 6x4 6x5
7x1 7x2 7x3 7x4 7x5
8x1 8x2 8x3 8x4 8x5

display_position

The position of the display is found by counting from left to right and top to bottom.
Below is an example of a 3x3 video wall and the display number.



4.12.2 Command join walladv

4.12.2.1 Command usage

```
join walladv [key:<security_key>] <encoder_device_name> <decoder_device_name> [<wall_mode>]
<width> <height> <h_offset> <v_offset> <keep_width> <keep_height> <viewport_horiz> <viewport_vert>
<viewport_width> <viewport_height> <frames_per_second><cr>
```

4.12.2.2 Description

The command **join walladv** is used for routing video in a fully managed video wall configuration. This mode is used to maintain output resolution. *Refer appendix B – How to Video wall*

4.12.2.3 Arguments

<i>encoder_device_name</i>	Device name of the source Encoder
<i>decoder_device_name</i>	Device name of the destination Decoder
<i>fast</i>	Keyword required for seamless fast switching (optional)
<i>width</i>	Display horizontal resolution in pixels
<i>height</i>	Display vertical resolution in pixels
<i>h_offset</i>	Horizontal offset of the displayed video
<i>v_offset</i>	Vertical offset of the displayed video
<i>keep_width</i>	Width of the portion of the source video that is displayed in pixels
<i>keep_height</i>	Height of the portion of the source video that is displayed in pixels
<i>viewport_horiz</i>	Horizontal position of the viewport's top-left corner on the screen in pixels
<i>viewport_vert</i>	Vertical position of the viewport's top-left corner on the screen in pixels
<i>viewport_width</i>	Width of the viewable video in pixels
<i>viewport_height</i>	Height of the viewable video in pixels
<i>frames_per_second</i>	Video frame rate

4.12.2.4 Notes

- Presets created from the UI will contain a comment after each line indicating the Decoder position, wall type and bezel values as per below:

```
join walladv Encoder1 Decoder1 1920 1080 0 0 944 516 0 0 1920 1080 60 // 2x2 1 V 615 365 10 20 10 10
join walladv Encoder1 Decoder2 1920 1080 976 0 944 516 0 0 1920 1080 60 // 2x2 2 V 615 365 10 20 10 10
join walladv Encoder1 Decoder3 1920 1080 0 564 944 516 0 0 1920 1080 60 // 2x2 3 V 615 365 10 20 10 10
join walladv Encoder1 Decoder4 1920 1080 976 564 944 516 0 0 1920 1080 60 // 2x2 4 V 615 365 10 20 10 10
```

* These comments are required to load an advanced video wall preset into the UI.

4.12.2.4 Notes continued...

- The **width** and **height** arguments specify respectively the width and the height of the displayed video result after cropping, in pixels.
- The **horiz_offset** and **vert_offset** arguments specify respectively the horizontal and vertical offset of the displayed video within the full video source, in pixels.
- The **keep_width** and **keep_height** specify respectively the width and the height of the portion of the original source video that is displayed (i.e. 'kept') in pixels.

The viewport is the rectangular region of a screen where video is displayed on Decoders. Areas on the screen outside this region are black. You can use the viewport to apply black to the top and bottom, or sides of the video to maintain original aspect ratios or change the location of the image on the display.

- The **viewport_horiz** and **viewport_vert** arguments specify respectively the horizontal and vertical position of the viewport's top-left corner on the screen, in pixels.
- The **viewport_width** and **viewport_height** arguments specify respectively the width and height of the viewport, in pixels. This is the area of the displayed video.
- For full screen, **viewport_horiz** and **viewport_vert** would be set to 0, and **viewport_width** along with **viewport_height** would equal **width** and **height** respectively.
- The **width**, **keep_width**, **viewport_horiz** and **viewport_width** arguments must be even (i.e. a multiple of two).
- The viewport must be completely contained within the screen size.

4.12.2.5 Return Value

command	<space>	mode	<space>	status	terminator
join	<space>	walladv	<space>	success / error [message]	<cr>

4.12.2.6 Command Examples

2x2 video wall with 4K source and 4K display resolution

```
join walladv Encoder1 Decoder1 3840 2160 0 0 950 1070 1920 0 1920 2160 60<cr>
join walladv Encoder1 Decoder2 3840 2160 970 0 1900 1070 0 0 3840 2160 60<cr>
join walladv Encoder1 Decoder3 3840 2160 2890 0 950 1070 0 0 1920 2160 60<cr>
join walladv Encoder1 Decoder4 3840 2160 970 1090 1900 1070 0 0 3840 2160 60<cr>

join walladv key:abc123 Encoder1 Decoder1 fast 3840 2160 0 0 950 1070 1920 0 1920 2160 60<cr>
```

4.12.2.7 Return Examples

```
join walladv success<cr>

join walladv error [incomplete]<cr>
join walladv error [invalid input value -X, non-negative number expected]<cr>
join walladv error [invalid parameter]<cr>
join walladv error [encoder 'Encoder1' not found]<cr>
join walladv error [decoder 'Decoder1' not found]<cr>
```

5 Command leave

The **leave** command is used with a Decoder to disconnect from an Encoder's stream.

5.1 Command leave video

5.1.1 Command usage

```
leave video [key:<security_key>] <decoder_device_name><cr>
```

5.1.2 Description

The command **leave video** is used to disconnect a Decoder from the video stream it is receiving.

5.1.3 Arguments

<i>decoder_device_name</i>	Device name of the Decoder, Group or 'all'
----------------------------	--

5.1.4 Notes

- **group_name** can be used as a destination when all Decoders in a group are required to leave video.
- **all** can be used as a destination when all the Decoders are required to leave video.
- A connection can be made again with the **join** commands.

5.1.5 Return Value

command	<space>	mode	<space>	status	terminator
leave	<space>	video	<space>	<i>success / error [message]</i>	<cr>

5.1.6 Command Examples

```
leave video Decoder1<cr>
leave video Decoder2<cr>
leave video MyGroup<cr>
leave video all<cr>
leave video key:abc123 Decoder1<cr>
```

5.1.7 Return Examples

```
leave video success<cr>

leave video error [incomplete]<cr>
leave video error [decoder 'Decoder1' not found]<cr>
```


5.2 Command leave sub

5.2.1 Command usage

leave sub [key:<security_key>] <decoder_device_name> <subscription><cr>

5.2.2 Description

The command **leave sub** is used to disconnect a Decoder from the multiview video stream it is receiving on the specified subscription.

5.2.3 Arguments

<i>decoder_device_name</i>	Device name of the Decoder
<i>subscription</i>	Value from 1 to 31

5.2.4 Notes

- A connection can be made again with the **join multiview** command.
- To leave Decoder subscription 0 use the **leave video** command.

5.2.5 Return Value

command	<space>	mode	<space>	status	terminator
leave	<space>	sub	<space>	success / error [message]	<cr>

5.2.6 Command Examples

```
leave sub Decoder1 1<cr>
leave sub Decoder1 3<cr>
leave sub key:abc123 Decoder1 10<cr>
```

5.2.7 Return Examples

```
leave sub success<cr>

leave sub error [incomplete]<cr>
leave sub error [incorrect subscription]<cr>
leave sub error [decoder 'Decoder1' not found]<cr>
leave sub error [invalid input value xyz, number expected]<cr>
```

5.3 Command leave av

5.3.1 Command usage

leave av [key:<security_key>] <decoder_device_name><cr>

5.3.2 Description

The command **leave av** is used to disconnect a Decoder from both the video and digital audio streams it is receiving.

5.3.3 Arguments

<i>decoder_device_name</i>	Device name of the Decoder, Group or 'all'
----------------------------	--

5.3.4 Notes

- **group_name** can be used as a destination when all Decoders in a group are required to leave video and digital audio.
- **all** can be used as a destination when all the Decoders are required to leave video and digital audio.
- A connection can be made again with the **join** commands.

5.3.5 Return Value

command	<space>	mode	<space>	status	terminator
leave	<space>	av	<space>	success / error [message]	<cr>

5.3.6 Command Examples

```
leave av Decoder1<cr>
leave av Decoder2<cr>
leave av MyGroup<cr>
leave av all<cr>
leave av key:abc123 Decoder1<cr>
```

5.3.7 Return Examples

```
leave av success<cr>

leave av error [incomplete]<cr>
leave av error [decoder 'Decoder1' not found]<cr>
```

5.4 Command leave audio_a

5.4.1 Command usage

leave audio_a [key:<security_key>] <decoder_device_name><cr>

5.4.2 Description

The command **leave audio_a** is used to disconnect a Decoder from the analog audio stream it is receiving.

5.4.3 Arguments

<i>decoder_device_name</i>	Device name of the Decoder, Group or 'all'
----------------------------	--

5.4.4 Notes

- **group_name** can be used as a destination when all Decoders in a group are required to leave analog audio.
- **all** can be used as a destination when all the Decoders are required to leave analog audio.
- A connection can be made again with the **join audio_a** command.

5.4.5 Return Value

command	<space>	mode	<space>	status	terminator
leave	<space>	audio_a	<space>	success / error [message]	<cr>

5.4.6 Command Examples

```
leave audio_a Decoder1<cr>
leave audio_a Decoder2<cr>
leave audio_a MyGroup<cr>
leave audio_a all<cr>
leave audio_a key:abc123 Decoder1<cr>
```

5.4.7 Return Examples

```
leave audio_a success<cr>
leave audio_a error [incomplete]<cr>
leave audio_a error [decoder 'Decoder1' not found]<cr>
leave audio_a error [not supported]<cr>
```



DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

5.5 Command leave audio_d

5.5.1 Command usage

leave audio_d [key:<security_key>] <decoder_device_name><cr>

5.5.2 Description

The command **leave audio_d** is used to disconnect a Decoder from the digital audio stream it is receiving.

5.5.3 Arguments

<i>decoder_device_name</i>	Device name of the Decoder, Group or 'all'
----------------------------	--

5.5.4 Notes

- **group_name** can be used as a destination when all Decoders in a group are required to leave digital audio.
- **all** can be used as a destination when all the Decoders are required to leave digital audio.
- A connection can be made again with the **join audio_d** command.

5.5.5 Return Value

command	<space>	mode	<space>	status	terminator
leave	<space>	audio_d	<space>	success / error [message]	<cr>

5.5.6 Command Examples

```
leave audio_d Decoder1<cr>
leave audio_d Decoder2<cr>
leave audio_d MyGroup<cr>
leave audio_d all<cr>
leave audio_d key:abc123 MyGroup<cr>
```

5.5.7 Return Examples

```
leave audio_d success<cr>
leave audio_d error [incomplete]<cr>
leave audio_d error [decoder 'Decoder1' not found]<cr>
```

5.6 Command leave all

5.6.1 Command usage

leave all [key:<security_key>] <decoder_device_name><cr>

5.6.2 Description

The command **leave all** is used to disconnect a Decoder from all streams it is receiving on all subscription. Analog audio, digital audio along with 32 video subscriptions will be unsubscribed from the Decoder.

5.6.3 Arguments

<i>decoder_device_name</i>	Name of the Decoder or 'all'
----------------------------	------------------------------

5.6.4 Notes

- **all** can be used as a destination when all the Decoders are required to leave all subscriptions.

5.6.5 Return Value

command	<space>	mode	<space>	status	terminator
leave	<space>	all	<space>	<i>success / error [message]</i>	<cr>

5.6.6 Command Example

```
leave all Decoder1<cr>
leave all all<cr>
leave all key:abc123 Decoder1<cr>
```

5.6.7 Return Examples

```
leave all success<cr>
leave all error [incomplete]<cr>
leave all error [decoder 'Decoder1' not found]<cr>
```

6 Command stop

The **stop** command is used to stop an Encoder's stream from being sent on the network. Joins are maintained between Encoders and Decoders but no data is sent from the Encoder.

When the system is running in Multicast AUTO mode the keyword '**free**' and '**free_all**' can be used. These keywords will be ignored if the system is running in Multicast MANUAL mode.

The Encoder's stream multicast address can be released for use by another Encoder's stream when the keyword '**free**' is used in the command line.

Both the Encoder's stream multicast address and Decoder subscriptions are released when the keyword '**free_all**' is used in the command line.

6.1 Command stop video

6.1.1 Command usage

stop video [key:<security_key>] <encoder_device_name> [<free/free_all>]<cr>

6.1.2 Description

The command **stop video** is used to stop an Encoder's video stream from being sent to any Decoder. The multicast address associated with the stream will be made available for another stream if '**free**' is used.

6.1.3 Arguments

<i>encoder_device_name</i>	Device name of the Encoder or Group
free	Keyword ' free ' removes the multicast address associated with the Encoder stream (optional)
free_all	Keyword ' free_all ' removes the multicast address associated with the Encoder stream and removes all Decoder subscriptions associated with this multicast address (optional)

6.1.4 Notes

- **group_name** can be used as a destination when all Encoders in a group are required to stop video.
- A connection can be made again with the command **join** or **start video**.
- Either '**free**' or '**free_all**' can be used but not both.

6.1.5 Return Value

command	<space>	mode	<space>	status	terminator
stop	<space>	video	<space>	<i>success / error [message]</i>	<cr>

6.1.6 Command Examples

```
stop video Encoder1<cr>
stop video Encoder1 free_all<cr>
stop video key:abc123 Encoder1<cr>
stop video MyGroup<cr>
stop video MyGroup free<cr>
```

6.1.7 Return Examples

```
stop video success<cr>
stop video error [incomplete]<cr>
stop video error [invalid parameter]<cr>
stop video error [encoder 'Encoder1' not found]<cr>
```



DIRECTOR LIGHTNING COMMAND GUIDE V4.3.4

ToC

6.2 Command stop sub

6.2.1 Command usage

```
stop sub [key:<security_key>] <encoder_device_name> [<free/free_all>]<cr>
```

6.2.2 Description

The command **stop sub** is used to stop an Encoder's second (scaled multiview) video stream from being sent to any Decoder. The multicast address associated with the stream will be made available for another stream if 'free' is used.

6.2.3 Arguments

<i>encoder_device_name</i>	Device name of the Encoder
free	Keyword ' free ' removes the multicast address associated with the Encoder stream (optional)
free_all	Keyword ' free_all ' removes the multicast address associated with the Encoder stream and removes all Decoder subscriptions associated with this multicast address (optional)

6.2.4 Notes

- A connection can be made again with the command **join multiview** or **start sub**.
- Either '**free**' or '**free_all**' can be used but not both.

6.2.5 Return Value

command	<space>	mode	<space>	status	terminator
stop	<space>	sub	<space>	<i>success / error [message]</i>	<cr>

6.2.6 Command Examples

```
stop sub Encoder1<cr>
stop sub Encoder1 free<cr>
stop sub Encoder1 free_all<cr>
stop sub key:abc123 Encoder1<cr>
```

6.2.7 Return Examples

```
stop sub success<cr>

stop sub error [incomplete]<cr>
stop sub error [invalid parameter]<cr>
stop sub error [encoder 'Encoder1' not found]<cr>
```



DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

6.3 Command stop av

6.3.1 Command usage

stop av [key:<security_key>] <encoder_device_name> [<free/free_all>]<cr>

6.3.2 Description

The command **stop av** is used to stop an Encoder's video and digital audio streams from being sent to any Decoder. The multicast address associated with the streams will be made available for other streams if 'free' is used.

6.3.3 Arguments

<i>encoder_device_name</i>	Device name of the Encoder or Group
free	Keyword ' free ' removes the multicast addresses associated with the Encoder streams (optional)
free_all	Keyword ' free_all ' removes the multicast addresses associated with the Encoder streams and removes all Decoder subscriptions associated with this multicast addresses (optional)

6.3.4 Notes

- **group_name** can be used as a destination when all Encoders in a group are required to stop video and digital audio.
- A connection can be made again with the command **join** or **start audio_a**.
- Either '**free**' or '**free_all**' can be used but not both.

6.3.5 Return Value

command	<space>	mode	<space>	status	terminator
stop	<space>	av	<space>	success / error [message]	<cr>

6.3.6 Command Examples

```
stop av Encoder1<cr>
stop av Encoder1 free_all<cr>
stop av key:abc123 Encoder1<cr>
stop av MyGroup<cr>
stop av MyGroup free<cr>
```

6.3.7 Return Examples

```
stop av success<cr>

stop av error [incomplete]<cr>
stop av error [invalid parameter]<cr>
stop av error [encoder 'Encoder1' not found]<cr>
```



DIRECTOR LIGHTNING COMMAND GUIDE V4.3.4

6.4 Command stop audio_a

6.4.1 Command usage

```
stop audio_a [key:<security_key>] <encoder_device_name> [<free/free_all>]<cr>
```

6.4.2 Description

The command **stop audio_a** is used to stop an Encoder's analog audio stream from being sent to any Decoder. The multicast address associated with the stream will be made available for another stream if 'free' is used.

6.4.3 Arguments

<i>encoder_device_name</i>	Device name of the Encoder or Group
free	Keyword 'free' removes the multicast address associated with the stream (optional)
free_all	Keyword 'free_all' removes the multicast address associated with the Encoder stream and removes all Decoder subscriptions associated with this multicast address (optional)

6.4.4 Notes

- **group_name** can be used as a destination when all Encoders in a group are required to stop analog audio.
- A connection can be made again with the command **join audio_a** or **start audio_a**.
- Either 'free' or 'free_all' can be used but not both.

6.4.5 Return Value

command	<space>	mode	<space>	status	terminator
stop	<space>	audio_a	<space>	success / error [message]	<cr>

6.4.6 Command Examples

```
stop audio_a Encoder1<cr>
stop audio_a Encoder1 free_all<cr>
stop audio_a key:abc123 Encoder1<cr>
stop audio_a MyGroup<cr>
stop audio_a MyGroup free<cr>
```

6.4.7 Return Examples

```
stop audio_a success<cr>
stop audio_a error [incomplete]<cr>
stop audio_a error [not supported]<cr>
stop audio_a error [invalid parameter]<cr>
stop audio_a error [encoder 'Encoder1' not found]<cr>
```

6.5 Command stop audio_d

6.5.1 Command usage

```
stop audio_d [key:<security_key>] <encoder_device_name> [<free/free_all>]<cr>
```

6.5.2 Description

The command **stop audio_d** is used to stop an Encoder's digital audio stream from being sent to any Decoder. The multicast address associated with the stream will be made available for another stream if **'free'** is used.

6.5.3 Arguments

<i>encoder_device_name</i>	Device name of the Encoder or Group
free	Keyword 'free' removes the multicast address associated with the Encoder stream (optional)
free_all	Keyword 'free_all' removes the multicast address associated with the Encoder stream and removes all Decoder subscriptions associated with this multicast address (optional)

6.5.4 Notes

- **group_name** can be used as a destination when all Encoders in a group are required to stop digital audio.
- A connection can be made again with the command **join audio_d** or **start audio_d**.
- Either **'free'** or **'free_all'** can be used but not both.

6.5.5 Return Value

command	<space>	mode	<space>	status	terminator
stop	<space>	audio_d	<space>	<i>success / error [message]</i>	<cr>

6.5.6 Command Examples

```
stop audio_d Encoder1<cr>
stop audio_d Encoder1 free_all<cr>
stop audio_d key:abc123 Encoder1<cr>
stop audio_d MyGroup<cr>
stop audio_d MyGroup free<cr>
```

6.5.7 Return Examples

```
stop audio_d success<cr>
stop audio_d error [incomplete]<cr>
stop audio_d error [invalid parameter]<cr>
stop audio_d error [encoder 'Encoder1' not found]<cr>
```

6.6 Command stop ir

6.6.1 Command usage

stop ir [key:<security_key>] <device_name><cr>

6.6.2 Description

The command **stop ir** is used to stop a devices IR stream from being sent to any device.

6.6.3 Arguments

<i>device_name</i>	Device name of either Encoder or Decoder
--------------------	--

6.6.4 Notes

- A connection can be made again with the **join ir** command.

6.6.5 Return Value

command	<space>	mode	<space>	status	terminator
stop	<space>	ir	<space>	<i>success / error</i>	<cr>

6.6.6 Example

```
stop ir Decoder1<cr>
stop ir key:abc123 Decoder1<cr>
```

6.6.7 Return Examples

```
stop ir success<cr>

stop ir error [incomplete]<cr>
stop ir error [device 'Decoder1' not found]<cr>
stop ir error [not supported]<cr>
```

6.7 Command stop serial

6.7.1 Command usage

stop serial [key:<security_key>] <device_name> [<bi>]<cr>

6.7.2 Description

The command **stop serial** is used to stop a devices RS-232 serial stream from being sent to any device.

6.7.3 Arguments

<i>device_name</i>	Device name of either Encoder or Decoder
bi	Keyword ' bi ' will remove 2-way connection to the device (optional)

6.7.4 Notes

- A connection can be made again with the **join serial** command.

6.7.5 Return Value

command	<space>	mode	<space>	status	terminator
stop	<space>	serial	<space>	success / error	<cr>

6.7.6 Examples

```
stop serial Decoder1<cr>
stop serial Decoder1 bi<cr>
stop serial key:abc123 Decoder1<cr>
```

6.7.7 Return Examples

```
stop serial success<cr>

stop serial error [incomplete]<cr>
stop serial error [not supported]<cr>
stop serial error [invalid parameter]<cr>
stop serial error [device 'Encoder1' not found]<cr>
```

6.8 Command stop usb

6.8.1 Command usage

stop usb [key:<security_key>] <encoder_device_name><cr>

6.8.2 Description

The command **stop usb** is used to stop a devices USB stream from being sent to any device.

6.8.3 Arguments

<i>encoder_device_name</i>	Device name of Encoder
----------------------------	------------------------

6.8.4 Notes

- A connection can be made again with the **join usb** command.

6.8.5 Return Value

command	<space>	mode	<space>	status	terminator
stop	<space>	usb	<space>	<i>success / error</i>	<cr>

6.8.6 Example

```
stop usb Encoder1<cr>
stop usb key:abc123 Encoder1<cr>
```

6.8.7 Return Examples

```
stop usb success<cr>

stop usb error [incomplete]<cr>
stop usb error [encoder 'Encoder1' not found]<cr>
stop usb error [not supported]<cr>
```


6.9 Command stop usb_hid

6.9.1 Command usage

stop usb_hid [key:<security_key>] <encoder_device_name><cr>

6.9.2 Description

The command **stop usb_hid** is used to stop a devices USB_HID stream from being sent to any device.

6.9.3 Arguments

<i>encoder_device_name</i>	Device name of Encoder
----------------------------	------------------------

6.9.4 Notes

- A connection can be made again with the **join usb** command.

6.9.5 Return Value

command	<space>	mode	<space>	status	terminator
stop	<space>	usb_hid	<space>	<i>success / error</i>	<cr>

6.9.6 Example

```
stop usb_hid Encoder1<cr>
stop usb_hid key:abc123 Encoder1<cr>
```

6.9.7 Return Examples

```
stop usb_hid success<cr>

stop usb_hid error [incomplete]<cr>
stop usb_hid error [encoder 'Encoder1' not found]<cr>
stop usb_hid error [not supported]<cr>
```

6.10 Command stop all

6.10.1 Command usage

stop all [key:<security_key>] <encoder_device_name> [<free/free_all>]<cr>

6.10.2 Description

The command **stop all** is used to stop all device streams from being sent to any device.

6.10.3 Arguments

<i>encoder_device_name</i>	Device name of Encoder
free	Keyword ' free ' removes the multicast address associated with the Encoder stream (optional)
free_all	Keyword ' free_all ' removes the multicast address associated with the Encoder stream and removes all Decoder subscriptions associated with this multicast address (optional)

6.10.4 Notes

- A connection can be made again with a **join** command.

6.10.5 Return Value

command	<space>	mode	<space>	status	terminator
stop	<space>	all	<space>	<i>success / error</i>	<cr>

6.10.6 Example

```
stop all Encoder1<cr>
stop all Encoder1 free<cr>
stop all Encoder1 free_all<cr>
stop all all<cr>
stop all key:abc123 Encoder1<cr>
```

6.10.7 Return Examples

```
stop all success<cr>

stop all error [incomplete]<cr>
stop all error [encoder 'Encoder1' not found]<cr>
stop all error [not supported]<cr>
```

7 Command start

The **start** command is used to start an Encoder's stream.

7.1 Command start video

7.1.1 Command usage

```
start video [key:<security_key>] <encoder_device_name> [<multicast_addr>]<cr>
```

7.1.2 Description

The command **start video** is used to start an Encoder's video stream.

7.1.3 Arguments

<i>encoder_device_name</i>	Device name of the Encoder or Group
<i>multicast_addr</i>	Optional with an Encoder name to provide the streams multicast address

7.1.4 Notes

- A stream cannot be joined unless it has started, so a **join** command will automatically send the **start** command if the Encoder stream is stopped.
- **group_name** can be used as a destination when all Encoders in a group are required to start video.
- The **multicast_addr** argument, if preset, must be an available (unused) multicast IP within the allocation range configured in the SDVoE Director Controller. This argument will be ignored if Multicast Management is set to MANUAL.

7.1.5 Return Value

command	<space>	mode	<space>	status	terminator
start	<space>	video	<space>	success / error [message]	<cr>

7.1.6 Command Examples

```
start video Encoder2<cr>
start video MyGroup<cr>
start video Encoder1 224.1.1.1<cr>
start video key:abc123 Encoder2<cr>
```

7.1.7 Return Examples

```
start video success<cr>

start video error [incomplete]<cr>
start video error [out of range]<cr>
start video error [multicast IP address is in use]<cr>
start video error [encoder 'Encoder1' not found]<cr>
```

7.2 Command start sub

7.2.1 Command usage

```
start sub [key:<security_key>] <encoder_device_name> [<multicast_addr>]<cr>
```

7.2.2 Description

The command **start sub** is used to start an Encoder's second scaled video stream used for multiview.

7.2.3 Arguments

<i>encoder_device_name</i>	Device name of the Encoder
<i>multicast_addr</i>	Optional to provide the streams multicast address

7.2.4 Notes

- A stream cannot be joined unless it has started, so the **join** commands will automatically send the **start** command if the Encoder stream is stopped.
- A sub stream cannot be started without a scaler resolution being set. The scaler resolution only needs to be set once or whenever a change is required. The scaler resolution is only cleared with a factory reset. Refer 'Command set scaler' for further details.
- The **multicast_addr** argument, if preset, must be an available (unused) multicast IP within the allocation range configured in the SDVoE Director Controller. This argument will be ignored if Multicast Management is set to MANUAL.

7.2.5 Return Value

command	<space>	mode	<space>	status	terminator
start	<space>	sub	<space>	success / error [message]	<cr>

7.2.6 Command Examples

```
start sub Encoder1 224.1.1.1<cr>
start sub Encoder2<cr>
start sub key:abc123 Encoder1<cr>
```

7.2.7 Return Examples

```
start sub success<cr>

start sub error [incomplete]<cr>
start sub error [encoder 'Encoder1' wrong type]<cr>
start sub error [encoder 'Encoder1' not found]<cr>
start sub error [multicast IP address is in use]<cr>
start sub error [encoder 'Encoder1' scaler not set]<cr>
```

7.3 Command start av

7.3.1 Command usage

start av [key:<security_key>] <encoder_device_name> [<audio_multicast_addr><video_multicast_addr>]<cr>

7.3.2 Description

The command **start av** is used to start an Encoder's video and digital audio streams.

7.3.3 Arguments

<i>encoder_device_name</i>	Device name of the Encoder or Group
<i>audio_multicast_addr</i>	Optional with an Encoder name to provide the audio stream multicast address
<i>video_multicast_addr</i>	Optional with an Encoder name to provide the video stream multicast address

7.3.4 Notes

- A stream cannot be joined unless it has started, so the **join** commands will automatically send the **start** command if the Encoder stream is stopped.
- **group_name** can be used as a destination when all Encoders in a group are required to start video and digital audio.
- The **audio_multicast_addr** and **video_multicast_addr** arguments, if preset, must be an available (unused) multicast IP within the allocation range configured in the SDVoE Director Controller. Both **audio_multicast_addr** and **video_multicast_addr** must both be preset if used. These arguments will be ignored if Multicast Management is set to MANUAL.

7.3.5 Return Value

command	<space>	mode	<space>	status	terminator
start	<space>	av	<space>	success / error [message]	<cr>

7.3.6 Command Examples

```
start av Encoder1 224.1.1.1 224.1.1.2<cr>
start av Encoder2<cr>
start av MyGroup<cr>
start av key:abc123 Encoder1<cr>
```

7.3.7 Return Examples

```
start av success<cr>

start av error [incomplete]<cr>
start av error [multicast IP address is in use]<cr>
start av error [encoder 'Encoder1' not found]<cr>
```



DIRECTOR LIGHTNING COMMAND GUIDE V4.3.4

ToC

7.4 Command start audio_a

7.4.1 Command usage

```
start audio_a [key:<security_key>] <encoder_device_name> [<multicast_addr>]<cr>
```

7.4.2 Description

The command **start audio_a** is used to start an Encoder's analog audio stream.

7.4.3 Arguments

<i>encoder_device_name</i>	Device name of the Encoder or Group
<i>multicast_addr</i>	Optional with an Encoder name to provide the streams multicast address

7.4.4 Notes

- A stream cannot be joined unless it has started, so the **join** commands will automatically send the **start** command if the Encoder stream is stopped.
- **group_name** can be used as a destination when all Encoders in a group are required to start analog audio.
- The **multicast_addr** argument, if preset, must be an available (unused) multicast IP within the allocation range configured in the SDVoE Director Controller.

7.4.5 Return Value

command	<space>	mode	<space>	status	terminator
start	<space>	audio_a	<space>	success / error [message]	<cr>

7.4.6 Command Examples

```
start audio_a Encoder1 224.1.1.1<cr>
start audio_a Encoder2<cr>
start audio_a MyGroup<cr>
start audio_a key:abc123 Encoder1<cr>
```

7.4.7 Return Examples

```
start audio_a success<cr>
start audio_a error [incomplete]<cr>
start audio_a error [encoder 'Encoder1' not found]<cr>
start audio_a error [multicast IP address is in use]<cr>
start audio_a error [not supported]<cr>
```

7.5 Command start audio_d

7.5.1 Command usage

start audio_d [key:<security_key>] <encoder_device_name> [<multicast_addr>]<cr>

7.5.2 Description

The command **start audio_d** is used to start an Encoder's digital audio stream.

7.5.3 Arguments

<i>encoder_device_name</i>	Device name of the Encoder or Group
<i>multicast_addr</i>	Optional with an Encoder name to provide the streams multicast address

7.5.4 Notes

- A stream cannot be joined unless it has started, so the **join** commands will automatically send the **start** command if the Encoder stream is stopped.
- **group_name** can be used as a destination when all Encoders in a group are required to start digital audio.
- The **multicast_addr** argument, if preset, must be an available (unused) multicast IP within the allocation range configured in the SDVoE Director Controller. This argument will be ignored if Multicast Management is set to MANUAL.

7.5.5 Return Value

command	<space>	mode	<space>	status	terminator
start	<space>	audio_d	<space>	success / error [message]	<cr>

7.5.6 Command Examples

```
start audio_d Encoder1 224.1.1.1<cr>
start audio_d Encoder2<cr>
start audio_d MyGroup<cr>
start audio_d key:abc123 Encoder1<cr>
```

7.5.7 Return Examples

```
start audio_d success<cr>

start audio_d error [incomplete]<cr>
start audio_d error [encoder 'Encoder1' not found]<cr>
start audio_d error [multicast IP address is in use]<cr>
```




DIRECTOR LIGHTNING COMMAND GUIDE V4.3.4

ToC

8 Command set

The **set** commands are used to change the working conditions of an Encoder or Decoder.

8.1 Command set audio_io

8.1.1 Command usage

```
set audio_io [key:<security_key>] <encoder_device_name> <value><cr>
```

8.1.2 Description

The command **set audio_io** is used to change the analog audio connector of an Encoder from an input to an output.

8.1.3 Arguments

<i>encoder_device_name</i>	Device name of the Encoder
<i>value</i>	'in' 'out'

8.1.4 Notes

- Use the command **get audio_io** to retrieve this setting.

8.1.5 Return Value

command	<space>	mode	<space>	status	terminator
set	<space>	audio_io	<space>	<i>success / error [message]</i>	<cr>

8.1.6 Command Examples

```
set audio_io Encoder1 in<cr>
set audio_io Encoder1 out<cr>
set audio_io key:abc123 Encoder1 in<cr>
```

8.1.7 Return Examples

```
set audio_io success<cr>

set audio_io error [incomplete]<cr>
set audio_io error [encoder 'Encoder1' not found]<cr>
set audio_io error [not supported]<cr>
set audio_io error [invalid value 'value']<cr>
```

8.2 Command set audio_out

8.2.1 Command usage

```
set audio_out [key:<security_key>] <decoder_device_name> <value><cr>
```

8.2.2 Description

The command **set audio_out** is used to change the analog audio output source on a Decoder from HDMI or analog audio.

8.2.3 Arguments

<i>decoder_device_name</i>	Device name of the Decoder
<i>value</i>	'hdmi_2' 'analog'

8.2.4 Notes

- Use the command **get audio_out** to retrieve this setting.

8.2.5 Return Value

command	<space>	mode	<space>	status	terminator
set	<space>	audio_out	<space>	success / error [message]	<cr>

8.2.6 Command Examples

```
set audio_out Decoder1 hdmi_2<cr>
set audio_out Decoder1 analog<cr>
set audio_out key:abc123 Decoder1 in<cr>
```

8.2.7 Return Examples

```
set audio_out success<cr>

set audio_out error [incomplete]<cr>
set audio_out error [decoder 'Decoder1' not found]<cr>
set audio_out error [not supported]<cr>
set audio_out error [invalid value '<value>']<cr>
```

8.3 Command set audio_source

8.3.1 Command usage

```
set audio_source [key:<security_key>] <decoder_device_name> <value><cr>
```

8.3.2 Description

The command **set audio_source** is used to change a Decoder's HDMI audio from embedded HDMI or analog audio.

8.3.3 Arguments

<i>decoder_device_name</i>	Device name of the Decoder
<i>value</i>	'analog' = ANALOG (Stereo Audio)
	'hdmi_sync' = HDMI (Sync Mode)
	'hdmi_2' = HDMI (Downmix Audio)
	'hdmi' = HDMI (Multichannel Audio)

8.3.4 Notes

- Use the command **get audio_source** to retrieve this setting.

8.3.5 Return Value

command	<space>	mode	<space>	status	terminator
set	<space>	audio_source	<space>	success / error [message]	<cr>

8.3.6 Command Examples

```
set audio_source Decoder1 hdmi<cr>
set audio_source Decoder1 hdmi_2<cr>
set audio_source Decoder1 hdmi_sync<cr>
set audio_source Decoder1 analog<cr>
set audio_source key:abc123 Decoder1 hdmi<cr>
```

8.3.7 Return Examples

```
set audio_source success<cr>

set audio_source error [incomplete]<cr>
set audio_source error [decoder 'Decoder1' not found]<cr>
set audio_source error [not supported]<cr>
set audio_source error [invalid value '<value>']<cr>
```



DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

8.4 Command set edid

8.4.1 Command usage

set edid [key:<security_key>] <encoder_device_name> <edid_data><cr>

8.4.2 Description

The command **set edid** is used to save EDID into Encoders.
The command **get edid** is used to retrieve EDID from a Decoder.

8.4.3 Arguments

<i>encoder_device_name</i>	Name of the Encoder, Group or 'all'
<i>edid_data</i>	String which represents the binary EDID data

8.4.4 Notes

- **all** can be used as a destination when all the Encoders are to be set with the same EDID.
- **group_name** can be used as a destination when all Encoders in a group are to be set with the same EDID.
- The data argument must be a 512 character hexadecimal string which represents the EDID to be set.

8.4.5 Return Value

command	<space>	mode	<space>	status	terminator
set	<space>	edid	<space>	success / error [message]	<cr>

8.4.6 Command Example

```
set edid Encoder1 00ffffffffffff00410c2fc0c52d00000c140103802f1a782e3585a656489a241250542f6f00714f818
0818a9500950fb3000101d1c0023a801871382d40582c4500dc0c1100001e000000ff00415535313031323031313731370000
00fd00384c1e5315000a2020202020000000fc005068696c69707320323231450a01b602031ef04b1005010203040612131
41f230907078301000065030c001100023a801871382d40582c4500dc0c1100001e8c0ad08a20e02d10103e9600dc0c110000
18011d007251d01e206e285500dc0c1100001e8c0ad090204031200c405500dc0c11000018000000000000000000000000
0000000000000000000000ac<cr>
```

```
set edid key:abc123 Encoder1 ...<cr>
```

8.4.7 Return Examples

```
set edid success<cr>
```

```
set edid error [incomplete]<cr>
```

```
set edid error [encoder 'Encoder1' not found]<cr>
```

```
set edid error [invalid edid_data]<cr>
```

8.5 Command set frame_converter

8.5.1 Command usage

set frame_converter [key:<security_key>] <encoder_device_name> <stream> <state><cr>

8.5.2 Description

The command **set frame_converter** is used to half the Encoder's video frame rate on either the main or sub streams. For example 60 fps video from the source becomes a 30 fps video stream.

Reducing the frame rate will dramatically reduce the bandwidth of a video stream with little affect to the resulting video with a 50/60Hz source frame rate.

8.5.3 Arguments

<i>encoder_device_name</i>	Device name of the Encoder
<i>stream</i>	'sub' 'main'
<i>state</i>	'true' 'false'

8.5.4 Notes

- Only PROGRESSIVE video signals are supported. INTERLACED video signals cannot have their frame rates reduced. The command will return an invalid format error with INTERLACED signals when setting the frame_converter to true.

Use the "get <encoder_device_name> video sm" command to confirm a PROGRESSIVE signal.

8.5.5 Return Value

command	<space>	mode	<space>	status	terminator
set	<space>	frame_converter	<space>	success / error [message]	<cr>

8.5.6 Command Examples

```
set frame_converter Encoder1 sub true<cr>
set frame_converter Encoder1 sub false<cr>
set frame_converter Encoder1 main true<cr>
set frame_converter Encoder1 main false<cr>
set frame_converter key:abc123 Encoder1 sub true<cr>
```

8.5.7 Return Examples

```
set frame_converter success<cr>

set frame_converter error [incomplete]<cr>
set frame_converter error [invalid state '<state>']<cr>
set frame_converter error [invalid stream '<stream>']<cr>
set frame_converter error [encoder 'Encoder1' not found]<cr>
```

8.6 Command set listener

8.6.1 Command usage

```
set listener [key:<security_key>] <notify_ip> <notify_port> <protocol> [<device_ip>] <condition> <state> <device_io> <preset_name> [delay]<cr>
```

8.6.2 Description

The command **set listener** utilises Global Caché device sensor notify functionality. This enables a preset to be triggered from a sensor notify beacon sent when a devices input status changes from a contact or voltage.

8.6.3 Arguments

<i>notify_ip</i>	IP of a GC-100-06 or GC-100-12 devices, otherwise 239.255.250.250
<i>notify_port</i>	4998 for GC-100-06 or GC-100-12, otherwise same as port set in device 9160
<i>protocol</i>	'TCP' for GC-100-06 or GC-100-12 devices, otherwise 'UDP'
<i>device_ip (optional)</i>	Must be used with UDP 239.255.250.250 to identify device
<i>condition</i>	'on' 'off' 'any'
<i>state</i>	'enabled' 'disabled'
<i>device_io</i>	Physical Global Caché device input sensor port 1 to 6
<i>preset_name</i>	Name of the preset to be executed
<i>delay (optional)</i>	Optional delay time of preset execution in minutes

8.6.4 Notes

- Supported Global Caché devices: GC-100 series, IP2IR, WF2IR, GCIR3, Flex Link Relay & Sensor Cable.
- "**condition**" is the the input as '**on**' (closed contact) or '**off**' (open contact) or '**any**' (contact closing or opening)
- "**state**" is the running state of the set listener service as '**enabled**' or '**disabled**'.
- Optional "**delay**" is used to delay the preset for the specified amount of time in minutes. The delay is reset each time the command is used.

8.6.5 Return Value

command	<space>	mode	<space>	status	terminator
set	<space>	listener	<space>	success / error [message]	<cr>

8.6.6 Command Examples

```
set listener 172.30.0.12 4998 tcp on enabled 1 preset1<cr>
set listener 172.30.0.12 4998 tcp on disabled 1<cr>
set listener 239.255.250.250 9160 udp 172.30.10.222 on enabled 1 preset2 30<cr>
set listener 239.255.250.250 9160 udp 172.30.10.222 on disabled 1<cr>
set listener key:abc123 172.30.0.12 4998 tcp any enabled 1 preset1<cr>
```

8.6.7 Return Examples

```
set listener success<cr>

set listener error [incomplete]<cr>
set listener error [reserved notify port]<cr>

set listener error [no active listener found]<cr>
set listener error [invalid device port]<cr>
```

ToC



DIRECTOR LIGHTNING COMMAND GUIDE V4.3.4

```
set listener error [invalid parameter]<cr>  
set listener error [preset not found]<cr>
```




8.7 Command set presenter

8.7.1 Command usage

```
set presenter [key:<security_key>] <group> <state><cr>
```

8.7.2 Description

The command **set presenter** is used to enable or disable a group of presenter buttons.

8.7.3 Arguments

<i>group</i>	Name of the presenting group
<i>state</i>	'true' 'false'

8.7.4 Notes

- The Presenter functionality must be unlocked and the service must be enabled.

8.7.5 Return Value

command	<space>	mode	<space>	status	terminator
set	<space>	presenter	<space>	success / error [message]	<cr>

8.7.6 Command Examples

```
set presenter group1 true<cr>
set presenter group1 false<cr>
set presenter key:abc123 group1 true<cr>
```

8.7.7 Return Examples

```
set presenter success<cr>

set presenter error [incomplete]<cr>
set presenter error [group 'group11' not found]<cr>
set presenter error [function not available]<cr>
set presenter error [service not enabled]<cr>
```

8.8 Command set scaler

8.8.1 Command usage

set scaler [key:<security_key>] <encoder_device_name> <width> <height><cr>

8.8.2 Description

The command **set scaler** is used to set the Encoder's multiview sub stream resolution.

8.8.3 Arguments

<i>encoder_device_name</i>	Device name of the Encoder
<i>width</i>	Horizontal size of the scaled video in pixels
<i>height</i>	Vertical size of the scaled video in pixels

8.8.4 Notes

- The scaler size must match the window size as specified with the **layout window** command.
- The **set scaler** command is not required if specifying the **layout_name** within the **join multi** command.
- A multiview stream cannot be started without a scaler resolution being set. The scaler resolution only needs to be set once or whenever a change is required. The scaler resolution is only cleared with a factory reset.

8.8.5 Return Value

command	<space>	mode	<space>	status	terminator
set	<space>	scaler	<space>	success / error [message]	<cr>

8.8.6 Command Examples

```
set scaler Encoder1 1920 1080<cr>
set scaler key:abc123 Encoder1 1920 1080<cr>
```

8.8.7 Return Examples

```
set scaler success<cr>

set scaler error [incomplete]<cr>
set error [encoder 'Encoder1' not found]<cr>
set scaler error [invalid width '<width>']<cr>
set scaler error [invalid height '<height>']<cr>
```

8.9 Command set security

8.9.1 Command usage

```
set security [key:<security_key>] <device_name> <key><cr>
```

8.9.2 Description

The command **set security** is used to enable or disable encryption between an Encoder and Decoders. With this function, you can assign individual or a group of devices with a user defined key to control which endpoints in the system can exchange HDMI AV data. You can also use this function to prevent unauthorized Decoders from accessing HDMI AV data.

8.9.3 Arguments

<i>device_name</i>	Name of the Encoder, Decoder or <i>Group</i>
<i>key</i>	User defined 8 character key or 'default'

8.9.4 Notes

- To enable encryption the key must be set with an eight (8) character ASCII string.
- To disable encryption the key must be set with the word 'default'.
- Device firmware > 3.5.2.0 and BlueRiver™ firmware > 2.14.0 required.

8.9.5 Return Value

command	<space>	mode	<space>	status	terminator
set	<space>	security	<space>	success / error [message]	<cr>

8.9.6 Command Examples

```
set security Encoder1 12345678<cr>
set security Decoder1 12345678<cr>
set security group1 12345678<cr>
set security group1 default<cr>
set security key:abc123 Encoder1 12345678<cr>
```

8.9.7 Return Examples

```
set security success<cr>

set security error [incomplete]<cr>
set security error [device 'Encoder1' not found]<cr>
set security error [invalid key '<key>']<cr>
```

8.10 Command set video_compress

8.10.1 Command usage

```
set video_compress [key:<security_key>] <encoder_device_name> <state><cr>
```

8.10.2 Description

The command **set video_compress** is used to apply constant compression to the video signal for reduced network bandwidth. It reduces 4K30 to around 5 Gbps bandwidth, and 1080p60 to around 2.5 Gbps bandwidth.

8.10.3 Arguments

<i>encoder_device_name</i>	Device name of the Encoder
<i>state</i>	'true' 'false'

8.10.4 Notes

- The scaled sub stream remains uncompressed

8.10.5 Return Value

command	<space>	mode	<space>	status	terminator
set	<space>	video_compress	<space>	success / error [message]	<cr>

8.10.6 Command Examples

```
set video_compress Encoder1 true<cr>
set video_compress Encoder1 false<cr>
set video_compress key:abc123 Encoder1 true<cr>
```

8.10.7 Return Examples

```
set video_compress success<cr>

set video_compress error [incomplete]<cr>
set video_compress error [encoder 'Encoder1' not found]<cr>
set video_compress error [invalid state '<state>']<cr>
```

8.11 Command set video_mode

8.11.1 Command usage

```
set video_mode [key:<security_key>] <decoder_device_name> <display_mode> [<aspect>] [<width> <height> <fps>]<cr>
```

8.11.2 Description

The command **set video_mode** is used to change a Decoder's mode of operation, from a low latency sync or sync_scale modes to a fast switch mode and set the output aspect ratio and resolution if required.

8.11.3 Arguments

<i>decoder_device_name</i>	Device name of the Decoder, Group or 'all'
<i>display_mode</i>	'sync' 'sync_scale' 'fast'
<i>aspect</i>	Aspect ratio keywords 'keep', 'stretch' and 'crop' for 'fast' display_mode only (optional)
<i>width</i>	Display resolution width for sync_scale and fast modes
<i>height</i>	Display resolution height for sync_scale and fast modes
<i>fps</i>	Display frame rate for fast mode (sync_scale uses source fps)

8.11.4 Notes

- If no source video is present when setting sync_scale then 60 fps will be used by default.

8.11.5 Return Value

command	<space>	mode	<space>	status	terminator
set	<space>	video_mode	<space>	success / error [message]	<cr>

8.11.6 Command Examples

```
set video_mode Decoder1 sync<cr>
set video_mode Decoder1 sync_scale 1920 1080<cr>
set video_mode Decoder1 fast 1920 1080 60<cr>
set video_mode Decoder1 fast keep 1920 1080 60<cr>
set video_mode Decoder1 fast crop 1920 1080 60<cr>
set video_mode key:abc123 Decoder1 fast stretch 1920 1080 60<cr>
```

8.11.7 Return Examples

```
set video_mode success<cr>

set video_mode error [incomplete]<cr>
set video_mode error [decoder 'Decoder1' not found]<cr>
set video_mode error [invalid display_mode '<display_mode>']<cr>
set video_mode error [invalid width '<width>']<cr>
set video_mode error [invalid height '<height>']<cr>
set video_mode error [invalid fps '<fps>']<cr>
```

8.12 Command set video_mute

8.12.1 Command usage

```
set video_mute [key:<security_key>] <decoder_device_name> <state> [<color>]<cr>
```

8.12.2 Description

The command **set video_mute** can be used in a number of useful ways. It can be used as either a video mute to blank the video of the display and show a black screen or any select color. It can also be useful in identifying individual monitors by displaying a full screen of color so you can find what monitor is connected to what Decoder.

8.12.3 Arguments

<i>decoder_device_name</i>	Device name of the Decoder
<i>state</i>	'true' 'false'
<i>color</i>	Option to change the color of the display rather than showing black screen

8.12.4 Notes

- **color** string has a format of RRGGBB where each pair of hexadecimal numbers represent the 8-bit value
- This mute feature is only supported when the Decoder is in a display modes other than sync_scale.

8.12.5 Return Value

command	<space>	mode	<space>	status	terminator
set	<space>	video_mute	<space>	success / error [message]	<cr>

8.12.6 Command Examples

```
set video_mute Decoder1 true<cr>
set video_mute Decoder1 true 112233<cr>
set video_mute Decoder1 false<cr>
set video_mute key:abc123 Decoder1 true<cr>
```

8.12.7 Return Examples

```
set video_mute success<cr>

set video_mute error [incomplete]<cr>
set video_mute error [decoder 'Decoder1' not found]<cr>
set video_mute error [invalid state '<state>']<cr>
set video_mute error [invalid color '<color>']<cr>
```

8.13 Command set video_source

8.13.1 Command usage

```
set video_source [key:<security_key>] <encoder_device_name> <value><cr>
```

8.13.2 Description

The command **set video_source** is used to change an Encoder's input between HDMI and DisplayPort.

8.13.3 Arguments

<i>encoder_device_name</i>	Device name of the Encoder
<i>value</i>	'auto' 'hdmi' 'dp'

8.13.4 Notes

- 'auto' will automatically switch between HDMI and DisplayPort when a signal is detected. 'hdmi' is for HDMI only, while 'dp' is for DisplayPort only.
- Use the command **get video_source** to retrieve this setting.

8.13.5 Return Value

command	<space>	mode	<space>	status	terminator
set	<space>	video_source	<space>	success / error [message]	<cr>

8.13.6 Command Examples

```
set video_source Encoder1 auto<cr>
set video_source Encoder1 hdmi<cr>
set video_source Encoder1 dp<cr>
set video_source key:abc123 Encoder1 auto<cr>
```

8.13.7 Return Examples

```
set video_source success<cr>

set video_source error [incomplete]<cr>
set video_source error [encoder 'Encoder1' not found]<cr>
set video_source error [invalid value '<value>']<cr>
```

8.14 Command set ui

8.14.1 Command usage

```
set ui [key:<security_key>] <ui_name> <service> [timeout <timeout>] [clients <clients>] [login <pin>]<cr>
```

8.14.2 Description

The command **set ui** is used to enable and disable a UI service.

8.14.3 Arguments

<i>ui_name</i>	name of the User Interface
<i>service</i>	'enabled' 'disabled' 'logout'
<i>clients</i>	Optional with enabled service to set the maximum client limit from 1 to 100
<i>pin</i>	Optional with enabled service to set a fixed or random 4 digit login pin code

8.14.4 Notes

- Control UI must be enabled as a feature for command to be used.
- Service logout is the same as disabled then enabled.

8.14.5 Return Value

command	<space>	mode	<space>	status	terminator
set	<space>	ui	<space>	success / error [message]	<cr>

8.14.6 Command Examples

```
set ui myUI disabled<cr>
set ui myUI logout<cr>
set ui myUI enabled<cr>
set ui myUI enabled clients 10 login 1234<cr>
set ui key:abc123 myUI enabled clients 10 login random<cr>
```

8.14.7 Return Examples

```
set ui success<cr>

set ui error [incomplete]<cr>
set ui error [ui 'myUI' not found]<cr>
set ui error [invalid clients '<value>']<cr>
set ui error [invalid pin '<value>']<cr>
set ui error [invalid parameter]<cr>
```




DIRECTOR LIGHTNING COMMAND GUIDE V4.3.4

ToC

8.15 Command set ui_button

8.15.1 Command usage

```
set ui_button [key:<security_key>] <ui_name> <button_name / button_group> <function> [<button_position>] [<value>]<cr>
```

8.15.2 Description

The command **set ui_button** is used to control a button within an active User Interface.

8.15.3 Arguments

<i>ui_name</i>	Name of the User Interface
<i>button_name / button_group</i>	Name of the button or preset logic <<button_name>> Or name of a button group
<i>function</i>	position state text press
<i>button_position</i>	up down
<i>value</i>	up down, enabled disabled or text string depending on the function

8.15.4 Notes

- Control UI must be enabled as a feature for command to be used.
 - The UI service must be enabled.
 - Used with split buttons, <<encoder>> and <<decoder>> can be used for button text <value>.
 - Used within a preset, <<button_name>> can be used in place of <button_name>.
 - For button groups, only **position** and **state** functions are available. Radio Toggle buttons can only use **position up**.
 - function > position** and **text** uses **up | down**
 - function > position** is only valid for Toggle, Radio Toggle and Split button types
 - function > state** uses **enabled | disabled**
 - button_position** is only required for function text for Toggle, Radio Toggle and Split button types otherwise 'up' can only be used.
- | | | | | |
|--|---|---|--|---|
| <ul style="list-style-type: none"> • Momentary <ul style="list-style-type: none"> ○ state ○ text ○ press | <ul style="list-style-type: none"> • Toggle <ul style="list-style-type: none"> ○ position ○ state ○ text ○ press | <ul style="list-style-type: none"> • Radio Toggle <ul style="list-style-type: none"> ○ position ○ state ○ text ○ press | <ul style="list-style-type: none"> • Split <ul style="list-style-type: none"> ○ state ○ text ○ press | <ul style="list-style-type: none"> • Repeat <ul style="list-style-type: none"> ○ state ○ text ○ press |
|--|---|---|--|---|

8.15.5 Return Value

command	<space>	mode	<space>	status	terminator
set	<space>	ui_button	<space>	success / error [message]	<cr>

8.15.6 Command Examples

```
set ui_button myUI myButton position up<cr>
set ui_button myUI myButton position down<cr>
set ui_button myUI myButton state enabled<cr>
set ui_button myUI myButton state disabled<cr>
set ui_button myUI myButton text up "MyText"<cr>
set ui_button myUI MyButtonGroup position up<cr>
set ui_button myUI MyButtonGroup state disabled<cr>
set ui_button myUI myButton text down <<encoder>><cr>
set ui_button myUI <<button_name>> text both <<encoder>><cr>
set ui_button key:abc123 myUI myButton press<cr>
```



DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

8.15.7 Return Examples

```
set ui_button success<cr>

set ui_button error [incomplete]<cr>
set ui_button error [ui 'myUI' not found]<cr>
set ui_button error [button 'myButton' not found]<cr>
set ui_button error [invalid parameter]<cr>
set ui_button error [invalid button_position]<cr>
set ui_button error [service disabled]<cr>
set ui_button error [invalid button type]<cr>
```

8.16 Command set ui_label

8.16.1 Command usage

set ui_label [key:<security_key>] <ui_name> <label_name> <function> <value><cr>

8.16.2 Description

The command **set ui_label** is used to control a label within a Control UI.

8.16.3 Arguments

<i>ui_name</i>	Name of the User Interface
<i>label_name</i>	Name of the label
<i>function</i>	color visibility text
<i>value</i>	depending on the function

8.16.4 Notes

- Control UI must be enabled as a feature for command to be used.
- function color uses HEX RGB color code from 000000 to FFFFFFFF
- function visibility uses true | false

8.16.5 Return Value

command	<space>	mode	<space>	status	terminator
set	<space>	ui_label	<space>	success / error [message]	<cr>

8.16.6 Command Examples

```
set ui_label myUI myLabel color 000000<cr>
set ui_label myUI myLabel visibility false<cr>
set ui_label myUI myLabel visibility true<cr>
set ui_label myUI myLabel text "MyText"<cr>
set ui_label key:abc123 myUI myLabel text <<encoder>><cr>
```

8.16.7 Return Examples

```
set ui_label success<cr>

set ui_label error [incomplete]<cr>
set ui_label error [ui 'myUI' not found]<cr>
set ui_label error [invalid parameter]<cr>
set ui_label error [label 'myLabel' not found]<cr>
```



DIRECTOR LIGHTNING COMMAND GUIDE V4.3.4

ToC

8.17 Command set ui_image

8.17.1 Command usage

```
set ui_image [key:<security_key>] <ui_name> <image_name> <function> <value><cr>
```

8.17.2 Description

The command **set ui_image** is used to control an image within a Control UI.

8.17.3 Arguments

<i>ui_name</i>	Name of the User Interface
<i>image_name</i>	Name of the image
<i>function</i>	visibility
<i>value</i>	true false

8.17.4 Notes

- Control UI must be enabled as a feature for command to be used.

8.17.5 Return Value

command	<space>	mode	<space>	status	terminator
set	<space>	ui_image	<space>	success / error [message]	<cr>

8.17.6 Command Examples

```
set ui_image myUI myImage visibility false<cr>
set ui_image myUI myImage visibility true<cr>
```

8.17.7 Return Examples

```
set ui_image success<cr>

set ui_image error [incomplete]<cr>
set ui_image error [ui 'myUI' not found]<cr>
set ui_image error [invalid parameter]<cr>
set ui_image error [image 'myImage' not found]<cr>
```

8.18 Command set ui_page

8.18.1 Command usage

```
set ui_page [key:<security_key>] <ui_name> <page_name><cr>
```

8.18.2 Description

The command **set ui_page** is used to change the displayed page in active User Interface.

8.18.3 Arguments

<i>ui_name</i>	Name of the User Interface
<i>page_name</i>	Name of the page

8.18.4 Notes

- Control UI must be enabled as a feature for command to be used.

8.18.5 Return Value

command	<space>	mode	<space>	status	terminator
set	<space>	ui_page	<space>	<i>success / error [message]</i>	<cr>

8.18.6 Command Examples

```
set ui_page myUI myPage<cr>
```

8.18.7 Return Examples

```
set ui_page success<cr>
```

```
set ui_page error [incomplete]<cr>
set ui_page error [ui 'myUI' not found]<cr>
set ui_page error [page 'myPage' not found]<cr>
set ui_page error [invalid parameter]<cr>
set ui_page error [service disabled]<cr>
```



8.19 Command set var

8.19.1 Command usage

```
set var [key:<security_key>] <var_name> <value><cr>
```

8.19.2 Description

The command **set var** is used to create or change a user defined variable to store a string or value.

8.19.3 Arguments

<i>var_name</i>	Name of the variable
<i>value</i>	Maximum of 256 characters or [delete]

8.19.4 Notes

- *var_name* and value can be any string up to 256 characters.
- When [delete] is used as a value the variable will be deleted.
- String values with spaces are to be wrapped in "quotation marks".

8.19.5 Return Value

command	<space>	mode	<space>	status	terminator
set	<space>	var	<space>	success / error [message]	<cr>

8.19.6 Command Examples

```
set var myVar true<cr>
set var myVar "any string upto 256"<cr>
set var myVar [delete]<cr>
set var key:abc123 MyVar false<cr>
```

8.19.7 Return Examples

```
set var success<cr>

set var error [incomplete]<cr>
set var error [var_name max 256 characters]<cr>
set var error [value max 256 characters]<cr>
```




DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

8.20 Command set events

8.20.1 Command usage

```
set events [key:<security_key>] <event_name> <function> <value><cr>
```

8.20.2 Description

The command **set events** is used to enable or disable events created on the UI's Scheduler and Events tabs.

8.20.3 Arguments

<i>event_name</i>	Name of the event
<i>function</i>	Current only " state " supported
<i>value</i>	" enabled " or " disabled "

8.20.4 Notes

- Event must be created on UI's Scheduler or Events tab before using command.

8.20.5 Return Value

command	<space>	mode	<space>	status	terminator
set	<space>	events	<space>	success / error [message]	<cr>

8.20.6 Command Examples

```
set events MyEvent enabled<cr>
set events MyEvent disabled<cr>
```

8.20.7 Return Examples

```
set events success<cr>

set events error [incomplete]<cr>
set events error [event '<event_name>' not found]<cr>
set events error [invalid parameter]<cr>
```



9 Command get

The **get** commands are used to retrieve information from the system or Encoders and Decoders.

9.1 Command get api

9.1.1 Command usage

```
get api [key:<security_key>]<cr>
```

9.1.2 Description

The command **get api** is used to retrieve the BlueRiver™ API version.

9.1.3 Arguments

None

9.1.4 Notes

- Use the command **get api** in a preset to determine what commands can be used.

9.1.5 Return Value

command	<space>	mode	<space>	status	<space>	value	terminator
get	<space>	api	<space>	success data / error [message]	<space>	<string>	<cr>

9.1.6 Command Example

```
get api<cr>
get api key:abc123<cr>
```

9.1.7 Return Example

```
get api success 2.21.0.0<cr>
```



9.2 Command get audio_io

9.2.1 Command usage

```
get audio_io [key:<security_key>] <encoder_device_name><cr>
```

9.2.2 Description

The command **get audio_io** is used to retrieve the input/output status of an Encoder's analog audio connector.

9.2.3 Arguments

<i>encoder_device_name</i>	Device name of the Encoder
----------------------------	----------------------------

9.2.4 Notes

- Returned mode is either **in** or **out**.
- Use the command **set audio_io** to change this setting.

9.2.5 Return Value

command	<space>	mode	<space>	status	<space>	value	terminator
get	<space>	audio_io	<space>	success data / error [message]	<space>	<string>	<cr>

9.2.6 Command Example

```
get audio_io Encoder1<cr>
get audio_io key:abc123 Encoder1<cr>
```

9.2.7 Return Examples

```
get audio_io success in<cr>
get audio_io success out<cr>

get audio_io error [incomplete]<cr>
get audio_io error [not supported]<cr>
get audio_io error [encoder 'Encoder1' not found]<cr>
```

9.3 Command `get audio_out`

9.3.1 Command usage

```
get audio_out [key:<security_key>] <decoder_device_name><cr>
```

9.3.2 Description

The command **get audio_out** is used to retrieve the analog audio output source on a Decoder.

9.3.3 Arguments

<i>decoder_device_name</i>	Device name of the Decoder
----------------------------	----------------------------

9.3.4 Notes

- Returned mode is either **hdmi_2**, **analog** or **other**.
- Use the command **set audio_out** to change this setting.

9.3.5 Return Value

command	<space>	mode	<space>	status	<space>	value	terminator
get	<space>	audio_out	<space>	success data / error [message]	<space>	<string>	<cr>

9.3.6 Command Example

```
get audio_out Decoder1<cr>
get audio_out key:abc123 Decoder1<cr>
```

9.3.7 Return Examples

```
get audio_out success hdmi_2<cr>
get audio_out success analog<cr>
get audio_out success other<cr>

get audio_out error [incomplete]<cr>
get audio_out error [not supported]<cr>
get audio_out error [decoder 'Decoder1' not found]<cr>
```

9.4 Command `get audio_source`

9.4.1 Command usage

```
get audio_source [key:<security_key>] <decoder_device_name><cr>
```

9.4.2 Description

The command **get audio_source** is used to retrieve the source for a Decoder's Analog audio output.

9.4.3 Arguments

<i>decoder_device_name</i>	Device name of the Decoder
----------------------------	----------------------------

9.4.4 Notes

- Returned mode is either **analog**, **hdmi**, **hdmi_2**, **hdmi_sync** or **other**.
 - analog = ANALOG (Stereo Audio)
 - hdmi = HDMI (Multichannel Audio)
 - hdmi_2 = HDMI (Downmix Audio)
 - hdmi_sync = HDMI (Sync Mode)
- Use the command **set audio_source** to change this setting.

9.4.5 Return Value

command	<space>	mode	<space>	status	<space>	value	terminator
get	<space>	audio_source	<space>	success data / error [message]	<space>	<string>	<cr>

9.4.6 Command Example

```
get audio_source Decoder1<cr>
get audio_source key:abc123 Decoder1<cr>
```

9.4.7 Return Examples

```
get audio_source success analog<cr>
get audio_source success hdmi<cr>
get audio_source success hdmi_2<cr>
get audio_source success hdmi_sync<cr>
get audio_source success other<cr>

get audio_source error [incomplete]<cr>
get audio_source error [not supported]<cr>
get audio_source error [decoder 'Decoder1' not found]<cr>
```

9.5 Command get bandwidth / get rt_bandwidth

9.5.1 Command usage

```
get bandwidth [key:<security_key>] <device_name> [<index>] [potential]<cr>
get rt_bandwidth [key:<security_key>] <device_name> [<index>] [potential]<cr>
```

9.5.2 Description

The command **get bandwidth** is used to retrieve the network bandwidth of an Encoder stream or Decoder subscription.

9.5.3 Arguments

<i>device_name</i>	Device name of either Encoder or Decoder
<i>index</i>	Stream or Subscription index (optional)
<i>potential</i>	Include stopped streams (optional)

9.5.4 Notes

- When **index** is omitted the total bandwidth will be returned. For an Encoder this will be the total transmitted bandwidth of stream 0 and stream 1. For a Decoder this will be the total received bandwidth of all unique subscriptions.
- rt_bandwidth** is used to retrieve real time data rather than current status data.
- Keyword "potential" is used to retrieve the Encoder bandwidth assuming both stream are started.

9.5.5 Return Value

command	<space>	mode	<space>	status	<space>	value	terminator
get	<space>	bandwidth	<space>	success data / error [message]	<space>	<string>	<cr>

9.5.6 Command Example

```
get bandwidth Encoder1<cr>
get bandwidth Encoder1 0<cr>
get bandwidth Encoder1 1<cr>
get bandwidth Encoder1 potential<cr>
get bandwidth Decoder1<cr>
get bandwidth Decoder1 27<cr>

get rt_bandwidth key:abc123 Encoder1<cr>
get bandwidth key:abc123 Encoder1<cr>
```

9.5.7 Return Example

```
get bandwidth success 3.33<cr>
get rt_bandwidth success 3.33<cr>

get bandwidth error [incomplete]<cr>
get bandwidth error [not supported]<cr>
get bandwidth error [invalid parameter]<cr>
```



DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

```
get bandwidth error [device 'Decoder1' not found]<cr>
```

9.6 Command get devices

9.6.1 Command usage

```
get devices [key:<security_key>] <target><cr>
```

9.6.2 Description

The command **get devices** is used to retrieve the name and MAC Address of available devices.

9.6.3 Arguments

<i>target</i>	all all_rx all_tx
---------------	-----------------------

9.6.4 Notes

- Return value <device_name> = name of device
- Return value <device_id> = device MAC Address

9.6.5 Return Value

command	<space>	mode	<space>	status	<space>	value	terminator
get	<space>	devices	<space>	success data / error [message]	<space>	<string>	<cr>

9.6.6 Command Example

```
get devices all<cr>
get devices all_tx<cr>
get devices all_rx<cr>
get devices key:abc123 all<cr>
```

9.6.7 Return Examples

```
get devices success '<device_name>--<device_id>','<device_name>--<device_id>'<cr>
get devices success '<device_name>--<device_id>'<cr>

get devices error [incomplete]<cr>
```



9.7 Command get display_status

9.7.1 Command usage

```
get display_status [key:<security_key>] <decoder_device_name><cr>
```

9.7.2 Description

The command **get display_status** is used to find if a Decoder has a display connected.

9.7.3 Arguments

<i>decoder_device_name</i>	Device name of the Decoder
----------------------------	----------------------------

9.7.4 Notes

- Returned mode is either **true** or **false**.
- Some non-compliant displays will need to be powered on before detection is possible.

9.7.5 Return Value

command	<space>	mode	<space>	status	<space>	value	terminator
get	<space>	display_status	<space>	success data / error [message]	<space>	<string>	<cr>

9.7.6 Command Example

```
get display_status Decoder1<cr>
get display_status key:abc123 Decoder1<cr>
```

9.7.7 Return Examples

```
get display_status success true<cr>
get display_status success false<cr>

get display_status error [incomplete]<cr>
get display_status error [not supported]<cr>
get display_status error [decoder 'Decoder1' not found]<cr>
```


9.8 Command get edid

9.8.1 Command usage

```
get edid [key:<security_key>] <decoder_device_name><cr>
```

9.8.2 Description

The command **get edid** is used to retrieve a Decoder's connected displays EDID.

9.8.3 Arguments

<i>decoder_device_name</i>	Device name of the Decoder
----------------------------	----------------------------

9.8.4 Notes

- A display device must be connected to the Decoder to retrieve the EDID.
- Use the command **set edid** to save EDID into an Encoder.
- 256 bytes of EDID will be returned.

9.8.5 Return Value

command	<space>	mode	<space>	status	<space>	edid_data	terminator
get	<space>	edid	<space>	<i>success data / error [message]</i>	<space>	<string>	<cr>

9.8.6 Command Example

```
get edid Decoder1<cr>
get edid key:abc123 Decoder1<cr>
```

9.8.7 Return Examples

```
get edid success  
00fffffffff00410c2fc0c52d00000c140103802f1a782e3585a656489a241250542f6f00714f8180818a9500950fb3000  
l01dlc0023a801871382d40582c4500dc0c1100001e00000ff004155353130313230313137313700000fd00384c1e531500  
0a202020202020000000fc005068696c69707320323231450a01b602031ef04b100501020304061213141f230907078301000  
065030c001100023a801871382d40582c4500dc0c1100001e8c0ad08a20e02d10103e9600dc0c11000018011d007251d01e20  
6e285500dd0c1100001e8c0ad090204031200c405500dc0c11000018000000000000000000000000000000000000000000000  
0000ac<cr>  
  
get edid error [incomplete]<cr>  
get edid error [decoder 'Decoder1' not found]<cr>  
get edid error [decoder 'Decoder1' no EDID available]<cr>
```

9.9 Command get joins

9.9.1 Command usage

```
get joins [key:<security_key>] <device_name> <subscription> [<index>]<cr>
```

9.9.2 Description

The command **get joins** is used to retrieve the device name subscribed to a Decoder's subscription. When subscription is video and index is not specified, then the Encoder subscribed to the Decoder's video index 0 will be returned.

9.9.3 Arguments

<i>device_name</i>	Device name of a Decoder for video, audio_d, audio_a else Encoder or Decoder
<i>subscription</i>	audio_a audio_d video serial ir usb usbhid
<i>index</i>	Optional video index from 0 to 31

9.9.4 Notes

- **index** is only required for subscription **video**. Index 0 will be used by default if omitted.
- *Command renamed from 'get encoder'*

9.9.5 Return Value

command	<space>	mode	<space>	status	<space>	value	terminator
get	<space>	joins	<space>	success data / error [message]	<space>	<string>	<cr>

9.9.6 Command Examples

```
get joins Decoder1 video 0<cr>           get joins Decoder1 ir<cr>
get joins Decoder1 audio_d<cr>           get joins Decoder1 serial<cr>
get joins Decoder1 audio_a<cr>           get joins Decoder1 usb<cr>
get joins key:abc123 Decoder1 video<cr>  get joins Decoder1 usbhid<cr>
```

9.9.7 Return Examples

```
get joins success Encoder1<cr>
get joins success [ "Encoder1", "Encoder2" ]<cr>
get joins success null<cr>

get joins error [incomplete]<cr>
get joins error [invalid subscription '<subscription>']<cr>
get joins error [invalid index '<index>']<cr>
get joins error [device 'Decoder1' not found]<cr>
```

9.10 Command get frame_converter

9.10.1 Command usage

```
get frame_converter [key:<security_key>] <encoder_device_name> <stream><cr>
```

9.10.2 Description

The command **get frame_converter** is used to retrieve the current frame rate converter setting for the specified video stream.

9.10.3 Arguments

<i>encoder_device_name</i>	Device name of the Encoder
<i>stream</i>	sub main

9.10.4 Notes

9.10.5 Return Value

command	<space>	mode	<space>	status	<space>	value	terminator
get	<space>	frame_converter	<space>	success data / error [message]	<space>	<string>	<cr>

9.10.6 Examples

```
get frame_converter Encoder1 sub<cr>
get frame_converter Encoder1 main<cr>
get frame_converter key:abc123 Encoder1 sub<cr>
```

9.10.7 Return Examples

```
get frame_converter success true<cr>
get frame_converter success false<cr>

get frame_converter error [incomplete]<cr>
get frame_converter error [encoder 'Encoder1' not found]<cr>
get frame_converter error [invalid stream '<stream>']<cr>
```

9.11 Command get preferred

9.11.1 Command usage

get preferred [key:<security_key>] <decoder_device_name> <option><cr>

9.11.2 Description

The command **get preferred** is used to retrieve the preferred resolution of a display connected to a Decoder.

9.11.3 Arguments

<i>decoder_device_name</i>	Device name of Decoder
<i>option</i>	width height fps

9.11.4 Notes

- A display must be connected to the Decoder for the EDID to be retrieved. Some non-compliant displays may need to be switched on before the EDID can be accessed.

9.11.5 Return Value

command	<space>	mode	<space>	status	<space>	value	terminator
get	<space>	preferred	<space>	success data / error [message]	<space>	<string>	<cr>

9.11.6 Command Example

```
get preferred Decoder1 width<cr>
get preferred Decoder1 height<cr>
get preferred Decoder1 fps<cr>
get preferred key:abc123 Decoder1 width<cr>
```

9.11.7 Return Example

```
get preferred success 1920<cr>
get preferred success 1080<cr>
get preferred success 60<cr>

get preferred error [incomplete]<cr>
get preferred error [decoder 'Decoder1' not found]<cr>
get preferred error [no EDID available]<cr>
get preferred error [invalid option '<option>']<cr>
```

9.12 Command get presenter

9.12.1 Command usage

```
get presenter [key:<security_key>] <group><cr>
```

9.12.2 Description

The command **get present** is used to retrieve a presenting groups current state.

9.12.3 Arguments

<i>group</i>	Name of the Group
--------------	-------------------

9.12.4 Notes

- Group names have no spaces eg 'group1'

9.12.5 Return Value

command	<space>	mode	<space>	status	<space>	value	terminator
get	<space>	presenter	<space>	<i>success data / error [message]</i>	<space>	<string>	<cr>

9.12.6 Command Example

```
get presenter group1<cr>
get presenter key:abc123 group1<cr>
```

9.12.7 Return Example

```
get presenter success true<cr>
get presenter success false<cr>

get presenter error [incomplete]<cr>
get presenter error [group 'group11' not found]<cr>
get presenter error [function not available]<cr>
get presenter error [service not enabled]<cr>
```

9.13 Command get scaler

9.13.1 Command usage

get scaler [key:<security_key>] <encoder_device_name> <option><cr>

9.13.2 Description

The command **get scaler** is used to retrieve the scaled video resolution of an Encoder's sub stream.

9.13.3 Arguments

<i>encoder_device_name</i>	Device name of the Encoder
<i>option</i>	all width height fps

9.13.4 Notes

9.13.5 Return Value

command	<space>	mode	<space>	status	<space>	value	terminator
get	<space>	scaler	<space>	success data / error [message]	<space>	<string>	<cr>

9.13.6 Command Examples

```
get scaler Encoder1 all<cr>
get scaler Encoder1 width<cr>
get scaler Encoder1 height<cr>
get scaler Encoder1 fps<cr>
get scaler key:abc123 Encoder1 all<cr>
```

9.13.7 Return Examples

```
get scaler success 1920 1080 60<cr>
get scaler success 1920<cr>
get scaler success 1080<cr>
get scaler success 60<cr>

get scaler error [incomplete]<cr>
get scaler error [not supported]<cr>
get scaler error [encoder 'Encoder1' not found]<cr>
get scaler error [invalid option'<option>']<cr>
```

9.14 Command get security

9.14.1 Command usage

```
get security [key:<security_key>] <device_name><cr>
```

9.14.2 Description

The command **get security** is used to retrieve current security status of an Encoder or Decoder.

9.14.3 Arguments

<i>device_name</i>	Device name of Encoder or Decoder
--------------------	-----------------------------------

9.14.4 Notes

- Device firmware > 3.5.2.0 and BlueRiver™ firmware > 2.14.0 required

9.14.5 Return Value

command	<space>	mode	<space>	status	<space>	value	terminator
get	<space>	security	<space>	success data / error [message]	<space>	<string>	<cr>

9.14.6 Command Example

```
get security Encoder1<cr>
get security key:abc123 Encoder1<cr>
```

9.14.7 Return Example

```
get security success default<cr>
get security success user_defined<cr>

get security error [incomplete]<cr>
get security error [device 'Encoder1' not found]<cr>
```

9.15 Command get status

9.15.1 Command usage

```
get status [key:<security_key>] <device_name> [transceiver_function] [<stream> [<index>]]<cr>
```

9.15.2 Description

The command **get status** is used to retrieve the status of the specified device or individual Encoder device stream or Decoder subscription.

9.15.3 Arguments

<i>device_name</i>	Name of the Encoder or Decoder
<i>transceiver_function</i>	Used only with a transceiver device to specify 'encoder' or 'decoder'
<i>stream</i>	audio_a audio_d video
<i>index</i>	To be used with "video" only. For Encoder 0 – 1 and for Decoder 0 – 31.

9.15.4 Notes

- When no stream is specified the return will be as seen on the status of the Encoder / Decoder UI Status tab, this is a general status of the device.

9.15.5 Return Value

command	<space>	mode	<space>	status	<space>	value	terminator
get	<space>	status	<space>	success data / error [message]	<space>	<string>	<cr>

9.15.6 Command Example

```
get status Encoder1<cr>
get status Encoder1 audio_a<cr>
get status Encoder1 audio_d<cr>
get status Encoder1 video 0<cr>
get status Encoder1 video 1<cr>
get status key:abc123 Encoder1<cr>
```

```
get status Decoder1<cr>
get status Decoder1 audio_a<cr>
get status Decoder1 audio_d<cr>
get status Decoder1 video 0<cr>
get status Decoder1 video 31<cr>
get status Transceiver1 decoder video 31<cr>
```

9.15.7 Return Examples

```
get status success CONNECTED<cr>
get status success STOPPED<cr>
get status success TIMEOUT<cr>
get status success DISCONNECTED<cr>
get status success OUT OF RANGE<cr>
```

```
get status error [incomplete]<cr>
get status error [invalid stream '<stream>']<cr>
get status error [invalid index '<index>']<cr>
get status error [device 'Encoder1' not found]<cr>
```


9.16 Command get temp

9.16.1 Command usage

```
get temp [key:<security_key>] <device_name><cr>
```

9.16.2 Description

The command **get temp** is used to retrieve the current processor temperature of a Decoder or Encoder.

9.16.3 Arguments

<i>device_name</i>	Device name of either a Decoder or Encoder
--------------------	--

9.16.4 Notes

- The result is in degrees celsius (°C). The maximum operating temperature should not exceed 85°C (185°F).

9.16.5 Return Value

command	<space>	mode	<space>	status	<space>	value	terminator
get	<space>	temp	<space>	<i>success data / error [message]</i>	<space>	<string>	<cr>

9.16.6 Command Examples

```
get temp Encoder1<cr>
get temp key:abc123 Encoder1<cr>
```

9.16.7 Return Examples

```
get temp success 69<cr>

get temp error [incomplete]<cr>
get temp error [device 'Encoder1' not found]<cr>
```



DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

9.17 Command get ver

9.17.1 Command usage

get ver [key:<security_key>] <device_name><cr>

9.17.2 Description

The command **get ver** is used to retrieve the current firmware version of a Decoder or Encoder.

9.17.3 Arguments

<i>device_name</i>	Device name of either a Decoder or Encoder
--------------------	--

9.17.4 Notes

9.17.5 Return Value

command	<space>	mode	<space>	status	<space>	value	terminator
get	<space>	ver	<space>	<i>success data / error [message]</i>	<space>	<string>	<cr>

9.17.6 Command Examples

```
get ver Encoder1<cr>
get ver key:abc123 Decoder1<cr>
```

9.17.7 Return Examples

```
get ver success 3.5.2.0<cr>
get ver error [incomplete]<cr>
get ver error [device 'Encoder1' not found]<cr>
```

9.18 Command get video / get rt_video

9.18.1 Command usage

```
get video [key:<security_key>] <encoder_device_name> <option><cr>
get rt_video [key:<security_key>] <encoder_device_name> <option><cr>
```

9.18.2 Description

The command **get video** is used to retrieve the connected video information from an Encoder.

9.18.3 Arguments

<i>encoder_device_name</i>	Device name of the Encoder
<i>option</i>	all width height fps cs bpp sm hdcp

9.18.4 Notes

- all** returns <width> <height> <frames_per_second> <color_space> <bits_per_pixel> <scan_mode> <hdcp>
- rt_video** is used to retrieve real time data rather than current status data.
- hdcp** returns as false or HDCP version 1.4 or 2.2.

9.18.5 Return Value

command	<space>	mode	<space>	status	<space>	value	terminator
get	<space>	video	<space>	success data / error [message]	<space>	<string>	<cr>

9.18.6 Command Example

```
get video Encoder1 all<cr>
get video Encoder1 width<cr>
get video Encoder1 height<cr>
get video Encoder1 fps<cr>
get video Encoder1 cs<cr>
get video Encoder1 bpp<cr>

get video Encoder1 sm<cr>
get video Encoder1 hdcp<cr>
get video key:abc123 Encoder1 all<cr>
get rt_video key:abc123 Encoder1 all<cr>
```

9.18.7 Return Examples

```
get video success 1920 1080 60 YBCR_444 8 PROGRESSIVE 1.4<cr>
get video success 1920<cr>
get video success 1080<cr>
get video success 60<cr>
get video success RGB<cr>
get video success YBCR_444<cr> *can also be YBCR_422 or YBCR_420
get video success 8<cr> *can also be 10 or 12
get video success PROGRESSIVE<cr> * can also be INTERLACED
get video success false<cr> * can also be 1.4 or 2.2
get rt_video success 1920 1080 60 YBCR_444 8 PROGRESSIVE false<cr>

get video error [incomplete]<cr>
get video error [encoder 'Encoder1' not found]<cr>
get video error [invalid option '<option>']<cr>
```



DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

9.19 Command get video_compress

9.19.1 Command usage

```
get video_compress [key:<security_key>] <encoder_device_name><cr>
```

9.19.2 Description

The command **get video_compress** is used to retrieve the video compression status of the specified Encoder.

9.19.3 Arguments

<i>encoder_device_name</i>	Device name of the Encoder
----------------------------	----------------------------

9.19.4 Notes

- Use the command **set video_compress** to turn it on or off.

9.19.5 Return Value

command	<space>	mode	<space>	status	<space>	value	terminator
get	<space>	video_compress	<space>	success data / error [message]	<space>	<string>	<cr>

9.19.6 Command Example

```
get video_compress Encoder1<cr>
get video_compress key:abc123 Encoder1<cr>
```

9.19.7 Return Examples

```
get video_compress success true<cr>
get video_compress success false<cr>

get video_compress error [incomplete]<cr>
get video_compress error [not supported]<cr>
get video_compress error [encoder 'Encoder1' not found]<cr>
```

9.20 Command get video_mode

9.20.1 Command usage

```
get video_mode [key:<security_key>] <decoder_device_name><cr>
```

9.20.2 Description

The command **get video_mode** is used to retrieve current Decoder mode of operation.

9.20.3 Arguments

<i>decoder_device_name</i>	Device name of Decoder
----------------------------	------------------------

9.20.4 Notes

9.20.5 Return Value

command	<space>	mode	<space>	status	<space>	value	terminator
get	<space>	video_mode	<space>	success data / error [message]	<space>	<string>	<cr>

9.20.6 Command Example

```
get video_mode Decoder1<cr>
get video_mode key:abc123 Decoder1<cr>
```

9.20.7 Return Example

```
get video_mode success Sync<cr>
get video_mode success Sync Scale<cr>
get video_mode success Fast (keep)<cr>
get video_mode success Fast (stretch)<cr>
get video_mode success Fast (crop)<cr>
get video_mode success Multiview<cr>
get video_mode success Wall (sync)<cr>
get video_mode success Wall (fast)<cr>

get video_mode error [incomplete]<cr>
get video_mode error [not supported]<cr>
get video_mode error [decoder 'Decoder1' not found]<cr>
```

9.21 Command get video_mute

9.21.1 Command usage

```
get video_mute [key:<security_key>] <decoder_device_name><cr>
```

9.21.2 Description

The command **get video_mute** is used to retrieve the video mute status of the specified Decoder.

9.21.3 Arguments

<i>decoder_device_name</i>	Device name of the Decoder
----------------------------	----------------------------

9.21.4 Notes

- Use the command **set video_mute** to turn it on and off or change the color of the muted display.

9.21.5 Return Value

command	<space>	mode	<space>	status	<space>	value	terminator
get	<space>	video_mute	<space>	<i>success data / error [message]</i>	<space>	<string>	<cr>

9.21.6 Command Example

```
get video_mute Decoder1<cr>
get video_mute key:abc123 Decoder1<cr>
```

9.21.7 Return Examples

```
get video_mute success true<cr>
get video_mute success false<cr>

get video_mute error [incomplete]<cr>
get video_mute error [not supported]<cr>
get video_mute error [decoder 'Decoder1' not found]<cr>
```

9.22 Command get video_source

9.22.1 Command usage

```
get video_source [key:<security_key>] <encoder_device_name><cr>
```

9.22.2 Description

The command **get video_source** is used to retrieve the video source input of an Encoder.

9.22.3 Arguments

<i>encoder_device_name</i>	Device name of the Encoder
----------------------------	----------------------------

9.22.4 Notes

- Returned mode is either **hdmi**, **dp** or **auto**.
- Use the command **set video_source** to change this setting.

9.22.5 Return Value

command	<space>	mode	<space>	status	<space>	value	terminator
get	<space>	video_source	<space>	success data / error [message]	<space>	<string>	<cr>

9.22.6 Command Example

```
get video_source Encoder1<cr>
get video_source key:abc123 Encoder1<cr>
```

9.22.7 Return Examples

```
get video_source success hdmi<cr>
get video_source success dp<cr>
get video_source success auto<cr>

get video_source error [incomplete]<cr>
get video_source error [not supported]<cr>
get video_source error [encoder 'Encoder1' not found]<cr>
```

9.23 Command get video_status / get rt_video_status

9.23.1 Command usage

```
get video_status [key:<security_key>] <encoder_device_name><cr>
get rt_video_status [key:<security_key>] <encoder_device_name><cr>
```

9.23.2 Description

The command **get video_status** is used to find if an Encoder has a stable video source connected.

9.23.3 Arguments

<i>encoder_device_name</i>	Device name of the Encoder
----------------------------	----------------------------

9.23.4 Notes

- Returned mode is either **true** or **false**.
- rt_video_status** is used to retrieve real time data rather than current status data.

9.23.5 Return Value

command	<space>	mode	<space>	status	<space>	value	terminator
get	<space>	video_status	<space>	success data / error [message]	<space>	<string>	<cr>

9.23.6 Command Example

```
get video_status Encoder1<cr>
get video_status key:abc123 Encoder1<cr>
get rt_video_status key:abc123 Encoder1<cr>
```

9.23.7 Return Examples

```
get video_status success true<cr>
get video_status success false<cr>
get rt_video_status success true<cr>
get rt_video_status success false<cr>

get video_status error [incomplete]<cr>
get audio_status error [not supported]<cr>
get video_status error [encoder 'Encoder1' not found]<cr>
```


9.24 Command get window / get rt_window

9.24.1 Command usage

```
get window [key:<security_key>] <layout_name> <index> <option><cr>
get rt_window [key:<security_key>] <layout_name> <index> <option><cr>
```

9.24.2 Description

The command **get window** is used to retrieve a window size of a multiview layout.

9.24.3 Arguments

<i>layout_name</i>	Name of the multiview layout
<i>index</i>	Index of the layout window 0-31
<i>option</i>	all width height

9.24.4 Notes

- The layout must already be executed by the SDVoE Director Controller which is then held in memory.
- rt_window** is used to retrieve real time data rather than current status data.

9.24.5 Return Value

command	<space>	mode	<space>	status	<space>	value	terminator
get	<space>	window	<space>	success data / error [message]	<space>	<string>	<cr>

9.24.6 Command Example

```
get window MyLayout 3 all<cr>
get window MyLayout 0 width<cr>
get window MyLayout 1 height<cr>
get window key:abc123 MyLayout 0 all<cr>
get rt_window key:abc123 MyLayout 0 all<cr>
```

9.24.7 Return Examples

```
get window success 1920 1080<cr>
get window success 1920<cr>
get window success 1080<cr>
get rt_window success 1920 1080<cr>

get window error [incomplete]<cr>
get window error [not supported]<cr>
get window error [layout 'MyLayout' not found]<cr>
get window error [index '0' not found]<cr>
get window error [invalid option'<option>']<cr>
```

9.25 Command get ui

9.25.1 Command usage

```
get ui [key:<security_key>] <ui_name><cr>
```

9.25.2 Description

The command **get ui** is used to retrieve the User Interface status.

9.25.3 Arguments

<i>ui_name</i>	Name of the User Interface
----------------	----------------------------

9.25.4 Notes

- User Interface must be enabled as a feature for command to be used.

9.25.5 Return Value

command	<space>	mode	<space>	status	<space>	value	terminator
get	<space>	ui	<space>	<i>success data / error [message]</i>	<space>	<string>	<cr>

9.25.6 Command Example

```
get ui MyUI<cr>
```

9.25.7 Return Examples

```
get ui disabled<cr>
get ui enabled<cr>
get ui enabled timeout 240<cr>
get ui enabled clients 1<cr> *number of users 1 to 100
get ui enabled login 1234<cr> *0000 to 9999
get ui enabled timeout 240 clients 1 login 1234<cr>

get ui error [controlui 'MyUI' not found]<cr>
```

9.26 Command get ui_button

9.26.1 Command usage

```
get ui_button [key:<security_key>] <ui_name> <button_name> <function><cr>
```

9.26.2 Description

The command **get ui_button** is used to retrieve the current state of a User Interface button.

9.26.3 Arguments

<i>ui_name</i>	Name of the User Interface
<i>button_name</i>	Name of the button in the User Interface or preset logic <<button_name>>
<i>function</i>	position state

9.26.4 Notes

- Control UI must be enabled as a feature for command to be used.
- Use the command **set ui_button** to change this setting.
- function > position** uses up | down
- function > state** uses enabled | disabled
- Momentary**
 - Toggle**
 - position
 - state
 - Radio Toggle**
 - position
 - state
 - Split**
 - position
 - state
 - Repeat**
 - state

9.26.5 Return Value

command	<space>	mode	<space>	status	<space>	value	terminator
get	<space>	ui_button	<space>	success data / error [message]	<space>	<string>	<cr>

9.26.6 Command Examples

```
get ui_button MyUI MyButton down<cr>
get ui_button MyUI <<button_name>> position<cr>
get ui_button key:abc123 MyUI MyButton down<cr>
```

9.26.7 Return Examples

```
get ui_button position success up<cr>
get ui_button position success down<cr>
get ui_button state success enabled<cr>
get ui_button state success disabled<cr>

get ui_button error [incomplete]<cr>
get ui_button error [User Interface '<ui_name>' not found]<cr>
get ui_button error [button '<button_name>' not found]<cr>
get ui_button error [invalid parameter]<cr>
get ui_button error [service disabled]<cr>
```



DIRECTOR LIGHTNING COMMAND GUIDE V4.3.4

ToC



DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

9.27 Command get var

9.27.1 Command usage

```
get var [key:<security_key>] <var_name><cr>
```

9.27.2 Description

The command **get var** is used to retrieve the value of the specified user defined variable.

9.27.3 Arguments

<i>var_name</i>	Name of the variable
-----------------	----------------------

9.27.4 Notes

9.27.5 Return Value

command	<space>	mode	<space>	status	<space>	value	terminator
get	<space>	var	<space>	<i>success data / error [message]</i>	<space>	<string>	<cr>

9.27.6 Command Example

```
get var MyVar<cr>
```

9.27.7 Return Examples

```
get var success <value><cr>
```

```
get var error [incomplete]<cr>
```

```
get var error [var '<var_name>' not found]<cr>
```



DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

9.28 Command get events

9.28.1 Command usage

```
get events [key:<security_key>] <event_name> <function><cr>
```

9.28.2 Description

The command **get events** is used to retrieve the state of events created on the UI's Scheduler and Events tabs.

9.28.3 Arguments

<i>event_name</i>	Name of the event
<i>function</i>	Current only " state " supported

9.28.4 Notes

- Event must be created on UI's Scheduler or Events tab before using command.

9.28.5 Return Value

command	<space>	mode	<space>	status	<space>	value	terminator
get	<space>	events	<space>	<i>success data / error [message]</i>	<space>	<string>	<cr>

9.28.6 Command Example

```
get events state MyEvent<cr>
```

9.28.7 Return Examples

```
get events success enabled<cr>
get events success disabled<cr>

get events error [incomplete]<cr>
get events error [event '<event_name>' not found]<cr>
get events error [invalid parameter]<cr>
```

9.29 Command get matrix

9.29.1 Command usage

```
get matrix [key:<security_key>] <stream> [<index>]<cr>
```

9.29.2 Description

The command **get matrix** is used to retrieve connected Encoders and Decoders by stream type. The result is a json string of all device connections.

9.29.3 Arguments

<i>stream</i>	audio_a audio_d video serial ir usb usbhid
<i>index (optional)</i>	Optional video index from 0 to 31

9.29.4 Notes

- null will be the result when device is not joined with specified stream type.
- Video index 0 will be used by default if omitted.
- *Command renamed from 'get joins'*

9.29.5 Return Value

command	<space>	mode	<space>	status	<space>	value	terminator
get	<space>	matrix	<space>	success data / error [message]	<space>	<string>	<cr>

9.29.6 Command Example

```
get matrix audio_a<cr>
get matrix audio_d<cr>
get matrix video<cr>
get matrix video 1<cr>
get matrix serial<cr>
get matrix ir<cr>
get matrix usb<cr>
get matrix usbhid<cr>
```

9.29.7 Return Examples

```
get matrix success [ <decoder_device_name:<encoder_device_name> / null, ... ]<cr>

get matrix error [incomplete]<cr>
get matrix error [invalid parameter]<cr>
```

9.30 Command get json

9.30.1 Command usage

```
get json [key:<security_key>] <device_name><cr>
```

9.30.2 Description

The command **get json** is used to retrieve complete device status as a json payload.

9.30.3 Arguments

<i>device_name</i>	Device name of the Decoder or Encoder
--------------------	---------------------------------------

9.30.4 Notes

9.30.5 Return Value

command	<space>	mode	<space>	status	<space>	value	terminator
get	<space>	json	<space>	<i>success data / error [message]</i>	<space>	<string>	<cr>

9.30.6 Command Example

```
get json Encoder1<cr>
get json Decoder1<cr>
```

9.29.7 Return Examples

```
get json success {...}<cr>
```

```
get json error [incomplete]<cr>
get json error [device 'Encoder1' not found]<cr>
```


10 Command send

The **send** command is used to send either infrared or serial RS-232 data to any or all Encoders or Decoders from a 3rd party control system.

10.1 Command send infrared

10.1.1 Command usage

```
send ir [key:<security key>] <device name> <data hex><cr>
```

10.1.2 Description

The command **send ir** is used to send infrared (IR) signals from a control system to Encoders and Decoders.

10.1.3 Arguments

<i>device_name</i>	Device name of the Decoder, Encoder, Group or 'all', 'all_rx', 'all_tx'
<i>data_hex</i>	String of ascii characters representing the hexadecimal Pronto infrared code

10.1.4 Notes

- The **data_hex** argument is a hexadecimal string which represent the Pronto infrared code to be sent.
- Its length must be a multiple of eight (i.e. data length must be a multiple of four bytes) and cannot exceed 256 burst pairs and a maximum length of 1032 bytes.
- **group_name** is used as a destination when all Encoders and Decoders in a group are required to send IR.

10.1.5 Return Value

command	<space>	mode	<space>	status	terminator
send	<space>	ir	<space>	<i>success / error</i>	<cr>

10.1.6 Command Examples

[illegible][illegible][illegible]



DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

10.1.7 Return Examples

```
send ir success<cr>
```

```
send ir error [incomplete]<cr>
```

```
send ir error [max length exceeded]<cr>
```

```
send ir error [Length of hex data should be in multiples of 4 bytes]<cr>
```

```
send ir error [device 'Encoder1' not found]<cr>
```

```
send ir error [not supported]<cr>
```

10.2 Command send serial

10.2.1 Command usage

```
send serial [key:<security_key>] <device_name> "<data_string>" [<feedback> ["<feedback_string>"]]<cr>
```

10.2.2 Description

The command **send serial** is used to send serial RS-232 data from a control system to Encoders and Decoders.

10.2.3 Arguments

<i>device_name</i>	Device name of Encoder, Decoder, Group or 'all', 'all_rx', 'all_tx'
<i>data_string</i>	String of ascii characters
<i>feedback</i>	Keywords reply , equals or contains (optional)
<i>feedback_string</i>	String used with equals or contains to compare with the feedback string

10.2.4 Notes

- When either 2-way communication is required and the control system is expecting a reply from the serial equipment or unsolicited serial data is expected, then the **join serial** command is required to join the device with the SDVoE Director Controller '**join serial Encoder1 api**'. When unsolicited serial data is received the SDVoE Director Controller will raise a 'notify serial' event.
- The **data_string** argument is a printable ASCII text string of any length. This string must be escaped if it contains ASCII control characters or non-ASCII byte values. Space characters must also be escaped. The following escape sequences are recognized:
 - \0 null character
 - \n line feed
 - \r carriage return
 - \t horizontal tab
 - \ " double quote
 - \xnn (where nn are two hexadecimal characters) hexadecimal representation of byte
 - \\ a single backslash
 - \ (space) space character
- The **feedback** option uses keywords **reply**, **equals** or **contains** to set the type of feedback. To receive a string only, use **reply**. For comparison with the specified **feedback_string** use **equals** for an exact match, or **contains** for a match within the string. Can only be used when **device_name** is a single Encoder or Decoder.
- feedback_string** contains the expected device's feedback string result.
- group_name** is used as a destination when all Encoders and Decoders in a group are required to send.



DIRECTOR LIGHTNING COMMAND GUIDE V4.3.4

ToC



DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

10.2.5 Return Value

command	<space>	mode	<space>	status	terminator
send	<space>	serial	<space>	<i>success [data] / error [message]</i>	<cr>

10.2.6 Command Examples

```
send serial Decoder1 "my data string"\r<cr>
send serial Decoder1 "my data string" reply\r\n<cr>
send serial Encoder1 "\x00\x01\x02\x03\x04"<cr>
send serial Decoder1 "my data string\r\n" contains "OK"<cr>
send serial Decoder1 "my data string\r\n" equals "OK"<cr>
send serial MyGroup "my data string"\r<cr>
send serial key:abc123 Decoder1 "my data string\r"<cr>
```

10.2.7 Return Examples

```
send serial success [my return string]<cr>
send serial success [00FF0D]<cr>
send serial success [\x00\xFF\x0D]<cr>
send serial success []<cr>
send serial success<cr>

send serial error [incomplete]<cr>
send serial error [data expected]<cr>
send serial error [not supported]<cr>
send serial error [invalid format]<cr>
send serial error [invalid HEX data]<cr>
send serial error [invalid HEX feedback]<cr>
send serial error [feedback string]<cr>
send serial error [invalid parameter]<cr>
send serial error [device 'Encoder1' not found]<cr>
```

10.3 Command send cec

10.3.1 Command usage

send cec [key:<security_key>] <device_name>[<index>] <data_hex><cr>

10.3.2 Description

The command **send cec** is used to send cec data from a control system to a Decoder's connected display.

10.3.3 Arguments

<i>device_name</i>	Device name of the Decoder, Encoder, Group or 'all', 'all_tx', 'all_rx'
<i>index</i>	Transceivers HDMI port index (optional) 0 used when not specified.
<i>data_hex</i>	String of ascii characters representing the hexadecimal cec code

10.3.4 Notes

- The **data_hex** argument is a hexadecimal string which represent the cec code to be sent.
- The command will return with an error when using a single device if no source is connected on an Encoder or no display connected on a Decoder.
- **group_name** is used as a destination when all Encoders and Decoders in a group are required to send CEC.
- **index** is only a requirement while a Transceiver's Encoder and Decoder have the same name. Otherwise the index will be automatically selected from the device name.

10.3.5 Return Value

command	<space>	mode	<space>	status	terminator
send	<space>	cec	<space>	success / error	<cr>

10.3.6 Command Examples

```
send cec Decoder1 F004<cr>
send cec Decoder1:1 F004<cr>
send cec MyGroup F004<cr>
send cec key:abc123 Decoder1 F004<cr>
```

10.3.7 Return Examples

```
send cec success<cr>

send cec error [incomplete]<cr>
send cec error [device 'Decoder1' not found]<cr>
send cec error [<device cec error message>]<cr>
```

10.4 Command send gc

The command **send gc** provides a seamless integration with Global Caché products.
For more information on Global Caché visit www.globalcache.com

10.4.1 Command usage

```
send gc [key:<security_key>] <address> <port> <gc_api> [<feedback> ["<feedback_string>"]]<cr>
```

10.4.2 Description

The **send gc** command allows control of all Global Caché products via TCP.

10.4.3 Arguments

<i>address</i>	Global Caché IP address
<i>port</i>	Global Caché TCP port. Usually 4998 and for serial com1: 4999 com2: 5000
<i>gc_api</i>	Global Caché API string
<i>feedback</i>	Keywords reply , equals or contains (optional)
<i>feedback_string</i>	String used with equals or contains to compare with the feedback string

10.4.4 Notes

- The **gc_api** string uses the same standard Global Caché control string format as found in the Global Caché API manuals downloaded from: www.globalcache.com/downloads/
- Use keyword "[**disconnect**]" in place of **gc_api** string to terminate the connection.
- String sent to port 4999 or 5000 must be wrapped in quotations "my string".
- The **feedback** option uses keywords **reply**, **equals** or **contains** to set the type of feedback.
To receive a string only, use **reply**.
For comparison with the specified **feedback_string** use **equals** for an exact match, or **contains** for a match within the string.

10.4.5 Return Value

Return values from port 4998 will be in the standard Global Caché format under normal conditions. An exception to this would be if a TCP connection was not possible to a device, in which case an error such as `send gc error [device '172.30.1.111' not found]<cr>` would be sent.

Return values from either port 4999 or 5000 will be the return serial string unless a keyword is used like "reply", "contains" or "equals" in which case "reply" will return with the received serial string and "contains" and "equals" will return with a success or error as a result of comparing the serial return string.

```
send gc 172.30.1.111 4999 "a string to send"<cr> = send gc success<cr>
send gc 172.30.1.111 4999 "a string to send" reply<cr> = <feedback_string>
send gc 172.30.1.111 4999 "a string to send" contains "string"<cr> = send gc success<cr>
send gc 172.30.1.111 4999 "a string to send" contains "oops"<cr> = send gc error [<feedback_string>]
send gc 172.30.1.111 4999 "a string to send" equals "string"<cr> = send gc success<cr>
send gc 172.30.1.111 4999 "a string to send" equals "oops"<cr> = send gc error [<feedback_string>]
```



DIRECTOR LIGHTNING COMMAND GUIDE V4.3.4

ToC



DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

10.4.6 Examples

```
send gc 172.30.1.111 4999 "a string to send"<cr>
send gc 172.30.1.111 4999 "a string to send" reply<cr>
send gc 172.30.1.111 4999 "a string to send" contains "a string to find"<cr>
send gc 172.30.1.111 4999 "a string to send" equals "a string to find"<cr>
send gc 172.30.1.111 4998 setstate,1:1,1<cr>
send gc 172.30.1.111 4998 sendir,1:2,4444,34500,1,1,34,48,24,12,24,960,24,12,24...<cr>
send gc 172.30.1.111 4998 [disconnect]<cr>
send gc key:abc123 172.30.1.111 4999 "\x00\x01"<cr>
```

10.4.7 Return Examples

```
a serial string<cr>
state,1:1,1<cr>
completeir,1:1,1<cr>
send gc success<cr>

send gc error [invalid]<cr>
send gc error [incomplete]<cr>
send gc error [device '172.30.1.111' not found]<cr>
send gc error [device '172.30.1.111' timeout]<cr>
send gc error [<string received>]<cr>
ERR_<XX><cr>
```

10.5 Command send tcp

10.5.1 Command usage

```
send tcp [key:<security_key>] <address> <port> "<command>" [<feedback> ["<feedback_string>"]]<cr>
```

10.5.2 Description

The command **send tcp** provides a seamless integration with any TCP controllable device.

10.5.3 Arguments

<i>address</i>	TCP IP address
<i>port</i>	TCP port
<i>command</i>	Command string to send to TCP device
<i>feedback</i>	Keyword reply , equals or contains (optional)
<i>feedback_string</i>	Expected feedback string used with equals or contains

10.5.4 Notes

- The TCP device must be in the same range as the SDVoE Director Controller.
- To send HEX add \x before the HEX byte. \x0D for carriage return
- The feedback option uses keywords reply, equals or contains to set the type of feedback.
To receive a string only, use reply.
For comparison with the specified feedback_string use **equals** for an exact match, or **contains** for a match within the string. Can only be used when device_name is a single Encoder or Decoder.
- feedback_string** contains the expected device's feedback string result.
- Use keyword "[**disconnect**]" in place of **command** string to terminate the connection.

10.5.5 Return Value

A success return value will contain what is returned from the TCP device.

10.5.6 Examples

```
send tcp 172.30.1.111 1000 "ascii string"<cr>      send tcp 172.30.1.111 1000 "an mixed string\x0D"<cr>
send tcp 172.30.1.111 1000 "\x00\x01\x02\x03"<cr>
send tcp 172.30.1.111 1000 "ascii string" contains "feedback string"<cr>
send tcp 172.30.1.111 1000 "ascii string" equals "feedback string"<cr>
send tcp 172.30.1.111 1000 "ascii string" reply<cr> send tcp 172.30.1.111 1000 [disconnect]<cr>
send tcp key:abc123 172.30.1.111 1000 "ascii string"<cr>
```

10.5.7 Return Examples

```
send tcp success<cr>
send tcp success [<feedback>]<cr>
send tcp error [incomplete]<cr>
send tcp error [device '172.30.1.111' not found]<cr>

send tcp success [disconnected]<cr>
send tcp error [invalid parameter]<cr>
send tcp error [<feedback>]<cr>
send tcp error [invalid format]<cr>
```



DIRECTOR LIGHTNING COMMAND GUIDE V4.3.4

```
send tcp error [device '172.30.1.111:1000' not connected]<cr>
```

ToC

11 Commands for Multiview

This section covers all the supported multiview commands.

11.1 Command multiview

11.1.1 Command usage

```
multiview [key:<security_key>] <decoder_device_name> <name> <h_size> <v_size> <fps><cr>
```

11.1.2 Description

The command **multiview** is used to activate the multiview layout in a specified Decoder as defined with the command **layout**. The size of the layout can be scaled to fit different display resolutions.

11.1.3 Arguments

<i>decoder_device_name</i>	Device name of the Decoder
<i>name</i>	The name given to the multiview layout
<i>h_size</i>	Scaled output width resolution of layout
<i>v_size</i>	Scaled output height resolution of layout
<i>fps</i>	The required refresh rate of the multiview display

11.1.4 Notes

- A layout must be created before using this command.

11.1.5 Return Value

command	<space>	status	terminator
multiview	<space>	<i>success / error [message]</i>	<cr>

11.1.6 Examples

```
multiview Decoder1 MV_e17 3840 2160 30<cr>
multiview Decoder2 MyLayout 1920 1080 60<cr>
multiview key:abc123 Decoder1 MV_e17 3840 2160 30<cr>
```

11.1.7 Return Examples

```
multiview success<cr>

multiview error [incomplete]<cr>
multiview error [layout 'MyLayout' not found]<cr>
multiview error [decoder 'Decoder1' not found]<cr>
```

11.2 Command layout

The **layout** commands are used to define a multiview layout.

11.2.1 Command layout new

11.2.1.1 Command usage

```
layout new [key:<security_key>] <layout_name> <width> <height><cr>
```

11.2.1.2 Description

The **layout new** command is used to initially create a multiview layout or reset an existing layout with the specified name.

Once the multiview layout has been created with this **layout new** command, use the **layout window** command to define the windows within the multiview layout.

11.2.1.3 Arguments

<i>layout_name</i>	The name given to the multiview layout
<i>width</i>	Total horizontal size of the layout in pixels
<i>height</i>	Total vertical size of the layout in pixels

11.2.1.4 Notes

- The **width** argument must be a multiple of 2 pixels

11.2.1.5 Return Value

command	<space>	status	terminator
layout	<space>	success / error [message]	<cr>

11.2.1.6 Command Examples

```
layout new MyLayout 3840 2160<cr>
layout new MyLayout 1920 1080<cr>
layout new key:abc123 MyLayout 3840 2160<cr>
```

11.2.1.7 Return Examples

```
layout new success<cr>

layout new error [incomplete]<cr>
layout new error [invalid width <width>]<cr>
layout new error [invalid height <height>]<cr>
```



DIRECTOR LIGHTNING COMMAND GUIDE V4.3.4

ToC

11.2.2 Command layout window

11.2.2.1 Command usage

layout window [key:<security_key>] <layout_name> <index> <horiz_position> <vert_position> <width> <height> [offset <horiz_offset> <vert_offset>] <subscription><cr>

11.2.2.2 Description

The **layout window** command is used to define the window size and location in the multiview display. Once the multiview layout has been created with the **layout new** command, use this **layout window** command to define the windows within the multiview layout.

11.2.2.3 Arguments

<i>layout_name</i>	The name given to the multiview layout
<i>index</i>	Index of the window, between 0 and 31
<i>horiz_position</i>	Horizontal position in pixels
<i>vert_position</i>	Vertical position in pixels
<i>width</i>	Horizontal size in pixels
<i>height</i>	Vertical size in pixels
<i>offset</i>	Keyword to specify an offset to the displayed image (optional)
<i>horiz_offset</i>	Horizontal offset in pixels (required with offset)
<i>vert_offset</i>	Vertical offset in pixels (required with offset)
<i>subscription</i>	Decoder index to be used with a join command, between 0 and 31

11.2.2.4 Notes

- The **horiz_position** and **width** arguments must be a multiple of 32 pixels.
- Multiple windows can have the same subscription therefore the same video content.
- Windows can overlap, in which case the window with the lowest **window_index** will be on top.

11.2.2.5 Return Value

command	<space>	status	terminator
layout	<space>	success / error [message]	<cr>

11.2.2.6 Examples

```
layout window MyLayout 1 0 0 1920 1080 0<cr>
layout window MyLayout 0 1920 1080 1920 1080 1<cr>
layout window key:abc123 MyLayout 1 0 0 960 480 0<cr>
```

11.2.2.7 Return Examples

```
layout window success<cr>
layout window error [incomplete]<cr>
layout window error [horiz_position must be a multiple of 32]<cr>
layout window error [width must be a multiple of 32]<cr>
layout window error [layout 'MyLayout' not found]<cr>
```

ToC

11.2.3 Command layout black

11.2.3.1 Command usage

layout black [key:<security_key>] <layout_name> <index><cr>

11.2.3.2 Description

The **layout black** command is used to define a window in the multiview layout as black.

11.2.3.3 Arguments

<i>layout_name</i>	The name given to the multiview layout
<i>index</i>	Index of the window, which must be between 0 and 31

11.2.3.4 Notes

11.2.3.5 Return Value

command	<space>	status	terminator
layout	<space>	success / error [message]	<cr>

11.2.3.6 Command Examples

```
layout black MyLayout 0<cr>
layout black key:abc123 MyLayout 0<cr>
```

11.2.3.7 Command Examples

```
layout black success<cr>

layout black error [incomplete]<cr>
layout black error [invalid index <index>]<cr>
layout black error [layout 'MyLayout' not found]<cr>
```




DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

11.2.4 Command layout delete

11.2.4.1 Command usage

layout delete [key:<security_key>] <layout_name><cr>

11.2.4.2 Description

The **layout delete** command is used to delete an existing layout from the SDVoE Director Controller.

11.2.4.3 Arguments

<i>layout_name</i>	The name given to the multiview layout
--------------------	--

11.2.4.4 Notes

11.2.4.5 Return Value

command	<space>	status	terminator
layout	<space>	success / error [message]	<cr>

11.2.4.6 Command Examples

```
layout delete MyLayout<cr>
layout delete key:abc123 MyLayout<cr>
```

11.2.4.7 Command Examples

```
layout delete success<cr>
layout delete error [incomplete]<cr>
layout delete error [layout 'MyLayout' not found]<cr>
```

12 Message notify

The **notify** messages are sent from the SDVoE Director Controller to a third party control system connected on TCP port 6980 with updated event notifications. A **notify** message will be sent on the following events:

- Serial RS-232 data received from Encoder or Decoder (when joined to the API)
- Encoder or Decoder network connectivity (always)
- Decoder display connectivity (always)
- Encoder source connectivity (always)
- Decoder stream change (always)

12.1 Message notify serial

12.1.1 Message received

notify serial <device_name> <data_string><cr>

12.1.2 Description

A **notify serial** message is sent when serial RS-232 data from an Encoder or Decoder is received.

12.1.3 Arguments

<i>device_name</i>	Device name of Encoder or Decoder
<i>data_string</i>	String of ascii characters

12.1.4 Notes

- Before **notify serial** message can be received, the join serial command must be used to join the device to the SDVoE Director Controller. Refer to 4.8 'Command join serial'.
- **device_name** as wrapped with single quotation 'Decoder1'.

12.1.5 Received Value

message	<space>	mode	<space>	device_name	<space>	data_string	terminator
notify	<space>	serial	<space>	Decoder1	<space>	ascii_data	<cr>

12.1.6 Examples

```
notify serial 'Decoder1' my data string\r<cr>
notify serial 'Decoder1' \x00\x01\x02\x03\x04<cr>
```

12.2 Message notify network

12.2.1 Message received

notify network <device_name> <state><cr>

12.2.2 Description

A **notify network** message is sent whenever an Encoder or Decoder is connected or disconnected from the network.

12.2.3 Arguments

<i>device_name</i>	Device name of Encoder or Decoder
<i>state</i>	true false

12.2.4 Notes

- A **notify network** message will be sent when the SDVoE Director Controller is unable to connect or connects with an Encoder or Decoder. For example, a false then true message will be sent during a device power cycle or reboot.
- **device_name** as wrapped with single quotation 'Decoder1'.

12.2.5 Received Value

message	<space>	mode	<space>	device_name	<space>	status	terminator
notify	<space>	network	<space>	Decoder1	<space>	true false	<cr>

12.2.6 Examples

```
notify network 'Decoder1' false<cr>
notify network 'Decoder1' true<cr>
```

12.3 Message notify display

12.3.1 Message received

notify display <decoder_device_name> <state> <edid><cr>

12.3.2 Description

A **notify display** message is sent whenever a display is connected or disconnected from a Decoder.

12.3.3 Arguments

<i>decoder_device_name</i>	Device name of Decoder
<i>state</i>	true false
<i>edid</i>	EDID of connected display

12.3.4 Notes

- Some non-compliant displays will require power for this event to be raised.
- **decoder_device_name** as wrapped with single quotation 'Decoder1'.

12.3.5 Received Value

message	<space>	mode	<space>	decoder_device_name	<space>	status	terminator
notify	<space>	display	<space>	<i>Decoder1</i>	<space>	true false	<cr>

12.3.6 Examples

```
notify display 'Decoder1' false<cr>
notify display 'Decoder1' true [00ffffffffffff00...]<cr>
```

12.4 Message notify source

12.4.1 Message received

notify source <encoder_device_name> <state> <video_details><cr>

12.4.2 Description

A **notify source** message is sent whenever a source is connected or disconnected from an Encoder.

12.4.3 Arguments

<i>encoder_device_name</i>	Device name of Encoder
<i>state</i>	true false
<i>video_details</i>	Source video details, same details as 'get video' returns

12.4.4 Notes

- The SDVoE Director Controller is looking for a stable video signal.
- **encoder_device_name** as wrapped with single quotation 'Encoder1'.

12.4.5 Received Value

message	<space>	mode	<space>	encoder_device_name	<space>	status	terminator
notify	<space>	source	<space>	<i>Encoder1</i>	<space>	true false	<cr>

12.4.6 Examples

```
notify source 'Encoder1' false<cr>
notify source 'Encoder1' true [1920 1080 60 YCBCR_444 8 PROGRESSIVE false]<cr>
notify source 'Encoder1' true [1920 1080 60 YCBCR_444 8 PROGRESSIVE 2.2]<cr>
```

12.5 Message notify stream

12.5.1 Message received

notify stream <decoder_device_name> <encoder_device_name> <stream><cr>

12.5.2 Description

A **notify stream** message is sent whenever a Decoder stream subscription changes.

12.5.3 Arguments

<i>decoder_device_name</i>	Device name of Decoder
<i>encoder_device_name</i>	Device name of Encoder
<i>stream</i>	video 0..31 audio_a audio_d serial ir usb usbhid

12.5.4 Notes

- **decoder_device_name** as wrapped with single quotation 'Decoder1'.
- **encoder_device_name** as wrapped with single quotation 'Encoder1' or null.
- **encoder_device_name** will return as **null** after a **leave** command.

12.5.5 Received Value

message	<space>	mode	<space>	decoder_device_name	<space>	encoder_device_name	<space>	stream	terminator
notify	<space>	stream	<space>	Decoder1	<space>	Encoder1	<space>	video 0..31 audio_a audio_d serial ir usb usbhid	<cr>

12.5.6 Examples

```

notify stream 'Decoder1' 'Encoder1' video 0<cr>
notify stream 'Decoder1' 'Encoder1' video 31<cr>
notify stream 'Decoder1' 'Encoder1' audio_a<cr>
notify stream 'Decoder1' 'Encoder1' audio_d<cr>
notify stream 'Decoder1' 'Encoder1' serial<cr>
notify stream 'Decoder1' 'Encoder1' ir<cr>
notify stream 'Decoder1' 'Encoder1' usb<cr>
notify stream 'Decoder1' 'Encoder1' usbhid<cr>

notify stream 'Decoder1' null video 0<cr>
notify stream 'Decoder1' null video 31<cr>
notify stream 'Decoder1' null audio_a<cr>
notify stream 'Decoder1' null audio_d<cr>
notify stream 'Decoder1' null serial<cr>
notify stream 'Decoder1' null ir<cr>
notify stream 'Decoder1' null usb<cr>
notify stream 'Decoder1' null usbhid<cr>

```

13 Command preset

The preset commands are used to store and apply a series of commands available from this manual. A sequence of commands can be used to create routing tables, video wall or multiview layouts. Refer Appendix E - Preset logic for logic that can be applied within a preset.

13.1 Command preset add

13.1.1 Command usage

```
preset add [key:<security_key>] <preset_name> <preset_data><cr>
```

13.1.2 Description

The command **preset add** is used to create and append commands to a specified preset.

13.1.3 Arguments

<i>preset_name</i>	The name defined as the preset
<i>preset_data</i>	A valid Control Command string

13.1.4 Notes

- The preset is executed with the **preset load** command.
- Preset commands are not allowed in a preset itself, only used to create, delete and execute presets.

13.1.5 Return Value

command	<space>	function	<space>	name	<space>	status	terminator
preset	<space>	add	<space>	<i>preset1</i>	<space>	<i>success / error</i> <i>[message]</i>	<cr>

13.1.6 Command Examples

```
preset add preset1 layout new MV_e1 3840 2160<cr>
preset add preset1 layout window MV_e1 0 0 0 3840 2160 0<cr>
preset add preset1 multiview Decoder1 MV_e1 30<cr>
preset add key:abc123 preset1 join multi Encoder1 Decoder1 0 false<cr>
```

13.1.7 Return Examples

```
preset add preset1 success<cr>

preset add error [incomplete]<cr>
```

13.2 Command preset load

13.2.1 Command usage

```
preset load [key:<security_key>] <preset_name> [timeout]<cr>
```

13.2.2 Description

The command **preset load** is used to apply stored commands within the specified preset.

13.2.3 Arguments

<i>preset_name</i>	The name defined as the preset
<i>delay</i>	Delay in minutes before preset is applied (optional)

13.2.4 Notes

- The preset is created with the **preset add** command or directly via the UI.
- Presets are stored in the SDVoE Director Controller.
- Optional "**delay**" is used to delay to preset for the specified amount of time in minutes. The delay is reset each time the command is used and -1 will terminate the command.

13.2.5 Return Value

command	<space>	function	<space>	name	<space>	status	terminator
preset	<space>	load	<space>	<i>preset1</i>	<space>	<i>success / error</i> <i>[message]</i>	<cr>

13.2.6 Command Examples

```
preset load preset1<cr>
preset load preset1 30<cr>
preset load preset1 -1<cr>
preset load key:abc123 preset1<cr>
```

13.2.7 Return Examples

```
preset load preset1 success<cr>

preset load error [incomplete]<cr>
preset load error [preset 'preset1' not found]<cr>
preset load preset1 error [...]<cr>
```


13.3 Command preset delete

13.3.1 Command usage

preset delete [key:<security_key>] <preset_name><cr>

13.3.2 Description

The command **preset delete** is used to delete the specified preset from the SDVoE Director Controller or directly from the UI.

13.3.3 Arguments

<i>preset_name</i>	The name defined as the preset
--------------------	--------------------------------

13.3.4 Notes

13.3.5 Return Value

command	<space>	function	<space>	name	<space>	status	terminator
preset	<space>	delete	<space>	<i>preset1</i>	<space>	<i>success / error</i> <i>[message]</i>	<cr>

13.3.6 Command Examples

```

preset delete preset1<cr>
preset delete MyMultiviewSetting<cr>
preset delete key:abc123 preset1<cr>

```

13.3.7 Return Examples

```

preset delete preset1 success<cr>

preset delete error [incomplete]<cr>
preset delete error [preset 'preset1' not found]<cr>
preset error [invalid mode]<cr>

```

13.4 Command preset delay

13.4.1 Command usage

preset delay [key:<security_key>] <sec>

13.4.2 Description

The command **preset delay** is used within a preset to add a delay between commands.

13.4.3 Arguments

sec	Delay time in milliseconds up to 9999
-----	---------------------------------------

13.4.4 Notes

- This command can only be used within a preset.

13.4.5 Return Value

None

13.4.6 Command Examples

```
preset delay 1000  
preset delay key:abc123 500
```

13.4.7 Return Example

None

13.5 Command preset wait

13.5.1 Command usage

preset wait [key:<security_key>]

13.5.2 Description

The command **preset wait** is used within a preset to pause the execution of commands until processing of all previous commands is completed.

13.5.3 Arguments

13.5.4 Notes

- This command can only be used within a preset.

13.5.5 Return Value

None

13.5.6 Command Example

```
preset wait  
preset wait key:abc123
```

13.5.7 Return Example

None

13.6 Command preset dynamic

13.6.1 Command usage

preset dynamic [key:<security_key>] <preset_name> <state><cr>

13.6.2 Description

The command **preset dynamic** is intended to be used with video wall presets. When set to true the preset will be applied on a notification source true from the Encoder. So if the source changes resolution the wall preset is applied again to crop with the correct sizes to match the wall layout.

13.6.3 Arguments

<i>preset_name</i>	The name defined as the preset
<i>state</i>	'true' / 'false'

13.6.4 Notes

- When the video wall preset is no longer active, you must issue a preset dynamic <encoder> false command to prevent the wall preset from being applied each time the Encoder is connected to a source.
- All active dynamic presets for a given Encoder will automatically be disabled when any of the following commands are used on an active Encoder:
join fast, join sync, join sync_scale, join adv, join wall, join walladv, stop video, stop av, reboot & reset

13.6.5 Return Value

command	<space>	function	<space>	name	<space>	status	terminator
preset	<space>	dynamic	<space>	<i>preset1</i>	<space>	<i>success / error</i> <i>[message]</i>	<cr>

13.6.6 Command Examples

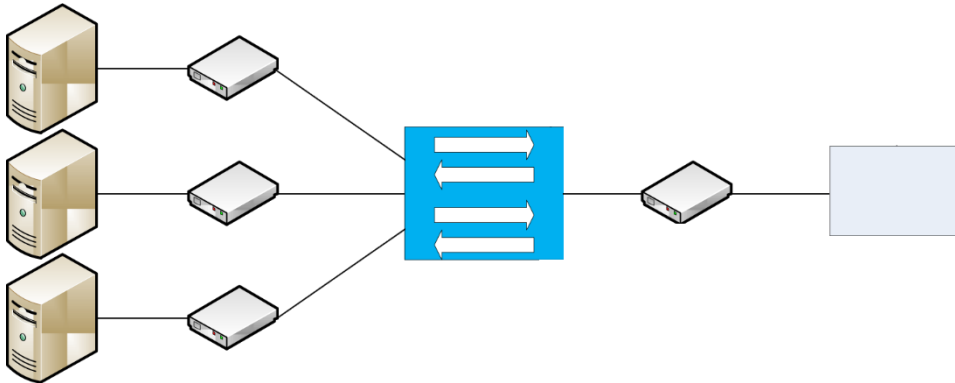
```
preset dynamic preset1 true<cr>
preset dynamic preset1 false<cr>
preset dynamic key:abc123 preset1 true<cr>
```

13.6.7 Return Examples

```
preset dynamic preset1 success<cr>

preset dynamic error [incomplete]<cr>
preset dynamic error [preset 'preset1' not found]<cr>
```

Appendix A - How to Multiview



Multiview is the ability to take multiple independent video sources and compose them onto a single output. Sources can have different resolutions and frame rates. Any multiviewer application has to scale the various source signals, place them into a predefined layout of certain dimension, compose the scene and then generate a video signal of certain resolution and frame rate that is sent out to a connected display.

The key to successfully implementing multiviewer layouts is to correctly manage network bandwidth; both at the Decoder side where multiple streams need to be received to create the multiviewer composition as well as on the Encoder side, where both the main and the multiview scaled down sub stream has to coexist.

In short, creating multiview layouts is all about managing network bandwidth and comes down to the following two rules:

- Bandwidth of all video streams needed for a particular multiview layout along with other signals going to a Decoder has to be under 10Gb/s.
- The combined bandwidth of the main stream, multiview down scaled sub stream and other signals going out of any Encoder has to be under 10Gb/s.

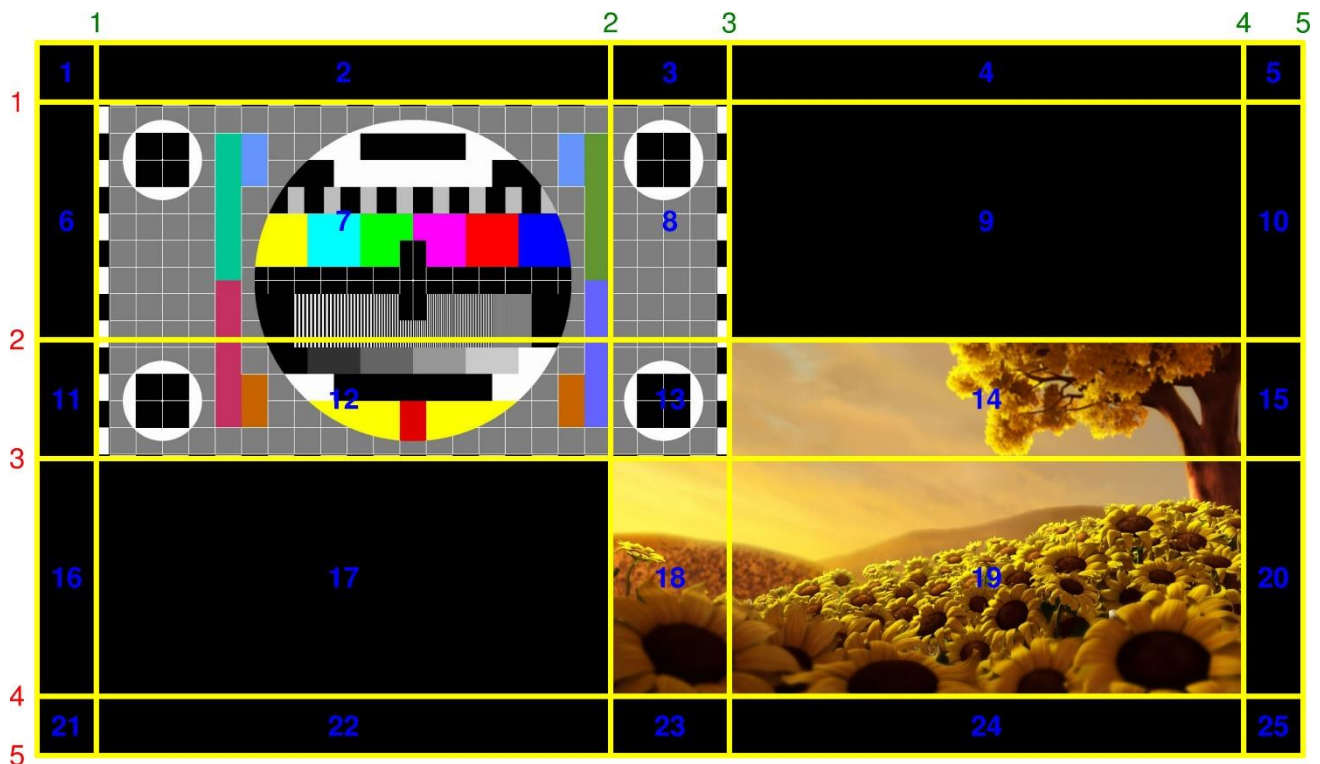
Appendix A - How to Multiview continued...

In multiviewer mode, the display is divided into a grid consisting of tiles. Each tile displays video from a rectangular area inside a Decoder's frame buffer. Alternatively, a tile can also be black. One or more tiles form a window displaying a source. Before going further, it is important to understand the concepts that are used to define and program multiview layouts.

- A **surface** is a rectangular area within the Decoder's frame buffer that is reserved for a specific video source. A Decoder supports up to 32 surfaces and each surface is associated with the HDMI subscription that has the same index (e.g. the video from HDMI subscription 14 goes into surface 14).
- The screen is split into **tiles**, where a tile is the smallest unit on the screen to which content can be assigned. Each tile either contains a rectangular area of a surface or is black.
- A **window** is a rectangular area on the screen that either contains a rectangular area of a surface or is black. Windows can overlap, in which case the content of the window with the smallest index is shown. Multiple tiles may be required to represent each window (when windows overlap) and the black areas that are not part of any window.
- A **layout** represents the full set of multiview configuration for a Decoder. A layout has a name that is used to refer to it by the various commands, and an output resolution. In addition, layouts defined using API commands have a set of surfaces and a set of windows.
- The following limitations apply:
 - The total number of tiles cannot exceed 240
 - Number of horizontal or vertical tile borders cannot exceed 16
 - The largest possible tile grid is either 16x15 or 15x16
 - Tile widths must be a multiply of 32 pixels
 - Surfaces have to be horizontally separated in frame buffer memory by 32 pixels margin
 - The number of distinct video sources cannot exceed 32
 - Number of windows cannot exceed 32
 - The total bandwidth sent by an individual transmitter and received by an individual receiver must never exceed 10Gbit/s and for all practical purposes should never exceed 8.5 Gb/s to allow room for Gigabit Ethernet, USB, Audio and control (IR and RS-232)
 - Video streams used by multiviewer must be progressive RGB 8 bits or YUV 4:4:4 bits

Appendix A - How to Multiview continued...

The figure below shows a layout with two windows: the 'Test Pattern' window and the 'Sun Flower' window. The window locations define the horizontal (**green numbers**) and vertical (**red numbers**) transitions in the scene which in turn define the tiles (**blue numbers**). This particular layout has 5x5 tile grid or 25 tiles total. Four tiles form the 'Test Pattern' window (tiles 7, 8, 12 and 13), three tiles form the visible portion of the 'Sun Flower' window (tiles 14, 18 and 19). All other tiles are black and part of the background. The 'Test Pattern' window has a lower index than the 'Sun Flower' window because it is on top (for example the 'Test Pattern' window could be window #0 while the 'Sun Flower' window could be window #1). The 'Test Pattern' window refers to a surface with the 'Test Pattern' video and the 'Sun Flower' window refers to a surface that has the 'Sun Flower' video.



Layout with two video sources.

Because of the windows overlapping, the total number of tiles used in this layout is 25; (5x5) tile grid.

Appendix A - How to Multiview continued...

To calculate approximate maximum network bandwidth for a given video resolution, the following formulas can be used:

$$\text{LineFq (KHz)} = \text{Ver_res_total} \times \text{fps}$$

$$\text{Network BW (Gbps)} = \text{Hor_res} \times \text{Ebpp} \times \text{LineFq} \times 1.05 / 1000000$$

- LineFq: Video line Frequency in Khz
- Ver_res_total: Total number of lines including vertical blanking
- Hor_Res: Horizontal pixel resolutions
- Ebpp: Effective bits per pixel. For example RGB 8 bit has 24 effective bits per pixel. Meanwhile YUV 420 8 bit has 12 effective bits per pixel while YUV 422 8 bit has 16 effective bits per pixel. Similarly, RGB or YUV 444 10 bit has 30 effective bits per pixel while YUV 420 10 bits has 15 effective bits/pixel while YUV 422 has 20 effective bits/pixel.
- 1.05: Scaling factor to take into account approximate network overhead based on packet overhead, packet payload size, packet preamble and minimum inter packet gap.
- 1,000,000: Scaling factor to bring network Bandwidth to Gbps unit

Here are two examples to calculate network bandwidth for two different resolutions:

- **Resolution 1920x1080 60Hz RGB 8 bit**
 $\text{LineFq} = 1120 \text{ lines} \times 60 \text{ Hz} / 1000 = 67.5$
 $\text{NetBW} = 1920 \times 24 \times 67.5 \times 1.05 = 3.27 \text{ Gbps}$
- **Resolution 3840x2160 30Hz YUV 8 bit**
 $\text{LineFq} = 2250 \text{ lines} \times 30 \text{ Hz} / 1000 = 67.5$
 $\text{NetBW} = 3840 \times 24 \times 67.5 \times 1.05 = 6.53 \text{ Gbps}$

The table below shows approximate maximum network bandwidth for a few select resolutions. To calculate approximate maximum network bandwidth for other resolutions, use the formulas above.

RESOLUTION	Hvisible	Htotal	Vvisible	Vtotal	color format	format	color depth	Ebpp	Line (KHz)	Frame (Hz)	BW line	Network Bandwidth
720P	1280	1648	720	750	RGB	888	24	24	45	60	1.382	1.451
1080i	1920	2200	1080	1125	RGB	888	24	24	33.75	30	1.555	1.632
1080P	1920	2200	1080	1125	RGB	888	24	24	67.5	60	3.110	3.265
	1920	2200	1080	1125	YUV	422	24	16	67.5	60	2.073	2.177
	1920	2200	1080	1125	YUV	420	24	12	67.5	60	1.555	1.632
UHD 24	3840	5500	2160	2250	RGB	888	24	24	67.5	24	4.976	5.225
UHD 30	3840	5500	2160	2250	RGB	888	24	24	67.5	30	6.220	6.531
	3840	5500	2160	2250	YUV	422	24	16	67.5	30	4.147	4.354
	3840	5500	2160	2250	YUV	420	24	12	67.5	30	3.110	3.265
UHD 60	3840	5500	2160	2250	RGB	888	24	24	135	60	12.441	13.063
	3840	5500	2160	2250	YUV	422	24	16	135	60	8.294	8.709
	3840	5500	2160	2250	YUV	420	24	12	135	60	6.220	6.531
	3840	5500	2160	2250	YUV	422	30	20	135	60	10.368	10.886
	3840	5500	2160	2250	YUV	420	30	15	135	60	7.776	8.165

Approximate maximum network bandwidth for several common video resolutions

Appendix A - How to Multiview continued...

The table below shows available multiviewer commands:

COMMAND	DESCRIPTION	REFERENCE
set scaler	Used to set the resolution of the sub stream	8.8
set frame_converter	Used to half the frame rate of the Encoder video stream	8.5
multiview	Used once to activate the layout	11.1
layout new	Used once to define the layout name and size	11.2.1
layout window	Used multiple times to define the window size and location	11.2.2
layout black	Used to apply a black area to the layout	11.2.3
layout delete	Used to delete an existing layout	11.2.4
join multi	Used multiple times to join the Encoders to layout surfaces	4.10
leave sub	Used to leave a video stream subscription	5.2
stop video	Used to stop the main stream and reduce Encoder bandwidth	6.1
stop sub	Used to stop the multiview stream	6.2

window_index = 0 surface_index = 0 1920 x 1080	window_index = 2 surface_index = 2 960 x 540	window_index = 3 surface_index = 3 960 x 540
	window_index = 4 surface_index = 4 960 x 540	window_index = 5 surface_index = 2 960 x 540
window_index = 1 surface_index = 1 1920 x 1080	window_index = 6 surface_index = 3 960 x 540	window_index = 7 surface_index = 4 960 x 540
	window_index = 8 surface_index = 2 960 x 540	window_index = 9 surface_index = 3 960 x 540

Examples used to create the above scene:



DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

Example 1: (recommended)

Shows the use of specifying **layout_name** in **join multi** and not requiring the **set scaler** command.

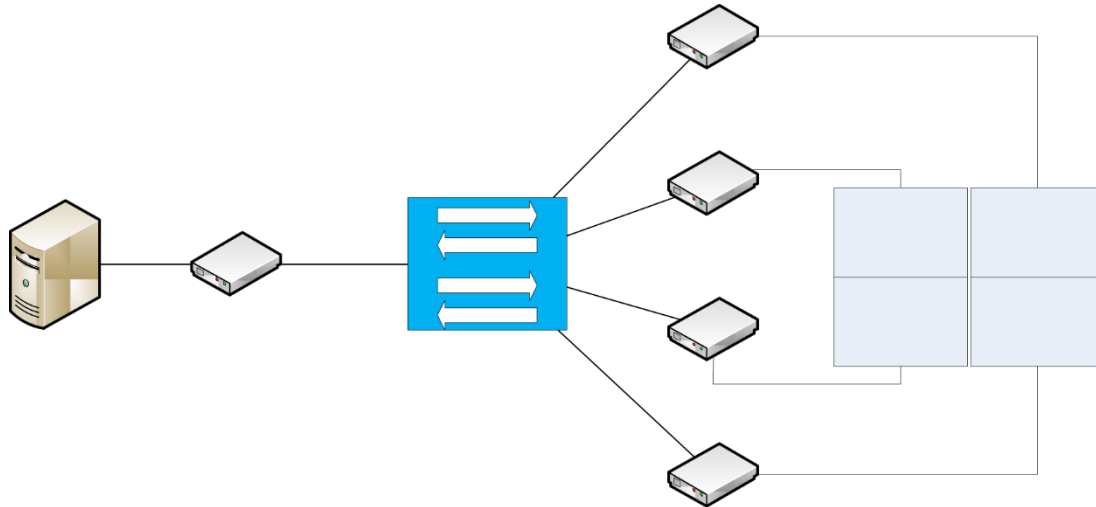
```
layout new MyLayout 3840 2160<cr>
layout window MyLayout 0 0 0 1920 1080 0<cr>
layout window MyLayout 1 0 1080 1920 1080 1<cr>
layout window MyLayout 2 1920 0 960 540 2<cr>
layout window MyLayout 3 2880 0 960 540 3<cr>
layout window MyLayout 4 1920 540 960 540 4<cr>
layout window MyLayout 5 2880 540 960 540 2<cr>
layout window MyLayout 6 1920 1080 960 540 3<cr>
layout window MyLayout 7 2880 1080 960 540 4<cr>
layout window MyLayout 8 1920 1620 960 540 2<cr>
layout window MyLayout 9 2880 1620 960 540 3<cr>
multiview Decoder1 MyLayout 3840 2160 60<cr>
join multi Encoder1 Decoder1 0 scaled MyLayout<cr>
join multi Encoder2 Decoder1 1 scaled MyLayout<cr>
join multi Encoder3 Decoder1 2 scaled MyLayout<cr>
join multi Encoder4 Decoder1 3 scaled MyLayout<cr>
join multi Encoder5 Decoder1 4 scaled MyLayout<cr>
```

Example 2:

Shows the **layout_name** in the **join multi** command being omitted and using the **scaler** command instead.

```
layout new MyLayout 3840 2160<cr>
layout window MyLayout 0 0 0 1920 1080 0<cr>
layout window MyLayout 1 0 1080 1920 1080 1<cr>
layout window MyLayout 2 1920 0 960 540 2<cr>
layout window MyLayout 3 2880 0 960 540 3<cr>
layout window MyLayout 4 1920 540 960 540 4<cr>
layout window MyLayout 5 2880 540 960 540 2<cr>
layout window MyLayout 6 1920 1080 960 540 3<cr>
layout window MyLayout 7 2880 1080 960 540 4<cr>
layout window MyLayout 8 1920 1620 960 540 2<cr>
layout window MyLayout 9 2880 1620 960 540 3<cr>
set scaler Encoder1 1920 1080<cr>
set scaler Encoder2 1920 1080<cr>
set scaler Encoder3 1920 1080<cr>
set scaler Encoder4 1920 1080<cr>
set scaler Encoder5 1920 1080<cr>
multiview Decoder1 MyLayout 3840 2160 60<cr>
join multi Encoder1 Decoder1 0 scaled<cr>
join multi Encoder2 Decoder1 1 scaled<cr>
join multi Encoder3 Decoder1 2 scaled<cr>
join multi Encoder4 Decoder1 3 scaled<cr>
join multi Encoder5 Decoder1 4 scaled<cr>
```

Appendix B - How to Video wall



Multiple Decoders can be grouped together to form a video wall.
Each display requires a Decoder and at least one Encoder source is required.

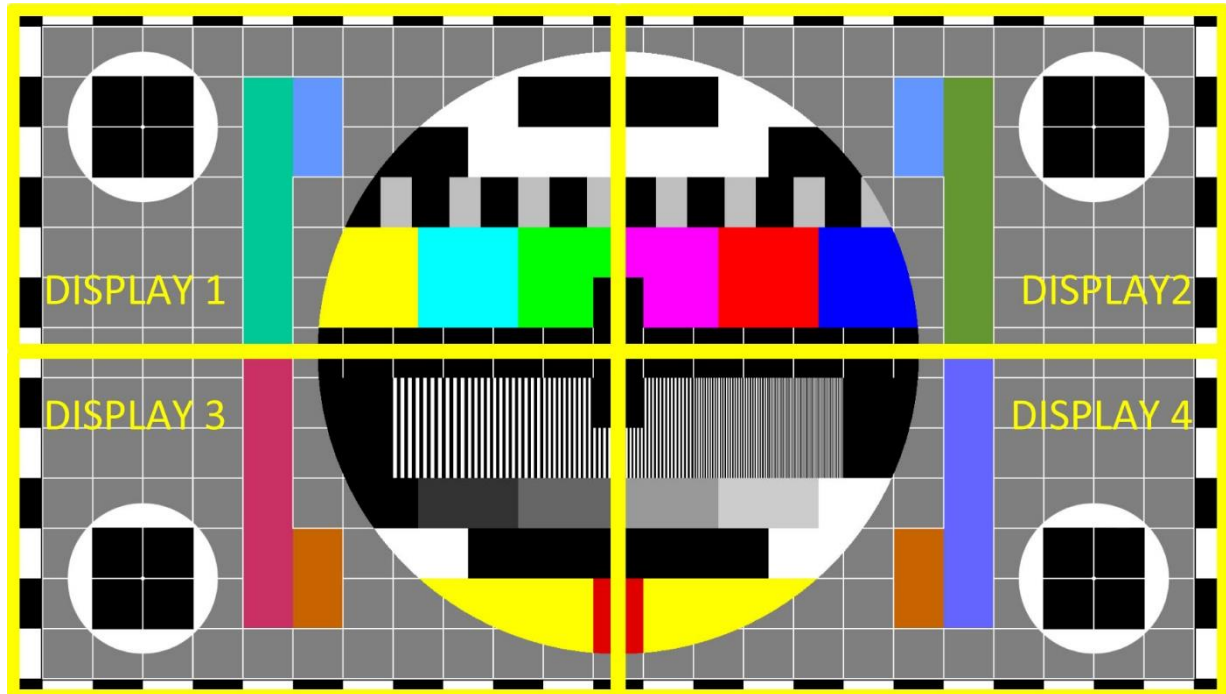
'video wall' mode is similar to join fast mode, except the Decoder's frame buffer is now locked with multiple frame buffers of other Decoders. All the Decoders working in tandem are receiving the same video stream. Each Decoder crops the feed according to relative position within the video wall array and then scaled to a specified resolution.

The table below shows available Video wall commands:

COMMAND	DESCRIPTION	REFERENCE
join wall	Used once for each display	4.11.1
join walladv	Used once for each display with advanced parameters	4.11.2

2x2 Video Wall example

This example can be found as a preset on the SDVoE Director Controller as 'demo_videowall_std_2x2'



Source Encoder - Encoder1 1920 x 1080 @ 60Hz, Displays width 615mm with 595mm viewable

Display Decoder1 - Decoder TopLeft

Display Decoder2 - Decoder TopRight

Display Decoder3 - Decoder BottomLeft

Display Decoder4 - Decoder BottomRight

2x2 Video Wall example continued...

DISPLAY 1

Standard wall - automatically calculated bezel compensation

join wall Encoder1 Decoder1 2x2 1 size 1920 1080 60 bezel 615 595<cr>

Advanced wall - calculated bezel compensation

join walladv Encoder1 Decoder1 1920 1080 0 0 928 508 0 0 1920 1080 60<cr>

width = ((horizontal resolution / number of horizontal displays) - Bezel) = ((1920 / 2) - 32) = 928

height = ((vertical resolution / number of vertical displays) - Bezel) = ((1080 / 2) - 32) = 508

h_offset = 0

v_offset = 0

DISPLAY 2

Standard wall - Automatically calculated bezel compensation

join wall Encoder1 Decoder2 2x2 2 size 1920 1080 60 bezel 615 595<cr>

Advanced wall - calculated bezel compensation

join walladv Encoder1 Decoder2 1920 1080 992 0 928 508 0 0 1920 1080 60<cr>

width = ((horizontal resolution / number of horizontal displays) - Bezel) = ((1920 / 2) - 32) = 928

height = ((vertical resolution / number of vertical displays) - Bezel) = ((1080 / 2) - 32) = 508

h_offset = ((horizontal resolution / number of horizontal displays) + Bezel) = ((1920 / 2) + 32) = 992

v_offset = 0

DISPLAY 3

Standard wall - Automatically calculated bezel compensation

join wall Encoder1 Decoder3 2x2 3 size 1920 1080 60 bezel 615 595<cr>

Advanced wall - calculated bezel compensation

join walladv Encoder1 Decoder3 1920 1080 0 572 928 508 0 0 1920 1080 60<cr>

width = ((horizontal resolution / number of horizontal displays) - Bezel) = ((1920 / 2) - 32) = 928

height = ((vertical resolution / number of vertical displays) - Bezel) = ((1080 / 2) - 32) = 508

h_offset = 0

v_offset = ((vertical resolution / number of vertical displays) + Bezel) = ((1080 / 2) + 32) = 576

DISPLAY 4

Standard wall - Automatically calculated bezel compensation

join wall Encoder1 Decoder4 2x2 4 size 1920 1080 60 bezel 615 595<cr>

Advanced wall - calculated bezel compensation

join walladv Encoder1 Decoder4 1920 1080 992 572 928 508 0 0 1920 1080 60<cr>

width = ((horizontal resolution / number of horizontal displays) - Bezel) = ((1920 / 2) - 64) = 928

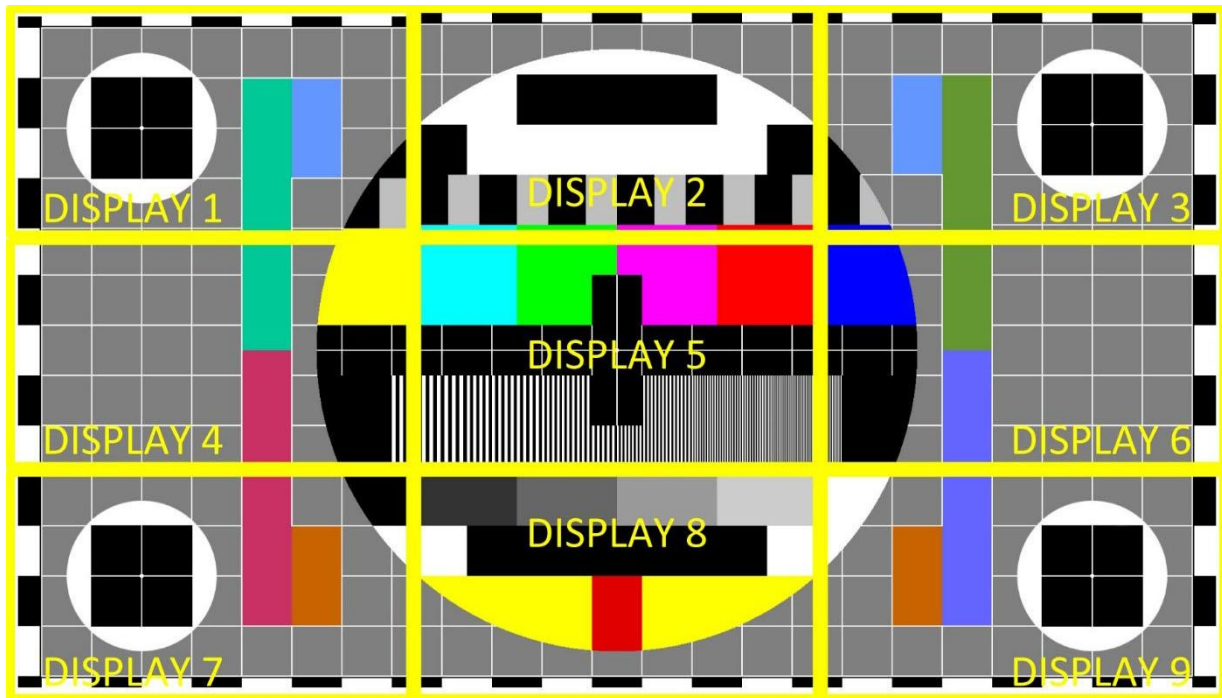
height = ((vertical resolution / number of vertical displays) - Bezel) = ((1080 / 2) - 64) = 508

h_offset = ((horizontal resolution / number of horizontal displays) + Bezel) = ((1920 / 2) + 64) = 992

v_offset = ((vertical resolution / number of vertical displays) + Bezel) = ((1080 / 2) + 64) = 576

3x3 Video Wall example

This example can be found as a preset on the SDVoE Director Controller as 'demo_videowall_std_3x3'



Source Encoder - Encoder1 3840 x 2160 @ 30Hz, Display resolution 1080p.

- Display Decoder1 - Decoder TopLeft
- Display Decoder2 - Decoder TopCenter
- Display Decoder3 - Decoder TopRight
- Display Decoder4 - Decoder MiddleLeft
- Display Decoder5 - Decoder MiddleCenter
- Display Decoder6 - Decoder MiddleRight
- Display Decoder7 - Decoder BottomLeft
- Display Decoder8 - Decoder BottomCenter
- Display Decoder9 - Decoder BottomLeft

DISPLAY 1

Standard wall - Automatically calculated bezel compensation

join wall Encoder1 Decoder1 3x3 1 size 1920 1080 60 bezel 615 595<cr>

Advanced wall - calculated bezel compensation

join walladv Encoder1 Decoder1 1920 1080 0 0 1216 656 0 0 1920 1080 60<cr>

width = ((horizontal resolution / number of horizontal displays) - Bezel) = ((3840 / 3) - 64) = 1216

height = ((vertical resolution / number of vertical displays) - Bezel) = ((2160 / 3) - 64) = 656

h_offset = 0

v_offset = 0

3x3 Video Wall example continued...

DISPLAY 2

Standard wall - Automatically calculated bezel compensation

join wall Encoder1 Decoder2 3x3 2 size 1920 1080 60 bezel 615 595<cr>

Advanced wall - calculated bezel compensation

join walladv Encoder1 Decoder2 1920 1080 1344 0 1152 656 0 0 1920 1080 60<cr>

width = ((horizontal resolution / number of horizontal displays) - (Bezel * 2)) = ((3840 / 3) - (64 * 2)) = 1152

height = ((vertical resolution / number of vertical displays) - Bezel) = ((2160 / 3) - 64) = 656

h_offset = ((horizontal resolution / number of horizontal displays) + Bezel) = ((3840 / 3) + 64) = 1344

v_offset = 0

DISPLAY 3

Standard wall - Automatically calculated bezel compensation

join wall Encoder1 Decoder3 3x3 3 size 1920 1080 60 bezel 615 595<cr>

Advanced wall - calculated bezel compensation

join walladv Encoder1 Decoder3 1920 1080 2624 0 1216 656 0 0 1920 1080 60<cr>

width = ((horizontal resolution / number of horizontal displays) - Bezel) = ((3840 / 3) - 64) = 1216

height = ((vertical resolution / number of vertical displays) - Bezel) = ((2160 / 3) - 64) = 656

h_offset = (((horizontal resolution / number of horizontal displays) * 2) + Bezel) = (((3840 / 3) * 2) + 64) = 2624

v_offset = 0

DISPLAY 4

Standard wall - Automatically calculated bezel compensation

join wall Encoder1 Decoder4 3x3 4 size 1920 1080 60 bezel 615 595<cr>

Advanced wall - calculated bezel compensation

join walladv Encoder1 Decoder4 1920 1080 0 784 1216 592 0 0 1920 1080 60<cr>

width = ((horizontal resolution / number of horizontal displays) - Bezel) = ((3840 / 3) - 64) = 1216

height = ((vertical resolution / number of vertical displays) - (Bezel * 2)) = ((2160 / 3) - (64 * 2)) = 592

h_offset = 0

v_offset = ((vertical resolution / number of vertical displays) + Bezel) = ((2160 / 3) + 64) = 784

DISPLAY 5

Standard wall - Automatically calculated bezel compensation

join wall Encoder1 Decoder5 3x3 5 size 1920 1080 60 bezel 615 595<cr>

Advanced wall - calculated bezel compensation

join walladv Encoder1 Decoder5 1920 1080 1344 784 1152 592 0 0 1920 1080 60<cr>

width = ((horizontal resolution / number of horizontal displays) - (Bezel * 2)) = ((3840 / 3) - (64 * 2)) = 1152

height = ((vertical resolution / number of vertical displays) - (Bezel * 2)) = ((2160 / 3) - (64 * 2)) = 592

h_offset = ((horizontal resolution / number of horizontal displays) + Bezel) = ((3840 / 3) + 64) = 1344

v_offset = ((vertical resolution / number of vertical displays) + Bezel) = ((2160 / 3) + 64) = 784

3x3 Video Wall example continued...

DISPLAY 6

Standard wall - Automatically calculated bezel compensation

join wall Encoder1 Decoder6 3x3 6 size 1920 1080 60 bezel 615 595<cr>

Advanced wall - calculated bezel compensation

join walladv Encoder1 Decoder6 1920 1080 2624 784 1216 592 0 0 1920 1080 60<cr>

width = ((horizontal resolution / number of horizontal displays) - Bezel) = ((3840 / 3) - 64) = 1216
height = ((vertical resolution / number of vertical displays) - (Bezel * 2)) = ((2160 / 3) - (64 * 2)) = 592
h_offset = (((horizontal resolution / number of horizontal displays) * 2) + Bezel) = (((3840 / 3) * 2) + 64) = 2624
v_offset = (((vertical resolution / number of vertical displays) + Bezel) = ((2160 / 3) + 64) = 784

DISPLAY 7

Standard wall - Automatically calculated bezel compensation

join wall Encoder1 Decoder7 3x3 7 size 1920 1080 60 bezel 615 595<cr>

Advanced wall - calculated bezel compensation

join walladv Encoder1 Decoder7 1920 1080 0 1504 1216 656 0 0 1920 1080 60<cr>

width = ((horizontal resolution / number of horizontal displays) - Bezel) = ((3840 / 3) - 64) = 1216
height = ((vertical resolution / number of vertical displays) - Bezel) = ((2160 / 3) - 64) = 656
h_offset = 0
v_offset = (((vertical resolution / number of vertical displays) * 2) + Bezel) = (((2160 / 3) * 2) + 64) = 1504

DISPLAY 8

Standard wall - Automatically calculated bezel compensation

join wall Encoder1 Decoder8 3x3 8 size 1920 1080 60 bezel 615 595<cr>

Advanced wall - calculated bezel compensation

join walladv Encoder1 Decoder8 1920 1080 1344 1504 1152 656 0 0 1920 1080 60<cr>

width = ((horizontal resolution / number of horizontal displays) - (Bezel * 2)) = ((3840 / 3) - (64 * 2)) = 1152
height = ((vertical resolution / number of vertical displays) - Bezel) = ((2160 / 3) - 64) = 656
h_offset = ((horizontal resolution / number of horizontal displays) + Bezel) = ((3840 / 3) + 64) = 1344
v_offset = (((vertical resolution / number of vertical displays) * 2) + Bezel) = (((2160 / 3) * 2) + 64) = 1504

DISPLAY 9

Standard wall - Automatically calculated bezel compensation

join wall Encoder1 Decoder9 3x3 9 size 1920 1080 60 bezel 615 595<cr>

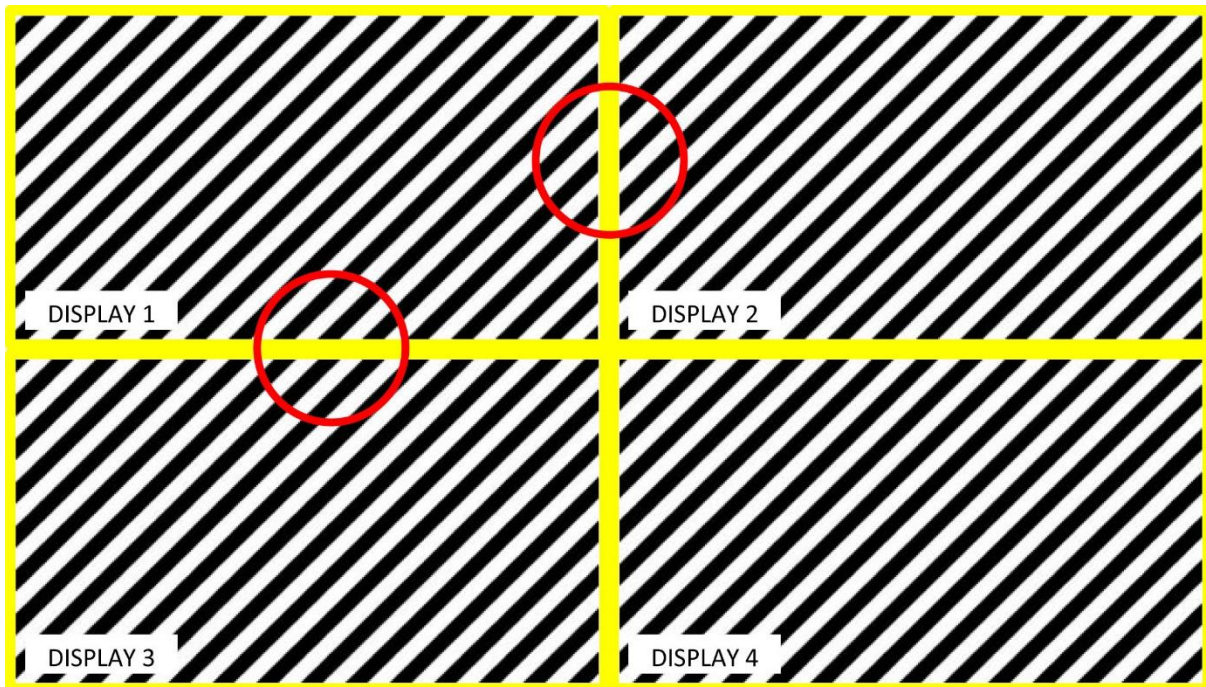
Advanced wall - calculated bezel compensation

join walladv Encoder1 Decoder9 1920 1080 2624 1504 1216 656 0 0 1920 1080 60<cr>

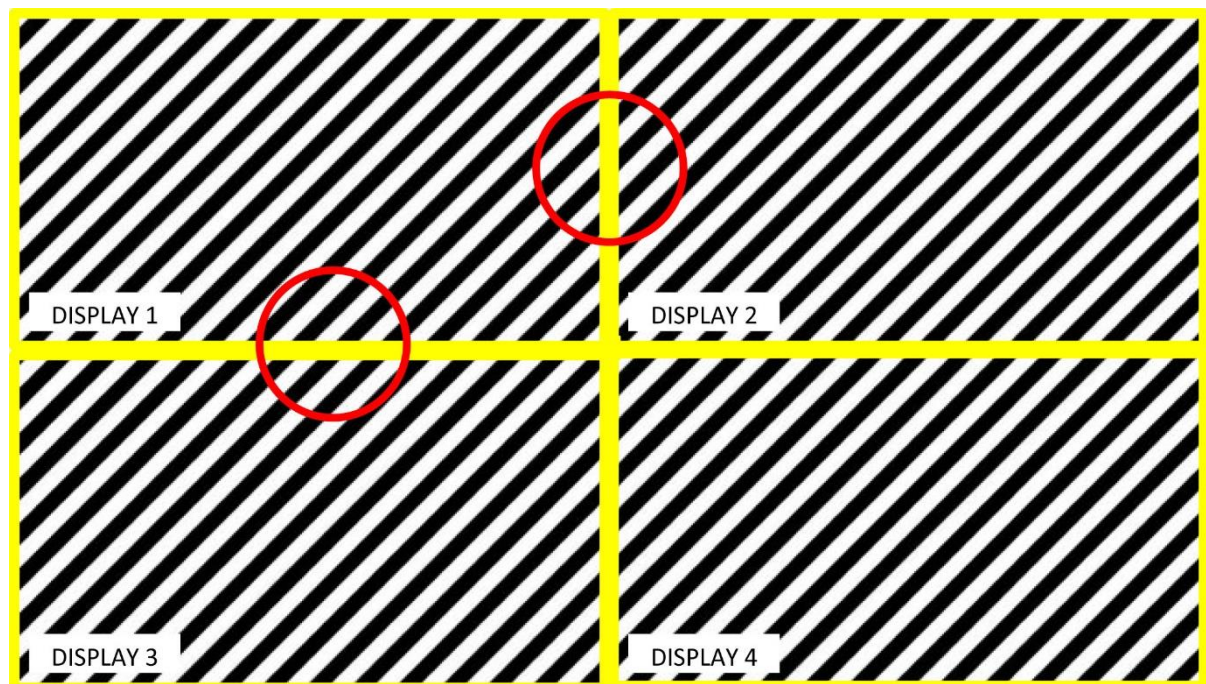
width = ((horizontal resolution / number of horizontal displays) - Bezel) = ((3840 / 3) - 64) = 1216
height = ((vertical resolution / number of vertical displays) - Bezel) = ((2160 / 3) - 64) = 656
h_offset = (((horizontal resolution / number of horizontal displays) * 2) + Bezel) = (((3840 / 3) * 2) + 64) = 2624
v_offset = (((vertical resolution / number of vertical displays) * 2) + Bezel) = (((2160 / 3) * 2) + 64) = 1504

Bezel Compensation - walladv

When you display the video across multiple monitors, the monitor's bezel gaps can introduce space that was not intended to be there resulting in a disjointed image that is not continuous across all displays. With bezel compensation, part of the video is hidden behind the display bezel so that the bezel appears to be part of the video. Using bezel compensation produces a more continuous image across the displays and provides a more realistic experience. It is similar to looking through a window where the window frames block your view. Below is an example of a 2x2 with and without bezel compensation applied.



without bezel compensation

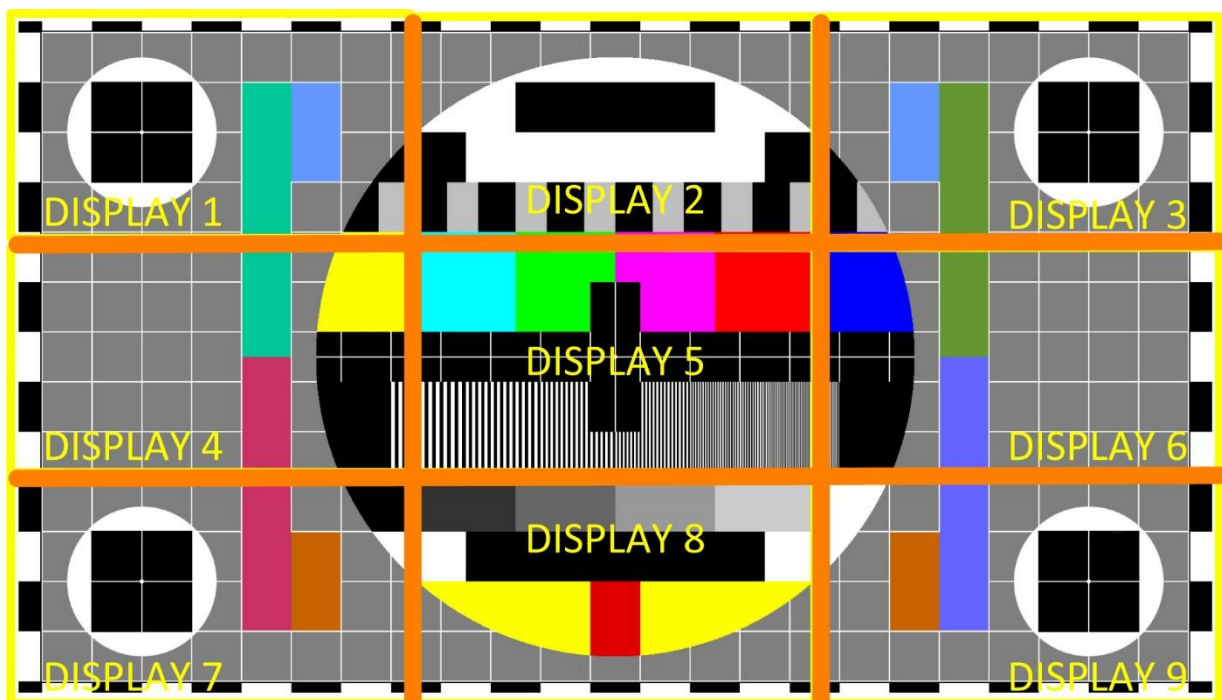
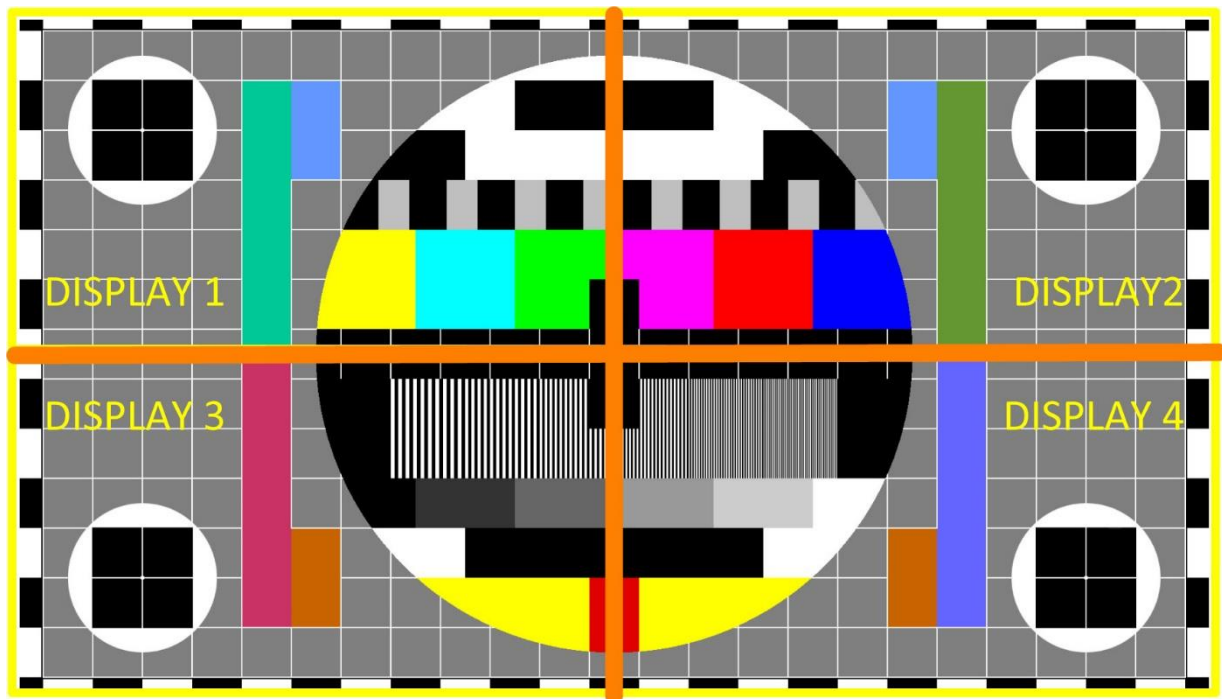


with bezel compensation

Bezel Compensation – walladv continued...

Bezel compensation can be calculated in a few different ways. If the display has a uniform bezel size then calculations can be simply performed. Calculations become a little more complex when the bezel sizes are not the same. For instance, some displays will have a larger bottom bezel than the top, or the left can vary compared to the right.

Bezel compensation only applies to edges of the video portions joining to another display. Only the orange edges of the below examples need to be compensated.



Bezel Compensation – walladv continued...

Definition of terms:

source_resolution_width = source video resolution width in pixels

source_resolution_height = source video resolution height in pixels

BW = physical width of the display bezel in millimetres when using uniform bezel size

BWL = physical width of the displays left bezel in millimetres when using different bezel sizes

BWR = physical width of the displays right bezel in millimetres when using different bezel sizes

BWT = physical width of the displays top bezel in millimetres when using different bezel sizes

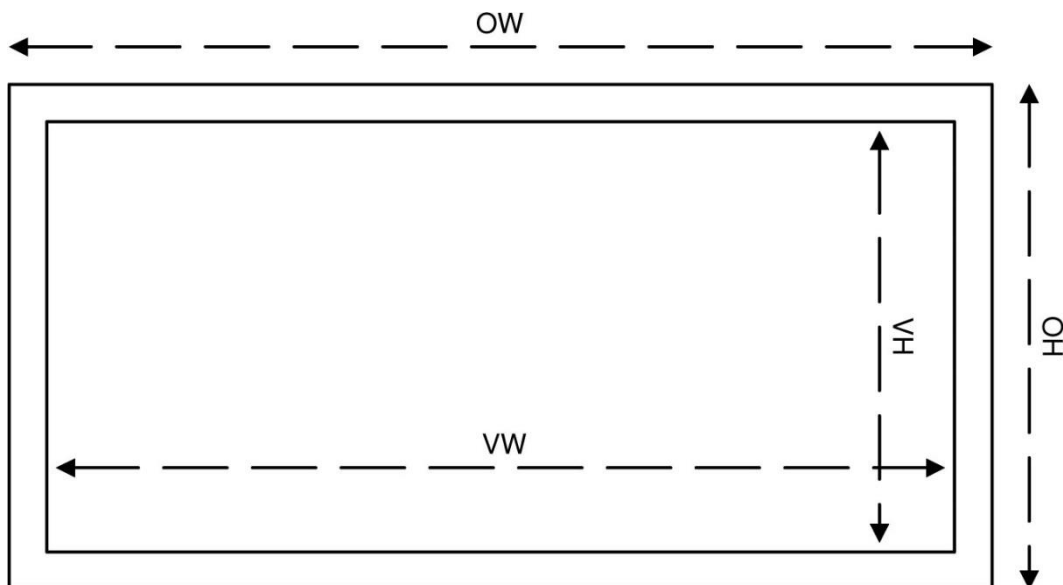
BWB = physical width of the displays bottom bezel in millimetres when using different bezel sizes

OW = physical overall width of the display in millimetres

VW = physical width of the displays viewable area in millimetres

OH = physical overall height of the display in millimetres

VH = physical height of the displays viewable area in millimetres



Bezel Compensation – walladv continued...

We are going to look at an example of a uniform bezel sized display, and one that is not.

1) Uniform bezel size

For a 2x2 video wall with uniform bezels we are going to use the following values:

- source_resolution_width = source video resolution width in pixels
- OW = physical overall width of the display in millimetres
- VW = physical width of the displays viewable area in millimetres

Firstly we need to know a few dimensions of the display in millimetres.

- physical width of the display bezel in millimetres (BW)
- physical overall width of the display in millimetres (OW)
- physical width of the displays viewable area in millimetres (VW)

BW can be physically measured, or calculated from OW and VW like below:

$$((OW - VW) / 2) = ((615 - 595) / 2) = 10$$

The last detail we need to know is the source resolution in pixels.

This example uses 1920x1080 so source_resolution_width = 1920

Now we have all the information we require, we can use the formula below to calculate the bezel compensation required in pixels.

$$\begin{aligned} &((source_resolution_width * BW) / VW) = \\ &((1920 * 10) / 595) = \\ &(19200 / 595) = \\ &32px \end{aligned}$$

We can also work out the Bezel compensation by using pixel density.

$$\begin{aligned} &(source_resolution_width / VW) = pixel_density \\ &(1920 / 595) = 3.22 \text{ px_per_mm} \end{aligned}$$

$$\begin{aligned} &((OW - VW) / 2) = bezel_size \text{ (mm)} \\ &((615 - 595) / 2) = 10 \text{ (mm)} \end{aligned}$$

$$\begin{aligned} &(bezel_size * pixel_density) = bezel_compensation \\ &10 * 3.22 = 32px \end{aligned}$$

$$width = ((horizontal \text{ resolution} / \text{number of horizontal displays}) - Bezel)$$

$$height = ((vertical \text{ resolution} / \text{number of vertical displays}) - Bezel)$$

$$h_offset = ((horizontal \text{ resolution} / \text{number of horizontal displays}) + Bezel)$$

$$v_offset = ((vertical \text{ resolution} / \text{number of vertical displays}) + Bezel)$$

Bezel Compensation – walladv continued...

2) Different bezel sizes

For a 2x2 video wall with different bezels we are going to use the following values:

- source_resolution_width = source video resolution width in pixels
- source_resolution_height = source video resolution height in pixels
- OW = physical overall width of the display in millimetres
- VW = physical width of the displays viewable area in millimetres
- BWx = bezel width in millimetres

Firstly we need to know a few dimensions of the display in millimetres.

- physical width of the display left bezel in millimetres (BWL)
- physical width of the display right bezel in millimetres (BWR)
- physical width of the display top bezel in millimetres (BWT)
- physical width of the display bottom bezel in millimetres (BWB)
- physical overall width of the display in millimetres (OW)
- physical width of the displays viewable area in millimetres (VW)
- physical overall height of the display in millimetres (OH)
- physical height of the displays viewable area in millimetres (VH)

Now the bezel on each side of the display need to be physically measured.

BWL = 10mm

BWR = 10mm

BWT= 10mm

BWB = 20mm

Now we need to know how many displays we have in rows and columns.

A 2x2 wall has 2 rows and 2 columns.

So DH = 2 and DV = 2

The last detail we need to know is the source resolution in pixels.

This example uses 1920x1080 so source_resolution_width = 1920 and source_resolution_height = 1080

Bezel Compensation – walladv continued...

Now we have all the information we require, we can use the formulas below to calculate the bezel compensation required in pixels.

Left bezel compensation =

$$\begin{aligned} & ((\text{source_resolution_width} * \text{BWL}) / \text{VW}) = \\ & ((1920 * 10) / 595) = \\ & (19200 / 595) = \\ & 32\text{px} \end{aligned}$$

Right bezel compensation =

$$\begin{aligned} & ((\text{source_resolution_width} * \text{BWR}) / \text{VW}) = \\ & ((1920 * 10) / 595) = \\ & (19200 / 595) = \\ & 32\text{px} \end{aligned}$$

Top bezel compensation =

$$\begin{aligned} & ((\text{source_resolution_width} * \text{BWT}) / \text{VH}) = \\ & ((1080 * 10) / 335) = \\ & (10800 / 335) = \\ & 32\text{px} \end{aligned}$$

Bottom bezel compensation =

$$\begin{aligned} & ((\text{source_resolution_width} * \text{BWB}) / \text{VH}) = \\ & ((1080 * 20) / 335) = \\ & (21600 / 335) = \\ & 64\text{px} \end{aligned}$$

$$\text{width} = ((\text{horizontal resolution} / \text{number of horizontal displays}) - (\text{Bezel Left} + \text{Bezel Right}))$$

$$\text{height} = ((\text{vertical resolution} / \text{number of vertical displays}) - (\text{Bezel Left} + \text{Bezel Right}))$$

$$\text{h_offset} = ((\text{horizontal resolution} / \text{number of horizontal displays}) + \text{Bezel Left})$$

$$\text{v_offset} = ((\text{vertical resolution} / \text{number of vertical displays}) + \text{Bezel Top})$$

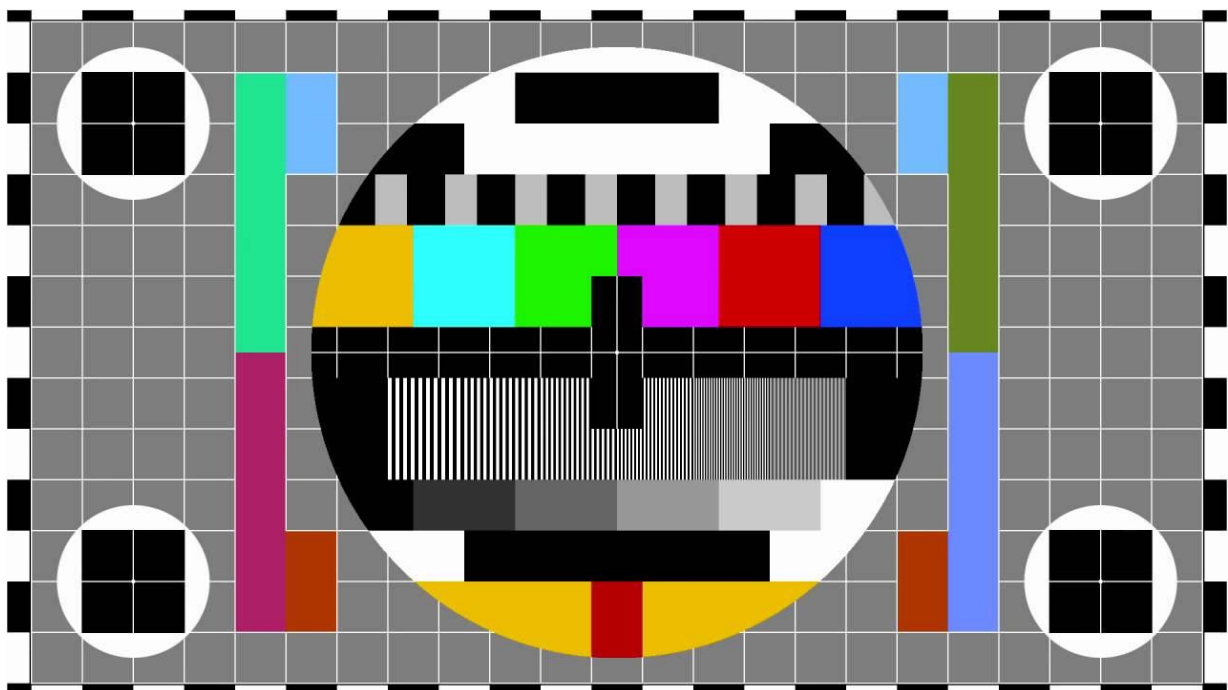
viewport - walladv

The viewport is the rectangular region of a screen where video is displayed on Decoders. Areas on the screen outside this region are black. You can use the viewport to apply black to the top and bottom, or sides of the video to maintain original aspect ratio's or the location of the image on the display.

The **viewport_horiz** and **viewport_vert** arguments specify respectively the horizontal and vertical position of the viewport's top-left corner on the screen, in pixels, with respect to the specified width.

The **viewport_width** and **viewport_height** arguments specify respectively the width and height of the viewport, in pixels, with respect to the specified height.

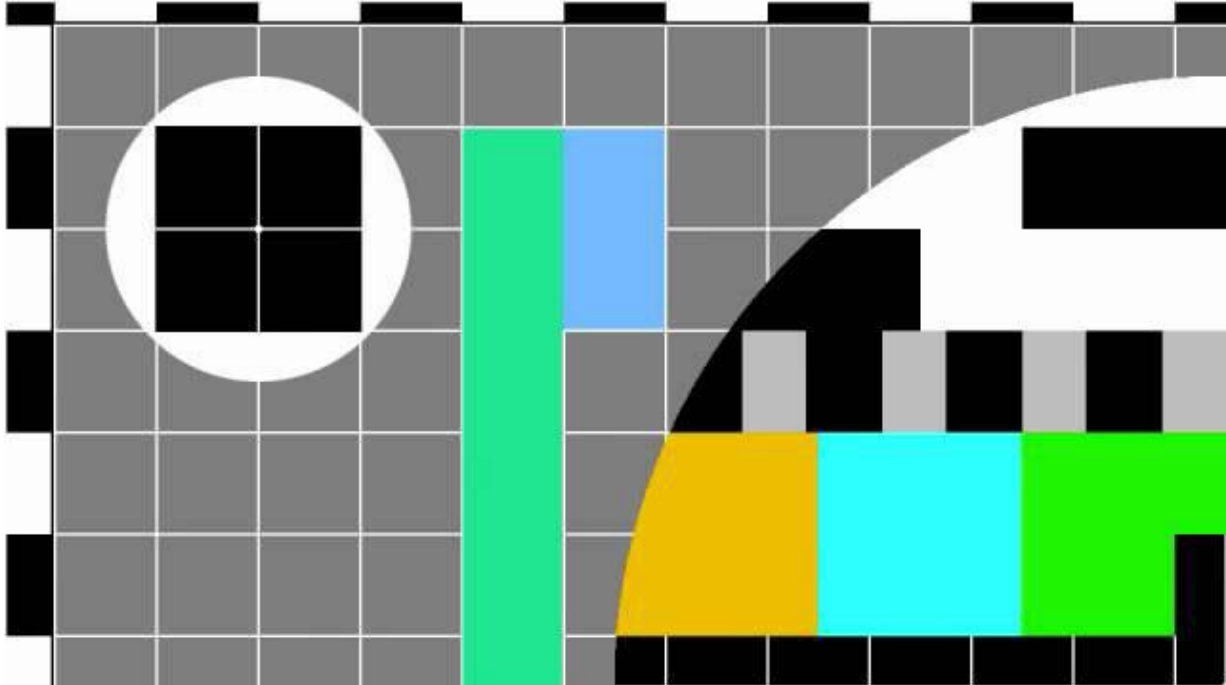
Original full screen 1920x1080 video source



viewport – walladv continued...

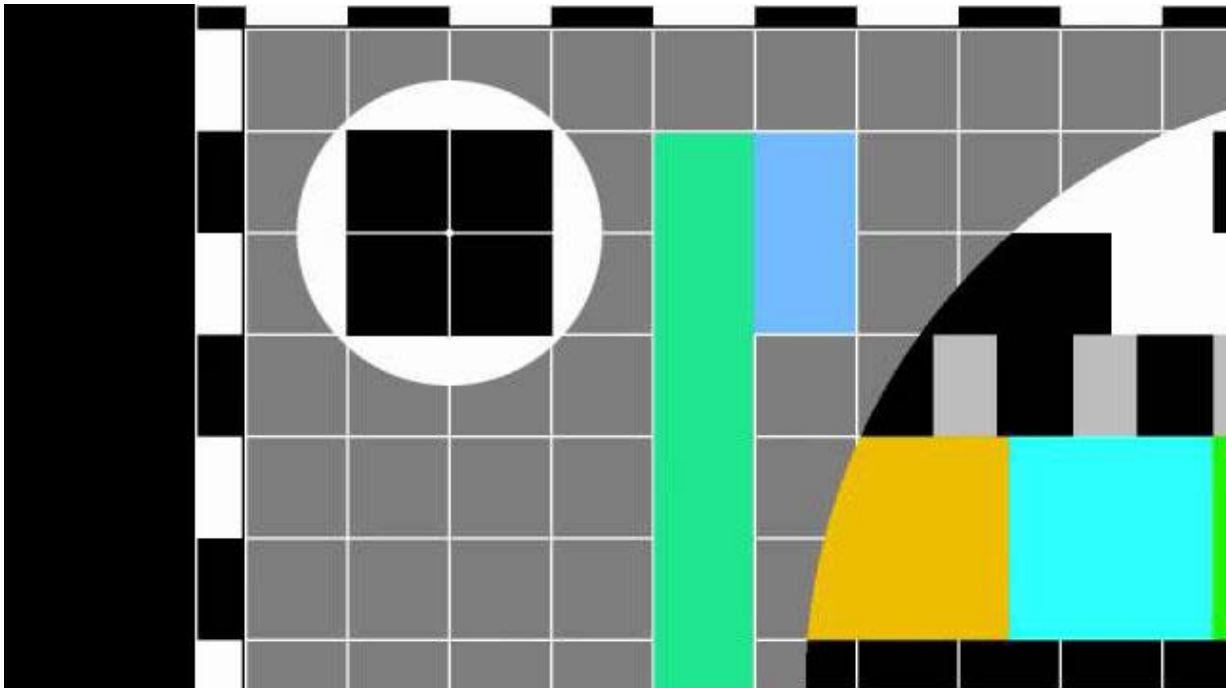
Top left 960x540 portion of original video source still displayed as 1920x1080 (no bezel comp)

join walladv Encoder1 Decoder1 1920 1080 0 0 960 540 0 0 1920 1080 60<cr>



Add 100 pixels of black to the left and reduce viewport_width by 100 pixels.

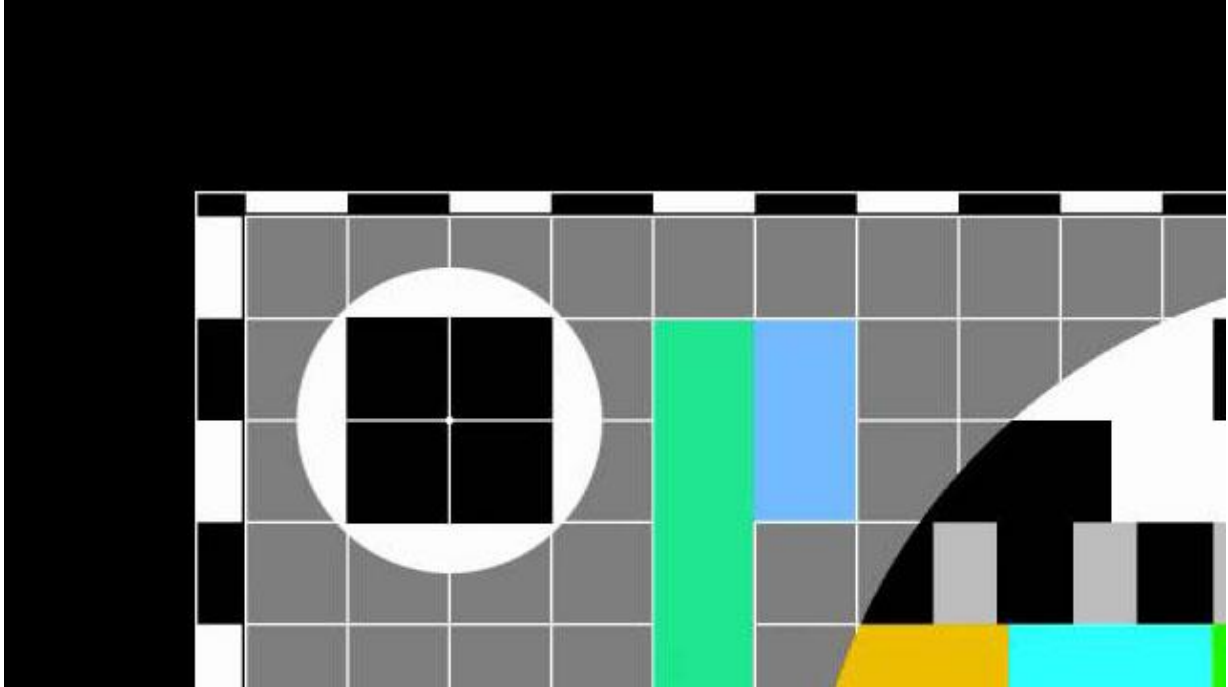
join walladv Encoder1 Decoder1 1920 1080 0 0 960 540 **100** 0 **1820** 1080 60<cr>



viewport – walladv continued...

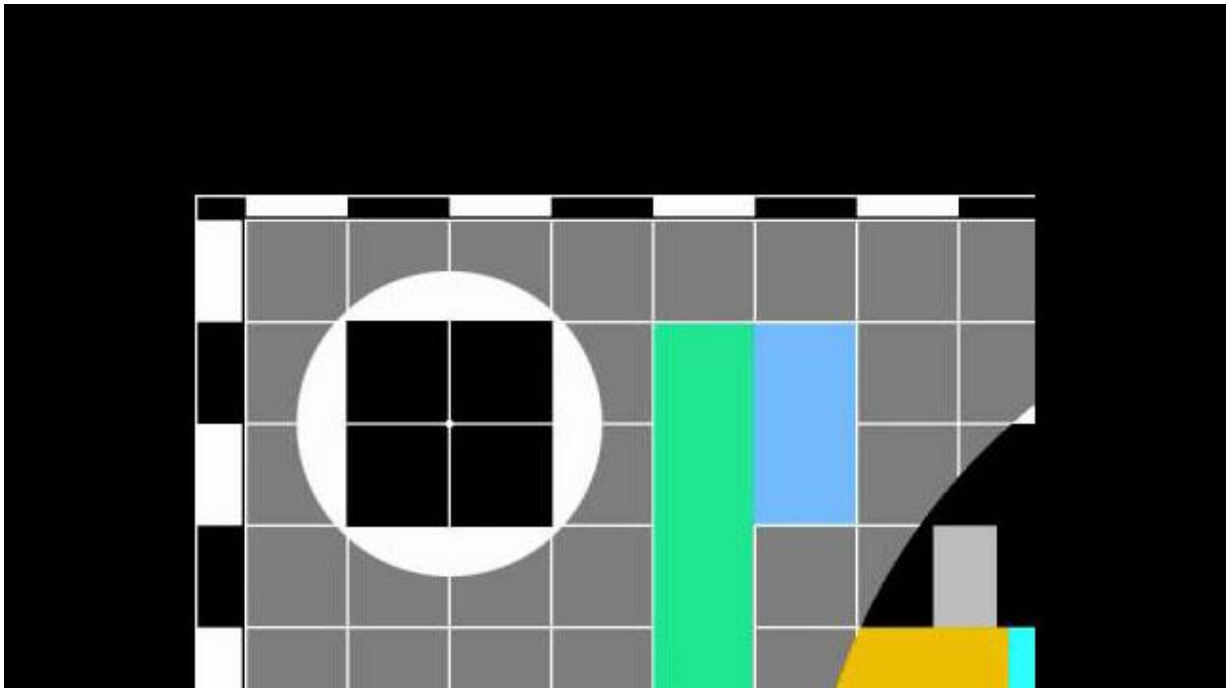
Add 100 pixels of black to the top and reduce viewport_height by 100 pixels.

join walladv Encoder1 Decoder1 1920 1080 0 0 960 540 100 **100** 1820 **980** 60<cr>



Add 100 pixels of black to the right by reducing viewport_width by 100 pixels.

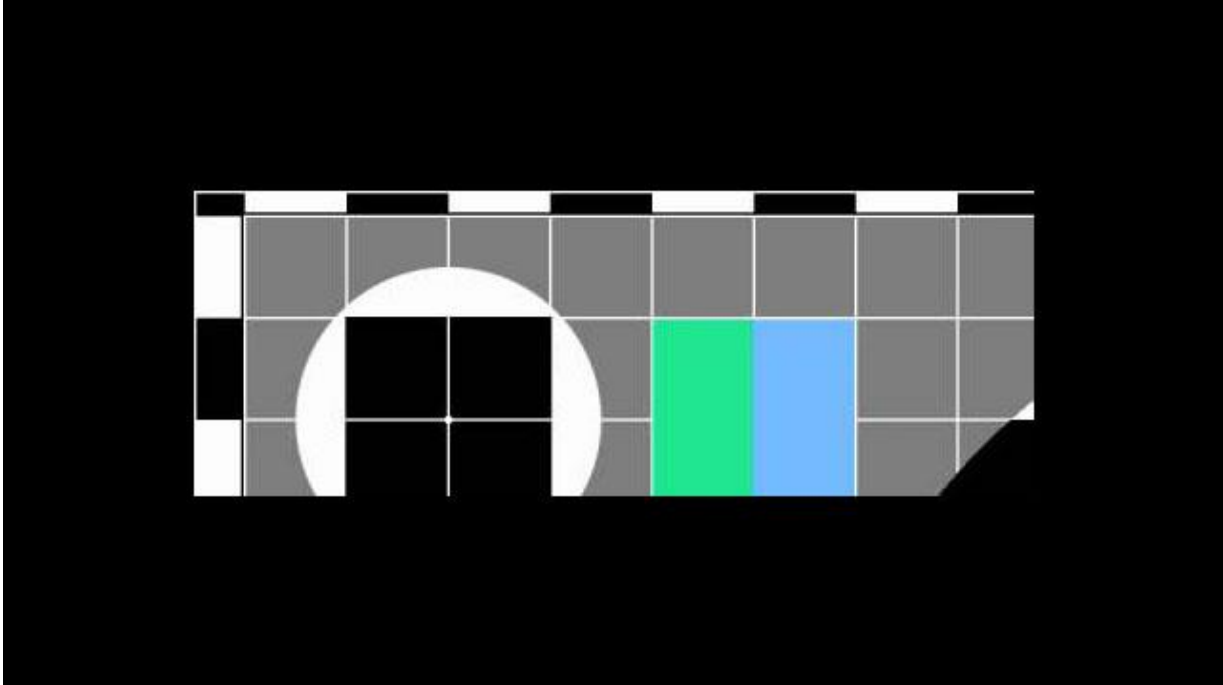
join walladv Encoder1 Decoder1 1920 1080 0 0 960 540 100 100 **1720** 980 60<cr>



viewport – walladv continued...

Add 100 pixels of black to the bottom by reducing viewport_height by 100 pixels.

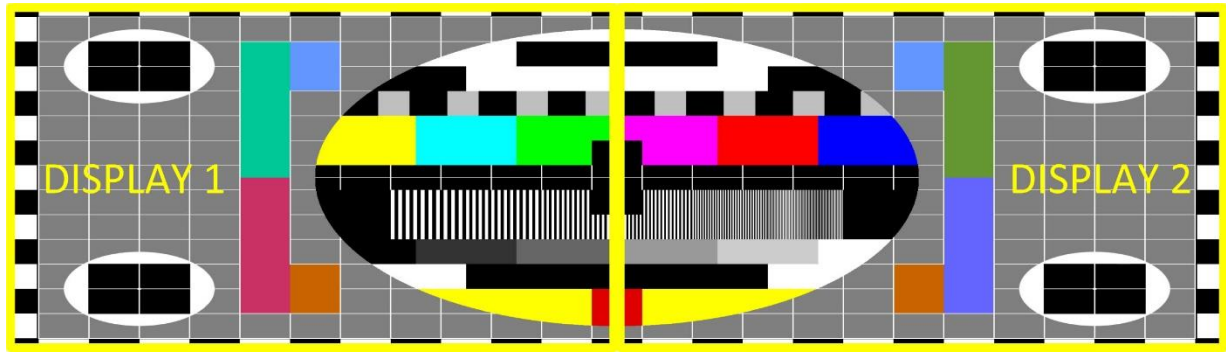
join walladv Encoder1 Decoder1 1920 1080 0 0 960 540 100 100 1720 **880** 60<cr>



viewport – walladv continued...

This example can be found as a preset on the SDVoE Director Controller as 'demo_videowall_adv_full_2x1'.

When a 16:9 video image is displayed on a SDVoE 32:9 (2x1) video wall, the image width will stretch to fit the displays destroying the original aspect ratio of the image as below:



DISPLAY 1

width = ((horizontal resolution / number of horizontal displays) - Bezel) = ((1920 / 2) - 16) = 944
height = 1080
h_offset = 0
v_offset = 0

```
join walladv Encoder1 Decoder1 1920 1080 0 0 944 1080 0 0 1920 1080 60<cr>
```

DISPLAY 2

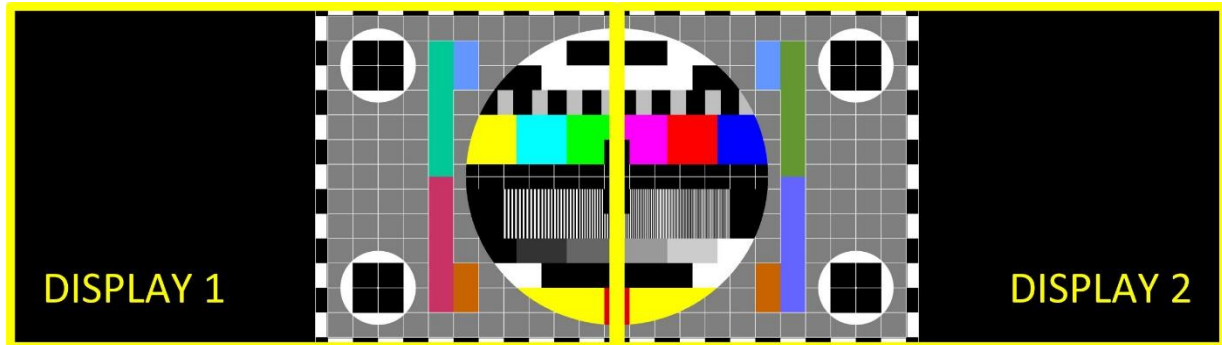
width = ((horizontal resolution / number of horizontal displays) - Bezel) = ((1920 / 2) - 16) = 944
height = 1080
h_offset = ((horizontal resolution / number of horizontal displays) + Bezel) = ((1920 / 2) + 16) = 976
v_offset = 0

```
join walladv Encoder1 Decoder2 1920 1080 976 0 944 1080 0 0 1920 1080 60<cr>
```

viewport – walladv continued...

This example can be found as a preset on the SDVoE Director Controller as 'demo_videowall_adv_keep_2x1'.

SDVoE can maintain the original aspect ratio of the image, black is added to the sides of the image with the viewport as per below:



We know the image is 1920x1080, and we know the width is now 3840 (width of 2 displays 1920x1080) so we can work out the black is 960px each side.

DISPLAY 1

```
width = 1920
height = 1080
h_offset = 0
v_offset = 0
keep_width = ((horizontal resolution / number of horizontal displays) - Bezel) = ((1920 / 2) - 16) = 944
keep_height = 1080
viewport_horz = (((horizontal resolution * number of horizontal displays) - source resolution) / 2) = 960
viewport_vert = 0
viewport_width = (((horizontal resolution * number of horizontal displays) - source resolution) / 2) = 960
viewport_height = 1080
```

```
join walladv Encoder1 Decoder1 1920 1080 0 0 944 1080 960 0 960 1080 60<cr>
```

DISPLAY 2

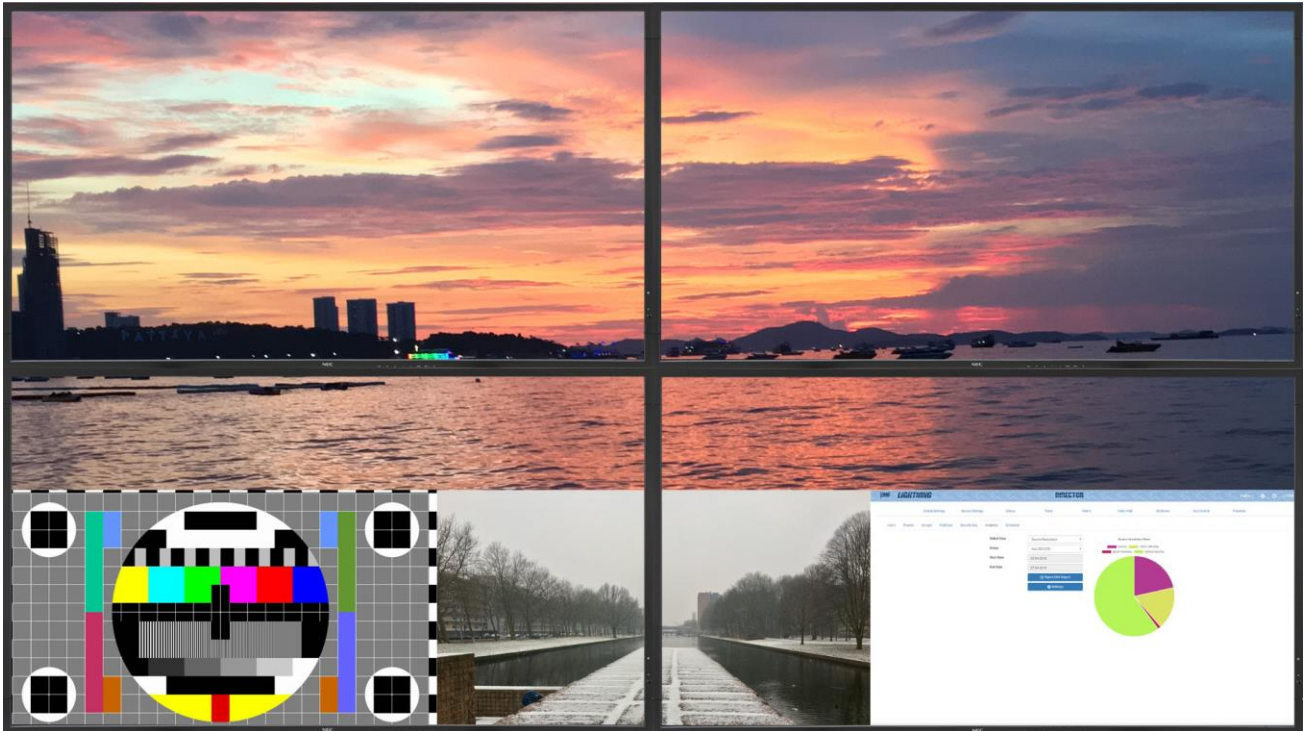
```
width = 1920
height = 1080
h_offset = ((horizontal resolution / number of horizontal displays) + Bezel) = ((1920 / 2) + 16) = 976
v_offset = 0
keep_width = ((horizontal resolution / number of horizontal displays) - Bezel) = ((1920 / 2) - 16) = 944
keep_height = 1080
viewport_horz = 0
viewport_vert = 0
viewport_width = (((horizontal resolution * number of horizontal displays) - source resolution) / 2) = 960
viewport_height = 1080
```

```
join walladv Encoder1 Decoder2 1920 1080 976 0 944 1080 0 0 960 1080 60<cr>
```

ToC

Appendix C - How to Video Wall with Multiview

Here is an explanation on how to create a Multiview layout on a video wall. To do this there are four (4) simple steps, make a physical HDMI connection between a dedicated Decoder and Encoder, create a Video Wall preset along with Multiview presets, and lastly execute the presets. The Video Wall preset is only required to be executed once to set up the Video Wall and to select the Multiview Encoder as the video source. Multiple Multiview presets can then be executed to change the layout as required.



Appendix C - How to Video Wall with Multiview continued...

1. Firstly a dedicated Decoder is required to create a HDMI video signal containing the Multiview Layout. Let's name this Decoder '*MVsourceOUT*'. The HDMI output of this Decoder is connected to a dedicated Encoder's HDMI input which will then convert the Multiview layout video into a stream accessible on the network for any other Decoder to display. Let's name this Encoder '*MVsourceIN*'.

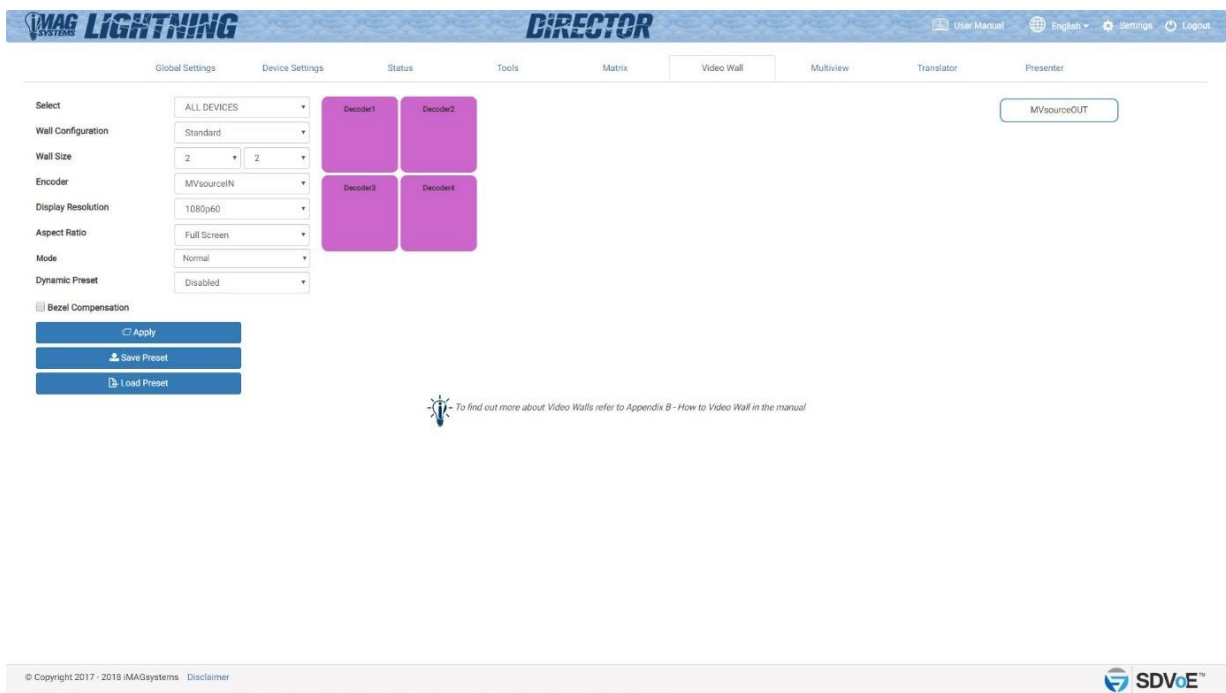
Decoder "*MVsourceOUT*"



Encoder "*MVsourceIN*"

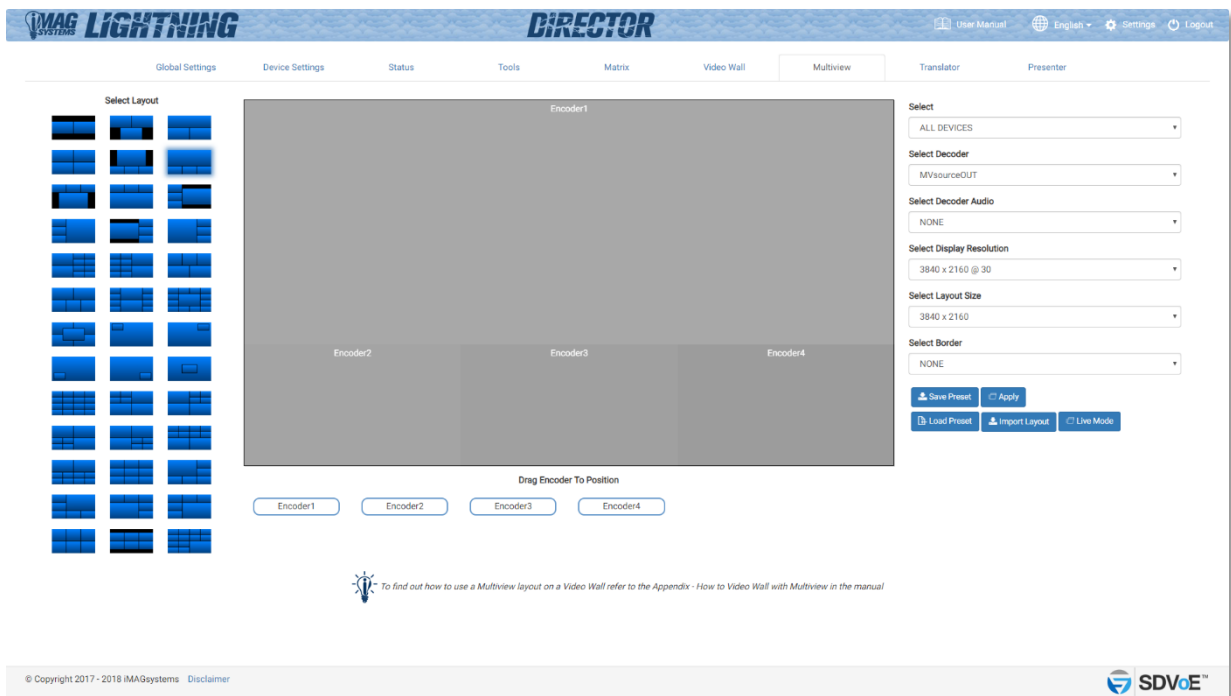


2. Now create a Video Wall preset using the required display layout. For this example a 2x2 Video Wall is used and the preset is saved as '*sample_VideoWall_2x2*'.



Appendix C - How to Video Wall with Multiview continued...

3. Now create a Multiview layout as required using Decoder 'MVsourceOUT'. For this example layout #6 is used and the preset is saved as 'sample_Multiview_6'.
4. Now these two presets just need to be executed. Whenever a change of the layout is required, only a different Multiview layout preset is required to be executed as the Video Wall configuration will remain the same.



Note: The two presets can be combined into a single preset by editing one of them and pasting the contents of the other.



Appendix D - How to HTTP request

GET = `http://<controllerURL>/api/command/<DIRECTOR_API_COMMAND>/<KEY>`

POST = `http://<controllerURL>/api/command{"cmd": "<DIRECTOR_API_COMMAND>", "key": "<KEY>"}`

Example 1: POST - ajax

```
<script language='JavaScript' type='text/javascript'>
  var controllerIP = '169.254.1.1'; *change this to the same IP address as the SDVoE Director controller
  var BaseURL = 'http://' + controllerIP + '/api/command';
  var MAXIMUM_WAITING_TIME = 5000; *timeout in milliseconds
  var CheckStatusTimer;
  var key = '123xyz'; *replace this with the generated security key
  var command = '123xyz'; *replace with any Director API command

  $.ajax({
    type: 'POST',
    crossDomain: true,
    contentType: 'application/json; charset=utf-8',
    dataType: 'text',
    url: BaseURL,
    data: '{"cmd":"' + command + '", "key":"' + key + '"}',
    timeout: MAXIMUM_WAITING_TIME,
    success: function(data, textStatus, XMLHttpRequest){
      console.log(data);
    },
    error: function (XMLHttpRequest, textStatus, errorThrown) {
      console.log('ERROR = ' + errorThrown);
    }
  });
</script>
```

Example 2: POST - xhr

```
<script language='JavaScript' type='text/javascript'>
  var controllerIP = '169.254.1.1'; *change this to the same IP address as the SDVoE Director controller
  var BaseURL = 'http://' + controllerIP + '/api/command';
  var key = '123xyz'; *replace this with the generated security key
  var command = '123xyz'; *replace with any DIRECTOR API command
  var xmlRequest = new XMLHttpRequest();
  xmlRequest.open('POST', BaseURL, true);
  var params = '{"cmd":"' + command + '", "key":"' + key + '"}';
  var MAXIMUM_WAITING_TIME = 5000;
  xmlRequest.onreadystatechange = function () {
    if (this.readyState == 4) {
      clearTimeout(xmlTimer);
      if(this.status == 200){
        console.log(this.responseText);
      }else{
        console.log('ERROR = ' + this.status + ' ' + this.statusText);
      }
    }else{
      if(this.status != 200){
        console.log('ERROR = ' + this.status + ' ' + this.statusText);
      }
    }
  };
  xmlRequest.send(params);
  var xmlTimer = setTimeout(function() {
    xmlRequest.abort();
    console.log('ERROR = timeout');
  }, MAXIMUM_WAITING_TIME);
</script>
```




DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

Example 3: GET - xhr

```
<script language='JavaScript' type='text/javascript'>
  var controllerIP = '172.30.0.220'; *change this to the same IP address as the SDVoE Director controller
  var BaseURL = 'http://' + controllerIP + '/api/command/';
  var key = '123xyz'; //replace this with the generated security key
  var command = '123xyz'; //replace with an DIRECTOR API command
  var MAXIMUM_WAITING_TIME = 5000;
  var btn2xhr = new XMLHttpRequest();
  btn2xhr.open('GET', BaseURL + '<command>/' + key);
  btn2xhr.onreadystatechange = function () {
    if (this.readyState == 4) {
      if (this.status == 200) {
        document.getElementById('Text0').innerHTML = this.responseText;
      } else {
        document.getElementById('Text0').innerHTML = 'ERROR = ' + this.status + ' ' + this.statusText;
      }
    } else {
      if (this.status != 200) {
        document.getElementById('Text0').innerHTML = 'ERROR = ' + this.status + ' ' + this.statusText;
      }
    }
  };
  btn2xhr.send(null);
  var btn2xhrTimer = setTimeout(function() {
    btn2xhr.abort();
    document.getElementById('Text0').innerHTML = 'ERROR = timeout';
  }, MAXIMUM_WAITING_TIME);
</script>
```

Example 4: IFTTT – Webhooks – POST

URL

http://<controllerIP>/api/command

Method

POST

Content Type

application/json

Body

{"cmd":"<DIRECTOR_API_COMMAND>","key":"<KEY>"}

Example 5: IFTTT – Webhooks – GET

URL

http://<controllerIP>/api/command/<DIRECTOR_API_COMMAND>/<KEY>

Method

GET

Content Type

text/plain



DIRECTOR LIGHTNING

COMMAND GUIDE V4.3.4

Example 6: bt.tn – Auxiliary HTTP request GET

URL=<controllerIP>/api/command/<DIRECTOR_API_COMMAND>/<KEY> port=80

**Note: All spaces in the <DIRECTOR_API_COMMAND> must be url-encoded as %20.*

See Percent-encoding chart below:

!	#	\$	&	'	()	*	+	,	/	:	;	=	?	[]
%21	%23	%24	%26	%27	%28	%29	%2A	%2B	%2C	%2F	%3A	%3B	%3D	%3F	%5B	%5D
space	'	%	-	.	<	>	\	^	_	`	{		}	~	@	
%20	%22	%25	%2D	%2E	%3C	%3E	%5C	%5E	%5F	%60	%7B	%7C	%7D	%7E	%40	

Example 7: bt.tn – HTTP POST

HTTP URL - Specify URL

http://<controllerIP>/api/command

HTTP METHOD

POST

ARGUMENTS - application/json

```
{"cmd":"< DIRECTOR_API_COMMAND>","key":"<KEY>"}
```



Appendix E – Preset Logic

Basic if else logic can be applied within a preset to allow you to build some *smarts* into the system. All **get** commands can be used as an expression.

The following syntax applies:

```
if (something) {  
    <do_this>  
    ...  
} elseif (something_else) {  
    <do_this>  
    ...  
} else {  
    <do_this_instead>  
    ...  
}
```

Within presets only, the following commands can be used to manipulate strings:

- substr(<string>,<start>,<optional_length>)
- trim(<string>)

Substr() will extract a string from a string.

Trim() will remove any HEX after the last ASCII character, like terminators <cr> and <lf> from the end of the string.

Strings can be extracted with command **substr()** as follows:

```
substr(<string>,<start>,<optional_length>)  
  
set var myVar "123456"  
set ui_label myUI lbl01 text substr(get var MyVar,1)  
    lbl01 text = "123456"  
set ui_label myUI lbl01 text substr(get var MyVar,3,2)  
    lbl01 text = "34"
```

Strings can be trimmed of trailing hexadecimal with a **trim()** command as follows:

```
if (trim(send tcp 172.30.10.141 4998 "setstate,1:1,1\x0d" reply) == "state,1:1,1"){  
    set ui_label AT01 lbl01 text "good"  
}else{  
    set ui_label AT01 lbl01 text "bad"  
}  
  
set var MyVar send tcp 172.30.10.141 4998 "setstate,1:1,1\x0d" reply  
if (trim(get var MyVar) == "state,1:1,1"){  
    set ui_label AT01 lbl01 text "good"  
}elseif (trim(get var MyVar) == "state,1:1,0" {  
    set ui_label AT01 lbl01 text "bad"  
} else {  
    set ui_label AT01 lbl01 text "error"  
}  
  
set var MyVar trim(send tcp 172.30.10.141 4998 "setstate,1:1,1\x0d" reply)  
if (get var MyVar == "state,1:1,1"){  
    set ui_label AT01 lbl01 text "good"  
}elseif (get var MyVar == "state,1:1,0" {  
    set ui_label AT01 lbl01 text "bad"  
} else {  
    set ui_label AT01 lbl01 text "error"  
}
```

Within presets only, the following variables can be used to identify buttons and devices:

- <<**button_name**>> which identifies the button pressed by name
Note: If the button does not have a name then "<<button_name>>" will be the result
- <<**encoder**>> which identifies the Encoder by name associated with selected Split Encoder button
- <<**decoder**>> which identifies the Decoder by name associated with selected Split Decoder button

Appendix E – Preset logic continued...

The following **get** commands will return a **string** value that can be used with:

- == (equal to)
- != (not equal to)

- get audio_source
- get devices
- get edid
- get scaler <encoder_device_name> all
- get status
- get var
- get ver
- get video <encoder_device_name> all
- get joins
- get ui_button

Example 1:

```
if (get joins Decoder1 == Encoder1) {  
    join all Encoder2 Decoder1  
} else {  
    join all Encoder1 Decoder2  
}
```

Example 2:

```
if (get audio_source Decoder1 != hdmi) {  
    set audio_source Decoder1 hdmi  
}
```

Example 3:

```
if (get var MyVar == "<string>") {  
    <do_this>  
} else {  
    <do_this_instead>  
}
```

Example 4:

```
if (get ui_button UIexample btn01 position == "down") {  
    send gc 172.30.20.129 4998 setstate,1:1,1  
}
```

Appendix E – Preset logic continued...

The following **send** commands will return a **string** value that can be used with:

- == (equal to)
- != (not equal to)

- send tcp > feedback = reply
- send serial > feedback = reply
- send gc > (port 4999 / 5000) feedback = reply
- send gc > (port 4998) command get

Example 1:

```
if (send tcp 169.254.1.70 4998 "setstate,1:1,1\x0D" reply == "state,1:1,1\x0D") {  
    <do_this>  
} else {  
    <do_this_instead>  
}  
  
if (trim(send tcp 169.254.1.70 4998 "setstate,1:1,1\x0D" reply) == "state,1:1,1") {  
    <do_this>  
} else {  
    <do_this_instead>  
}
```

Example 2:

```
if (send gc 169.254.1.70 4999 "My String" reply == "This String") {  
    set ui_button UIexample btn01 position down  
}
```

Example 3:

```
if (send gc 169.254.1.70 4998 getstate,1:1 == "state,1:1,1\x0D") {  
    set ui_button UIexample btn01 position down  
}  
  
if (trim(send gc 169.254.1.70 4998 getstate,1:1) == "state,1:1,1") {  
    set ui_button UIexample btn01 position down  
}
```

Example 4:

```
if (send serial Decoder1 "My String" reply == "This String") {  
    set ui_button UIexample btn01 position down  
}
```

Appendix E – Preset logic continued...

The following **get** commands will return an **integer** value that can be used with:

- == (equal to)
- != (not equal to)
- < (less than)
- > (greater than)
- get temp
- get video <encoder_device_name> width
- get video <encoder_device_name> height
- get video <encoder_device_name> fps
- get video <encoder_device_name> bpp
- get scaler <encoder_device_name> width
- get scaler <encoder_device_name> height
- get scaler <encoder_device_name> fps
- get window <layout_name> <index> width
- get window <layout_name> <index> height
- get bandwidth
- get preferred

Example:

```
if (get temp Encoder1 > 80) {  
    stop av Encoder1  
} else {  
    join fast Encoder1 Decoder1  
}
```

The following **get** commands will return a **boolean** value that can be used with:

- not
- get display_status
- get events
- get frame_converter
- get presenter
- get var
- get video_status
- get video_mute
- get video_compress

Example 1:

```
if (get video_status Encoder1) {  
    join all Encoder1 Decoder1  
} elseif (get video_status Encoder2) {  
    join all Encoder2 Decoder1  
}
```

Example 2:

```
if not (get video_status Encoder1) {  
    join all Encoder2 Decoder1  
}
```

Appendix E – Preset logic continued...

The following **send** commands will return a **boolean** value that can be used with:

- not
 - send tcp > feedback = none, equals or contains
 - send gc > feedback = none, equals or contains

Example 1:

```
if (send tcp 172.30.20.129 4998 "setstate,1:1,1\x0D" contains "setstate,1:1,1") {  
    set ui_button UIexample btn01 position down  
} else {  
    set ui_button UIexample btn01 position up  
}
```

Example 2:

```
if not (send gc 172.30.20.129 4998 setstate,1:1,1) {  
    <do something>  
} else {  
    <do something else>  
}
```



Appendix E – Preset logic continued...

Multiple conditional statements can be included using "&&" (and) as well as "||" (or).

```
if (get video_status Encoder1 && get video_status Encoder2) {  
    join all Encoder1 Decoder1  
    join all Encoder2 Decoder2  
}  
  
if (get video_status Encoder1 || get video_status Encoder2) {  
    join all Encoder1 Decoder1  
    join all Encoder2 Decoder2  
}
```

Split button Decoder state 1 preset logic to display connected Encoder on Decoder buttons or labels.

```
set ui_button buttons <<button_name>> text both <<encoder>>  
  
if (get ui_button buttons split4 position == down) {  
    set ui_label buttons lb01 text <<encoder>>  
}  
  
if (get ui_button buttons split5 position == down) {  
    set ui_label buttons lb02 text <<encoder>>  
}  
  
if (get ui_button buttons split6 position == down) {  
    set ui_label buttons lb03 text <<encoder>>  
}  
  
if (get ui_button buttons split7 position == down) {  
    set ui_label buttons lb04 text <<encoder>>  
}
```

Split button Decoder state 2 preset logic to clear connected Encoder on Decoder buttons or labels.

```
set ui_button buttons <<button_name>> text both None  
  
if (<<button_name>> == split4) {  
    set ui_label buttons lb01 text None  
}  
  
if (<<button_name>> == split5) {  
    set ui_label buttons lb02 text None  
}  
  
if (<<button_name>> == split6) {  
    set ui_label buttons lb03 text None  
}  
  
if (<<button_name>> == split7) {  
    set ui_label buttons lb04 text None  
}
```

Using a variable as string to store a send tcp/serial command result string:

```
set var myVar send tcp 10.1.1.10 6970 "{status}\x0D" reply  
  
if (get var myVar == "option1") {  
    <do something>  
} elseif (get var myVar == "option2") {  
    <do something>  
} else if (get var myVar == "option3") {  
    <do something>  
} else {  
    <do something>  
}  
  
set ui_label myControl lbl01 text get var myVar
```

Using a variable as boolean to set/store a button state:

```
set var myVar false  
  
if (get var Test01) {  
    set ui_button myControl btn01 position up  
} else {  
    set ui_button myControl btn01 position down  
}
```