

# DC192\_PC192 Command Set

## Revisions

No	Issue Date	Version	Description	Apply Firmware
1	2013/07/02	1.0	First version.	
2	2014/01/06	1.1	1. Set Audio Microphone Volume: Add command 2. Call Audio Microphone Volume: Add command 3. Set Audio Out Volume/ Call Audio Out Volume: Revise the comment	DGA106

### \*Notice:

1. The RS-232 command list is for DC192\_PC192.
2. The Yellow highlight  means the latest update
3. The Blue highlight  means the deleted item.

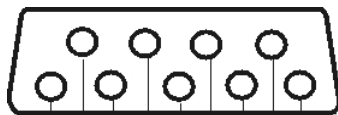
### 1. Communication Protocol

Transmit Method: Asynchronous Interface Half Duplex Serial Communication.

- Transmit Speed: 9600bps
- Start bit: 1Bit
- Parity Check: NA
- Data Bit: 8Bit
- Stop Bit: 1Bit

### 2. The wire diagram

The RS232 wire diagram between presenter and remote controller as below



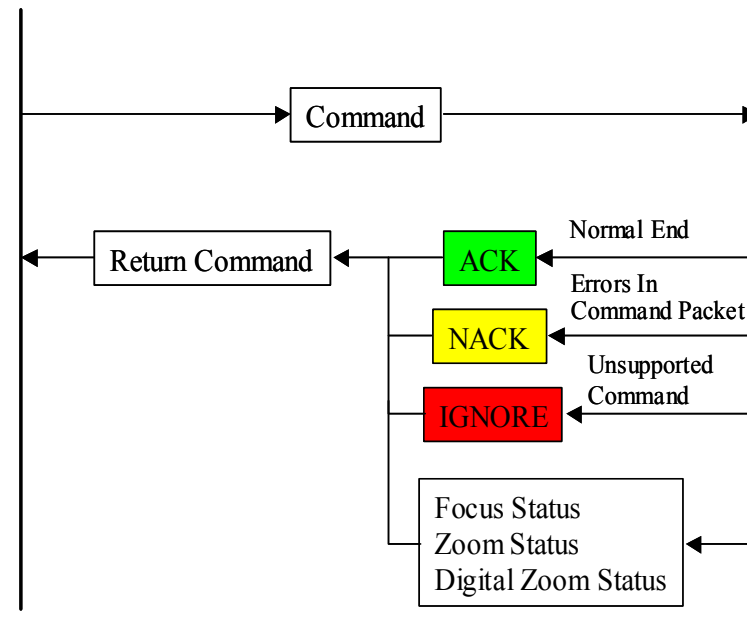
Female

CONNECTIONS		
DB 9F	COLOUR	DB 9F
2	-	3
3	-	2
5	-	5
SHELL	DRAIN	SHELL

### 3. Communication Program

Host Controller

Camera Module



## 4. Command Format

### 4.1 Command Packet Format

1Byte	STX	Start Of Command	: A0h
2Byte	Command	Command	: 00~FFh
3Byte	Parameter1	Data	: 00~FFh
4Byte	Parameter2	Data	: 00~FFh
5Byte	Parameter3	Data	: 00~FFh
6Byte	ETX	End Of Command	: AFh

### 4.2 Return Packet Format

1Byte	STX	Start Of Command	: A0h
2Byte	Command	Command	: 00~ FFh
3Byte	Parameter1	Data	: 00~FFh
4Byte	Parameter2	Data	: 00~FFh
5Byte	Status	<Bit>    <Contents>	
		7	(0)
		6	Iris            Moving Status (1)/(0)Stop Status
		5	Zoom            Moving Status (1)/(0)Stop Status
		4	Focus            Moving Status (1)/(0)Stop Status
		3	(0)
		2	(0)
		1	Communication Response 0=ACK/1=NAK/2=IGNORE/3=Not Used
		0	Communication Response
6Byte	ETX	End Of Command	: AFh
Communication Response		Bit1	Bit0    Status

ACK	0	0	Capable Of Normal End Or Normal Operation
NAK	0	1	Detecting Errors In Command Packet(STX, ETX Byte)
			Parity Error ,Framing Error, Overrun Error
			Data in out of specified range
IGNORE	1	0	Cannot execute the transmitted command for other operations
			Unsupported command
Not Used	1	1	

## 5. Command Packet

Item	Function	PC AP to DC192 Master command format						Comment
		1B	2B	3B	4B	5B	6B	
1	Preset/Factory Reset	A0h	03h	P1	P2	00h	AFh	P1=0, P2=00/01:Preset Load/Save P1=1:Factory Reset
2	Slide show On/Off	A0h	04h	P1	00h	00h	AFh	P1=00/01:Off/On
3	Slide show Delay	A0h	06h	P1	00h	00h	AFh	P1=0~5:0.5sec/1sec/3sec/5sec/10sec/Manual
4	Image/Record Quality	A0h	07h	P1	00h	00h	AFh	P1=00/01/02:High/Medium/Low
5	Copy From Nand to SD	A0h	08h	00h	00h	00h	AFh	
6	Zoom Stop	A0h	10h	00h	00h	00h	AFh	
7	Zoom Start (No AF)	A0h	11h	P1	P2	00h	AFh	P1=00/01:Tele/Wide
8	Zoom Direct (No AF)	A0h	11h	P1	P2	00h	AFh	p1:low byte p2:high byte Value:0~855 Optical Zoom: XGA:805 SXGA:802 WXGA:802 1080P:795 NTSC:810 PAL:810
9	Auto Erase	A0h	14h	P1	00h	00h	AFh	P1=00/01:Auto Erase off/on
10	Focus Stop	A0h	19h	00h	00h	00h	AFh	
11	Focus Start	A0h	1Ah	P1	P2	00h	AFh	P1=00/01:Near/Far      P2=00~06:Speed
12	Focus Direct	A0h	1Bh	P1	P2	P3	AFh	P1(LowByte)P2(HighByte)=0~160(Dec), P3=00~06:Speed
13	Zoom Start (with AF)	A0h	1Dh	P1	P2	00h	AFh	P1=00/01:Tele/Wide
14	Zoom Direct(with AF)	A0h	1Dh	P1	P2	00h	AFh	p1:low byte p2:high byte Value:0~855

Item	Function	PC AP to DC192 Master command format						Comment
		1B	2B	3B	4B	5B	6B	
								Optical Zoom: XGA:805 SXGA:802 WXGA:802 1080P:795 NTSC:810 PAL:810
15	White Balance (AWB, Auto Tune)	A0h	22h	P1	00h	00h	AFh	P1=00/01:Auto Tune/AWB
16	Set Pan Mode	A0h	26h	P1	00h	00h	AFh	P1=00/01 : off/on
17	Mask Mode	A0h	27h	P1	00h	00h	AFh	p1=0:Disable 1:Mask 2:Spotlight
18	Freeze	A0h	2Ch	P1	00h	00h	AFh	P1=00/01:Off/On
19	Brightness Contorl	A0h	30h	P1	00h	00h	AFh	P1=00/01:Auto/Manua P2=60/50Hz: 00~147
20	LogoDelay	A0h	34h	P1	00h	00h	AFh	P1=4~30 (sec)
21	Language Select	A0h	38h	P1	00h	00h	AFh	P1=0~20(Dec): 0:English/ 1:Traditional Chinese/ 2:Simplified Chinese/ 3:German/ 4:French/ 5:Spanish/ 6:Russian/ 7:Dutch/ 8:Finnish/ 9:Polish/ 10:Italian/ 11:Portuguese/ 12:Swedish/ 13:Danish/ 14:Czech/ 15:Arabic/ 16:Japanese/ 17:Korean/ 18:Greek/ 19:Reserved/ 20:Latvia
22	Brightness Step	A0h	39h	P1	00h	00h	AFh	P1=00/01:-1/+1
23	Source live/PC	A0h	3Ah	P1	00h	00h	AFh	00 : Camera 01 : PC

Item	Function	PC AP to DC192 Master command format						Comment
		1B	2B	3B	4B	5B	6B	
								02 : Source OFF
24	Disable Digital Zoom After Optical Zoom	A0h	40h	P1	00h	00h	AFh	P1=00/01:Disable/Enable
25	Call Master Version	A0h	45h	00h	00h	00h	AFh	Version code: P1 P2 P3(ASCII)
26	Call AE Status	A0h	46h	00h	00h	00h	AFh	P1=00/01:Off/On
27	Enable/Disable LOGO Image	A0h	47h	P1	00h	00h	AFh	p1=00/01:default logo/user logo
28	Playback Image Index Change Page	A0h	4Ah	P1	00h	00h	AFh	P1=00/01:Page Up/Page Down
29	All OSD On/Off	A0h	4Bh	P1	00h	00h	AFh	P1=00/01:Off/On
30	Call Slave Version	A0h	4Dh	00h	00h	00h	AFh	Version code: P1 P2 P3(ASCII)
31	Frame Average	A0h	4Eh	P1	00h	00h	AFh	P1=00/01:LCD/DLP
32	Call lamp Status	A0h	50h	00h	00h	00h	AFh	00 : Lamp + Head Led OFF 01 : Lamp + Head Led ON 02 : Lamp ON 03 : Head Led ON
33	Call Text/Photo Status	A0h	51h	00h	00h	00h	AFh	P1=00/01/02:Photo/Text/Gray
34	reg1	A0h	52h	P1	P2	00h	AFh	P1=00/01:Read/Write P2=0x00~0xff
34	reg2	A0h	53h	P1	P2	00h	AFh	
36	reg3	A0h	54h	P1	P2	00h	AFh	
37	Error Code	A0h	55h	P1	00h	00h	AFh	p1=00/01:Show Error Code/Clear Error Code AWB Correction Call AC 50/60 Hz power State.
38	AWB Correction	A0h	56h	00h	00h	00h	AFh	
39	Call AC 50/60Hz power state	A0h	58h	00h	00h	00h	AFh	

Item	Function	PC AP to DC192 Master command format						Comment
		1B	2B	3B	4B	5B	6B	
40	Keypad Detect	A0h	59h	P1	00h	00h	AFh	p1:00/01 :Keypad Detect Stop/Start. (Enable the Debug message at this time, the detection message will be sent via RS232.)
41	Call Zoom Position	A0h	60h	00h	00h	00h	AFh	p1:low byte p2:high byte XGA:805 SXGA:802 WXGA:802 1080P:795 NTSC:810 PAL:810
42	Call Digital Zoom Position	A0h	62h	00h	00h	00h	AFh	p1:low byte p2:high byte XGA:50 SXGA:53 WXGA:53 1080P:60 NTSC:45 PAL:45
43	Call Focus Position	A0h	64h	00h	00h	00h	AFh	P1(LowByte)P2(HighByte)=0~160(Dec)
44	Call Freeze Status	A0h	78h	00h	00h	00h	AFh	P1=00/01:Off/On
45	Call Brightness Position	A0h	89h	00h	00h	00h	AFh	P1=60/50Hz: 00~147(dec)
46	Call Mix Zoom Position	A0h	8Ah	00h	00h	00h	AFh	p1:low byte p2:high byte 0~855 Optical Zoom: XGA:805 SXGA:802 WXGA:802



Item	Function	PC AP to DC192 Master command format						Comment
		1B	2B	3B	4B	5B	6B	
								1080P:795 NTSC:810 PAL:810
47	Call Menu Status	A0h	8Bh	00h	00h	00h	AFh	P1=00/01:Off/On
48	Capture Action	A0h	96h	P1	00h	00h	AFh	00 : Single Capture 01 : Time Lapse 02 : Record 03 : Disabled
49	Capture time	A0h	97h	P1	00h	00h	AFh	P1=00/01/02/03/04/05/06:1hr/2hr/4hr/ 8hr/24hr/48hr/72hr
50	Capture interval	A0h	98h	P1	00h	00h	AFh	00 : 3 sec. 01 : 5 sec. 02 : 10 sec. 03 : 30 sec. 04 : 1 min. 05 : 2 min. 06 : 5 min.
51	Key Function	A0h	A0h	P1	00h	00h	AFh	P1=01/02/03/04/05/06=Enter/Up/Down/Left/Right/Menu
52	Set R/B Gain	A0h	A1h	P1	P2	P3	AFh	P1=01/02:Red Gain/Blue Gain P2(LowByte)P3(HighByte)=0x100~0xFFF(hex):Gain
53	Call R/B Gain	A0h	A2h	P1	00h	00h	AFh	Send : P1=01/02:Red Gain/Blue Gain Return : P1(LowByte)P2(HighByte)=0x100~0xFFF(Dec):G

Item	Function	PC AP to DC192 Master command format						Comment
		1B	2B	3B	4B	5B	6B	
								ain
54	AF One Push Trigger	A0h	A3h	01h	00h	00h	AFh	
55	Set Gamma Mode	A0h	A7h	P1	00h	00h	AFh	P1=00/01/02:Photo/Text/Gray
56	Set Image Mode	A0h	A9h	P1	00h	00h	AFh	P1=00/01/02/03:Normal/Slide/Film/Microscope
57	System ON/OFF	A0h	B0h	P1	00h	00h	AFh	P1=00/01:Off/On
58	Power	A0h	B1h	P1	00h	00h	AFh	P1=00/01:Off/On
59	Capture	A0h	B2h	P1	00h	00h	AFh	P1=00/01:Capture/Record
60	Playback thumbnail	A0h	B3h	P1	00h	00h	AFh	P1=00:Thumbnail
61	Preview rotation	A0h	B4h	P1	00h	00h	AFh	P1=00/01/02/03:Rotate 0/180/Flip/Mirror
62	Delete	A0h	B6h	P1	00h	00h	AFh	P1=00/01/02: Delete one/Delete all/Format
63	call system status	A0h	B7h	00h	00h	00h	AFh	P1(system status)=00/01: not ready/ Read to receive the command P2(Power Status)=00/01:Off/On
64	Lamp On/Off	A0h	C1h	P1	00h	00h	AFh	00 : Lamp + Head Led OFF 01 : Lamp + Head Led ON 02 : Lamp ON 03 : Head Led ON
65	Firmware Upgrade	A0h	CBh	P1	00h	00h	AFh	P1=00/01:osd/no osd
66	Set Audio Microphone Volume	A0h	D4h	P1	00h	00h	AFh	P1=0~16(Dec):Volume
67	Call Audio Microphone Volume	A0h	D5h	00h	00h	00h	AFh	P1=0~16(Dec):Volume

Item	Function	PC AP to DC192 Master command format						Comment
		1B	2B	3B	4B	5B	6B	
68	Set Audio Out Volume	A0h	D6h	P1	00h	00h	AFh	P1=0~31(Dec):Volume
69	Call Audio Out Volume	A0h	D7h	00h	00h	00h	AFh	P1=0~31(Dec):Volume

## 6. Return Packet

Item	Function	PC AP to DC192 Master command format						Comment
		1B	2B	3B	4B	5B	6B	
1	Preset/Factory Reset	A0h	03h	P1	P2	St.	AFh	P1=0, P2=00/01:Preset Load/Save P1=1:Factory Reset
2	Slide show On/Off	A0h	04h	P1	00h	St.	AFh	P1=00/01:Off/On
3	Slide show Delay	A0h	06h	P1	00h	St.	AFh	P1=0~5:0.5sec/1sec/3sec/5sec/10sec/Manual
4	Image/Record Quality	A0h	07h	P1	00h	St.	AFh	P1=00/01/02:High/Medium/Low
5	Copy From Nand to SD	A0h	08h	00h	00h	St.	AFh	
6	Zoom Stop	A0h	10h	00h	00h	St.	AFh	
7	Zoom Start (No AF)	A0h	11h	P1	P2	St.	AFh	P1=00/01:Tele/Wide
8	Zoom Direct (No AF)	A0h	11h	P1	P2	St.	AFh	p1:low byte p2:high byte Value:0~855 Optical Zoom: XGA:805 SXGA:802 WXGA:802 1080P:795 NTSC:810 PAL:810
9	Auto Erase	A0h	13h	P1	00h	St.	AFh	P1=00/01:Auto Erase off/on
10	Focus Stop	A0h	19h	00h	00h	St.	AFh	
11	Focus Start	A0h	1Ah	P1	P2	St.	AFh	P1=00/01:Near/Far      P2=00~06:Speed
12	Focus Direct	A0h	1Bh	P1	P2	St.	AFh	P1(LowByte)P2(HighByte)=0~160(Dec), P3=00~06:Speed
13	Zoom Start (with AF)	A0h	1Dh	P1	P2	St.	AFh	P1=00/01:Tele/Wide
14	Zoom Direct(with AF)	A0h	1Dh	P1	P2	St.	AFh	p1:low byte p2:high byte Value:0~855 Optical Zoom:

Item	Function	PC AP to DC192 Master command format						Comment
		1B	2B	3B	4B	5B	6B	
								XGA:805 SXGA:802 WXGA:802 1080P:795 NTSC:810 PAL:810
15	White Balance (AWB, Auto Tune)	A0h	22h	P1	00h	St.	AFh	P1=00/01:Auto Tune/AWB
16	Set Pan Mode	A0h	26h	P1	00h	St.	AFh	P1=00/01 : off/on
17	Mask Mode	A0h	27h	P1	00h	St.	AFh	p1=0:Disable 1:Mask 2:Spotlight
18	Freeze	A0h	2Ch	P1	00h	St.	AFh	P1=00/01:Off/On
19	Brightness Contorl	A0h	30h	P1	00h	St.	AFh	P1=00/01:Auto/Manua P2=60/50Hz: 00~147
20	LogoDelay	A0h	32h	P1	00h	St.	AFh	P1=4~30 (sec)
21	Language Select	A0h	38h	P1	00h	St.	AFh	P1=0~18(Dec): English/ Traditional Chinese/ Simplified Chinese/ German/ French/ Spanish/ Russian/ Dutch/ Finnish/ Polish/ Italian/ Portuguese/ Swedish/ Danish/ Czech/ Arabic/ Japanese/ Korean/ Greek
22	Brightness Step	A0h	39h	P1	00h	St.	AFh	P1=00/01:-1/+1
23	Source live/PC	A0h	3Ah	P1	00h	St.	AFh	00 : Camera 01 : PC 02 : Source OFF
24	Disable Digital Zoom After Optical Zoom	A0h	40h	P1	00h	St.	AFh	P1=00/01:Disable/Enable

Item	Function	PC AP to DC192 Master command format						Comment
		1B	2B	3B	4B	5B	6B	
25	Call Master Version	A0h	45h	P1	P2	P3	AFh	Version code: P1 P2 P3(ASCII)
26	Call AE Status	A0h	46h	P1	00h	St.	AFh	P1=00/01:Off/On
27	Enable/Disable LOGO Image	A0h	47h	P1	00h	St.	AFh	p1=00/01:default logo/user logo
28	Playback Image Index Change Page	A0h	4Ah	P1	00h	St.	AFh	P1=00/01:Page Up/Page Down
29	All OSD On/Off	A0h	4Bh	P1	00h	St.	AFh	P1=00/01:Off/On
30	Call Slave Version	A0h	4Dh	P1	P2	P3	AFh	Version code: P1 P2 P3(ASCII)
31	Frame Average	A0h	4Eh	P1	00h	St.	AFh	P1=00/01:LCD/DLP
32	Call lamp Status	A0h	50h	P1	00h	St.	AFh	00 : Lamp + Head Led OFF 01 : Lamp + Head Led ON 02 : Lamp ON 03 : Head Led ON
33	Call Text/Photo Status	A0h	51h	P1	00h	St.	AFh	P1=00/01/02:Photo/Text/Gray
34	reg1	A0h	52h	P1	P2	St.	AFh	P1=00/01:Read/Write P2=0x00~0xff
34	reg2	A0h	53h	P1	P2	St.	AFh	
36	reg3	A0h	54h	P1	P2	St.	AFh	
37	Error Code	A0h	55h	00h	00h	St.	AFh	p1=00/01:Show Error Code/Clear Error Code
38	AWB Correction	A0h	56h	00h	00h	St.	AFh	AWB Correction
39	Call AC 50/60 Hzpower state	A0h	58h	00h	00h	St.	AFh	Call AC 50/60 Hz power State.
40	Keypad Detect	A0h	59h	00h	00h	St.	AFh	p1:00/01 :Keypad Detect Stop/Start. (Enable the Debug message at this time, the detection message will be sent via RS232.)
41	Call Zoom Position	A0h	60h	P1	P2	St.	AFh	p1:low byte p2:high byte XGA:805 SXGA:802

Item	Function	PC AP to DC192 Master command format						Comment
		1B	2B	3B	4B	5B	6B	
								WXGA:802 1080P:795 NTSC:810 PAL:810
42	Call Digital Zoom Position	A0h	62h	P1	00h	St.	AFh	p1:low byte p2:high byte XGA:50 SXGA:53 WXGA:53 1080P:60 NTSC:45 PAL:45
43	Call Focus Position	A0h	64h	P1	P2	St.	AFh	P1(LowByte)P2(HighByte)=0~160(Dec)
44	Call Freeze Status	A0h	78h	P1	00h	St.	AFh	P1=00/01:Off/On
45	Call Brightness Position	A0h	89h	P1	00h	St.	AFh	P1=60/50Hz: 00~147(dec)
46	Call Mix Zoom Position	A0h	8Ah	P1	P2	St.	AFh	p1:low byte p2:high byte 0~855 Optical Zoom: XGA:805 SXGA:802 WXGA:802 1080P:795 NTSC:810 PAL:810
47	Call Menu Status	A0h	8Bh	P1	00h	St.	AFh	P1=00/01:Off/On
48	Capture Action	A0h	96h	P1	00h	St.	AFh	00 : Single Capture 01 : Time Lapse

Item	Function	PC AP to DC192 Master command format						Comment
		1B	2B	3B	4B	5B	6B	
								02 : Record 03 : Disabled
49	Capture time	A0h	97h	P1	00h	St.	AFh	P1=00/01/02/03/04/05/06:1hr/2hr/4hr/ 8hr/24hr/48hr/72hr
50	Capture interval	A0h	98h	P1	00h	St.	AFh	00 : 3 sec. 01 : 5 sec. 02 : 10 sec. 03 : 30 sec. 04 : 1 min. 05 : 2 min. 06 : 5 min.
51	Key Function	A0h	A0h	P1	00h	St.	AFh	P1=01/02/03/04/05/06=Enter/Up/Down/Left/Right/Menu
52	Set R/B Gain	A0h	A1h	P1	P2	St.	AFh	P1=01/02:Red Gain/Blue Gain P2(LowByte)P3(HighByte)=0x100~0xFFF(hex):Gain
53	Call R/B Gain	A0h	A2h	P1	P2	St.	AFh	Send : P1=01/02:Red Gain/Blue Gain Return : P1(LowByte)P2(HighByte)=0x100~0xFFF(Dec):Gain
54	AF One Push Trigger	A0h	A3h	01h	00h	St.	AFh	
55	Set Gamma Mode	A0h	A7h	P1	00h	St.	AFh	P1=00/01/02:Photo/Text/Gray
56	Set Image Mode	A0h	A9h	P1	00h	St.	AFh	P1=00/01/02/03:Normal/Slide/Film/Microscope
57	System ON/OFF	A0h	B0h	P1	00h	St.	AFh	P1=00/01:Off/On
58	Power	A0h	B1h	P1	00h	St.	AFh	P1=00/01:Off/On



Item	Function	PC AP to DC192 Master command format						Comment
		1B	2B	3B	4B	5B	6B	
59	Capture	A0h	B2h	P1	00h	St.	AFh	P1=00/01:Capture/Record
60	Playback thumbnail	A0h	B3h	P1	00h	St.	AFh	P1=00:Thumbnail
61	Preview rotation	A0h	B4h	P1	00h	St.	AFh	P1=00/01/02/03:Rotate 0/180/Flip/Mirror
62	Delete	A0h	B6h	P1	00h	St.	AFh	P1=00/01/02: Delete one/Delete all/Format
63	call system status	A0h	B7h	P1	P2	St.	AFh	P1(system status)=00/01: not ready/ Read to receive the command P2(Power Status)=00/01:Off/On
64	Lamp On/Off	A0h	C1h	P1	00h	St.	AFh	00 : Lamp + Head Led OFF 01 : Lamp + Head Led ON 02 : Lamp ON 03 : Head Led ON
65	Firmware Upgrade	A0h	CBh	P1	00h	St.	AFh	P1=00/01:osd/no osd
66	Set Audio Microphone Volume	A0h	D4h	P1	00h	St.	AFh	P1=0~16(Dec):Volume
67	Call Audio Microphone Volume	A0h	D5h	P1	P2	St.	AFh	P1=0~16(Dec):Volume
68	Set Audio Out Volume	A0h	D6h	P1	00h	St.	AFh	P1=0~31(Dec):Volume
69	Call Audio Out Volume	A0h	D7h	P1	P2	St.	AFh	P1=0~31(Dec):Volume

\*\* St : 0 =Action Succeed, 1= NAK (No Action), 2 = Ignore (Command is not in the command list.)