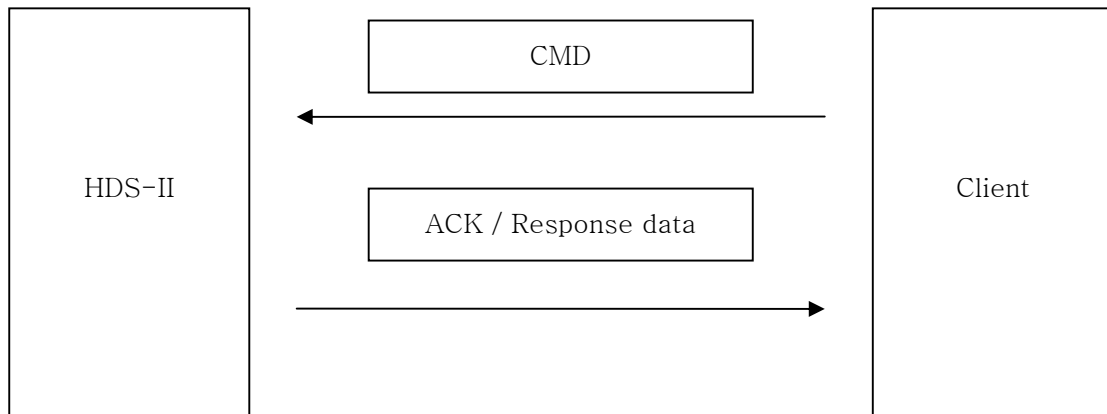
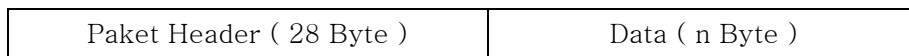


# HDS-II Network Protocol

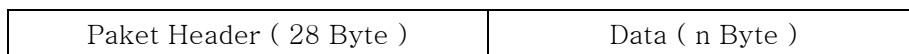
- You may access the HDS system thru network so as to change the settings. The client system sends a command to the HDS system and the HDS system response as an ACK or as the data requested.



1) CMD Packet consists 28 bytes of header and various length of data part.



2) ACK or response data consists of 28 bytes of header and various length of data.



3) Packet Header (28 Byte) includes the following information.

Structure	Sub-Structure	Name	Type	Size(Byte)	Description
T_PKHEAD	T_MINPKHD tH	dwTAG	DWORD	4	'BOX1' Tag (0x584f4231)
		dwSIZE	DWORD	4	PK Data Size (Max:49152)
	T_CMDPKHD tC	wTYPE	WORD	2	Command Type (D,N,X)
		wCMD	WORD	2	Command
		nRET	INT	4	Command Return Value
		dwCMD_TICK	DWORD	4	Send Tick Count
		dwSND_CNT	DWORD	4	Send Counter
		wRESERVED	WORD	2	Current argument Size
		wCSUM	WORD	2	Check Sum Value

- dwTAG : 0x584f4231 ('1BOX') Packet Tag

- dwSIZE : 1 Packet Data Size (Max : 49152) Header Size included

- wTYPE : Packet Type

D : DEBUG TYPE COMMAND

N : NORMAL TYPE COMMAND

X : DISCONNECT COMMAND

- wCMD : Command

DEFINE	VALUE	Description
PK_LOG_IN	0x3130	'10' LOGIN
PK_LOG_OUT	0x3131	'11' LOGOUT
PK_SYS_STAT	0x3132	'12' STATUS
PK_SRQ_TIME	0x3231	'21' DATE TIME CONTROL
PK_SRQ_PTZ	0x3232	'22' PTZ LIST CONTROL
PK_SWR_LIVE	0x3330	'30' SETUP LIVE CONTROL
PK_SWR_GENR	0x3331	'31' SETUP GENERAL CONTROL
PK_SWR_PTZ	0x3332	'32' SETUP PTZ CONTROL
PK_SWR_NETW	0x3333	'33' SETUP NETWORK CONTROL
PK_SWR_DDNS	0x333C	'3<' SETUP DDNS CONTROL
PK_SWR_PMSN	0x3335	'35' SETUP PERMISN CONTROL
PK_SWR_SYST	0x333B	'3:' SETUP SYSTEM CONTROL
PK_SWR_UPDT	0x335A	'3Z' SETUP UPDATE CONTROL
PK_LIV_CTRL	0x3531	'51' LIVE CONTROL
PK_LIV_CLOR	0x3532	'52' LIVE CONTROL
PK_PTZ_CMD	0x3630	'60' PTZ COMMAND
PK_HW_ACS	0x6430	'D0' HARDWARE ACCESS

- wRET : Response.

DEFINE	VALUE	Description
PK_ACK	0	FUNC GOOD
PK_NCK	-1UL	FUNC FAIL
PK_PCK	-5UL	LOG-IN FAIL

- dwCMD\_TICK : Send Time Tick

- dwSND\_CNT : Packet Send Count

- wRESERVED : Not User

- wCSUM : Packet CheckSum

$$wCSUM = dwTAG + dwSIZE + wTYPE + wCMD + nRET;$$

#### 4) Functions

##### 1] Log-In Command

- Client system sends the following packet tot the HDS system to log in.

\* If login is successful, the HDS system sends the status of video on/off to the client system once in 3 seconds.

If login is not successful, then the HDS system sends PK\_PCK(-5UL) to the client system.

\* Data structure (68 Byte): client -> HDS system.

Structure	Name	Type	Size	Description
T_LOG_CMD_ARG	dwLINE_TYPE	DWORD	4	Type
	bIDNT[32]	BYTE	32	Log ID
	bPSWD[32]	BYTE	32	Password

##### 2] Log-Out

- Client system terminates the connection with the HDS system sending the following data.

\* The HDS system sends back PK\_ACK(0UL) to the client system.

\* Data structure (68 Byte): client -> HDS system.

Structure	Name	Type	Size	Description
T_LOG_CMD_ARG	dwLINE_TYPE	DWORD	4	Type
	bIDNT[32]	BYTE	32	Log ID
	bPSWD[32]	BYTE	32	Password

### 3] System Status

- The HDS system sends the following packet to the client system.
- \* This packet includes the state of video loss, hidden cameras and frame rate.

\* Data structure (20 Byte): HDS system -> client

Structure	Name	Type	Size	Description
T_SYS_STAT_ARG	wVID_LOSS_BITS	WORD	2	Video On(1) / Off(0)
	wVID_HIDN_BITS	WORD	2	Hidden(1)/Shown(0)
	btVID_FPS_TBL[MAX_AV_16CH]	BYTE	16	Frame rates

- wVID\_LOSS\_BITS : The status of camera.
- wVID\_HIDN\_BITS : Hidden camera
- btVID\_FPS\_TBL : Frame rate

### 4] Time Status

- Retrieve the current time value from HDS system.
- \* HDS also replies with the same packet structure with the time information.

\* Packet Structure (4 Byte): Client <-> HDS System

Structure	Name	Type	Size	Description
Date & Time	Year	Bit	6	Year (2005 ~ 2069)
	Mon	Bit	4	Mon (1 ~ 12)
	Day	Bit	5	Day (1 ~ 31)
	Hour	Bit	5	Hour (0 ~ 23)
	Min	Bit	6	Min (0 ~ 59)
	Sec	Bit	6	Sec (0 ~ 59)

## 5] PTZ Table

- Client requests the list of PTZ device that the HDS system supports.

\* HDS replies to the client with the list of PTZ on the following data structure.

\* Packet structure (64 Byte X nEA): Client <-> HDS System

		Type	Size	Description
PTZ List	PTZ List 0	BYTE	64	
	PTZ List 1	BYTE	64	
	....	BYTE	..	
	PTZ List n	BYTE	64	

## 6] Live Setup

- Changes the attributes of live image of HDS system.

\* HDS system replies with PK\_ACK if the request is done or with PK\_PCK when the request was not completed.

\* Packet structure (644 Byte): Client -> HDS system.

Structure	Name	Type	Size	Description
T_LIVE_ST	m_bOSD_ONOFF	BYTE	1	OSD On/Off
	m_bSW_SEC	BYTE	1	Switch Time
	m_bSTA_DIV	BYTE	1	Start Division
	m_bSTA_CHN	BYTE	1	Start Channel Numer
	m_tLV[MAX_AV_16CH]	T_LV01_ST	640	Camera Information (40Byte) Struct T_LV01_ST { DWORD m_dwCH; // Channel BYTE m_bBRI; // Bright BYTE m_bCON; // Contrast BYTE m_bSHA; // Shapness BYTE m_bSAT; // Saturation CHAR m_szCAM_NAME[32]; // Cam Name }

## 7] General System Option Setup

- Changes the power-related settings.

\* PK\_ACK: Done, PK\_PCK: Fail.

\* Packet Structure (16 Byte): Client -> HDS system.

Structure	Name	Type	Size	Description
T_GENR_ST	m_bPWR_RET_ONOFF	BYTE	1	Automatic Power On: 0(off), 1(on)
	m_bWAT_DOG_ONOFF	BYTE	1	WATCH DOG ENABLE: 0(off), 1(on)
	m_bDOG_TIME	BYTE	1	WATCH DOG RESET TIME <3 – 99 sec.>
	m_bFORM	BYTE	1	DATE FORMAT : 0<YMD>, 1<DMY>

## 8] PTZ Option Setup

- Configures the PRZ communication protocol.

\* Success: PK\_ACK, Fail: PK\_PCK.

\* Packet Structure (16 Byte)

Structure	Name	Type	Size	Description
T_PTZX_ST	m_btID[MAX_AV_16CH]	BYTE	16	PTZ ID
	m_btTYPE[MAX_AV_16CH]	BYTE	16	PTZ Protocol Type
	m_dtBAUD[MAX_AV_16CH]	DWORD	4	PTZ Baudrate
	m_btSPED[MAX_AV_16CH]	BYTE	16	PTZ Speed

## 9] Network Option Setup

- Client sends the following command to change the settings of HDS.

\* If the command succeeds, HDS returns PK\_ACK, PK\_PCK otherwise.

\* Packet Structure (88 Byte)

Structure	Name	Type	Size	Description
T_NETW_ST	m_bNETTYPE	BYTE	1	Network Type (OFF/Fix-IP/DHCP/ADSL)
	m_bRESERVE[3]	BYTE	3	Dummy
	m_szADSLID[32]	CHAR	32	ADSL ID
	m_szADSLPW[32]	CHAR	32	ADSL PASSWORD
	m_wPORT	DWORD	4	Network Port Number (Default:37474)
	m_dwIP	DWORD	4	IP Address
	m_dwGW	DWORD	4	Gateway
	m_dwSM	DWORD	4	Subnet Mask
	m_dwDNS_SVR	DWORD	4	DNS Server Address

## 10] DDNS Option Setup

- Client sends the following command to setup DDNS.

\* If the command succeeds, HDS returns PK\_ACK, PK\_PCK otherwise.

\* Packet Structure (100 Byte)

Structure	Name	Type	Size	Description
T_DDNS_ST	m_bDDNS_ONOFF	BYTE	1	DDNS ON/OFF
	m_bDDNS_UPDATE_TIME	BYTE	1	DDNS Update Time (0/5/10/30/60Min)
	m_bRESERVE_0	BYTE	1	Dummy
	m_bRESERVE_1	BYTE	1	Dummy
	m_szDDNS_HOSTNAME[32]	DWORD	32	DDNS HostName
	m_szDDNS_ID[32]	DWORD	32	DDNS Server ID
	m_szDDNS_PWD[32]	DWORD	32	DDNS Password

## 11] Permission Setup

- Client sends the following command to change the permission.

\* If the command succeeds, HDS returns PK\_ACK, PK\_PCK otherwise.

\* Packet Structure (44 Byte X 8)

Structure	Name	Type	Size	Description
T_PMSN_ST	m_tPM[D_MAX_USR]	T_PM01_ST	44	- Permission 구조체 Struct T_PM01_ST { CHAR m_szPW[32]; BYTE m_bSETUP; BYTE m_bSEARCH; BYTE m_bNETWORK; BYTE m_bPOWER; BYTE m_bPTZ; BYTE m_bIM_REC; BYTE m_bHIDN_CAM; BYTE m_bRESERVED1; DWORD m_dwRESERVED2; }

- m\_szPW : Password
- m\_bSETUP : Setup Permission
- m\_bSEARCH : Search Permission
- m\_bNETWORK : Network Permission
- m\_bPOWER : Power On/Off Permission
- m\_bPTZ : PTZ control permission
- m\_bIM\_REC : Recording setup permission
- m\_bHIDN\_CAM : Camera Hide permission
- m\_bRESERVED1 : Dummy
- m\_dwRESERVED2 : Dummy

## 12] System Setup

- Client sends the following command to change the system settings.

\* If the command succeeds, HDS returns PK\_ACK, PK\_PCK otherwise.

\* Packet Structure (20 Byte)

Structure	Name	Type	Size	Description
T_SYST_ST	m_dwDIVISION	DWORD	4	SCREEN DIVISION
	m_dwSYSID	DWORD	4	System ID
	m_btMACID[8]	BYTE	8	H/W MAC ADDR : 2BYTE NO USE
	m_dwHIDEN_BITS	DWORD	4	HIDDEN CAMERA BIT:

## 13] System Config Save

- Client sends the following command to save the current configuration.

\* If the command succeeds, HDS returns PK\_ACK, PK\_PCK otherwise.

\* Packet Structure (0 Byte)

## 14] System Setup

- Client sends the following command to change the screen division.

\* If the command succeeds, HDS returns PK\_ACK, PK\_PCK otherwise.

\* Packet Structure (4 Byte)

Structure	Name	Type	Size	Description
T_LIVE_CTRL	wDIV_MODE	WORD	2	CURRENT DIVISION
	wDIV_STCH	WORD	2	FIRST Channel

## 15] Live Video Setup

- Client sends the following command to change the setting of Live Video.

\* If the command succeeds, HDS returns PK\_ACK, PK\_PCK otherwise.

\* Packet Structure (72 Byte)

Structure	Name	Type	Size	Description
T_LIVE_CLOR	wBRI_UPDT_BIT	WORD	2	Bright Update Bit
	wCON_UPDT_BIT	WORD	2	Contrast Update Bit
	wSAT_UPDT_BIT	WORD	2	Saturation Update Bit
	wSHA_UPDT_BIT	WORD	2	Sharpness Update Bit
	btBRI[MAX_AV_16CH]	BYTE	16	Bright Value
	btCON[MAX_AV_16CH]	BYTE	16	Contrast Value
	btSAT[MAX_AV_16CH]	BYTE	16	Saturation Value
	btSHA[MAX_AV_16CH]	BYTE	16	Sharpness Value

## 16] PTZ Control

- Client sends the following command to control the PTZ.

\* If the command succeeds, HDS returns PK\_ACK, PK\_PCK otherwise.

\* Packet Structure (12 Byte)

Structure	Name	Type	Size	Description
T_PTZ_CMD_ARG	dwCMD	DWORD	4	COMMAND
	wARG	WORD	2	0:OFF, 1:ON
	wCHInx	WORD	2	CHANNEL
	dwRET	DWORD	4	RESULT

\* PTZ Command

Define	Value	Description
PTZCMD_STAT	1	PTZ status
PTZCMD_LOCK	2	
PTZCMD_LEFT	10	Move to the left.
PTZCMD_RIGHT	11	Move to the right.
PTZCMD_UP	12	Move up.
PTZCMD_DOWN	13	Move down.
PTZCMD_ZOOMI	14	Zoom In
PTZCMD_ZOOMO	15	Zoom Out
PTZCMD_FOC SI	16	Focus In
PTZCMD_FOC SO	17	Focus out
PTZCMD_POWER	18	-

17] Hardware Access CMD

- Client sends the following command to configure the firmware.

\* If the command succeeds, HDS returns PK\_ACK, PK\_PCK otherwise.

\* Packet Structure (24 Byte)

Structure	Name	Type	Size	Description
T_HWACS_CMD_ARG	dwDEV	DWORD	4	Device ID
	dwDEVINX	DWORD	4	Device Index
	dwADDR	DWORD	4	Device Address
	dwDATA	DWORD	4	Data
	dwRET	DWORD	4	Return Value
	dwIO	DWORD	4	IN/OUT

\* Device ID

DEVICE	ID	Description
ACS_GLOBAL	0	Local Bus Device
ACS_VLOG	1	Video Logic
ACS_USB	2	USB
ACS_2804	3	Video Decoder
ACS_25874	4	Video Codec (HDTV Output)
ACS_180	5	MDIN-180
ACS_IIC	10	IIC Device



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