WJ-HD316A/HD309A

Panasonic Alarm protocol

Version 1.01

Jan 13, 2010

Panasonic System Networks Co.,Ltd.

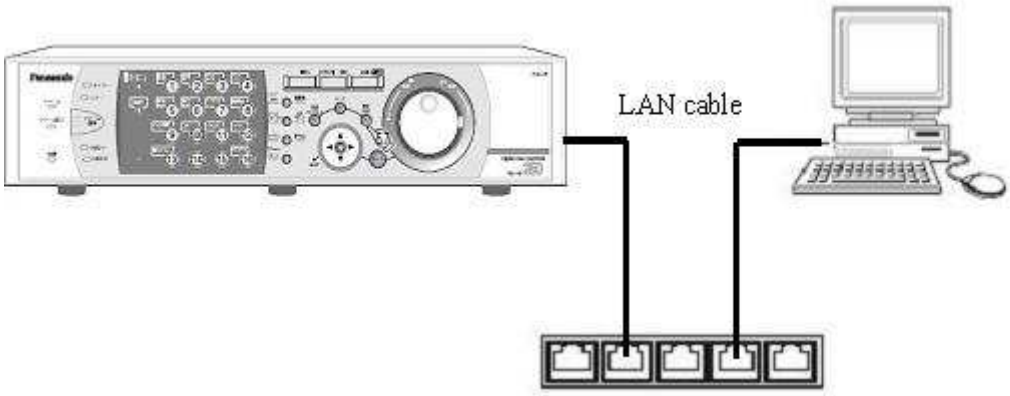
Contents

Version history

Version	Date	Describe
1.00	March 23. 2007	first release
1.01	January 13, 2010	Company name changed

1. Forward

Alarm notification protocol of digital disk recorder (DVR) are utilized from DVR to specified client PC. Alarm trigger of terminal alarm, serial alarm, such as VMD activated by DVR or cameras are sent to client PC. Alarm notification protocol can also send some error messages to Client PC.

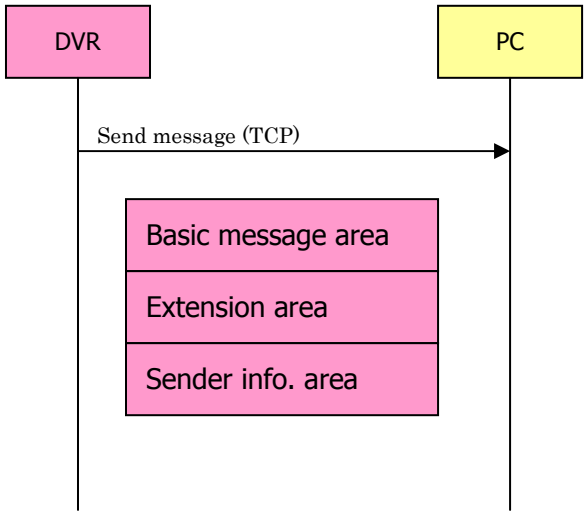


Basic functions:

1) Address alarm activation and error massage to specified devices
2) Add MAC address and time & data information on message data area whenever message data going through devices
3) Support MAC address notification cgi command in order to identify associated MAC address device
4) Can specify port number for specific message address. It is under study to specify each individual port for all of address
5) Can specify number of retry

2. **Alarm message format (Ver 2.0)**

(1) From DVR to client PC



2.1. **Format structure**

Data format is defined as described below

Area	Size [Byte]	Contents	Ver1.0 (*1)	Ver2.0 (*1)
Basic message	20	Ver1.0 Panasonic alarm protocol format	YES	YES
Extension	Scalable	Additional message area other than basic message, such as alarm info, error info. Camera model # and version info included	N/A	YES
Sender info area	24	Sender info, such as MAC address, time & date. Any network devices add their own sender info, on sender info, area every time they receive data	N/A	YES

(*1) WJ-HD316A/HD309A only supports Ver2.0 format.

Identifier

Value	Area	Reference
0x0000	Back up area	Back up area
0x0001	Extension	
0x0002	Sender info.	For IPv4
0x0003	Sender info.	For IPv6 （allocate for future use）
0x0004～0xFFFF	Back up area	Back up area

2.1.1. **Basic message area**

(Data size : 20 byte)

Item		Size	Value	Detail
Basic message area	Sender IP address(IPv4)	2Word	IP address	Sender IP address (IPv4) NULL for IPv6 devices Byte order is big endian
	Log #	1 Word	1 - 0xFFFF	Devices manage the # of this column Count on from 1 to 0xFFFF and go back to 1 again
	Year (BCD)	1Byte	0x00 - 0x99	Sender time information (DVR time information)
	Month (BCD)	1Byte	0x01 - 0x12	
	Day (BCD)	1Byte	0x01 - 0x31	
	Hour (BCD)	1Byte	0x00 - 0x23	
	Minute (BCD)	1Byte	0x00 - 0x59	
	Second (BCD)	1Byte	0x00 - 0x59	
	Alarm classification (*1)	1Byte	0x00 - 0xFF	First 3bit: Alarm classification Last 5bit Alarm terminal #
	Camera No. (*1)	1Byte	0x00 - 0xFF	DVR: camera # under DVR control More than 0xFF or no camera #: 0x00
	Padding	1Byte	0x00	0x00
	Extension area flag	1Byte	0x80	Fixed value
	Video saving flag	1Byte	0x00	Fixed value
	# of picture	1Byte	0x00	Fixed value
	Frame rate	1Byte	0x00	Fixed value
	# of pre pictures	1Byte	0x00	Fixed value

(*1) Refer of 2.1.2 Extension area

2.1.2. **Extension area**

(Data size : Scalable Up to 512 byte)

Item		Size	Value	Detailed
Extension area	Identifier	2 Bytes	0x0001	Fixed value (Extension area)
	Size	2 Bytes		Size of format including header information
	Category	1 Byte	0x02	Define product category
	Message ID	1 Byte	0x00 - 0xFF	Message ID
	Padding	2 Bytes	0x00	
	Expansion area	Scalable	-	Message data Scalable size, maximum 504 (Minimum 4) byte. 4 Byte / unit

Extension

No	Message	Extension			Basic message area		
		Category	Message ID	Message (ASCII)	Alarm classification		Camera No.
					Alarm classification bit7,6,5	Alarm terminal #	
1	Terminal alarm (DVR)	0x02	0x01	TERMINAL ALARM **ch	111	00001-10000	0x01-0x10
2	Command alarm	0x02	0x02	COMMAND ALARM **ch	111	00000	0x01-0x10
3	Emergency rec	0x02	0x04	Refer to (*1)	111	00000	0x00
4	VMD alarm	0x02	0x05	VMD ALARM **ch	111	00000	0x01-0x10
5	NORMAL capacity remains warning	0x02	0x0F	HDD-NORMAL CAPACITY REMAINS **%	000	00000	0x00
6		0x02	0x10	HDD-NORMAL IS FULL	000	00000	0x00
7	EVENT capacity remains warning	0x02	0x11	HDD-EVENT CAPACITY REMAINS **%	000	00000	0x00
		0x02	0x12	HDD-EVENT IS FULL	000	00000	0x00
8	COPY area capacity remains warning	0x02	0x13	HDD-COPY CAPACITY REMAINS **%	000	00000	0x00
		0x02	0x14	HDD-COPY IS FULL	000	00000	0x00
9	HDD smart warning	0x02	0x20	DISK WARNING **	000	00000	0x00
10	HDD hour meter warning	0x02	0x21	HDD HOUR METER WARNING	000	00000	0x00
11	HDD auto remove	0x02	0x22	LOGICALLY REMOVED HDD **	000	00000	0x00
12	RAID5 1 down	0x02	0x23	1DOWN HDD *	000	00000	0x00
13	HDD RAID5 recovery failure	0x02	0x25	RAID5 RECOVERY FAILURE *	000	00000	0x00
14	MIRROR recovery failure	0x02	0x28	MIRROR RECOVERY FAILURE *	000	00000	0x00
15	Power loss	0x02	0x30	POWER LOSS	000	00000	0x00

16	FAN error	0x02	0x32	FAN ERROR	000	00000	0x00
17	Thermal error	0x02	0x33	THERMAL ERROR	000	00000	0x00
18	Video loss	0x02	0x34	VIDEO-LOSS **	000	00000	0x01-0x10
19	Video recovery	0x02	0x35	CAM ** VIDEO RECOVERED	000	00000	0x01-0x10
20	Alarm suspend ON	0x02	0xF0	ALARM SUSPEND ON	000	00000	0x00
21	Alarm suspend OFF	0x02	0xF1	ALARM SUSPEND OFF	000	00000	0x00

*1 Camera CH at emergency REC trigger ON

Camera # notification specified in recorder at emergency REC on

	Data								Reference
Specified camera as below Camera 1, Camera 10, Camera 20, Camera 30	32							1	
	0010	0000	0000	1000	0000	0010	0000	0001	Binary
	2	0	0	8	0	2	0	1	Hex
ASCII	32H	30H	30H	38H	30H	32H	30H	31H	ASCII

2.1.3. **Sender info area**

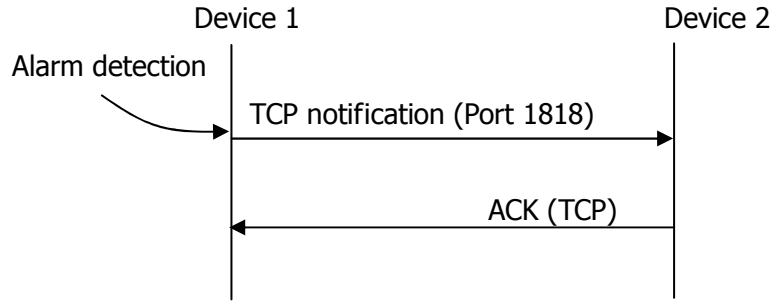
(Data size : 24Byte)

Item		Size	value	Detailed
Sender info. area	Identifier	2 Bytes	0x0002	Fixed (Sender info area)
	Size	2 Bytes	0x18	Data size including header info Fixed value
	MAC address	6 Byte	MAC	MAC address of sender Byte order is big endien
	Camera #	2 Byte	0x0000 - 0xFFFF	DVR: camera # under DVR control (maximum 65534) No camera #: 0x0000
	Year (BCD)	1 Byte	0x00 - 0x99	Time info of sender
	Month (BCD)	1 Byte	0x01 - 0x12	
	Day (BCD)	1 Byte	0x01 - 0x31	
	Hour (BCD)	1 Byte	0x00 - 0x23	
	Minute (BCD)	1 Byte	0x00 - 0x59	
	Second (BCD)	1 Byte	0x00 - 0x59	
	Time zone info ±	1 Byte	0x00, 0x01	Time zone info ±: 0x00 - minus value 0x01 - plus value
	Time zone hour (BCD)	1 Byte	0x00 - 0x23	
	Time zone minute (BCD)	1 Byte	0x00 - 0x59	Time zone info hour and minute: (e.g. : 09:00 in JPN)
	Day light saving info	1 Byte	0x00, 0x01	Daylight saving: 0x00 - Winter time 0x01 - Summer time Other than above: 0x00
	Padding	2 Byte	0x00	

2.1.4. **Detailed message protocol**

Retry interval is 2 seconds # of retry are implemented by application layer.

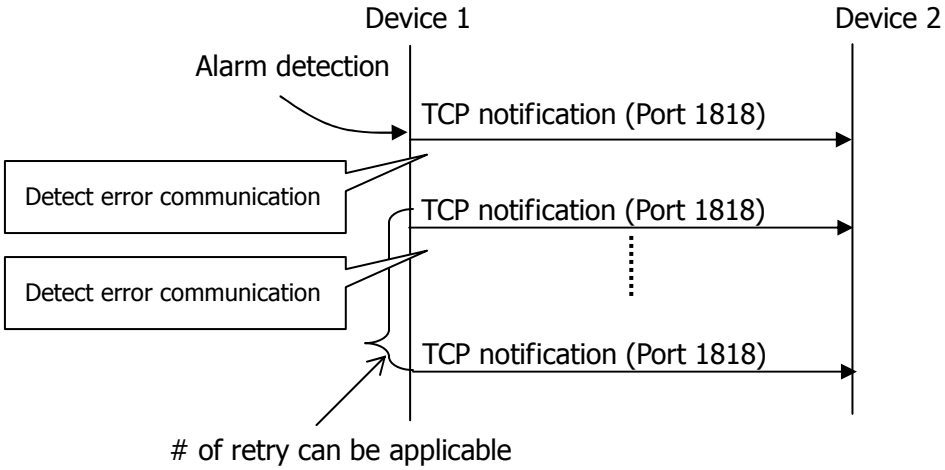
[Normal sequence]



Message sequence

[Recovery process from error communication]

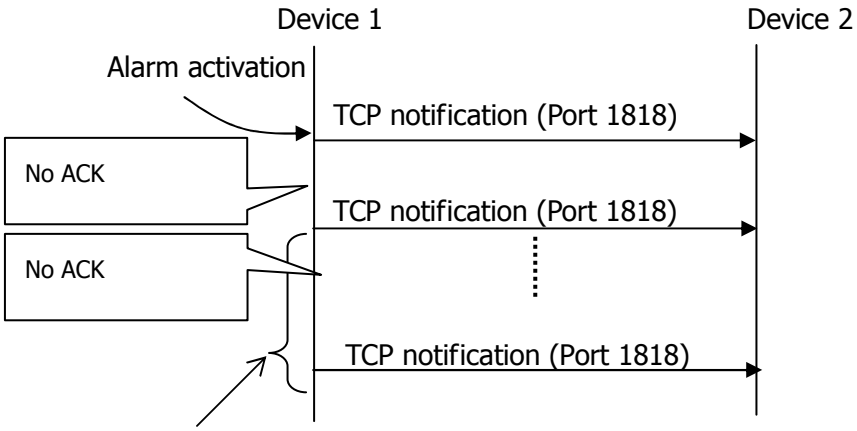
(1) Start to retry TCP notification against error communication



Message sequence at error communication happening (case1)

(2) Start TCP notification retry when ACK error from device 2 is coming

NOTE: If send data is successfully transferred to TCP protocol stuck, device recognize communication is successfully completed and does not start retry



Message sequence at error communication happening (case 2)

3. **Get MAC address**

MAC address is utilized to identify who send message to receiver devices including PC (MAC address is written in sender info area)

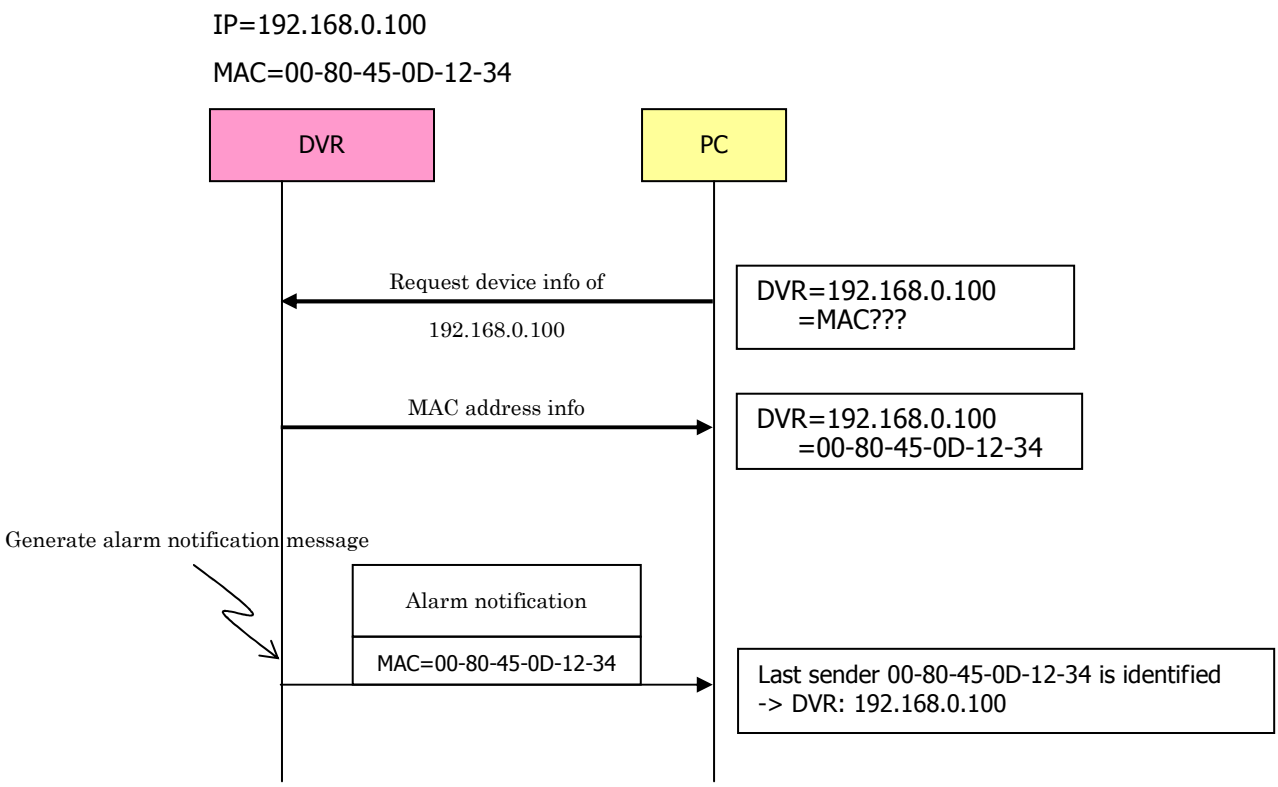
It is necessary to have a mapping table of MAC address and associated IP address (or FQDN) in order to identify sender device

Described below is CGI command set to request device information of message sender from receiver device

Request device info	Detailed
cgi-bin/getinfo	Reply "productinfo.html" for this command <HTML> MAC=00-80-45-0D-12-34 : MAC address VERSION=V1.00 : Software version NAME=WJ-HD316A : model # </HTML> Can put additional info along with above info

Application example

(1) DVR and PC are connected under same subnet



（1） DVR and PC are specified in different subnet. Router conduct route forwarding for multiple DVRs