

# **PS-ALARM**

## **Interface Specifications for DLL**

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i-PRO Co., Ltd.

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## Revision Record

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1.0 R04	Jun. 23, 2010	Update System Environment Update Development Environment Update Package Contents List.
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## 1. Preface

### 1.1. What's PS-ALARM

PS-ALARM is the software library which is provided to help to develop the application to notify TCP alarm notification that is sent from i-PRO Co., Ltd. made security products (Network cameras, Network Disk Recorders, Digital Disk Recorders, Network Interface Units).

PS-ALARM is provided as the dynamic link library (DLL).

### 1.2. Trademarks and Registered Trademarks

Microsoft and Windows are registered trademarks of Microsoft Corporation in U.S. and/or other countries. Other names of companies and product contained in these operating instructions may be trademarks or registered trademarks of their respective owners.

### 1.3. Limitation of liability

- PS-ALARM provides interfaces for the application software notify TCP alarm notification that is sent from i-PRO Co., Ltd. made security products (Network cameras, Network Disk Recorders, Digital Disk Recorders, Network Interface Units), and is not designed to protect against "theft" or "crime" independently.

- The provided sample programs are designed to instruct users how to use the SDK. They are not developed for the purpose of actual surveillance system.

- In not event shall i-PRO Co., Ltd. be liable to any party or any person, except for replacement or reasonable maintenance of the product, for the cases, including but not limited to below;

[1] Any damage and loss, including without limitation, direct or indirect, special, sequential or exemplary, arising out of or relating to the product;

[2] Personal injury or any damage caused by inappropriate use or neglect operation of the user;

[3] Any problems, consequential inconvenience, or loss or damage, arising out of the reverse compiling or reverse engineering of the product;

[4] Any loss or damage, or claims arising out from loss or leak of PS data including video data in the PC;

[5] Any claim or action for damages, brought by any person or organization being a photogenic subject, due to violation of privacy with the result of that surveillance camera's picture, including saved data, for some reason, becomes public or is used for the purpose other than surveillance;

#### 1.4. Abbreviations

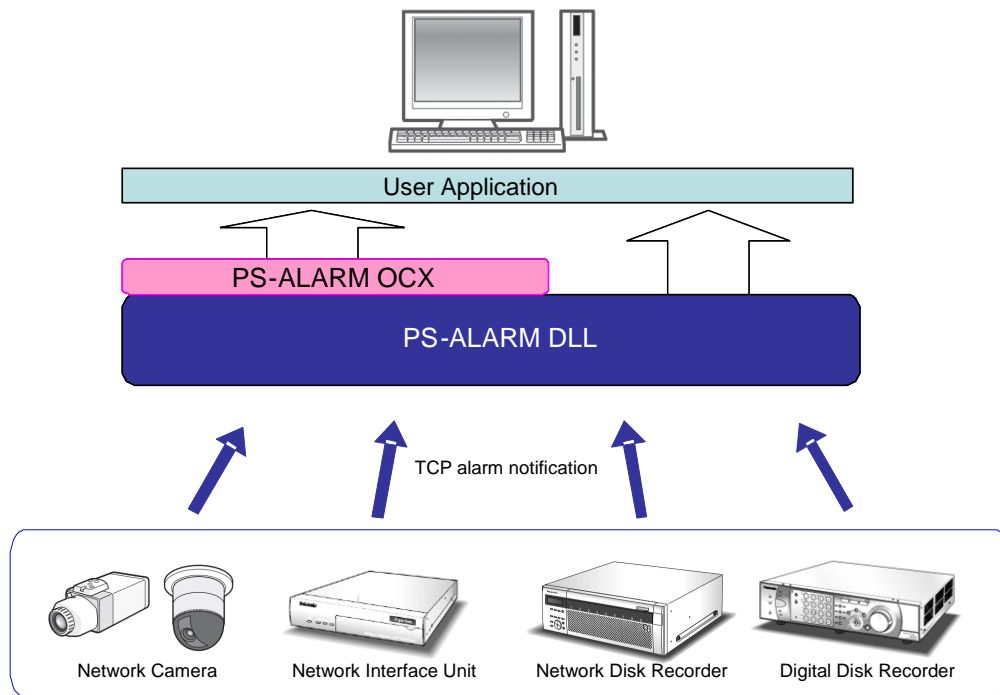
The following abbreviations are used in these operating instructions.

Microsoft® Visual C++ 2005 is described as Visual C++ 2005.

Microsoft® Visual C++ 2012 is described as Visual C++ 2012.

#### 1.5. Structures of PS-ALARM

Figure 1-1 shows the PS-ALARM structures.



**Figure 1-1 PS-ALARM Structures**

- \* Hereafter Network Camera is referred as Camera.
- \* Hereafter Network Interface Unit is referred as Encoder.
- \* Hereafter Network Disk Recorder is referred as NWDR.
- \* Hereafter Network Disk Recorder (NX series) is referred as NX series.
- \* Hereafter Digital Disk Recorder (HD300 series) is referred as HD300.
- \* Hereafter Digital Disk Recorder (HD600 series, HD700 series) is referred as HD600/700.

## 1.6. Overview of Functions

Table 1-1 shows the overview of functions.

**Table 1-1 Function Overview**

No.	Overview	Reference
1	Create and Delete the IAlarmRcv instance	Global function
2	Setting a port number for receiving TCP alarm notification	TCP alarm notification Group
3	Notify TCP alarm notification to an application	



### 1.7. Function List

Table 1-2 shows the functions provided in this PS-ALARM.

**Table 1-2 List of Functions**

#### Method

No.	Class	Method	Overview	Reference
<i>Global Function</i>				
1	-	GetIAlarmRcv	Create the IAlarmRcv instance.	
2	-	DeleteIAlarmRcv	Delete the IAlarmRcv instance.	
<i>TCP alarm notification Group</i>				
3	IAlarmRcv	SetAlarmRcvListener	Register OnAlarmRcv Listener function for an application.	
4	IAlarmRcv	SetErrListener	Register OnError Listener function for an application.	

#### Application Listener

No.	Class	Method	Overview	Reference
<i>TCP alarm notification Group</i>				
5	IAlarmRcvListener	OnAlarmRcv	The OnAlarmRcv notification function is to pass an received TCP alarm notification information from PS-ALARM to a specified application.	
6	IAlarmRcvListener	OnError	The OnError notification function is to pass an error code from PS-ALARM to a specified application.	

## 1.8. Compatible chart by models

The following list shows the compatible chart by models.

**Table 1-3 Compatible Chart by Models**

No.	Method	Camera	NWDR	HD300	HD600/700	Encoder	NX Series	remarks
<i>TCP alarm notification Group</i>								
1	SetAlarmRcvListener	Yes	Yes	Yes	Yes	Yes	Yes	
2	SetErrListener	Yes	Yes	Yes	Yes	Yes	Yes	

## 2. System requirements

### 2.1. System Environment

The following table shows the PC specification that is needed for using PS-ALARM.

**Table 2-1 OS**

OS	Microsoft® Windows® 7 Professional SP1 32 bit Edition
	Microsoft® Windows® 7 Professional SP1 64 bit Edition
	Microsoft® Windows® 8.1 Pro 32 bit Edition(*1)
	Microsoft® Windows® 8.1 Pro 64 bit Edition(*1)
	Microsoft® Windows® 10 Pro 32 bit Edition
	Microsoft® Windows® 10 Pro 64 bit Edition
	Microsoft® Windows® 11 Pro
	Microsoft® Windows Server® 2008 R2 Standard SP1
	Microsoft® Windows Server® 2008 R2 Enterprise SP1
	Microsoft® Windows Server® 2012 Standard
	Microsoft® Windows Server® 2012 R2 Standard
	Microsoft® Windows Server® 2016 Standard/Desktop Experience
	Microsoft® Windows Server® 2019 Standard/Desktop Experience
	Microsoft® Windows Server® 2022 Standard/Desktop Experience

**Table 2-2 System requirements**

Processor(*2)	Intel® Core™2 Quad 2.66GHz or more
Memory	2.0GB or more
Hard drive	10GB or more
LAN	100Mbps or more

**Table 2-3 Recommended system requirements**

Processor(*2)	Intel® Core™i7-4790
Memory	8.0GB or more
Hard drive	10GB or more
LAN	100Mbps or more

**(\*1) Modern UI is not supported.**

**(\*2) When displaying video on multiple screens, please use the recommended system requirements.**

## 2.2. Development Environment

The following table shows the development environment list that is supported by PS-ALARM DLL.

**Table 2-4 Development Environment**

Target	Development Tool
PS-ALARM DLL	Visual C++ 2005 SP1
	Visual C++ 2012

## 2.3. Supported i-PRO Products

Please refer to **[PS-API Supported Product List for English]** document.

### 3. Setup

#### 3.1. Product

Please refer to [PS-API Installation Guide for DLL] document.

**Table 3-1 The Overview of Files**

[DLL folder]

Directory Name	Objective
PS-API¥ For Development	Header files / lib files For development. <b>NOT REDISTRIBUTABLE.</b>
PS-API¥ Redistributable	DLL files Redistributable.
PS-API¥ Setup	Installer for DirectShow filters. For development. <b>NOT REDISTRIBUTABLE.</b>
PS-API¥ Tool	Test tool. By using this tool, you can confirm connecting to a target device with PS-API. <b>NOT REDISTRIBUTABLE.</b>
PS-API¥ Document	The users manual. (This document) <b>NOT REDISTRIBUTABLE.</b>

Directory Name	Objective
PS-ALARM¥ For Development	Header files / lib files For development. <b>NOT REDISTRIBUTABLE.</b>
PS-ALARM¥ Redistributable	DLL files Redistributable.
PS-ALARM¥ Document	The users manual. <b>NOT REDISTRIBUTABLE.</b>

Directory Name	Objective
PS-LOOKUP¥ For Development	Header files / lib files For development. <b>NOT REDISTRIBUTABLE.</b>
PS-LOOKUP¥ Redistributable	DLL files Redistributable.
PS-LOOKUP¥ Document	The users manual. <b>NOT REDISTRIBUTABLE.</b>

[DLL-Sample folder]

Directory Name	Objective
Sample Program	Sample Programs. <b>NOT REDISTRIBUTABLE.</b>

### 3.2. Install

Please refer to [**PS-API Installation Guide for DLL**] document.

### 3.3. UnInstall

Please refer to [**PS-API Installation Guide for DLL**] document.

### 3.4. Restrictions

- (1) Standardize the time zone setting of devices in your system.
- (2) Do not use the Power Schemes or System Standby mode of Windows®.
- (3) PS-ALARM instance is NOT thread safe.
- (4) Use Multibyte Character Set.
- (5) The maximum number of TCP alarm notification that the PC can receive depends on the PC performance that receives TCP alarm notification.

## 4. Overview of Library

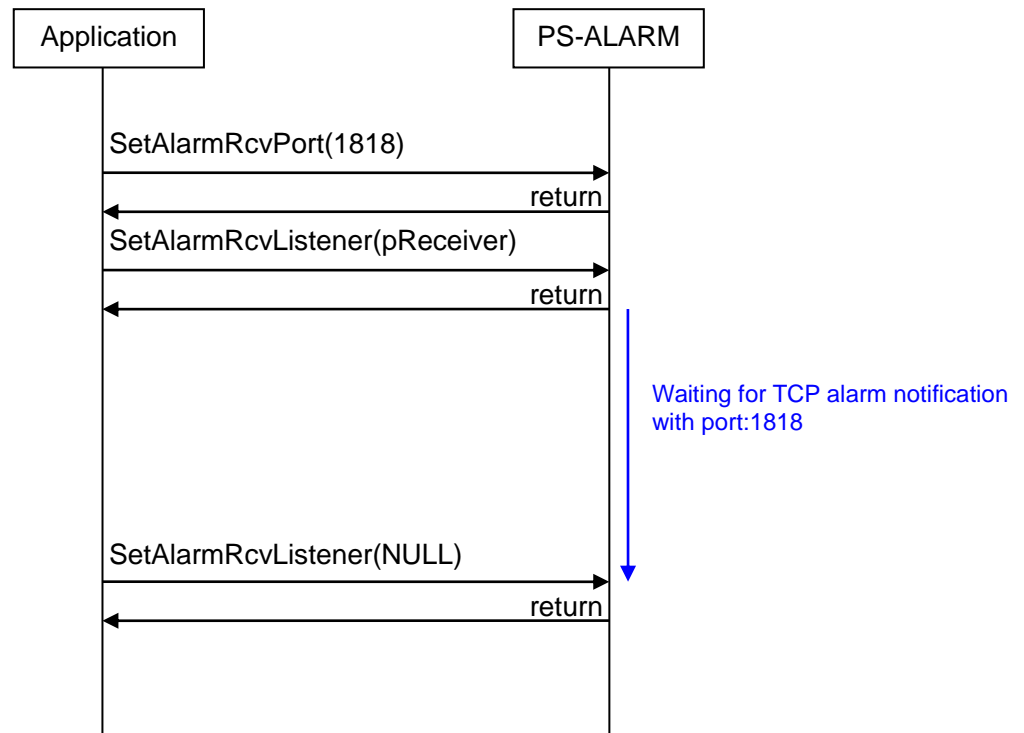
### 4.1. Connect to the device

When the application receives TCP alarm notification from devices by using PS-ALARM, it is necessary that the receiving port number is set first, and then SetAlarmRcvListener method is called to register the listener class.

After registered the listener class, TCP alarm notification is notified by using OnAlarmRcv method.

When stop receiving TCP alarm notification, set NULL to the listener class by using SetAlarmRcvListener method.

\* Don't delete the registered listener object by your application.

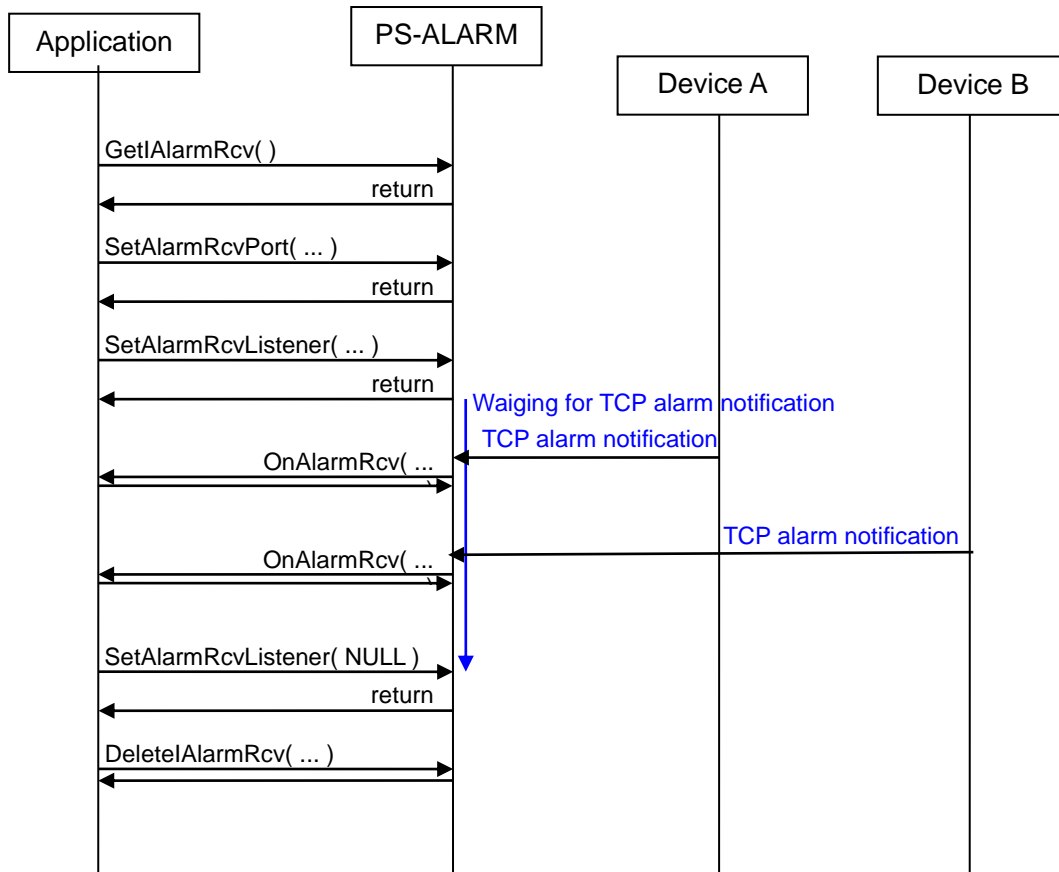


**Figure 4-1 Connect to The Device**



#### 4.2. Steps to receive TCP alarm notification with PS-ALARM

The following chart shows the flow of creating instance, waiting, receiving TCP alarm notification, and stop.

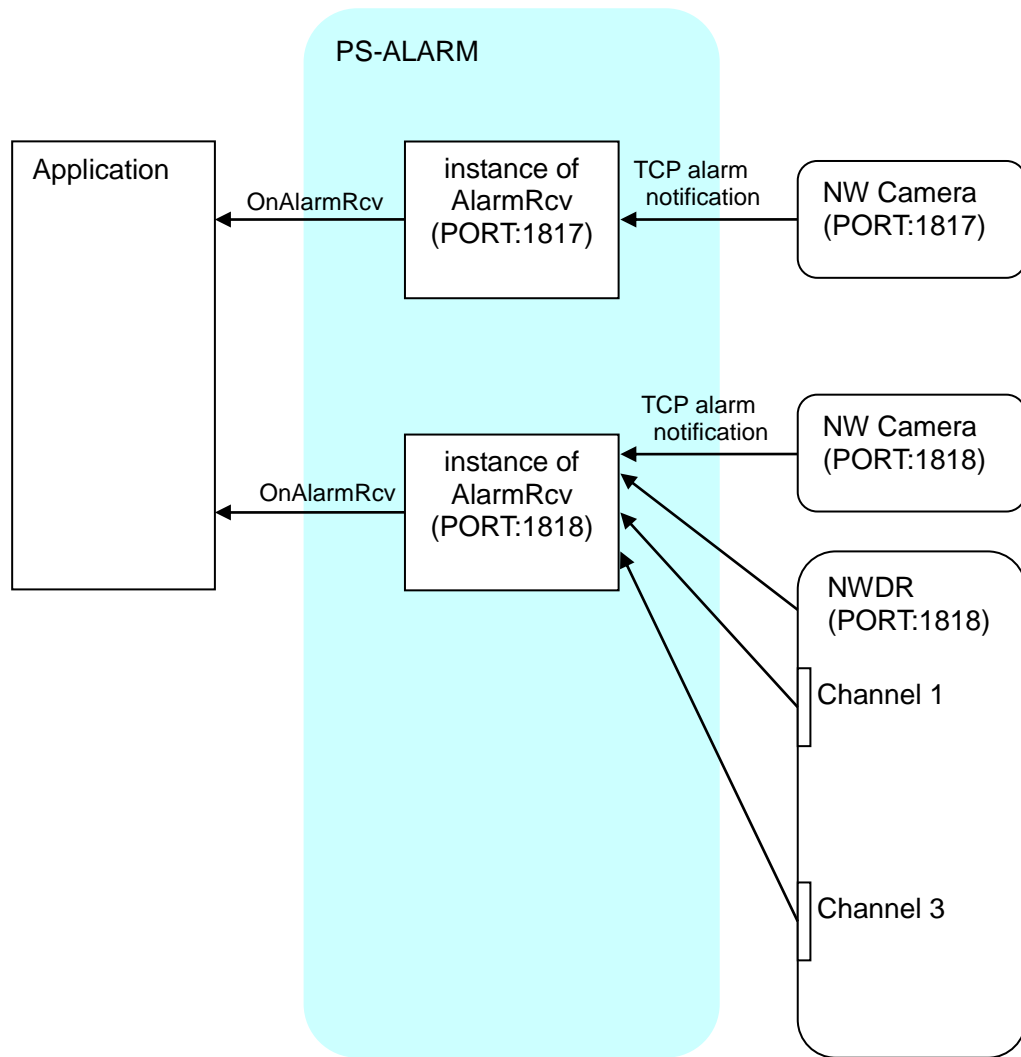


**Figure 4-2 Steps to receive TCP alarm notification with PS-ALARM**

#### 4.3. Relationship between PS-ALARM and Device

One PS-ALARM instance is for one port to receive TCP alarm notification. When you want to receive TCP alarm notification by plural receiving port number, it is necessary that the plural instances that you need are created.

If the some devices notify TCP alarm notification to same number port, one PS-ALARM instance can receive all TCP alarm notification from these devices.



**Figure 4-3 The relationship between PS-ALARM and devices**

## 5. Details of DLL Class and Method

This chapter describes the detail specification of this library.

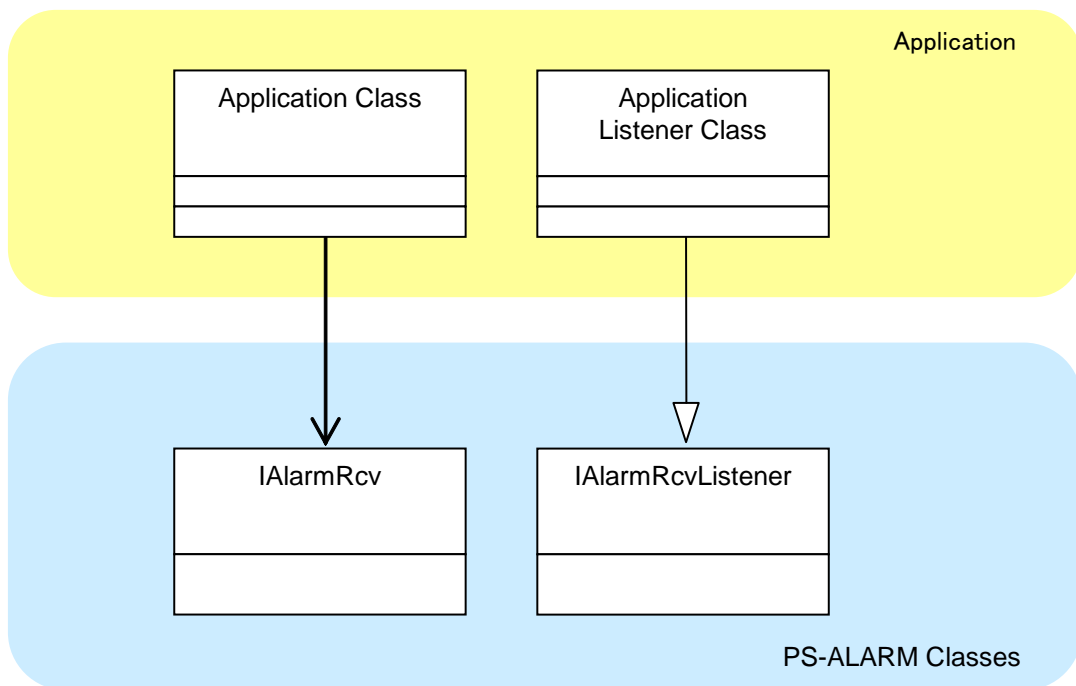
### 5.1. Class

#### 5.1.1. Class Definition

**Table 5-1 Class Definition**

No.	Class Name	Overview
1	IArmRcv	It is the interface class for using PS-ALARM functions from an application. Control a device by calling the method of IArmRcv.
2	IArmRcvListener	It is the interface class for receiving the notification from PS-ALARM. The application can implement the process for the notification by inheriting this class and by implementing the notification method. Also the application can receive the notification by registering the instance that is implemented by the application to IArmRcv.

#### 5.1.2. Class Diagram



**Figure 5-1 Class Diagram**

#### 5.1.2.1. Global Function

```
IArmRcv*      GetIArmRcv( );  
void          DeleteIArmRcv(IArmRcv*  ialarmrcv);
```

#### 5.1.2.2. IAlarmRcv

```
long  SetIArmRcvPort(long  port);  
long  GetIArmRcvPort( );  
long  SetAlarmRcvListener(IArmRcvListener*  pReceiver);  
long  SetErrListener(IArmRcvListener*  pReceiver);
```

#### 5.1.2.3. IAlarmRcvListener

```
virtual void  OnAlarmRcv(const char*  timeDate,  
                        const char*  ipaddr,  
                        long  channel,  
                        long  alarmType,  
                        const char*  messageId,  
                        const char*  messageText,  
                        const char*  information ) = 0;  
virtual void  OnError(long  errorCode, const char*  description) = 0;
```

## 5.2. Global Function

### 5.2.1. GetIAlarmRcv

<b>Class</b>	-
<b>Function</b>	<b>GetIAlarmRcv</b>
IAlarmRcv*	GetIAlarmRcv ( );

---

#### Description

Create the IAlarmRcv instance.

---

#### Argument

None

---

#### Return value

IAlarmRcv \*    Pointer of created IAlarmRcv instance

---

#### Error

---

## Note

---

## Sequence

---

### 6.1 TCP alarm notification

## Sample program code

---

[Visual C++ 2012] ..¥Sample Program¥PS-ALARM¥Visual C++ 2012¥201\_PanasonicAlarm

## Reference

---

### 5.2.2. DeletelAlarmRcv

**Class** -

---

**Function** DeletelAlarmRcv

---

void DeletelAlarmRcv (IAlarmRcv \* ialarmrcv)

---

**Description**

Delete the IAlarmRcv instance.

---

**Argument**

ialarmrcv	Pointer of IAlarmRcv instance	Specify the pointer of the IAlarmRcv instance.
-----------	-------------------------------	--

---

**Return value**

None

---

**Error**

---

## Note

---

## Sequence

---

### 6.1 TCP alarm notification

## Sample program code

---

[Visual C++ 2012] ..¥Sample Program¥PS-ALARM¥Visual C++ 2012¥201\_PanasonicAlarm

## Reference

---



### 5.3. TCP alarm notification Group

#### 5.3.1. Property

##### 5.3.1.1. AlarmRcvPort

Class	IAIAlarmRcv
Property	AlarmRcvPort
long	SetAlarmRcvPort ( long port );
long	GetAlarmRcvPort ();

#### Description

Set a port number to receive TCP alarm notification into PS-ALARM.  
Get a port number to receive TCP alarm notification from PS- ALARM.

#### Argument for SET

port	1 to 65535	TCP alarm notification receiving port. The default value for the port is set to 1818.
------	------------	--

#### Return value for SET

0	Success
Negative value	Error

#### Return value for GET

Get TCP alarm notification receiving port number.
---

#### Error

**Note**

---

Port number cannot be changed while listener method is set by SeAlarmRcvListener.

**Sequence**

---

**6.1 TCP alarm notification****Sample program code**

---

[Visual C++ 2012] ..¥Sample Program¥PS-ALARM¥Visual C++ 2012¥201\_PanasonicAlarm

**Reference**

---

### 5.3.2. Application Listener

#### 5.3.2.1. OnAlarmRcv

<b>Class</b>	<b>IAlarmRcvListener</b>
--------------	--------------------------

<b>Listener</b>	<b>OnAlarmRcv</b>
-----------------	-------------------

void	OnAlarmRcv ( const char* timeDate, const char* ipaddr, long channel, long alarmType, const char* messageID, const char* messageText, const char* information );
------	---

<b>Description</b>
--------------------

Notify to receive the TCP alarm notification to the specified application.  
Application needs to create the listener class that inherits IAlmListener and to implement OnAlarmRcv method.

<b>Argument</b>
-----------------

timeDate	YYYY/MM/DD hh:mm:ss	The time and date information that TCP alarm notification occurred. timeDate is local time of the source device.
ipaddr	Character strings (255 or less characters)	The IP address information of TCP alarm notification sender. Only IPv4 address is set.
channel	0 : NWDR, HD300 hardware 1 : Network Camera,GXE100 1 to 3 : S8573 1 to 4 : Encoder X8570, S8530 S8574 NX100 1 to 16 : ND200,HD300, HD600/700 1 to 24 : NV200, NV250 1 to 32 : ND300,NV300, NX200, NX300 1 to 64 : ND400 1 to 128 : NX400	The channel information that TCP alarm notification occurred.
alarmType	0 : Refer to message ID. 1 : Terminal alarm 2 : VMD alarm 3 : Command alarm 4 : Camera scene change detection alarm	From only network camera. If alarmType is set to "0", please refer to messageID and messageText. In case of NWDR/NX Series/HD300 and Encoder, alarmType is always set to "0".

messageID	00 to FF :	Refer to Message ID and Message list in <b>"NOTE"</b> . messageID is same as "[EXTENSION] - MESSAGEID" of information.
messageText	Character strings (520 or less characters)	Refer to Message ID and Message list in <b>"NOTE"</b> . messageText is same as "[EXTENSION] - MESSAGE" of information.
information	Character strings (1024 or less characters)	It is all TCP alarm notification information that was received from a device. Sample

```
[BASIC] (CRLF)
SRCIP=C0A8000A (CRLF)
LOGNO=05A5 (CRLF)
SRCYEAR=09 (CRLF)
SRCMONTH=04 (CRLF)
SRCDAY=03 (CRLF)
SRCHOUR=16 (CRLF)
SRCMIN=04 (CRLF)
SRCSEC=37 (CRLF)
ALMTYPE=00 (CRLF)
CAMNO=01 (CRLF)
PADDING=00 (CRLF)
EXTEND=80 (CRLF)
STOREDIMAGE=00 (CRLF)
IMAGENUM=00 (CRLF)
FRAMERATE=00 (CRLF)
BEFORE=00 (CRLF)
[SENDER] (CRLF)
MAC=008045525AE1 (CRLF)
CAMNO=0001 (CRLF)
EXTSRCYEAR=09 (CRLF)
EXTSRCMONTH=04 (CRLF)
EXTSRCDAY=03 (CRLF)
EXTSRCHOUR=16 (CRLF)
EXTSRCMIN=04 (CRLF)
EXTSRCSEC=37 (CRLF)
TZONE=01 (CRLF)
TZONEHOUR=09 (CRLF)
TZONEMIN=00 (CRLF)
SUMMERTIME=00 (CRLF)
EXTPADDING=00 (CRLF)
[EXTENSION] (CRLF)
CATEGORY=01 (CRLF)
MESSAGEID=03 (CRLF)
MESSAGE=SD-MEMORY CAPACITY 50% (CRLF)
```

~~Please use these parameters in only~~  
**OnAlarmRcv function. When finish  
OnAlarmRcv function, memory for  
these parameters are released.**

#### Return value

None

## Error

### Note

The following table is for **[BASIC]** section of "information."

No		Item	Reference	Value
1	Basic message	SRCIP	IP address (IPv4) of sender device NULL is assigned when device utilizes IPv6 Byte order is big endian	2Words ex) 192.168.0.200 C0A800C8
2		LOGNO	Sender device has this number When 1 to 0xFFFF reach, it will start from 1 again	0000 - FFFF
3		SRCYEAR	Sender time information Year (BCD)	00 - 99
4		SRCMONTH	Sender time information Month (BCD)	01 - 12
5		SRCDAY	Sender time information Day (BCD)	01 - 31
6		SRCHOUR	Sender time information Hour (BCD)	00 - 23
7		SRCMIN	Sender time information Minute (BCD)	00 - 59
8		SRCSEC	Sender time information Second (BCD)	00 - 59
9		ALMTYPE	Alarm content First 3bit : Alarm contents Rest of 5bit : Alarm terminal #	00 - FF : Camera <b>*Refer to the later list (*1).</b>  00 (Fixed) : Disk recorder
10		CAMNO	Camera No.	00 : More than "0xFF" or no camera # 01 - 04 : Camera In case of the X8570,S8530, S8573,S8574 there is 02-04 settings. 01 - FF : camera # under HD300,NWDR, NX Series
11		PADDING	Padding	00 (Fixed)
12		EXTEND	Extension message area flag	00 : No extension message 80 : Extension message exists
13		STOREDIMAGE	Flag for saving pictures	00 (Fixed)
14		IMAGENUM	# of picture	00 (Fixed)
15		FRAMERATE	Frame rate	00 (Fixed)
16		BEFORE	Pre pictures in memory	00 (Fixed)

## Note

(\*1) Alarm contents : For Network Camera

First 3bit of ALMTYPE

bit7	bit6	bit5	Alarm contents
0	0	0	Information notification
0	0	1	Detect alarm terminal (TRM) #To HIGH from LOW
0	1	0	Detect camera VMD alarm
0	1	1	Detect camera command alarm
1	0	0	Detect camera scene change detection alarm
1	0	1	Detect alarm terminal (TRM) #To LOW from HIGH
1	1	0	Reserve
1	1	1	Detect encoder alarm (Detailed alarm contents are added on extension area)

(\*1) Alarm terminal number : For Network Camera

Rest of 5bit of ALMTYPE

Bit4	Bit3	Bit2	Bit1	Bit0	Alarm terminal #
0	0	0	0	0	Reserve
0	0	0	0	1	1CH
0	0	0	1	0	2CH
0	0	0	1	1	3CH
0	0	1	0	0	4CH
0	0	1	0	1	5CH
0	0	1	1	0	6CH
0	0	1	1	1	7Ch
0	1	0	0	0	8CH
0	1	0	0	1	9CH
0	1	0	1	0	10CH
0	1	0	1	1	11CH
0	1	1	0	0	12CH
0	1	1	0	1	13CH
0	1	1	1	0	14CH
0	1	1	1	1	15CH
1	0	0	0	0	16CH
1	0	0	0	1	Reserve
:					Reserve
1	1	1	1	1	Reserve

**Note**

The following table is for **[SENDER]** section of “information.”

No		Item	Reference	Value
1	Sender info	MAC	MAC address of sender device Byte order is big endian	6Byte
2		CAMNO	Camera No.	00 : More than “0xFF” or no camera # 01 : Network Camera 01 - FF : camera # under HD300,NWDR, NX Series
3		EXTSRCYEAR	Year (BCD)	00 - 99
4		EXTSRCMONTH	Month (BCD)	01 - 12
5		EXTSRCDAY	Day (BCD)	01 - 31
6		EXTSRCHOUR	Hour (BCD)	00 - 23
7		EXTSRCMIN	Minute (BCD)	00 - 59
8		EXTSRCSEC	Second (BCD)	00 - 59
9		TZONE	Time zone ±	00 : Negative value 01 : Positive value
10		TZONEHOUR	Time zone hour (BCD)	00 - 23
11		TZONEMIN	Time zone minute (BCD)	00 - 59
12		SUMMERTIME	Summer time info	00 : Winter time 01 : Summer time
13		EXTPADDING	Padding	00 (Fixed)

The following table is for **[EXTENSION]** section of “information.”

No		Item	Reference	Value
1	Extension message	CATEGORY	Identify camera or encoder	00 - FF 01 : Network Camera 02 : HD300, NWDR, NX Series 03 : Encoder
2		MESSAGEID	Message ID defined by each product category	00 – FF <b>*Refer to the later list (*2).</b>
3		MESSAGE	Text strings	ASCII <b>*Refer to the later list (*2).</b>

## Note

(\*2) Message ID and Message : **For Network Camera and Encoder**

No	Message name	Extension area		
		Category	Message ID	Message(ASCII)
1	SD-MEMORY FULL	01 03	01	SD-MEMORY FULL
2	SD-MEMORY NOT DETECTED	01 03	02	SD-MEMORY NOT DETECTED
3	SD-MEMORY CAPACITY **%	01 03	03	SD-MEMORY CAPACITY **%
4	SD-MEMORY WRITE ERROR	01	04	SD-MEMORY WRITE ERROR
5	AUDIO BUSY ***** (***** : UID, 8 digit numbers, is assigned in browser control )	01 03	05	AUDIO BUSY *****
6	AUDIO NOT BUSY ***** (***** : UID, 8 digit numbers, is assigned in browser control )	01 03	06	AUDIO NOT BUSY *****
7	SD-MEMORY RECORDING	01 03	07	SD-MEMORY RECORDING
8	SD-MEMORY NOT RECORDING	01 03	08	SD-MEMORY NOT RECORDING
9	AUX OPEN	01 03	09	AUX OPEN
10	AUX CLOSE	01 03	0A	AUX CLOSE
11	WIPER STOP	01	0D	WIPER STOP
12	WIPER LOW	01	0E	WIPER LOW
13	WIPER HIGH	01	0F	WIPER HIGH
14	WIPER 1SHOT	01	10	WIPER 1SHOT
15	WIPER WITH WASHER	01	11	WIPER WITH WASHER
16	WIPER WITH WASHER NG	01	12	WIPER WITH WASHER NG
17	PRIVACY ADD	01 03	45	PRIVACY ADD
18	PRIVACY CHANGE	01 03	46	PRIVACY CHANGE
19	PRIVACY REMOVE	01 03	47	PRIVACY REMOVE
20	MAIL SETTING CHANGE	01 03	48	MAIL SETTING CHANGE
21	USER SETTING CHANGE	01 03	49	USER SETTING CHANGE
22	FTP SETTING CHANGE	01 03	4A	FTP SETTING CHANGE
23	TERMINAL ALARM **ch	01 03	20	TERMINAL ALARM **ch
24	CAMERA SITE ALARM **ch	03	21	CAMERA SITE ALARM **ch
25	COMMAND ALARM **ch	01 03	22	COMMAND ALARM **ch
26	TERMINAL ALARM1	01	26	TERMINAL ALARM1
27	TERMINAL ALARM2	01	27	TERMINAL ALARM2
28	TERMINAL ALARM3	01	28	TERMINAL ALARM3



29	VMD ALARM **ch	01 03	2F	VMD ALARM **ch
30	TERMINAL ALARM R **ch	01 03	30	TERMINAL ALARM R **ch
31	AUTO TRACK ALARM	01	31	AUTO TRACK ALARM
32	INTRUDER ALARM XX ****	01	32	INTRUDER ALARM XX **** <b>XX represents the following detection target.</b> HUMAN Vehicle Bicycle OTHERS
33	LOITERING ALARM XX ****	01	33	LOITERING ALARM XX **** XX is the same as "Intrusion Detection Alarm (iVMD)".
34	DIRECTION ALARM XX ****	01	34	DIRECTION ALARM XX **** XX is the same as "Intrusion Detection Alarm (iVMD)".
35	OBJECT ALARM ****	01	35	OBJECT ALARM ****
36	SCENE CHANGE ALARM	01	36	SCENE CHANGE ALARM
37	AUDIO ALARM	01	37	AUDIO ALARM
38	CROSS LINE ALARM XX ****	01	38	CROSS LINE ALARM XX **** XX is the same as "Intrusion Detection Alarm (iVMD)".
39	VMD ALARM AREA 01	01	40	VMD ALARM AREA 01
40	VMD ALARM AREA 02	01	41	VMD ALARM AREA 02
41	VMD ALARM AREA 03	01	42	VMD ALARM AREA 03
42	VMD ALARM AREA 04	01	43	VMD ALARM AREA 04
43	*** ALARM AREA 0x****	01	44	*** ALARM AREA 0x****
44	NoMask Alarm	01	45	NoMask Alarm
45	AUDIO ALARM GUNSHOT	01	46	AUDIO ALARM GUNSHOT
46	AUDIO ALARM GLASS BREAK	01	47	AUDIO ALARM GLASS BREAK
47	AUDIO ALARM VEHICLE HORN	01	48	AUDIO ALARM VEHICLE HORN
48	AUDIO ALARM YELL	01	49	AUDIO ALARM YELL
49	AUTO TRACK ALARM AREA 01	01	50	AUTO TRACK ALARM AREA 01
50	AUTO TRACK ALARM AREA 02	01	51	AUTO TRACK ALARM AREA 02
51	AUTO TRACK ALARM AREA 03	01	52	AUTO TRACK ALARM AREA 03
52	AUTO TRACK ALARM AREA 04	01	53	AUTO TRACK ALARM AREA 04
53	AUTO TRACK ALARM AREA 05	01	54	AUTO TRACK ALARM AREA 05
54	AUTO TRACK ALARM AREA 06	01	55	AUTO TRACK ALARM AREA 06
55	AUTO TRACK ALARM AREA 07	01	56	AUTO TRACK ALARM AREA 07
56	AUTO TRACK ALARM AREA 08	01	57	AUTO TRACK ALARM AREA 08
57	CROPPED AREA	01	60	CROPPED AREA 01 XXXXXXXX YYYYYYYY CROPPED AREA 02 XXXXXXXX YYYYYYYY CROPPED AREA 03 XXXXXXXX YYYYYYYY CROPPED AREA 04 XXXXXXXX YYYYYYYY
58	OCCUPANCY ALARM (AREA1)	01	62	OCCUPANCY ALARM (AREA1)
59	OCCUPANCY ALARM (AREA2)	01	63	OCCUPANCY ALARM (AREA2)
60	OCCUPANCY ALARM (AREA3)	01	64	OCCUPANCY ALARM (AREA3)
61	OCCUPANCY ALARM (AREA4)	01	65	OCCUPANCY ALARM (AREA4)
62	CROPPED SIZE ****	01	6A	CROPPED SIZE ****
63	EXTRA-ZOOM SETUP	01	6B	EXTRA-ZOOM SETUP
64	CROPPED CODEC ****	01	6C	CROPPED CODEC ****
65	SHUTTER OPEN MIC INTERNAL	01	72	SHUTTER OPEN MIC INTERNAL

66	SHUTTER OPEN MIC EXTERNAL	01	73	SHUTTER OPEN MIC EXTERNAL
67	SHUTTER CLOSE MIC INTERNAL	01	74	SHUTTER CLOSE MIC INTERNAL
68	SHUTTER CLOSE MIC EXTERNAL	01	75	SHUTTER CLOSE MIC EXTERNAL
69	SD MEMORY CARD IS USED FOR LONG-TERM.(OVER * YEARS)	01	91	SD MEMORY CARD IS USED FOR LONG-TERM.(OVER * YEARS)
70	SD MEMORY CARD MAY HAVE DETERIORATION THROUGH THE LONG-TERM USE.(OVER * YEARS)	01	92	SD MEMORY CARD MAY HAVE DETERIORATION THROUGH THE LONG-TERM USE.(OVER * YEARS)
71	SD MEMORY CARD IS WRITTEN * TIMES OR MORE.	01	93	SD MEMORY CARD IS WRITTEN * TIMES OR MORE.
72	SD MEMORY CARD MAY HAVE DETERIORATION DUE TO THE OVER-REWRITTEN. (over * times)	01	94	SD MEMORY CARD MAY HAVE DETERIORATION DUE TO THE OVER-REWRITTEN. (over * times)
73	SD MEMORY CARD ACCESS ERROR. THIS CARD MAY HAVE A DAMAGE.	01	95	SD MEMORY CARD ACCESS ERROR. THIS CARD MAY HAVE A DAMAGE.
74	HARDWARE ERROR	01	9A	HARDWARE ERROR
75	IT IS SOON TIME TO REPLACE THE WIPER RUBBER	01	9B	IT IS SOON TIME TO REPLACE THE WIPER RUBBER
76	SD-MEMORY NOT RECORDING ERROR	01	9C	SD-MEMORY NOT RECORDING ERROR
77	SD-MEMORY WRITE ERROR	01	A5	SD-MEMORY WRITE ERROR
78	SD-MEMORY READ ERROR	01	A6	SD-MEMORY READ ERROR
79	SD-MEMORY DELETE ERROR	01	A7	SD-MEMORY DELETE ERROR
80	SD-MEMORY FILESYSTEM ERROR	01	A8	SD-MEMORY FILESYSTEM ERROR
81	SD-MEMORY OTHER ERROR	01	A9	SD-MEMORY OTHER ERROR
82	VIDEO LOSS **ch	03	10	VIDEO LOSS *ch
83	VIDEO RECOVER **ch	03	11	VIDEO RECOVER **ch
84	AVMD INTRUDER1 ALARM **ch	03	23	AVMD INTRUDER1 ALARM **ch
85	AVMD INTRUDER2 ALARM **ch	03	24	AVMD INTRUDER2 ALARM **ch
86	AVMD INTRUDER3 ALARM **ch	03	25	AVMD INTRUDER3 ALARM **ch
87	AVMD INTRUDER4 ALARM **ch	03	26	AVMD INTRUDER4 ALARM **ch
88	AVMD INTRUDER5 ALARM **ch	03	27	AVMD INTRUDER5 ALARM **ch
89	AVMD INTRUDER6 ALARM **ch	03	28	AVMD INTRUDER6 ALARM **ch
90	AVMD REMOVAL ALARM **ch	03	2C	AVMD REMOVAL ALARM **ch

## Note

(\*2) Message ID and Message : **For HD300, NWDR, NX Series**

No	Message name	Extension area		
		Category	Message ID	Message(ASCII)
1	Message from camera	02	00	(0x00 4Byte)
2	Terminal (NWDR, NX Series)	02	01	TERMINAL ALARM **ch
3	Comand alarm	02	02	COMMAND ALARM **ch
4	Site alarm	02	03	SITE ALARM **ch
5	Emergency REC	02	04	<b>Refer to the later list (*3)</b>
6	VMD alarm	02	05	VMD ALARM **ch
7	Obstruction detection (Camera)	02	06	CAMERA SCD ALARM **ch
8	Terminal alarm (Camera)	02	07	CAMERA TERMINAL ALARM **ch
9	NORMAL capacity remains warning	02	0F	HDD-NORMAL CAPACITY REMAINS **%
10		02	10	HDD-NORMAL IS FULL
11	EVENT capacity remains warning	02	11	EVENT-HDD CAPACITY REMAINS **%
12		02	12	EVENT-HDD FULL
13	COPY area capacity remains warning	02	13	COPY-HDD CAPACITY REMAINS **%
14		02	14	COPY-HDD FULL
15	COPY error	02	15	NO DATA COPY
16	Alter detection	02	16	ALTERED
17	single HDD capacity remains warning	02	18	HDDy CAPACITY REMAINS **%  * "y" is DISK No.
18	Copy media full	02	19	SD MEMORY CARD FULL DVD FULL
19	HDD smart warning	02	20	HDDx-y DISK WARNING
20	HDD hour meter warning	02	21	HDD HOUR METER WARNING

## Note

(\*2) Message ID and Message : **For HD300, NWDR, NX Series**

No	Message name	Extension area		
		Category	Message ID	Message(ASCII)
21	HDD auto remove	02	22	HDDx-y LOGICALLY REMOVED
22	RAID5 1 down	02	23	HDDx-y RAID5 1 DOWN
23	RAID5 2 down	02	24	HDDx RAID5 2 DOWN
24	HDD RAID5 recovery failure	02	25	RAID5 RECOVERY FAILURE
25	MIRROR recovery failure	02	28	MIRROR RECOVERY FAILURE *
26	Single format error	02	29	HDDy FORMAT ERROR
27	MIRROR format error	02	2A	MIRRORx-y FORMAT ERROR
28	HDD swap warning	02	2C	MIRRORx-y FORMAT ERROR
29	Power loss	02	30	POWER LOSS
30	Power recovered	02	31	POWER RECOVERD
31	FAN error	02	32	FAN ERROR x-y
32	Thermal error	02	33	THERMAL ERROR x-y
33	Video loss	02	34	VIDEO-LOSS **
34	Video recovery	02	35	CAM ** VIDEO RECOVERED
35	Camera communication error	02	40	CAM xx COMMUNICATION ERROR
36	Camera communication recovered	02	41	CAM xx COMMUNICATION RECOVERD
37	Portx NW link error	02	42	PORTx NETWORK LINK ERROR
38	DHCP error	02	43	PORTx DHCP ERROR
39	SD error	02	50	CAM ** SD ERR
40	SD writing Start-request error	02	51	CAM ** SD START ERR
41	SD writing End-request error	02	52	CAM ** SD END ERR
42	Get image-list on SD error	02	53	CAM ** GET LIST ERR
43	Get image error	02	54	CAM ** GET IMG ERR
44	Delete image error	02	55	CAM ** DEL IMG ERR
45	Start to get image on SD	02	56	SD MEMORY REC START

## Note

(\*2) Message ID and Message : **For HD300, NWDR, NX Series**

No	Message name	Extension area		
		Category	Message ID	Message(ASCII)
46	RAID5 format error	02	60	RAID5 FORMAT ERROR EXTx RAID5 FORMAT ERROR
47	RAID6 1 DOWN	02	61	MAIN RAID6 1 DOWN EXTx RAID6 1 DOWN
48	RAID6 2 DOWN	02	62	MAIN RAID6 2 DOWN EXTx RAID6 2 DOWN
49	RAID6 3 DOWN	02	63	MAIN RAID6 3 DOWN EXTx RAID6 3 DOWN
50	HDD RAID6 recovery failure	02	64	MAIN RAID6 RECOVERY FAILURE MAIN RAID6 RECOVERY FAILURE
51	RAID6 format error	02	65	MAIN RAID6 FORMAT ERROR EXTx RAID6 FORMAT ERROR
52	SLEEP	02	E0	SLEEP
53	Alarm suspend ON	02	F0	ALARM SUSPEND ON
54	Alarm suspend OFF	02	F1	ALARM SUSPEND OFF

(\*3) Camera CH at emergency REC trigger ON

Camera # notification specified in recorder at emergency REC on

	Data	Reference
Specified camera as below	32 1	
Camera 1, Camera 10, Camera 20, Camera 30	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

## Sequence

### 6.1 TCP alarm notification

## Sample program code

[Visual C++ 2012] ..¥Sample Program¥PS-ALARM¥Visual C++ 2012¥201\_PanasonicAlarm

## Reference

#### 5.3.2.2. SetAlarmRcvListener

**Class**                      **IAAlarmRcv**

**Listener**                      **SetAlarmRcvListener**

```
long      SetAlarmRcvListener (
                                   IAAlarmRcvListener*   pReceiver
                                   );
```

#### **Description**

Set the instance of listener class that implement “5.3.2.1 OnAlarmRcv “. After setting the listener, PS-ALARM can notify any TCP alarm notification information by calling “5.3.2.1 OnAlarmRcv “, when PS-ALARM receives a TCP alarm notification.

#### **Argument**

pReceiver	Pointer	Pointer for Listener class.
	NULL	If pReceiver is set to NULL, PS-ALARM unregister the Listener class.

#### **Return value**

0	Success to register an application listener.
Except 0	Error code

#### **Error**

Error is defined by the return value.

**Note**

---

Don't delete the registered listener object by your application.

**Sequence**

---

6.1 TCP alarm notification

**Sample program code**

---

[Visual C++ 2012] ..¥Sample Program¥PS-ALARM¥Visual C++ 2012¥201\_PanasonicAlarm

**Reference**

---

### 5.3.2.3. OnError

**Class** **IAlarmRcvListener**

**Listener** **OnError**

```
void OnError(  
    long errorCode,  
    const char* description  
);
```

#### Description

Notify the error to the specified application.

Application needs to create the listener class that inherits IAlarmRcvListener and to implement OnError method.

#### Argument

errorCode	Negative value	Error code number
description	Character strings	Detailed error description <b>* This parameter is valid in the inside of OnError function. When OnError function is finished, this memory is freed.</b>

#### Return value

None

#### Error



**Note**

---

**Sequence**

---

**Sample program code**

---

**Reference**

---

#### 5.3.2.4. SetErrListener

Class	IAIAlarmRcv
Listener	SetErrListener
long	SetErrListener( IAIAlarmRcvListener * pReceiver );
<b>Description</b>	
Set the instance of listener class that implement “5.3.2.3 OnError” . After setting the listener, PS-ALARM can notify any error information by calling “5.3.2.3 OnError”, when it happens.	
<b>Argument</b>	
pReceiver	Pointer  NULL  Pointer for Listener class.  If pReceiver is set to NULL, PS-ALARM unregister the Listener class.
<b>Return value</b>	
0	Success to register an application listener.
Except 0	Error code
<b>Error</b>	
Error is defined by the return value.	

**Note**

---

Don't delete the registered listener object by your application.

**Sequence**

---

**Sample program code**

---

**Reference**

---

## 6. Operation Procedure and Sequence

### 6.1. TCP alarm notification

#### 6.1.1. Operation Procedure

##### Start receiving TCP alarm notification

No.	Property / Method	Parameter	Description
1	GetAlarmRcv	-	Create instance of IPSAPI. 1 instance is for 1 port number to receive TCP alarm notification.
2	SetAlarmRcvPort	Port number (long)	Set a port number to receive TCP alarm notification into PS-ALARM.  e.g.) 1818
3	SetAlarmRcvListener	Listener class (IAarmRcvListener*)	Set the instance of listener class.
-	(OnAlarmRcv)	Time and Date IP address Channel Alarm type Message ID Message text Detailed information (const char*, const char*, long, long, const char*, const char*, const char*)	Notify to receive the TCP alarm notification to the specified application.

##### Stop receiving TCP alarm notification

No.	Property / Method	Parameter	Description
4	SetAlarmRcvListener	NULL	Set NULL, and PS-ALARM unregister the Listener class.
5	DeletelAlarmRcv	Pointer of IAarmRcv instance (IAarmRcv*)	Delete the IAarmRcv instance.

## Start receiving TCP alarm notification



## Stop receiving TCP alarm notification

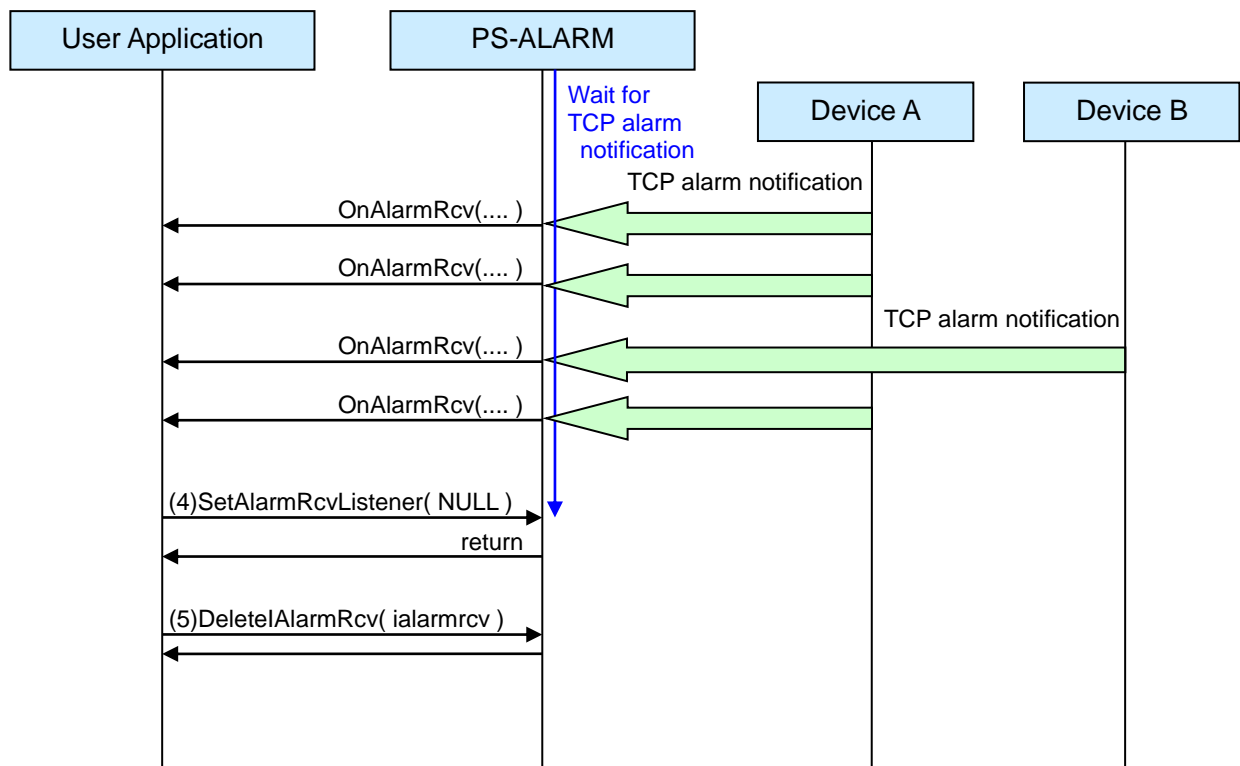


Figure 6-2 Stop receiving TCP alarm notification

## 7. Error Code List

The error code is defined by the following format. (decimal, 8digits)

-D<sub>1</sub>A<sub>1</sub>C<sub>1</sub>M<sub>1</sub>M<sub>2</sub>Z<sub>1</sub>Z<sub>2</sub>Z<sub>3</sub>

-D <sub>1</sub> Category	A <sub>1</sub> Level	C <sub>1</sub> Source	M <sub>1</sub> M <sub>2</sub>	Z <sub>1</sub> Z <sub>2</sub> Z <sub>3</sub> Code	Error Description
-4: PS-ALARM	1:error 2:warning	1:PS-ALARM error 2:communication error 3:device error	(internal use)	101	Internal process error (accept Error)
				102	Internal process error (recv Error)
				103	Internal process error (Received data illegal)
				104	Internal process error (Fail to create Listener Class)
				105	Internal process error (Sender info count illegal)
				201	Port Number Error
				301 : 310	Received TCP alarm notification format error. (Basic Message)
				321 : 322	Received TCP alarm notification format error. (Extension Message)
				341 : 352	Received TCP alarm notification format error. (Sender Information)
				401	Listener is in working state.
				501	Internal process error (GetMessage Error)
				502	Internal process error (WSAStartup Error)
				503	Internal process error (getaddrinfo Error)
				504	Internal process error (socket Error)
				505	Internal process error (bind Error)

-D1 Category	A <sub>1</sub> Level	C <sub>1</sub> Source	M <sub>1</sub> M <sub>2</sub>	Z <sub>1</sub> Z <sub>2</sub> Z <sub>3</sub> Code	Error Description
				506	Internal process error (listen Error)
				507	Internal process error (Fail to create accept thread)
				508	Internal process error (Fail to allocate recv thread memory)
				509	Internal process error (Fail to create recv thread)
				510	Internal process error (select Error)