

SNMP MIB manual
for i-PRO camera

Ver. 1

i-PRO Co.,Ltd.

Change history

Version	Date	Chapter #	Comment	Trigger
1	04/06/2022		First release	

Copyright Notice

This document is copyright protected and i-PRO Co.,Ltd. reserves all titles and rights in the document. Nobody can copy, reproduce, distribute, or modify this document in any way without the prior written consent of i-PRO Co.,Ltd..

Table of contents

- 1. Introduction 5
 - 1.1. Definition..... 6
 - 1.2. Target devices 8
- 2. Overview of SNMP support for i-PRO cameras..... 9
 - 2.1. SNMP version 10
 - 2.2. PDU-type..... 10
- 3. MIBs supported by i-PRO cameras 11
 - 3.1. Standard MIB..... 12
 - 3.2. Extended MIB of i-PRO Corporation 13
 - 3.2.1. IPRO -MIB..... 13
 - 3.2.2. IPRO-CAM-MIB 15
 - 3.2.3. PANA-CAMTRAP-MIB 41
- 4. Trap format 44
 - 4.1. SNMP general trap 45
 - 4.2. trap native events..... 47
- I. Appendix..... 49
 - A) extended MIB tree structure..... 49

1. Introduction

This document describes the setting information necessary for the network monitoring system to monitor the camera using the SNMP protocol, and tips for the network administrator to perform camera maintenance.

This document does not provide detailed descriptions of SNMP specifications or standard MIBs.

1.1. Definition

Word	definition
SNMP	Simple Network Management Protocol
SNMP agent	In this document, it is a network camera.
SNMP manager	An SNMP client that can monitor an SNMP agent.
Network monitoring system	A system for monitoring devices connected to a network. Although the status of network devices can be obtained not only by SNMP but also by other methods, in this document, what has a function as an SNMP manager is expressed as a network monitoring system.
Network administrator	An administrator who receives network device error notifications issued by the network monitoring system and performs maintenance according to each device.
Native event	Event notification function that already exists in i-PRO cameras. The settings can be changed by setting screen accessed and displayed by a web browser, CGI, or a dedicated setting tool. Existing events include terminal alarms, motion detection alarms, and command alarms.
MIB	Management Information Base
Standard MIB	MIB as defined in RFC
Extended MIB	Object ID .iso (1) .org (3) .dod (6) .internet (1) .private (4) .enterprises (1). A MIB that defines: MIBs extended for i-PRO cameras can be downloaded from the web page.
Object	What is uniquely defined in the MIB.
Object Name	The name of the Object.
Object ID (OID)	An ID that uniquely defines an Object when communicating with SNMP.
Index	A row heading in an SNMP table.
Version	This document refers to SNMP Version.
PDU-Type	How to get the value using SNMP. There are Get, get-next, get-response, set, trap, inform, etc.
i-PRO(Co.,Ltd.)	Company name.
IPRO (-MIB)	Name of the MIB that defines the object ID that i-PRO Co.,Ltd. applied for in the extended MIB
<i>ipro</i>	Object name defined in the IPRO-MIB .

1.2. Target devices

The devices mentioned in this document are i-PRO EXTREME series and WV-SUD638.

This document describes the features in the latest firmware version.

The differences in functions for each model will be explained in the next chapter.

2. Overview of SNMP support for i-PRO cameras

Below is a summary of the SNMP Version and PDU type support status for each model.

WV-SUD638

Version	PDU-Type:Get	PDU-Type:Set	PDU-Type:Trap
V1	Available	Not supported	Not supported
V2c	Available	Not supported	Not supported
V3	Not supported	Not supported	Not supported

I-PRO EXTREME series

Version	PDU-Type:Get	PDU-Type:Set	PDU-Type:Trap
V1	Available	Not supported	Not supported
V2c	Available	Not supported	Notifiable
V3	Available	Not supported	Not supported

2.1. SNMP version

- i-PRO EXTREME series supports v1, v2c, v3 GET. It also supports v2c Trap.
- WV-SUD638 and WV-SUD638B support GET of v1 and v2c.

2.2. PDU-type

The PDU-Types supported by i-PRO cameras are shown below.

Get, Get-next, Get-bulk:

For i-PRO camera, you can get the value of SNMP object by GET request using SNMP v1, v2c. The i-PRO EXTREME series also supports GET of SNMPv3.

i-PRO cameras can return get-response to Get, get-next and get-bulk requests.

Trap:

You can configure the i-PRO camera to use SNMP v2c for TRAP notification. You can get the value of the SNMP object by receiving the TRAP notification.

3. MIBs supported by i-PRO cameras

The i-PRO camera responds with standard MIB (mainly mib-2) and extended MIB (ipro). This chapter describes the response contents of the standard MIB supported by the camera and the OID of the extended MIB.

Overview of SNMP responses that i-PRO cameras respond to:

```
+ iso(1)
| + org(3)
| | + dod(6)
| | | + internet(1)
| | | | + mgmt(2)
| | | | | + mib-2(1)
| | | | | | + system(1)
| | | | | | + interfaces(2)
| | | | | | + ip(4)
| | | | | | + icmp(5)
| | | | | | + tcp(6)
| | | | | | + udp(7)
| | | | | | + snmp(11)
| | | | | | + ipv6MIB(55)
| | | | | | + ifMIB(31)
| | | | | + snmpV2(6)
| | | | | | + snmpModules(3)
| | | | | | | + snmpUsmMIB(15)
| | | | | + enterprises(1)
| | | | | | + ipro(57501)
| | | | | | | + General(1)
| | | | | | | + iproCam(100)
| | | | | | | | + iProCamTrap(3)
| | | | | | | | | + iProCamEventType(1)
| | | | | | | | | + iProEvent(2)
| | | | | | | | | | + iProEventID(1)
| | | | | | | | | | + iProEventName(2)
| | | | | | | | | | + iProEventMessage(3)
| | | | | | | | | | + iProEventUserMessage(4)
| | | | | | | | | | + iProEventType(5)
| | | | | + nema(1206)
```

3.1. Standard MIB

i-PRO cameras support OID responses defined by the following standard MIBs at maximum.

SNMPv2-MIB

IF-MIB

IP-MIB

TCP-MIB

UDP-MIB

RFC1213-MIB

IPV6-MIB

IF-MIB

SNMPv2-MIB

SNMP-FRAMEWORK-MIB

SNMP-MPD-MIB

SNMP-USER-BASED-SM-MIB

SNMP-VIEW-BASED-ACM-MIB

The i-PRO camera does not support the following MIBs when requested with v1 and v2c.

SNMP-FRAMEWORK-MIB

SNMP-MPD-MIB

SNMP-USER-BASED-SM-MIB

SNMP-VIEW-BASED-ACM-MIB

3.2. Extended MIB of i-PRO Corporation

The i-PRO camera responds to the extended OID 258 acquired by i-PRO Corporation as defined in this chapter.

The response OID changes depending on the camera's ability and status. For example, a camera without PTZ function does not return a response to the OID defined for PTZ cameras in the MIB.

For details on how to input the extended MIB, refer to the manual of the monitoring system you are using.

3.2.1. IPRO -MIB

PANASONIC-MIB is OID 258 for Panasonic Corporation that has been applied to IANA, Defines .iso(1).org(3).dod(6).internet(1).private(4).enterprises(1). ipro(57501).

SNMPv2-SMI and SNMPv2-TC are required to interpret this MIB.

```
+ ipro(57501)
| + General(1)
| | + manufacturer(1)
| | + model(2)
| | + serialNumber(3)
| | + dayTime(5)
```

manufacturer (1)

objectName	<i>manufacturer</i>
object id	.1.3.6.1.4.1.57501.1.1
SYNTAX RANGE	DisplayString (SIZE (0..63))
DESCRIPTION	Vendor name "i-PRO"

model (2)

objectName	<i>model</i>
object id	.1.3.6.1.4.1.57501.1.2
SYNTAX RANGE	DisplayString (SIZE (0..47))
DESCRIPTION	Model number

serialNumber (3)

objectName	<i>serialNumber</i>
object id	.1.3.6.1.4.1.57501.1.3
SYNTAX RANGE	DisplayString (SIZE (0..47))
DESCRIPTION	Serial number of the device

dayTime(10)

objectName	<i>dayTime</i>
object id	.1.3.6.1.4.1.57501.1.5
SYNTAX RANGE	DateAndTime
DESCRIPTION	Current time of the device

- Restrictions
 - 12 hours notation, but can't get AM and PM

3.2.2. IPRO-CAM-MIB

To read this MIB, IPRO-MIB, SNMPv2-SMI, and SNMPv2-TC are required.

Summary of MIBs defined in IPRO-CAM-MIB:

```
+ ipro(57501)
| + General(1)
| + iproCam(100)
| | + camCapabilities(1)
| | | + camInformations(1)
| | | + PowerSupply(2)
| | | + ImageSensor(5)
| | | + IrCutFilter(6)
| | | + rs485(7)
| | | + inputOutputTerminal(8)
| | | + Strage(10)
| | | + TemperatureSensor(11)
| | | + Image(12)
| | | + PTZ(13)
| | | + Wiper(14)
| | | + IRLED(15)
| | | + FAN(16)
| | | + Heater(17)
| | | + Defroster(18)
```

3.2.2.1. General

General Information

I-PRO-CAM-MIB

```

+ ipro(57501)
| + iproCam(100)
| | + camCapabilities(1)
| | | + camInformations(1)
| | | | + iproCamera(1)
| | | | + camType(2)
| | | | + camFisheye(5)
| | | | + hardwareSelfDiagnosisMain(6)
| | | | + hardwareSelfDiagnosisCamera(7)
| | | | + camHourMeter(9)
    
```

camType

objectName	<i>camType</i>
object id	.1.3.6.1.4.1.57501.100.1.1.2
SYNTAX RANGE	DisplayString (SIZE (0..255))
DESCRIPTION	Camera type

- Response example
 - "fixed", "dome", "fixed_dome"

camFisheye

objectName	<i>camFisheye</i>
object id	.1.3.6.1.4.1.57501.100.1.1.5
SYNTAX RANGE	DisplayString (SIZE (0..255))
DESCRIPTION	In the case of a fisheye camera, respond "yes".

- Only fisheye cameras respond

hardwareSelfDiagnosisMain, hardwareSelfDiagnosisCamera

Self check

objectName	<i>hardwareSelfDiagnosisMain</i>
object id	.1.3.6.1.4.1.57501.100.1.1.6
SYNTAX RANGE	DisplayString (SIZE (0..255))
DESCRIPTION	Hardware1 Self check

objectName	<i>hardwareSelfDiagnosisCamera</i>
object id	.1.3.6.1.4.1.57501.100.1.1.7
SYNTAX RANGE	DisplayString (SIZE (0..255))
DESCRIPTION	Hardware2 Self check

- Recommended monitoring method
 - Normal when all values are 0-, and abnormal status if a number other than 0 is answered. It is recommended to get a value every few hours and monitor the change of the value
- When an error notification is received from the network monitoring system
 - Refer to the instruction manual for each model

camHourMeter

objectName	<i>camHourMeter</i>
object id	.1.3.6.1.4.1.57501.100.1.1.9
SYNTAX RANGE	DisplayString (SIZE(0..4))
DESCRIPTION	Years and months since the camera was manufactured.

3.2.2.2. Power

IPRO-CAM-MIB

```

+ ipro(57501)
| + iproCam(100)
| | + camCapabilities(1)
| | | + PowerSupply(2)
| | | | + pwState(1)
| | | | + pwSupplyCount(2)
| | | | + pwSupplyCountLimit(3)
| | | | + pwType(6)
    
```

pwState

objectName	<i>pwState</i>
object id	.1.3.6.1.4.1.57501.100.1.2.1
SYNTAX RANGE	INTEGER { OK(1), Disabled(2), Warning(3), Failed(4) }
DESCRIPTION	Power status

Responds with a value other than 1 (OK) when the number of power ON times exceeds Limit times.

- Recommended monitoring method
 - Check at periodic power-on or restart timing due to setting changes, etc.

pwSupplyCount

objectName	<i>pwSupplyCount</i>
object id	.1.3.6.1.4.1.57501.100.1.2.2
SYNTAX RANGE	Unsigned32
DESCRIPTION	Power-on count

pwSupplyCountLimit

objectName	<i>pwSupplyCountLimit</i>
object id	.1.3.6.1.4.1.57501.100.1.2.3
SYNTAX RANGE	Unsigned32
DESCRIPTION	The limit value of pwSupplyCount.

Responds when pwState is other than 1 (OK) when the number of power ON times exceeds Limit times.

- Note
 - Currently, the value setting is not supported.

pwType

objectName	<i>pwType</i>
object id	.1.3.6.1.4.1.57501.100.1.2.6
SYNTAX RANGE	INTEGER { ok(1), Disabled(2), warning(3), Failed(4) }
DESCRIPTION	The type of power supply currently in use.

- Recommended monitoring method
 - WV-X6533L, WV-S6532L, WV-X6531N, WV-X6511N, WV-SUD638
 - Connect to the correct power supply and check if there is any change during operation from the response string obtained first.
 - Fixed cameras, fisheye cameras, cameras other than those listed above
 - Even if the power is disconnected, there is no functional limitation as long as PoE is connected.
 - If you want to check for unintended power supply replacement, perform regular monitoring.

- When an error notification is received from the network monitoring system
 - WV-X6533L, WV-S6532L, WV-X6531N, WV-X6511N, WV-SUD638
 - The power cable is disconnected. The temperature control function such as fan or heater may be disabled. Make sure that the camera is connected to the correct power.
 - Fixed cameras, fisheye cameras, cameras other than those listed above
 - The power supply type has been changed during operation. Check if this change is intended

3.2.2.3. imageSensor

I-PRO-CAM-MIB

```
+ ipro(57501)
| + iproCam(100)
| | + camCapabilities(1)
| | | + ImageSensor(5)
| | | | + imgSensorNumber(1)
```

imgSensorNumber

objectName	<i>imgSensorNumber</i>
object id	.1.3.6.1.4.1.57501.100.1.5.1
SYNTAX RANGE	Unsigned32
DESCRIPTION	Number of image sensors

3.2.2.4. RS485

IPRO-CAM-MIB

```
+ ipro(57501)
| + iproCam(100)
| | + camCapabilities(1)
| | | + rs485(7)
| | | | + rs485State(1)
```

rs485State

objectName	<i>rs485State</i>
object id	.1.3.6.1.4.1.57501.100.1.7.1
SYNTAX RANGE	INTEGER { OK(1), Disabled(2), Warning(3), Failed(4) }
DESCRIPTION	rs485 status

- Restrictions
 - Currently, there is no camera that supports the abnormal status notification (3, 4)

3.2.2.5. I/O, Input Outout Terminal

IPRO-CAM-MIB

```

+ ipro(57501)
| + iproCam(100)
| | + camCapabilities(1)
| | | + inputOutputTerminal(8)
| | | | + ioNumber(1)
| | | | + ioTable(2)
| | | | | + ioEntry(1)
| | | | | | + ioIndex(1)
| | | | | | + ioName(2)
| | | | | | + ioAlarm(3)
| | | | | | + ioSetting(4)
| | | | | | + ioSettingMode(5)
| | | | | | + ioSettingCh(6)
    
```

ioNumber

objectName	<i>ioNumber</i>
object id	.1.3.6.1.4.1.57501.100.1.8.1
SYNTAX RANGE	INTEGER
DESCRIPTION	Number of alarm terminals

ioTable

One table row is returned for each IO.

ioIndex is the same number as the IO number in the web settings.

To know the status of each IO, attach the index of the monitored IO to all the columns in the table.

Response example:

Index	<i>ioIndex</i>	<i>ioName</i>	<i>ioAlarm</i>	<i>ioSetting</i>	<i>ioSettingMode</i>
1	1	Terminal 1	3(None)	0	no
2	2	Terminal 2	3(None)	0	no
3	3	Terminal 3	3(None)	0	no

ioIndex

objectName	<i>ioIndex</i>
object id	.1.3.6.1.4.1.57501.100.1.8.2.1.1
SYNTAX RANGE	INTEGER (SIZE (0..255))
DESCRIPTION	IO Indexq

ioName

objectName	<i>ioName</i>
object id	.1.3.6.1.4.1.57501.100.1.8.2.1.2
SYNTAX RANGE	DisplayString (SIZE (0..255))
DESCRIPTION	Terminal name

ioAlarm

objectName	ioAlarm
object id	.1.3.6.1.4.1.57501.100.1.8.2.1.3
SYNTAX RANGE	INTEGER 1:High, 2:Low, 3:None
DESCRIPTION	Alarm

ioSetting

objectName	<i>ioSetting</i>
object id	.1.3.6.1.4.1.57501.100.1.8.2.1.4
SYNTAX RANGE	INTEGER
DESCRIPTION	Terminal setting number

ioSettingMode

objectName	<i>ioSettingMode</i>
object id	.1.3.6.1.4.1.57501.100.1.8.2.1.1
SYNTAX RANGE	DisplayString (SIZE (0..4))
DESCRIPTION	Whether the above setting detects an open / short circuit alarm. "nc": Alarm is detected when opened, "no": Alarm is detected when shorted

ioSettingCh

objectName	<i>ioSettingCh</i>
object id	.1.3.6.1.4.1.57501.100.1.8.2.1.6
SYNTAX RANGE	INTEGER
DESCRIPTION	Setting / Terminal (Index) operation target camera number Setting. no response if not supported

3.2.2.6. Storage

Information about the SD card.

I-PRO-CAM-MIB

```

+ ipro(57501)
| + iproCam(100)
| | + camCapabilities(1)
| | | + Strage(10)
| | | | + strageNumber(1)
| | | | + StrageTable(2)
| | | | | + strageEntry(1)
| | | | | | + strageIndex(1)
| | | | | | + strageName(2)
| | | | | | + strageState(3)
| | | | | | + strageRemainingCapacity(4)
| | | | | | + eraseCount(5)
| | | | | | + eraseCountLimit(6)
| | | | | | + overwriteCount(7)
| | | | | | + overwriteCountLimit(8)
| | | | | + strageInfo(9)
    
```

storageNumber

objectName	<i>storageNumber</i>
object id	.1.3.6.1.4.1.57501.100.1.10.1
SYNTAX RANGE	INTEGER
DESCRIPTION	Number of SD card slots

StorageTable

One SD card is returned for each SD card.

If there is no SD card slot, this table will not respond.

Response example:

Index	<i>storage Index</i>	<i>storage Name</i>	<i>storage State</i>	<i>storageRemainingCapacity</i>	<i>overwriteCount</i>	<i>overwriteCountLimit</i>	<i>storage Info</i>
1	2	SD1	2	0	0	2000	No Media

storageIndex

objectName	<i>storageIndex</i>
object id	1.3.6.1.4.1.57501.100.1.10.2.1.1
SYNTAX RANGE	INTEGER
DESCRIPTION	Index #

storageName

objectName	<i>storageName</i>
object id	1.3.6.1.4.1.57501.100.1.10.2.1.2
SYNTAX RANGE	DisplayString (SIZE (0..255))
DESCRIPTION	Identification name

storageState

objectName	<i>storageState</i>
object id	1.3.6.1.4.1.57501.100.1.10.2.1.3
SYNTAX RANGE	INTEGER { OK(1), Disabled(2), Warning(3), Failed(4) }
DESCRIPTION	storage status.

storageState returns a response other than OK (1) when Storage needs to be replaced.

Recommended monitoring method

Obtain this value for each recordable time calculated by "Recording Time Calucutator for Network Camera with SD Memory Card", and replace the SD memory card if a response other than OK (1) is returned.

"Recording Time Calculator for Network Camera with SD Memory Card"

https://www.psn-web.net/ssbu-t/Useful_tool/sd_Calculator/index.html

storageRemainingCapacity

objectName	<i>storageRemainingCapacity</i>
object id	1.3.6.1.4.1.57501.100.1.10.2.1.4
SYNTAX RANGE	Integer32
DESCRIPTION	Remaining capacity (%)

- Recommended monitoring method
 - By regularly acquiring the status of the remaining recording capacity, it is possible to replace the SD card before overwriting.
 - It is recommended to acquire the values at intervals sufficiently shorter than the period calculated by the “Recording Time Calculator for Network Camera with SD Memory Card”.

“Recording Time Calculator for Network Camera with SD Memory Card”

https://www.psn-web.net/ssbu-t/Useful_tool/sd_Calculator/index.html

overwriteCount

objectName	<i>overwriteCount</i>
object id	.1.3.6.1.4.1.57501.100.1.10.2.1.7
SYNTAX RANGE	Integer32
DESCRIPTION	Overwrite count

overwriteCountLimit

objectName	<i>overwriteCountLimit</i>
object id	.1.3.6.1.4.1.57501.100.1.10.2.1.8
SYNTAX RANGE	Integer32
DESCRIPTION	Maximum number of overwrites

storageInfo

objectName	<i>storageInfo</i>
object id	.1.3.6.1.4.1.57501.100.1.10.2.1.9
SYNTAX RANGE	DisplayString (SIZE (0..255))
DESCRIPTION	Meaning of SD card abnormal status

- Recommended monitoring method
 - When using an SD card, it is abnormal if the response string changes during operation and continues.
- When an error notification is received from the network monitoring system
 - Check the table below for details

Response String	Cause	Examples of measures
""	normal	
No Media	No SD card	
Error	Abnormal	
Error(Unsupported SD memory card)	Non-compliant SD card	Check the SD card and replace it with an SD card supported by the camera. SD cards supported by i-PRO cameras are available on the website
Error(Password mismatch)	Password mismatch	Review the password and set again from "Settings".
Error(Not formatted)	Formatting, unformatted	Perform "Format" from "Settings". There is no problem with the SD card if it returns to normal after a while after formatting.
Checking	Check disc in progress	If it returns to normal after a while, there is no problem with the SD card.
Writeprotect	SD card is in LOCK state	The SD card tab is LOCK.

3.2.2.7. Temperature sensor

Only models equipped with a temperature sensor respond.

I-PRO-CAM-MIB

```

+ ipro(57501)
| + iproCam(100)
| | + camCapabilities(1)
| | | + TemperatureSensor(11)
| | | | + TempSensorNumber(1)
| | | | + TempSensorTable(2)
| | | | | + TempSensorEntry(1)
| | | | | | + tempSensorIndex(1)
| | | | | | + tempSensorName(2)
| | | | | | + tempSensorState(3)
| | | | | | + tempSensorInfo(4)
    
```

TempSensorNumber

objectName	<i>TempSensorNumber</i>
object id	.1.3.6.1.4.1.57501.100.1.11.1
SYNTAX RANGE	INTEGER
DESCRIPTION	Number of temperature sensors

TempSensorTable

This table allows you to check the abnormal state of the temperature sensor.

Response example:

(index)	tempSensorIndex	tempSensorName	tempSensorState
1	1	tempSensor1	1
2	2	tempSensor2	1

- Recommended monitoring method
 - If anything other than (1) responds, it is abnormal.
 - If you want to monitor the temperature sensor stop state due to power cable disconnection
 - If you want to monitor temperature sensor abnormalities

- When an error notification is received from the network monitoring system
 - Disabled(2)
 - The temperature sensor is stopped due to the power cable being disconnected. Connect the power cable.
 - Failed(4)
 - The temperature sensor is in an abnormal state

tempSensorIndex

objectName	<i>tempSensorIndex</i>
object id	.1.3.6.1.4.1.57501.100.1.11.2.1.1
SYNTAX RANGE	INTEGER
DESCRIPTION	Index

tempSensorName

objectName	<i>tempSensorName</i>
object id	.1.3.6.1.4.1.57501.100.1.11.2.1.2
SYNTAX RANGE	DisplayString (SIZE (0..255))
DESCRIPTION	identification name

tempSensorState

objectName	<i>tempSensorState</i>
object id	.1.3.6.1.4.1.57501.100.1.11.2.1.3
SYNTAX RANGE	INTEGER { OK(1), Disabled(2), Warning(3), Failed(4) }
DESCRIPTION	Sensor status

3.2.2.8. Image capture mode

IPRO-CAM-MIB

```

+ ipro(57501)
| + iproCam(100)
| | + camCapabilities(1)
| | | + Image(12)
| | | | + ImageCaptureMode(1)
| | | | | + imageSelect(1)
| | | | | + imageRaito(2)
| | | | | + imageMaxFps(3)
    
```

imageSelect

objectName	<i>imageSelect</i>
object id	.1.3.6.1.4.1.57501.100.1.12.1.1
SYNTAX RANGE	DisplayString (SIZE (0..255))
DESCRIPTION	pixel Example : "2m"

imageRaito

objectName	<i>imageRaito</i>
object id	.1.3.6.1.4.1.57501.100.1.12.1.2
SYNTAX RANGE	DisplayString (SIZE (0..255))
DESCRIPTION	image Raito Example : "4_3", "16_9", "1_1"

imageMaxFps

objectName	<i>imageMaxFps</i>
object id	.1.3.6.1.4.1.57501.100.1.12.1.3
SYNTAX RANGE	DisplayString (SIZE (0..255))
DESCRIPTION	Maximum frame rate. Unit fps

3.2.2.1. Stream settings

I-PRO-CAM-MIB

```

+ ipro(57501)
| + iproCam(100)
| | + camCapabilities(1)
| | | + streamNumber(2)
| | | + StreamTable(3)
| | | + StreamEntry(1)
| | | | + streamIndex(1)
| | | | + streamName(2)
| | | | + streamTransmission(3)
| | | | + streamEncodingFormat(4)
| | | | + captureWidth(5)
| | | | + captureHeight(6)
    
```

streamNumber

objectName	<i>streamNumber</i>
object id	.1.3.6.1.4.1.57501.100.1.12.2
SYNTAX RANGE	Unsigned32
DESCRIPTION	Number of stream setting

Number of settings that can be distributed among the “Stream(n)” settings in Setup> Image / Audio> Image settings. For example, if only stream delivery using Stream(2) and Stream(3) settings is possible, 2 is returned.

StreamTable

For example, if stream delivery using Stream(2) and Stream(3) settings is possible, this table responds by skipping Index1 such as streamIndex.2 = 2, streamIndex.3 = 3.

Response example:

```

.1.3.6.1.4.1.57501.100.1.12.3.1.1.2(streamIndex.2) = 2
.1.3.6.1.4.1.57501.100.1.12.3.1.1.3(streamIndex.3) = 3
.1.3.6.1.4.1.57501.100.1.12.3.1.2.2(streamName.2) = stream2
.1.3.6.1.4.1.57501.100.1.12.3.1.2.3(streamName.3) = stream3
:::
    
```

- Recommended monitoring method
 - If you want to keep a history of setting changes by the camera administrator
- When an error notification is received from the network monitoring system
 - Settings changed. If it is an unintended change, take action such as returning the setting.

streamIndex

objectName	<i>streamIndex</i>
object id	.1.3.6.1.4.1.57501.100.1.12.3.1.1
SYNTAX RANGE	Unsigned32
DESCRIPTION	Index

storageName

objectName	<i>storageName</i>
object id	.1.3.6.1.4.1.57501.100.1.12.3.1.2
SYNTAX RANGE	DisplayString
DESCRIPTION	"Stream1", "Stream2", ..."Stream4"

streamTransmission

objectName	<i>streamTransmission</i>
object id	.1.3.6.1.4.1.57501.100.1.12.3.1.3
SYNTAX RANGE	DisplayString
DESCRIPTION	Stream delivery on / off setting

streamEncodingFormat

objectName	<i>streamEncodingFormat</i>
object id	.1.3.6.1.4.1.57501.100.1.12.3.1.4
SYNTAX RANGE	DisplayString
DESCRIPTION	Stream(Index)Image capture size

3.2.2.2. Pan, Tilt, Zoom

Only respond to models with PTZ function

I-PRO-CAM-MIB

```
+ ipro(57501)
| + iproCam(100)
| | + camCapabilities(1)
| | | + PTZ(13)
| | | | + Pan(1)
| | | | | + panState(1)
| | | | | + panCount(2)
| | | | | + panCountLimit(3)
| | | | + Tilt(2)
| | | | | + tiltState(1)
| | | | | + tiltCount(2)
| | | | | + tiltCountLimit(3)
| | | | + Zoom(3)
| | | | | + zoomState(1)
| | | | | + zoomCount(2)
| | | | | + zoomCountLimit(3)
| | | | + Focus(4)
| | | | | + focusState(1)
| | | | | + focusCount(2)
| | | | | + focusCountLimit(3)
```

Pan

objectName	<i>panState</i>
object id	.1.3.6.1.4.1.57501.100.1.13.1.1
SYNTAX RANGE	INTEGER { OK(1), Disabled(2), Warning(3), Failed(4) }
DESCRIPTION	State

- Recommended monitoring method
 - When performing PTZ operation regularly, monitor other than OK (1)

objectName	<i>panCount</i>
object id	.1.3.6.1.4.1.57501.100.1.13.1.2
SYNTAX RANGE	Unsigned32
DESCRIPTION	Pan count

objectName	<i>panCount</i>
object id	.1.3.6.1.4.1.57501.100.1.13.1.2
SYNTAX RANGE	Unsigned32
DESCRIPTION	Number of warning starts. When the number of Count exceeds Limit, State is set to warning (3)

Tilt

objectName	<i>tiltState</i>
object id	.1.3.6.1.4.1.57501.100.1.13.2.1
SYNTAX RANGE	INTEGER { OK(1), Disabled(2), Warning(3), Failed(4) }
DESCRIPTION	State

- Recommended monitoring method
 - When performing PTZ operation regularly, monitor other than OK (1)

objectName	<i>tiltCount</i>
object id	.1.3.6.1.4.1.57501.100.1.13.2.2
SYNTAX RANGE	Unsigned32
DESCRIPTION	Tilt count

objectName	<i>tiltCountLimit</i>
object id	.1.3.6.1.4.1.57501.100.1.13.2.3
SYNTAX RANGE	Unsigned32
DESCRIPTION	Number of warning starts. When the number of Count exceeds Limit, State is set to warning (3)

Zoom

objectName	<i>zoomState</i>
object id	.1.3.6.1.4.1.57501.100.1.13.3.1
SYNTAX RANGE	INTEGER { OK(1), Disabled(2), Warning(3), Failed(4) }
DESCRIPTION	State

- Recommended monitoring method
 - When performing PTZ operation regularly, monitor other than OK (1)

objectName	<i>zoomCount</i>
object id	.1.3.6.1.4.1.57501.100.1.13.3.2
SYNTAX RANGE	Unsigned32
DESCRIPTION	Zoom count

objectName	<i>zoomCountLimit</i>
object id	.1.3.6.1.4.1.57501.100.1.13.3.3
SYNTAX RANGE	Unsigned32
DESCRIPTION	Number of warning starts. When the number of Count exceeds Limit, State is set to warning (3)

Focus

objectName	<i>focusState</i>
object id	.1.3.6.1.4.1.57501.100.1.13.4.1
SYNTAX RANGE	INTEGER { OK(1), Disabled(2), Warning(3), Failed(4) }
DESCRIPTION	State

- Recommended monitoring method
 - When performing Focus operation regularly, monitor other than OK (1)

objectName	<i>focusCount</i>
object id	.1.3.6.1.4.1.57501.100.1.13.4.2
SYNTAX RANGE	Unsigned32
DESCRIPTION	Focus count

objectName	<i>focusCountLimit</i>
object id	.1.3.6.1.4.1.57501.100.1.13.4.3
SYNTAX RANGE	Unsigned32
DESCRIPTION	Number of warning starts. When the number of Count exceeds Limit, State is set to warning (3)

3.2.2.3. IRLED

Only respond to models equipped with IR-LED

I-PRO-CAM-MIB

```
+ ipro(57501)
| + iproCam(100)
| | + camCapabilities(1)
| | | + IRLED(15)
| | | | + irLEDNumber(1)
```

irLEDNumber

objectName	<i>irLEDNumber</i>
object id	.1.3.6.1.4.1.57501.100.1.15.1
SYNTAX RANGE	INTEGER
DESCRIPTION	IR-LED equipped model

3.2.2.4. Wiper, Fan, Heater, Defroster

IPRO-CAM-MIB

```

+ ipro(57501)
| + iproCam(100)
| | + camCapabilities(1)
| | | + Wiper(14)
| | | | + wiperNumber(1)
| | | | + WiperTable(2)
| | | | | + WiperEntry(1)
| | | | | | + wiperIndex(1)
| | | | | | + wiperName(2)
| | | | | | + wiperState(3)
| | | | | | + wiperCount(4)
| | | | | | + wiperCountLimit(5)
| | | + FAN(16)
| | | | + fanNumber(1)
| | | | + FANTable(2)
| | | | | + FANEntry(1)
| | | | | | + fanIndex(1)
| | | | | | + fanName(2)
| | | | | | + fanState(3)
| | | + Heater(17)
| | | | + heaterNumber(1)
| | | | + HeaterTable(2)
| | | | | + HeaterEntry(1)
| | | | | | + heaterIndex(1)
| | | | | | + heaterName(2)
| | | | | | + heaterState(3)
| | | + Defroster(18)
| | | | + defrosterNumber(1)
| | | | + DefrosterTable(2)
| | | | | + DefrosterEntry(1)
| | | | | | + defrosterIndex(1)
| | | | | | + defrosterName(2)
| | | | | | + defrosterState(3)

```

- Recommended monitoring method
 - If you want to monitor the function stop status due to power cable disconnection, monitor the items other than (1) in State of each item.
- When an error notification is received from the network monitoring system
 - Disabled(2)
 - The function is stopped by disconnecting the power cable. Connect the power cable.

wiperNumber

objectName	<i>wiperNumber</i>
object id	.1.3.6.1.4.1.57501.100.1.14.2
SYNTAX RANGE	INTEGER
DESCRIPTION	Number of wipers

fanNumber

objectName	<i>fanNumber</i>
object id	.1.3.6.1.4.1.57501.100.1.16.1
SYNTAX RANGE	Unsigned32
DESCRIPTION	Number of fans

heaterNumber

objectName	<i>fanNumber</i>
object id	.1.3.6.1.4.1.57501.100.1.17.1
SYNTAX RANGE	Unsigned32
DESCRIPTION	Number of heaters

defrosterNumber

objectName	<i>defrosterNumber</i>
object id	.1.3.6.1.4.1.57501.100.1.18.1
SYNTAX RANGE	Unsigned32
DESCRIPTION	Number of defrosters

3.2.3. PANA-CAMTRAP-MIB

To read this MIB, IPRO-CAM-MIB, PANASONIC-MIB, PANA-SECURITY-MIB, SNMPv2-SMI, and SNMPv2-TC are required.

Summary of MIBs defined in IPRO-CAM-MIB :

```

+ ipro(57501)
| + iproCam(100)
| | + iProCamTrap(3)
| | | + iProCamEventType(1)
| | | | + iProCamEvent(1)
| | | | + iProCamAAA(2)
| | | + iProEvent(2)
| | | | + iProEventID(1)
| | | | + iProEventName(2)
| | | | + iProEventMessage(3)
| | | | + iProEventUserMessage(4)
| | | | + iProEventType(5)
    
```

iProCamEvent

Object Name	<i>iProCamEvent</i>
Object ID	.1.3.6.1.4.1.57501.100.1.1.5
DESCRIPTION	i-PRO camera native event

iProCamEvent is used as the value of NMPv2-MIB :: snmpTrapOID.0 (1.3.6.1.6.3.1.1.4.1.0).

iProEventID

Object Name	<i>iProEventID</i>
Object ID	.1.3.6.1.4.1.57501.100.3.2.1
SYNTAX RANGE	Gauge32
DESCRIPTION	Event ID of <i>iProCamEvent</i>

iProEventID List:

iProEventID	Native Event Name	Overview
sdfull(1)	Diag.	SD memory card is full of data
sdrecognition(2)	Diag.	SD memory card cannot be recognized
sdalarm(3)	Diag.	SD memory card is below the set remaining capacity
terminal(32)	Terminal 1, Terminal 2, Terminal 3	Terminal alarm
command(34)	Command alarm	Command alarm
VMD(47)	VMD	Video Motion Detection
Autotrack(49)	Auto track	Automatic tracking detection
intruder(50)	Alarm	Intruder detection
residence(51)	Alarm	Residence detection
intrusionDirection(52)	Alarm	Intrusion direction detection
Object(53)	Alarm	Object detection
SceneChange(54)	Alarm	Scene Change detection
audio(55)	Audio detection	audio detection
crossLine(56)	Alarm	cross line detection
VMD01(64)	VMD	Video Motion Detection in area 01
VMD02(65)	VMD	Video Motion Detection in area 02
VMD03(66)	VMD	Video Motion Detection in area 03
VMD04(67)	VMD	Video Motion Detection in area 04
autoTrack01(80)	Auto track	automatic tracking in area 01
autoTrack02(81)	Auto track	automatic tracking in area 02
autoTrack03(82)	Auto track	automatic tracking in area 03
autoTrack04(83)	Auto track	automatic tracking in area 04
coldStart(301)	(snmp trap only)	cold start
linkUp(303)	(snmp trap only)	link up
authenticationFailure(305)	(snmp trap only)	authentication Failure

iProEventName

Object Name	<i>iProEventName</i>
Object ID	.1.3.6.1.4.1.57501.100.3.2.2
SYNTAX RANGE	DisplayString (SIZE (0..255))
DESCRIPTION	Event Name of <i>iProCamEvent</i>

iProEventMessage

Object Name	<i>iProEventMessage</i>
Object ID	.1.3.6.1.4.1.57501.100.3.2.3
SYNTAX RANGE	INTEGER
DESCRIPTION	Event message set by the device

iProEventUserMessage

Object Name	<i>iProEventMessage</i>
Object ID	.1.3.6.1.4.1.57501.100.3.2.4
SYNTAX RANGE	DisplayString (SIZE (0..255))
DESCRIPTION	Event message set to native settings by the user

iProEventType

Object Name	<i>iProEventType</i>
Object ID	.1.3.6.1.4.1.57501.100.3.2.5
SYNTAX RANGE	DisplayString (SIZE (0..255))
DESCRIPTION	Event type of <i>iProCamEvent</i>

Event type list:

```

SYNTAX      INTEGER {
    momentary(0), -- momentary
    start(1),    -- start
    down(2),     -- down
    stop(3),     -- stop
    up(4)       -- up
}
    
```

4. Trap format

By setting the TRAP notification setting of SNMP of i-PRO camera to ON, you can receive the TRAP issued from the camera.

All i-PRO cameras respond with the following objects.

Object (OID)	Value
SNMPv2-MIB::sysUpTime.0 (1.3.6.1.2.1.1.3.0)	The time since the camera started
SNMPv2-MIB::snmpTrapOID.0 (1.3.6.1.6.3.1.1.4.1.0)	OID that represents the trap contents. Details will be described later.
Extended response	The i-PRO camera responds by expanding the TRAP message. Details will be described later.
SNMPv2-MIB::snmpTrapEnterprise.0 (1.3.6.1.6.3.1.1.4.3.0)	I-PRO-CAM-MIB::iProCamera (1.3.6.1.4.1.57501.100.1500)

4.1. SNMP general trap

The i-PRO camera responds by expanding the general-purpose trap as follows.

Setting item: coldStart

Notification timing: When the camera starts

Object Name	Value of coldStart
sysUpTime	The time since the camera started
snmpTrapOID	1.3.6.1.6.3.1.1.5.1.0 (SNMPv2-MIB::coldStart.0)
iProEventID	301(coldStart)
iProEventName	coldStart
iProEventMessage	coldStart
iProEventUserMessage	Character string set in the TRAP setting of SNMP.
iProEventType	0(momentary)
snmpTrapEnterprise	I-PRO-CAM-MIB::iProCamera (1.3.6.1.4.1.57501.100.1500)

Setting item: linkup

Notification timing: When the camera starts

Object Name	Value of linkup
sysUpTime	The time since the camera started
snmpTrapOID	1.3.6.1.6.3.1.1.5.4.0 (IF-MIB::linkUp.0)
iProEventID	303(linkUp)
iProEventName	linkUp
iProEventMessage	linkUp
iProEventUserMessage	Character string set in the TRAP setting of SNMP.
iProEventType	0(momentary)
snmpTrapEnterprise	I-PRO-CAM-MIB::iProCamera (1.3.6.1.4.1.57501.100.1500)

Setting item: authenticationFailure

Notification timing: When an SNMP authentication error occurs

Object Name	Value of authenticationFailure
sysUpTime	authenticationFailure of SNMP
snmpTrapOID	1.3.6.1.6.3.1.1.5.5.0 (SNMPv2-MIB::authenticationFailure.0)
iProEventID	305(authenticationFailure)
iProEventName	authenticationFailure
iProEventMessage	authFail
iProEventUserMessage	Character string set in the TRAP setting of SNMP.
iProEventType	0(momentary)
snmpTrapEnterprise	I-PRO-CAM-MIB::iProCamera (1.3.6.1.4.1.57501.100.1500)

4.2. trap native events

Notifies camera native events by TRAP.

The alarm notification object is common. The following objects will be notified by TRAP.

Object (OID)	description
<i>SNMPv2-MIB::sysUpTime.0</i> (1.3.6.1.2.1.1.3.0)	The time since the camera started
<i>SNMPv2-MIB::snmpTrapOID.0</i> (1.3.6.1.6.3.1.1.4.1.0)	<i>PANA-CAMTRAP-MIB::iProCamEvent.0</i> (1.3.6.1.4.1.57501.100.3.1.1.0)
<i>PANA-CAMTRAP-MIB::iProEventID.0</i> (.1.3.6.1.4.1.57501.100.3.2.1.0)	The ID assigned to the camera event. For the relationship between ID and event, please check <i>iProEventID</i> of PANA-CAMTRAP-MIB.
<i>PANA-CAMTRAP-MIB::iProEventName.0</i> (.1.3.6.1.4.1.57501.100.3.2.2.0)	Event Name
<i>PANA-CAMTRAP-MIB::iProEventMessage.0</i> (.1.3.6.1.4.1.57501.100.3.2.3.0)	Detailed explanation of the event
<i>PANA-CAMTRAP-MIB::iProEventUserMessage.0</i> (.1.3.6.1.4.1.57501.100.3.2.4.0)	The character string set to the existing TRAP setting of SNMP.
<i>PANA-CAMTRAP-MIB::iProEventType.0</i> (.1.3.6.1.4.1.57501.100.3.2.5.0)	0(momentary)
<i>SNMPv2-MIB::snmpTrapEnterprise.0</i> (1.3.6.1.6.3.1.1.4.3.0)	<i>I-PRO-CAM-MIB::iProCamera</i> (1.3.6.1.4.1.57501.100.1500)

Appendix

I. Appendix

A) extended MIB tree structure

```

+ ipro(57501)
| + General(1)
| | + manufacturer(1)
| | + model(2)
| | + serialNumber(3)
| | + dayTime(5)
+ iproCam(100)
| + camCapabilities(1)
| | + camInformations(1)
| | | + iproCamera(1)
| | | + camType(2)
| | | + camFisheye(5)
| | | + hardwareSelfDiagnosisMain(6)
| | | + hardwareSelfDiagnosisCamera(7)
| | | + camHourMeter(9)
| | + PowerSupply(2)
| | | + pwState(1)
| | | + pwSupplyCount(2)
| | | + pwSupplyCountLimit(3)
| | | + pwType(6)
| | + ImageSensor(5)
| | | + imgSensorNumber(1)
| | | + ImgSensorTable(2)
| | | | + ImgSensorEntry(1)
| | | | | + imgSensorIndex(1)
| | | | | + imgSensorState(2)
| | | | | + imgSensorCount(3)
| | | | | + imgSensorCountLimit(4)
| | + IrCutFilter(6)
| + rs485(7)
| | + rs485State(1)
+ inputOutputTerminal(8)
| + ioNumber(1)
| + ioTable(2)
| | + ioEntry(1)
| | | + ioIndex(1)
| | | + ioName(2)
| | | + ioAlarm(3)
| | | + ioSetting(4)
| | | + ioSettingMode(5)
| | | + ioSettingCh(6)
+ Strage(10)
| + strageNumber(1)
+ StrageTable(2)
| | + strageEntry(1)
| | | + strageIndex(1)
| | | + strageName(2)
| | | + strageState(3)
| | | + strageRemainingCapacity(4)
| | | + eraseCount(5)
| | | + eraseCountLimit(6)
| | | + overwriteCount(7)
| | | + overwriteCountLimit(8)
| | | + strageInfo(9)
| | + TemperatureSensor(11)
| | + TempSensorNumber(1)

```

```

+ TempSensorTable(2)
  + TempSensorEntry(1)
    + tempSensorIndex(1)
    + tempSensorName(2)
    + tempSensorState(3)
    + tempSensorInfo(4)
+ Image(12)
  + ImageCaptureMode(1)
  + imageSelect(1)
  + imageRaito(2)
  + imageMaxFps(3)
+ streamNumber(2)
+ StreamTable(3)
  + StreamEntry(1)
    + streamIndex(1)
    + streamName(2)
    + streamTransmission(3)
    + streamEncodingFormat(4)
    + captureWidth(5)
    + captureHeight(6)
+ PTZ(13)
  + Pan(1)
    + panState(1)
    + panCount(2)
    + panCountLimit(3)
  + Tilt(2)
    + tiltState(1)
    + tiltCount(2)
    + tiltCountLimit(3)
  + Zoom(3)
    + zoomState(1)
    + zoomCount(2)
    + zoomCountLimit(3)
  + Focus(4)
    + focusState(1)
    + focusCount(2)
    + focusCountLimit(3)
+ Wiper(14)
  + wiperNumber(1)
  + WiperTable(2)
    + WiperEntry(1)
      + wiperIndex(1)
      + wiperName(2)
      + wiperState(3)
      + wiperCount(4)
      + wiperCountLimit(5)
+ IRLED(15)
  + irLEDNumber(1)
  + IRLEDTable(2)
    + IRLEDEntry(1)
      + irLEDIndex(1)
      + irLEDName(2)
      + irLEDState(3)
+ FAN(16)
  + fanNumber(1)
  + FANTable(2)
    + FANEntry(1)
      + fanIndex(1)
      + fanName(2)
      + fanState(3)
+ Heater(17)
  + heaterNumber(1)
  + HeaterTable(2)
    + HeaterEntry(1)

```

SNMP MIB manual for i-PRO camera

						+ heaterIndex(1)
						+ heaterName(2)
						+ heaterState(3)
						+ Defroster(18)
						+ defrosterNumber(1)
						+ DefrosterTable(2)
						+ DefrosterEntry(1)
						+ defrosterIndex(1)
						+ defrosterName(2)
						+ defrosterState(3)
						+ iProCamTrap(3)
						+ iProCamEventType(1)
						+ iProCamEvent(1)
						+ iProCamAAA(2)
						+ iProEvent(2)
						+ iProEventID(1)
						+ iProEventName(2)
						+ iProEventMessage(3)
						+ iProEventUserMessage(4)
						+ iProEventType(5)