

SNMP MIB Guide

SNMP

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Version: 2.4

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Contact Information

Hanwha Vision Co., Ltd.

Hanwha Vision 6, Pangyo-ro 319beon-gil, Bundang-gu,
Seongnam-si, Gyeonggi-do, 13488, KOREA

www.hanwhavision.com

Hanwha Vision America

500 Frank W. Burr Blvd. Suite 43 Teaneck, NJ 07666

hanwhavisionamerica.com

Hanwha Vision Europe

Heriot House, Heriot Road, Chertsey, Surrey, KT16 9DT,
United Kingdom

hanwhavision.eu

Hanwha Vision Middle East FZE

Jafza View 18, Office 2001-2003, Po Box 263572, Jebel Ali
Free Zone, Dubai, United Arab Emirates

www.hanwhavision.com/ar



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1. Revision History

The table below provides the version information and revision history of this document.

Version	Date	Description
2.4	2022-12-16	[SNMP Hierarchy] * ObjectDetection Event added
2.3	2022-10-18	[SNMP Hierarchy] * Increased hddStatus up to 16
2.2	2021-04-01	[SNMP Commands] * Added SNMP v3 examples [SNMP Test] * Added SNMP v3 examples
2.2	2019-04-01	[MIB Hierarchy] * Added channel-based videoType and audioType OID
2.1	2018-12-15	[MIB Hierarchy] * Added serialNumber OID
2.0	2018-11-01	First edition.

2. MIB Hierarchy

OID (Object ID) provided by Hanwha Vision is as follows. "Hanwha Vision (hanwhaVision, 36849)" is located under "enterprise (1)", and "Security Division (securitySolution, 1)" under Hanwha Vision is assigned as "1". Under the Security Division, there are product families classified. In the product families, network camera (nwCam, 2) and encoder (encoder, 4) have a model based specific OID. Refer to 'SNMP Product ID (HTW_SNMP_Product_ID_en.pdf)' document for more details.

In SNMP MIB ver.2, new OID (products, 9) is added. This OID includes integrated information for recorders (NVR, DVR), network cameras and encoders.

```
iso(1)
|_ org(3)
|_ dod(6)
|_ internet(1)
|_ private(4)
|_ enterprise(1)
|_ hanwhaVision(36849)
|_ securitySolution(1)
|_ dvr(1)
|_ nwCam(2)
|_ nvr(3)
|_ encoder(4)
|_ decoder(5)
|_ accessControl(6)
|_ sensor(7)
|_ pcSoftware(8)
```

NOTE

From X series version 1.40 and P series version 1.3, this MIB version is supported.

The MIB hierarchy and object IDs for products are as follows. All features are described in new MIB but, specific features are dedicated to specific products. For example, hddStatus and raidStatus are for recorder products.

2.1. Products MIB Hierarchy and Object IDs

MIB Hierarchy				Object Name	Value	Read/W rite
10	11	12	13			
1				modelName	For example; "SRD-1670", "XNP-6320H"	RO
2				systemInfo		
	1			SystemSubInfo		
		1		fwVersionInfo	"v1.xx_XXXXXXXXXXXX"	RO
		2		dateTimeInfo	"yyyy-mm-dd hh-mm-ss"	RW
		3		reboot	"GMT+hh:mm"	RW
		4		factoryReset	0 or 1	RW
		5		networkInterface	1 to 4	RO
		6		alarmInputCount	1 to 16	RO
		7		alarmOutputCount	1 to 16	RO
		8		sdCardCount	1 to 5	RO
		9		serialNumber	"XXXXXXXX"	RO
	2			avInfo		
		1		videoType		
			1	videoTypeAtCH01	"NTSC" or "PAL"	RW
			2	videoTypeAtCH02	"NTSC" or "PAL"	RW
			3	videoTypeAtCH03	"NTSC" or "PAL"	RW
			4	videoTypeAtCH04	"NTSC" or "PAL"	RW
			64	videoTypeAtCH64	"NTSC" or "PAL"	RW
		2		audioType		
			1	audioTypeAtCH01	"G.711" or "G.726" or "AAC"	RO

MIB Hierarchy				Object Name	Value	Read/W rite
			2	audioTypeAtCH02	"G.711" or "G.726" or "AAC"	RO
			3	audioTypeAtCH03	"G.711" or "G.726" or "AAC"	RO
			4	audioTypeAtCH04	"G.711" or "G.726" or "AAC"	RO
			64	audioTypeAtCH64	"G.711" or "G.726" or "AAC"	RO
		3		channelCount	1 to 64	RO
3				netInfo		
		1		net01		
			1	macAddress01	"XX:XX:XX:XX:XX:XX"	RO
			2	ipAddress01	"xxx.xxx.xxx.xxx"	RW
			3	gateway01	"xxx.xxx.xxx.xxx"	RW
			4	subnetMask01	"xxx.xxx.xxx.xxx"	RW
		2		net02		
			1	macAddress02	"XX:XX:XX:XX:XX:XX"	RO
			2	ipAddress02	"xxx.xxx.xxx.xxx"	RW
			3	gateway02	"xxx.xxx.xxx.xxx"	RW
			4	subnetMask02	"xxx.xxx.xxx.xxx"	RW
		4		net04		
			1	macAddress04	"XX:XX:XX:XX:XX:XX"	RO
			2	ipAddress04	"xxx.xxx.xxx.xxx"	RW
			3	gateway04	"xxx.xxx.xxx.xxx"	RW
			4	subnetMask04	"xxx.xxx.xxx.xxx"	RW
3				systemNotification		
	1			powerNotifcation		
		1		coldPowerOnDate	"yyyy-mm-dd hh-mm-ss"	RO
		2		warmPowerOnDate	"yyyy-mm-dd hh-mm-ss"	RO
		3		shutDownDate	"yyyy-mm-dd hh-mm-ss"	RO
		4		abnormalStartDate	"yyyy-mm-dd hh-mm-ss"	RO
	2			videoStatus		

MIB Hierarchy			Object Name	Value	Read/W rite	
		1	videoStatusAtCH01	"On" or "Vloss" or "Disable" or "NotSupported"	RO	
		2	videoStatusAtCH02	"On" or "Vloss" or "Disable" or "NotSupported"	RO	
		3	videoStatusAtCH03	"On" or "Vloss" or "Disable" or "NotSupported"	RO	
		4	videoStatusAtCH04	"On" or "Vloss" or "Disable" or "NotSupported"	RO	
		64	videoStatusAtCH64	"On" or "Vloss" or "Disable" or "NotSupported"	RO	
	3		otherStatus			
		1	recordStatus	"On" or "Off" or "Fail"	RO	
		2	fanStatus	"OK" or "Fail"	RO	
		3	batteryStatus	"OK" or "Fail"	RO	
		4	beepStatus	"On" or "Off"	RO	
4			eventStatus			
	1		alarmInput			
		1	alarmInput01			
			1	alarmInputStatus01	"Low" or "High"	RO
			2	alarmInputDate01	"yyyy-mm-dd hh-mm-ss"	RO
		2	alarmInput02			
			1	alarmInputStatus02	"Low" or "High"	RO
			2	alarmInputDate02	"yyyy-mm-dd hh-mm-ss"	RO
		16	alarmInput16			
			1	alarmInputStatus16	"Low" or "High"	RO
			2	alarmInputDate16	"yyyy-mm-dd hh-mm-ss"	RO
	2		alarmOutput			
		1	alarmOutput01			
			1	alarmOutputStatus01	"Low" or "High"	RW
			2	alarmOutputDate01	"yyyy-mm-dd hh-mm-ss"	RO
		2	alarmOutput02			
			1	alarmOutputStatus02	"Low" or "High"	RW
			2	alarmOutputDate01	"yyyy-mm-dd hh-mm-ss"	RO

MIB Hierarchy			Object Name	Value	Read/W rite
	16		alarmOutput16		
		1	alarmOutputStatus16	"Low" or "High"	RW
		2	alarmOutputDate16	"yyyy-mm-dd hh-mm-ss"	RO
3			motionDetection		
	1		motionDetectionAtCH01		
		1	motionDetectionStatusAtC H01	"Low" or "High"	RO
		2	motionDetectionDateAtCH0 1	"yyyy-mm-dd hh-mm-ss"	RO
	2		motionDetectionAtCH2		
		1	motionDetectionStatusAtC H02	"Low" or "High"	RO
		2	motionDetectionDateAtCH0 2	"yyyy-mm-dd hh-mm-ss"	RO
	64		motionDetectionAtCH64		
		1	motionDetectionStatusAtC H64	"Low" or "High"	RO
		2	motionDetectionDateAtCH6 4	"yyyy-mm-dd hh-mm-ss"	RO
4			videoAnalytics		
	1		videoAnalyticsAtCH01		
		1	videoAnalyticsStatusAtCH0 1	"Low" or "High"	RO
		2	videoAnalyticsDateAtCH01	"yyyy-mm-dd hh-mm-ss"	RO
	2		videoAnalyticsAtCH02		
		1	videoAnalyticsStatusAtCH0 2	"Low" or "High"	RO
		2	videoAnalyticsDateAtCH02	"yyyy-mm-dd hh-mm-ss"	RO
	64		videoAnalyticsAtCH64		
		1	videoAnalyticsStatusAtCH6 4	"Low" or "High"	RO
		2	videoAnalyticsDateAtCH64	"yyyy-mm-dd hh-mm-ss"	RO
5			faceDetection		
	1		faceDetectionAtCH01		

MIB Hierarchy			Object Name	Value	Read/W rite
		1	faceDetectionStatusAtCH01	"Low" or "High"	RO
		2	faceDetectionDateAtCH01	"yyyy-mm-dd hh-mm-ss"	RO
	2		faceDetectionAtCH02		
		1	faceDetectionStatusAtCH02	"Low" or "High"	RO
		2	faceDetectionDateAtCH02	"yyyy-mm-dd hh-mm-ss"	RO
	64		faceDetectionAtCH64		
		1	faceDetectionStatusAtCH64	"Low" or "High"	RO
		2	faceDetectionDateAtCH64	"yyyy-mm-dd hh-mm-ss"	RO
6			networkDisconnection		
	1		networkDisconnection01		
		1	networkDisconnectionStat us01	"Low" or "High"	RO
		2	networkDisconnectionDate 01	"yyyy-mm-dd hh-mm-ss"	RO
	2		networkDisconnection02		
		1	networkDisconnectionStat us02	"Low" or "High"	RO
		2	networkDisconnectionDate 02	"yyyy-mm-dd hh-mm-ss"	RO
	4		networkDisconnection04		
		1	networkDisconnectionStat us04	"Low" or "High"	RO
		2	networkDisconnectionDate 04	"yyyy-mm-dd hh-mm-ss"	RO
7			tamperingDetection		
	1		tamperingDetectionAtCH01		
		1	tamperingDetectionStatusA tCH01	"Low" or "High"	RO
		2	tamperingDetectionDateAt CH01	"yyyy-mm-dd hh-mm-ss"	RO
	2		tamperingDetectionAtCH02		
		1	tamperingDetectionStatusA tCH02	"Low" or "High"	RO
		2	tamperingDetectionDateAt CH02	"yyyy-mm-dd hh-mm-ss"	RO

MIB Hierarchy			Object Name	Value	Read/W rite
	64		tamperingDetectionAtCH64		
		1	tamperingDetectionStatusAtCH64	"Low" or "High"	RO
		2	tamperingDetectionDateAtCH64	"yyyy-mm-dd hh-mm-ss"	RO
8			audioDetection		
	1		audioDetectionAtCH01		
		1	audioDetectionStatusAtCH01	"Low" or "High"	RO
		2	audioDetectionDateAtCH01	"yyyy-mm-dd hh-mm-ss"	RO
	2		audioDetectionAtCH02		
		1	audioDetectionStatusAtCH02	"Low" or "High"	RO
		2	audioDetectionDateAtCH02	"yyyy-mm-dd hh-mm-ss"	RO
	64		audioDetectionAtCH64		
		1	audioDetectionStatusAtCH64	"Low" or "High"	RO
		2	audioDetectionDateAtCH64	"yyyy-mm-dd hh-mm-ss"	RO
9			defocusDetection		
	1		defocusDetectionAtCH01		
		1	defocusDetectionStatusAtCH01	"Low" or "High"	RO
		2	defocusDetectionDateAtCH01	"yyyy-mm-dd hh-mm-ss"	RO
	2		defocusDetectionAtCH02		
		1	defocusDetectionStatusAtCH02	"Low" or "High"	RO
		2	defocusDetectionDateAtCH02	"yyyy-mm-dd hh-mm-ss"	RO
	64		defocusDetectionAtCH64		
		1	defocusDetectionStatusAtCH64	"Low" or "High"	RO
		2	defocusDetectionDateAtCH64	"yyyy-mm-dd hh-mm-ss"	RO
10			fogDetection		

MIB Hierarchy			Object Name	Value	Read/W rite
	1		fogDetectionAtCH01		
		1	fogDetectionStatusAtCH01	"Low" or "High"	RO
		2	fogDetectionDateAtCH01	"yyyy-mm-dd hh-mm-ss"	RO
	2		fogDetectionAtCH02		
		1	fogDetectionStatusAtCH02	"Low" or "High"	RO
		2	fogDetectionDateAtCH02	"yyyy-mm-dd hh-mm-ss"	RO
	64		fogDetectionAtCH64		
		1	fogDetectionStatusAtCH64	"Low" or "High"	RO
		2	fogDetectionDateAtCH64	"yyyy-mm-dd hh-mm-ss"	RO
11			soundClassification		
	1		soundClassificationAtCH01		
		1	soundClassificationStatusAtCH01	"Low" or "High"	RO
		2	soundClassificationDateAtCH01	"yyyy-mm-dd hh-mm-ss"	RO
	2		soundClassificationAtCH02		
		1	soundClassificationStatusAtCH02	"Low" or "High"	RO
		2	soundClassificationDateAtCH02	"yyyy-mm-dd hh-mm-ss"	RO
	64		soundClassificationAtCH64		
		1	soundClassificationStatusAtCH64	"Low" or "High"	RO
		2	soundClassificationDateAtCH64	"yyyy-mm-dd hh-mm-ss"	RO
12			shockDetection		
	1		shockDetectionAtCH01		
		1	shockDetectionStatusAtCH01	"Low" or "High"	RO
		2	shockDetectionDateAtCH01	"yyyy-mm-dd hh-mm-ss"	RO
	2		shockDetectionAtCH02		
		1	shockDetectionStatusAtCH02	"Low" or "High"	RO
		2	shockDetectionDateAtCH02	"yyyy-mm-dd hh-mm-ss"	RO

MIB Hierarchy			Object Name	Value	Read/W rite
	64		shockDetectionAtCH64		
		1	shockDetectionStatusAtCH64	"Low" or "High"	RO
		2	shockDetectionDateAtCH64	"yyyy-mm-dd hh-mm-ss"	RO
13			temperatureDetection		
	1		temperatureDetectionAtCH01		
		1	temperatureDetectionStatusAtCH01	"Low" or "High"	RO
		2	temperatureDetectionDateAtCH01	"yyyy-mm-dd hh-mm-ss"	RO
	2		temperatureDetectionAtCH02		
		1	temperatureDetectionStatusAtCH02	"Low" or "High"	RO
		2	temperatureDetectionDateAtCH02	"yyyy-mm-dd hh-mm-ss"	RO
	64		temperatureDetectionAtCH64		
		1	temperatureDetectionStatusAtCH64	"Low" or "High"	RO
		2	temperatureDetectionDateAtCH64	"yyyy-mm-dd hh-mm-ss"	RO
14			objectDetection		
	1		objectDetectionAtCH01		
		1	objectDetectionStatusAtCH01	"Low" or "High"	RO
		2	objectDetectionDateAtCH01	"yyyy-mm-dd hh-mm-ss"	RO
	2		objectDetectionAtCH02		
		1	objectDetectionStatusAtCH02	"Low" or "High"	RO
		2	objectDetectionDateAtCH02	"yyyy-mm-dd hh-mm-ss"	RO
	64		objectDetectionAtCH64		

MIB Hierarchy				Object Name	Value	Read/W rite
			1	objectDetectionStatusAtCH64	"Low" or "High"	RO
			2	objectDetectionDateAtCH64	"yyyy-mm-dd hh-mm-ss"	RO
5				sdCard		
	1			sdCard01		
		1		sdCardCheck01	"Not Install" or "Install"	RO
		2		sdCardFullStatus01	"Not Full" or "Full"	RO
		3		sdCardFailStatus01	"Normal" or "Fail"	RO
		4		sdCardFormat01	"OK"	RW
	2			sdCard02		
		1		sdCardCheck02	"Not Install" or "Install"	RO
		2		sdCardFullStatus02	"Not Full" or "Full"	RO
		3		sdCardFailStatus02	"Normal" or "Fail"	RO
		4		sdCardFormat02	"OK"	RW
	3			sdCard03		
		1		sdCardCheck03	"Not Install" or "Install"	RO
		2		sdCardFullStatus03	"Not Full" or "Full"	RO
		3		sdCardFailStatus03	"Normal" or "Fail"	RO
		4		sdCardFormat03	"OK"	RW
	4			sdCard04		
		1		sdCardCheck04	"Not Install" or "Install"	RO
		2		sdCardFullStatus04	"Not Full" or "Full"	RO
		3		sdCardFailStatus04	"Normal" or "Fail"	RO
		4		sdCardFormat04	"OK"	RW
	5			sdCard05		
		1		sdCardCheck05	"Not Install" or "Install"	RO
		2		sdCardFullStatus05	"Not Full" or "Full"	RO
		3		sdCardFailStatus05	"Normal" or "Fail"	RO
		4		sdCardFormat05	"OK"	RW
6				hddStatus		
	1			hdd01Status		

MIB Hierarchy			Object Name	Value	Read/W rite
		1	hdd01Check	"Not Installed" or "Installed"	RO
		2	hdd01TotalSize	"xxxGB"	RO
		3	hdd01FullStatus	"Not Full", "Full", "Under- Raid"	RO
		4	hdd01FailStatus	"Not Full", "Full", "Under- Raid"	RO
	2		hdd02Status		
		1	hdd02Check	"Not Installed" or "Installed"	RO
		2	hdd02TotalSize	"xxxGB"	RO
		2	hdd02FullStatus	"Not Full", "Full", "Under- Raid"	RO
		3	hdd02FailStatus	"Not Full", "Full", "Under- Raid"	RO
	16		hdd16Status		
		1	hdd16Check	"Not Installed" or "Installed"	RO
		2	hdd16TotalSize	"xxxGB"	RO
		2	hdd16FullStatus	"Not Full", "Full", "Under- Raid"	RO
		3	hdd16FailStatus	"Not Full", "Full", "Under- Raid"	RO
7			usbStatus	Supported by trap message	
	1		usbConn	usbString	-
	2		usbDisconn	usbString	-
	3		usbString	"Usb Connected" , "Usb Disconnected"	RO
8			raidStatus		
	1		raidArray01Status		
		1	raidArray01Check	"Not Use" , "Use"	RO
		2	raidArray01Level	1, 5, 6	RO
		3	raidArray01State	"Active" , "Degraded" , "Rebuilding" , "Fail" , "Building"	RO

MIB Hierarchy			Object Name	Value	Read/Write
		4	raidArray01FullStatus	“Not Full” , “Full”	RO
		5	raidArray01TotalSize	“xxxGB”	RO
		6	raidArray01AssembleHDD	From “HDD01” to “HDD16”	RO
		7	raidArray01AssembleCount	2 to 6	RO
		8	raidArray01RebuildPercent	0 to 100	RO
		9	raidArray01RebuildRemain Time	0 to 60 (minutes)	RO
		10	raidArray01HDDListToCheck	From “HDD01” to “HDD16”	RO
2			raidArray02Status		
		1	raidArray02Check	"Not Use", “Use”	RO
		2	raidArray02Level	1, 5, 6	RO
		3	raidArray02State	“Active” , “Degraded” , “Rebuilding” , “Fail” , “Building”	RO
		4	raidArray02FullStatus	“Not Full” , “Full”	RO
		5	raidArray02TotalSize	“xxxGB”	RO
		6	raidArray02AssembleHDD	From “HDD01” to “HDD16”	RO
		7	raidArray02AssembleCount	2 to 6	RO
		8	raidArray02RebuildPercent	0 to 100	RO
		9	raidArray02RebuildRemain Time	0 to 60 (minutes)	RO
		10	raidArray02HDDListToCheck	From “HDD01” to “HDD16”	RO

3. Traps

SNMP traps enable a video product to notify the management station of significant events by way of an unsolicited SNMP message.

DVR and NVR support the SNMP generic trap types: coldStart, warmStart, linkDown, linkUp, authenticationFailure. Unlike record products, network camera supports the SNMP generic trap types: coldStart, warmStart, linkUp and authenticationFailure; linkDown is excluded.

The SNMP generic trap types are described below.

- coldStart: a coldStart trap signifies that the sending protocol entity is reinitializing itself so that the agent's configuration or the protocol entity implementation can be altered.
- warmStart: a warmStart trap signifies that the sending protocol entity is reinitializing itself so that neither the agent configuration nor the protocol entity implementation can be altered.
- linkDown: a linkDown trap signifies that the sending protocol entity recognizes a failure in one of the communication links represented in the agent's configuration.
- linkUp: a linkUp trap signifies that the sending protocol entity recognizes that one of the communication links represented in the agent's configuration has come up.
- authenticationFailure: an authenticationFailure trap signifies that the sending protocol entity is the addressee of a protocol message that is not properly authenticated.

For network cameras, new trap messages are added which is for notification of USB connection.

- usbConn: when a USB device is connected, the string "Usb Connected" is sent.
- usbDisconn: when a USB device is disconnected, the string "Usb Disconnected" is sent.

4. SNMP Commands

SNMP commands used by Hanwha Vision are as follows.

- snmpget: A command to fetch only data of a corresponding OID

Example Usage

```
snmpget -v [version] -c public [ip address] [OID value]
```

- snmpwalk: A command to fetch all data of subtrees at once

Example Usage

```
snmpwalk -v [version] -c public [ip address] [OID value]
```

- snmpset : A command to set data values of a corresponding OID

Example Usage

```
snmpset -v [version] -c public [ip address] [OID value] [OID value Type]
```

4.1. Examples of commands for each SNMP versions

4.1.1. SNMP version 1, 2c

Example usage

```
ex1) snmpwalk -v 1 -c public 192.168.1.100 system +
ex2) snmpwalk -v 2c -c public 192.168.1.100 system +
```

```
ex3) snmpset -v 2c -c write 192.168.1.100 enterprises.36849.1.9.2.1.2.3.0 s "OK"
```

- Option description
 - -v: snmp version to use (1 | 2c | 3)
 - -c: set the community string
- Types of OID values
 - i INTEGER
 - u UNSIGNED
 - s STRING
 - x HEX STRING
 - d DECIMAL STRING
 - n NULLOBJ
 - o OBJID
 - t TIMETICKS
 - a IPADDRESS
 - b BITS

4.1.2. SNMP version 3

- snmpwalk(snmpget) -v 3 -u [name] -l [level] -a [auth protocol] -A [password] [ip address] [OID value]

Example usage

```
ex1) snmpwalk -v 3 -u admin -l authNoPriv -a MD5 -A admin4321 192.168.1.100 system
ex2) snmpset -v 3 -u admin -l authNoPriv -a MD5 -A admin4321 192.168.1.100
enterprises.36849.1.9.2.1.2.3.0 s "OK"
ex3) snmpwalk -v 3 -u admin -l authNoPriv -a SHA-256 -A admin4321 192.168.1.100 system
ex4) snmpwalk -v 3 -u admin -l autoPriv -a SHA-256 -A admin4321 -x AES -X admin4321
192.168.1.100 enterprises.36849 +
ex5) snmpset -v 3 -u admin -l authNoPriv -a SHA-256 -A admin4321 192.168.1.100
enterprises.36849.1.9.2.1.2.3.0 s "OK"
```

- Option description
 - -u: security name
 - -l: security level (noAuthNoPriv | authNoPriv | authPriv)
 - -A: authentication protocol pass phrase.
 - -a: authentication protocol (MD5 | SHA-256)

NOTE

From X series version 2.00 and P series version 2.00, SHA-256 authentication protocol is supported.

5. Examples of SNMP queries and results

5.1. SNMP Query

An example of a query statement for receiving SNMP results

```
#!/bin/sh
target_ip=192.168.1.100
echo
echo "#####"
echo $target_ip
echo "#####"
echo
echo "-----MIB Tree-----"
echo "iso.org.dod.intenet.private.enterprise (1.3.6.1.4.1)"
echo "~.hanwhaVision.securitySolution.products (~.36849.1.9)"
echo "-----"
echo
echo "-----System Information-----"
echo "[Product description, product ID, elapsed time since the boot, product name]"
snmpget -v 1 -c public $target_ip sysDescr.0
snmpget -v 1 -c public $target_ip sysObjectID.0
snmpget -v 1 -c public $target_ip sysUpTime.0
snmpget -v 1 -c public $target_ip sysName.0
echo
echo "-----Disk Information-----"
echo "[Total capacity of flash memory, used capacity, remaining capacity, usage ratio]"
snmpget -v 1 -c public $target_ip dskTotal.1
snmpget -v 1 -c public $target_ip dskAvail.1
snmpget -v 1 -c public $target_ip dskUsed.1
```

```

snmpget -v 1 -c public $target_ip dskPercent.1
echo
echo "-----Storage Information-----"
echo "[RAM memory size, size in use(integer * 1K = xxxKbytes)]"
snmpget -v 1 -c public $target_ip hrStorageDescr.1
snmpget -v 1 -c public $target_ip hrStorageSize.1
snmpget -v 1 -c public $target_ip hrStorageUsed.1
echo "[/ Size of directory, size in use (integer * 4K = xxxKbytes)]"
snmpget -v 1 -c public $target_ip hrStorageDescr.31
snmpget -v 1 -c public $target_ip hrStorageSize.31
snmpget -v 1 -c public $target_ip hrStorageUsed.31
echo "[/mmt/mmc(SD Card) Size of directory, size in use (integer * 4K = xxxKbytes)]"
[SNB-6004, SNB-6003, SND-6084, SND-6083, SNO-6084R, SND-6084R, SNV-6084R, SNV-6012M]
snmpget -v 1 -c public $target_ip hrStorageDescr.41
snmpget -v 1 -c public $target_ip hrStorageSize.41
snmpget -v 1 -c public $target_ip hrStorageUsed.41
[Other Models: Non-6004 series models]
snmpget -v 1 -c public $target_ip hrStorageDescr.36
snmpget -v 1 -c public $target_ip hrStorageSize.36
snmpget -v 1 -c public $target_ip hrStorageUsed.36
echo
echo "-----CPU Load Information-----"
echo "[1 minute average load, 5 minute average load, 15 minute average load]"
snmpget -v 1 -c public $target_ip laLoad.1
snmpget -v 1 -c public $target_ip laLoad.2
snmpget -v 1 -c public $target_ip laLoad.3
echo

```

```
echo "-----Network Interface Information-----"
echo "[Physical speed of the network, MAC address, input traffic (bytes), output traffic(bytes)]"
snmpget -v 1 -c public $target_ip ifSpeed.1
snmpget -v 1 -c public $target_ip ifPhysAddress.1
snmpget -v 1 -c public $target_ip ifInOctets.1
snmpget -v 1 -c public $target_ip ifOutOctets.1
snmpget -v 1 -c public $target_ip ifName.1
snmpget -v 1 -c public $target_ip ifSpeed.2
snmpget -v 1 -c public $target_ip ifPhysAddress.2
snmpget -v 1 -c public $target_ip ifInOctets.2
snmpget -v 1 -c public $target_ip ifOutOctets.2
snmpget -v 1 -c public $target_ip ifName.2
snmpget -v 1 -c public $target_ip ifSpeed.3
snmpget -v 1 -c public $target_ip ifPhysAddress.3
snmpget -v 1 -c public $target_ip ifInOctets.3
snmpget -v 1 -c public $target_ip ifOutOctets.3
snmpget -v 1 -c public $target_ip ifName.3
snmpget -v 1 -c public $target_ip ifSpeed.4
snmpget -v 1 -c public $target_ip ifPhysAddress.4
snmpget -v 1 -c public $target_ip ifInOctets.4
snmpget -v 1 -c public $target_ip ifOutOctets.4
snmpget -v 1 -c public $target_ip ifName.4
echo
echo "-----Memory Information-----"
echo "[Total memory, remaining memory]"
snmpget -v 1 -c public $target_ip memTotalReal.0
snmpget -v 1 -c public $target_ip memAvailReal.0
```

```
echo
echo "-----Test End-----"
echo
```

5.2. SNMP Result

The SNMP result of network camera XNZ-6320 is as follows.

XNZ-6320 SNMP Output

```
#####
192.168.1.100
#####
```

The following are the results from MIB Tree.

```
-----MIB Tree-----
iso.org.dod.intenet.private.enterprise (1.3.6.1.4.1)
~.hanwhaVision.securitySolution.products (~.36849.1.9)
-----
```

System Information is shown below. Product description, product ID, time elapsed after boot (0:10:54.49 10 minutes 54 seconds and 49) and product name are displayed.

```
-----System Information-----
SNMPv2-MIB::sysDescr.0 = STRING: Hanwha WiseNet IP Camera
SNMPv2-MIB::sysObjectID.0 = OID: SNMPv2-SMI::enterprises.36849.1.9
DISMAN-EVENT-MIB::sysUpTimeInstance = Timeticks: (65449) 0:10:54.49
SNMPv2-MIB::sysName.0 = STRING: XNZ-6320
```

Disk Information is shown below. Total capacity of flash memory (about 678G), available capacity (about 63G), used capacity (about 579G) and usage ratio (90%) are displayed. The unit size of the block is 1KB(Kbytes).

```
-----Disk Information-----
```

UCD-SNMP-MIB::dskTotal.1 = INTEGER: 711016128

UCD-SNMP-MIB::dskAvail.1 = INTEGER: 67092156

UCD-SNMP-MIB::dskUsed.1 = INTEGER: 607223936

UCD-SNMP-MIB::dskPercent.1 = INTEGER: 90

Below is Storage Information. The unit size of physical memory and directory are 1KB(Kbytes), 4KB(Kbytes) respectively.

-----Storage Information-----

HOST-RESOURCES-MIB::hrStorageDescr.1 = STRING: Physical memory

HOST-RESOURCES-MIB::hrStorageSize.1 = INTEGER: 96788

HOST-RESOURCES-MIB::hrStorageUsed.1 = INTEGER: 36908

The RAM memory size (96788x 1K = 99119012 Bytes) and the size in use (36908x 1K = 37793792 Bytes) are displayed.

HOST-RESOURCES-MIB::hrStorageDescr.31 = STRING: /

HOST-RESOURCES-MIB::hrStorageSize.31 = INTEGER: 177754036

HOST-RESOURCES-MIB::hrStorageUsed.31 = INTEGER: 151800863

The size of the / directory (177754036x 4K = 711016144Kbytes), the size in use (151800863x 4K = 621776334848Kbytes) are displayed.

HOST-RESOURCES-MIB::hrStorageDescr.36 = STRING: /mnt/logdb

HOST-RESOURCES-MIB::hrStorageSize.36 = INTEGER: 1024

HOST-RESOURCES-MIB::hrStorageUsed.36 = INTEGER: 209

The size of the /mnt/mmc (SD Card) directory (1024x4K = 4096Kbytes) and the size in use (209x4K = 836Kbytes) are displayed.

CPU Load Information is shown below.

-----CPU Load Information-----

UCD-SNMP-MIB::laLoad.1 = STRING: 0.00

UCD-SNMP-MIB::laLoad.2 = STRING: 0.09

UCD-SNMP-MIB::laLoad.3 = STRING: 0.06

LaLoad.1 represents the average load for one minute, laLoad.2 represents the average load for 5 minutes, and laLoad.3 represents the average load for 15 minutes. In other words, it shows how many processes are running on average per CPU during that time. For example, laLoad.1 is 1.50, which shows that on average, one process is in the Active state and 0.5 processes are in the Standby state. A higher value means a more overloaded state.

Network Interface Information is shown below.

```
-----Network Interface Information-----  
  
IF-MIB::ifSpeed.1 = Gauge32: 10000000  
  
IF-MIB::ifPhysAddress.1 = STRING:  
  
IF-MIB::ifInOctets.1 = Counter32: 0  
  
IF-MIB::ifOutOctets.1 = Counter32: 0  
  
IF-MIB::ifName.1 = STRING: lo  
  
IF-MIB::ifSpeed.2 = Gauge32: 100000000  
  
IF-MIB::ifPhysAddress.2 = STRING: 0:9:18:70:9b:e0  
  
IF-MIB::ifInOctets.2 = Counter32: 23640565  
  
IF-MIB::ifOutOctets.2 = Counter32: 1294399  
  
IF-MIB::ifName.2 = STRING: eth0  
  
IF-MIB::ifSpeed.2 = Gauge32: 100000000 represents the physical speed (100Mbps) of the network.  
MAC address (0: 9: 18: 70: 9b: e0), input traffic (3237762 bytes) and output traffic (135629515bytes)  
are displayed.
```

Memory Information is shown below.

```
-----Memory Information-----  
  
UCD-SNMP-MIB::memTotalReal.0 = INTEGER: 96788 kB  
  
UCD-SNMP-MIB::memAvailReal.0 = INTEGER: 61164 kB  
  
The total memory (96788 kB) and remaining memory (61164 kB) are displayed.  
  
-----Test End-----
```

6. SNMP Test

Hanwha Vision SNMP MIB allows you to set up information such as systems, events, and data storage devices.

In case of MIB ver.1, for MIB information of each devices, please refer to 'SNMP MIB Guide V1.0 (HTW_SNMP_MIB_Guide_en.pdf)'.

SNMP commands only work with OID values, not object names. Also, when requesting the SNMP command snmpget, it is executed with .0 at the end of the OID.

6.1. snmpwalk Command

SNMP v1

```
snmpwalk -v 1 -c public 192.168.1.100 enterprises.36849
```

SNMP v2c

```
snmpwalk -v 2c -c public 192.168.1.100enterprises.36849
```

TIP | Public is the read community name set in the device web viewer.

SNMP v3

```
SNMP v3: snmpwalk -v 3 -u admin -l authNoPriv -a SHA-256 -A admin4321 192.168.1.100 enterprises.36849
```

To use SNMP version 3, you must set the connection mode in the device web viewer to HTTPS secure connection mode.

NOTE

The default ID and password for SNMP version 3 are admin and admin4321. The password can be set from the SNMP Settings page of the Device Web Viewer, and must be at least 8 characters long.

SHA-256 authentication protocol is supported from X series version 2.00, P series version 2.00.

6.2. snmpget Command

SNMP v1

```
snmpget -v 1 -c public 192.168.1.100 enterprises.36849.1.2.1.1.0
```

SNMP v2c

```
SNMP v2c: snmpget -v 2c -c public 192.168.1.100 enterprises.36849.1.9.1.0
```

TIP | Public is the name of read community set in the device web viewer

SNMP v3

```
snmpget -v 3 -u admin -l authNoPriv -a SHA-256 -A admin4321 192.168.1.100
enterprises.36849.1.9.1.0 +
<Result value> SNMPv2-SMI::enterprises.36849.1.9.1.0 = STRING: "XNZ-6320"
```

6.3. snmpset Command

SNMP v1

```
snmpset -v 1 -c public 192.168.1.100 enterprises.36849.1.9.2.1.2.0 s "2011-10-30 11:40:31"
```

SNMP v2c

```
snmpset -v 2c -c write 192.168.1.100 enterprises.36849.1.9.2.1.2.0 s "2011-10-30 11:40:31"
```

TIP | Public is the read community name set in the device web viewer.

SNMP v3

```
snmpset -v 3 -u admin -l authNoPriv -a SHA-256 -A admin4321 192.168.1.100
enterprises.36849.1.9.2.1.2.0 s "2011-10-30 11:40:31"
<Result value> SNMPv2-SMI::enterprises.36849.1.9.2.1.2.0 = STRING: "2011-10-30 11:40:31"
```