

NVR with UPS (SNMP)

Simple Network Management Protocol (SNMP) is a way for different devices on a network to share information with one another. It allows devices to communicate even if the devices are different hardware and run different software.

Most of server or OS support SNMP signal from UPS to shutdown device safely before abnormal shutdown.

We have customized this feature in approved version and now in latest baseline also support.

Approved version V4.1.70 190307

Where we use above FW, NVR acknowledge.

Time	Source	Destination	Protocol	Length	Info
33298	1233.504849	192.168.61.250	192.168.61.244	SNMP	143 trap iso.3.6.1.4.1.318.1.3.6.1.4.1.318.2.3.3.0
33299	1233.519644	192.168.61.250	192.168.61.251	SNMP	143 trap iso.3.6.1.4.1.318.1.3.6.1.4.1.318.2.3.3.0
34791	1278.475628	192.168.61.251	192.168.61.250	SNMP	85 get-request 1.3.6.1.2.1.33.1.2.4.0
34792	1278.509070	192.168.61.250	192.168.61.251	SNMP	86 get-response 1.3.6.1.2.1.33.1.2.4.0
35103	1279.203829	192.168.61.251	192.168.61.250	SNMP	85 get-request 1.3.6.1.2.1.33.1.2.4.0
35107	1279.214345	192.168.61.250	192.168.61.251	SNMP	86 get-response 1.3.6.1.2.1.33.1.2.4.0
35321	1282.318913	192.168.61.251	192.168.61.250	SNMP	88 trap iso.3.6.1.4.1.50001
35345	1283.263812	192.168.61.251	192.168.61.250	SNMP	85 get-request 1.3.6.1.2.1.33.1.2.4.0
35346	1283.273752	192.168.61.250	192.168.61.251	SNMP	86 get-response 1.3.6.1.2.1.33.1.2.4.0
35396	1287.313588	192.168.61.251	192.168.61.250	SNMP	85 get-request 1.3.6.1.2.1.33.1.2.4.0

Hikvision NVR will monitor this message. Once receive, NVR will shut down.

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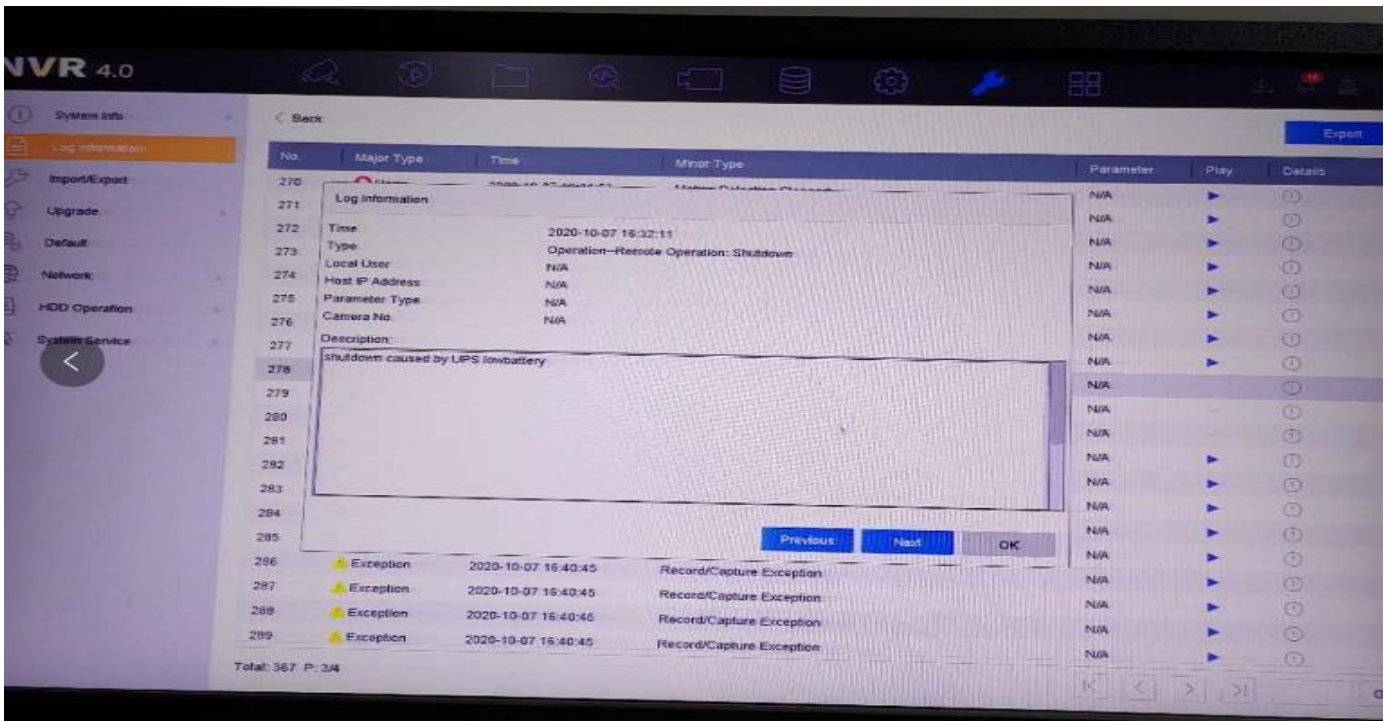
43959 1143.944575 192.168.61.250 192.168.61.244 SNMP 243 trap iso.3.6.1.4.1.318.1.3.6.1.4.1.318.2.3.3.0
43960 1143.962143 192.168.61.250 192.168.61.251 SNMP 243 trap iso.3.6.1.4.1.318.1.3.6.1.4.1.318.2.3.3.0
43961 1143.963795 192.168.61.251 192.168.61.250 SNMP 88 trap iso.3.6.1.4.1.50001
> Frame 43959: 243 bytes on wire (1944 bits), 243 bytes captured (1944 bits) on interface 0
> Ethernet II, Src: ApcBySch_0b:7e:eb (28:29:86:0b:7e:eb), Dst: LcfcHefe_0a:f8:fe (f8:75:a4:0a:f8:fe)
> Internet Protocol Version 4, Src: 192.168.61.250, Dst: 192.168.61.244
> User Datagram Protocol, Src Port: 61470, Dst Port: 162
> Simple Network Management Protocol

0000 f8 75 a4 0a f8 fe 28 29 86 0b 7e eb 08 00 45 00 u....().....E
0010 00 e5 d3 48 00 00 40 11 a9 80 c0 a8 3d fa c0 a8 ...H..@.....:
0020 3d f4 f0 1e 00 a2 00 d1 00 00 30 81 c6 02 01 00 =.....@.....
0030 04 06 70 75 62 6c 69 63 a4 81 b8 06 07 2b 06 01 ..public.....+
0040 04 01 82 3e 40 04 c0 a8 3d fa 02 01 06 02 01 07 ...->@...@.....
0050 43 03 08 5d fe 30 81 9b 30 81 98 06 0b 2b 06 01 C...]@...@.....+
0060 04 01 82 3e 02 03 03 00 04 81 88 55 50 53 3a 20 ...->.....UPS:
0070 54 68 65 20 62 61 74 74 65 72 79 20 70 6f 77 65 The battery power
0080 72 20 69 73 20 74 6f 6f 20 6c 6f 77 20 74 6f 20 r is too low to
0090 63 6f 6e 74 69 6e 75 65 20 74 6f 20 73 75 70 70 continue to supp
00a0 6f 72 74 20 74 68 65 20 6c 6f 61 64 3b 20 74 68 ort the load; th
00b0 65 20 55 50 53 20 77 69 6c 6c 20 73 68 75 74 20 e UPS will shut
00c0 64 6f 77 6e 20 69 6e 20 69 6e 70 75 74 20 70 6f down if input po
00d0 77 65 72 20 64 6f 65 73 20 6e 6f 74 20 72 65 74 wer does not ret
00e0 75 72 6e 20 74 6f 20 6e 6f 72 6d 61 6c 20 73 6f urn does not ret
00f0 6f 6e 2e                                     on.
  
```

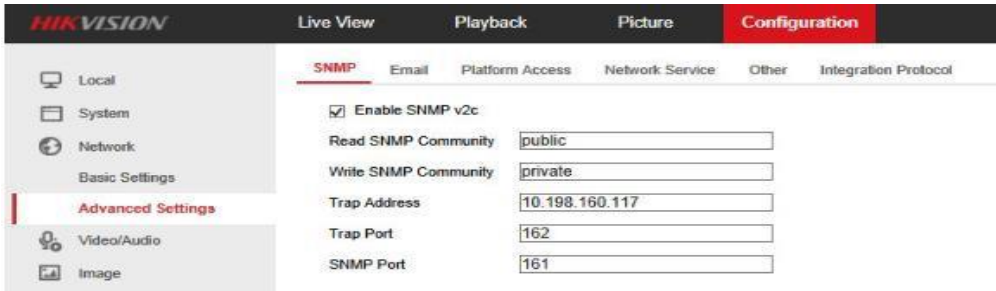
The screenshot shows the 'UPS Network Management Card 2' interface. At the top, it displays '4 Critical Alarms Present' and '1 Warning Alarm Present'. Below this, the 'Recent Device Events' table is visible, with the following entries:

Date	Time	Event
07-Oct-20	16:45:20	UPS: The battery power is too low to continue to support the load; the UPS will shut down if input power does not return to normal soon.
07-Oct-20	16:44:55	UPS: On battery power in response to distorted input.
07-Oct-20	16:44:55	UPS: Bypass not in range ; distorted waveform.
07-Oct-20	16:31:32	UPS: No longer on battery power.
07-Oct-20	16:31:31	UPS: An input voltage or frequency problem no longer prevents switching to bypass mode.

In NVR Log we can see the “Shutdown caused by UPS Low Battery “



In NVR, we only add UPS IP (Trap address)



In UPS, we need to add NVR IP (Trap address)

SNMP Traps

Trap Receivers			
NMS IP/Host Name	Trap Type	Generation	Language
192.168.51.13	SNMPv1	Enabled	English
192.168.51.12	SNMPv1	Enabled	English
192.168.51.11	SNMPv1	Enabled	English
192.168.51.14	SNMPv1	Enabled	English
192.168.51.15	SNMPv1	Enabled	English
192.168.51.16	SNMPv1	Enabled	English

Need to config shutdown time, outlet closing time as per the site UPS battery runtime.

After NVR shutdown by UPS, the UPS outlet will shut down, when the Main Inline power come the Outlet will switch on and NVR will switch On Auto.

Outlet Groups Configuration

Name 16 ASCII characters allowed.
Outlet Group 1

Sequencing

Power Off Delay
3000 seconds [0 - 32767]

Reboot Duration
8 seconds [4 - 300]

Power On Delay
180 seconds [0 - 1800]

Min Return Runtime
0 seconds [0 - 32767]

Load Shedding

Turn Off Outlet Group when:

power failure lasts longer than
32767 seconds [5 - 32767]

UPS runtime remaining is less than
0 seconds [0 - 3600]

UPS is overloaded

Skip outlet off delay

Stay off after power returns * Note: Setting has no effect until applied to all switched outlets.

Shutdown

Start of Shutdown

Low Battery Duration: 30 minutes [0 - 30]
Maximum Required Delay: 2 minutes
Basic Signaling Shutdown: Enable
Basic Low Battery Duration: 1800 seconds [120 - 1800]

Duration of Shutdown

Sleep Time: 0.0 hours [0.0 - 336.0]

Sync Control Shutdown

Shutdown Delay: 20 seconds [0 - 600]
Return Delay: 120 seconds [0 - 300]

PowerChute Shutdown Parameters

Maximum Required Delay: Force negotiation
On-Battery Shutdown Behavior: Restart when power is restored
 Turn off and stay off

User Name: apt

Authentication Phrase: *****