

O2MB1

Full HD Mini-bullet IP Camera



speco technologies®

Directions

Be careful not to cause any physical damage by dropping or throwing the camera. Especially keep the device out of reach from children.

Do not disassemble the camera. No after service is assumed when disassembled.

Use only power adapters compatible with the unit.

Be careful to prevent moisture or water penetration into the unit. Particular attention is needed when installing the unit. The screw holes for the installation screws and pipe should be maintained water tight during the whole life time of the product.

All the electrical connection wires running into the unit should be prepared so that water from the outside cannot flow into the unit through the surface of the wires. Penetration of the moisture through the wire for extended period can cause malfunction of the unit or

Note

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generate, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into and outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help.

Caution

Any changes or modifications in construction of this device which are not explicitly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Revision History

Date	Revision	Details
Mar 4 th , 2014	1.0	First manual revision creation.
Mar 7 th , 2014	1.1	Text revisions
Apr 25 th , 2014	1.2	Modified "2.3.3. Front and Rear view of Encoder box"

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1. Introduction

1.1. Overview

The O2MB1 is a full HD mini bullet IP camera with a separate encoder box. It is a multi-codec (H.264, MJPEG) IP camera (or network camera) built with embedded software and hardware technology. It enables real time transmission of synchronized video of up to 1080P and audio data. Remote clients can connect to O2MB1 for the real time video/audio data through various client solutions running on PC or smart device. Real time 2-way communication is available through the bidirectional audio communication feature.

Designed to be a stand-alone streaming audio & video transmission device, O2MB1 can be applied to various applications such as video security, remote video monitoring, distance education, video conference or internet broadcasting system.

The separate encoder box and camera design allows for smaller camera housing and flexibility in installations. The camera portion is vandal and weather resistant, which allows it to be installed in outdoor settings, while the encoder box can be hidden from view. Embedded PoE (Power over Ethernet, IEEE 802.3af) will enable the owner to reduce the total cost of ownership by reducing on-site wiring works for the installation.

1.2. Specifications

Camera	
Image sensor	Progressive scan 1/2.7 inch CMOS 2.0M pixels
Full resolution	1,920 x 1,080 pixels (Full HD)
Min. illumination	Color : 0.12 Lux (F1.4)
S/N Ratio	39dB or more
White Balance	AWB
DSS	Supported
WDR	Supported
Lens	3.7mm, F2.5
Day & Night	N/A
Video	
Compression method	Simultaneous Dual Codec (H.264 / MJPEG)
Resolution	1,920 x 1,080@30fps
Multi-Profile Streaming	- 5 simultaneous video profiles - Select the codec type, resolution and frame rates for each profile.
Intelligent Bit-Rate Control	VBR or CBR
PTZ	Digital PTZ & Video crop
Image Setting	Text overlay, Privacy mask, De-interlace filter
Motion detection	3 regions
Audio	
Mono Upstream	32Kbps G.726 ADPCM, 64Kbps 16bit μ -law PCM ~ MIC/Line-in
Mono Downstream	64Kbps 16bit μ -law PCM ~ Line-out
Network	
Network Protocol	- IPv4, TCP, UDP, IGMP, ICMP, ARP, RARP, PPPoE, RTCP - RTP, RTSP, SDP, HTTP, SMTP, FTP, DHCP, UPnP - NTP, DNS, DynDNS
Dynamic IP	Speco DDNS (free of charge)
Security	- User ID & Password protection, IP address filtering - Digest Authentication, User Access Log
Streaming method	- RTSP streaming with proprietary format for control informations - standard RTSP streaming - HTTP streaming

External Terminals	
LAN	10/100BaseT LAN (auto MDIX)
Alarm input / output	Alarm I/O (1 Sensor input & 1 Relay output)
Factory Reset	Supported
Audio	MIC/Line in, Line out
Power	DC 12V input
Alternate Power	
Standard PoE	IEEE802.3af Supported
Alarm & Event	
Intelligent Video	Motion Detection
Alarm Triggers	Intelligent Video + Sensor Input
Alarm Events	Video file upload(FTP), Still Image transmission(Email), Relay output
Alarm Buffer (Audio/Video)	Configurable Pre-alarm (5~15 sec) & Post-alarm (10~60 sec)
Client Software	
Speco NVR	Windows XP/Vista/7 (free of charge)
Speco ONSIP	Android™, iPhone®, iPad® (free of charge)
Miscellaneous	
Operating Temperature	0°C ~ 45°C (32°F~113°F)
Operation Humidity	8~80% RH
Power	DC 12V, 0.5A
Dimensions(W x H x D)	Camera : Ø26.7mm x 73.8mm Encoder Box : 45.6mm x 25mm x 114mm
Weight	Camera : 90g Encoder Box: 115g
Casing	AL, PC, Vandal resistant, IP66 (camera portion only)
Approvals	FCC, RoHS
Package information	Unit, CD, mounting screws

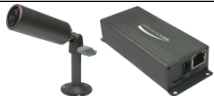


1.3. Applications of O2MB1

- Security surveillance (buildings, stores, manufacturing facilities, parking lots, banks, government facilities, military, etc.)
- Remote monitoring (hospitals, kindergartens, traffic, public areas, etc.)
- Teleconference (Bi-directional audio conference). Remote Learning, Internet broadcasting
- Weather and environmental observation

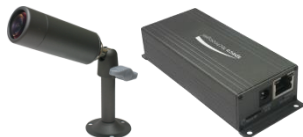
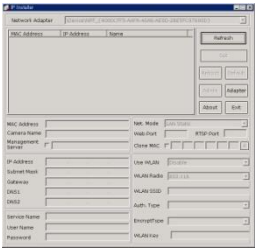

2. Product Description

2.1. Contents

The product package contains followings :

Contents	Description	Remarks
O2MB1	O2MB1 main unit	
Accessories	5m Video Cable 1EA, Screws, Anchors L-type wrench with six angles	
CD	Software & User's Guide	
Quick Reference Guide	Quick installation guide	

2.2. Product Preview

O2MB1/O2MB1W	ONSIP Installer	VMS Software (Speco NVR)
		
Camera Module & Encoder Box	PC software to allocate an IP address to the IP Camera	PC software to view and record the A/V streaming data transmitted from IP camera. (Simultaneous support of up to 64 IP cameras@D1)

2.3. Physical description

2.3.1. External View

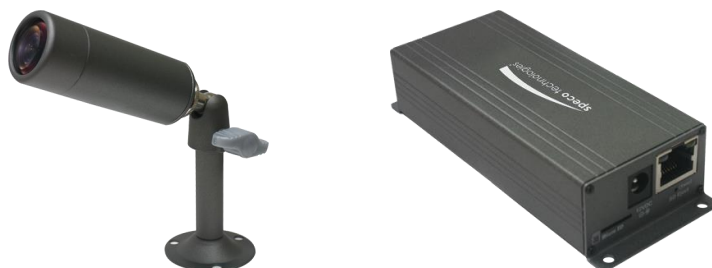


Figure 2-1. External view of O2MB1

2.3.2. Dimension

Unit : mm

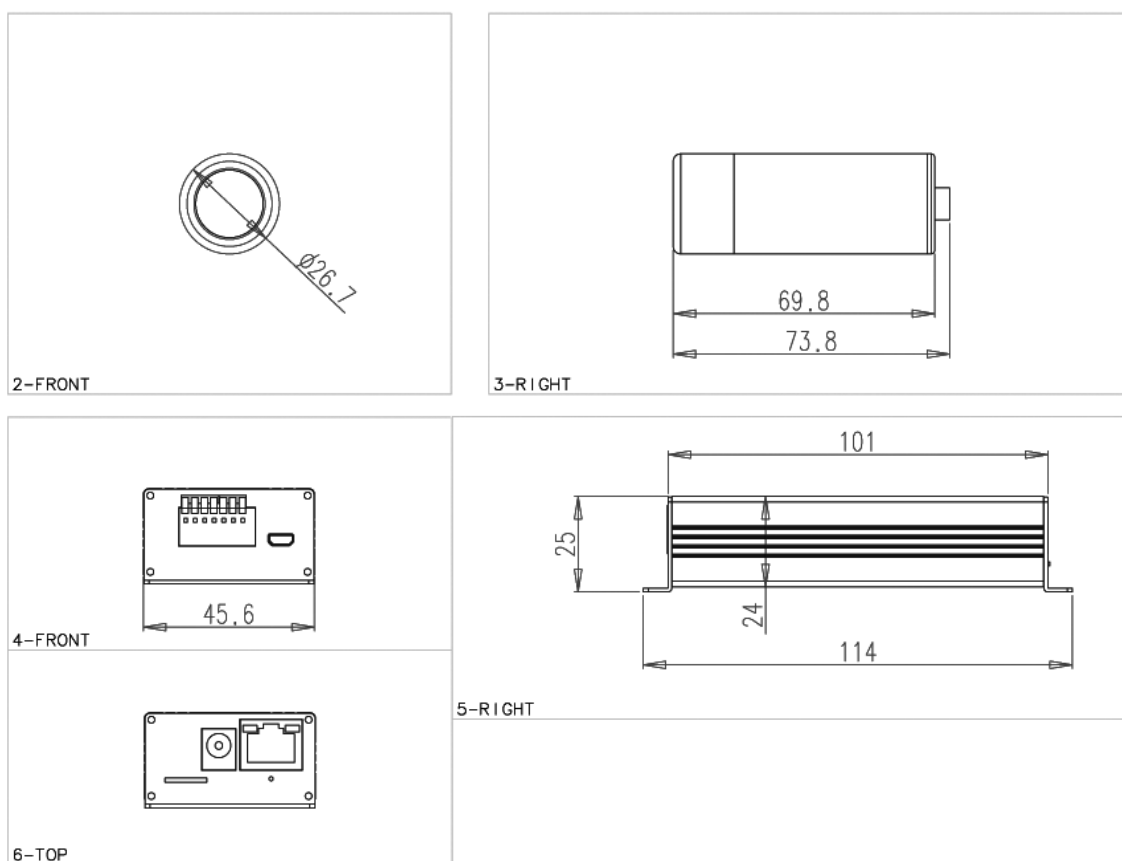


Figure 2-2. Dimension

2.3.3. Front and Rear view of Encoder box



Figure 2-3. Front view

Pin	Description
1	Line Output
2	Ground
3	MIC/Line Input
4	Relay Output
5	Relay Output
6	Sensor Input (-)
7	Sensor Input (+)
HDMI	Connect Camera Module



Figure 2-4. Rear view

2.3.4. Factory Default Switch

Factory default switch is provided for returning the IP camera to factory default state. Unscrew the cover to access the switch. There are two functions assigned to factory default switch.

1. **Returning to Factory Default State** : Press the switch about 5 seconds while power is applied to return to factory default state.
2. **Safe Removal of Micro-SD Card** : Press the switch for 1 second to unmount Micro-SD Card for safe removal.

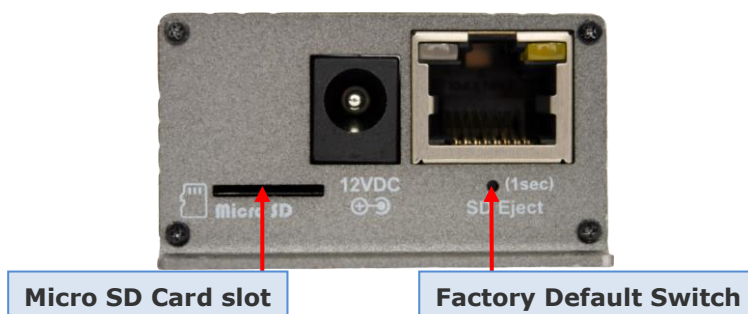


Figure 2-5. Factory Default switch and Micro-SD Card slot

2.4. Functional Description

- **Power** : Power input for supplying 12V DC, 0.5A power.



Caution : If O2MB1 is powered by PoE, do not plug in DC Jack with active DC power into DC power connector.

- **Network (LAN)**

100Mbps Ethernet connector (RJ-45) with PoE standard (802.3af). LED on the Ethernet connector shows the status of O2MB1 as the followings:

- **Link LED**

It will be lit with orange color when network cabling is all right. Blinking orange color indicates that normal data transmission is under way. Off state indicates that there is trouble in network connection.

- **Status LED** (It will be lit in green or red depending on the status)

- ① **Green** : Green color indicates that the camera is in normal operation mode. Continuous green indicates that data transmission is possible. Blinking green means that someone is connected to O2MB1/O2MB1W.
- ② **Red** : Continuous or blinking red indicates that hardware is in abnormal condition.



LED will be lit with red momentarily and it will be lit with green after a while when power is applied into O2MB1/O2MB1W

- **Micro SD Card slot**

Please insert SD memory card when you want to use SD memory card. In case of pulling out SD memory card, please push the SD card.

- **HDMI**

Connect Camera Module.

- **MIC/Line Input**

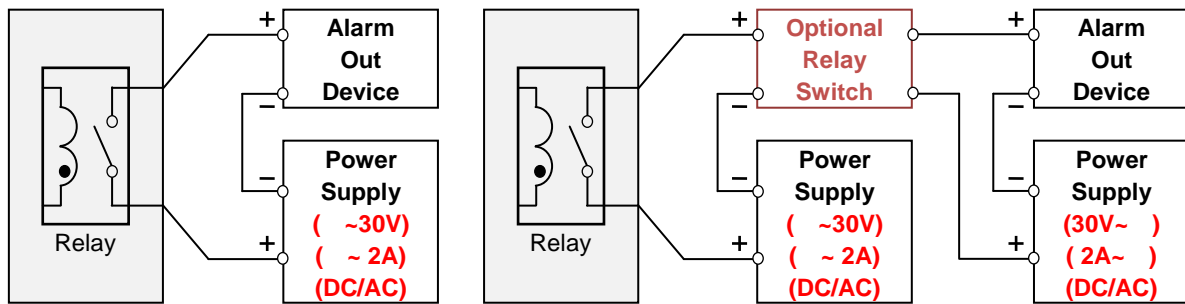
Connect external audio source or microphone.

- **Line Output**

Connect speakers with built in amplifier. Audio from remote site is output through Line out in bi-directional audio mode.

- **Relay Output**

Relay output is provided for connecting alarm devices or for remote on/off control of devices such as light. Relay is normal open and it will be closed upon alarm annunciation or remote on. The relay is capable of switching **30V AC/DC, 2A**. For the application which needs power switching beyond this limit, use additional relay switch as shown in the right of Figure 2-6.



* Left : switching requirement below 30V, 2A

* Right : switching requirement higher than 30V, 2A. Apply this connection when either voltage or current exceed the limit.

Figure 2-6. RELAY Output connection

- **Sensor Input**

Connect external alarm sensor. Examples of sensing devices are infrared sensor, motion sensor, heat/smoke sensor, magnetic sensor, etc. Connect the two wires of the sensors to "Sensor Input".

The sensor type (NC/NO) can be set in admin page. Multiple sensor devices can be connected in parallel.

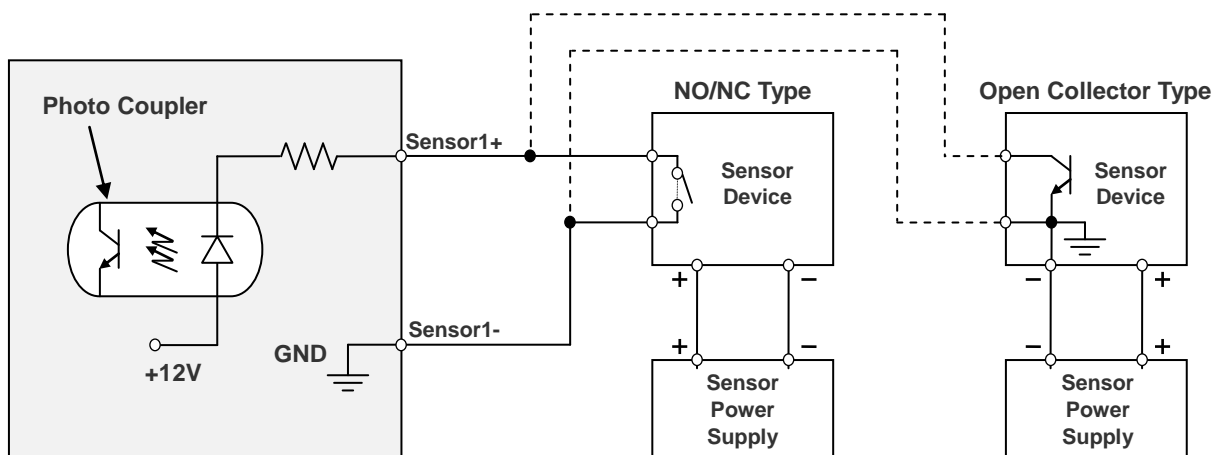


Figure 2-7. SENSOR input and connection of the sensor

3. On Site Installation

Use cables and conduits that are suitable for the installation. Particular attention should be paid in the installation so that no moisture is allowed to penetrate into the unit through the cables or conduits during the life time of the product. Products of which the internal parts are exposed to moisture because of improper installation are not covered by warranty

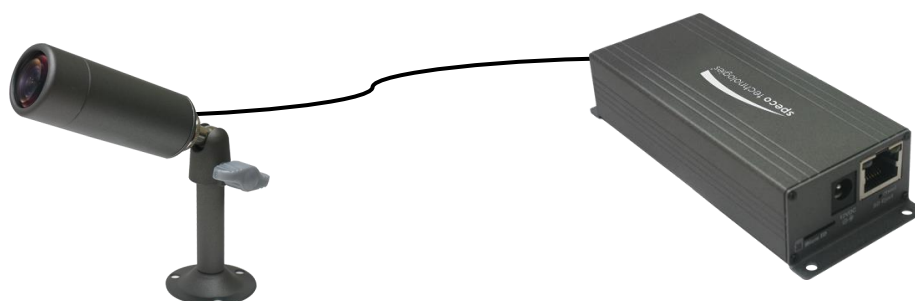
1. Fix the base on the wall.



2. Adjust the rotational position of the camera for desired viewing of the site.



3. connection to Encoder box.



4. Getting Started

Brief information for first time operation of O2MB1 is provided in this chapter.

4.1. PC Requirement

Audio/Video streaming data received from O2MB1 can be displayed or stored in a PC running client programs.

Minimum requirement of the PC is described below:

ITEM	Minimum Requirement	Recommended Specification
CPU	Intel Core i3 3Ghz	Intel Core i7
Main Memory	2GB	4GB
Operating System*	Windows XP	Windows 7 (64bit)
Web Browser	Internet Explorer 8, 9	Internet Explorer 8, 9
Graphic Card	Video RAM 256MB Resolution 1920x1080	Video RAM 1GB Higher than 1920x1080
Network	10 Base-T Ethernet	100 Base-T Ethernet

* Operating Systems supported: Windows 2000 Professional, Windows XP / Vista / 7

4.2. Quick Installation Guide

4.2.1. Connect PC and O2MB1 to network.

1. Prepare a PC to run programs for the installation and video connection
(PC is needed to assign IP address to O2MB1)
2. In the case of using PoE, connect the PC and O2MB1 to the network using one of the following ways. If your LAN Switch does not support standard PoE, connect O2MB1 as shown in dotted line in Figure 4-1.
The DC power is applied through DC adapter.

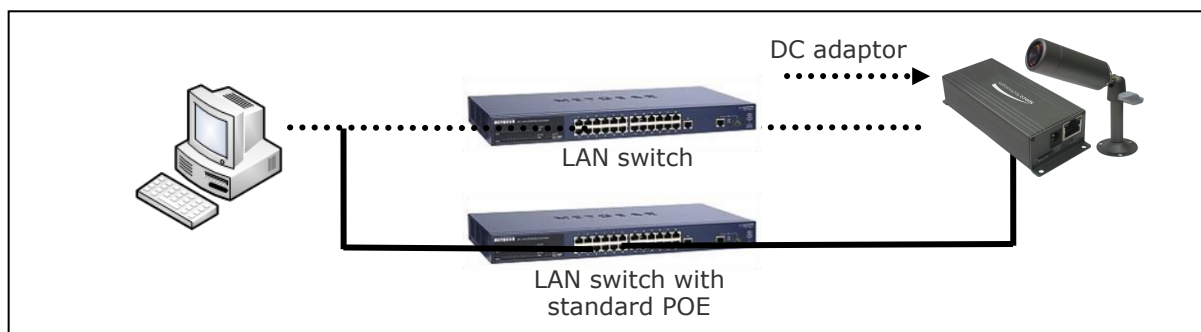


Figure 4-1. Power and network connection

4.2.2. Install Speco-NVR and set IP parameters on O2MB1

Speco-NVR is a multi-channel VMS program for the IP camera. Install Speco-NVR on remote PC to connect to these products. It is needed to assign connection information to Speco-NVR program before connection.

Insert the CD provided with product into the PC and install Speco-NVR.

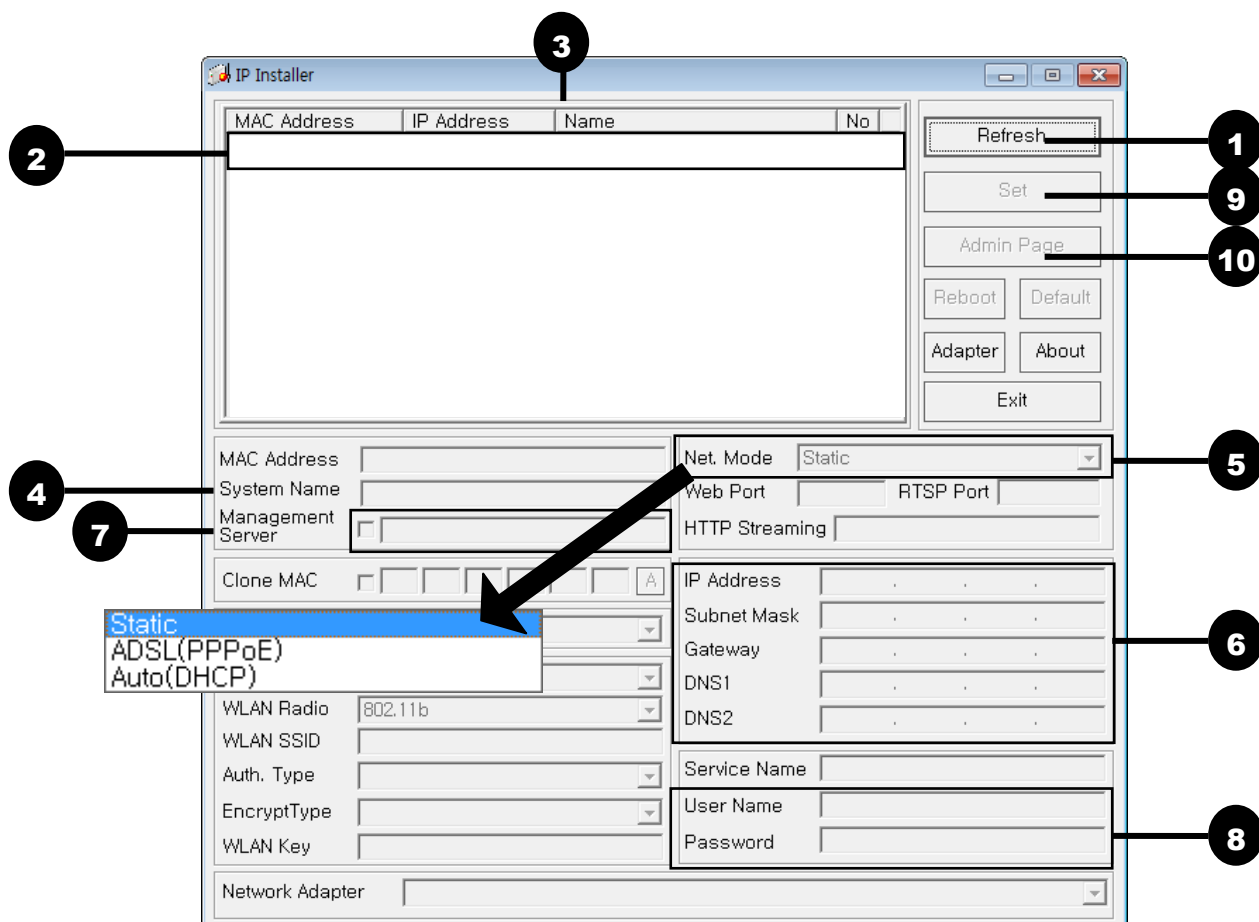


Figure 4-2. Speco-NVR

Follow the sequence below for setting the IP parameter

- i) Run ONSIP installer
- ii) Click (1) in ONSIP installer window.> Double click on (2) > Fill in (4) > make a selection in (5) > Fill the parameters in (6)
- iii) Click on (9) to apply the settings.

- iv) You can connect to admin page by clicking on (10).



Click on the field in **(3)** for sorting and rearranging the list.

Select network mode that best suits from the drop down list in **(5)**. You can choose either Static or ADSL and Auto (DHCP), respectively. If ADSL and Auto are selected, the fields in (6) are deactivated.

In case of ADSL, fill the User Name and Password in (8) with the values provided by your ISP.


If DDNS service is needed, Check at the box and fill the empty field with hostname you want in (7).

4.2.3. Remote video connection to O2MB1

1. Connection through Web Viewer


Web Viewer offers simplest way of video connection to O2MB1. For video connection, enter the IP address of O2MB1 in the URL window of Internet Explorer as:

[e.g.] Port 80

 http://172.16.64.133/

Can be omitted the default port of 80

[e.g.] Port 8080

 http://172.16.64.133:8080/



Note : Active-X module should be installed on your PC before actual connection. If your PC is not connected to the internet, you cannot download Active-X module. Most convenient way of installing the Active-X module is installing Speco-NVR which is available from the CD or our web site.

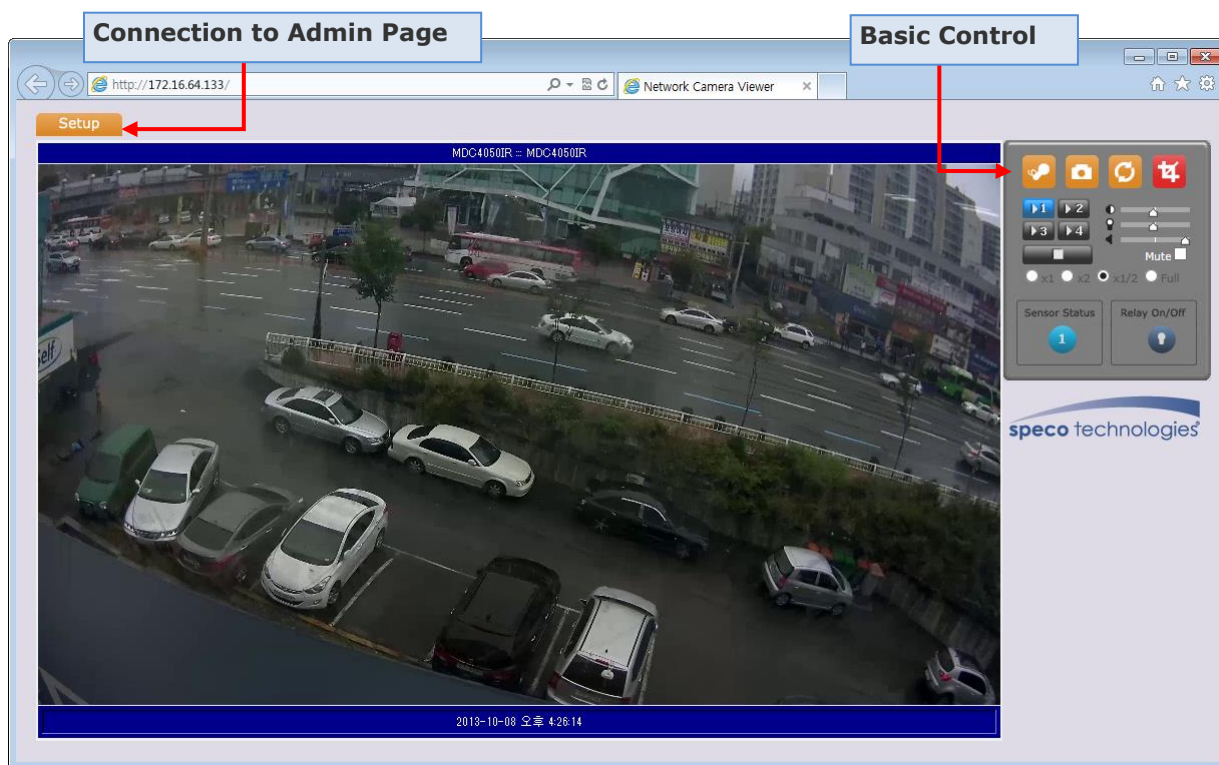


Figure 4-3. Web Viewer

Default ID and password of Admin Page are **“admin”**, **“1234”**.

For more detailed information, please refer to the **“Configuration_Guide”** Guide.

2. Connection through Speco-NVR

Click the camera assignment button for setting the camera address. Input the description, address, Ch#, User ID, Password and port and then click the save button. After assignment procedure, you must click the SAVE button. You can see the live video when you click the live view button as below. When you exit Speco-NVR, you have to input the ID/PW, admin/1234. Details for Speco-NVR can be found in [Speco-NVR User's Guide].

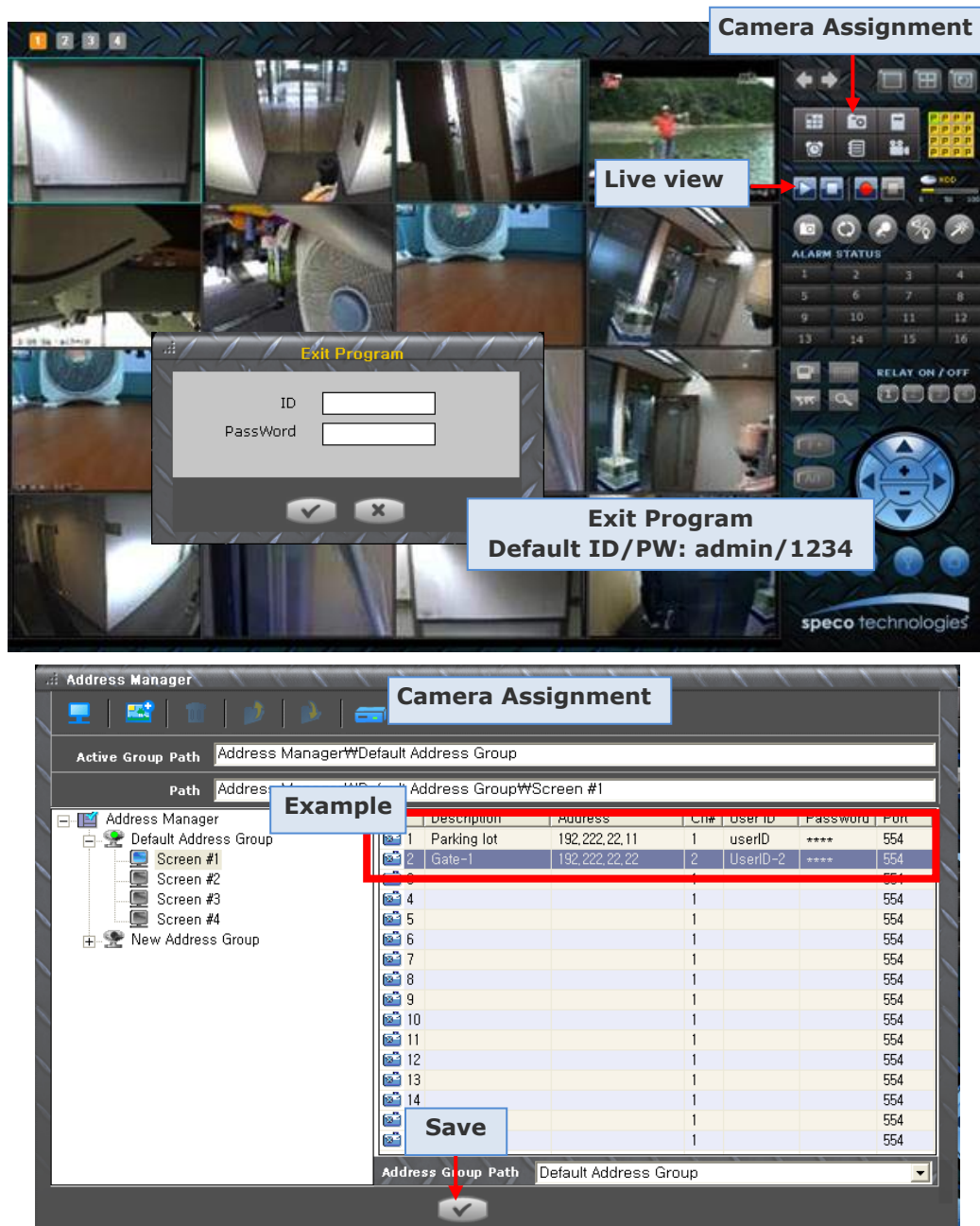


Figure 4-4. Speco-NVR

4.2.4. Additional settings through connection to the Admin Page

All parameters of the camera are factory default out of the box. For a more sophisticated target application, parameters need to be changed through the admin page. The admin page can be connected through

"http://IP_Address:Port_Number/admin.htm"

ID and password of the administrator are required. Default ID and password are **"admin"**, **"1234"**.

It is highly recommended to change the ID and password to prevent illegal access to the IP camera.

For more detailed information, **Please refer to the "Configuration_Guide" Guide.**

5. Trouble Shooting

5.1. No power is applied

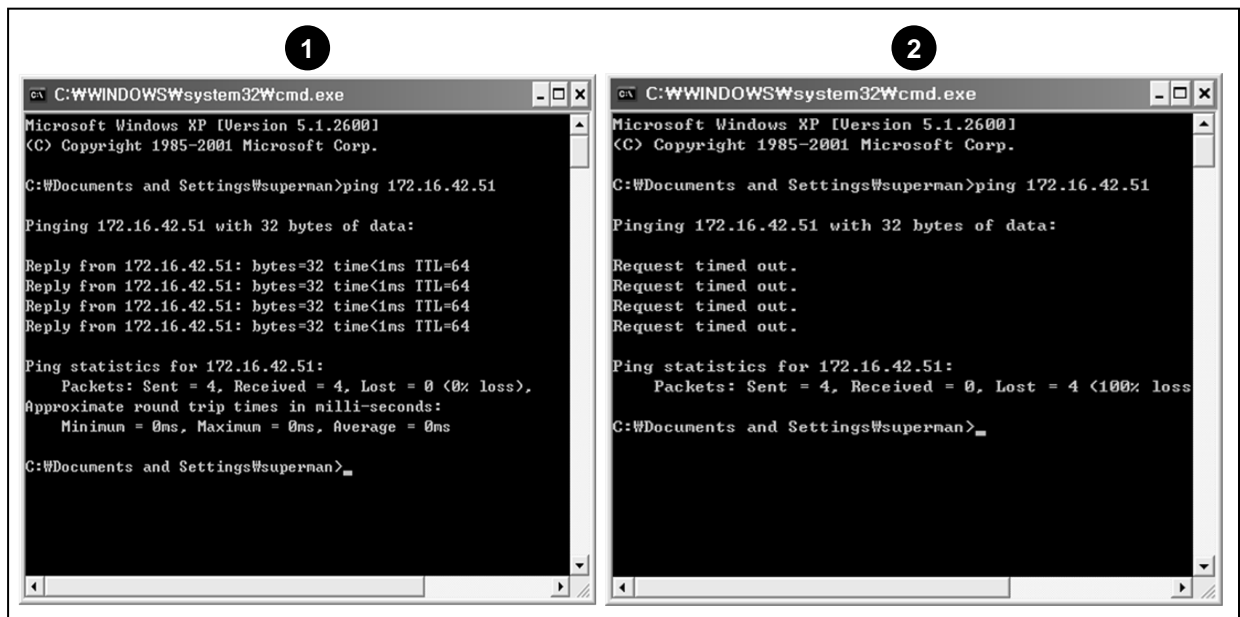
- In case of Standard PoE (Power over Ethernet)
Power supply through standard PoE is possible only when the following conditions are met.
 1. Standard PoE is supported on the product.
 2. The LAN switch supports standard PoE.Make sure that both the IP camera and the LAN switch support standard PoE (IEEE 802.3af)
- In case of DC adaptor
If PoE is not applied, the power and network connection should be made through separate cables.
It is recommended to use DC adaptor supplied by provider for the feeding of the power. In case of replacing the DC power supply, make sure that the power supply meets with the power requirement of the IP camera to prevent damage or malfunction.

5.2. Cannot connect to the Video

Check the status of the network connection through PING test.

Try the following on your PC :

- Start > Run > Cmd > Ping IP address (Ex : Ping 172.16.42.51)
- If “Reply from ~” message is returned (① in the figure below), the network connection is in normal state. Try connection to the video again. If the problem persists, or refer to other trouble shooting notes.
- If “Request timed out” message is returned. (② in the figure below), the network connection or network setting is not in normal state. Check the network cable and settings.



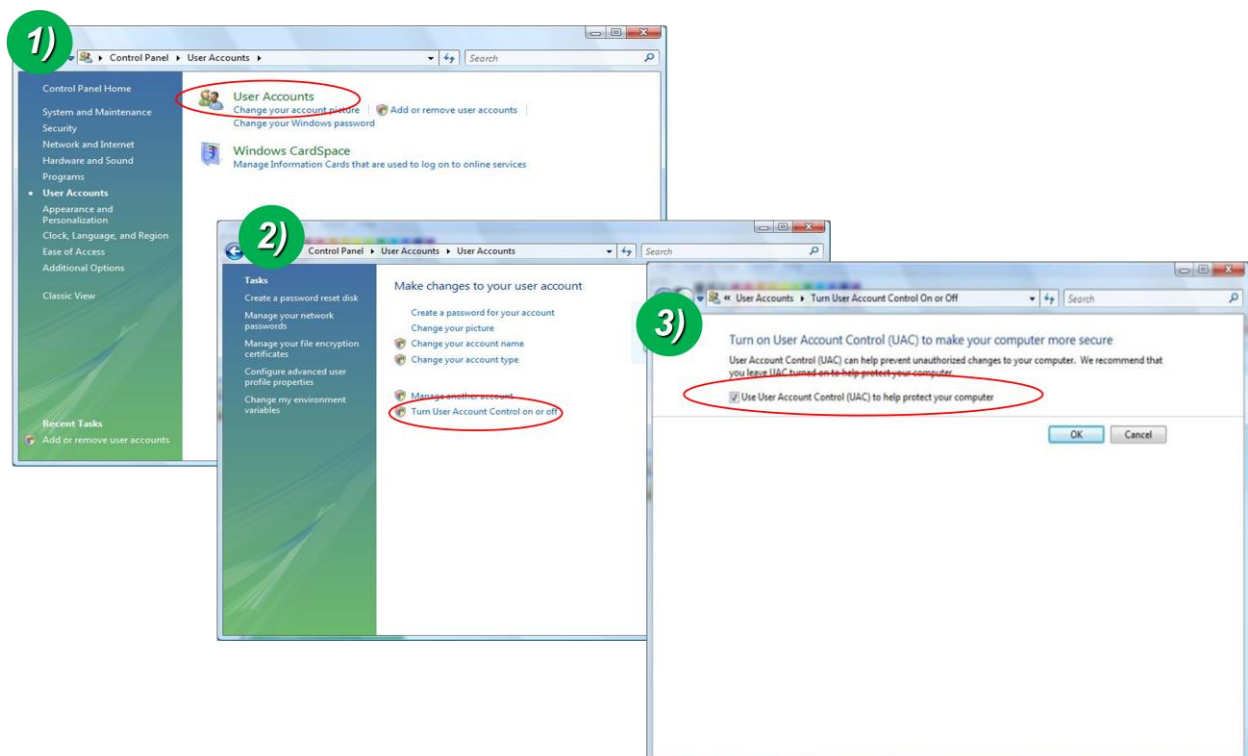
5.3. Windows Vista or Windows 7

Windows Vista and Windows 7 users need to configure UAC (User Access Control) and Privilege Level for proper recording and still video capture in Speco-NVR and Web Viewer.

<Windows Vista>

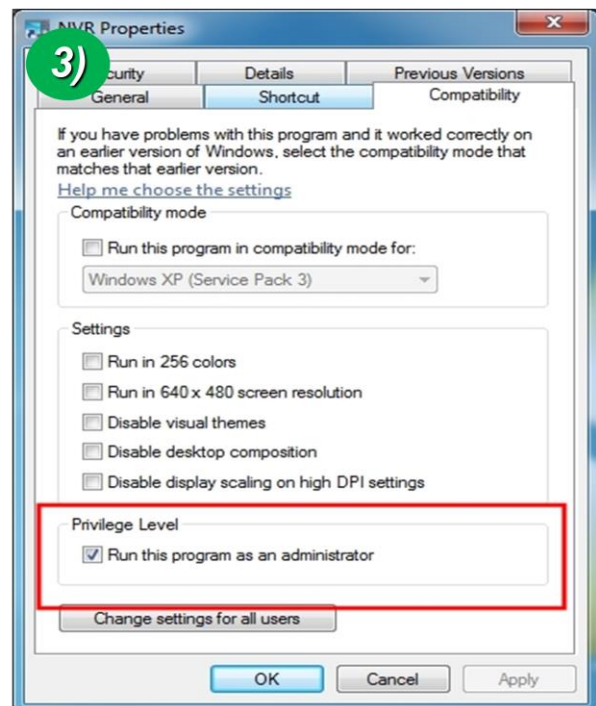
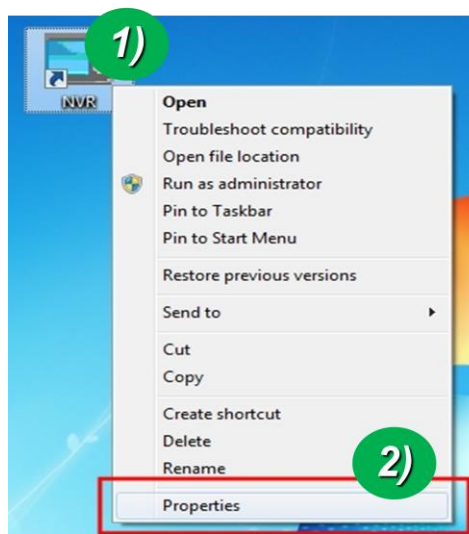
1. UAC (User Access Control) configuration

- 1) Double-click "User Accounts" in control panel
- 2) Double-click "Turn User Account Control on or off"
- 3) Uncheck "Use UAC to help protect your computer"



2. Privilege Level Control

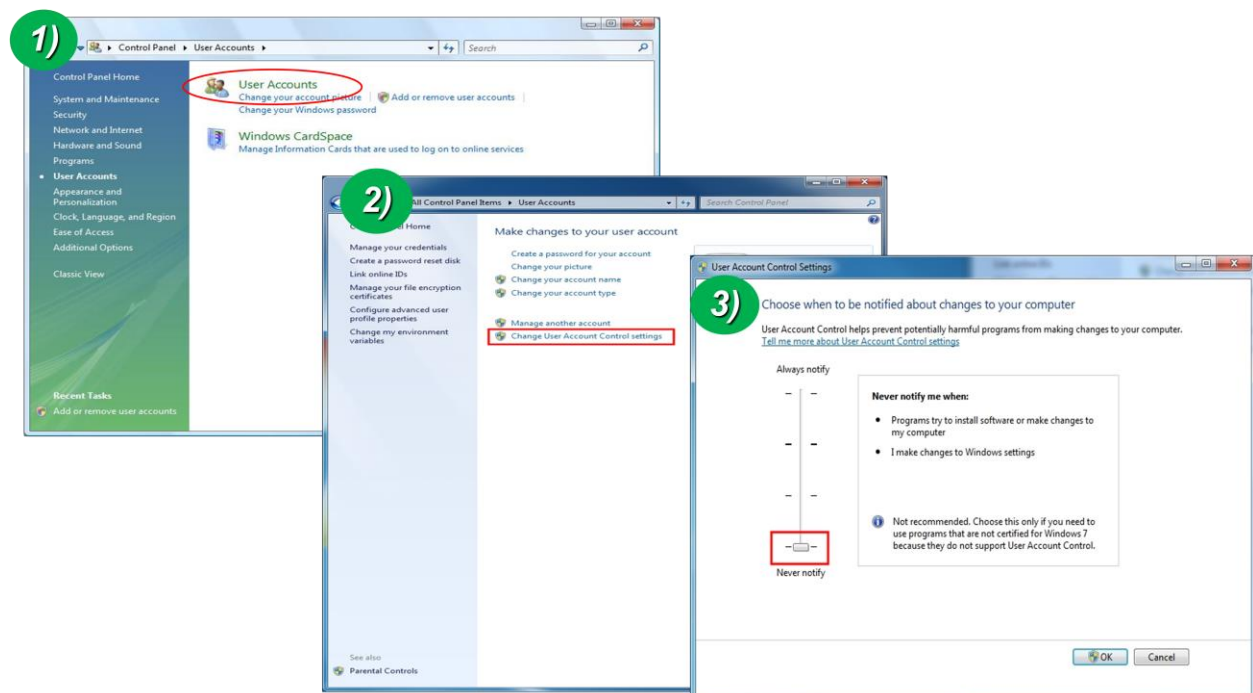
- 1) Select "NVR" icon on the desktop
- 2) Click right mouse button and select "Properties"
- 3) Check "Privilege Level" in "Compatibility" tab



<Windows 7>

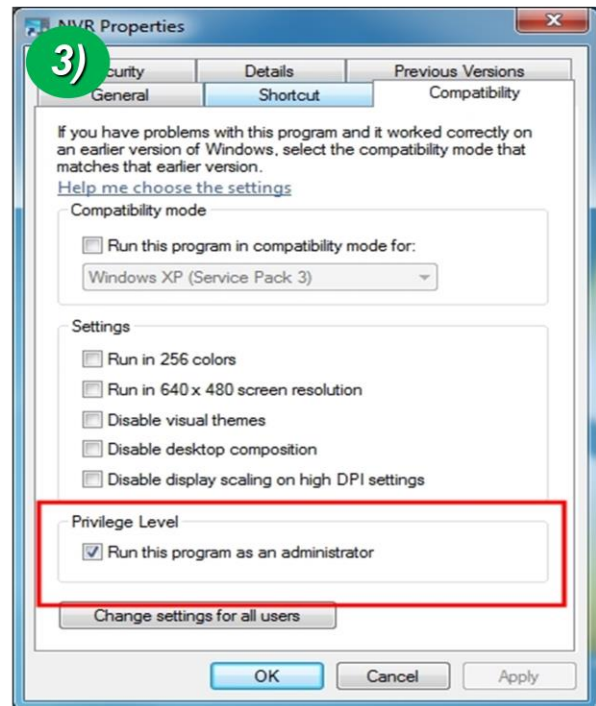
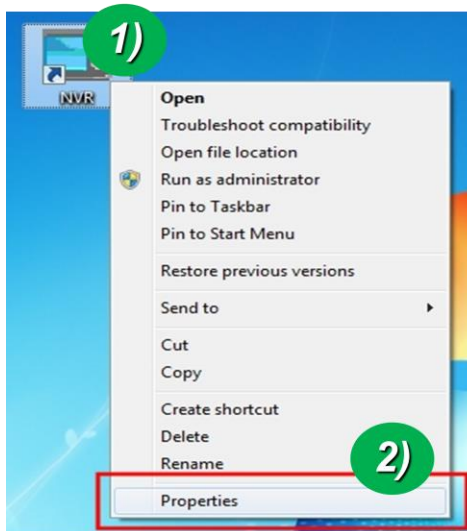
1. UAC (User Access Control) configuration

- 1) Double-click "User Accounts" in control panel
- 2) Double-click "Change User Account Control setting"
- 3) Set to "Never notify"



2. Privilege Level Control

- 1) Select "NVR" icon on the desktop
- 2) Click right mouse button and select "properties"
- 3) Check "Privilege Level" in "Compatibility" tab



5.4. Technical Assistance

If you need any technical assistance, please contact your dealer. For immediate service please provide the following information.



1. **Model name**
2. **MAC address and Registration number**
3. **Purchase date**
4. **Description of the problem**
5. **Error message**

Appendix A – Important Notice in Exchanging SD Card (Micro SD)

SD Card is a non-volatile memory device for storing video and audio data on the product. Continued writing to the SD Card will cause wear-off of the memory cell.

When you plug out the SD Card for replacement or other purpose, follow the steps below in order to prevent data loss or crash of the SD Card.

1. Press factory default button for 1 sec to unmount the SD Card .
 - SD Card can also be unmounted by going to **Admin Page -> Sensor&Capture Setup** and clicking on **CONFIRM** button at the right of SD Card Unmount menu.
2. Unplug the SD Card .
 - If no action is taken within 1 minute, SD Card will be mounted again.
3. Plug in new SD Card
4. If the SD Card is a new one for the IP camera, format the SD Card by following through the steps below.
 - Go to Admin Page -> Sensor & Capture Setup
 - In the SD Card management menu, click on **CONFIRM** button at the right of SD Card Format.

For more detailed information regarding connection to admin page, please refer to the “**Configuration_Guide**” Guide.