Advance IP Camera Development Kit

Version 0.7 2009/2/16 DennySu/Netpool

About This Document

This user's document serves as a reference for the network camera or video server, and is intended to assist software engineers in developing applications using this device.

Notational Conventions

This book uses the following conventions.

- All data will follow the network conventions - big endian.
- Square brackets, as in '**[**' and '**]**', identify an optional parameter. If you use an optional parameter, specify the information within the brackets; do not type the brackets themselves.
- Numbers starting with the characters '**0x**' are hexadecimal numbers.
- The code fragments in this document are written in the '**C**' programming language. Strict typing and syntax are not adhered to.
- A C-Style string means a string with a NULL character terminator; the length of this string is the exact length, including the terminating zero.

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0. Document History

Version	Date	Comment
0.1	2006/02/23	Draft version.
0.2	2006/08/21	Second version.
0.3	2007/02/09	Add some new functions.
0.4	2007/09/19	Add some new functions.
0.5	2007/11/28	Add day/night function.
0.6	2009/1/10	Add H.264 API.
0.7	2009/2/12	Add multi profile

TAB 0-1

0.1 What's New in This Document

0.1.1 Version 0.7

- Multi profile

0.1.2 Version 0.6

- Add H.264 API and parameters.
- GIO polling status.
- RTP

0.1.3 Version 0.5

- Add Day/Night Function.
- Update some ActiveX objects.

0.1.4 Version 0.4

- Add new device types.
- Add IP filter rules.

- Add IP traffic rules.

0.1.5 Version 0.3

- Fix the Tab 13-2.
- Fix the descriptions of the '*newdate*' and '*newtime*'.
- Fix the description of the alarm definition.
- Add two ANNP codes in APPENDIX II.
- Add the ActiveX installation procedure.

0.1.6 Version 0.2

- Multi-channel video server
- mask area
- new source filter and **DirectShow** support
- sense up
- memory card re-write

1. Overview

Welcome to the *Advance IP Camera Development Kit* (hereinafter referred to as the **AIPDK**). The **AIPDK** comprises all the documentations, tools and background knowledge you need when you use the IP Camera for expeditiously developing your proprietary application. The **AIPDK** is composed of the following main blocks.

- **IP Camera HTTP-API document**

  The HTTP-based interface provides diverse functions for the retrieval and arranging of the system parameters of the IP Camera. All the communications can be handled by the Web server built in the IP Camera.
- **Viewer Control ActiveX (VCA)**

  The VCA is designed in the form of ActiveX, which can be excellently integrated into your environment, for example, VB, VC++, and VB .net.
- **Advance News Notification Protocol (ANNP)**

  The ANNP is a network protocol which clarifies how to dispatch a reliable and real-time alarm notification from the IP Camera.
- **Webpage custom-maker (WCM)**

  The WCM contributes various tools to improve your structure and customization on WebPages embedded in the device.
- **RS232 communication**

  The corresponding chapter below explains how to conduct communications between an RS232 port and an IP Camera.
- **Appendix**

Hopefully the **AIPDK** simplifies the usage of our IP Camera and seamlessly integrates it with your implementation.

2. The Packages

2.1 The SDK Files

This package consists of the following components listed in TAB 2-1.

Filename	Version	Description
ViewerCtrlAx.dll	1.0.3.2	The main VCA component.
jpgdec.dll	1.0.4.9	The MJPEG codec.
m4dec.dll	1.0.2.0	The MPEG4 codec.
VMRSourceFilter.ax	1.0.3.1	The direct show filter.
MediaRender.ax	1.0.3.1	The direct show filter.
CppUtility.dll	1.0.0.1	Common library.
SDKUtils.dll	1.0.3.1	Common library.
SDK.pdf	0.7	This documentation

TAB 2-1

http://developer.intel.com/software/products/perflib/ijl/

http://www.xvid.org/

2.2 System Requirement

- Platform:

  Windows 2000, Windows XP.
- Browser: (Optional)

  Microsoft Internet Explorer 6.0 or 7.0
- Application:

  The following designing environments suit for a software programmer, for example, Microsoft VC++6.0, VB or .net.

2.3 The Package Installation

The first step is to unzip this package to a folder such as '**New Folder**', and the files in the package are all ActiveX components; we should employ the program, '**regsvr32.exe**' to register them to the system folder. We prepare two batch files, '**register.bat**' and '**unregister.bat**' for the users to simplify the installation and you can just double click the '**register.bat**' to complete it as below.

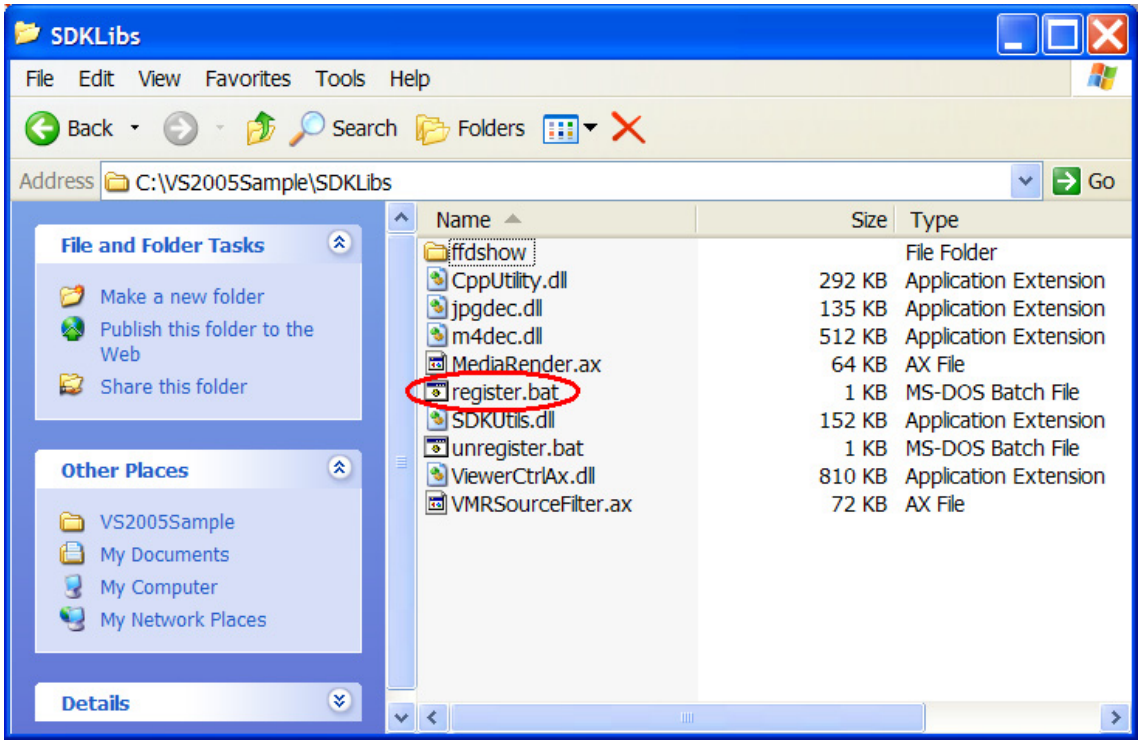

FIG 2-2

To un-register the components, double click the '**unregister.bat**' as below.

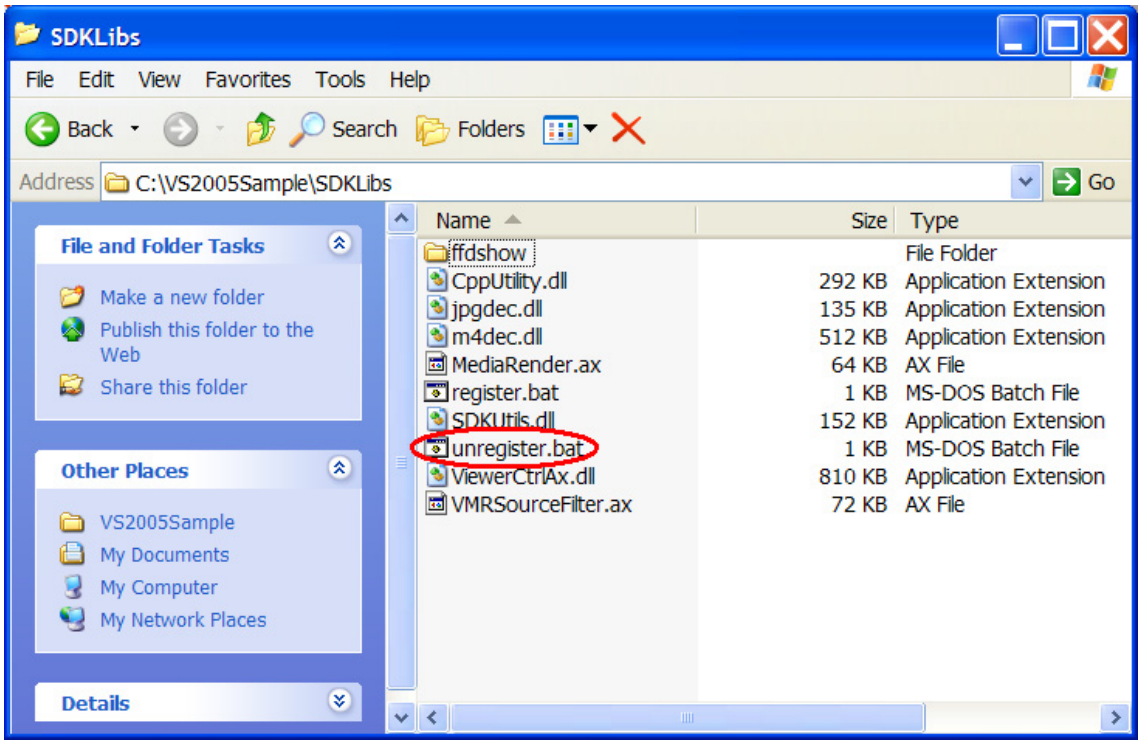

FIG 2-3

Notice: Please make sure that all of the SDK files are placed in the same folder, or the installation will fail.

3. Network Capability

3.1 Introduction

The main feature related to the IP Camera is to offer a complete networked digital multi-media stream to the desktop for video surveillance and recording; it can utilize many transmission facilities, including LAN, Internet, PPPoE and wireless. There are various network protocols built in the device to archive the above objectives.

This document is not in the scope of the complicated information related to these network protocols but briefly introduces their properties associated with the IP Camera.

3.1.1 ARP Protocol

The Address Resolution Protocol that maps Internet Protocol (IP) addresses to the physical hardware addresses of specific networks. This protocol operates at the lowest level of network operating systems and is not accessible to any application.

3.1.2 Daytime Protocol

The protocol is defined in RFC867. It binds the well-known port 13, and it sends out the current date and time as an ASCII character string as below.

Thu, 26, Jan 2006 19:00:41 +0800

3.1.3 Dynamic DNS

The Dynamic DNS service allows you to assign a fixed host name to a dynamic IP address. Dynamic DNS provides you with the ability to change the IP address

of your domain name to point to your dynamically allocated IP address. This allows you to host your server on a changing IP address such as provided by a standard dial-up internet service provider. They act like old-style phone operators: other users call the operator, and ask to speak to you; the operator looks at the directory for your current number and connects the user to you. Every time your computer comes online, you tell the DDNS server what your current address is. Other users, through the magic of DNS, will be sent to the right place. The setting page of DDNS is located in '**nddns.htm**'.

3.1.4 DHCP Client and Server

The Dynamic Host Configuration Protocol (DHCP) provides a framework for passing configuration information to hosts on a TCP/IP network. The DHCP is based on the Bootstrap Protocol (BOOTP), adding the capability of the automatic allocation of reusable network addresses and additional configuration options. The DHCP captures the behavior of the BOOTP relay agents, and DHCP participants can interoperate with BOOTP participants. The related setting pages are located in '**net.htm**' and '**ndhcpsvr.htm**'.

If the lease time that the DHCP server provides is shorter than one hour, the device will adjust the period to one hour automatically.

3.1.5 DNS

To identify an entity, TCP/IP protocols use the IP address, which uniquely identifies the connection of a host to the Internet. However, people prefer to use a name instead of an IP address. Therefore, the DNS service will provide a system that can map a name to an address or an address to a name.

3.1.6 FTP Client and Server

The File Transfer Protocol (FTP) is the standard mechanism provided by the TCP/IP for copying a file from one host to another. Transferring files from one

computer to another is one of the most common tasks expected from a networking or internetworking environment.

The main usage of the FTP client is to transfer MJPEG files to a server if an alarm is triggered or a schedule is activated. The main usage of the FTP server is to update firmware or WebPages to the IP Camera. The corresponding setting pages are located in '**nftp.htm**' and '**nftphost.htm**'.

3.1.7 HTTP

The Hypertext Transfer Protocol (HTTP) is a protocol used mainly to access data on the World Wide Web. The protocol transfers data in the form of plain text, hypertext, video, audio, and so on. However, it is called the Hypertext Transfer Protocol because its efficiency allows its use in a hypertext environment where there are rapid linkages from on document to another. Please refer to Chapter 4 for the comprehensive information.

3.1.8 ICMP

The ICMP service is designed for diagnostic purposes, and network managers and users utilize this protocol to identify network problems. Using the popular software, PING, will determine whether two systems can communicate with each other.

Notice: The IP Camera will ignore any ICMP packet of a size greater than 1460 bytes to avoid the '**PING DEATH**' or '**PING DROP**'.

3.1.9 NetBIOS Name Service

The NetBIOS Name Service (NBNS) is also known as Windows Internet Name Service (WINS). The job of NBNS is to match IP addresses with NetBIOS names and allow queries to be made of the matches. The default NetBIOS name is the title of the IP Camera.

3.1.10 PPPoE

Point to Point Protocol over Ethernet is a proposal specifying how a host device interacts with a broadband modem such as ASDSL, cable, and wireless to achieve access to the growing number of high speed data networks. Relying on two widely accepted standards, Ethernet and the point-to-point protocol (PPP), the PPPoE implementation requires virtually no more knowledge on the part of the end user other than that required for standard dial up internet access. In addition, PPPoE requires no major changes in the operational model for Internet Service Providers (ISPs) and carriers. The significance of PPP over Ethernet has to do with its far greater ease of use versus competing approaches. By making high speed access easier to use for end consumers, and more seamless to integrate into the existing infrastructure for carriers and ISPs, PPPoE could speed the widespread adoption of High speed access services.

Also, PPP over Ethernet provides a major advantage for service providers by maximizing integration with service providers' existing dial network infrastructures. Through tight integration with existing back office automation tools that ISPs have developed for dial customers; PPPoE enables rapid service deployment and cost savings. From authentication, accounting and secure access to configuration management, PPPoE supports a broad range of existing applications and services.

The base protocol is defined in RFC 2516.

3.1.11 SMTP Client

One of the most popular network services is electronic mail (email). The TCP/IP protocol that supports electronic mail on the Internet is called the Simple Mail Transfer Protocol (SMTP). It is a system for sending messages to other computer users based on email addresses. The SMTP provides for mail exchange between users on the same or different computers. The main purpose of the SMTP is to send MJPEG files to a mail server if an alarm is

triggered or a schedule is activated. The corresponding setting page is located in nsmtp.htm.

3.1.12 SNTP Server and Client

The SNTP is used to keep device clocks in synchronization with each other, and it is based on RFC 2030. The SNTP can be useful for tracking processes and for interactions between machines by using time stamps that are kept synchronized. The corresponding setting page is located in nsntp.htm.

3.1.13 UPnP

Universal Plug and Play (UPnP) is designed to make networking simple, and this includes easily finding new devices when they are added to your network. If you are running an UPnP enabled operating system, such as Windows ME or Windows XP, new UPnP devices added to the network can be made to automatically appear in My Network Places. Please refer to Chapter 15 for the comprehensive information.

3.1.14 Wireless

An IP Camera, DVR etc. with an appropriate built-in or added card, can connect together to exchange data and information between devices without the use of wires. These networks can be private between the devices themselves, or can allow access to other wired networks through a device called an AP (access point). The AP is connected to the wired network and relays data between the wireless and wired networks.

3.2 Device Identification

The first step to access a network device is to identify its exact IP address. The following sections will lead you to discover the IP Camera or find its IP address.

3.2.1 ScanPort Protocol

The IP Camera can be observed with a broadcasting UDP packet. The ScanPort protocol is designed to locate an IP Camera in the local net. The relative configurations for its socket are described in TAB 3-1.

The implementation related to this protocol is very simple, and all you have to do is bind a UDP port, **8992;** the length of this packet is 84 bytes, and its format is as shown in TAB 3-1 below.

0	**1**	2	3	4	5	6	7	**8**	**9**	10~83
0x55	**0xAA**	0x00	0x00	0x00	0x00	0x00	0x00	**0x11**	**0x01**	0x00....

TAB 3-1

The structure of the response UDP packet from the IP Camera is represented in TAB 3-2, and its length is 88 bytes in total.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Not Defined				Machine Code		MAC address						Not Define			
16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Not Define	DHCP status	Not Define		IP address				Gateway address				Subnet Mask			
32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
Reserved															
48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
Device Title												Not Defined			
64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
Reserved															
80	81	82	83	84	85	86	87								
Reserved				HTTP PORT		Reserved									

TAB 3-2

- Machine Code

This field is 2 bytes in length, and it reveals what kind of a device it is.

TAB 3-3

- MAC address

This field is the network physical address with a capacity of 6 characters.

- DHCP Status

This single byte shows the DHCP status of the IP Camera.

  - 0: DHCP is off.
  - 1: DHCP is active.

- IP address

This field is the IP address with a capacity of 4 bytes.

- Gateway address

This field is the gateway address with a capacity of 4 bytes.

- Subnet mask

This field is the net mask with a capacity of 4 bytes.

- Device title

This field is the IP Camera title with a capacity of 12 bytes, and it is a C-Style string terminated with a NULL character.

- HTTP port

This field means the functioning HTTP port number between 1 and 65535.

Warning! The UDP broadcast packet only survives in the LAN (Local Area Network), and this means it cannot be sought by the UDP protocol in the Internet. Some firewalls also block the UDP packet to prevent the virus attack.

The following segment is a VB sample code which shows how to implement this protocol.

```
Dim A(84) As Byte
Dim I As Integer
On Error Resume Next
'    If OSvr.Value = False Then
       Winsock.RemoteHost = "255.255.255.255"
       Winsock.RemotePort = 8992
    '   Winsock.Bind 8991
```

```
A(0) = (&H55&)
A(1) = (&HAA&)
A(2) = (&H0&)
A(3) = (&H0&)
A(4) = (&H0&)
A(5) = (&H0&)
A(6) = (&H0&)
A(7) = (&H0&)
A(8) = (&H11&)
A(9) = (&H1&)
For I = 1 To 74
   A(I + 9) = (&H0&)
Next
Winsock.SendData A()
```

3.2.2 Ping Reset

The second solution to recognize the device's IP address is to reset the machine remotely to the default, '**192.168.1.168**'. Please refer to APPENDIX V for comprehensive information.

3.2.3 Factory Reset

This chapter will discuss how to use the hardware switch to reset all the settings in the device to default instead of the software procedure mentioned above.

Insert the '**RESET**' hole depicted in FIG 3-4 and hold for 5 seconds, and the device will be rebooting in 5 seconds. After it reboots again, the IP address of the device will be back to '**192.168.1.168**' with the default account and password, '**admin**' and '**9999**'.

FIG 3-4

Warning: Some devices do not support the '**RESET**' button.

3.2.4 UPnP Discovery

As mentioned in Chapter 3.1.13, Universal Plug and Play (UPnP) can make networking simple, and this includes easily finding new devices when they are added to your network. The comprehensive procedure will be proposed in Chapter 15.

3.2.5 USB Identification

The USB (Universal Serial Bus) is the most popular protocol in point to point communication. Some devices support this UPnP function. The first step is to locate the 5-pin USB socket in the flank illustrated in FIG 3-5 and prepare your complementary USB wire.

FIG 3-5

FIG 3-6

Notice: The real location associated with USB depends on your device; please refer to your user manual.

A message pops up automatically on your screen once the USB wire is plugged in.

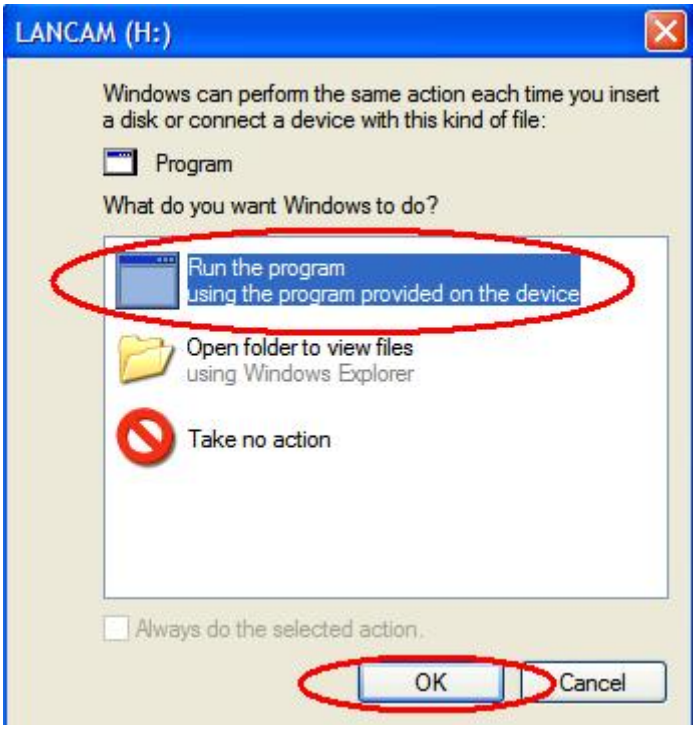

FIG 3-7

This application will tell you the exact IP address of the device.

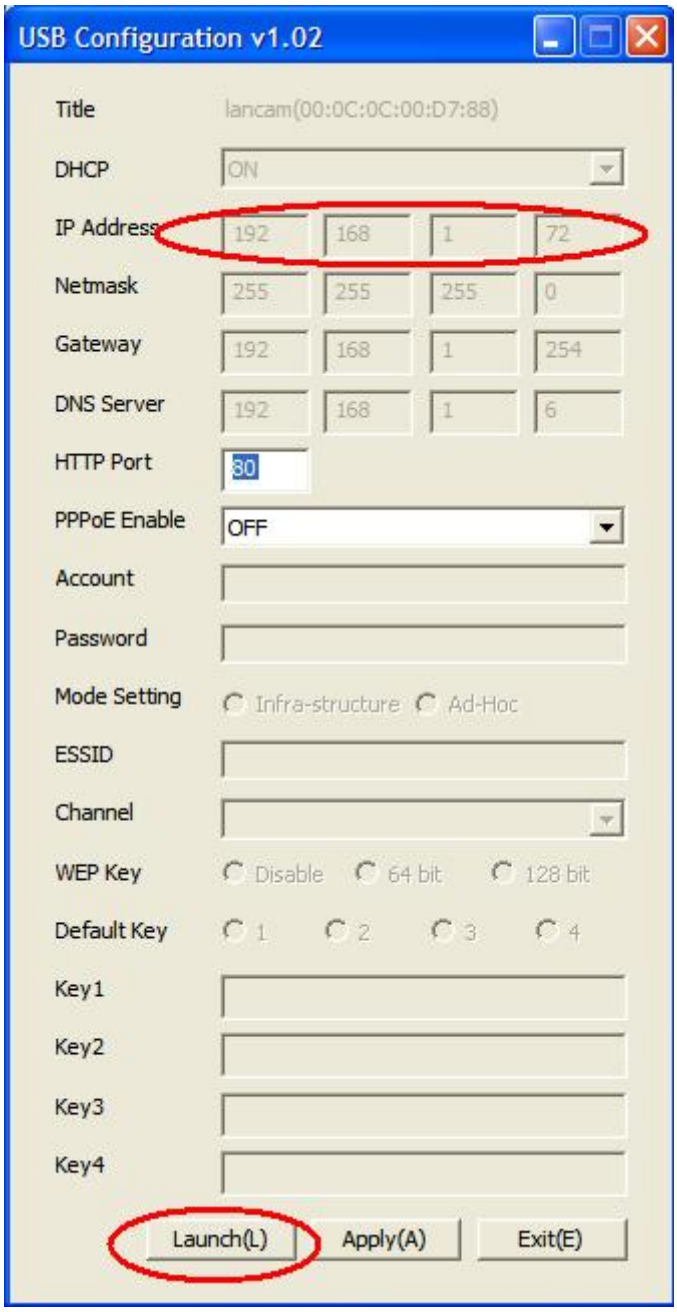

FIG 3-8

Press the '**Launch**' Button, and an IE browser will be launched to show the video stream from the device.

4. An Introduction to HTTP API

4.1 Introduction

This chapter specifies the external HTTP-based application programming interface of the IP Camera with software version '**1.42**' or above (refer to Chapter 12.3.3.42 or visit the '**version.htm**' as below).

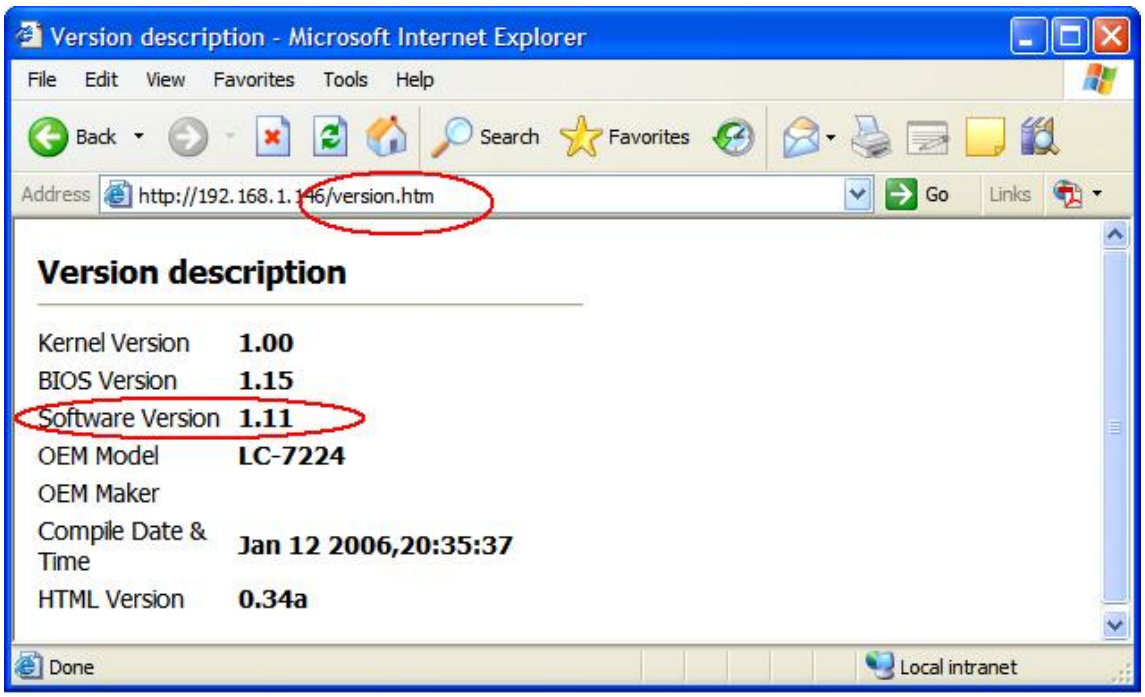

FIG 4-1

The Hypertext Transfer Protocol (HTTP) is the most popular protocol used extensively to access data on the World Wide Web (WWW), and it transfers data in the form of plain text, hypertext, video, audio, Java applet, and so on. Thus, it is undoubtedly an adaptable protocol for the IP Camera to provide the functions for requesting remote control, video or audio streaming, and archiving the system parameters.

4.2 HTTP Request

Our built-in web server in the IP Camera complies with the HTTP 1.0 standard, and the methods it supports are both '**GET**' and '**POST**' (refer to RFC1945). After the IP Camera system initializes, the web server will be bound to the port of 80 (by default) and ready to listen. A TCP/IP socket will be established while the client program connects to the web server. By definition, the commands from the client to the server are embedded in a '**REQUEST**' message depicted in FIG 4-2, while the contents of the requested file or other information are enclosed in the '**RESPONSE**' message.

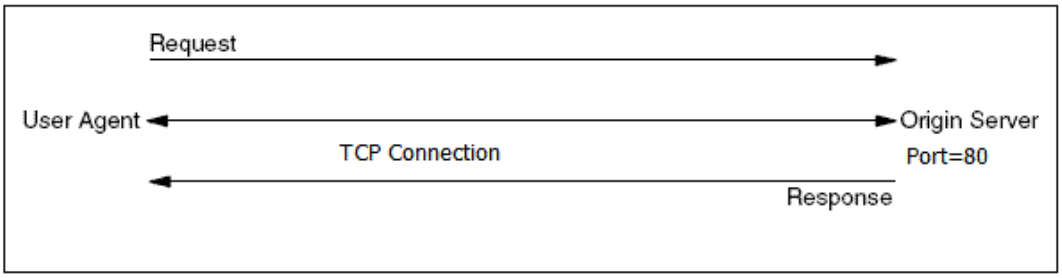

FIG 4-2

The format of the '**REQUEST**' is depicted in FIG 4-3.

METHOD	<SP>	URL	<CR>	<LF>	<CR>	<LF>

FIG 4-3

- **METHOD**

As mentioned above, only '**GET**' and '**POST**' are supported.

- **SP**

This field is a '**SPACE**' character.

- **CR**

This field is a '**CARRIER RETURN**' character.

- **LF**

This field is a '**LINE FEED**' character.

- **URL**

This field is a '**Uniform Resource Locator**'. The URL must follow the standard way of writing a URL, (refer to RFC 2396); that is, spaces and

other reserved characters (‘**;**’, ‘**/**’, ‘**?**’, ‘**:**’, ‘**@**’, ‘**&**’, ‘**=**’, ‘**+**’, ‘**,**’ and ‘**$**’) within a <parameter> or a <value> must be replaced with ‘**% <ASCII hex>**’. For example, in the string ‘**IPCAM 7224**’, the space will have to be replaced with ‘**IPCAM%207224**’.

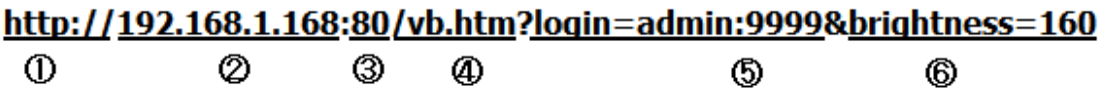

FIG 4-4

① means the contents will be interpreted by the HTTP protocol, and it is only necessary when launching a browser like the Microsoft Internet Explorer®.

② indicates the IP address of the device whose format can be numeric or FQDN (Fully Qualified Domain Name), and it can be discovered by the ‘**SCANIP’** UDP protocol (refer to Chapter 3.2.1).

③ is the destination port for the HTTP, and the default port is 80 (the well-known HTTP port). It has to be specified when you modified the relative IP Camera settings.

④ is the web page you access. If your parameters for ①, ②, and ③ are all correct, a response to the ‘**REQUEST**’ will be committed, and the HTTP code is as follows in TAB 4-5.

HTTP code	Description
200	The request has succeeded, but an application error can still occur, which will be returned as an application error code.
304	The content is not modified.
400	The request had bad syntax or was impossible to fulfill.
401	The request requires user authentication or the authorization has been refused.
404	The server has not found anything matching the request.

501	The action request cannot be performed.

TAB 4-5

Warning! The '**vb.htm**' is the only page that the web server supplied to communicate with the client in order to control the system. **404** status codes may be returned if you browse others.

⑤ and ⑥ stand for any action to order to the IP Camera. Depending on the commands, various parameters may be set or retrieved, as described in the following chapters. There are eight groups in the IP Camera API as follows.

- Image
- Network
- System
- UART
- Wireless
- Recording
- Storage
- Miscellaneous

The corresponding authority of the commands is classified into four categories:

Value	Level
0	Administrator
1	Operator
2	Viewer
9	Guest

TAB 4-6

The '**ADMINISTRATOR**' owns the maximum authority of all, including being able to execute all the commands of the '**OPERATOR**', and the '**OPERATOR**' is

the next; however, '**GUEST**' is the lowest authority to access the system, and the particular authority to these parameters will be detailed in Chapter 7.

4.3 HTTP Response

As shown in FIG 4-2, a '**RESPONSE**' will be returned back to the same socket, and its format is delineated as below.

VERSION	<SP>	CODE	<SP>	MESSAGE	<CR>	<LF>	<CR>	<LF>

- VERSION

This field indicates the version of the HTTP protocol.

- SP

This field is a '**SPACE**' character.

- CODE

This field is the status code; please refer to TAB 4-5.

- MESSAGE

This field is a return message about the action.

- CR

This field is a '**CARRIER RETURN**' character.

- LF

This field is a '**LINE FEED**' character.

4.4 HTTP Message

The message is valid only when the HTTP status code is equal to '**200**', and a detail of the message is needed.

Code	Description
OK	The operation is successful.
NG	An error occurred when executing the command.
NS	No such service exists.
UW	The command is unknown.

UA	Under authority (inadequate authority) to execute this command.

TAB 4-7

5. MJPEG Stream Format

5.1 Background

JPEG, standing for Joint Photographic Experts Group, is a standardized image compression mechanism. It is designed for compressing full-color or gray-scale continuous still images of natural, real-world scenes, like photographs, naturalistic artwork, and similar material. Accordingly, the compressive effect of the non-continuous tone images, like simple cartoons or line drawings, is not as well as that of the continuous tone images.

JPEG may be lossy, which means that decompressed image is not quite the same as the original image. It is designed to the limitations of human eye, which is a known fact that small color changes are perceived less accurately than small changes in brightness. The degree of lossiness can be varied by adjusting compression parameters. The image makers can trade off file size against output image quality. The lesser compression is, the better quality is and vice versa. Similarly, the decoders can trade off decoding speed against image quality, by using fast but inaccurate approximations to the required calculations.

JPEG has two main advantages. First, to make your image files smaller. It is a win for transmitting files across networks and for archiving libraries of image. JPEG can provide 20:1 compression of full-color data. Essentially, JPEG is a time/space tradeoff giving up some time to store or transmit an image more cheaply. But usually the time saving from transferring a shorter file can be greater than the time needed to decompress the file if the network transmission is involved. The second advantage of JPEG is to store 24-bit-per-pixel color data instead of 8-bit-per-pixel data. Not only can the JPEG images look much better on full-color hardware, but also JPEG is more useful for exchanging images among people with widely varying display hardware since it does not prejudge

how many colors to use. The principal disadvantage is that a little more quality can be lost each time if compressing and decompressing an image repeatedly.

5.2 Introduction

This chapter will introduce the MJPEG video-stream of the IP Camera, and explain its composition. Basically, this stream is an HTTP connection and it comprises of a series of multiple images with a boundary marker; therefore, the application can handily parse its contents and extract the expected picture from the stream.

The IP Camera cannot generate the MJPEG and MPEG4 streams simultaneously; therefore, the MJPEG video-stream or snapshot is not available when the machine is in the MPEG4 mode, and a message of '**NS JPEG**' will be returned in this mode. Please refer to Chapter 7.3.1.38 to confirm its codec status.

This process needs an authority '**VIEWER**' or any of the higher authorities, '**OPERATOR**' and '**ADMINISTRATOR**'; the corresponding commands, 'resolution' and 'quality' have to be pre-determined.

5.3 Snapshot

The function of the MJPEG snapshot is still provided, and the specific URL is listed as follows.

http://<servername>:<serverport>/dms.jpg

For multi-channel video server:
http://<servername>:<serverport>/dms.jpg?ch=<channelid>

Where the <*servername*> is the FQDN of the IP Camera; the <*serverport*> can be ignored if it is equal to the well-known HTTP port, 80; the <*channelid*> is

the ID of the channel which will take a snapshot, if this API applies in the multi-channel video server.The above command will retrieve the latest image from the IP Camera if it is in the MJPEG mode. The image complies with ISO-JPEG, and its format is formulized in Chapter 13.

However, using the function of the snapshot is not recommended because this will open lots of sockets, and it will exhaust the finite memory of the IP Camera. In addition to the memory waste, the second and fourth steps depicted as below associated with the TCP hand-shake will equally hinder the smoothness of the communication.

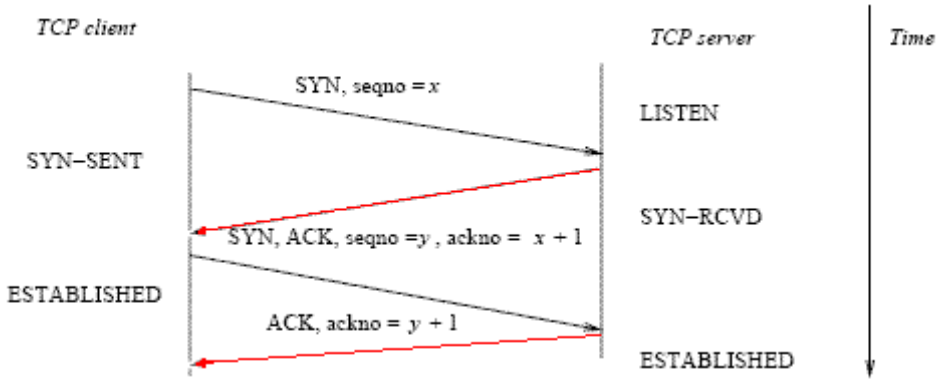

FIG 5-1

Any persistent request will be blocked by the IP Camera till a fresh new picture is captured, and the application must take care of the control related to the frame rate and bit rate.

5.4 MJPEG Stream Request

The following URL will return an unfailing video-stream within a socket.

http://<servername>:<serverport>/ipcam/mjpeg.cgi

For multi-channel video server:
http://<servername>:<serverport>/ipcam/mjpeg.cgi?ch=<channelid>

Here the <*servername*> is the FQDN of the IP Camera; the <*serverport*> can be ignored if it is equal to the well-known HTTP port, 80; the <*channelid*> is the ID of the channel from which will get a stream of images, if this API applies in the multi-channel video server. The application has to dominate the control of the frame rate, and the server just sends as many pictures as possible. The most excellent frame rate in NTSC is 30 images per second it is 25 images per second in PAL.

5.5 MJPEG Stream Response

When the MJPEG video-stream is requested and the IP Camera is in the MJPEG mode, it returns a continuous flow of MJPEG files. The content type is '**multipart/x-mixed-replace**', and each image ends with a boundary string, '***<boundary>***'. The returned image, the HTTP data, is equal to the request for a single MJPEG image, and the result looks as follows.

```
HTTP/1.0 200 OK\r\n
Connection: Close\r\n
Server: NETOS\r\n
Content-Type: multipart/x-mixed-replace;boundary=--myboundary\r\n
\r\n
--myboundary\r\n
Content-Type: image/jpeg\r\n
Content-Length: <size>\r\n
\r\n
<JPEG image data>\r\n
--myboundary\r\n
Content-Type: image/jpeg\r\n
Content-Length: <size>\r\n
\r\n
<JPEG image data>\r\n
--myboundary\r\n
Content-Type: image/jpeg\r\n
Content-Length: <size>\r\n
\r\n
<JPEG image data>\r\n
--myboundary\r\n
.
.
.
```

FIG 5-2

5.6 Synchronized Stream

The above URL provides the video stream only, and the following URL will both transmit the audio and the video stream.

http://<servername>:<serverport>/ipcam/sjpeg.cgi?audiostream=[0|1]

For multi-channel video server:

http://<servername>:<serverport>/ipcam/sjpeg.cgi?ch=<channelid>audiostream=[0|1]

Here the <*servername*> is the FQDN of the IP Camera; the <*serverport*> can be ignored if it is equal to the well-known HTTP port, 80; the <*audiostream*> stands for the switch of the audio; if this API applies in the multi-channel video server, the <*channelid*> is the ID of the channel which will send a stream of images. The audio stream will be repeated every 200 mini-seconds (please refer to Chapter 7.3.3.26).

Notice: The audio function is device-dependent; some countries consider audio recording a matter of privacy.

HTTP/1.0 200 OK\r\n
Connection: Close\r\n
Server: NETOS\r\n
Content-Type: multipart/x-mixed-replace;boundary=--myboundary\r\n
\r\n
--myboundary\r\n
Content-Type: image/jpeg\r\n
Content-Length: *<size>*\r\n
X-Status: *<status>*\r\n
X-Tag: *<tag>*\r\n
X-Flags: *<flags>*\r\n
X-Alarm: *<alarm>*\r\n
X-Resolution: *<resolution>*\r\n
X-Audio: *<status>*\r\n
X-Time: *<time>*\r\n
\r\n
< MJPEG image data>\r\n
--myboundary\r\n
Content-Type: audio/wav\r\n
Content-Length: *<size>*\r\n
X-Codec: *<codec>*\r\n
X-Bitrate: *<bitrate>*\r\n
X-Tag: *<tags>*\r\n
\r\n
<MJPEG audio data>\r\n
--myboundary\r\n
.
.
.

FIG 5-3

The above tags in the MJPEG stream section is listed as follows.

- X-Status

  This field will show the total counts of alarm and motion after each rebooting.

- X-Tag

This field indicates the serial number of the MJPEG image.

- X-Flags

The field is reserved, and should be zero for future compatibility.

- X-Alarm

This flag shows the combination status of alarm or motion when this picture is captured. The meaning related to the bit fields listed is as follows.

Flags	Symbol	Description
0x0001	GIO	This picture is captured during the alarm duration.
0x0002	MOTION	This picture is captured during motion alarm.
0x0004	GIO_ON	The alarm is triggered as this picture is captured.
0x0008	MOTION_ON	The motion is detected as this picture is captured.
0x0010	LOSTVIDEO	The lost video is detected.

TAB 5-4

- X-Resolution

The field shows the resolution of this MJPEG stream.

- X-Time

This field is the time-string stamp of this frame.

The above keywords in the MJPEG audio section are listed as follows.

- X-Codec

This field shows what kind of audio codec this stream adopts.

- X-Bitrate

This field indicates the bit rate of this audio stream, and the unit is bytes per second.

- X-Tick

This field indicates the system tick which application can use this variable to synchronize with the video.

- X-Tag

This field shows the serial number of the corresponding MJPEG image.

5.7 Stream Exception

The connection will cease if one of the following conditions occurs.

- The codec is shifted to the MPEG4 mode by another application.
- The system is going to reboot.

5.8 Multi Profile JPEG

5.8.1 Introduction

Multi-Profile JPEG is a new MJPEG streaming mode. In this mode, any user (up to 8) can setup different profile both with different qualities and picture sizes to fit your security environment such as bandwidth limitation or recording requirement. Without this mode, every user uses the same setting, quality and resolution; once some one change one of these settings, the video streaming to others users will be also changed.

These profiles must be configured by administrator in advance and the following user can archive the video/audio streaming by using this profile ID.

5.8.2 How to get the support status of Multi Profile

Any user or programmer should try the API, '*supportmultiprofile*' or access the HTML parameter, '*<%supportmultiprofile%>*', to verify the support status of MJPEG multi profile mode.

5.8.3 How to get the video stream of Multi Profile

If your device supports multi profile, you should add new parameter after the video/audio URL mentioned in this chapter – '*nowprofileid*'. The following link is an example.

http://<servername>:<serverport>/dms.jpg?nowprofileid=4

http://<servername>:<serverport>/ipcam/mjpeg.cgi?nowprofileid=4

5.8.4 How to configure the setting of Multi Profile

There are two setting in Multi Profile configuration and they are resolution and quality. Old style API is still used and please adds a ':' before you configure this profile. The following link an example to set the second profile with the lowest quality.

http://192.168.1.168/vb.htm?quality=2:4

But the first profile is an important profile because it is the default profile of the system. SD recording, FTP, SMTP always use this profile to send video. Please refer to Chapter 7.3.1.14 and Chapter 7.3.1.15.

6. MPEG4 Stream Format

6.1 Background

MPEG-4 is an ISO/IEC standard being developed by MPEG (Moving Picture Experts Group), the committee which also developed the Emmy Award winning standards known as MPEG-1 and MPEG-2. These standards made interactive video on CD-ROM and Digital Television possible. MPEG-4 will be the result of another international effort involving hundreds of researchers and engineers from all over the world. MPEG-4, whose formal ISO/IEC designation will be ISO/IEC 14496, is to be released in November 1998 and will be an International Standard in January 1999.

MPEG-4 is building on the proven success of three fields: digital television, interactive graphics applications (synthetic content) and the World Wide Web (distribution of and access to content) and will provide the standardized technological elements enabling the integration of the production, distribution and content access paradigms of the three fields.

When the internet capability cannot afford the minimum bandwidth that the MPEG4 stream costs; the eventual image in-contiguity or broken data will cause the pictures fragmental or mosaic. It is better to tune the customize bit rate to match the internet throughput or modify the stream only output I frames which can reduce the minimum bandwidth dramatically.

6.2 Introduction

This chapter will introduce the MPEG4 audio/video-stream of the IP Camera, and explain its composition. Basically, this stream comprises of a series of multiple frames and audio fragments with a boundary marker; therefore, the

application can handily parse its contents and extract the expected image from the stream.

The IP Camera cannot generate the MJPEG and MPEG4 streams simultaneously; therefore, the MPEG4 audio/video-stream is not available when the device is in MJPEG mode, and the IP Camera only returns a message of '**NS MPEG4**. Please refer to Chapter 7.3.1.38 to check its codec status.

This process needs an authority '**VIEWER**' or any of the higher authorities, '**OPERATOR**' and '**ADMINISTRATOR**'; the corresponding settings 'resolution', 'frame rate' and 'quality' have to be pre-determined.

The audio stream can be synchronized with the video stream if the status related to the audio is enabled, and it will be repeated every 200 mini-seconds.

Notice: The codec of the MPEG4 is not available in some devices (please refer to Chapter 7.3.1.38) and skip this chapter.

6.3 Snapshot

There is no player which can decode a single '**I**' or '**P**' frames of the MPEG4 stream independently; therefore, the function of the MPEG4 snapshot is not provided. An application has to transform the receiving stream into the format of MJPEG by itself. If the bandwidth of the stream is too huge to receive, you can try the parameter, '***ifrmonly=1***'.

6.4 MPEG4 Stream Request

The following URL will return an unfailing audio/video-stream if the device is in the MPEG4 mode.

http://<servername>:<serverport>/ipcam/mpeg4.cgi?parameters

Index	Parameter
1	*audiostream=[0/1]*
2	*ifrmonly=[0/1]*

TAB 6-1

Here the <*servername*> is the FQDN of the IP Camera; the <*serverport*> can be ignored if it is equal to the well-known HTTP port, 80; the <*audiostream*> stands for the switch of the audio (please refer to Chapter 7.3.3.26); the <*ifrmonly*> means the only-I-frame output which reduces the bandwidth dramatically (please refer to Chapter 7.3.3.36).

Notice: The audio function is device-dependent; some countries consider audio recording a matter of privacy.

6.5 MPEG4 Stream Response

When the MPEG4 audio/video-stream is requested and the IP Camera is in the MPEG4 mode, it returns a continuous flow of the MPEG4 frames. The content type is '**multipart/x-mixed-replace**' and each image ends with a boundary string '***<boundary>***'. The result looks as follows.

```
HTTP/1.0 200 OK\r\n
Connection: Close\r\n
Server: NETOS\r\n
Content-Type: multipart/x-mixed-replace;boundary=--myboundary\r\n
\r\n
--myboundary\r\n
Content-Type: image/mpeg4\r\n
Content-Length: <size>\r\n
X-Status: <status>\r\n
X-Tag: <tag>\r\n
X-Flags: <flags>\r\n
X-Alarm: <alarm>\r\n
X-Framerate: <framerate>\r\n
X-Resolution: <resolution>\r\n
X-Time: <time>\r\n
\r\n
<MPEG4 image data>\r\n
--myboundary\r\n
Content-Type: audio/wav\r\n
Content-Length: <size>\r\n
X-Codec: <codec>\r\n
X-Bitrate: <bitrate>\r\n
X-Tag: <tags>\r\n
\r\n
<MPEG4 audio data>\r\n
--myboundary\r\n
.
.
.
```

FIG 6-2

The above tags in the MPEG4 stream section is listed as follows.

- X-Status

  This field will show the total counts of alarm and motion after each rebooting.

- X-Tag

This field indicates the serial number of the MPEG4 frame.

- X-Flags

The field is reserved, and should be zero for future compatibility.

- X-Alarm

This flag shows the combination status of alarm or motion when this picture is captured. Please refer to the TAB 5-4.

- X-Framerate

This field indicates the frame rate of this MPEG4 stream. The relation between frame rate and file size is depicted in APPENDIX III.

- X-Resolution

The field shows the resolution of this MPEG4 video stream.

- X-Time

This field is the time-string stamp of this frame.

The above keywords in the MPEG4 audio section are listed as follows.

- X-Codec

This field shows what kind of audio codec this stream adopts.

- X-Bitrate

This field indicates the bit rate of this audio stream, and the unit is bytes per second.

- X-Tick

This field indicates the system tick which application can use this variable to synchronize with the video.

- X-Tag

This field shows the serial number of the corresponding MPEG4 frame.

6.6 Stream Exception

The connection will cease if one of the following conditions occurs.

- The codec is shifted to the MJPEG mode by another application.

- The system is going to reboot.
- The size of the video stream reaches over 2 GB.
- The resolution, frame rate or bit rate is modified by another application.

7. API Command Set Reference

7.1 Introduction

An application is designed to communicate with the IP Camera and access or modify its desired configurations; using the API commands is the only way to talk with a IP Camera. The IP Camera provides eight categories of API and they are listed as follows.

- Image
- Network
- System
- UART
- Wireless
- Recording
- Storage
- Miscellaneous

None of the keywords in the APIs are case-sensitive; therefore, the two words '**supportbrightness**' and '**SupportBrightness**' are fully identical in meaning.

7.2 API Verifications

The Microsoft Internet Explorer® is a browser with the HTTP protocol; therefore, it is undoubtedly an excellent tool for the IP Camera in verifying the APIs. The following URL (**vb.htm**) can help you confirm them.

http://192.168.1.168/vb.htm?*APICommand*

Suppose the API '**supportbrightness**' is the target; please replace the above URL string and fill in the browser as below.

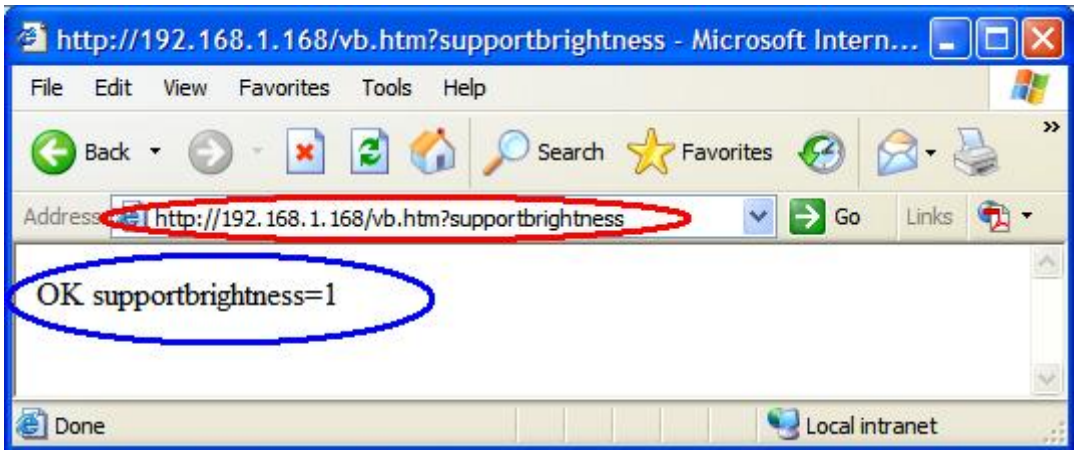

FIG 7-1

The respective result will be shown in the window as above.

7.3 API Descriptions

7.3.1 Image

This chapter will introduce the corresponding APIs about image control or MPEG4/MJPEG switching.

7.3.1.1 agc

Description:

This command is used to switch the function of Auto Gain Control (AGC) associated with an image, and the default status is disabled. The transformed picture may not be consistent with this setting when the camera's attached lens is '**Auto-Iris**'.

Syntax:

agc=[*0*/*1*]

Parameter:

- 0 - Disable
- 1 - Enable

Dependency:

supportagc

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?agc=1

This will turn on the AGC function.

7.3.1.2 awb

Description:

This command is used to specify the status of Auto White Balance (AWB) associated with an image, and the default status is in the '**Auto**' mode. The transformed picture may not be consistent with the setting when the camera's lens is '**Auto-Iris**'.

Syntax:

awb=[*StatusOfAwb*]

Parameter:

Value	Description
0	Auto mode
1	Incandescent mode
2	Fluorescent mode
3	Sunlight mode

TAB 7-2

Dependency:

supportawb

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?awb=2

This will shift the auto white balance mode to '**Fluorescent mode**'.

7.3.1.3 brightness

Description:

This command is used to specify the brightness associated with an image; it varies between 0 (the darkest) and 255 (the brightest). The transformed picture may not be consistent with the setting when the camera's lens is '**Auto-Iris**'.

Syntax:

brightness=[*ValueOfBrightness*]

brightness=[*channelid:ValueOfBrightness*] *for multi-channel video server*

Parameter:

The value, '*valueOfBrightness*', is an integer; it ranges between 0 and 255, and the default value is 128.

Dependency:

supportbrightness

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?brightness=160

This will set the brightness of the image to '**160**'.

7.3.1.4 colorkiller

Description:

This command is used to switch the status of color killer associated with an image, and the default status is disabled. The transformed picture may not be consistent with the setting when the camera's lens is '**Auto-Iris**'.

Syntax:

colorkiller=[*0*/*1*]

Parameter:

- 0 - Disable
- 1 - Enable

Dependency:

supportcolorkiller

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?colorkiller=1

This will turn on the color killer function.

7.3.1.5 contrast

Description:

This command is used to specify the contrast associated with an image; it ranges between 0 (the minimum) and 255 (the maximum). The transformed picture may not be consistent with the setting when the camera's lens is '**Auto-Iris**'.

Syntax:

contrast=[*ValueOfContrast*]

contrast=[*channelid:ValueOfContrast*] *for multi-channel video server*

Parameter:

The value, '*ValueOfContrast*', is an integer; it ranges between 0 and 255, and the default value is 128.

Dependency:

supportcontrast

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?contrast=160

This will set the image contrast to '**160**'.

7.3.1.6 exposure

Description:

This command is used to specify the degree to which an image is exposed; the value of the degree ranges between 0 (the minimum) and 255 (the maximum). The transformed picture may not be consistent with the setting when the camera's lens is '**Auto-Iris**'.

Syntax:

exposure=[*ValuOfExposure*]

Parameter:

The value, '*ValuOfExposure*', is an integer; it ranges between 0 and 255, and the default value is 128.

Dependency:

supportexposure

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?exposure=160

This will set the image exposure to '**160**'.

7.3.1.7 fluorescent

Description:

This command is used to switch the function regarding the fixed-time exposure, and the default status is disabled. The transformed image may not be consistent with the setting when the camera's lens is '**Auto-Iris**'.

Syntax:

fluorescent=[*0/1*]

Parameter:

- 0 - Disable
- 1 - Enable

Dependency:

supportfluorescent

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?fluorescent=1

This will turn on the fixed-time exposure function.

7.3.1.8 hue

Description:

This command is used to specify the hue of the image; the value of the hue ranges between 0 (the minimum) and 255 (the maximum). The transformed image may not be consistent with the setting when the camera's lens is '**Auto-Iris**'.

Syntax:

hue=[*ValueOfHue*]

hue=[*channelid:ValueOfHue*] *for multi-channel video server*

Parameter:

The value, '*ValueOfHue*', is an integer; it ranges between 0 and 255, and the default value is 128.

Dependency:

supporthue

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?hue=160

This will set the image hue to '**160**'.

7.3.1.9 imagedefault

Description:

This command is used to reset all following image configurations to the default value.

- agc
- awb
- backlight
- brightness
- colorkiller
- contrast
- exposure
- fluorescent
- hue
- kelvin
- mirror
- saturation
- sharpness

Syntax:

imagedefault=[*1*]

Parameter:

- *1* - Reset

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?imagedefault=1

This will reset all image configurations to default.

7.3.1.10 imageformat

Description:

This command is used to specify the codec mode, and the device will be rebooting in 5 seconds when the operation is complete and then all connections will be disconnected.

Remark:

Not all devices support the MPEG4 codec.

Syntax:

imageformat=[*ValueOfFormat*]

Parameter:

Value	Description
0	MJPEG mode
1	MPEG4 mode

TAB 7-3

Dependency:

supportmpeg4

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?imageformat=1

This will change the codec to MPEG4 and the device will reboot in 5 seconds.

7.3.1.11 kelvin

Description:

This command is used to specify the color temperature associated with an image; it ranges between 0 (the minimum) and 255 (the maximum). The transformed picture may not be consistent with the setting when the camera's lens is '**Auto-Iris**'.

Syntax:

kelvin=[*ValuOfKelvin*]

Parameter:

The value, '*ValuOfKelvin*', is an integer; it ranges between 0 and 255, and the default value is 128.

Dependency:

supportkelvin

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?kelvin=160

This will set the color temperature of the image to '**160**'.

7.3.1.12 mirror

Description:

This command is used to switch the mirror function associated with an image, and the default status is disabled.

Syntax:

mirror=[*0/1*]

Parameter:

- 0 - Disable
- 1 - Enable

Dependency:

supportmirror

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?mirror=1

This will activate the mirror function.

7.3.1.13 quality

Description:

This command is used to specify the quality of the MJPEG file (not MPEG4, for which mode please refer to the commands, '*mpeg4resolution*' and '*mpeg4quality*'); it takes effect only when the device is in the MJPEG mode and the local storage (SD or CF-Card) is not recording.

Remark:

Changing this setting will affect the images received by other connecting sockets.

If Multi Profile JPEG mode is supported, please refer to Chapter 5.8.

Syntax:

quality=[*IndexOfQuality*] when Multi-Profile mode is not supported.

quality=[*ProfileId*]:[*IndexOfQuality*] when Multi-Profile mode is supported.

Parameter:

Value	Description
0	Highest
1	High
2	Medium
3	Low
4	Lowest

TAB 7-4

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?quality=0

This will set the quality of MJPEG files to '**Highest**'.

7.3.1.14 resolution

Description:

This command is used to specify the resolution of the MJPEG file (not MPEG4, for which mode please refer to the commands, '*mpeg4resolution*' and '*mpeg4quality*'); it takes effect only when the device is in the MJPEG mode and the local storage (SD or CF-Card) is not recording.

Remark:

Modifying this setting will affect the images received by other connecting sockets.

If Multi Profile JPEG mode is supported, please refer to Chapter 5.8.

Syntax:

when Multi-Profile mode is not supported

resolution=[*IndexOfResolution*]

when Multi-Profile mode is supported

resolution=[*ProfileID*]:[*IndexOfResolution*]

Parameter:

Value	Description	NTSC	PAL	VGA
0	Quarter	360*240	360*288	320*240
1	Full	720*480	720*576	640*480
2	Half	720*240	720*288	
3	Resize	720*240 resize to 720*480	720*288 resize to 720*576	

TAB 7-5

The following table is only for multi-channel video server.

Value	Description (for multi-channel video server)	QUAD Mode		MUX Mode	
		NTSC	PAL	NTSC	PAL
0	Full	352*240	352*288	704*224	704*272
1	Quarter	176*120	176*144		

TAB 7-6

Return:

- OK - This means the operation is successful.

- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?resolution=1

This will set the resolution of MJPEG files to '**Full D1**'.

7.3.1.15 saturation

Description:

This command is used to specify the quantity of saturation in an image; the value of the saturation ranges between 0 (the minimal, colorless) and 255 (the maximum). The transformed picture may not be consistent with the setting when the camera's lens is '**Auto-Iris**'.

Syntax:

saturation=[*ValuOfSaturation*]

saturation=[*channelid:ValuOfSaturation*] *for multi-channel video server*

Parameter:

The value, '*ValuOfSaturation*', ranges between 0 and 255, and the default value is 128.

Dependency:

supportsaturation

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?saturation=160

This will set the saturation of the image to '**160**'.

7.3.1.16 setbacklight

Description:

This command is used to specify the backlight associated with an image; the value of the backlight varies between 0 (the minimum) and 255 (the maximum), and it takes effect only when the status of backlight control (BLC) is enabled. Please refer to Chapter 7.3.1.17.

Syntax:

setbacklight=[*ValueOfBacklight*]

Parameter:

The value, '*ValueOfBacklight*', is an integer; it ranges between 0 and 255, and the default value is 128.

Dependency:

supportbacklight

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setbacklight=160

This will set the backlight relating to an image to '**160**'.

7.3.1.17 setblc

Description:

This command is used to switch the function of backlight control (BLC) related to an image, and it corresponds to the command '*setbacklight*'. The transformed picture may not be consistent with the setting when the camera's lens is '**Auto-Iris**'.

Syntax:

setblc=[*0/1*]

Parameter:

- 0 - Disable
- 1 - Enable

Dependency:

supportbacklight

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setblc=1

This will turn on the function of backlight control.

7.3.1.18 sharpness

Description:

This command is used to specify the degree of sharpness (aperture) in an image; the value of the sharpness varies between 0 (the minimum) and 255 (the maximum). The transformed picture may not be consistent with the setting when the camera's lens is '**Auto-Iris**'.

Syntax:

sharpness=[*ValueOfSharpness*]

Parameter:

The value, '*ValueOfSharpness*', is an integer; it ranges between 0 and 255, and the default value is 128.

Dependency:

supportsharpness

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?sharpness=160

This will set the sharpness in an image to '**160**'.

7.3.1.19 mpeg4cenable

Description:

This command is used to switch the status of the customized MPEG4 bit rate, and it will come into effect in two seconds only when the device is in the MPEG4 mode. The existing multi-media stream will be terminated when this operation is complete. This command corresponds to the command '*mpeg4cvalue*' mentioned below.

Syntax:

mpeg4cenable=[*0*/*1*]

Parameter:

- 0 - Disable

- 1 - Enable

Dependency:

supportmpeg4

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?mpeg4cenable=1

This will turn on the function of the customized MPEG4 bit rate.

7.3.1.20 mpeg4cvalue

Description:

This command is used to specify the customized bit rate of the MPEG4 video stream, and it will take effect in two seconds only when the device is in the MPEG4 mode and the status of the custom bit rate is enabled. The existing multi-media stream will be terminated when this operation is complete. This command corresponds to the command '*mpeg4cenable*' mentioned above.

Syntax:

mpeg4cvalue=[*ValueOfBitrate*]

Parameter:

The value, '*ValueOfBitrate*', is a decimal integer; it ranges between **64** (64Kbps, bps means bit per second, the minimum) and **8192** (8Mbps, the maximum).

Dependency:

supportmpeg4

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?mpeg4cvalue=2048

This will set the customized MPEG4 bit rate to '**2048Kbps**' (2Mbps).

7.3.1.21 mpeg4framerate

Description:

This command is used to specify the frame rate of the MPEG4 video stream, and it will take effect in two seconds only when the device is in the MPEG4 mode. All the existing multi-media streams will be terminated when this operation is complete.

Syntax:

mpeg4framerate=[*ValueOfFramerate*]

Parameter:

- 0 - 30 frames per second (25 in PAL mode)
- 1 - 24 frames per second
- 2 - 15 frames per second

Dependency:

supportmpeg4

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?mpeg4frame=0

This will set the MPEG4 frame rate to '**real-time**'.

7.3.1.22 mpeg4quality

Description:

This command is used to specify the bit rate of the MPEG4 (not MJPEG, for which mode refer to the commands '*quality*' and '*resolution*'), and it will take effect in two seconds only when the device is in the MPEG4 mode. All the existing multi-media streams will be terminated when this operation is complete. The exact bit rate is listed in APPENDIX III. If the selected bit rate does not satisfy you, you can customize it; please refer to Chapters 7.3.1.19 and 7.3.1.20.

Syntax:

mpeg4quality=[*ValueOfQuality*]

Parameter:

Value	Description
0	Super fine
1	Fine
2	Normal
3	Low
4	Super low

8TAB 7-7

Dependency:

supportmpeg4

Return:

- OK - This means the operation is successful.

- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?mpeg4quality=0

This will tune the quality of the MPEG4 video stream to '**Super Fine**'.

7.3.1.23 mpeg4resolution

Description:

This command is used to specify the resolution associated with the MPEG4 video stream (not the MJPEG, for which mode please refer to the commands '*quality*' and '*resolution*'), and it will take effect in two seconds only when the device is in the MPEG4 mode. All the existing multi-media streams will be terminated when this operation is complete.

Syntax:

mpeg4resolution=[*ValueOfResolution*]

Parameter:

Value	Description	NTSC	PAL	VGA
0	FULL D1	720*480	720*576	
1	VGA			640*480
2	HALF D1	720*240	720*288	
3	HALF VGA			
4	CIF	352*240	352*288	
5	QVGA			320*240
6	ZOOM2	720*480	720*576	
7	ZOOM3	720*480	720*576	
8	ZOOM4	720*480	720*576	

TAB 7-8

Dependency:

supportmpeg4

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?mpeg4resolution=0

This will adjust the resolution of the MPEG4 video stream to '**Full D1**'.

7.3.1.24 supportagc

Description:

This command is used to determine whether the device supports the Auto Gain Control (AGC) associated with an image.

Syntax:

supportagc

Parameter:

None

Return:

- OK - This means the operation is successful.
  - 0 - Unavailable
  - 1 - Accessible
- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/vb.htm?supportagc

This will return whether the AGC service is provided or not.

7.3.1.25 supportawb

Description:

This command is used to determine whether the device supports the Auto White Balance (AWB) associated with an image.

Syntax:

supportawb

Parameter:

None

Return:

- OK - This means the operation is successful.
  - 0 - Unavailable
  - 1 - Accessible
- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/vb.htm?supportawb

This will return whether the AWB service is provided or not.

7.3.1.26 supportbrightness

Description:

This command is used to determine whether the device controls the brightness associated with an image.

Syntax:

supportbrightness

Parameter:

None

Return:

- OK - This means the operation is successful.
  - 0 - Unavailable
  - 1 - Accessible
- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/vb.htm?supportbrightness

This will return whether the brightness control service is provided or not.

7.3.1.27 supportcolorkiller

Description:

This command is used to determine whether the device supports the color killer associated with an image.

Syntax:

supportcolorkiller

Parameter:

None

Return:

- OK - This means the operation is successful.
  - 0 - Unavailable
  - 1 - Accessible
- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/vb.htm?supportcolorkiller

This will return whether the color killer service is provided or not.

7.3.1.28 supportcontrast

Description:

This command is used to determine whether the device controls the contrast associated with an image.

Syntax:

supportcontrast

Parameter:

None

Return:

- OK - This means the operation is successful.
  - 0 - Unavailable
  - 1 - Accessible
- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/vb.htm?supportcontrast

This will return whether the contrast service is provided or not.

7.3.1.29 supportexposure

Description:

This command is used to determine whether the device controls the exposure associated with an image.

Syntax:

supportexposure

Parameter:

None

Return:

- OK - This means the operation is successful.
  - 0 - Unavailable

- 1 - Accessible

- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/vb.htm?supportexposure

This will return whether the exposure service is provided or not.

7.3.1.30 supportfluorescent

Description:

This command is used to determine whether the device controls the fluorescent associated with an image.

Syntax:

supportfluirescent

Parameter:

None

Return:

- OK - This means the operation is successful.
  - 0 - Unavailable
  - 1 - Accessible
- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/vb.htm?supportfluorescent

This will return whether the fluorescent control is provided or not.

7.3.1.31 supporthue

Description:

This command is used to determine whether the device controls the hue in an image.

Syntax:

supporthue

Parameter:

None

Return:

- OK - This means the operation is successful.
  - 0 - Unavailable
  - 1 - Accessible
- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/vb.htm?supporthue

This will return whether the hue control is provided or not.

7.3.1.32 supportkelvin

Description:

This command is used to determine whether the device controls the color temperature in an image.

Syntax:

supportkelvin

Parameter:

None

Return:

- OK - This means the operation is successful.
  - 0 - Unavailable
  - 1 - Accessible
- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/vb.htm?supportkelvin

This will return whether the color temperature control is provided or not.

7.3.1.33 supportmirror

Description:

This command is used to determine whether the device mirrors an image or not.

Syntax:

supportmirror

Parameter:

None

Return:

- OK - This means the operation is successful.
  - 0 - Unavailable
  - 1 - Accessible
- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/vb.htm?supportmirror

This will return whether the image mirror is provided or not.

7.3.1.34 supportsaturation

Description:

This command is used to determine whether the device controls the saturation in an image.

Syntax:

supportsaturation

Parameter:

None

Return:

- OK - This means the operation is successful.
  - 0 - Unavailable
  - 1 - Accessible
- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/vb.htm?supportsaturation

This will return whether the saturation control is provided or not.

7.3.1.35 supportbacklight

Description:

This command is used to determine whether the device controls the backlight in an image.

Syntax:

supportbacklight

Parameter:

None

Return:

- OK - This means the operation is successful.
  - 0 - Unavailable
  - 1 - Accessible
- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/vb.htm?supportbacklight

This will return whether the backlight control is provided or not.

7.3.1.36 supportsharpness

Description:

This command is used to determine whether the device controls the sharpness in an image.

Syntax:

supportsharpness

Parameter:

None

Return:

- OK - This means the operation is successful.
  - 0 - Unavailable
  - 1 - Accessible
- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/vb.htm?supportsharpness

This will return whether the sharpness control is provided or not.

7.3.1.37 supportmpeg4

Description:

This command is used to determine whether the device supports the MPEG4 codec.

Syntax:

supportmpeg4

Parameter:

None

Return:

- OK - This means the operation is successful.
  - 0 - Unavailable
  - 1 - Accessible
- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/vb.htm?supportmpeg4

This will return whether the MPEG4 codec is available in the device or not.

7.3.1.38 getformat

Description:

This command is used to retrieve the codec mode that the device adopts.

Syntax:

getformat

Parameter:

None

Return:

- OK - This means the operation is successful.
  - 0 - MJPEG mode
  - 1 - MPEG4 mode
- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/vb.htm?getformat

This will return the codec the device has performed.

7.3.1.39 supportsenseup

Description:

This command is used to determine whether the device support the sense-up function.

Syntax:

supportsenseup

Parameter:

None

Return:

- OK - This means the operation is successful.
  - 0 - Unavailable
  - 1 - Accessible
- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/vb.htm?supportsenseup

This will return whether the sense-up is provided or not.

7.3.1.40 senseup

Description:

This command is used to switch the function of the sense-up associated with an image exposure. The default status is enabled.

Syntax:

senseup=[*0*/*1*]

Parameter:

- 0 - Disable
- 1 - Enable

Dependency:

supportsenseup

Return:

- OK - This means the operation is successful.

- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?senseup=0

This will turn off the sense-up function.

7.3.1.41 supportmaskarea

Description:

This command is used to determine whether the device support the mask area function.

Syntax:

supportmaskarea

Parameter:

None

Return:

- OK - This means the operation is successful.
  - 0 - Unavailable
  - 1 - Accessible
- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/vb.htm?supportmaskarea

This will return whether the privacy area is provided or not.

7.3.1.42 maskarea

Description:

This command is used to specify the mask area with a specific format as depicted below.

Syntax:

maskarea=[*FormatOfMaskArea*]

Parameter:

0x00	0x01	0x02	0x03	0x04	0x05	0x06	0x07	0x08
Flag	Group	ID	X1			Y1		
0x09	0x0A	0x0B	0x0C	0x0D	0x0E			
X2			Y2					

TAB 7-9

- Flag
  - 0 - Disable this block
  - 1 - Enable this block
- Group

It shows the group number of this block; the maximum number is 16.

- ID

It shows the identification of this block; the maximum number is referred to Chapter 12.3.1.36.

- X1

This field shows the upper horizontal coordination of the block in hexadecimal format.

- Y1

This field shows the bottom vertical coordination of the block in hexadecimal format.

- X2

This field shows the upper horizontal coordination of the block in hexadecimal format.

- Y2

This field shows the bottom vertical coordination of the block in hexadecimal format.

Dependency:

supportmaskarea

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?maskarea=1110000002CF1DF

This will set a privacy area from (0, 0) to (719, 419).

7.3.1.43 getmaxchannel

Description:

This command is used to retrieve the maximum channel the device provided.

Syntax:

getmaxchannel

Parameter:

None

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/vb.htm?getmaxchannel

This will return how many channels the device provides.

7.3.1.44 supportavc

Description:

This command is used to determine whether the device supports the H.264 codec.

Syntax:

supportavc

Parameter:

None

Return:

- OK - This means the operation is successful.
  - 0 - Unavailable
  - 1 - Accessible
- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/vb.htm?supportavc

This will return whether the H.264 codec is available in the device or not.

7.3.1.45 avccenable

Description:

This command is used to switch the status of the customized H.264 bit rate, and it will come into effect in the next I frame. The existing multi-media stream will be terminated when this operation is complete. This command corresponds to the command '*avccvalue*' mentioned below.

Syntax:

avccenable=[*0*/*1*]

Parameter:

- 0 - Disable
- 1 - Enable

Dependency:

supportavc

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?avccenable=1

This will turn on the function of the customized H.264 bit rate.

7.3.1.46 avccvalue

Description:

This command is used to specify the customized bit rate of the H.264 video stream, and it will take effect in the next I frame and the status of the custom bit rate is enabled. The existing multi-media stream will be terminated when this operation is complete. This command corresponds to the command '*avccenable*' mentioned above.

Syntax:

avccvalue=[*ValueOfBitrate*]

Parameter:

The value, '*ValueOfBitrate*', is a decimal integer; it ranges between **64** (64Kbps, bps means bit per second, the minimum) and **4096** (4Mbps, the maximum).

Dependency:

supportavc

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?avccvalue=2048

This will set the customized H.264 bit rate to '**2048Kbps**' (2Mbps).

7.3.1.47 avcframerate

Description:

This command is used to specify the frame rate of the H.264 video stream, and it will take effect in the next I frame. All the existing multi-media streams will be terminated when this operation is complete.

Syntax:

avcframerate=[*ValueOfFramerate*]

Parameter:

- 0 - 30 frames per second (25 in PAL mode)
- 1 - 24 frames per second
- 2 - 15 frames per second
- 3 – 5 frames per second

Dependency:

supportavc

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.

- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?avcframe=0

This will set the H.264 frame rate to '**real-time**'.

7.3.1.48 avcquality

Description:

This command is used to specify the bit rate of the H.264 (not MJPEG, for which mode refer to the commands '*quality*' and '*resolution*'), and it will take effect in the next I frame. All the existing multi-media streams will be terminated when this operation is complete. The exact bit rate is listed in APPENDIX XII. If the selected bit rate does not satisfy you, you can customize it; please refer to '*avccenable*' and '*avccvalue*'.

Syntax:

avcquality=[*ValueOfQuality*]

Parameter:

Value	Description
0	Super fine
1	Fine
2	Normal
3	Low
4	Super low

TAB 7-10

Dependency:

supportavc

Return:

- OK - This means the operation is successful.

- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?avcquality=0

This will tune the quality of the H.264 video stream to '**Super Fine**'.

7.3.1.49 avcresolution

Description:

This command is used to specify the resolution associated with the H.264 video stream (not the MJPEG, for which mode please refer to the commands '*quality*' and '*resolution*'), and it will take effect in the next I frame. All the existing multi-media streams will be terminated when this operation is complete.

Syntax:

avcresolution=[*ValueOfResolution*]

Parameter:

Value	Description	NTSC	PAL
0	FULL D1	720*480	720*576
1	HALF D1	720*240	720*288
2	CIF	352*240	352*288

TAB 7-11

Dependency:

supportavc

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.

- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?avcresolution=0

This will adjust the resolution of the H.264 video stream to '**Full D1**'.

7.3.1.50 supportmultiprofile

Description:

This command is used to determine whether the device supports the Multi Profile JPEG Mode. Please refer to Chapter 5.8.

Syntax:

supportmultiprofile

Parameter:

None

Dependency:

None

Return:

- OK - This means the operation is successful.
  - 0 - Unavailable
  - 1 - Accessible
- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/vb.htm?supportmultiprofile

This will return whether the Multi-Profile JPEG mode is available in the device or not.

7.3.2 Network

This chapter will introduce the APIs related to the network settings.

7.3.2.1 dhcp

Description:

This command is used to switch the function of DHCP. But most devices will ignore the software setup; however, it will be consistent with the hardware dip-switch.

A DHCP server has to be present when the service is active; however, when the DHCP server is absent or the DHCP service is dormant (the period of the time-out is 3 minutes), the final IP address (the initial IP address of the device will be assigned as '**192.168.1.168**') will be used.

Syntax:

dhcp=[*0/1*]

Parameter:

- 0 - Disable
- 1 - Enable

Dependency:

servicedhcpclient

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?dhcp=1

This will turn on the service of the DHCP client.

7.3.2.2 dnsip

Description:

This command is used to specify the address of the DNS server with a specific format. This setting may be adjusted by the DHCP transaction. Please consult your MIS or ISP for comprehensive information.

Syntax:

dnsip=[*IpOfDNSserver*]

Parameter:

The string, '*IpOfDNSserver*', is the IP address of the DNS server and its format is a 12-digit number. For example, if the DNS server address is 192.168.1.2, the parameter, '*IpOfDnsServer*' will be **192168001002**.

Dependency:

servicednsclient

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?dnsip=192168001002

This will set the IP address of the DNS server to '**192.168.1.2**'.

7.3.2.3 gateway

Description:

This command is used to specify the address of the gateway with a specific format. This setting may be altered by the DHCP transaction. Please consult your MIS or ISP for comprehensive information.

Remark:

An incorrect setup will interfere with the following protocols.

- FTP
- SMTP
- DDNS
- SNTP

Syntax:

gateway=[*IpOfGateway*]

Parameter:

The string, '*IpOfGateway*', is the address of the gateway and its format is a 12-digit number. For example, if the gateway's address is 192.168.1.254, the parameter, '*IpOfGateway*' will be **192168001254**.

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?gateway=192168001254

This will set the IP address of the gateway to '**192.168.1.254**'.

7.3.2.4 httpport

Description:

This command is used to specify the communication port number associated with the HTTP (Hypertext Transmission Protocol), and it varies between 1 and

65535. The default port number is 80. The device will reboot in 3 seconds when this operation is complete. Please do not touch this setting until the firewall is activated or the port mapping in your gateway is enabled.

Remark:

This command will terminate all other connecting sockets and stop all recording procedures.

Syntax:

httpport=[*PortNumber*]

Parameter:

The port number is limited between 1 and 65535, and the default port is 80.

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?httpport=8080

This will set the http port to '**8080**', and the device will reboot in 3 seconds.

7.3.2.5 internetip

Description:

This command is used to specify the IP address of the device with a specific format. This setting will be adjusted by the DHCP configuration. The response may be lost because the original address associated with the connecting socket will change. Please consult your MIS or ISP for comprehensive information.

Remark:

This command will terminate all other connecting sockets and stop all recording procedures.

Syntax:

internetip=[*FormatedIPAddress*]

Parameter:

The string, '*FormatedIPAddress*', is the IP address of the device and its format is a 12-digit number. For example, if your IP address is 192.168.1.168, the parameter, '*FormatedIPAddress*' will be **192168001168**.

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?internetip=192168001200

This will set the IP address of the device to '**192.168.1.200**'; there is no response because the address will be altered.

7.3.2.6 subnetmask

Description:

This command is used to specify the net mask of the device with a specific format. This setting may be adjusted by the DHCP configuration. Generally it will be '**255.255.255.0**' under the C-class environment. Please consult your MIS or ISP for comprehensive information.

Remark:

This command will terminate all other connecting sockets and stop all recording procedures.

Syntax:

subnetmask=[*SubnetMask*]

Parameter:

The string, '*SubnetMask*', is the net mask of the device and its format is a 12-digit number. For example, if the net mask is 255.255.255.0, the parameter, '*SubnetMask*' will be **255255255000**.

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?subnetmask=255255252000

This will set the net mask of the device to '**255.255.252.0**'.

7.3.2.7 ftpfqdn

Description:

This command is used to specify the FQDN (Fully Qualified Domain Name) associated with the uploading FTP server. Images will be uploaded to the specific FTP server when an alarm is triggered or a schedule is activated.

Remark:

The result related to the FTP uploading procedure can be reviewed in the event log which will be described in Chapter 17.6.

Syntax:

ftpfqdn=[*FtpServerFQDN*]

Parameter:

The parameter, '*FtpServerFQDN*', is the host name or IP address of the FTP server with a capacity of 50 characters.

Dependency:

serviceftpclient

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?ftpfqdn=myftp.ftp.org

This will set the FQDN of the uploading FTP server to '**myftp.ftp.org**'.

7.3.2.8 ftppassword

Description:

This command is used to specify the password associated with the uploading FTP server. Images will be uploaded to the specific FTP server when an alarm is triggered or a schedule is activated.

Remark:

The result related to the FTP uploading procedure can be reviewed in the event log which will be described in Chapter 17.6.

Syntax:

ftppassword=[*PasswordOfFTP*]

Parameter:

The parameter, '*PasswordOfFTP* is the login password of the FTP server with a capacity of 20 characters.

Dependency:

serviceftpclient

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.

- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?ftppassword=mypass

This will set the password of the uploading FTP server to '**mypass**'.

7.3.2.9 ftppath

Description:

This command is used to set the remote site's current working directory. The path name can be either a partially or fully qualified file name relative to the current directory. A backslash or forward slash can be used as the directory separator for either name. Images will be uploaded to the specific FTP path when an alarm is triggered or a schedule is activated.

Remark:

The result related to the FTP uploading procedure can be reviewed in the event log which will be described in Chapter 17.6.

Syntax:

ftppath=[*PathOfFTP*]

Parameter:

The string, '*PathOfFTP*', is the login path of the FTP server with a capacity of 20 characters.

Dependency:

serviceftpclient

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?ftppath=mypath

This will set the uploaded path of the FTP server to '**mypath**'.

7.3.2.10 ftpport

Description:

This command is used to set the communication port of the uploading FTP server, and the default port is 21. Please do not modify this setting until the firewall or the port mapping of your gateway is enabled.

Remark:

The result related to the FTP uploading procedure can be reviewed in the event log which will be described in Chapter 17.6.

Syntax:

ftpport=[*PortNumber*]

Parameter:

The port number is an integer; it is limited between 1 and 65535.

Dependency:

serviceftpclient

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?ftpport=21

This will set the target port of the uploaded FTP server to '**21**'.

7.3.2.11 ftpuser

Description:

This command is used to specify the login account associated with the uploading FTP server. Images will be uploaded to the specific FTP path when an alarm is triggered or a schedule is activated.

Remark:

The result related to the FTP uploading procedure can be reviewed in the event log which will be described in Chapter 17.6.

Syntax:

ftpuser=[*FtpLoginName*]

Parameter:

This parameter, '*FtpLoginName*', is the account name of the FTP server with a capacity of 20 characters.

Dependency:

serviceftpclient

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?ftpuser=myacc

This will set the account of the uploaded FTP server to '**myacc**'.

7.3.2.12 setftpsport

Description:

This command is used to set the port of the local FTP server for updating firmware, and the default port number is 21.

Syntax:

setftpsport=[*FTPServerPort*]

Parameter:

The port number is an integer; it is limited between 1 and 65535.

Dependency:

serviceftpserver

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setftpsport=21

This will set the target port of the FTP server in the device to '**21**'.

7.3.2.13 setddnsaccount

Description:

This command is used to specify the account associated with the DDNS (Dynamic Domain Name Service) registration. The DDNS registration will ignite when the IP address of the device is changing or once a day.

Syntax:

setddnsaccount=[*AccountOfDDNS*]

Parameter:

The string '*AccountOfDDNS*' is the DDNS (Dynamic Domain Name Service) account with a capacity of 30 characters.

Dependency:

serviceddnsclient

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setddnsaccount=myacc

This will set the account associated with the DDNS registration to '**myacc**'.

7.3.2.14 setddnshostname

Description:

This command is used to specify the host name associated with the DDNS (Dynamic Domain Name Service) registration. The DDNS registration will ignite when the IP address of the device is changing or once a day.

Syntax:

setddnshostname=[*Hostname*]

Parameter:

The host name, '*Hostname*', is a C-Style string with a capacity of 50 characters.

Dependency:

serviceddnsclient

Return:

- OK - This means the operation is successful.

- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setddnshostname=myhost

This will set the host-name associated with the DDNS registration to '**myhost**'.

7.3.2.15 setddnspassword

Description:

This command is used to specify the password associated with the DDNS (Dynamic Domain Name Service) registration. The DDNS registration will ignite when the IP address of the device is changing or once a day.

Syntax:

setddnspassword=[*Password*]

Parameter:

The account, '*Password*', is a C-Style string with a capacity of 16 characters.

Dependency:

serviceddnsclient

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setddnspassword=mypass

This will set the password associated with the DDNS registration to '**mypass**'.

7.3.2.16 setddnstype

Description:

This command is used to specify the type of the DDNS (Dynamic Domain Name Service). The procedure will be preformed when the IP address of the device is changing or once a day.

Syntax:

setddnstype=[*DDNSType*]

Parameter:

Value	URL
0	www.dyndns.org
1	hn.org

TAB 7-12

Dependency:

serviceddnsclient

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setddnstype=0

This will set the DDNS server to '**www.dyndns.org**'.

7.3.2.17 setpppoeaccount

Description:

This command is used to specify the account associated with a PPPoE (PPP over Ethernet) dialing. This setting will come into effect in the next dialing. Please consult your MIS or ISP for comprehensive information.

Remark:

The IP Camera will turn off the services, DHCP client and DHCP server, when the dialing is complete.

Syntax:

setpppoeaccount=[*PPPoEAccount*]

Parameter:

The account, '*PPPoEAccount*', is a C-Style string with a capacity of 30 characters.

Dependency:

servicepppoe

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setpppoeaccount=myacc

This will set the account for the PPPoE login to '**myacc**'.

7.3.2.18 setpppoepwd

Description:

This command is used to specify the password associated with a PPPoE (PPP over Ethernet) dialing. This setting will come into effect in the coming dialing. Please consult your MIS or ISP for comprehensive information.

Remark:

The IP Camera will turn off the services, DHCP client and DHCP server, when the dialing is complete.

Syntax:

setpppoepwd=[*PPPoEPassword*]

Parameter:

The password, '*PPPoEPassword*', is a C-Style string with a capacity of 30 characters.

Dependency:

servicepppoe

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setpppoepwd=mypass

This will set the password for the PPPoE login to '**myacc**'.

7.3.2.19 sntpfqdn

Description:

This command is used to specify the FQDN (Fully Qualified Domain Name) of the SNTP server. The period related to the SNTP will depend on the command, '*timefrequency*'.

The following is a list of some well-known SNTP servers.

- tick.usno.navy.mil
- time.stdtime.gov.tw

- freq_f.stdtime.gov.tw
- clock.stdtime.gov.tw
- tick.stdtime.gov.tw
- tock.stdtime.gov.tw
- time.chttl.com.tw

Syntax:

sntpfqdn=[*FQDNofSNTP*]

Parameter:

The setting, '*FQDNofSNTP*', is a C-Style string with a capacity of 50 characters.

Dependency:

servicesntpclient

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setsntpfqdn=tick.usno.navy.mil

This will set the SNTP server to '**tick.usno.navy.mil**'.

7.3.2.20 timefrequency

Description:

This command is used to specify the refresh period of the SNTP (Simple Network Time Protocol) calibration, and the server is specified by the following command, '*sntpfqdn*'.

Syntax:

timefrequency=[*IndexOfFrequency*]

Parameter:

Value	Description
-1	one-shot
0	never
1	one hour
2	two hours
3	four hours
4	eight hours
5	twelve hours
6	one day
7	two days
8	three days

TAB 7-13

Dependency:

servicesntpclient

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?timefrequency=1

This will set the SNTP calibration to start '**every hour**'.

7.3.2.21 setupnpenable

Description:

This command is used to switch the function of the UPnP negotiation. The default status is enabled.

Remark:

The default configuration related to the UPnP protocol in Windows XP® or Windows ME® is not enabled. Please refer to Chapter 15 to activate the corresponding protocols.

Syntax:

setupnpenable=[*0/1*]

Parameter:

- 0 - Disable
- 1 - Enable

Dependency:

serviceupnpdevice

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setupnpenable=1

This will turn on the function of the UPnP.

7.3.2.22 setupnpport

Description:

This command is used to specify the port number related to the UPnP negotiation. The default port number is 5678.

Remark:

The default configuration related to the UPnP protocol in Windows XP® or Windows ME® is not enabled. Please refer to Chapter 15 to activate the corresponding protocol.

Syntax:

setupnpport=[*UPnPPort*]

Parameter:

The port number is a decimal integer; it is limited between 1 and 65535.

Dependency:

serviceupnpdevice

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setupnpport=5678

This will set the target port of the UPnP communication to '**5678**'.

7.3.2.23 setupnpssdpage

Description:

This command is used to specify the refresh period of the UPnP protocol, and the unit is second. The default refresh period is 120 seconds.

Remark:

The default configuration related to the UPnP protocol in Windows XP® or Windows ME® is not enabled. Please refer to Chapter 15 to activate the corresponding protocol.

Syntax:

setupnpssdpage=[*UPnPSSDPAge*]

Parameter:

The setting, '*UPnPSSDPAge*', is the refresh period of the UPnP and ranges from 10 to 3600 seconds.

Dependency:

serviceupnpdevice

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setupnpssdpage=120

This will set the refresh period of the UPnP to '**120 seconds**' (2 minutes).

7.3.2.24 setupnpssdpport

Description:

This command is used to specify the SSDP port number of the UPnP negotiation; the default port number is 1900.

Remark:

The default configuration related to the UPnP protocol in Windows XP® or Windows ME® is not active. Please refer to Chapter 15 to activate the corresponding protocol.

Syntax:

setupnpssdpport=[*UPnPSSDPPort*]

Parameter:

The port number is an integer; it is limited between 1 and 65535.

Dependency:

serviceupnpdevice

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setupnpssdport=1900

This will set the target port of the SSDP to '**1900**'.

7.3.2.25 servicedhcpclient

Description:

This command is used to determine whether the device supports the DHCP client or not.

Syntax:

servicedhcpclient

Parameter:

None

Return:

- OK - This means the operation is successful.
  - 0 - Unavailable
  - 1 - Accessible
- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/vb.htm?servicedhcpclient

This will return whether the service of DHCP client is available or not.

7.3.2.26 serviceddnsclient

Description:

This command is used to determine whether the device supports the DDNS service or not.

Syntax:

serviceddnsclient

Parameter:

None

Return:

- OK - This means the operation is successful.
  - 0 - Unavailable
  - 1 - Accessible
- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/vb.htm?serviceddnsclient

This will return whether the service of DDNS is available or not.

7.3.2.27 serviceftpclient

Description:

This command is used to determine whether the device supports the FTP client or not.

Syntax:

serviceftpclient

Parameter:

None

Return:

- OK - This means the operation is successful.
  - 0 - Unavailable
  - 1 - Accessible
- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/vb.htm?serviceftpclient

This will return whether the service of the FTP client is available or not.

7.3.2.28 serviceftpserver

Description:

This command is used to determine whether the device supports the FTP server or not.

Syntax:

serviceftpserver

Parameter:

None

Return:

- OK - This means the operation is successful.
  - 0 - Unavailable
  - 1 - Accessible
- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/vb.htm?serviceftpserver

This will return whether the service of the FTP server is available or not.

7.3.2.29 serviceddnsclient

Description:

This command is used to determine whether the device supports the DDNS service.

Syntax:

serviceddnsclient

Parameter:

None

Return:

- OK - This means the operation is successful.
  - 0 - Unavailable
  - 1 - Accessible
- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/vb.htm?serviceddnsclient

This will return whether the service of Dynamic DNS is available or not.

7.3.2.30 servicepppoe

Description:

This command is used to determine whether the device supports the PPPoE dialing.

Syntax:

servicepppoe

Parameter:

None

Return:

- OK - This means the operation is successful.
  - 0 - Unavailable
  - 1 - Accessible

- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/vb.htm?servicepppoe

This will return whether the service of the PPPoE is available or not.

7.3.2.31 servicesntpclient

Description:

This command is used to determine whether the device supports the SNTP service.

Syntax:

servicesntpclient

Parameter:

None

Return:

- OK - This means the operation is successful.
  - 0 - Unavailable
  - 1 - Accessible
- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/vb.htm?servicesntpclient

This will return whether the service of the SNTP is available or not.

7.3.2.32 serviceupnpdevice

Description:

This command is used to determine whether the device supports the UPnP protocol.

Syntax:

serviceupnpdevice

Parameter:

None

Return:

- OK - This means the operation is successful.
  - 0 - Unavailable
  - 1 - Accessible
- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/vb.htm?serviceupnpdevice

This will return whether the service of the UPnP is available or not.

7.3.2.33 setftpsenable

Description:

This command is used to switch the function of the local FTP server. The default status is enabled.

Remark:

This will also turn off the firmware updating when you disable the function.

Syntax:

setftpsenable=[*0*/*1*]

Parameter:

- 0 - Disable
- 1 - Enable

Dependency:

serviceftpclient

Return:

- OK - This means the operation is successful.

- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setpftpsenable=1

This will turn on the function of the local FTP server.

7.3.2.34 setddnsenable

Description:

This command is used to switch the status of the DDNS (Dynamic Domain Name Service). The default status is disabled.

Syntax:

setddnsenable=[*0*/*1*]

Parameter:

- 0 - Disable
- 1 - Enable

Dependency:

serviceddnsclient

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setddnsenable=1

This will turn on the function of the DDNS service.

7.3.2.35 setpppoeenable

Description:

This command is used to switch the function of the PPPoE dialing. The default status is disabled. This setting will come into effect in the next dialing. Please consult your MIS or ISP for comprehensive information.

Remark:

The IP Camera will turn off the services, DHCP client and DHCP server when the dialing is complete.

Syntax:

setpppoeenable=[*0/1*]

Parameter:

- 0 - Disable
- 1 - Enable

Dependency:

servicepppoe

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setpppoeenable=1

This will turn on the function of the PPPoE dialing.

7.3.2.36 setdhcpsleasetime

Description:

This command is used to specify the leasing time associated with the local DHCP server. It works only when the status of the local DHCP server is enabled.

Remark:

Please consult your MIS before you activate this service. Two competitive DHCP servers will damage your network arrangement.

Syntax:

setdhcpsleasetime=[*PeriodOfLeaseTime*]

Parameter:

The setting, '*PeriodOfLeaseTime*', is the leasing period of the local DHCP server, and ranges from 10 to 3600 seconds.

Dependency:

servicedhcpserver

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setdhcpsleasetime=3600

This will set the leasing time of the local DHCP server to '**3600 seconds**' (1 hour).

7.3.2.37 setdhcpsdesignate

Description:

This command is used to specify the original IP address that the local DHCP server dispatched. It works only when the status of the local DHCP server is enabled.

Remark:

Please consult your MIS before you activate this service. Two competitive DHCP servers will damage your network arrangement.

Syntax:

setdhcpsdesignate=[*IpOfDesignate*]

Parameter:

The string, '*IpOfDesignate*', is the starting IP address that the local DHCP server provided, and it is a 12-digit number. For example, if the IP is 192.168.1.100, the parameter, '*IpOfDesignate*' will be **192168001100**.

Dependency:

servicedhcpserver

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setdhcpsdesignate=192168001100

This will set the starting address that the local DHCP provided to '**192.168.1.100**'.

7.3.2.38 setdhcpsmaxdomain

Description:

This command is used to specify the maximum domain that the local DHCP server dispatched. It works only when the status of the local DHCP server is enabled.

Remark:

Please consult your MIS before you activate this service. Two competitive DHCP servers will damage your network arrangement.

Syntax:

setdhcpsmaxdomain=[*MaxDomain*]

Parameter:

The value, '*MaxDomain*', is the maximum domain, and it ranges from 0 to 254.

Dependency:

servicedhcpserver

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setdhcpsmaxdomain=50

This will set the maximum address that the local DHCP server provided to '**50**'.

7.3.2.39 setdhcpsenable

Description:

This command is used to switch the function of the local DHCP server. The default status is disabled. When this setting is active, the service of the DHCP client will be turned off alternatively.

Remark:

Please consult your MIS before you activate this service. Two competitive DHCP servers will damage your network arrangement.

Syntax:

setdhcpsenable=[*0*/*1*]

Parameter:

- 0 - Disable
- 1 - Enable

Dependency:

servicedhcpserver

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setdhcpsenable=1

This will turn on the function of the local DHCP server

7.3.2.40 servicedhcpserver

Description:

This command is used to determine whether the device supports the local DHCP server.

Syntax:

servicedhcpserver

Parameter:

None

Return:

- OK - This means the operation is successful.
  - 0 - Unavailable
  - 1 - Accessible
- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/vb.htm?servicedhcpserver

This will return whether the service of DHCP server is available or not.

7.3.2.41 serviceipfilter

Description:

This command is used to determine whether the device supports the IP filter.

Syntax:

serviceipfilter

Parameter:

None

Return:

- OK - This means the operation is successful.
  - 0 - Unavailable
  - 1 - Accessible
- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/vb.htm?serviceipfilter

This will return whether the service of the IP filter is supported or not.

7.3.2.42 addipfilterpolicy

Description:

This command is used to create an IP filter policy which can protect your Internet operations, and there is a filter table in the device. When the device receives an IP packet and the packet is a request for a new connection, the filter checks its source address. If the address is in the above table and set to non-accessible, or not in the table and default access control is denied all connection, the filter will not respond to the request. If you want to block some computer or allow access to another, you can turn the filter on, and set your filter policy. If the filter is configured correctly, the device will provide you a great security.

To set the filter, you have to decide on a list to control the right to access (allow or deny). **PLEASE NOTE, THE IP FILTER IS A POWERFUL FEATURE, SO BEFORE YOU SET ANY POLICY, YOU MUST RECHECK IT TO AVOID BEING DENIED ACCESS.** There are 7 suits of policies available in the table, and all the policies can be set to allow or deny, and the destination can be a unique address or a range of address. The rules of for the filter are as follows:

- It compares the source address with all policies in the table by index order.
- If the address is within the range of any policy, it denies or allows the request accordingly.
- If a matching policy isn't found, the default access control will be adopted.

The order of the policy should be specified after making the list. Please note, after the address matches a policy in the table by numerical order, one by one (first #1, then #2, and so on), the comparison is stopped. A smaller order of addresses or a unique IP beforehand is suggested to avoid the filter from making a mistaken decision.

Finally, the filter blocks the access of any undesirable computer. When the policy is wrong, the device may also block you to login. In this case, you should disable the filter, re-set the correct policies and restart. If you want to disable the filter, you can plug the USB connector and run the program named

'usbconf.exe' to disable the Filter. Click 'Apply' and unplug the connector, and the IP Filter is disabled.

Syntax:

addipfilterpolicy=[*StringOfPolicy*]

Parameter:

All policies are presented in the following format:

[*'allow'*|*'deny'*]:[*IPSectiondata*]. [*IPSectiondata*]. [*IPSectiondata*]. [*IPSectiondata*]

You must place the string 'deny' or 'allow' at the head of the string to indicate its behavior. The IP address comes in four parts, each of which is called '*IPSectionData*'. The rules for the setting of the '*IPSectionData*' are shown as follows.

- Any address from 0 to 255.
- A boundary with a pair of round brackets, '(0-127)' for example.
- The wildcard character, '*', standing for any number from 0 to 255.

Dependency:

serviceipfilter

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?addipfilterpolicy=deny:192.168.1.1

It will deny the computer whose IP is '192.168.1.1' any access to the device.

http://192.168.1.168/vb.htm?addipfilterpolicy=allow:192.168.1.(2-45)

It will allow a computer whose IP is in the range from ‘192.168.1.2’ to ‘192.168.1.45’ to access the device.

http://192.168.1.168/vb.htm?addipfilterpolicy=allow:192.168.*.*

It will allow the computer whose IP is in the range from ‘192.168.0.0’ to ‘192.168.255.255’ to access the device.

http://192.168.1.168/vb.htm?addipfilterpolicy=deny:192.168.(1-2).*

It will deny the computer whose IP is in the range from ‘192.168.1.0’ to ‘192.168.2.255’ any access to the device.

7.3.2.43 editipfilterpolicy

Description:

This command is used to edit the existed policy of IP filter.

Syntax:

editipfilterpolicy=[*index*]:[*StringOfPolicy*]

Parameter:

The value, ‘*index*’, is the policy index in the table and ranges from 0 to 6 in decimal format. The rules for the ‘*StringOfPolicy’* are explained in Chapter 7.3.2.42.

Dependency:

serviceipfilter

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?editipfilterpolicy=2:allow:192.168.1.*

This will edit the IP Filter policy numbered 2 that allow access from 192.168.1.*

7.3.2.44 exchipfilterpolicy

Description:

This command is used to swap two policies of IP filter.

Syntax:

exchipfilterpolicy=[*index1*]:[*index2*]

Parameter:

The values, both '*index1*' and '*index2*', are the policy indices in the table and ranges from 0 to 6 in decimal format.

Dependency:

serviceipfilter

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?exchipfilterpolicy=2:5

This will swap the IP Filter policy stored in 2 and 5.

7.3.2.45 getipfilterpolicy

Description:

This command is used to retrieve the specific policy of the IP filter.

Syntax:

getipfilterpolicy=[*index*]

Parameter:

The value, '*index*', is the policy index in the table and ranges from 0 to 6 in decimal format.

Dependency:

serviceipfilter

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?getipfilterpolicy=0

This will return the first IP Filter policy.

7.3.2.46 delipfilterpolicy

Description:

This command is used to delete the specific policy of the IP filter.

Syntax:

delipfilterpolicy=[*index*]

Parameter:

The value, '*index*', is the policy index in the table and ranges from 0 to 6 in decimal format.

Dependency:

serviceipfilter

Return:

- OK - This means the operation is successful.

- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?delipfilterpolicy=0

This will delete the first IP Filter policy.

7.3.2.47 ipfilterenable

Description:

This command is used to switch the function of the IP filter.

Syntax:

ipfilterenable=[*0*/*1*]

Parameter:

- 0 - Disable
- 1 - Enable

Dependency:

serviceipfilter

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?ipfilterenable =1

This will turn on the function of the IP filter.

7.3.2.48 setdefaultipfilterpolicy

Description:

This command is used to set the default rule for the IP filter.

Syntax:

setdefaultipfilterpolicy=[0|1]

Parameter:

- 0 - Deny
- 1 - Allow

Dependency:

serviceipfilter

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setdefaultipfilterpolicy=1

This will set the default of IP Filter policy '**allowed**'.

7.3.2.49 quotainbound

Description:

This command is used to set network input flow limitation, and the value, '**0**', means no restriction against the network inbounds.

Syntax:

quotainbound=[*QuotaOfInbound*]

Parameter:

The value, '*QuotaOfInbound*', is the network input quota, and '**0**' means no limitation on the network inbounds. The unit is in kilo bytes.

Dependency:

None

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?quotainbound=0

This will cancel the network inbound flow control of the machine.

7.3.2.50 quotaoutbound

Description:

This command is used to set network output flow limitation, and the value, '**0**', means no restriction against the network outbound.

Syntax:

quotaoutbound=[*QuotaOfOutbound*]

Parameter:

The value, '*QuotaOfOutbound*', is the network output quota, and '**0**' means no limitation on the network outbound. The unit is in kilo bytes.

Dependency:

None

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.

- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?quotaoutbound=0

This will cancel the network outbound flow control of the machine.

7.3.3 System

This chapter will discuss all system-dependent APIs.

7.3.3.1 videomode

Description:

This command is used to specify the video mode in the device. Some devices will ignore the software control but adopt the hardware configuration.

Syntax:

videomode=[*ValueOfMode*]

Parameter:

Value	Description
0	NTSC
1	PAL
2	VGA

TAB 7-14

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Administrator

Example:

http://192.168.1.168/vb.htm?videomode=0

This will set the video mode of the device to '**NTSC**'.

7.3.3.2 newdate

Description:

This command is used to calibrate the local date in the IP Camera with a specific format, '**YYYY_MM_DD**'. Verification of dates is not provided by the IP Camera.

Remark:

Some devices do not have an RTC (Real-Time Clock), and a periodical date calibration is recommended for each booting.

Syntax:

newdate=[*NewDate*]

Parameter:

- YYYY - the year from 2000 to 2099
- MM - the month from 1 to 12
- DD - the day from 1 to 31

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?newdate=2005_01_01

This will set the local date of the device to '**Jan 1, 2005**'.

7.3.3.3 newtime

Description:

This command is used to calibrate the local time in the IP Camera with the specific format, '**HH:MM:SS**'. Verification of times is not provided by the IP Camera.

Remark:

Some devices do not have an RTC (Real-Time Clock), and a periodical time calibration is recommended for each booting.

Syntax:

newtime=[*NewTime*]

Parameter:

- HH - hours in 24-hour format.
- MM - minutes.
- SS - seconds.

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?newtime=14:20:30

This will adjust the local time of the device to '**14:20:30**'.

7.3.3.4 setdaylight

Description:

This command is used to switch the function of daylight saving. The setting has to be adjusted manually.

Syntax:

setdaylight=[*0/1*]

Parameter:

- 0 - Disable
- 1 - Enable

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.

- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setdaylight=1

This will turn on the function of daylight saving.

7.3.3.5 timezone

Description:

This command is used to specify the local time zone that influences both the SNTP and SMTP sessions. The default time zone is GMT +800.

Syntax:

timezone=[*IndexOfTimezone*]

Parameter:

Code	GMT	Zone name
0	GMT-12	Eniwetok
1	GMT-11	Samoa
2	GMT-10	Hawaii
3	GMT-09	Alaska
4	GMT-08	Pacific Time
5	GMT-07	Arizona
6	GMT-06	Central Time
7	GMT-05	Eastern Time
8	GMT-04	Canada
9	GMT-03	Brasilia
10	GMT-02	Mid Atlantic
11	GMT-01	Azores
12	GMT+00	Dublin
13	GMT+01	Amsterdam

14	GMT+02	Athens
15	GMT+03	Moscow
16	GMT+04	Kabul
17	GMT+05	Islamabad
18	GMT+06	Almaty
19	GMT+07	Bangkok
20	GMT+08	Taipei
21	GMT+09	Osaka
22	GMT+10	Canberra
23	GMT+11	Magadha
24	GMT+12	Auckland
255	------	Unknown

TAB 7-15

Dependency:

servicesntpclient

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?timezone=20

This will set the time zone of the device to '**Taiwan GMT+800**'.

7.3.3.6 tstampenable

Description:

This command is used to switch the function of the time stamp associated with an image; the selected text will be superimposed on the output image. The default status is disabled.

Syntax:

tstampenable=[*0*/*1*]

Parameter:

- 0 - Disable
- 1 - Enable

Dependency:

The command is valid when the return value of supporttstamp is equal to 1 or 2.

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?tstampenable=1

This will turn on the function of time stamping on an image.

7.3.3.7 adduser

Description:

This command is used to add an account to the registration table, or change a password and authority when an account already exists.

Syntax:

adduser=[*Name*]:[*Password*]:[*Authority*]

Parameter:

- *Name*: the user name with a capacity of eight characters. Only alphabetical letters and numbers are acceptable; the entire string is case-insensitive. The length related to the account is limited to 3 to 8 characters, and the following keywords are reserved for creating a new account.

  - admin
  - guest

- *Password*: a password has a capacity of only eight characters. Only alphabetical letters and numbers are acceptable; the whole string is case-sensitive. A password must always be entered; its entry space cannot remain empty.
- *Authority*: The user authority is listed below. A '**Guest**' is not allowed.

Index	Description
0	Administrator
1	Operator
2	Viewer

TAB 7-16

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/vb.htm?adduser=admin:1234

This will change the password of the administrator to '**1234**'.

http://192.168.1.168/vb.htm?adduser=dennysu:1688

This will create a new account named '**DennySu**' with the password '**1688**'.

7.3.3.8 deluser

Description:

This command is used to delete an existing user account in the registration table permanently. The only exception is that the supervisor, '**administrator**', cannot be erased.

Syntax:

deluser=[*UserName*]

Parameter:

The string, '*UserName*', is a C-Style string with a capacity of 8 characters; it is case-insensitive.

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Administrator

Example:

http://192.168.1.168/vb.htm?deluser=denny

This will remove the account named '**DennySu**'.

7.3.3.9 audioinvolume

Description:

This command is used to specify the volume of the audio input; some devices do not support the audio function.

Syntax:

audiovolume=[*0-10*]

Parameter:

The value, '*audiovolume*', is a decimal integer; it ranges between 0 and 10, and the default volume is 5.

Remark:

Some countries consider audio recording a matter of privacy.

Dependency:

supportaudio

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?audioinvolume=5

This will tune the input volume of the audio to '**5**'.

7.3.3.10 ccddata

Description:

This command is used to specify the data to the specific CCD port. The data and port are formed of hexadecimal numbers, each number being an 8-bit data; the data and port numbers are separated by a colon. The result may influence the image source critically. This command is for debugging only.

Syntax:

ccddata=[*port*]:[*data*]

Parameter:

- *port* - the target CCD port from 0 to FF in hexadecimal format.
- *data* - the CCD data from 0 to FF in hexadecimal format.

Return:

- OK - This means the operation is successful.

- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

7.3.3.11 ccdx

Description:

This command is used to change the starting point when the CCD device captures a picture; the value of the starting point is a hexadecimal number. This function will influence the image source critically. This command is for debugging only.

Syntax:

ccdx=[*Data*]

Parameter:

The value, '*data*', is the starting point from 000 to 3FF in hexadecimal format.

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

7.3.3.12 ccdy

Description:

This command is used to change the starting line when the CCD device captures a picture; the value of the starting line is a hexadecimal number. This function may influence the image source critically. This command is for debugging only.

Syntax:

ccdy=[*Data*]

Parameter:

The value, '*data*', is the starting line from 0 to 3FF in hexadecimal format.

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

7.3.3.13 digitalalarmin

Description:

This command is used to trigger a remote alarm to the device by another remote network machine; this may ignite the following procedures.

- FTP alarm recording
- SMTP alarm notification
- SD-Card recording
- CF-Card recording

Syntax:

digitalalarmin=[*1*]

Parameter:

The only parameter here, '*1*', means the digital alarm will be triggered.

Return:

- OK - This means the operation is successful.

- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?digitalalarmin=1

This will trigger a remote alarm to the device.

7.3.3.14 digitalalarmreset

Description:

This command is used to trigger a remote alarm reset to the device by another network machine; this may reset the following procedures.

- FTP alarm recording
- SMTP alarm notification
- SD-Card recording
- CF-Card recording

Syntax:

digitalalarmreset=[*1*]

Parameter:

The only parameter here, '*1*', means the alarm reset will be triggered by the remote network machine.

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?digitalalarmreset=1

This will trigger a remote alarm reset to the device.

7.3.3.15 engineermode

Description:

This is a command to switch the mode for engineers, and some vital information will be shown only on the OSD (On Screen Display) in the upper part of the monitor when this function is enabled. This result is not superimposed on the picture. This setting is only cached during this booting, and reset to disabled in the next booting.

Syntax:

engineermode=[*0*/*1*]

Parameter:

- 0 - Disable
- 1 - Enable

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?engineermode=1

This will turn on the engineer mode and show some information in the OSD.

7.3.3.16 factorydefault

Description:

This command will reset the device to factory default in 10 seconds.

Remark:

All connections may be closed because the IP address of the device is going to change.

Syntax:

factorydefault=[*1*]

Parameter:

The only parameter here, '*1*', means the system reset procedure will be ignited in 30 seconds.

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Administrator

Example:

http://192.168.1.168/vb.htm?factorydefault=1

This will reset all settings of the device to default.

7.3.3.17 getarmioport

Description:

This command is used to retrieve the raw data from the internal CPU I/O port in the device, and it is a hexadecimal number.

Remark:

An invalid procedure will cause the device to crash. This command is for debugging only.

Syntax:

getarmioport=[*Port*]

Parameter:

The value, '*Port*', ranges from 30000 to 3FFFF in hexadecimal format.

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Administrator

7.3.3.18 getccddata

Description:

This command is used to retrieve the raw data from the CCD sensor in the device, and it is a hexadecimal number.

Syntax:

getccddata=[*CcdPort*]

Parameter:

The value, '*CcdPort*', ranges from 00 to FF in hexadecimal format.

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

7.3.3.19 osdx

Description:

This command is used to change the starting point of the OSD (On Screen Display) device; the value of a starting point is a decimal number. This command will only affect the video output to the monitor instead of the picture contained in the multi-media stream.

Syntax:

osdx=[*LocationOfOsd*]

Parameter:

This value, '*LocationOfOsd*', ranges from 0 to 719; this command is for debugging only.

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

7.3.3.20 osdy

Description:

This command is used to change the starting line of the OSD (On Screen Display) device; the value of the starting line is a decimal number. This command will only affect the video output to the monitor instead of the picture contained in the multi-media stream.

Syntax:

osdy=[*LineOfOsd*]

Parameter:

This value, '*LineOfOsd*', ranges from 0 to 575; this command is for debugging only.

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

7.3.3.21 setallreboot

Description:

This command is used to reboot the device in 10 seconds.

Remark:

This command will terminate all the connecting sockets.

Syntax:

setallreboot=[*1*]

Parameter:

The only parameter here, '*1*', means the rebooting procedure will be starting in 10 seconds.

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setallreboot=1

This will reboot the device in 10 seconds.

7.3.3.22 setarmioport

Description:

This command is used to specify the raw data to the internal CPU I/O port. The data and port are formed of hexadecimal numbers, each number being a 16-bit data; the data and port are separated by a colon.

Remark:

An invalid setting will cause the device to crash. This command is for debugging only.

Syntax:

setarmioport=[*port*]:[*data*]

Parameter:

The value, '*port*', ranges from 30000 to 3FFFF, and the value, '*data*', ranges from 0000 to FFFF.

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Administrator

7.3.3.23 setcolorbar

Description:

This command is used to switch the function of the internal color bar pattern. This setting is only cached during this booting, and reset to disabled in the next booting. Please activate it only when the color calibration is required. This command will only affect the video output to the monitor instead of the picture in the multi-media stream.

Syntax:

setcolorbar=[*0*/*1*]

Parameter:

- 0 - Disable
- 1 - Enable

Return:

- OK - This means the operation is successful.

- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setcolorbar=1

This will turn on the function of color pattern testing.

7.3.3.24 setosd

Description:

This command is used to switch the output associated with the OSD (On Screen Display). This setting will be remembered in the flash memory instead of cached. This command will only affect the video output to the monitor instead of the picture in the multi-media stream.

Remark:

Please write down the IP address of the device before you disable this function because all information in the OSD will vanish.

Syntax:

setosd=[*0*/*1*]

Parameter:

- 0 - Disable
- 1 - Enable

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setosd=1

This will turn on the output from the OSD.

7.3.3.25 eventstart

Description:

This command is used to specify the starting index associated with the output event page. The command, '*eventcount*', has to be accompanied with the Webpage 'event.htm' when you want to retrieve an entire event log page.

Syntax:

eventstart=[*EntryOfList*]

Parameter:

The value, '*EntryOfList*', is the starting index and it is a decimal number.

Return:

An event page will be retrieved in the following format.

Format	Description
eventposition	index
eventtype	type of the event
eventdate	date of the event
eventtime	time of the event
eventtrigger	the tracked user
evnetcontent	content of this event

TAB 7-17

Authority:

Operator or Administrator

7.3.3.26 audiostream

Description:

This command is used to switch the output associated with the audio in the MPEG4 or MJPEG stream (please refer to Chapters 5 and Chapter 6). This command has to be accompanied with the following URLs.

- ipcam/sjpeg.cgi
- ipcam/mpeg4.cgi

This command only takes effect in this connecting socket but not in any other socket.

Remark:

Some countries consider audio recording a matter of privacy.

Syntax:

audiostream=[*0*/*1*]

Dependency:

supportaudio

Parameter:

The value here, '*1*', will turn on the audio function in the MPEG4 or MJPEG stream. This command can be ignored if the audio stream is not necessary because the default status related to the audio is not active.

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/ipcam/mjpeg.cgi?audiostream=1

This will retrieve a MJPEG stream with the audio function.

7.3.3.27 cameratitle

Description:

This command is used to specify the title of a device. It also affects the title associated with the NetBIOS Name Service.

Syntax:

cameratitle=[*TitleOfCamera*]

cameratitle=[*ChannelID:TitleOfChannel*] for multi-channel video server

Parameter:

The string, '*TitleOfCamera*' or '*TitleOfChannel*', is the device title with the capacity of 3 to 8 letters. Only alphabetical letters ('**a**'-'**z**', '**A**'-'**Z**') and numbers ('**0**'-'**9**') are acceptable; and they are all case-insensitive.

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?cameratitle=mytitle

This will set the title of the device to '**mytitle**'.

7.3.3.28 supporttstamp

Description:

This command is used to determine whether the device supports the time stamp.

Syntax:

supporttstamp

Parameter:

None

Return:

- OK - This means the operation is successful.
  - 0 - Unavailable
  - 1 - The single channel style.
  - 2 - The multi channel style.
- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/vb.htm?supporttstamp

This will return whether the time stamp is provided or not.

7.3.3.29 supportaudio

Description:

This command is used to determine whether the device supports the audio function.

Syntax:

supportaudio

Parameter:

None

Return:

- OK - This means the operation is successful.
  - 0 - Unavailable
  - 1 - Accessible
- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/vb.htm?supportaudio

This will return whether the audio function is available or not.

7.3.3.30 eventcount

Description:

This command is used to specify the amount of the output event page. The command, '*eventstart*', has to be accompanied with the Webpage 'event.htm' to retrieve an entire event log page.

Syntax:

eventcount=[*CountOfList*]

Parameter:

The value, '*CountOfList*', is the count of the output page, and it is a decimal number.

Return:

Please refer to TAB 7-17.

Authority:

Operator or Administrator

7.3.3.31 tstampcolor

Description:

This command is used to specify the color of the time stamping text associated with an image.

Syntax:

tstampcolor=[*IndexOfColor*]

Parameter:

Index	Description
0	Black
1	White
2	Red
3	Orange
4	Yellow
5	Green

6	Blue
7	Purple

TAB 7-18

Dependency:

The command is valid when the return value of supporttstamp is equal to 1 or 2.

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?tstampcolor=0

This will set the color of the time stamping text to '**BLACK**'.

7.3.3.32 tstampformat

Description:

This command is used to specify the format of the time stamp text on an image.

Syntax:

tstampformat=[*IndexOfFormat*]

Parameter:

Index	Description
0	YY/MM/DD
1	MM/DD/YY
2	DD/MM/YY
3	YY/MM/DD TITLE
4	MM/DD/YY TITLE
5	DD/MM/YY TITLE

TAB 7-19

Dependency:

The command is valid when the return value of supporttstamp is equal to 1.

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?tstampformat=0

This will set the format of the time stamping text to '**YY/MM/DD**'.

7.3.3.33 tstamploc

Description:

This command is used to specify the location related to the time stamping text on an image.

Syntax:

tstamploc=[*IndexOfLocation*]

Parameter:

Index	Description
0	Upper left
1	Upper right
2	Bottom left
3	Bottom right
4	Analog Upper left
5	Analog Upper right
6	Analog Bottom left

7	Analog Bottom right

TAB 7-20

Dependency:

The command is valid when the return value of supporttstamp is equal to 1.

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?tstamploc=0

This will set the location of the time stamping text to '**UPPER LEFT**'.

7.3.3.34 audioenable

Description:

This command is used to switch the audio function. This result becomes effect in the connecting streams immediately. The default setting is disabled.

Remark:

Some countries consider audio recording a matter of privacy.

Syntax:

audioenable=[*0*/*1*]

Dependency:

supportaudio

Parameter:

- 0 - Disable
- 1 - Enable

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?audioenable=1

This will turn on the function of the audio output.

7.3.3.35 ifrmonly

Description:

This command is used to switch the output associated with only MPEG4 I-frame stream (please refer to Chapter 6); it will decrease the bandwidth dramatically. This command has to be accompanied with the following URLs.

- ipcam/mpeg4.cgi

This command only takes effect in this connecting socket but not in any other socket.

Syntax:

ifrmonly=[*0*/*1*]

Dependency:

supportmpeg4

Parameter:

The value here, '*1*', will make the MPEG4 stream output only I frames. The default setting is disable and output both I and P frame alternatively.

Return:

- OK - This means the operation is successful.

- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/ipcam/mpeg4.cgi?ifrmonly=1

This will retrieve a MPEG4 stream composed of simply I frames.

7.3.3.36 timeformat

Description:

This command is used to specify the date format which is shown on the video output.

Syntax:

Timeoutput=[*IndexOfFormat*]

Parameter:

Index	Description
0	YYYY/MM/DD
1	MM/DD/YYYY
2	DD/MM/YY

TAB 7-21

Dependency:

None

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?timeformat=0

This will set the time format of the device to '**YYYY/MM/DD**'.

7.3.3.37 tstamptimeformat

Description:

This command is used to specify the format related to the time stamping text on an image.

Syntax:

tstamptimeformat=[*IndexOfFormat*]

Parameter:

Index	Description
0	YYYY-MM-DD hh:mm:ss
1	MM-DD-YYYY hh:mm:ss
2	DD-MM-YYYY hh:mm:ss
3	Don't show anything

TAB 7-22

Dependency:

The command is valid when the return value of supporttstamp is equal to 2.

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?tstamptimeformat=0

This will set the time's format of the timestamp to '**YYYY-MM-DD hh:mm:ss**'.

7.3.3.38 tstamptimeposition

Description:

This command is used to specify the location related to the time stamping text on an image.

Syntax:

tstamptimeposition=[*IndexOfPosition*]

Parameter:

Index	Description
0	TOP-LEFT
1	TOP-CENTER
2	TOP-RIGHT
3	MIDDLE-LEFT
4	MIDDLE-CENTER
5	MIDDLE-RIGHT
6	BOTTOM-LEFT
7	BOTTOM-CENTER
8	BOTTOM-RIGHT

TAB 7-23

Dependency:

The command is valid when the return value of supporttstamp is equal to 2.

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?tstamptimeposition=8

This will set the time's position of the timestamp to '**BOTTOM-RIGHT**'.

7.3.3.39 tstampinfoformat

Description:

This command is used to specify the information format related to the time stamping text on an image.

Syntax:

tstampinfoformat=[*IndexOfFormat*]

Parameter:

Index	Description
0	TITLE
1	Don't show anything

TAB 7-24

Dependency:

The command is valid when the return value of supporttstamp is equal to 2.

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?tstampinfoformat=0

This will set the information's format of the timestamp to '**TITLE**'.

7.3.3.40 tstampinfoposition

Description:

This command is used to specify the channel information location related to the time stamping text on an image.

Syntax:

tstampinfoposition=[*IndexOfPosition*]

Parameter:

Index	Description
0	TOP-LEFT
1	TOP-CENTER
2	TOP-RIGHT
3	MIDDLE-LEFT
4	MIDDLE-CENTER
5	MIDDLE-RIGHT
6	BOTTOM-LEFT
7	BOTTOM-CENTER
8	BOTTOM-RIGHT

TAB 7-25

Dependency:

The command is valid when the return value of supporttstamp is equal to 2.

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?tstampinfoposition=0

This will set the channel information's position of timestamp to '**TOP-LEFT**'.

7.3.4 UART

The chapter will discuss the APIs related to communication with a UART or RS-485 device.

7.3.4.1 rs232delay

Description:

This command is used to specify the delay period related to RS-232 transmissions. This command ought to be accompanied with the command '*rs232output*', and it is forbidden when a UART socket is connected.

Syntax:

rs232delay=[*RS232Delay*]

Parameter:

The value, '*RS232Delay*', is the delay period and the unit is mini-second. The maximum is 1000 mini-seconds.

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

Please refer to the example in Chapter 7.3.4.2.

7.3.4.2 rs232output

Description:

This command is used to transmit RS-232 data through the network. This command ought to be accompanied with the command '*rs232delay*', and it is forbidden when a UART socket is connected.

Syntax:

rs232output=[*OutputHexString*]

Parameter:

The string, '*OutputHexString*', is a hexadecimal string with a maximum capacity of 40 characters. Assuming the target output is '**abc**', the '*OutputHexString*' ought to be '**616263**'. Please look up the ASCII table for more information.

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?rs232output=313233&rs232delay=100&rs232output=414243

This will bypass the data, '**123**', to the UART device, and re-send another data, '**ABC**', after '**100**' mini-seconds.

7.3.4.3 rs485delay

Description:

This command is used to specify the delay period related to RS-485 transmissions. This command ought to be accompanied with the command '*rs485output*', and it is forbidden when a UART socket is connected.

Syntax:

rs485delay=[*RS485Delay*]

Parameter:

The value, '*RS485Delay*', is the delay period and the unit is the mini-second. The maximum period is 1000 mini-seconds.

Dependency:

supportrs485

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

Please refer to the example in Chapter 7.3.4.4.

7.3.4.4 rs485output

Description:

This command is used to transmit the RS-485 data through the network. This command should be accompanied with the command '*rs485delay*', and it is forbidden when a UART socket is connected.

Syntax:

rs485output=[*OutputHexString*]

Parameter:

The string, '*OutputHexString*', is a hexadecimal string with a maximum capacity of 40 characters. Assuming the target string is '**ABC**', the '*OutputHexString*' should be '**414243**'. Please look up the ASCII table for more information.

Dependency:

supportrs485

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?rs485output=313233&rs485delay=100&rs485output=414243

This will bypass the data, '**123**', to the RS-485 device, and re-send another data, '**ABC**', after '**100**' mini-seconds.

7.3.4.5 set485id

Description:

This command is used to specify the ID related to the RS-485 connection, and it must be pre-determined before the commands '*rs485delay*' and '*rs485output*' are executed. This command is forbidden when a UART socket is connected.

Syntax:

set485id=[*RS485ID*]

Parameter:

The value, '*RS485ID*', is the connection ID number and ranges from 0 to 254 in decimal format. The number, '**255**', is reserved and stands for a broadcast address.

Dependency:

supportrs485

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?rs485id=1

This will set the ID number of the RS-485 to '**1**'.

7.3.4.6 set485type

Description:

This command is used to specify the connection type related to the RS-485 communication. This setting ought to be the same as the client. This command is forbidden when a UART socket is connected.

Syntax:

set485type=[*IndexOfType*]

Parameter:

Index	Type	Description
0	8-N-1	8-bit data, non-parity, 1 stop bit
1	8-E-1	8-bit data, even-parity, 1 stop bit
2	8-O-1	8-bit data, odd-parity, 1 stop bit
3	7-N-1	7-bit data, non-parity, 1 stop bit
4	7-E-1	7-bit data, even-parity, 1 stop bit
5	7-O-1	7-bit data, odd-parity, 1 stop bit

TAB 7-26

Dependency:

supportrs485

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?set485type=0

This will set the connection type of the RS-485 to '**8-N-1**' (8-bit data, no parity, 1-bit stop).

7.3.4.7 setuarttype

Description:

This command is used to specify the connection type related to the RS-232 communication. It has to be consistent with the client connection. This command is forbidden when a UART socket is connected.

Syntax:

setuarttype=[*IndexOfType*]

Parameter:

Index	Type	Description
0	8-N-1	8-bit data, non-parity, 1 stop bit
1	8-E-1	8-bit data, even-parity, 1 stop bit
2	8-O-1	8-bit data, odd-parity, 1 stop bit
3	7-N-1	7-bit data, non-parity, 1 stop bit
4	7-E-1	7-bit data, even-parity, 1 stop bit
5	7-O-1	7-bit data, odd-parity, 1 stop bit

TAB 7-27

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setuarttype=0

This will set the connection type associated with the RS-232 communication to '**8-N-1**' (8-bit data, no parity, 1-bit stop).

7.3.4.8 set485speed

Description:

This command is used to specify the speed related to the RS-485 communication. It has to be consistent with the client connection. The default speed is 9600 bps; this command is forbidden when a UART socket is connected.

Syntax:

setuarttype=[*IndexOfSpeed*]

Parameter:

Value	Baud Rate
0	2400
1	4800
2	9600
3	19200
4	28800
5	38400
6	57600
7	115200

TAB 7-28

Dependency:

supportrs485

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?set485speed=2

This will set the connection speed of the RS-485 to '**9600bps**'.

7.3.4.9 setuartspeed

Description:

This command is used to specify the speed related to the RS-232 communication. It has to be consistent with the client connection. The default speed is 9600 bps; this command is forbidden when a UART socket is connected.

Syntax:

setuarttype=[*IndexOfSpeed*]

Parameter:

Value	Baud Rate
0	2400
1	4800
2	9600
3	19200
4	28800
5	38400
6	57600
7	115200

TAB 7-29

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setuartspeed=2

This will set the connection speed of the RS-232 to '**9600bps**'.

7.3.4.10 supportrs485

Description:

This command is used to determine whether the device supports the RS-485 function.

Syntax:

supportrs485

Parameter:

None

Return:

- OK - This means the operation is successful.
  - 0 - Unavailable
  - 1 - Accessible
- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/vb.htm?supportrs485

This will return whether the RS-485 is available or not.

7.3.5 Wireless

Wireless can be very useful in utilizing a device without the annoyance of having a network cable attached all the time. This chapter will discuss all the wireless-related APIs.

7.3.5.1 setwladhoc

Description:

This command is used to switch the ad-hoc mode associated with wireless configuration. The default setting in the device is the '**infra-structure**' mode. When you lose the network connection due to an incorrect configuration, you can try the following means to recover the device to the default setting.

- Insert the reset button in the flank of the device for 5 seconds.
- Employ the UART socket to set factory default.
- Use the USB connection to recover the settings.

Remark:

This command may disconnect all connecting sockets.

Syntax:

setwladhoc=[*0*/*1*]

Parameter:

- 0 - Disable, Infra-Structure mode
- 1 - Enable, Ad-Hoc mode

Dependency:

supportwireless

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.

- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setwladhoc=1

This will shift to the '**ad-hoc**' mode.

7.3.5.2 setwlchannel

Description:

This command is used to tune the radio channel associated with wireless communication. This setting will be ignored when the device is in the '**infra-structure**' mode or the device is not a pioneer of the '**ad-hoc**' mode. When you lose the network connection due to an incorrect configuration, you can try the following means to recover the device to the default setting.

- Insert the reset button in the flank of the device for 5 seconds.
- Employ the UART socket to set factory default.
- Use the USB connection to recover the settings.

Remark:

This command may terminate all connecting sockets.

Syntax:

setwlchannel=[*ChannelOfWireless*]

Parameter:

Section	Code	Regulator Domain
USA	FCC	1-11
Canada	DOC	1-11
Europe	ETSI	1-13
Spain	SPAIN	10-11

France	FRANCE	10-13
Japan	MKK	14
Japan	MKK1	1-14
Israel	ISRAEL	3-9

TAB 7-30

Remark:

The above table is a reference; please refer to your local corresponding telecommunication rules.

Dependency:

supportwireless

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setwlchannel=10

This will tune the wireless channel to '**10**'.

7.3.5.3 setwlencryption

Description:

This command is used to specify the encryption mode associated with wireless, and the setting is about to become active in 10 seconds. When you lose the network connection due to an incorrect configuration, you can try the following means to recover the device to the default setting.

- Insert the reset button in the flank of the device for 5 seconds.
- Employ the UART socket to set factory default.

- Use the USB connection to recover the settings.

Remark:

This command may disconnect all connecting sockets.

Syntax:

setwlencryption=[*EntryptionMode*]

Parameter:

Value	Description
0	Disable
1	64-bit encryption
2	128-bit encryption

TAB 7-31

Dependency:

supportwireless

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setwlencryption=0

This will turn off the encryption of the wireless.

7.3.5.4 setwlessid

Description:

This command is used to specify the ESSID associated with wireless, and this setting will become active in 10 seconds; the ESSID is case-sensitive. When you

lose the network connection due to an incorrect configuration, you can try the following means to recover the device to the default setting.

- Insert the reset button in the flank of the device for 5 seconds.
- Employ the UART socket to set factory default.
- Use the USB connection to recover the settings.

Remark:

This command may disconnect all connecting sockets.

Syntax:

setwlessid=[*WirelessESSID*]

Parameter:

The string, '*WirelessESSID*', is a C-Style string with a capacity of 32 characters.

Dependency:

supportwireless

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setwlessid=myessid

This will set the wireless ESSID to '**myessid**'.

7.3.5.5 setwlwepkey

Description:

This command is used to specify the WEP key associated with wireless, and this setting will become active in 10 seconds. When you lose the network

connection due to an incorrect configuration, you can try the following means to recover the device to the default setting.

- Insert the reset button in the flank of the device for 5 seconds.
- Employ the UART socket to set factory default.
- Use the USB connection to recover the settings.

Remark:

This command may disconnect all connecting sockets.

Syntax:

setwlwepkey=[*Key*]:[*Wepkey*]

Parameter:

Key: This field ranges from 0 to 3.

Wepkey: This field is a C-Style string, and only some alphabetical letters ('**a**'-'**f**', '**A**'-'**F**') and numbers ('**0**'-'**9**') are acceptable; the WEPKey is case-insensitive. The exact length of this string is listed in the following table.

Mode	Length
64-bit encryption	10 characters
128-bit encryption	26 characters

TAB 7-32

Dependency:

supportwireless

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setwlwepkey=0:0123456789

This will set the '**first**' WEP key to '**0123456789**'.

7.3.5.6 setwlwepwhich

Description:

This command is used to specify which keys to be used, and the setting will become active in 10 seconds. When you lose the network connection due to an incorrect configuration, you can try the following means to recover the device to the default setting.

- Insert the reset button in the flank of the device for 5 seconds.
- Employ the UART socket to set factory default.
- Use the USB connection to recover the settings.

Remark:

This command may disconnect all connecting sockets.

Syntax:

setwlwepwhich=[*Wepkey*]

Parameter:

Wepkey: This parameter varies from 0 to 3.

Dependency:

supportwireless

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setwlwepwhich=0

This will make the '**first**' WEP key active in the wireless module.

7.3.5.7 supportwireless

Description:

This command is used to determine whether the device supports the wireless function.

Syntax:

supportwireless

Parameter:

None

Return:

- OK - This means the operation is successful.
  - 0 - Unavailable
  - 1 - Accessible
- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/vb.htm?supportwireless

This will return whether the service of the wireless is available or not.

7.3.6 Recording

The IP Camera will record the images when an alarm in triggered or a schedule becomes active. This chapter discusses the associated commands related to the recording.

7.3.6.1 alarmduration

Description:

This command is used to specify the duration period when an alarm is triggered; the alarm derivations are listed as follows.

- GIO (General purpose Input/Output)
- Motion detection
- Luminance detection (Obsolete)
- Digital alarm

Syntax:

alarmduration=[*IndexOfduration*]

Parameter:

Value	Description
0	0 second, a snapshot
1	thirty seconds
2	one minute
3	five minutes
4	ten minutes
5	unfailing

TAB 7-33

Return:

- OK - This means the operation is successful.

- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?alarmduration=1

This will set the alarm duration to '**30 seconds**'.

7.3.6.2 motionblock

Description:

This command is used to specify the flags of each block associated with motion detection. '**0**' means disabled while '**1**' means enabled. An alarm will be triggered when there is a movement in any of the enabled blocks.

Syntax:

motionblock=[*SeriesData*]

Parameter:

The string, '*SeriesData*', comprises 96 successive characters, and each character is either '**0**' or '**1**' which represents disabled or enabled, respectively.

Remark:

This option is only effective when the result of '*supportmotion*' is equal to '**2**' (the multiple-block mode).

Dependency:

supportmotion

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

7.3.6.3 motionenable

Description:

This command is used to switch the function related to motion detection. An alarm will be triggered when there is a movement in any of the enabled blocks which are specified in Chapter 7.3.6.2.

Remark:

In some machines, the performance of the device will be down slightly when motion detection is enabled.

Syntax:

motionenable=[*StatusOfMotion*]

Parameter:

- 0 - Disable
- 1 - Enable

Dependency:

supportmotion

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?motionenable=1

This will turn on the motion detection function.

7.3.6.4 motionlevel

Description:

This command is used to specify the sensitivity associated with motion detection; it is a global setting for all enabled blocks.

Syntax:

motionlevel=[*IndexOfSensitive*]

Parameter:

Value	Description
0	Lowest (the less sensitive)
1	Low
2	Medium
3	High
4	Highest (the most sensitive)

TAB 7-34

Dependency:

supportmotion

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?motionlevel=2

This will tune the sensitivity associated with motion detection to '**Medium**'.

7.3.6.5 setgioinenable

Description:

This command is used to switch the function of GIO input. All GIO input will be ignored when it is disabled. The default status is enabled.

Remark:

Some procedures like those below may be inert when the function is disabled.

- FTP
- SMTP
- SD-Card Recording
- CF-Card Recording

Syntax:

setgioinenable=[*0*/*1*]

setgioinenable=[*ChannelID:0*/*1*] for multi-channel video server.

Parameter:

- 0 - Disable
- 1 - Enable

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setgioineable=1

This will turn on the function of alarm detection.

7.3.6.6 setgiooutenable

Description:

This command is used to switch the status of the GIO output. The GIO output will be prohibited when it is disabled. The default status is enabled.

Syntax:

setgiooutenable =[*0*/*1*]

setgiooutenable =[*ChannelID:0*/*1*] for multi-channel video server.

Parameter:

- 0 - Disable
- 1 - Enable

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setgiooutеable=1

This will turn on the output when an alarm is triggered.

7.3.6.7 aftpenable

Description:

This command is used to switch the status associated with the FTP (File Transfer Protocol) session when one of the following alarm sources is triggered.

- GIO (General purpose Input/Output)
- Motion detection
- Luminance detection (Obsolete)
- Digital alarm

Remark:

The FTP session only activates when the machine is in the '**MJPEG**' mode; it is disabled automatically in the '**MPEG4**' mode.

Syntax:

aftpenable=[*0*/*1*]

Parameter:

- 0 - Disable
- 1 - Enable

Dependency:

serviceftpclient

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?aftpenable=1

This will turn on the service of the FTP session when an alarm is triggered.

7.3.6.8 aftprate

Description:

This command is used to specify the uploading rate to the FTP server when one of the following alarm sources is triggered.

- GIO (General purpose Input/Output)
- Motion detection
- Luminance detection (Obsolete)
- Digital alarm

Remark:

The FTP session activates only when the machine is in the '**MJPEG**' mode; it is disabled in the '**MPEG4**' mode.

Syntax:

aftprate=[*IndexOfRateTable*]

Parameter:

Value	NTSC	PAL	VGA
0	60F / 1S	50F / 1S	60F / 1S
1	30F / 1S	25F / 1S	30F / 1S
2	20F / 1S	17F / 1S	20F / 1S
3	10F / 1S	12.5F / 1S	10F / 1S
4	5F / 1S	6.25F / 1S	5F / 1S
5	2.5F / 1S	3.13F / 1S	2.5F / 1S
6	1.25F / 1S	1.56F / 1S	1.25F / 1S
7	0.625F / 1S	0.877F / 1S	0.625F / 1S
8	1F / 4S	1F / 3.2S	1F / 4S
9	1F / 6S	1F / 4.8S	1F / 6S
10	1F / 8S	1F / 6.4S	1F / 8S

TAB 7-35

Dependency:

serviceftpclient

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?aftprate=0

This will set the uploading rate to the FTP server to '**real-time**' when an alarm is triggered.

7.3.6.9 postalarm

Description:

This command is used to specify the amount associated with the post-alarm recording.

Syntax:

postalarm=[*CountsOfImage*]

Parameter:

This value, '*CountsOfImage*', is a decimal number and ranges from 1 to 30(25).

Remark:

This parameter becomes active only when the machine is in the '**MJPEG**' mode; it is automatically disabled in the '**MPEG4**' mode.

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?postalarm=10

This will set the number related to the post-alarm recording to 10.

7.3.6.10 prealarm

Description:

This command is used to specify the amount associated with the pre-alarm recording.

Remark:

This parameter becomes active only when the machine is in the '**MJPEG**' mode; it is automatically disabled in the '**MPEG4**' mode.

Syntax:

prealarm=[*CountsOfImage*]

Parameter:

This value, '*CountsOfImage*', is a decimal number and ranges from 1 to 30(25).

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?prealarm=10

This will set the number related to the pre-alarm recording to '**10**'.

7.3.6.11 rftpenable

Description:

This command is used to switch the function related to an FTP (File Transfer Protocol) session when a schedule is activated.

Remark:

An FTP session activates only when the machine is in the '**MJPEG**' mode; it is automatically disabled in the '**MPEG4**' mode.

Syntax:

rftpenable=[*StatusOfRFtp*]

Parameter:

- 0 - Disable
- 1 - Enable

Dependency:

serviceftpclient

Return:

- OK - This means the operation is successful.

- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?rftpenable=1

This will turn on the FTP uploading service when a schedule becomes active.

7.3.6.12 asmtpattach

Description:

This command is used to specify an attached file number when an SMTP session is activated by an alarm source listed below, and it is valid only when the status of the SMTP session, '*asmtpenable*', is enabled.

- GIO (General purpose Input/Output)
- Motion detection
- Luminance detection (Obsolete)
- Digital alarm

Remark:

The SMTP session activates only when the machine is in the '**MJPEG**' mode; it is disabled in the '**MPEG4**' mode.

Syntax:

asmtpattach=[*CountOfImage*]

Parameter:

The value, '*CountOfImage*', is a decimal number and ranges from 1 to 8.

Dependency:

servicesmtpclient

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?asmtpattach=2

This will set the number related to an attached MJPEG file to '**2**' when an alarm is triggered.

7.3.6.13 asmtpenable

Description:

This command is used to switch the function of an SMTP (Simple Mail Transfer Protocol) session when one of the following alarm sources is triggered.

- GIO (General purpose Input/Output)
- Motion detection
- Luminance detection (Obsolete)
- Digital alarm

Remark:

The SMTP session activates only when the machine is in the '**MJPEG**' mode; it is disabled in the '**MPEG4**' mode.

Syntax:

asmtpenable=[*0*/*1*]

Parameter:

- 0 - Disable
- 1 - Enable

Dependency:

servicesmtpclient

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?asmtpenable=1

This will turn on an SMTP session when an alarm is triggered.

7.3.6.14 smtpfqdn

Description:

This command is used to specify an FQDN or IP address associated with an SMTP server where an e-mail will be sent when an alarm is triggered, and it is active only when the status related to an SMTP session, '*asmtpenable*', is enabled.

Remark:

An SMTP session activates only when the machine is in the '**MJPEG**' mode; it is automatically disabled in the '**MPEG4**' mode.

Syntax:

smtpfqdn=[*SMTPFQDN*]

Parameter:

The string, '*SMTPFQDN*', is a C-Style string with a capacity of 40 characters.

Dependency:

servicesmtpclient

Return:

- OK - This means the operation is successful.

- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?smtpfqdn=smtp.mysmtp.org

This will set the FQDN of an SMTP server to '**smtp.mysmtp.org**'.

7.3.6.15 smtpto

Description:

This command is used to specify the addressee where an e-mail will be sent when an alarm is triggered, and it is active only when the status related to an SMTP session, '*asmtpenable*', is enabled.

Remark:

An SMTP session activates only when the machine is in the '**MJPEG**' mode; it is disabled in the '**MPEG4**' mode.

Syntax:

smtpto=[*SMTPAddressee*]

Parameter:

The string, '*SMTPAddressee*', is a C-Style string with a capacity of 40 characters.

Dependency:

servicesmtpclient

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?smtpto=myname

This will set the addressee of an SMTP server to '**myname**'.

7.3.6.16 setsdaenable

Description:

This command is used to specify the status associated with an SD recording when one of the following alarm sources is triggered.

- GIO (General purpose Input/Output)
- Motion detection
- Luminance detection (Obsolete)
- Digital alarm

Remark:

Some devices do not support an SD-Card function.

Syntax:

setsdaenable=[*0*/*1*]

Parameter:

- 0 - Disable
- 1 - Enable

Dependency:

supportsd

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setsdaenable=1

This will turn on an SD-Card recording when an alarm is triggered.

7.3.6.17 setsdcount

Description:

This command is used to specify the recording count to an SD-Card when an alarm is triggered or a schedule is activated.

Remark:

Some devices do not support an SD-Card function.

Syntax:

setsdcount=[*CountOfImages*]

Parameter:

This value, '*CountOfImages*', is a decimal number and ranges from 1 to 10.

Dependency:

supportsd

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setsdcount=10

This will set the recording amount to an SD-Card at '**10 files**' when an alarm is triggered.

7.3.6.18 setsdduration

Description:

This command is used to specify the duration associated with an SD-Card recording when an alarm is triggered or a schedule is activated.

Remark:

Some devices do not support an SD-Card function.

Syntax:

setsdduration=[*IndexOfDuration*]

Parameter:

Index	Description
0	1 second
1	5 seconds
2	10 seconds
3	20 seconds
4	30 seconds
5	60 seconds
6	100 seconds

TAB 7-36

Dependency:

supportsd

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setsdduration=1

This will set the recording period on an SD-Card to '**5 seconds**' when an alarm is triggered.

7.3.6.19 setsdrate

Description:

This command is used to specify the recording rate to an SD-Card when an alarm is triggered or a schedule is activated.

Remark:

Some devices do not support an SD-Card function.

Syntax:

setsdrate=[*IndexOfRate*]

Parameter:

Index	NTSC	VGA
0	60F / 1S	60F / 1S
1	30F / 1S	30F / 1S
2	20F / 1S	20F / 1S
6	10F / 1S	10F / 1S
10	5F / 1S	5F / 1S
24	2.5F / 1S	2.5F / 1S
30	1F / 1S	1F / 1S
48	1.25F / 1S	1.25F / 1S
84	0.625F / 1S	0.625F / 1S
240	1F / 4S	1F / 4S
360	1F / 6S	1F / 6S
480	1F / 8S	1F / 8S

TAB 7-37

Value	PAL
0	50F / 1S
1	25F / 1S
2	17F / 1S

6	10F / 1S
10	5F / 1S
20	2.5F / 1S
40	1.25F / 1S
70	0.625F / 1S
200	1F / 4S
300	1F / 6S
400	1F / 8S

TAB 7-38

Dependency:

supportsd

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setsdrate=0

This will set the recording rate on an SD-Card to '**real-time**' when an alarm is triggered.

7.3.6.20 setsdrenable

Description:

This command is used to specify the status associated with an SD recording when a schedule is activated.

Remark:

Some devices do not support an SD-Card function.

Syntax:

setsdrenable=[*0*/*1*]

Parameter:

- 0 - Disable
- 1 - Enable

Dependency:

supportsd

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setsdrenable=1

This will turn on an SD-Card recording when a schedule becomes active.

7.3.6.21 setcfaenable

Description:

This command is used to specify the status associated with a CF-Card recording when one of the following alarm sources is triggered.

- GIO (General purpose Input/Output)
- Motion detection
- Luminance detection (Obsolete)
- Digital alarm

Remark:

Some devices do not support a CF-Card function.

Syntax:

setcfaenable=[*StatusOfCF*]

Parameter:

- 0 - Disable
- 1 - Enable

Dependency:

supportcfcard

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setcfaenable=1

This will turn on a CF-Card recording when an alarm is triggered.

7.3.6.22 setcfcount

Description:

This command is used to specify the recording file amount to a CF-Card when an alarm is triggered or a schedule is activated.

Remark:

Some devices do not support a CF-Card function.

Syntax:

setcfcount=[*CountsOfImage*]

Parameter:

This setting, '*CountsOfImage*', is a decimal integer and ranges from 1 to 30(25).

Dependency:

supportcfcard

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setcfcount=10

This will set the recording number to a CF-Card to '**10 files**' when an alarm is triggered.

7.3.6.23 setcfduration

Description:

This command is used to specify the duration period associated with a CF-Card recording when an alarm is triggered or a schedule is activated.

Remark:

Some devices do not support a CF-Card function; the function will be disabled alternatively when a wireless card is inserted in the device.

Syntax:

setcfduration=[*IndexOfDuration*]

Parameter:

Index	Description
0	1 second
1	5 seconds
2	10 seconds
3	20 seconds
4	30 seconds

5	60 seconds
6	100 seconds

TAB 7-39

Dependency:

supportcfcard

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setcfduration=1

This will set the recording period related to a CF-Card to 5 seconds when an alarm is triggered.

7.3.6.24 setcfrate

Description:

This command is used to specify the recording rate to a CF-Card when an alarm is triggered or a schedule is activated.

Remark:

Some devices do not support a CF-Card function; the function will be disabled alternatively when a wireless card is inserted in the device.

Syntax:

setcfrate=[*IndexOfRate*]

Parameter:

Please refer to TAB 7-37 and TAB 7-38.

Dependency:

supportcfcard

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setcfrate=0

This will set the recording rate to a CF-Card to '**real-time**' when an alarm is triggered.

7.3.6.25 setcfrenable

Description:

This command is used to switch the status associated with a CF-Card recording when a schedule is activated.

Remark:

Some devices do not support the function of a CF-Card; the function will be disabled alternatively when a wireless card is inserted in the device.

Syntax:

setcfrenable=[*StatusOfRCF*]

Parameter:

- 0 - Disable
- 1 - Enable

Dependency:

supportcfcard

Return:

- OK - This means the operation is successful.

- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setcfrenable=1

This will turn on a CF-Card recording when a schedule becomes active.

7.3.6.26 delschedule

Description:

This command is used to delete all settings associated with a recording schedule when the parameter is equal to 1.

Syntax:

delschedule=[*1*]

Parameter:

The only parameter here, '***1***', means all the schedules will be erased.

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

7.3.6.27 schedule

Description:

This command is used to specify the content related to a schedule table with a specific format as depicted below.

Syntax:

schedule=[*FormatOfSchedule*]

Parameter:

0x00	0x01	0x02	0x03	0x04	0x05	0x06	0x07	0x08
Index		Status	Day		StartingHour		StartingMinute	
0x09	0x0A	0x0B	0x0C	0x0D	0x0E	0x0F	0x10	
StartingSecond		StopHour		StopMinute		StopSecond		

TAB 7-40

- Index

This field varies from 0 to 7.

- Status
  - 0 - Disable
  - 1 – Enable

For multi-channel video server, the TAB shows the channel status of each schedule.

Value	Channel 1	Channel 2	Channel 3	Channel 4
0x0	Disable	Disable	Disable	Disable
0x1	Enable	Disable	Disable	Disable
0x2	Disable	Enable	Disable	Disable
0x3	Enable	Enable	Disable	Disable
0x4	Disable	Disable	Enable	Disable
0x5	Enable	Disable	Enable	Disable
0x6	Disable	Enable	Enable	Disable
0x7	Enable	Enable	Enable	Disable
0x8	Disable	Disable	Disable	Enable
0x9	Enable	Disable	Disable	Enable
0xA	Disable	Enable	Disable	Enable
0xB	Enable	Enable	Disable	Enable
0xC	Disable	Disable	Enable	Enable

0xD	Enable	Disable	Enable	Enable
0xE	Disable	Enable	Enable	Enable
0xF	Enable	Enable	Enable	Enable

TAB 7-41

- Day
  - 0x01 Monday
  - 0x02 Tuesday
  - 0x03 Wednesday
  - 0x04 Thursday
  - 0x05 Friday
  - 0x06 Saturday
  - 0x07 Sunday
  - 0x08 Everyday
  - 0x09 Workdays
  - 0x0A Weekend
- StartingHour

This field is the starting hour from '**00**' to '**23**'.

- StartingMinute

This field is the starting minute from '**00**' to '**59**'.

- StartingSecond

This field is the starting second from '**00**' to '**59**'.

- StopHour

This field is the stopping hour from '**00**' to '**23**'.

- StopMinute

This field is the stopping minute from '**00**' to '**59**'.

- StopSecond

This field is the stopping second from '**00**' to '**59**'.

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

7.3.6.28 supportmotion

Description:

This command is used to determine whether the device supports the motion detection.

Syntax:

supportmotion

Parameter:

None

Return:

- OK - This means the operation is successful.
  - 0 - Unavailable
  - 1 - Single block mode
  - 2 - Multiple blocks mode
- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/vb.htm?supportmotion

This will return whether the motion detection service is available or not.

7.3.6.29 servicesmtpclient

Description:

This command is used to determine whether the device supports an SMTP service.

Syntax:

servicesmtpclient

Parameter:

None

Return:

- OK - This means the operation is successful.
  - 0 - Unavailable
  - 1 - Accessible
- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/vb.htm?servicesmtpclient

This will respond whether an SMTP service is available or not.

7.3.6.30 supportcfcard

Description:

This command is used to determine whether the device supports a CF-Card function.

Syntax:

supportcfcard

Parameter:

None

Return:

- OK - This means the operation is successful.
  - 0 - Unavailable
  - 1 - Accessible
- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/vb.htm?supportcfcard

This will return whether the function of a CF-Card is available or not.

7.3.6.31 supportsd

Description:

This command is used to determine whether the device supports an SD-Card function.

Syntax:

supportsd

Parameter:

None

Return:

- OK - This means the operation is successful.
  - 0 - Unavailable
  - 1 - Accessible
- UA - This means the privilege is insufficient.

Authority:

Viewer or greater

Example:

http://192.168.1.168/vb.htm?supportsd

This will return whether an SD-Card function is available or not.

7.3.6.32 setcfrecordtype

Description:

This command is used to specify the recording type related to a CF-Card when an alarm is triggered or a schedule is activated.

This setting will shift to '**MPEG4 AVI**' automatically when the codec of the device is changed from '**MJPEG**' to '**MPEG4**', and vice versa.

Remark:

Some devices do not support the function of a CF-Card; the function will be disabled alternatively when a wireless card is inserted in the device.

Syntax:

setcfrecordtype=[*TypeOfRecording*]

Parameter:

Index	Description
0	MJPEG snapshot
1	MJPEG AVI
2	MPEG4 AVI

TAB 7-42

Dependency:

supportcfcard

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setcfrecordtype=2

This will set the recording mode related to a CF-Card to '**MPEG4 AVI**'.

7.3.6.33 setsdrecordtype

Description:

This command will set the recording type related to an SD-Card when an alarm is triggered or a schedule is activated.

This setting will shift to '**MPEG4 AVI**' automatically when the codec of a device is changed from '**MJPEG**' to '**MPEG4**', and vice versa.

Remark:

Some devices do not support an SD-Card function.

Syntax:

setsdrecordtype=[*TypeOfRecording*]

Parameter:

Index	Description
0	MJPEG snapshot
1	MJPEG AVI
2	MPEG4 AVI

TAB 7-43

Dependency:

supportsd

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setsdrecordtype=2

This will set the recording mode related to an SD-Card to '**MPEG4 AVI**'.

7.3.6.34 aviprealarm

Description:

This command is used to switch the pre-alarm function when the AVI recording is performed; the period of the pre-alarm is 1 second. The default setting is disabled.

Syntax:

aviprealarm=[*0/1*]

Parameter:

- 0 - Disable
- 1 - Enable

The status of this pre-alarm function will be returned if the parameter is absent.

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?aviprealarm=1

This will activate the pre-alarm function when the AVI recording is performed.

7.3.6.35 setgiooutttype

Description:

This command is used to determine the GIO (General Input/Output) output level when an alarm outputs. The default setting is '**Low**'.

Syntax:

setgiooutttype=[*0*/*1*]

Parameter:

- 0 – Low
- 1 – High

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setgiooutttype=1

This will set the GIO output type to '**High**'.

7.3.6.36 setgiointype

Description:

This command is used to determine the type of GIO (General Input/Output) input level. The default setting is '**Low**'.

Syntax:

setgiointype=[*0*/*1*]

Parameter:

- 0 – Low
- 1 – High

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setgiointype=1

This will set the GIO input type to '**High**'.

7.3.6.37 smtpuser

Description:

This command is used to specify the user name who sent an e-mail when an alarm is triggered, and it is active only when the status related to an SMTP session, '*asmtpenable*', is enabled.

Remark:

An SMTP session activates only when the machine is in the '**MJPEG**' mode; it is disabled in the '**MPEG4**' mode.

Syntax:

smtpuser=[*SMTPUserName*]

Parameter:

The string, '*SMTPUserName*', is a C-Style string, and its maximum length is described in Chapter 12.3.6.59.

Dependency:

servicesmtpclient

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?smtpuser=username

This will set the user account of an e-mail to '**username**'.

7.3.7 Storage

7.3.7.1 cfformat

Description:

This command is used to format a CF-Card inserted into the device. The device will re-mount its file-system after 10 seconds when the operation is complete.

The CF-Card formatting procedure has to meet all the following conditions.

- The CF-Card is inserted.
- The CF-Card is not read-only.
- The CF-Card is not in the procedure of formatting.
- The CF-Card is not in the procedure of recording.

Remark:

All data in a CF-Card will be erased permanently when a command is performed even if the command has failed.

Syntax:

cfformat=[*1*]

Parameter:

The only parameter here, '*1*', means a CF-Card formatting will be performed.

Dependency:

supportcfcard

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?cfformat=1

The CF-Card inserted in the device will be formatted.

7.3.7.2 sdformat

Description:

This command is used to format an SD-Card inserted into the device. The device will re-mount its file-system after 10 seconds when the operation is complete.

The SD-Card formatting procedure has to meet all the following conditions.

- An SD-Card is inserted.
- The SD-Card is not read-only.
- The SD-Card is not in the procedure of formatting.
- The SD-Card is not in the procedure of recording.

Remark:

All data in an SD-Card will be erased permanently when a command is performed even if the command has failed.

Syntax:

sdformat=[*1*]

Parameter:

The only parameter here, '***1***', means an SD-Card formatting will be executed.

Dependency:

supportsd

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.

- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?sdformat=1

The SD-Card inserted in the device will be formatted.

7.3.7.3 setupnpcardread

Description:

This command is used to share the files of the memory card when an UPnP media player accesses the device. The default setting is disabled.

Syntax:

setupnpcardread=[*0*/*1*]

Parameter:

- 0 - Disable
- 1 - Enable

Dependency:

serviceupnpdevice

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setupnpcardread=1

The device will share all the files on the memory card when an UPnP media player accesses it.

7.3.7.4 cardrewrite

Description:

This command is used to determine the re-write function when the capacity of the memory card on the device is running out. The default setting is disabled.

Syntax:

cardrewrite=[*0*/*1*]

Parameter:

- 0 - Disable
- 1 - Enable

Dependency:

None

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- NS - The device does not provide this function.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?cardrewrite=1

The device will perform the re-write function automatically when the memory card on the device is full.

7.3.8 Miscellaneous

7.3.8.1 language

Description:

This command is used to tell the device which application submitted this command; the device can return different data according to this setting.

Syntax:

language=[*NameOfApplication*]

Parameter:

The string, '*NameOfApplication*', is a customized C-Style string for your application to recognize such as IE and vb.

Return:

- OK - This means the operation is successful.

Authority:

Guest or greater

Example:

http://192.168.1.168/vb.htm?language=vb

This will tell the application that it is invoked by a '**VB**' client.

7.3.8.2 setlayoutnum

Description:

This command is used to specify a user-defined variable. There are 10 user-defined variables available, the index and variable being separated by a colon in the device for the application to exploit; all the variables will be stored in the flash memory. The result can be retrieved by the parameter, '*<%layoutnum%.number%>*'.

Syntax:

setlayoutnum=[*Index*]:[*Variable*]

Parameter:

Index: This field ranges from 0 to 9.

Variable: This field is a 32-bit integer in decimal format.

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setlayoutnum=0:1

This will set the '**first**' user-defined variable to '**1**'.

7.3.8.3 setlayoutstr

Description:

This command is used to specify a user-defined string. There are 10 user-defined strings available, the index and string being separated by a colon in the device for the application to exploit; all the strings will be stored in the flash memory. The result can be retrieved by the parameter, '*<%layoutstr%.number%>*'.

Syntax:

setlayoutstr=[*Index*]:[*String*]

Parameter:

Index: This field ranges from 0 to 9.

String: This field is a C-Style string with a capacity of 10 characters.

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setlayoutstr=0:mystr

This will set the '**first**' user-defined string to '**mystr**'.

7.3.8.4 setlayouturl

Description:

This command is used to specify a user-defined URL. There are 10 user-defined URLs available, the index and URL being separated by a colon in the device for the application to exploit; all the URLs will be stored in the flash memory. The result can be retrieved by the parameter, '*<%layouturl%.number%>*'.

Syntax:

setlayouturl=[*Index*]:[*Url*]

Parameter:

Index: This field ranges from 0 to 4.

Url: This field is a C-Style string with a capacity of 50 characters.

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?setlayouturl=0:myurl

This will set the '**first**' user-defined URL to '**myurl**'.

7.3.9 Day and Night Control

7.3.9.1 dncontrold2n

Description:

This command is used to determine the transformation duration from day (light) to night (dark) environment; the unit is second.

Syntax:

dncontrold2n=[*DurationInSecond*]

Parameter:

The value, '*DurationInSecond*', is the transformation duration of the device to turn to night mode; the unit is second. The maximum number is referred to Chapter 12.3.9.2, and the minimum number is referred to Chapter 12.3.9.3.

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?dncontrold2n=20

This will set the device to take 20 seconds to turn to night mode.

7.3.9.2 dncontroln2d

Description:

This command is used to determine the transformation duration from night (dark) to day (light) environment; the unit is second.

Syntax:

dncontroln2d=[*DurationInSecond*]

Parameter:

The value, '*DurationInSecond*', is the transformation duration of the device to turn to day mode; the unit is second. The maximum number is referred to Chapter 12.3.9.5, and the minimum number is referred to Chapter 12.3.9.6.

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?dncontroln2d=30

This will set the device to take 30 seconds to turn to day mode.

7.3.9.3 dncontrolmode

Description:

This command is used to determine the device how to perform the day/night switch.

Syntax:

dncontrolmode=[*DNMode*]

Parameter:

Mode	Description
0	Auto mode
1	Day mode
2	Night mode
3	Schedule mode

TAB 7-46

Return:

- OK - This means the operation is successful.

- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?dncontrolmode=1

This will set the device to '**day mode**' manually.

7.3.9.4 dncontrolsensitivity

Description:

This command is used to specify the sensitivity associated with day/night switch.

Syntax:

dncontrolsensitivity=[*IndexOfSensitivity*]

Parameter:

Value	Description
0	Lowest (the less sensitive)
1	Low
2	Medium
3	High
4	Highest (the most sensitive)

TAB 7-47

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?dncontrolsensitivity=0

This will set the level of day/night switch to the less sensitive.

7.3.9.5 dncontrolschedule

Description:

This command is used to specify manually the schedule associated with day/night switch. This setting is only valid when the day/night mode mentioned in Chapter 7.3.9.3 is set to '**schedule mode**'.

Syntax:

dncontrolschedule=[*DNSchedule*]

Parameter:

The string, '*DNSchedule*', is a six-digital hexadecimal number ranged from '**0**' to '**F**'. Every character has four bits; therefore, and six characters have totally 24 bits which means 24 hours independently, and every single bit indicates an hour. The bit of '**0**' means night mode while '**1**' means day mode. The string should be explained from LSB (Least Significant Bit) to MSB (Most Significant Bit).

For example, the six-digital hexadecimal string '**07FFC0**' can be transformed to '**0000-0111-1111-1111-1100-0000**' in binary mode. The first bit denotes the duration from 00:00.00 to 00:59.59 in the morning while the last bit (24^{th}) denotes he last hour of a day, from 23:00.00 to 23:59.59. This setting means the day mode will be enabled from 06:00 to 18:59.

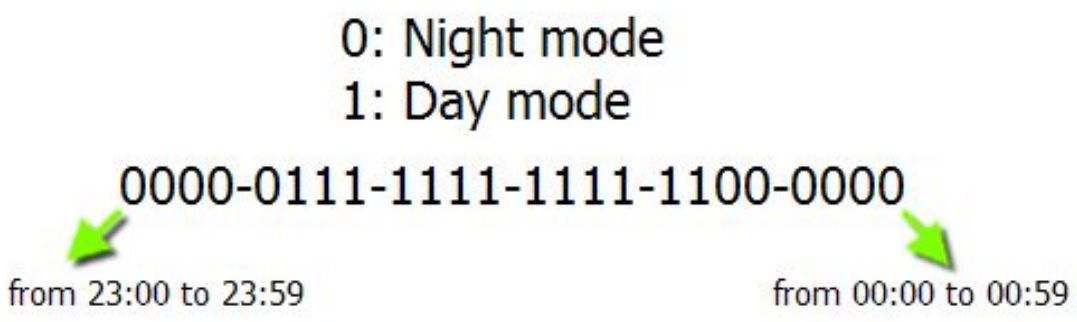

FIG 7-48

Return:

- OK - This means the operation is successful.
- NG - This means the original parameter is incorrect or this command is disallowed in the current state.
- UA - This means the privilege is insufficient.

Authority:

Operator or Administrator

Example:

http://192.168.1.168/vb.htm?dncontrolschedule=07FFC0

This will enable the day mode from 06:00 to 18:59.

8. Viewer Control ActiveX

8.1 Introduction

The VCA is an ActiveX component, and its principal purpose is to exercise the multi-media streams from the network devices.

The main features associated with the VCA are to receive and play the audio/video streams from a device, and record them if necessary. Another feature is to get or set the configurations from/to a device, and wrap the HTTP API into the methods '**GET**' and '**SET**' which the application can use to control the device throughout.

The VCA supports the following features:

- She plays a live multi-media stream (the audio included) from a network device.
- She saves a fragment of a stream or the whole from a network device.
- She sets up the motion detection.
- She sets up the mask area configuration.

8.2 How to use

The VCA is an ActiveX component; you can utilize it easily in your IDE, for example the VC, VB, Visual Studio 2003 or Visual Studio 2005.

In Visual Studio 2005, you can add '***ViewerCtrlAx.dll*** to the Toolbox, and then you just drag it into your application.

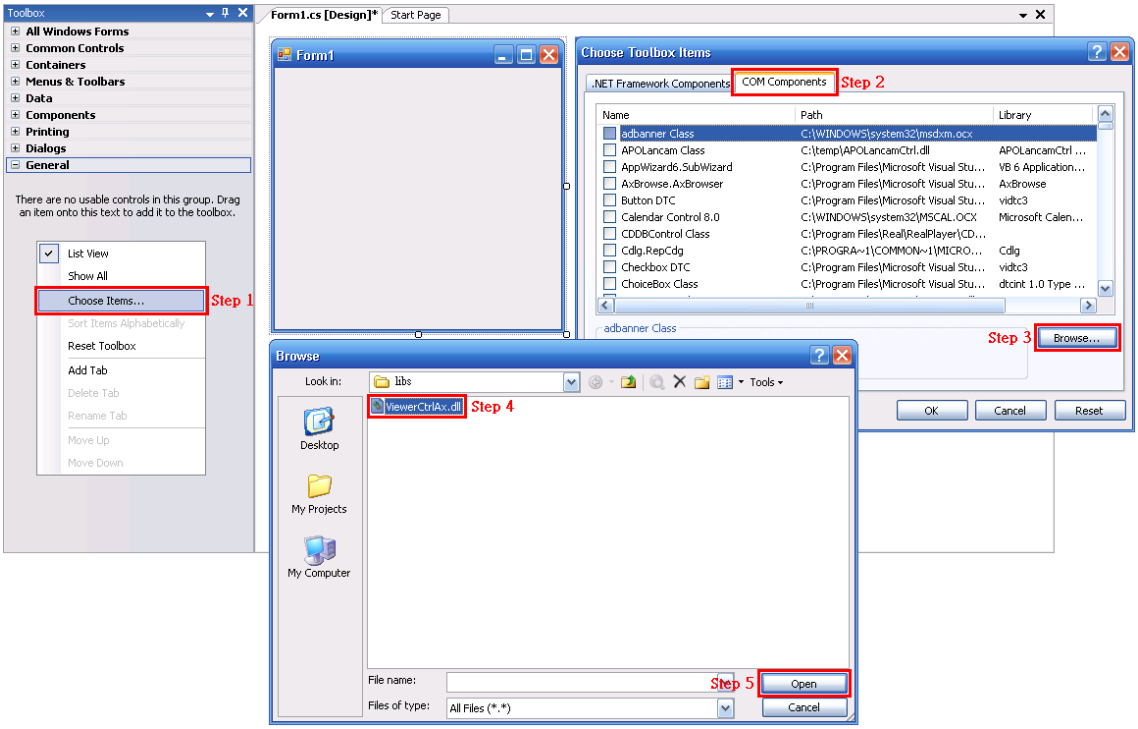

FIG 8-1

Click the right mouse button on the '**Toolbox**', and select the '**Choose Items...**' Choose the '**COM components**'; click this button, '**Browse...**' and open the '**ViewerCtrlAx.dll**'. The '**ViewerCtrlActiveX Class**' will appear in the '**Toolbox**'.

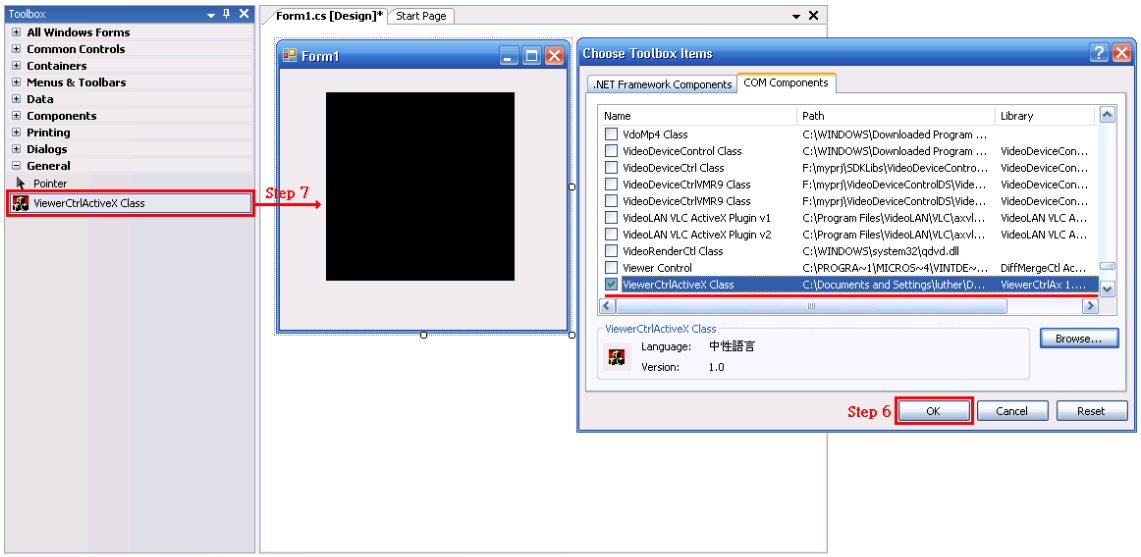

FIG 8-2

Warning: Only some languages, for example, the MFC, can represent the properties of the VCA automatically in the form of '**methods**' by adding '**Get**' or '**Set**' in front of their names. Not all languages can make this transformation.

8.3 How to play

The first step is to designate an explicit multi-media stream URL before starting the VCA.

Example:

```
// to get the multi-media stream with audio from the device
// whose IP address is 192.168.1.168
// add the following codes to the button click event.
m_VCA.MediaUsername = "admin";
m_VCA.MediaPassword = "9999";
m_VCA.LiveURL = "http://192.168.1.168/";
m_VCA.UIMode = 0x10000000;
m_VCA.Start(0);
m_VCA.StartReceiver();
m_VCA.ViewStart();
```

Notice: The VCA spontaneously distinguishes between the three types of multi-media stream, namely, the MJPEG, MPEG4 and H264.

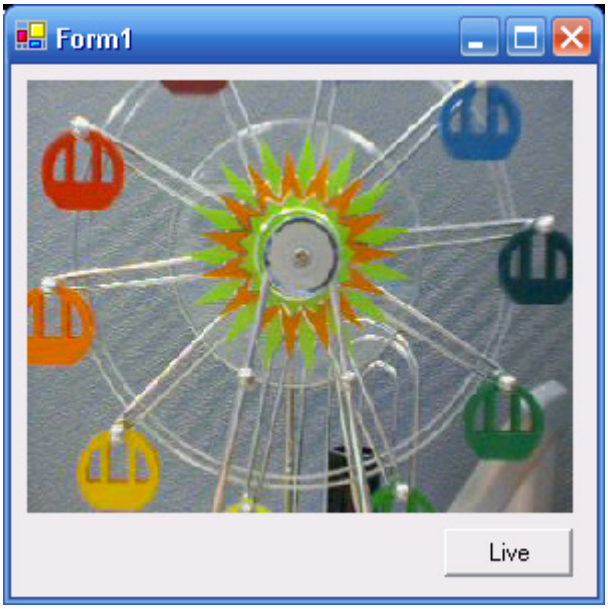

FIG 8-3

8.4 How to record

The application can save a multi-media stream into a specified file when the VCA is activated, the file format being an AVI (Audio Video Interleave) format which can be played back by the familiar Microsoft® Media Player with an appropriate decoder.

Notice: An appropriate decoder ought to be pre-installed before you play the AVI file your device recorded, the well-known '**K-Lite Mega Codec Pack**' for example. You can download the codec freely from the website, http://www.free-codecs.com/

Example:

```
// to specify the VCA the filename, and start recording.
m_VCA.MediaUsername = "admin";
m_VCA.MediaPassword = "9999";
m_VCA.LiveURL = "http://192.168.1.168/";
m_VCA.Start(0);
if (m_VCA.StartReceive() == 1)
{
  m_VCA.RecordAviStart("c:\\video\\back01.avi");
  // to record 60 second.
  Sleep(60*1000);
  // to stop record.
  m_VCA.RecordAviStop();
}
else
{
  //error exception
}
m_VCA.StopReceive();
m_VCA.Stop();
```

9. VCA API Reference

9.1 Overview of Members

9.1.1 Properties

- LiveURL

The 'Uniform Resource Location' now supports the combination of IP address and port number. For example: http://192.168.1.168/ or http://192.168.1.168:8080/, in this case, the VCA component will auto-connect the destination. And this component will also determine the multi-media stream format which it connects.

- UIMode

This concerns the UI mode of the VCA.

- Version

This concerns the version of the VCA.

- MediaUsername

This concerns the account to access or retrieve the multi-media stream of a device.

- MediaPassword

This concerns the password to access or retrieve the multi-media stream of a device.

- NetworkTimeout

This concerns the quantity in millisecond to wait the network acknowledge before it times out.

- CHID

This concerns the channel ID to access or retrieve the multi-media stream of a device.

- Decoder

This concerns the specified decoder that you want to use in your software.

9.1.2 Methods

- Start

This method initiates VCA component and loads its setting value.

- StartReceiver

This method will start to receive a multi-media stream but does not performance any decode in this component. That is why we separate the two components because it can lower down the CPU loading if only recording-base connections (not live view) are necessary.

- ViewStart

This method starts to decode and display the multi-media data to the screen.

- Stop

This method stops VCA component. It is a paired method with the Start method mentioned above.

- StopReceiver

This method stops receiving component. It is a paired method with the StartReceviewer method mentioned above.

- ViewStop

This method stops decoder and display components. It is a paired method with the ViewStart method mentioned above.

- RecordAVIStart

This method starts recording a multi-media stream to a specified file.

- RecordAVIStop

This method stops recording a multi-media stream.

- DeviceAPIEasyGet

This method is used to retrieve the configuration related to the API mentioned in Chapter 7, and transfer the HTTP message to result.

- DeviceAPIEasySet

This method is used to set the configuration related to the API mentioned in Chapter 7, and transfer the HTTP message to result.

- GetCurrentImage

This method fetches a bitmap image from the VCA.

GetLastErrorCode

This method returns the last error code.

9.1.3 Events

- OnDoubleClick

The '**OnDoubleClick'** event indicates that the local user has double-clicked the VCA component.

- OnMouseDown

The '**OnMouseDown**' event handler handles an event that occurs when the user clicks a mouse button.

- OnMouseMove

The '**OnMouseMove**' event handler handles an event that occurs when the user moves the mouse cursor over the VCA component.

- OnMouseUp

The '**OnMouseUp**' event handler handles an event that occurs when the user releases a mouse button while the pointer is over the VCA component.

- OnMouseEnter

The '**OnMouseEnter**' event handler handles an event that occurs when the cursor move into the VCA component.

- OnMouseLeave

The '**OnMouseLeave**' event handler handles an event that occurs when the cursor move out of the VCA component.

- OnStatusChange

The '**OnStatusChange**' event handler handles an event that occurs when the status of the VCA component was be changed.

9.2 Descriptions of Members

9.2.1 Properties

9.2.1.1 LiveURL

Description:

The '**Uniform Resource Location**' now supports the combination of IP address and port number. For example: http://192.168.1.168/ or http://192.168.1.168:8080/, in this case, the VCA component will auto-connect the destination. And this component will also determine the multi-media stream format which it connects.

Syntax:

LiveURL [=string]

Value Type:

String

Remark:

A string specifies the URL where a multi-media stream can be accessed.

Example:

```
m_VCA.LiveURL = "http://192.168.1.168/";
m_VCA.MediaUsername = "admin";
m_VCA.MediaPassword = "9999";
m_VCA.NetworkTimeout = 30000; //30 seconds.
m_VCA.UIMode = 0x10000000;
//is preffer to play audio?
if (mIsPlayAudio)
{
  m_VCA.IsPlaySound = 1;
  m_VCA.IsPlayAudioForStart = 1;
}
//is only play I-Frame?
m_VCA.OnlyIFrame = (mIsOnlyIFrame) ? 1 : 0;
```

```
m_VCA.Start(0);
if( m_VCA.StartReceiver() == 1)
{
  m_VCA.ViewStart();
}
else
{
  // error exception
}
```

9.2.1.2 UIMode

Description:

This property switches the user interface (UI) mode of the VCA.

Syntax:

UIMode [= long]

Value Type:

A long integer

Remark:

0x10000000: Normal mode (the default).

0x10000003: Motion mode.

0x10000005: Mask area mode.

Example:

```
// to start a motion mode of the VCA.
m_VCA.LiveURL = "http://192.168.1.168/";
m_VCA.MediaUsername = "admin";
m_VCA.MediaPassword = "9999";
m_VCA.UIMode = 0x10000003;
m_VCA.Start(0);
if( m_VCA.StartReceiver() == 1)
{
  m_VCA.ViewStart();
}
else
{
  // error exception
}
```

9.2.1.3 Version

Description:

This property is the version string related to the VCA component.

Syntax:

Version

Value Type:

String

Remark:

This property is read-only.

Example:

None

9.2.1.4 MediaUsername

Description:

This property concerns the account to access or retrieve the multi-media stream of a device.

Syntax:

MediaUsername [= string]

Value Type:

String

Example:

Please refer to the example in Chapter 9.2.1.1.

9.2.1.5 MediaPassword

Description:

This property concerns the password to access or retrieve the multi-media stream of a device.

Syntax:

MediaPassword [= string]

Value Type:

String

Example:

Please refer to the example in Chapter 9.2.1.1.

9.2.1.6 NetworkTimeout

Description:

This property concerns the quantity in millisecond to wait the network acknowledge before the socket times out. The default setting is 10,000 mini-seconds.

Syntax:

NetworkTimeout [= long]

Value Type:

A long integer

Example:

Please refer to the example in Chapter 9.2.1.1.

9.2.1.7 CHID

Description:

This property concerns the channel ID of the device, which will be accessed by the VCA.

Syntax:

CHID [= long]

Value Type:

A long integer

Example:

```
// to get multi-media stream from the multi channel device.
m_VCA.LiveURL = "http://192.168.1.168/";
m_VCA.MediaUsername = "admin";
m_VCA.MediaPassword = "9999";
m_VCA.NetworkTimeout = 30000; //30 seconds.
m_VCA.UIMode = 0x10000000;
m_VCA.CHID = 2; // which channel want to display?
m_VCA.Start(0);
if( m_VCA.StartReceiver() == 1)
{
  m_VCA.ViewStart();
}
else
{
  // error exception
}
```

9.2.1.8 Decoder

Description:

This field is related to the decoder that DirectShow will call.

Syntax:

Decoder [= string]

Value Type:

String

Example:

```
// use to ffdshow decorder
m_VCA.Decoder = "{04FE9017-F873-410E-871E-AB91661A4EF7}";
```

Notice:

Please register this component before this component is performed and click the '***register.bat***' in the SDKLibs\ffshow folder. Please select the '***ffdshow***' option to your codecs in your programs.

9.2.1.9 IsDrawIcon

Description:

This property returns whether the VDC component's icon displays or hides.

Warning: This property is not supported from SDK 0.6 or above.

Syntax:

IsDrawIcon [= long]

Value Type:

A long integer

Remark:

0: Hide the icons.

1: Display the icons

- 0

  The icons are invisible.

- 1

  The icons are visible.

Example:

Not available.

9.2.1.10 IsZoomEnable

Description:

This property returns the status of concerns the zoom in/out functionality.

Warning: This property is not supported from SDK 0.6 or above.

Syntax:

IsZoomEnable [= long]

Value Type:

A long integer

Remark:

- 1

  The zoom in/out function is disabled.

- 2

  The zoom in/out function is enabled.

Example:

Not available.

9.2.2 Methods

9.2.2.1 Start

Description:

This method initiates VCA component and loads its setting value.

Syntax:

HRESULT Start(/*in*/LONG ctrlFlags);

Parameter:

The parameter 'ctrlFlags' is related to the bit fields of the connection functionalities.

- Bit 0: To determine receiving events is active. The value '***0***' means disabled and '***1***' means enabled.
- Bit 1: To determine checking connection is active.

Return:

- S_OK

  This means the operation is successful.

- E_FAIL

  This indicates the operation has failed.

Example:

```
//play multi-media stream from the device whose IP address is 192.168.1.168
m_VCA.LiveURL = "http://192.168.1.168/";
m_VCA.MediaUsername = "admin";
m_VCA.MediaPassword = "9999";
m_VCA.Start(0);
if( m_VCA.StartReceiver() == 1)
{
  m_VCA.ViewStart();
}
else
{
  // error exception
}
```

9.2.2.2 StartReceiver

Description:

This method will start to receive a multi-media stream but does not performance any decode in this component. That is why we separate the two components because it can lower down the CPU loading if only recording-base connections (not live view) are necessary.

Syntax:

HRESULT StartReceiver(/* out */ LONG result);

Parameter:

The parameter '***result*** will be retuned when this function is executed. 0: fail, 1: success.

Return:

- S_OK

  This means the operation is successful.

- E_FAIL

  This indicates the operation has failed.

Example:

Please refer to the example in Chapter 9.2.2.1.

9.2.2.3 ViewStart

Description:

This method starts to decode and display the multi-media data to the screen.

Syntax:

HRESULT ViewStart(void);

Parameter:

None

Return:

- S_OK

  This means the operation is successful.

- E_FAIL

  This indicates the operation has failed.

Example:

Please refer to the example in Chapter 9.2.2.1.

9.2.2.4 Stop

Description:

This method stops VCA component. It is a paired method with the Start method mentioned above.

Syntax:

HRESULT Stop(void);

Parameter:

None

Return:

- S_OK

  This means the operation is successful.

- E_FAIL

  This indicates the operation has failed.

Example:

```
bool isReceivering= false;

void Start_VCA()
{
  m_VCA.LiveURL = "http://192.168.1.168/";
  m_VCA.MediaUsername = "admin";
  m_VCA.MediaPassword = "9999";
  m_VCA.Start(0);
  if( m_VCA.StartReceiver() == 1)
  {
    m_VCA.ViewStart();
    isReceivering = true;
  }
}

void Stop_VCA()
{
  if(isReceivering)
  {
```

```
    m_VCA.ViewStop();
    m_VCA.StopReceiver();
  }
  m_VCA.Stop();
}
```

9.2.2.5 StopReceiver

Description:

This method stops receiving component. It is a paired method with the StartReceviewer method mentioned above.

Syntax:

HRESULT StopReceiver(void);

Parameter:

None

Return:

- S_OK

  This means the operation is successful.

- E_FAIL

  This indicates the operation has failed.

Example:

```
bool isReceivering= false;

void Start_VCA()
{
  m_VCA.LiveURL = "http://192.168.1.168/";
  m_VCA.MediaUsername = "admin";
  m_VCA.MediaPassword = "9999";
  m_VCA.Start(0);
  if( m_VCA.StartReceiver() == 1)
  {
    m_VCA.ViewStart();
    isReceivering = true;
  }
}

void Stop_VCA()
{
  if(isReceivering)
  {
```

```
    m_VCA.ViewStop();
    m_VCA.StopReceiver();
  }
  m_VCA.Stop();
}
```

9.2.2.6 ViewStop

Description:

This method stops decoder and display components. It is a paired method with the ViewStart method mentioned above.

Syntax:

HRESULT ViewStop(void);

Parameter:

None

Return:

- S_OK

  This means the operation is successful.

- E_FAIL

  This indicates the operation has failed.

Example:

```
bool isReceivering= false;

void Start_VCA()
{
 m_VCA.LiveURL = "http://192.168.1.168/";
 m_VCA.MediaUsername = "admin";
 m_VCA.MediaPassword = "9999";
 m_VCA.Start(0);
 if( m_VCA.StartReceiver() == 1)
 {
  m_VCA.ViewStart();
  isReceivering = true;
 }
}

void Stop_VCA()
{
 if(isReceivering)
 {
```

```
    m_VCA.ViewStop();
    m_VCA.StopReceiver();
  }
  m_VCA.Stop();
}
```

9.2.2.7 RecordAviStart

Description:

This method starts recording a multi-media stream to a specified file.

Syntax:

HRESULT RecordStart(BSTR Filename);

Parameter:

Filename: the full pathname where a multi-media stream will be saved. If the complete pathname is missing, a window will pop up to input the pathname.

Return:

- S_OK

  This means the operation is successful.

- E_FAIL

  This indicates the operation has failed.

Example:

```
// to save multi-media stream to c:\video\rec01.avi.
m_VCA.RecordAviStart("c:\\video\\rec01.avi");
```

9.2.2.8 RecordAviStop

Description:

This method stops recording a multi-media stream.

Syntax:

HRESULT RecordStop(void);

Parameter:

None

Return:

- S_OK

  This means the operation is successful.

- E_FAIL

  This indicates the operation has failed.

Example:

```
m_VCA.RecordStop();
```

9.2.2.9 DeviceAPIEasyGet

Description:

This method is used to retrieve the configuration related to the API mentioned in Chapter 7, and transfer the HTTP message to the target, '**result**'.

Syntax:

HRESULT DeviceAPIEasyGet(/*in*/BSTR APIName, /*out*/BSTR* APIValue);

Parameter:

- APIName

  This parameter is the keyword related to the API such as 'getformat' mention in Chapter 7.3.1.38.

- APIValue

  This parameter is associated with the return of the API command.

Remark:

Please refer the corresponding authority associated the API command.

Return:

- S_OK

  This means the operation is successful.

- E_FAIL

  This indicates the operation has failed.

Example:

```
using System;
using AxVIEWERCTRLAXLib;

namespace SDKAPITest
{
  /// <summary>
  /// Summary description for Class1.
  /// </summary>
  class Class1
  {
    /// <summary>
    /// The main entry point for the application.
    /// </summary>
    [STAThread]
    static void Main(string[] args)
    {
      AxViewerCtrlActiveX m_VCA = new AxViewerCtrlActiveX();
```

```
        m_VCA.MediaUsername = "admin";
        m_VCA.MediaPassword = "9999";
        m_VCA.LiveURL = "http://192.168.1.168/";
        String apiValue;
        String apiName = "getformat";
        apiValue = m_VCA.DeviceAPIEasyGet(apiName);

        if (apiValue != null && apiValue.Length > 0)
        {
          System.Console.WriteLine("The "+apiName+" is "+apiValue);
        }
        else
        {
          System.Console.WriteLine("Error: the return code is "+m_VCA.GetLastErrorCode());
        }
      }
    }
}
```

9.2.2.10 DeviceAPIEasySet

Description:

This method is used to set the configuration related to the API mentioned in Chapter 7, and transfer the HTTP message to the target, '**result**'.

Syntax:

HRESULT DeviceAPIEasySet(/*in*/BSTR APIName, /*in*/BSTR APIValue, /*out*/BSTR* result);

Parameter:

- APIName

  This parameter is the keyword related to the API such as 'brightness' mention in Chapter 7.3.1.3.

- APIValue

  This parameter is passed to the API command.

- Result

  This parameter is the responding HTTP message listed in TAB 4-7.

Remark:

Please refer the corresponding authority associated the API command.

Return:

- S_OK

  This means the operation is successful.

- E_FAIL

  This indicates the operation has failed.

Example:

```
using System;
using AxVIEWERCTRLAXLib;

namespace SDKAPITest
{
   /// <summary>
   /// Summary description for Class1.
   /// </summary>
   class Class1
   {
      /// <summary>
      /// The main entry point for the application.
```

```
        /// </summary>
        [STAThread]
        static void Main(string[] args)
        {
          AxViewerCtrlActiveX m_VCA = new AxViewerCtrlActiveX();
          m_VCA.MediaUsername = "admin";
          m_VCA.MediaPassword = "9999";
          m_VCA.LiveURL = "http://192.168.1.168/";

          String code;
          String apiValue = "160";
          String apiName = "brightness";
          m_VCA.DeviceAPIEasySet(apiName,apiValue,out code);
          if ("OK".Equals(code))
          {
            System.Console.WriteLine("Success to set "+apiName+" value to "+apiValue);
          }
          else
          {
            System.Console.WriteLine("Error: the return code is "+code);
          }
        }
    }
}
```

9.2.2.11 GetCurrentImage

Description:

This method is to get the corresponding data of the image currently being displayed.

Syntax:

HRESULT GetCurrentImage(VARIANT* theBuffer);

Parameter:

- theBuffer

  This parameter stands for the buffer where the image data is returned.

Remark:

The image data buffer is returned as a byte array in bitmap format. You can save it as a file directly, and it can be decoded and displayed by Windows application.

Return:

- S_OK

  This means the operation is successful.

- E_FAIL

  This indicates the operation has failed.

Example:

```
// save the snapshot to a bitmap file.
byte[] imgData = (byte[]) m_VCA.GetCurrentImage();
if (imgData != null)
{
System.IO.FileStream fs =
  new System.IO.FileStream(@"c:\temp\VCATest.bmp",System.IO.FileMode.Create);
  fs.Write(imgData,0,imgData.Length);
  fs.Close();
}
```

9.2.2.12 GetLastErrorCode

Description:

This method is to get the last error code of the VCA component.

Syntax:

HRESULT GetLastErrorCode ((/*out*/LONG* errorcode);

Parameter:

- errorcode

  This parameter stands for the last error code of the VCA component.

Remark:

- 200

  The HTTP API returns “**OK**”.

- 205

  The HTTP API returns “**NG**”.

- 210

  The HTTP API returns “**NS**”.

- 215

  The HTTP API returns “**UW**”.

- 220

  The HTTP API returns “**UA**”.

- 330

  This is an unknown error.

Return:

- S_OK

  This means the operation is successful.

- E_FAIL

  This indicates the operation has failed.

Example:

```
int ec = m_VCA.GetLastErrorCode(); //Note: “int” in c# is 4 bytes.
```

9.2.3 Events

9.2.3.1 OnDoubleClick

Description:

The OnDoubleClick method indicates that the local user has double-clicked the VCA component.

Syntax:

OnDoubleClick (long X, long Y, long Button, long ControlKey);

Parameter:

- X

This parameter is the horizontal position of the mouse cursor.

- Y

This parameter is the vertical position of the mouse cursor.

- Button

This parameter is the triggered mouse key.

code	key
0x01	left
0x02	right
0x10	middle

TAB 9-1

- ControlKey

This parameter is the keyboard status when an event occurs.

code	key
0x00	none
0x01	ctrl key
0x02	left ctrl key pressed
0x04	shift key
0x08	left shift key pressed
0x10	alt key

0x20	left alt key pressed

TAB 9-2

Return:

None

9.2.3.2 OnMouseDown

Description:

The OnMouseDown event handler handles an event that occurs when the user clicks a mouse button.

Syntax:

OnMouseDown (long X, long Y, long Button, long ControlKey);

Parameter:

- X

  This parameter is the horizontal position of the mouse cursor.

- Y

  This parameter is the vertical position of the mouse cursor.

- Button

  This parameter is the triggered mouse key. Please refer to TAB 9-1.

- ControlKey

  This parameter is the keyboard status when an event occurs. Please refer to TAB 9-2.

Return:

None

9.2.3.3 OnMouseMove

Description:

The OnMouseMove event handler handles an event that occurs when the user moves the mouse cursor while it is over the VCA component.

Syntax:

OnMouseMove (long X, long Y, long Button, long ControlKey);

Parameter:

- X

  This parameter is the horizontal position of the mouse cursor.

- Y

  This parameter is the vertical position of the mouse cursor.

- Button

  This parameter is the triggered mouse key. Please refer to TAB 9-1

- ControlKey

  This parameter is the keyboard status when an event occurs. Please refer to TAB 9-2.

Return:

None

9.2.3.4 OnMouseUp

Description:

The OnMouseUp event handler handles an event that occurs when the user release a mouse button while the pointer is over the VCA component.

Syntax:

OnMouseUp (long X, long Y, long Button, long ControlKey);

Parameter:

- X

  This parameter is the horizontal position of the mouse cursor.

- Y

  This parameter is the vertical position of the mouse cursor.

- Button

  This parameter is the triggered mouse key. Please refer to TAB 9-1

- ControlKey

  This parameter is the keyboard status when an event occurs. Please refer to TAB 9-2.

Return:

None

9.2.3.5 OnMouseEnter

Description:

The OnMouseEnter event handler handles an event that occurs when the user moves the mouse cursor into the VCA component.

Syntax:

OnMouseEnter (long Button, long ControlKey);

Parameter:

- Button

  This parameter is the triggered mouse key. Please refer to TAB 9-1

- ControlKey

  This parameter is the keyboard status when an event occurs. Please refer to TAB 9-2.

Return:

None

9.2.3.6 OnMouseLeave

Description:

The OnMouseLeave event handler handles an event that occurs when the user moves the mouse cursor to leave the VCA component.

Syntax:

OnMouseLeave (long Button, long ControlKey);

Parameter:

- Button

  This parameter is the triggered mouse key. Please refer to TAB 9-1

- ControlKey

  This parameter is the keyboard status when an event occurs. Please refer to TAB 9-2.

Return:

None

9.2.3.7 OnStatusChange

Description:

The OnStatusChange event handler processes an event that occurs when the VCA component's status is changed.

Syntax:

OnStatusChange (long statusCode);

Parameter:

- statusCode

The TAB 9-3 shows the descriptions of the status code.

code	Status
0x0004	An alarm input is triggered.
0x0008	Motion is detected.

TAB 9-3

Return:

None

10. Advance Network Message

10.1 Introduction

An application needs to know whether an alarm has appeared in the device, and the IP Camera provides various methods to release the message as follows.

- Access an MJPEG picture and parse its header that contains a flag to disclose the message.
- Access the MJPEG multi-media stream and analyzes its corresponding tags.
- Access the MPEG4 multi-media stream and examine its corresponding tags.
- Monitor the GIO output.
- Access the event log WebPages and parse its context.

But the application has to do lots of effort to poll periodically and actively the status related to the alarm; this costs lots of bandwidth but the message is still not real-time. In other words, it is difficult for an application to receive an immediate message even if it wastes lots of time and bandwidth.

Now the IP Camera provides a proposal to resolve this problem, and that is the Advance News Notification Protocol (hereinafter referred to as **ANNP**) mentioned below.

10.2 ANNP

10.2.1 Introduction of ANNP

The objective of the **ANNP** is to deliver the instantaneous notification reliably and efficiently to the client software.

First, the ANNP will bind a well-known UDP port (8995) and the client has to subscribe to a server with the account and the password. When the registration is okay, once an event occurs in the device, the server will send a message to the client through the UDP socket automatically.

The term of the subscription is an hour, and the server will deliver an '**EXPIRING**' packet to the client when '**75%**' of this time period elapses. The client must re-issue the subscription again within an hour.

An important feature of the ANNP is its capability to simulate the TCP ACK mechanism, and re-send its last previous packet three times when the expected ACK packet is not received.

10.2.2 ANNP Packet Format

This chapter will describe the ANNP UDP packet in particular. The packet size is 0x220 bytes, and all data follow the '**little endian**' rule. Each of the fields in TAB 10-1 is described as follows.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
MAGIC NUMBER		TYPE		PORT		DEVICE CODE		SERIAL NUMBER				EVENT CODE			
10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ARGUMENT				RESERVED				YEAR		MON	DAY	HR	MIN	SEC	TZ
20 to 21F															
MESSAGES															

TAB 10-1

- **MAGIC NUMBER**

The magic number is **0xAA55**, and any ANNP packet without it will be ignored.

- **TYPE**

The field represents the class of the packet.

- **DISCOVER - 0x00**

  The client dispatches a broadcast '**DISCOVER**' packet in the local net, and every device will echo an '**OFFER'** packet. The authorization is not necessary in this procedure.

  Notice: This may not work because a broadcast packet may be prohibited by the router or the firewall software; therefore, a server will not receive this packet in such an environment.

- **OFFER - 0x01**

  When the server accepts a broadcast '**DISCOVER**' packet, an '**OFFER**' packet will be used to reply to the client.

- **SUBSCRIBE - 0x02**

The client issues a '**SUBSCRIBE**' packet to the server with authorization to subscribe to the news. When the registration has failed or no space is available, a '**NAK'** packet will be used to answer to the client; otherwise, the client will retrieve an '**ACK'** packet. The server will notify the events to the client within an hour when the registration succeeds.

- **DECLINE - 0x03**

When the client software wants to terminate or exit, a '**DECLINE**' packet should be sent to the server to cancel its registration.

Notice: It is not imperative to implement the '**DECLINE**' mechanism, but if it is not implemented the memory of the server will be exhausted. The maximum capacity of the registration varies from device to device.

- **EXPIRING - 0x04**

The server will issue an '**EXPIRING**' packet 45 minutes after its subscription. When the client receives this packet, it is better to renew it with the server. If the server does not receive the renewal, it will re-issue its '**EXPIRING**' packet *every three minutes* till the deadline time, one hour.

- **EVENT - 0x05**

An '**EVENT**' packet will be dispatched to the subscribers when an event occurs in the device. The details of the event will be specified in the fields of '**EVENT CODE**', '**ARGUMENT**', and '**MESSAGES**'.

- **ACK - 0x06**

When a client obtains an '**EVENT**' packet, it should reply to the '**ACK'** packet with the same serial number as to the server; otherwise, the server will re-send the same '**EVENT**' packet *three times*.

Notice: The implementation of the ACK mechanism is not mandatory; the client can neglect the packet with the same serial number. But this will clog up the message queue, and the next message will not be sent until the former one is timed-out.

- **NAK - 0x07**

When the server refuses the subscription or no space is available, a '**NAK**' packet will return to the client. The maximum capacity of the registration varies from device to device.

- **PORT**

If it is a '**SUBSCRIBE**' packet, this field stands for the communication port of the client.

When the packet is issued by the server, this field means the destination port of the server. The port number is fixed at **8995**.

The combination of an IP address and a port of the client comprise an identity for the server to identify.

- **DEVICE CODE**

This field indicates the device type. Please refer to TAB 3-3.

Notice: The following fields, '**EVENT CODE**', '**ARGUMENT**' and '**MESSAGE**' will be dissimilar in different devices.

Notice: The server will not answer the '**SUBSCRIBE**' packet if the value of this field from the client is not zero or equal to the device code.

- **SERIAL NUMBER**

The serial number of the packet and the serial number in the return '**ACK**' packet must correspond to the '**EVENT**' packet.

- **EVENT CODE**

  The event code refers to APPENDIX II.

  Notice: The field should be zero for future compatibility if it is not an '**EVENT**' packet.

- **ARGUMENT**

  The extra information of the event code refers to Appendices I and II.

  Notice: If the packet says '**OFFER**' or '**ACK**' after '**SUBSCRIBE**', the '**ARGUMENT**' here means the term of this subscription, 3600 seconds; otherwise, the '**ARGUMENT**' should be zero for future compatibility.

- **RESERVED**

  This space is reserved, and should be zero for future compatibility.

- **YEAR**

  This space refers to a year (0-2099).

- **MON**

  This space means any month from January onwards (1-12).

- **DAY**

  This space means a day of a month (1-31).

- **HR**

  This space means the hours from midnight onwards (0-23).

- **MIN**

  This space means the minutes in an hour (0-59).

- **SEC**

  This space means the seconds in a minute (0-59).

- **TZ**

  This space means the time zone of a local time. Please refer to TAB 7-15.

Notice: Some devices do not support the SNTP (Simple Network Time Protocol); the code of the time zone is not available, and the value will be **0xFF**.

- **MESSAGES**
  - If the packet is a '**SUBSCRIBE**' or '**DECLINE**' packet from the client, the message must contain the account and password in the format of '*account:password*'.
  - If the packet is an '**EVENT**', the message is a plain text to represent the content of the event. See the details in Appendices I and II.
  - If the packet is neither a '**SUBSCRIBE**' nor '**EVENT**' packet, it should be categorized as zero.
  - The maximum capacity of a message is 0x100 bytes.
  - This message is a C-Style string terminated by a NULL character.

10.2.3 ANNP Procedure

The following chart depicts the state machine of the client software.

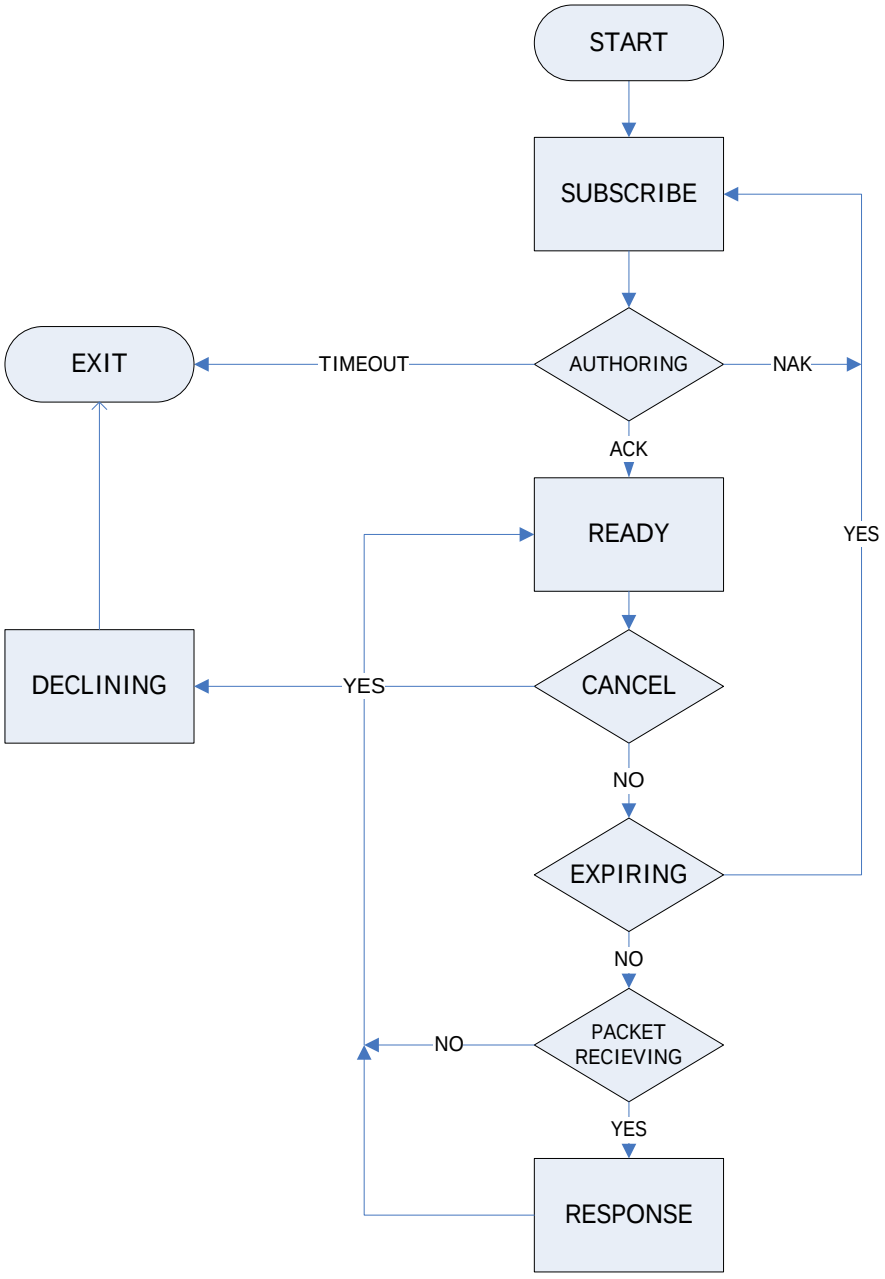

FIG 10-2

First, the client has to initialize a UDP socket and bind an arbitrary port to listen, and then it enters the state of '**START'**. The client issues a '**DISCOVER**' packet to explore all the devices if a broadcast packet is not blocked by the firewall or

the router; otherwise, an explicit combination of an IP address and a port has to be pre-determined. The state will shift to '**SUBSCRIBE'**, and the client will send a '**SUBSCRIBE**' packet to the server.

After sending the '**SUBSCRIBE**' packet, the state is in '**AUTHORING'**, and there are three results as follows.

1. Time-out

No packet is received in 30 seconds; please verify the IP address and the port of destination again, and re-enter the state of '**SUBSCRIBE**' or '**EXIT**'.

Notice: The UDP packet is subject to being lost in the internet.

2. NAK

If the client receives a '**NAK**' packet, it means that the authorization has failed or the server just ran out of memory. Please change its state to '**SUBSCRIBE**'.

3. ACK

If the client receives an '**ACK**' packet, it means the authorization is complete, and the state switches to '**READY'**.

If the state is in '**READY'** the process will be a loop to poll the following statuses.

1. If the client is going to terminate or exit, the state will be in '**DECLINING'**. It is better to send a '**DECLINE**' packet to the server to cancel its subscription. The process needs authorization, and the message in the packet has to comprise the information of the account and the password.

Notice: It is not imperative to implement the '**DECLINE**' mechanism, but if it is not implemented the memory of the server will be exhausted. The maximum capacity of the registration varies from device to device.

2. A client will be in the state of '**EXPIRING**'
   - if 45 minutes have passed since its last subscription, or
   - in receiving an '**EXPIRING**' packet from a server.

   If the client wants to renew, the state will return to '**SUBSCRIBE'** and then the client ought to subscribe to the server again.

   Notice: The default deadline of subscription is one hour.

3. If no packet is received, the state shifts to '**READY'** and polls again.

4. If an '**EVENT**' packet is received, the state is in '**RESPONSE'**. The client should send an '**ACK**' packet with the same serial number back to the server. If the server does not receive the concerned '**ACK**' packet, it will be retransmitted *three times every five seconds*.

Notice: The implementation of the ACK mechanism is not mandatory; the client can neglect the packet with the same serial number. But this will clog up the message queue, and the next message will not be sent until the former one is timed-out.

11. HTML Composer

11.1 Introduction

This chapter will help you appreciate the composing proprietary WebPages and refresh them into the file system in the device.

There is a tiny web server built in the device, and authorized users can access or modify the attributions via a browser; however, it is a little difficult to retrieve the system's volatile variables for a static HTML page to parse such as the image resolution and quality. To resolve this problem, the IP Camera provides the ability to parse dynamic tags which are enclosed with the tokens '**<%**' and '**%>**'.

"This is an example about the setting - <%brightness%>."

The string after the parsing by the device will returned as "This is an example about the setting - 128." if the value of the brightness is equal to '**128**'.

The following chapter will give you some examples to exercise parameters in your HTML, to control the VCA, to wrap pages to a package and update the device.

All parameters will be described in particular in Chapter 12. None of the parameters are case-sensitive; therefore, the two keywords '**brightness**' and '**Brightness**' are fully identical in meaning.

11.2 The Dynamic Parameter

As mentioned before, the IP Camera replaces a keyword to an integer or a string to access the system's capricious settings; it has to be implemented by a

client-side script, for example, Java Script, VB Script or JScript. In other words, the IP Camera is to provide the data in the form of dynamic parameters, and the client-side script has to process them. This chapter will not focus on how to write a perfect script but describe the properties of the dynamic parameters. All examples follow the syntax related to the Java Script.

First, the variable should be declared inside the client-side script to pass it. The following example shows the declaration.

```
var ValueOfBrightness = "<%brightness%>";
```

A string enclosing the tokens '**<%**' and '**%>**' will be processed by the system. But if the following conditions occur, the keyword will not be translated but be kept untouched.

- Unknown keywords
  All keywords will be described in particular in Chapter 12, or the user can refer to the list in Chapter 17.5.

- Inadequate Authority
  The authorities of keywords are also itemized in Chapter 12.

- The attribution relating to the page is not parsing.
  Please refer to Chapter 11.4.2.

- The service is unavailable in this device.
  Please check its associated dependency relating to the keyword in Chapter 12.

If the data type in your script is '**Integer**' instead of '**String**', you can modify your declaration as follows.

```
var ValueOfBrightness = parseInt( "<%brightness%>" );
```

11.3 To Control VCA in HTML

The VCA mentioned here is an ActiveX component to be executed in a browser. Please refer to Chapter 8 for more information.

11.3.1 Embedding a VCA

Add the following code in your HTML.

```
<object id="VCA" CLASSID="CLSID: 5E4CCBDC-F575-4BE5-B9C2-C87F562DD0F8 "
CODEBASE="/ VDControl.CAB" width="720" height="480" ></object>
```

- id:

  This item is the ID number of the VCA instance to identify.

- CLASSID

  This item is the GUID of the VCA, and it is a constant to this component.

- CODEBASE

  This item is the name related to the package.

- width

  This item is the width of the active window; the unit is pixel.

- height

  This item is the height of the active window; the unit is pixel.

A security warning window pops up when the component is going to be installed into your system as below.

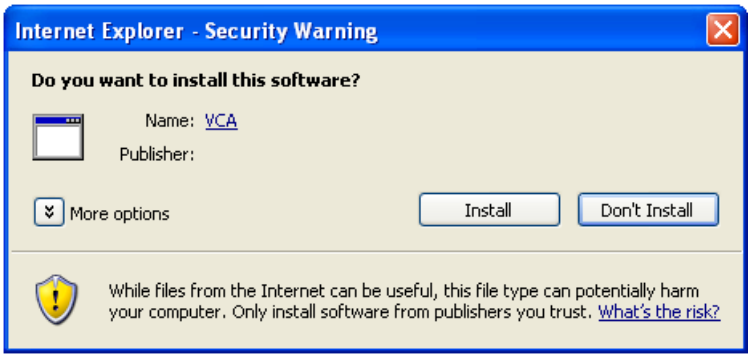

FIG 11-1

Press the '**Install**' button to admit the component to your system.

11.3.2 How to control VCA

The next step is to obtain the instance related to the VCA, and control the audio/video stream by its corresponding methods discussed in Chapter 9. The following script will guide you to control the VCA and to receive the image from the device.

```
function startVCA()
{
  //use document.getElementById() method to get the VCA instance,
  //that we define in HTML object tag, its id is "VCA"
  var obj = document.getElementById("VCA");
  if (obj != null)
  {
    //set video stream url to VCA
    obj.LiveURL = 'http://192.168.3.189/?audiostream=0';
    obj.UIMode = 0x10000000;
    //start running VCA
    obj.Start(0); // --> will receive event.
    obj.StartReceiver();
    obj.ViewStart();
  }
}
```

The following code invokes the VCA after pressing a button.

```
<input type="button" value="PLAY" onClick="startVCA()" />
```

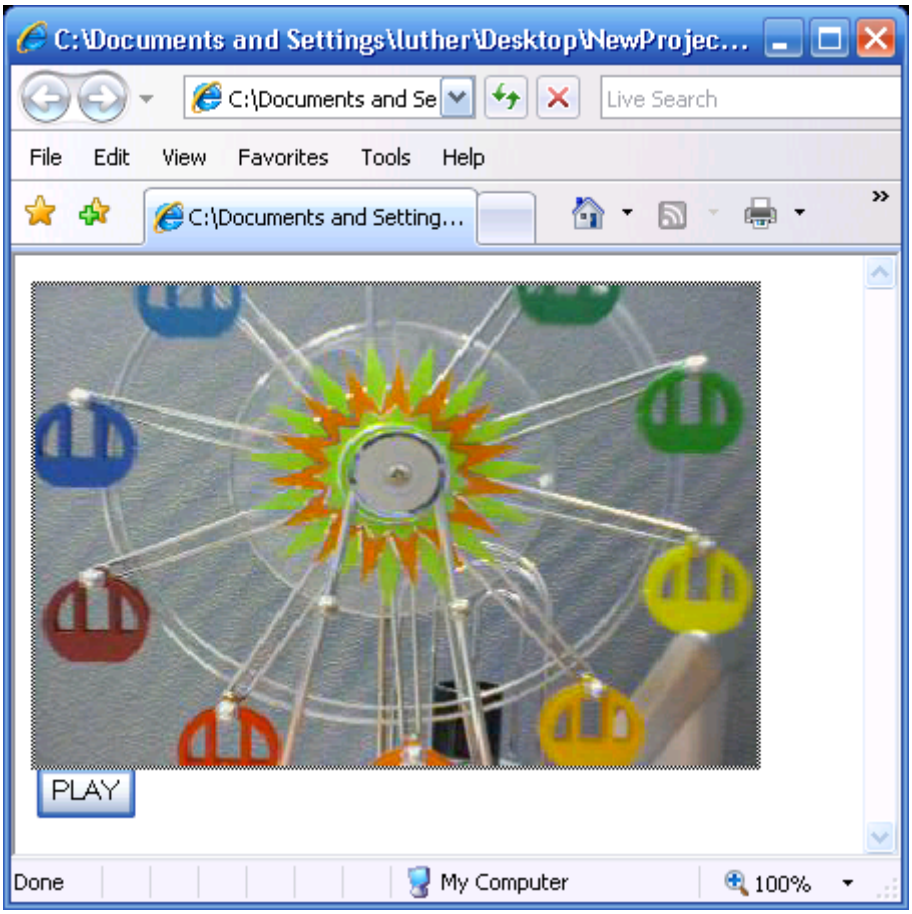

FIG 11-2

Warning: The automatic VCA activation in the embedded HTML will fail because the VCA component is not allocated and constructed yet, and a timer in your script is required.

```
setTimeout('startVCA()',1000);
```

11.4 WebPageMaker

The raw pages have to be encapsulated into a package to update the system, and the **WebPageMaker** is the GUI tool to wrap your pages into an update file.

Notice: This program, '**WebPageMaker**' and all reference html pages (CAB file is included) are not contained in this package, and more authorization is compulsory.

11.4.1 The Detailed Procedure

First, a directory named '**WebPages**' has to be created in your root directory; then transfer the following files in this directory.

- index.htm

```
<html>
<body>
<object id="VCA" CLASSID="CLSID:5E4CCBDC-F575-4BE5-B9C2-C87F562DD0F8"
CODEBASE="/VDControl.CAB#version=1.0.3.2" width="360" height="240" ></object>
<br>
<input type="button" value="PLAY" onClick="startVCA()" />
<script>
function startVCA()
{
  //use document.getElementById() method to get the VCA instance,
  //that we define in HTML object tag, its id is "VCA"
  var obj = document.getElementById("VCA");
  if (obj != null)
  {
    //set video stream url to VCA
    obj.LiveURL = 'http://192.168.3.189/?audiostream=0';
    obj.UIMode = 0x10000000;
    //start running VCA
    obj.Start(0); // --> will receive event.
    obj.StartReceiver();
    obj.ViewStart();
  }
}
</script>
</body>
</html>
```

- dynamicTest.htm

```
<html>
<body>
<h3>IP Camera time is <%date%> <%time%></h3>
</body>
```

</html>

- VDControl.CAB

This is an ActiveX component (refer to Chapter 2).

The next step is to launch the application '**WebPageMaker**', and select your destination directory '**WebPages**'.

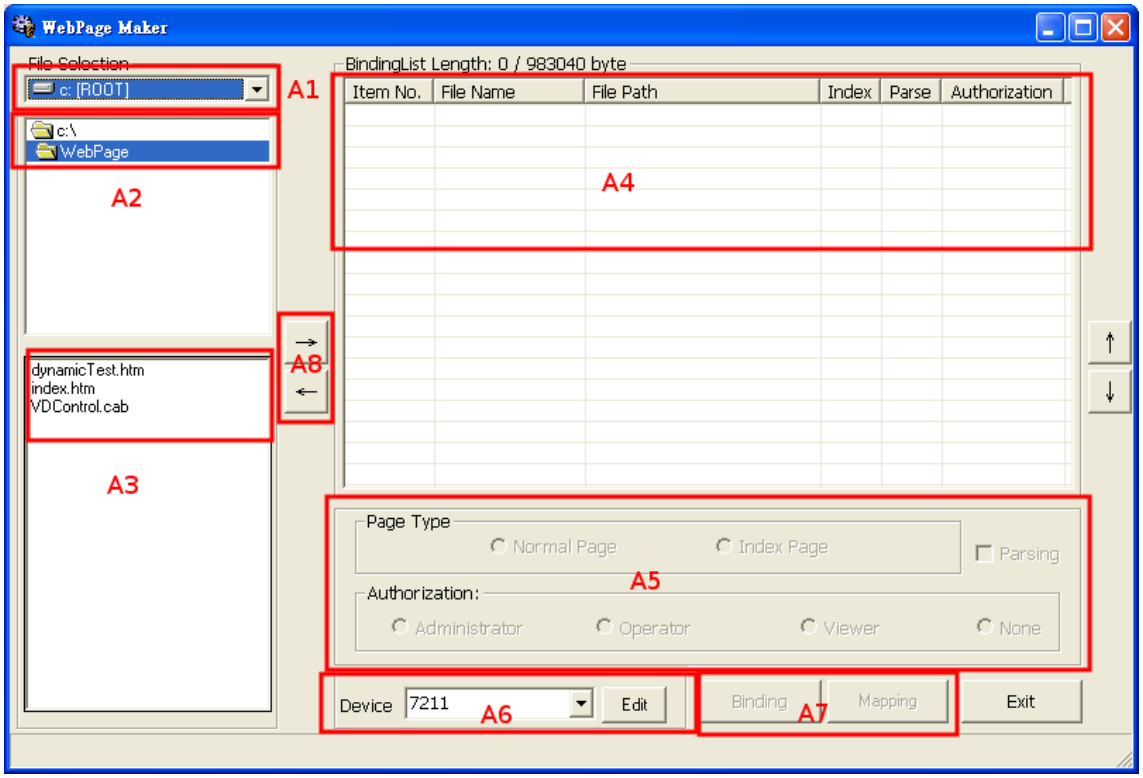

FIG 11-3

- A1

This item is the target driver.

- A2

This item is the target directory.

- A3

This item contains the list of the target directory.

- A4

This item indicates the file information of the target pages.

- A5

This item shows the attributions relating to a selected file.

- A6

This item is the type of target device.

- A7

  This item will start the wrapping procedure.

- A8

  This item can help you to remove or add to selected files.

Select all files in A3 section, and add them to A4.

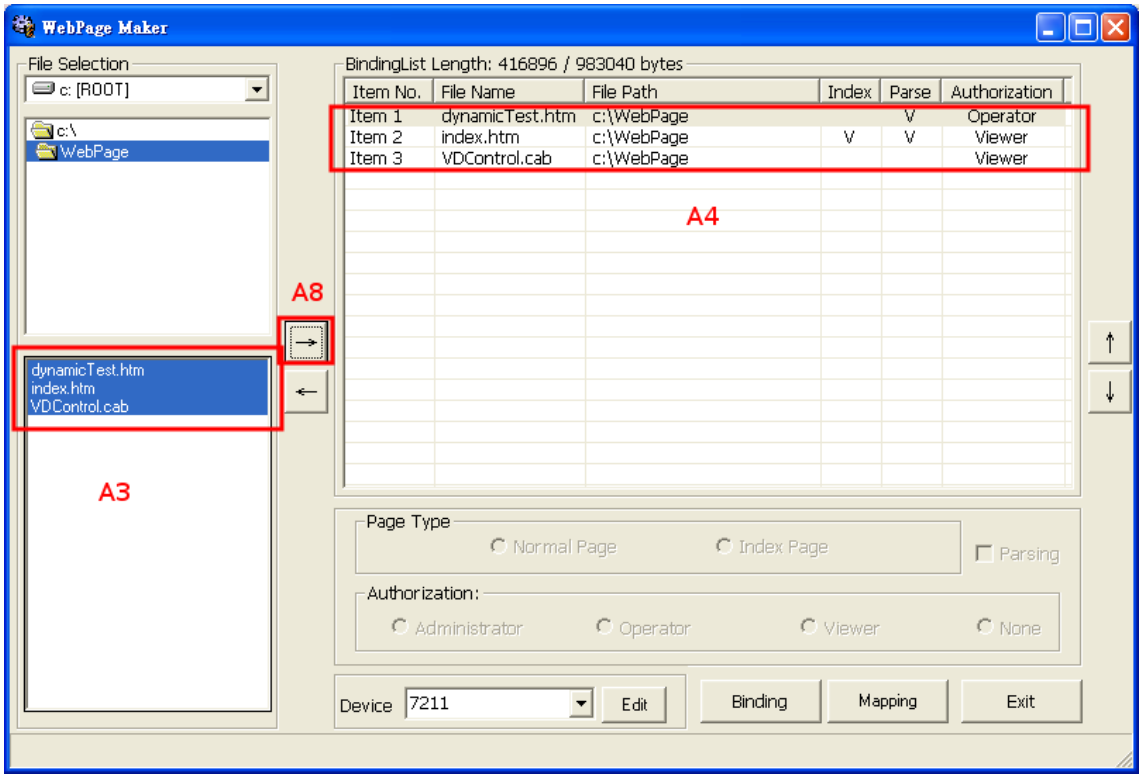

FIG 11-4

Then select the machine type. If your type is not listed in the combo box, please press the '**Edit**' button to add manually.

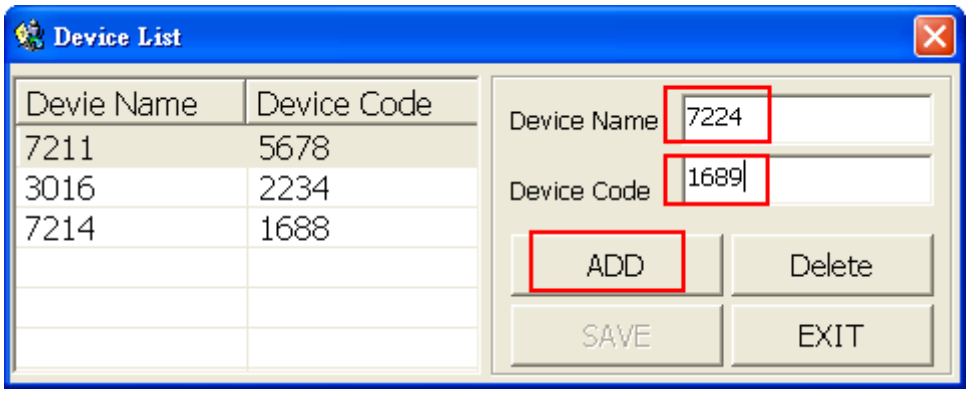

FIG 11-5

Press the '**SAVE**' button when it is finished.

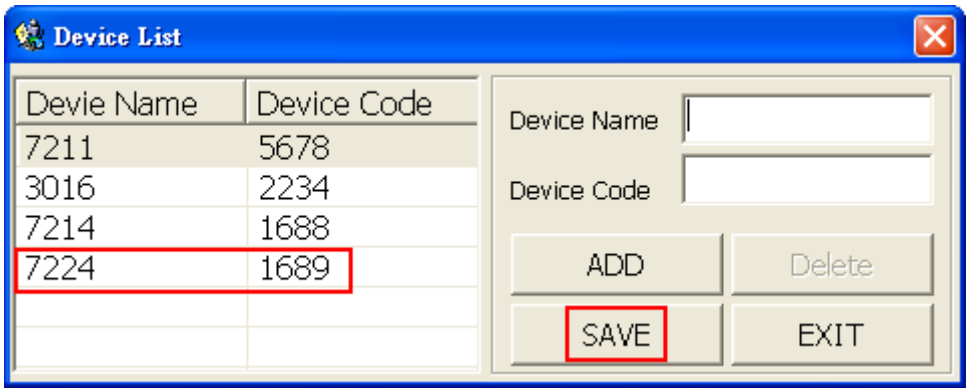

FIG 11-6

Now press the '**Binding**' button and save the target file as '**update.bin**'. The next step is to upload the file to the device, and please refer to APPENDIX IV for more information.

The device will be rebooting in 10 seconds after the procedure is done. After the rebooting, launch your browser and visit the device. The result will be shown as in FIG 11-7 below.

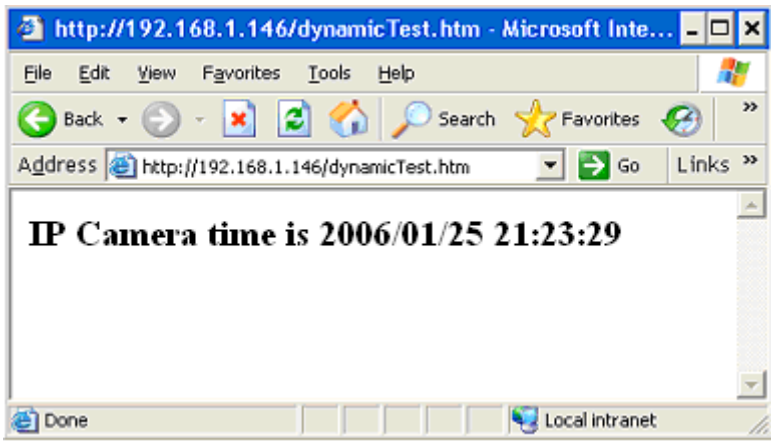

FIG 11-7

11.4.2 Attributes of HTML Pages

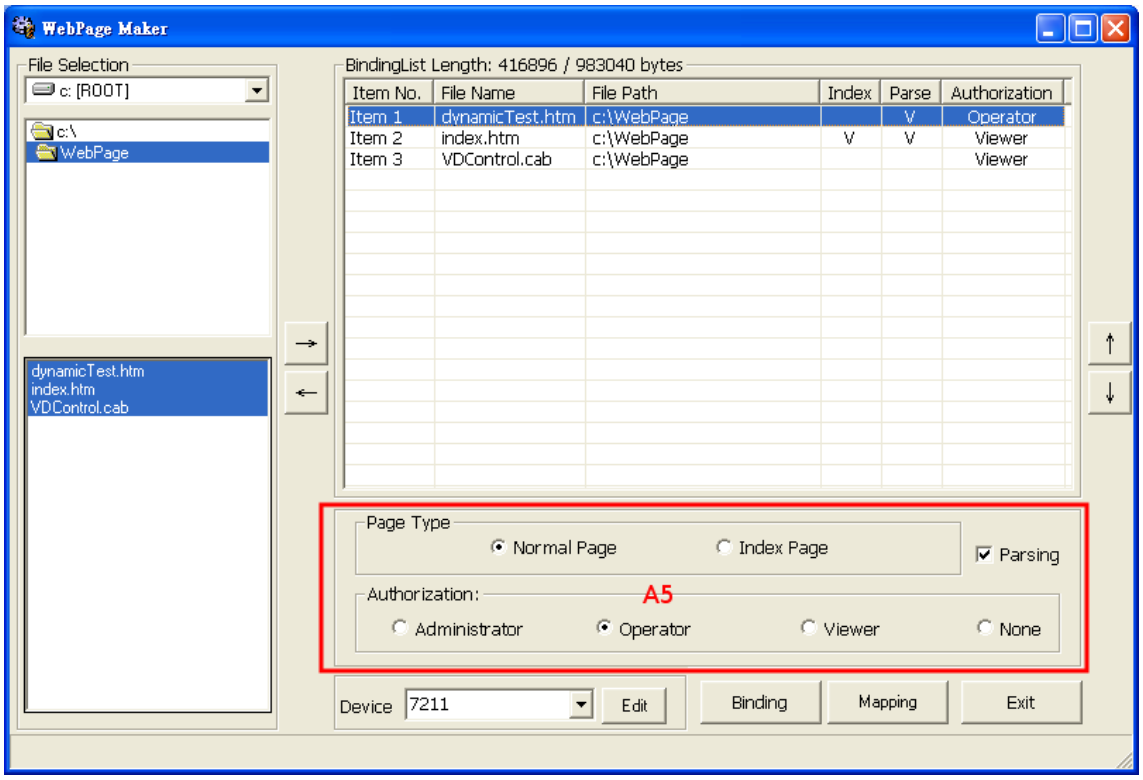

FIG 11-8

The A5 section exhibits the attributions of a selected file. The combinations of an attribution are listed as follows.

- Page Type

  This attribution related to the **'Index Page**' will set this file as the doorway page; others are '**Normal Page**'.

- Parsing

  This item is the flag whether the machine parses the dynamic parameters related to the file or not.

- Authorization

  This item is the authority associated with this file. Please refer to TAB 3-6.

Notice: All dynamic parameters used in this file have to hold the minimum authority of this file at least or they will be kept untouched.

11.5 MIME Extension

The MIME extension is an extension of MIME that allows data format negotiation between the IP Camera and a client. The following table provides the built-in MIME types the Web Server sends to browsers in the HTTP header.

Extension	Header description
HTM	text/html
JPG	image/jpeg
GIF	image/gif
PDF	application/pdf
ZIP	application/x-zip-compressed
DOC	application/msword
RTF	application/rtf
WAV	audio/wav
CLS	application/octet-stream
TXT	text/plain
EXE	application/octet-stream
SWF	application/x-shockwave-flash
OCX	application/x-oleobject
CAB	application/cab
JS	text/javascript
PNG	image/png
BMP	image/bmp
AVI	video/msvideo
ASF	video/x-ms-asf
MPG	video/mpeg
MOV	video/quicktime
MP3	audio/x-mpeg
MID	audio/mid
ARC	application/x-arc
RAR	application/x-rar

ARJ	application/x-arj
GZ	application/x-gzip
JAR	application/java-archive
CHM	application/mshelp
PPT	application/mspowerpoint
XLS	application/msexcel
PS	application/postscript
AIF	audio/x-aiff
CSS	text/css

TAB 11-9

12. Dynamic Parameters in HTML

12.1 Introduction

As mentioned above in Chapter 11, the IP Camera will substitute the specific labels, and this will make it easier for the WebPages to access the whole system's volatile variables. We will discuss the properties, authorities and dependencies of all the fundamental parameters through this chapter. The overview list is also commented on in Chapter 17.5.

12.2 Parameter Verification

These parameters are embedded in the WebPages, and it is very arduous to monitor or verify them; therefore, the IP Camera provides a unique API to confirm them by a browser, for example, the Microsoft® IE browser. The API needs an authority of '**OPERATOR**' or '**ADMINISTRATOR**'; however, some parameters need higher authorities and it is better to login to the system as an '**ADMINISTRATOR**'. The first step is to login to the device as below.

http://192.168.1.168/vb.htm?login=admin:9999

Notice: The account and password depend on your own system configuration.

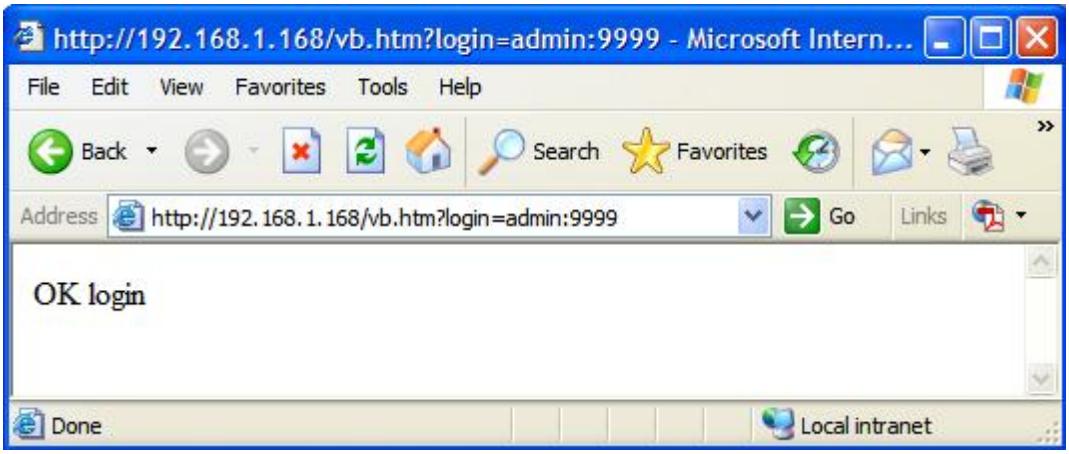

FIG 12-1

The following API can verify the value related to the selected parameter.

http://192.168.1.168/vb.htm?paratest=<*parameter*>

Supposing the parameter, '**brightness**', is the target, please fill the replaced string in your explorer as below.

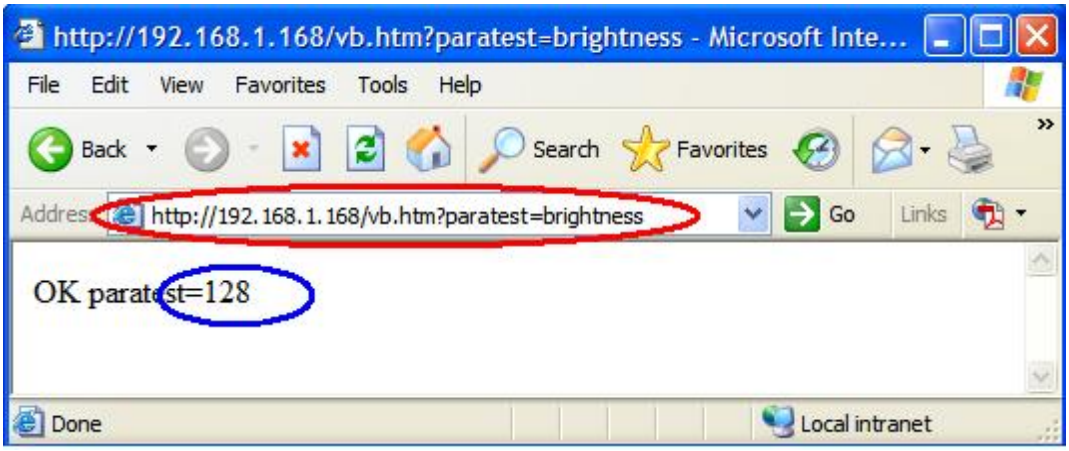

FIG 12-2

And the value of the parameter is '**128**' as shown above.

When the keyword needs another parameter, the keyword and the parameter are separated by a '**dot**' as below.

http://192.168.1.168/vb.htm?paratest=*layoutnum.**0***

12.3 Keyword Descriptions

12.3.1 Images

This chapter will introduce the corresponding parameters related to the image control or MPEG4/MJPEG switching.

12.3.1.1 agc

Description:

This parameter concerns the retrieval of the status associated with the Auto Gain Control (AGC) of the image.

- 0 - Disabled
- 1 - Enabled

Parameter:

None

Dependency:

supportagc

Authority:

Operator or Administrator

12.3.1.2 awb

Description:

This parameter concerns the retrieval of the status related to the Auto White Balance (AWB). The reference codes are listed in TAB 7-2.

Parameter:

None

Dependency:

supportawb

Authority:

Operator or Administrator

12.3.1.3 awbname

Description:

This parameter concerns the retrieval of the descriptions related to the Auto White Balance (AWB) of the image.

Parameter:

Parameter	Description
0	Auto WB
1	Incandescent
2	Fluorescent
3	Sunlight
all	All strings combined above

TAB 12-3

Dependency:

supportawb

Authority:

Operator or Administrator

12.3.1.4 backlight

Description:

This parameter concerns the retrieval of the value related to the backlight (0-255) associated with an image.

Parameter:

None

Dependency:

supportbacklight

Authority:

Viewer o above

12.3.1.5 blc

Description:

This parameter concerns the retrieval of the status related to the backlight control associated with an image.

- 0 - Disabled
- 1 - Enabled

Parameter:

None

Dependency:

supportbacklight

Authority:

Viewer or greater

12.3.1.6 brightness

Description:

This parameter concerns the retrieval of the value related to the brightness (0-255) associated with an image.

Parameter:

This parameter has to be specified when the target is multi-channel video server.

Dependency:

supportbrightness

Authority:

Viewer or greater

12.3.1.7 colorkiller

Description:

This parameter concerns the retrieval of the status related to the color killer control associated with an image.

- 0 - Disabled
- 1 - Enabled

Parameter:

None

Dependency:

supportcolorkiller

Authority:

Operator or Administrator

12.3.1.8 contrast

Description:

This parameter concerns the retrieval of the value related to the contrast (0-255) associated with an image.

Parameter:

This parameter has to be specified when the target is multi-channel video server.

Dependency:

supportcontrast

Authority:

Viewer or greater

12.3.1.9 exposure

Description:

This parameter concerns the retrieval of the degree that an image exposes (0-255) associated with an image.

Parameter:

None

Dependency:

supportexposure

Authority:

Viewer or greater

12.3.1.10 fluorescent

Description:

This parameter concerns the retrieval of the status related to the fluorescent control associated with an image.

- 0 - Disabled
- 1 - Enabled

Dependency:

supportfluorescent

Parameter:

None

Authority:

Viewer or greater

12.3.1.11 format

Description:

This parameter concerns the retrieval of the codec mode that the device adopts.

- 0 - MJPEG mode
- 1 - MPEG4 mode

Parameter:

None

Authority:

Viewer or greater

12.3.1.12 hue

Description:

This parameter concerns the retrieval of the hue (0-255) associated with an image.

Parameter:

This parameter has to be specified when the target is multi-channel video server.

Dependency:

supporthue

Authority:

Viewer or greater

12.3.1.13 kelvin

Description:

This parameter concerns the retrieval of the color temperature (0-255) associated with an image.

Parameter:

None

Dependency:

supportkelvin

Authority:

Viewer or greater

12.3.1.14 mirror

Description:

This parameter concerns the retrieval of the mirror status.

- 0 - Disabled
- 1 - Enabled

Dependency:

supportmirror

Parameter:

None

Authority:

Operator or Administrator

12.3.1.15 qualityname

Description:

This parameter concerns the retrieval of the descriptions related to the quality associated with the MJPEG image.

Parameter:

Parameter	Description
0	Highest
1	High
2	Medium
3	Low
4	Lowest
all	All strings combined above

TAB 12-4

Authority:

Viewer or greater

12.3.1.16 saturation

Description:

This parameter concerns the retrieval of the saturation (0-255) associated with an image.

Parameter:

This parameter has to be specified when the target is multi-channel video server.

Dependency:

supportsaturation

Authority:

Viewer or greater

12.3.1.17 sharpness

Description:

This parameter concerns the retrieval of the sharpness (0-255) associated with an image.

Parameter:

None

Dependency:

supportsharpness

Authority:

Operator or Administrator

12.3.1.18 jpegxsize

Description:

This parameter concerns the retrieval of the horizontal size in an MJPEG picture. If Multi Profile JPEG mode is supported, please refer to Chapter 5.8.

Parameter:

	NTSC	PAL	VGA
QUARTER	352	352	320
FULL	720	720	640
HALF	720	720	
RESIZE	720	720	

TAB 12-5

TAB 12-6 applied for multi-channel video server.

Index	QUAD MODE		MUX MODE	
	NTSC	PAL	NTSC	PAL
0	352	352	704	704
1	176	176		

TAB 12-6

Authority:

Viewer or greater

12.3.1.19 jpegysize

Description:

This parameter concerns the retrieval of the vertical size in an MJPEG picture. If Multi Profile JPEG mode is supported, please refer to Chapter 5.8.

Parameter:

	NTSC	PAL	VGA
QUARTER	240	288	240
FULL	480	576	480
HALF	240	288	
RESIZE	480	576	

TAB 12-7

TAB 12-8 applied for multi-channel video server.

Index	QUAD MODE		MUX MODE	
	NTSC	PAL	NTSC	PAL
0	240	288	224	272
1	120	144		

TAB 12-8

Authority:

Viewer or greater

12.3.1.20 livequality

Description:

This parameter concerns the retrieval of the quality associated with an MJPEG picture. The reference codes are listed in TAB 7-4.

Parameter:

None

Authority:

Viewer or greater

12.3.1.21 liveresolution

Description:

This parameter concerns the retrieval of the resolution in an MJPEG picture. The reference codes are listed in TAB 7-5.

Parameter:

None

Authority:

Viewer or greater

12.3.1.22 resolutionname

Description:

This parameter concerns the retrieval of the descriptions of resolution in an MJPEG picture.

Parameter:

Parameter	NTSC	PAL	VGA
0	352*240	352*288	320*240
1	720*480 (Frame)	720*575 (Frame)	640*480
2	720*240	720*288	
3	720*480 (Field)	720*576 (Field)	
all	All strings combined above		

TAB 12-9

TAB 12-10 applied for multi-channel video server.

Index	QUAD MODE		MUX MODE	
	NTSC	PAL	NTSC	PAL
0	352*240	352*288	704*224	704*272
1	176*120	176*144		

TAB 12-10

Authority:

Viewer or greater

12.3.1.23 mpeg4cenable

Description:

This parameter concerns the retrieval of the status related to the customized MPEG4 bit rate.

- 0 - Disabled
- 1 - Enabled

Parameter:

None

Dependency:

supportmpeg4

Authority:

Operator or Administrator

12.3.1.24 mpeg4cvalue

Description:

This parameter concerns the retrieval of the bit rate related to the customized MPEG4 video stream (64-8192); the unit is kilo bit per second.

Parameter:

None

Dependency:

supportmpeg4

Authority:

Operator or Administrator

12.3.1.25 mpeg4desired

Description:

This parameter concerns the retrieval of the future status related to the MPEG4 codec; '**1**' means the codec is going to be shifted to '**MPEG4**' mode.

Parameter:

None

Dependency:

supportmpeg4

Authority:

Operator or Administrator

12.3.1.26 mpeg4framerate

Description:

This parameter concerns the retrieval of the frame rate related to the MPEG4 video stream; the unit is frame per second. The reference codes are listed as below.

Value	Description
0	30 (25) frames per second
1	24 frames per seconds
2	15 frames per second

TAB 12-11

Parameter:

None

Dependency:

supportmpeg4

Authority:

Operator or Administrator

12.3.1.27 mpeg4frameratename

Description:

This parameter concerns the retrieval of the descriptions of frame rate related to the MPEG4 video stream.

Parameter:

Index	Description
0	30FPS (25FPS)
1	24FPS
2	15FPS
all	All strings combined above

TAB 12-12

Dependency:

supportmpeg4

Authority:

Operator or Administrator

12.3.1.28 mpeg4quality

Description:

This parameter concerns the retrieval of the quality related to the MPEG4 video stream. The reference codes are listed in TAB 7-9.

Parameter:

None

Dependency:

supportmpeg4

Authority:

Operator or Administrator

12.3.1.29 mpeg4qualityname

Description:

This parameter concerns the retrieval of the descriptions related to the quality associated with the MPEG4 video stream.

Parameter:

Index	Description
0	Highest
1	High
2	Medium
3	Low
4	Lowest
all	All strings combined above

TAB 12-13

Dependency:

supportmpeg4

Authority:

Operator or Administrator

12.3.1.30 mpeg4resname

Description:

This parameter concerns the retrieval of the descriptions related to the resolution associated with the MPEG4 video stream.

Parameter:

Parameter	NTSC	PAL	VGA
0	Full D1	Full D1	
1	VGA	VGA	VGA
2	Half D1	Half D1	
3	Half VGA	Half VGA	
4	CIF	CIF	

5	QVGA	QVGA	QVGA
6	Zoom*2	Zoom*2	
7	Zoom*3	Zoom*3	
8	Zoom*4	Zoom*4	
all	All strings combined above.		

TAB 12-14

Dependency:

supportmpeg4

Authority:

Operator or Administrator

12.3.1.31 mpeg4resolution

Description:

This parameter concerns the retrieval of the resolution related the MPEG4 video stream. The reference codes are listed in TAB 7-8.

Parameter:

None

Dependency:

supportmpeg4

Authority:

Operator or Administrator

12.3.1.32 mpeg4xsize

Description:

This parameter concerns the retrieval of the horizontal width associated with the MPEG4 video stream.

Parameter:

None

Dependency:

supportmpeg4

Authority:

Viewer or greater

12.3.1.33 mpeg4ysize

Description:

This parameter concerns the retrieval of the vertical height associated with the MPEG4 video stream.

Parameter:

None

Dependency:

supportmpeg4

Authority:

Viewer or greater

12.3.1.33 senseup

Description:

This parameter concerns the retrieval of the status associated with the sense-up function.

Parameter:

None

Dependency:

supportsenseup

Authority:

Viewer or greater

12.3.1.34 supportsenseup

Description:

This parameter concerns the retrieval of the status related to the sense-up function.

- 0 - Unavailable
- 1 - Accessible

Parameter:

None

Authority:

Viewer or greater

12.3.1.35 supportmaskarea

Description:

This parameter concerns the retrieval of the status related to the mask area function.

- 0 - Unavailable
- 1 - Accessible

Parameter:

None

Authority:

Viewer or greater

12.3.1.36 maxsupportmaskarea

Description:

This parameter concerns the retrieval of the maximum amount of the mask area the device supports.

Parameter:

None

Dependency:

supportmaskarea

Authority:

Viewer or greater

12.3.1.37 maskareaxlimit

Description:

This parameter concerns the retrieval of the maximum horizontal range of the mask area.

Parameter:

None

Dependency:

supportmaskarea

Authority:

Viewer or greater

12.3.1.38 maskareaylimit

Description:

This parameter concerns the retrieval of the maximum vertical range of the mask area.

Parameter:

None

Dependency:

supportmaskarea

Authority:

Viewer or greater

12.3.1.39 maskarea

Description:

This parameter concerns the retrieval of the privacy area setting; the reference code is listed in TAB 7-9.

Parameter:

None

Dependency:

supportmaskarea

Authority:

Viewer or greater

12.3.1.40 maxchannel

Description:

This parameter concerns the retrieval of the maximum channel the device provided.

Parameter:

None

Dependency:

None

Authority:

Viewer or greater

12.3.1.41 mpeg4cenable

Description:

This parameter concerns the retrieval of the status related to the customized H.264 bit rate.

- 0 - Disabled
- 1 - Enabled

Parameter:

None

Dependency:

supportavc

Authority:

Operator or Administrator

12.3.1.42 avccvalue

Description:

This parameter concerns the retrieval of the bit rate related to the customized H.264 video stream (64-4096); the unit is kilo bit per second.

Parameter:

None

Dependency:

supportavc

Authority:

Operator or Administrator

12.3.1.43 avcframerate

Description:

This parameter concerns the retrieval of the frame rate related to the H.264 video stream; the unit is frame per second. The reference codes are listed as below.

Value	Description
0	30 (25) frames per second
1	24 frames per seconds
2	15 frames per second
3	5 frames per second

TAB 12-15

Parameter:

None

Dependency:

supportavc

Authority:

Operator or Administrator

12.3.1.44 avcframeratename

Description:

This parameter concerns the retrieval of the descriptions of frame rate related to the MPEG4 video stream.

Parameter:

Index	Description
0	30FPS (25FPS)
1	24FPS
2	15FPS
3	5FPS
all	All strings combined above

TAB 12-16

Dependency:

supportavc

Authority:

Operator or Administrator

12.3.1.45 avcquality

Description:

This parameter concerns the retrieval of the quality related to the MPEG4 video stream. The reference codes are listed in TAB 7-9.

Parameter:

None

Dependency:

supportavc

Authority:

Operator or Administrator

12.3.1.46 avcqualityname

Description:

This parameter concerns the retrieval of the descriptions related to the quality associated with the MPEG4 video stream.

Parameter:

Index	Description
0	Highest
1	High
2	Medium
3	Low
4	Lowest
all	All strings combined above

TAB 12-17

Dependency:

supportavc

Authority:

Operator or Administrator

12.3.1.47 avcresolutionname

Description:

This parameter concerns the retrieval of the descriptions related to the resolution associated with the MPEG4 video stream.

Parameter:

Parameter	NTSC	PAL
0	Full D1	Full D1
1	Half D1	Half D1
2	CIF	CIF
all	All strings combined above CIF	

TAB 12-18

Dependency:

supportavc

Authority:

Operator or Administrator

12.3.1.48 avcresolution

Description:

This parameter concerns the retrieval of the resolution related the H.264 video stream. The reference codes are listed in TAB 7-10.

Parameter:

None

Dependency:

supportavc

Authority:

Operator or Administrator

12.3.1.49 avcxsize

Description:

This parameter concerns the retrieval of the horizontal width associated with the H.264 video stream.

Parameter:

None

Dependency:

supportavc

Authority:

Viewer or greater

12.3.1.50 avcysize

Description:

This parameter concerns the retrieval of the vertical height associated with the H.264 video stream.

Parameter:

None

Dependency:

supportavc

Authority:

Viewer or greater

12.3.1.51 avcmaxbitrate

Description:

This parameter concerns the retrieval of the maximum bit rate of H.264 compression.

Parameter:

None

Dependency:

supportavc

Authority:

Viewer or greater

12.3.1.52 avcminbitrate

Description:

This parameter concerns the retrieval of the minimum bit rate of H.264 compression.

Parameter:

None

Dependency:

supportavc

Authority:

Viewer or greater

12.3.1.53 supportmultiprofile

Description:

This parameter concerns the retrieval of the status related to the multi profile function.

Parameter:

None

Dependency:

None

Authority:

Viewer or greater

12.3.1.54 numprofile

Description:

This parameter concerns the retrieval of the maximum number that multi profile can be provided.

Parameter:

None

Dependency:

supportmultiprofile

Authority:

Viewer or greater

12.3.1.56 profilename

Description:

This parameter concerns the retrieval of the expected profile name.

Parameter:

You should specify an expected profile ID or ‘all’ for all profile names.

Dependency:

supportmultiprofile

Authority:

Viewer or greater

12.3.1.57 jpegquality

Description:

This parameter concerns the retrieval of the quality associated with an MJPEG picture. The reference codes are listed in TAB 7-4.

Parameter:

You should specify an expected profile ID.

Dependency:

supportmultiprofile

Authority:

Viewer or greater

12.3.1.58 jpegresolution

Description:

This parameter concerns the retrieval of the resolution in an MJPEG picture. The reference codes are listed in TAB 7-5.

Parameter:

You should specify an expected profile ID.

Dependency:

supportmultiprofile

Authority:

Viewer or greater

12.3.2 Network

This chapter will discuss the parameters related to the network settings.

12.3.2.1 dnsip

Description:

This parameter concerns the retrieval of the address associated with the DNS server.

Parameter:

Parameter	Description
0	The first number of the address.
1	The second number of the address.
2	The third number of the address.
3	The fourth number of the address.
all	All numbers combined above.

TAB 12-19

Authority:

Operator or Administrator

12.3.2.2 gateway

Description:

This parameter concerns the retrieval of the address associated with the gateway.

Parameter:

Parameter	Description
0	The first number of the gateway.
1	The second number of the gateway.
2	The third number of the gateway.
3	The fourth number of the gateway.

all	All numbers combined above.

TAB 12-20

Authority:

Operator or Administrator

12.3.2.3 httpport

Description:

This parameter concerns the retrieval of the port number (1-65535) associated with the HTTP protocol.

Parameter:

None

Authority:

Operator or Administrator

12.3.2.4 maxfqdnlen

Description:

This parameter concerns the retrieval of the maximum capacity of a FQDN. No FQDN can be longer than the value it returned, including the terminating zero.

Parameter:

None

Authority:

Operator or Administrator

12.3.2.5 maxsocket

Description:

This parameter concerns the retrieval of the maximum quantity of sockets in the system.

Parameter:

None

Authority:

Operator or Administrator

12.3.2.6 maxsocketnum

Description:

This parameter concerns the retrieval of the maximum port number of a TCP or UDP port.

Parameter:

None

Authority:

Operator or Administrator

12.3.2.7 minsocketnum

Description:

This parameter concerns the retrieval of the minimum port number of a TCP or UDP port.

Parameter:

None

Authority:

Operator or Administrator

12.3.2.8 netip

Description:

This parameter concerns the retrieval of the IP address that the device adopts.

Parameter:

Parameter	Description
0	The first number of the address.
1	The second number of the address.
2	The third number of the address.
3	The fourth number of the address.

all	All numbers combined above.

TAB 12-21

Authority:

Operator or Administrator

12.3.2.9 netmask

Description:

This parameter concerns the retrieval of the net mask that the device adopts.

Parameter:

Parameter	Description
0	The first number of the net mask.
1	The second number of the net mask.
2	The third number of the net mask.
3	The fourth number of the net mask.
all	All numbers combined above.

TAB 12-22

Authority:

Operator or Administrator

12.3.2.10 ftpspiport

Description:

This parameter concerns the retrieval of the port number associated with the local FTP server.

Parameter:

None

Authority:

Operator or Administrator

12.3.2.11 ftpsstart

Description:

This parameter concerns the retrieval of the status related to the local FTP server.

- 0 - Disabled
- 1 - Enabled

Parameter:

None

Authority:

Operator or Administrator

12.3.2.12 serviceftpserver

Description:

This parameter concerns the retrieval of the service related to the FTP server provided in the device.

- 0 - Unavailable
- 1 - Accessible

Parameter:

None

Authority:

Viewer or greater

12.3.2.13 ddnsaccount

Description:

This parameter concerns the retrieval of the account associated with the DDNS registration.

Parameter:

None

Authority:

Operator or Administrator

12.3.2.14 ddnsenable

Description:

This parameter concerns the retrieval of the status related to the DDNS service.

- 0 - Disabled
- 1 - Enabled

Parameter:

None

Authority:

Operator or Administrator

12.3.2.15 ddnshostname

Description:

This parameter concerns the retrieval of the host name associated with the DDNS registration.

Parameter:

None

Authority:

Operator or Administrator

12.3.2.16 ddnspassword

Description:

This parameter concerns the retrieval of the password associated with the DDNS registration.

Parameter:

None

Authority:

Operator or Administrator

12.3.2.17 ddnstype

Description:

This parameter concerns the retrieval of the type related to the DDNS registration. The reference codes are listed in TAB 7-12.

Parameter:

None

Authority:

Operator or Administrator

12.3.2.18 ddnstypename

Description:

This parameter concerns the retrieval of the descriptions associated with the DDNS service.

Parameter:

Parameter	Description
0	DynDNS
1	hn
all	All numbers combined above.

TAB 12-23

Authority:

Operator or Administrator

12.3.2.19 ddnswebname

Description:

This parameter concerns the retrieval of the respective URLs associated with the DDNS service.

Parameter:

Parameter	Description
0	www.dyndns.org
1	hn.org
all	All numbers combined above.

TAB 12-24

Authority:

Operator or Administrator

12.3.2.20 maxddnspwdlen

Description:

This parameter concerns the retrieval of the maximum capacity of a password associated with the DDNS registration.

Parameter:

None

Authority:

Operator or Administrator

12.3.2.21 maxddnsusrlen

Description:

This parameter concerns the retrieval of the maximum capacity of an account associated with the DDNS registration.

Parameter:

None

Authority:

Operator or Administrator

12.3.2.22 dhcpconfig

Description:

This parameter concerns the retrieval of the abilities associated with the software DHCP configuration.

- 0 - Forbidden
- 1 - Allowed

Parameter:

None

Authority:

Operator or Administrator

12.3.2.23 dhcpenable

Description:

This parameter concerns the retrieval of the status related to the DHCP service.

- 0 - Inert
- 1 - Active

Parameter:

None

Authority:

Operator or Administrator

12.3.2.24 dhcpsdesignate

Description:

This parameter concerns the retrieval of the first address that the local DHCP server dispatches.

Parameter:

Parameter	Description
0	The first number of the address.
1	The second number of the address.
2	The third number of the address.

3	The fourth number of the address.
all	All numbers combined above.

TAB 12-25

Authority:

Operator or Administrator

12.3.2.25 dhcpsenable

Description:

This parameter concerns the retrieval of the status related to the local DHCP server.

- 0 - Disabled
- 1 - Enabled

Parameter:

None

Authority:

Operator or Administrator

12.3.2.26 dhcpsleasetime

Description:

This parameter concerns the retrieval of the release time associated with the local DHCP server.

Parameter:

None

Authority:

Operator or Administrator

12.3.2.27 dhcpsmaxdomain

Description:

This parameter concerns the retrieval of the maximum domains that the local DHCP server dispatches.

Parameter:

None

Authority:

Operator or Administrator

12.3.2.28 maxpppoepwdlen

Description:

This parameter concerns the retrieval of the maximum capacity of a password associated with the PPPoE dialing.

Parameter:

None

Dependency:

servicepppoe

Authority:

Operator or Administrator

12.3.2.29 maxpppoeusrlen

Description:

This parameter concerns the retrieval of the maximum capacity of an account associated with the PPPoE dialing.

Parameter:

None

Dependency:

servicepppoe

Authority:

Operator or Administrator

12.3.2.30 pppoeaccount

Description:

This parameter concerns the retrieval of the account associated with the PPPoE dialing.

Parameter:

None

Dependency:

servicepppoe

Authority:

Operator or Administrator

12.3.2.31 pppoeactive

Description:

This parameter concerns the retrieval of the status related to the PPPoE connection.

- 0 - Inert
- 1 - Active

Dependency:

servicepppoe

Parameter:

None

Authority:

Operator or Administrator

12.3.2.32 pppoeenable

Description:

This parameter concerns the retrieval of the status related to the PPPoE.

- 0 - Disabled

- 1 - Enabled

Parameter:

None

Dependency:

servicepppoe

Authority:

Operator or Administrator

12.3.2.33 pppoemodename

Description:

This parameter concerns the retrieval of the descriptions related to the PPPoE mode.

Parameter	Description
0	OFF
1	ON
2	TEST
all	All strings combined above.

Parameter:

None

Dependency:

servicepppoe

Authority:

Operator or Administrator

12.3.2.34 pppoepwd

Description:

This parameter concerns the retrieval of the password associated with the PPPoE dialing.

Parameter:

None

Dependency:

servicepppoe

Authority:

Operator or Administrator

12.3.2.35 servicepppoe

Description:

This parameter concerns the retrieval of the service related to the PPPoE dialing provided in the device.

- 0 - Unavailable
- 1 - Accessible

Parameter:

None

Authority:

Viewer or greater

12.3.2.36 sntpfrequency

Description:

This parameter concerns the retrieval of the frequency related to the SNTP calibration. The reference codes are listed in TAB 7-13.

Parameter:

None

Authority:

Operator or Administrator

12.3.2.37 sntpip

Description:

This parameter concerns the retrieval of the FQDN of an SNTP server.

Parameter:

None

Authority:

Operator or Administrator

12.3.2.38 sntptimezone

Description:

This parameter concerns the retrieval of the time zone of the device associated with the SNTP calibration. The reference codes are listed in TAB 7-15.

Parameter:

None

Authority:

Operator or Administrator

12.3.2.39 serviceupnpdevice

Description:

This parameter concerns the retrieval of the service of the UPnP provided in the device.

- 0 - Unavailable
- 1 - Accessible

Parameter:

None

Authority:

Viewer or greater

12.3.2.40 upnpenable

Description:

This parameter concerns the retrieval of the status related to the UPnP protocol.

- 0 - Disabled
- 1 - Enabled

Dependency:

serviceupnpdevice

Parameter:

None

Authority:

Operator or Administrator

12.3.2.41 upnpport

Description:

This parameter concerns the retrieval of the UPnP port.

Parameter:

None

Dependency:

serviceupnpdevice

Authority:

Operator or Administrator

12.3.2.42 upnpssdpage

Description:

This parameter concerns the retrieval of the refresh period related to the UPnP broadcasting.

Parameter:

None

Dependency:

serviceupnpdevice

Authority:

Operator or Administrator

12.3.2.43 upnpssdpport

Description:

This parameter concerns the retrieval of the SSDP port related to the UPnP protocol.

Parameter:

None

Dependency:

serviceupnpdevice

Authority:

Operator or Administrator

12.3.2.44 socketauthority

Description:

This parameter concerns the retrieval of the authority of the connecting socket. The returned value is listed in TAB 4-6.

Parameter:

None

Dependency:

None

Authority:

None

12.3.2.45 authoritychange

Description:

This parameter shows the status whether the authority table of the device is modified.

- 0 - Intact
- 1 - Modified

Parameter:

None

Dependency:

None

Authority:

None

12.3.2.46 serviceftpclient

Description:

This parameter concerns the retrieval of the service related to the FTP client provided in the device.

- 0 - Unavailable
- 1 - Accessible

Parameter:

None

Dependency:

None

Authority:

Viewer or greater

12.3.2.47 servicesmtpclient

Description:

This parameter concerns the retrieval of the service related to the SMTP client provided in the device.

- 0 - Unavailable
- 1 - Accessible

Parameter:

None

Dependency:

None

Authority:

Viewer or greater

12.3.2.48 serviceipfilter

Description:

This parameter concerns the retrieval of the service related to the IP filter provided in the device.

- 0 - Unavailable
- 1 - Accessible

Parameter:

None

Dependency:

None

Authority:

Viewer or greater

12.3.2.49 ipfilterenable

Description:

This parameter concerns the retrieval of the status of the IP filter.

- 0 - Disabled
- 1 - Enabled

Parameter:

None

Dependency:

serviceipfilter

Authority:

Viewer or greater

12.3.2.50 ipfilterpolicy

Description:

This parameter concerns the retrieval of the specific IP filter policy.

- 0 - Disabled
- 1 - Enabled

The detailed information about the policy format is explained in Chapter 7.3.2.42.

Parameter:

The parameter ranges from 0 to 6.

Dependency:

serviceipfilter

Authority:

Operator or Administrator

12.3.2.51 quotainbound

Description:

This parameter concerns the retrieval of the network inbounds, and '**0**' means no limitation. The unit is in kilo bytes.

Parameter:

None

Dependency:

None

Authority:

Operator or Administrator

12.3.2.52 quotaoutbound

Description:

This parameter concerns the retrieval of the network outbound, and '**0**' means no limitation. The unit is in kilo bytes.

Parameter:

None

Dependency:

None

Authority:

Operator or Administrator

12.3.2.53 maxquotainbound

Description:

This parameter concerns the retrieval of the maximum limitation on the network inbound. The unit is in kilo bytes.

Parameter:

None

Dependency:

None

Authority:

Operator or Administrator

12.3.2.54 maxquotaoutbound

Description:

This parameter concerns the retrieval of the maximum limitation on the network outbound. The unit is in kilo bytes.

Parameter:

None

Dependency:

None

Authority:

Operator or Administrator

12.3.3 System

This chapter will discuss all system-dependent parameters.

12.3.3.1 imagesource

Description:

This parameter concerns the retrieval of the type of the image source; the reference codes are listed as below.

Value	Description
0	NTSC
1	PAL
2	CMOS-NTSC
3	CMOS-PAL

TAB 12-26

Parameter:

None

Authority:

Viewer or greater

12.3.3.2 videomode

Description:

This parameter concerns the retrieval of the video mode; the reference codes are listed as below.

Value	Description
0	NTSC
1	PAL
2	VGA

TAB 12-27

Parameter:

None

Authority:

Viewer or greater

12.3.3.3 date

Description:

This parameter concerns the retrieval of the local date in the device.

Parameter:

Parameter	Description
0	The year.
1	The month.
2	The day.
(NULL)	The local date.

TAB 12-28

Authority:

Viewer or greater

12.3.3.4 daylight

Description:

This parameter concerns the retrieval of the status of the daylight saving.

- 0 - Disabled
- 1 - Enabled

Parameter:

None

Authority:

Viewer or greater

12.3.3.5 time

Description:

This parameter concerns the retrieval of the local time in the device.

Parameter:

Parameter	Description
0	The hour.
1	The minute.
2	The second.
(NULL)	The local time.

TAB 12-29

Authority:

Viewer or greater

12.3.3.6 timezonename

Description:

This parameter concerns the retrieval of the descriptions of the time zones.

Parameter:

Parameter	Description
0	GMT-12 Eniwetok, Kwajalein
1	GMT-11 Midway Island, Samoa
2	GMT-10 Hawaii
3	GMT-09 Alaska
4	GMT-08 Pacific Time (US & Canada); Tijuana
5	GMT-07 Mountain Time (US & Canada), Arizona
6	GMT-06 Central Time (US & Canada), Mexico City, Tegucigalpa, Saskatchewan
7	GMT-05 Eastern Time (US & Canada), Indiana(East), Bogota, Lima
8	GMT-04 Atlantic Time (Canada), Caracas, La Paz
9	GMT-03 Brasilia, Buenos Aires, Georgetown
10	GMT-02 Mid-Atlantic
11	GMT-01 Azores, Cape Verdes Is.

12	GMT+00 GMT, Dublin, Edinburgh, London, Lisbon, Monrovia, Casablanca
13	GMT+01 Berlin, Stockholm, Rome, Bern, Brussels, Vienna, Paris, Madrid, Amsterdam, Prague, Warsaw, Budapest
14	GMT+02 Athens, Helsinki, Istanbul, Cairo, Eastern Europe, Harare, Pretoria, Israel
15	GMT+03 Baghdad, Kuwait, Nairobi, Riyadh, Moscow, St. Petersburg, Kazan, Volgograd
16	GMT+04 Abu Dhabi, Muscat, Tbilisi
17	GMT+05 Islamabad, Karachi, Ekaterinburg, Tashkent
18	GMT+06 Alma Ata, Dhaka
19	GMT+07 Bangkok, Jakarta, Hanoi
20	GMT+08 Taipei, Beijing, Chongqing, Urumqi, Hong Kong, Perth, Singapore
21	GMT+09 Tokyo, Osaka, Sapporo, Seoul, Yakutsk
22	GMT+10 Brisbane, Melbourne, Sydney, Guam, Port Moresby, Vladivostok, Hobart
23	GMT+11 Magadan, Solomon Is., New Caledonia
24	GMT+12 Fiji, Kamchatka, Marshall Is., Wellington, Auckland
(NULL)	The title of the local time zone.

TAB 12-30

Authority:

Operator or Administrator

12.3.3.7 maxtstampcolor

Description:

This parameter concerns the retrieval of the maximum color of the time stamp.

Parameter:

None

Dependency:

The parameter is valid when the return value of supporttstamp is equal to 1.

Authority:

Operator or Administrator

12.3.3.8 maxtstampformat

Description:

This parameter concerns the retrieval of the maximum format of the time stamp.

Parameter:

None

Dependency:

The parameter is valid when the return value of supporttstamp is equal to 1.

Authority:

Operator or Administrator

12.3.3.9 maxtstamploc

Description:

This parameter concerns the retrieval of the maximum location of the time stamp.

Parameter:

None

Dependency:

The parameter is valid when the return value of supporttstamp is equal to 1.

Authority:

Operator or Administrator

12.3.3.10 tstampcolor

Description:

This parameter concerns the retrieval of the color of the time stamp. The reference codes are listed in TAB 7-18.

Parameter:

None

Dependency:

The parameter is valid when the return value of supporttstamp is equal to 1 or 2.

Authority:

Operator or Administrator

12.3.3.11 tstampcolorname

Description:

This parameter concerns the retrieval of the descriptions of the time stamp colors.

Parameter:

Parameter	Description
0	BLACK
1	WHITE
2	RED
3	ORANGE
4	YELLOW
5	GREEN
6	BLUE
7	PURPLE
all	All strings combined above

TAB 12-31

Dependency:

The parameter is valid when the return value of supporttstamp is equal to 1 or 2.

Authority:

Operator or Administrator

12.3.3.12 tstampenable

Description:

This parameter concerns the retrieval of the status of the time stamp.

- 0 - Disabled
- 1 - Enabled

Parameter:

None

Dependency:

The parameter is valid when the return value of supporttstamp is equal to 1 or 2.

Authority:

Operator or Administrator

12.3.3.13 tstampformat

Description:

This parameter concerns the retrieval of the format of the time stamp. The reference codes are listed in TAB 7-19.

Parameter:

None

Authority:

Operator or Administrator

Dependency:

The parameter is valid when the return value of supporttstamp is equal to 1.

12.3.3.14 tstampformatname

Description:

This parameter concerns the retrieval of the descriptions of the time stamp formats.

Parameter:

Parameter	Description
0	YY/MM/DD
1	MM/DD/YY
2	DD/MM/YY
3	YY/MM/DD TITLE
4	MM/DD/YY TITLE
5	DD/MM/YY TITLE
all	All strings combined above

TAB 12-32

Dependency:

The parameter is valid when the return value of supporttstamp is equal to 1.

Authority:

Operator or Administrator

12.3.3.15 tstamploc

Description:

This parameter concerns the retrieval of the location of the time stamp. The reference codes are listed in TAB 7-20.

Parameter:

None

Dependency:

The parameter is valid when the return value of supporttstamp is equal to 1.

Authority:

Operator or Administrator

12.3.3.16 tstamplocname

Description:

This parameter concerns the retrieval of the descriptions of the time stamp locations.

Parameter:

Parameter	Description
0	UPPER LEFT
1	UPPER RIGHT
2	BOTTOM LEFT
3	BOTTOM RIGHT
all	All strings combined above

TAB 12-33

Dependency:

The parameter is valid when the return value of supporttstamp is equal to 1.

Authority:

Operator or Administrator

12.3.3.17 authority

Description:

This parameter concerns the retrieval of the authority of a specific user in the system.

Parameter:

The parameter ranges from 0 to 9.

Authority:

Operator or Administrator

12.3.3.18 authorityadmin

Description:

This parameter concerns the retrieval of the index of an '**ADMINISTRATOR**' in the system.

Parameter:

None

Authority:

Guest or greater

12.3.3.19 authorityoperator

Description:

This parameter concerns the retrieval of the index of an '**OPERATOR**' in the system.

Parameter:

None

Authority:

Guest or greater

12.3.3.20 authorityviewer

Description:

This parameter concerns the retrieval of the index of a '**VIEWER**' in the system.

Parameter:

None

Authority:

Guest or greater

12.3.3.21 maxnamelen

Description:

This parameter concerns the retrieval of the maximum capacity of a user name.

Parameter:

None

Authority:

Guest or greater

12.3.3.22 maxpwdlen

Description:

This parameter concerns the retrieval of the maximum capacity of a password.

Parameter:

None

Authority:

Guest or greater

12.3.3.23 minnamelen

Description:

This parameter concerns the retrieval of the minimum length of a user name.

Parameter:

None

Authority:

Guest or greater

12.3.3.24 user

Description:

This parameter concerns the retrieval of the name with a specific index.

Parameter:

The parameter is the index in the registration table.

Authority:

Operator or Administrator

12.3.3.25 audioenable

Description:

This parameter concerns the retrieval of the audio status; the default setting is disabled.

- 0 - Disabled
- 1 - Enabled

Warning: Some countries consider audio recording a matter of privacy.

Parameter:

None

Dependency:

supportaudio

Authority:

Viewer or greater

12.3.3.26 audioinmax

Description:

This parameter concerns the retrieval of the maximum volume of the audio input.

Parameter:

None

Dependency:

supportaudio

Authority:

Operator or Administrator

12.3.3.27 audioinvolume

Description:

This parameter concerns the retrieval of the volume of audio input control.

Parameter:

None

Dependency:

supportaudio

Authority:

Viewer or greater

12.3.3.28 audiooutvolume

Description:

This parameter concerns the retrieval of the volume of audio output.

Parameter:

None

Dependency:

supportaudio

Authority:

Viewer or greater

12.3.3.29 ccdx

Description:

This parameter concerns the retrieval of the horizontal starting pointer when a picture is captured.

Parameter:

None

Authority:

Operator or Administrator

12.3.3.30 ccdy

Description:

This parameter concerns the retrieval of the vertical scanning line when an image is captured.

Parameter:

None

Authority:

Operator or Administrator

12.3.3.31 osdx

Description:

This parameter concerns the retrieval of the starting horizontal pixel of the OSD.

Parameter:

None

Authority:

Operator or Administrator

12.3.3.32 osdy

Description:

This parameter concerns the retrieval of the starting vertical pixel of the OSD.

Parameter:

None

Authority:

Operator or Administrator

12.3.3.33 event

Description:

This parameter concerns the retrieval of the event message with a specific index.

Parameter:

The parameter is the index mentioned above.

Authority:

Operator or Administrator

12.3.3.34 eventlocation

Description:

This parameter concerns the retrieval of the index of the output event page.

Parameter:

None

Authority:

Operator or Administrator

12.3.3.35 biosversion

Description:

This parameter concerns the retrieval of the BIOS version of the device.

Parameter:

Parameter	Description
0	Main version mummer
1	Meta version number
(NULL)	Full version number

TAB 12-34

Authority:

Guest or greater

12.3.3.36 compiletime

Description:

This parameter concerns the retrieval of information regarding the compiled time.

Parameter:

Parameter	Description
0	The date.
1	The time.
(NULL)	Both the date and time.

TAB 12-35

Authority:

Guest or greater

12.3.3.37 devicename

Description:

This parameter concerns the retrieval of the description of the device.

Parameter:

None

Authority:

Guest or greater

12.3.3.38 kernelversion

Description:

This parameter concerns the retrieval of the kernel version of the device.

Parameter:

Parameter	Description
0	Main version mummer
1	Meta version number
(NULL)	Full version number

TAB 12-36

Authority:

Guest or greater

12.3.3.39 maxtitlelen

Description:

This parameter concerns the retrieval of the maximum capacity of the title in the device.

Parameter:

None

Authority:

Operator or Administrator

12.3.3.40 oemmaker

Description:

This parameter concerns the retrieval of the description of the OEM maker.

Parameter:

None

Authority:

Guest or greater

12.3.3.41 oemmodel

Description:

This parameter concerns the retrieval of the description of the OEM model.

Parameter:

None

Authority:

Guest or greater

12.3.3.42 softwareversion

Description:

This parameter concerns the retrieval of the version number of the device.

Parameter:

Parameter	Description
0	Main version mummer
1	Meta version number
(NULL)	Full version number

TAB 12-37

Authority:

Guest or greater

12.3.3.43 title

Description:

This parameter concerns the retrieval of the title of the device.

Parameter:

None

Authority:

Viewer or greater

12.3.3.44 timeformat

Description:

This parameter concerns the retrieval of the time format of the device.

Parameter:

None

Authority:

Viewer or greater

12.3.3.45 timeformatname

Description:

This parameter concerns the retrieval of the descriptions of the time format.

Parameter:

Parameter	Description
0	YYYY/MM/DD
1	MM/DD/YYYY
2	DD/MM/YYYY
all	All strings combined above

TAB 12-38

Authority:

Operator or Administrator

12.3.3.46 tstampmaxbrightness

Description:

This parameter concerns the retrieval of the maximum number of the time stamp brightness.

Parameter:

None

Dependency:

The parameter is valid when the return value of supporttstamp is equal to 2.

Authority:

Operator or Administrator

12.3.3.47 tstampmaxtimeformat

Description:

This parameter concerns the retrieval of the maximum number of the time stamp format.

Parameter:

None

Dependency:

The parameter is valid when the return value of supporttstamp is equal to 2.

Authority:

Operator or Administrator

12.3.3.48 tstampmaxinfoformat

Description:

This parameter concerns the retrieval of the maximum number of the time stamp information format.

Parameter:

None

Dependency:

The parameter is valid when the return value of supporttstamp is equal to 2.

Authority:

Operator or Administrator

12.3.3.49 tstampmaxposition

Description:

This parameter concerns the retrieval of the maximum number of the time stamp location.

Parameter:

None

Dependency:

The parameter is valid when the return value of supporttstamp is equal to 2.

Authority:

Operator or Administrator

12.3.3.50 tstamptimeformat

Description:

This parameter concerns the retrieval of the time format associated with the time stamp on the image.

Parameter:

None

Dependency:

The parameter is valid when the return value of supporttstamp is equal to 2.

Authority:

Operator or Administrator

12.3.3.51 tstampinfoformat

Description:

This parameter concerns the retrieval of the channel information associated with the time stamp on the image.

Parameter:

None

Dependency:

The parameter is valid when the return value of supporttstamp is equal to 2.

Authority:

Operator or Administrator

12.3.3.52 tstamptimeformatname

Description:

This parameter concerns the retrieval of the time format name associated with the time stamp on the image.

Parameter:

Parameter	Description
0	YY/MM/DD
1	MM/DD/YY
2	DD/MM/YY
3	Empty
all	All strings combined above

TAB 12-39

Dependency:

The parameter is valid when the return value of supporttstamp is equal to 2.

Authority:

Operator or Administrator

12.3.3.53 tstampinfoformatname

Description:

This parameter concerns the retrieval of the channel information name associated with the time stamp on the image.

Parameter:

Parameter	Description
0	TITLE
1	Empty
all	All strings combined above

TAB 12-40

Dependency:

The parameter is valid when the return value of supporttstamp is equal to 2.

Authority:

Operator or Administrator

12.3.3.54 tstamptimeposition

Description:

This parameter concerns the retrieval of the time location associated with the time stamp on the image.

Parameter:

None

Dependency:

The parameter is valid when the return value of supporttstamp is equal to 2.

Authority:

Operator or Administrator

12.3.3.55 tstampinfoposition

Description:

This parameter concerns the retrieval of the channel location associated with the time stamp on the image.

Parameter:

None

Dependency:

The parameter is valid when the return value of supporttstamp is equal to 2.

Authority:

Operator or Administrator

12.3.3.56 tstamppositionname

Description:

This parameter concerns the retrieval of the channel location name associated with the time stamp on the image.

Parameter:

Parameter	Description
0	TOP-LEFT
1	TOP-CENTER
2	TOP-RIGHT
3	MIDDLE-LEFT
4	MIDDLE-CENTER
5	MIDDLE-RIGHT
6	BOTTOM-LEFT
7	BOTTOM-CENTER
8	BOTTOM-RIGHT
all	All strings combined above

TAB 12-41

Dependency:

The parameter is valid when the return value of supporttstamp is equal to 2.

Authority:

Operator or Administrator

12.3.4 UART

The chapter will discuss the parameters related to communication with a UART or RS-485 device.

12.3.4.1 485id

Description:

This parameter concerns the retrieval of the ID number related to the RS-485 (0-254) communication.

Parameter:

None

Dependency:

supportrs485

Authority:

Operator or Administrator

12.3.4.2 485speed

Description:

This parameter concerns the retrieval of the speed related to the RS-485 communication; the reference codes are listed in TAB 7-28.

Parameter:

None

Dependency:

supportrs485

Authority:

Operator or Administrator

12.3.4.3 485type

Description:

This parameter concerns the retrieval of the type related to the RS-485 communication; the reference codes are listed in TAB 7-26.

Parameter:

None

Dependency:

supportrs485

Authority:

Operator or Administrator

12.3.4.4 maxrs485id

Description:

This parameter concerns the retrieval of the maximum number of the RS-485 ID.

Parameter:

None

Dependency:

supportrs485

Authority:

Operator or Administrator

12.3.4.5 uartspeed

Description:

This parameter concerns the retrieval of the speed related to the RS-232 communication; the reference codes are listed in TAB 7-29.

Parameter:

None

Dependency:

supportrs232

Authority:

Operator or Administrator

12.3.4.6 uartspeedname

Description:

This parameter concerns the retrieval of the descriptions associated with the speed of the RS-232.

Parameter:

Parameter	Description
0	2400 bps
1	4800 bps
2	9600 bps
3	19200 bps
4	28800 bps
5	38400 bps
6	57600 bps
7	115200 bps
all	All numbers combined above.

TAB 12-42

Dependency:

supportrs232

Authority:

Operator or Administrator

12.3.4.7 uarttype

Description:

This parameter concerns the retrieval of the type related to the RS-485 communication; the reference codes are listed in TAB 7-27.

Parameter:

None

Dependency:

supportrs232

Authority:

Operator or Administrator

12.3.4.8 uarttypename

Description:

This parameter concerns the retrieval of the descriptions associated with the RS-232 type.

Parameter:

Parameter	Description
0	8-N-1
1	8-E-1
2	8-O-1
3	7-N-1
4	7-E-1
5	7-O-1
all	All numbers combined above.

TAB 12-43

Dependency:

supportrs232

Authority:

Operator or Administrator

12.3.5 Wireless

Wireless can be very useful in utilizing a device without the annoyance of having a network cable attached all the time. This chapter will discuss the entire keywords related to wireless.

12.3.5.1 regdomain

Description:

This parameter concerns the retrieval of the value related to the '**Regulator Domain**'. The reference codes are listed as below.

Value	Domain
0	FCC
1	DOC
2	ETSI
3	SPAIN
4	FRANCE
5	MKK (Japan)
6	MKK1 (Japan)

TAB 12-44

Parameter:

None

Dependency:

supportwireless

Authority:

Operator or Administrator

12.3.5.2 wladhoc

Description:

This parameter concerns the retrieval of the status related to the Ad-Hoc mode.

- 0 - Disabled
- 1 - Enabled

Parameter:

None

Dependency:

supportwireless

Authority:

Operator or Administrator

12.3.5.3 wlchannel

Description:

This parameter concerns the retrieval of the desired wireless channel or the channel it used.

Parameter:

None

Dependency:

supportwireless

Authority:

Operator or Administrator

12.3.5.4 wlencryption

Description:

This parameter concerns the retrieval of the encryption mode associated with wireless; the reference codes are listed in TAB 7-31.

Parameter:

None

Dependency:

supportwireless

Authority:

Operator or Administrator

12.3.5.5 wlessid

Description:

This parameter concerns the retrieval of the ESSID related to wireless.

Parameter:

None

Dependency:

supportwireless

Authority:

Operator or Administrator

12.3.5.6 wlinsert

Description:

This parameter concerns the retrieval of the status in which a wireless card is inserted in the device.

- 0 - Absent
- 1 - Inserted

Parameter:

None

Dependency:

supportwireless

Authority:

Viewer or greater

12.3.5.7 wlwepkey

Description:

This parameter concerns the retrieval of the WEP key with a specific number from 0 to 3.

Parameter:

Parameter	Descriptions
0	The first WEP key
1	The second WEP key
2	The third WEP key
3	The fourth WEP key

TAB 12-45

Dependency:

supportwireless

Authority:

Operator or Administrator

12.3.5.8 wlwepwhich

Description:

This parameter concerns the retrieval of the key number the wireless module used (0-3).

Parameter:

None

Dependency:

supportwireless

Authority:

Operator or Administrator

12.3.6 Recording

The IP Camera will record the images when an alarm in triggered or a schedule becomes active. This chapter discusses the associated keywords related to the recording.

12.3.6.1 alarmduration

Description:

This parameter concerns the retrieval of the value related to the alarm duration; the reference codes are listed in TAB 7-33.

Parameter:

None

Authority:

Operator or Administrator

12.3.6.2 motionblock

Description:

This parameter concerns the retrieval of the bitmaps associated with the motion detection blocks.

Parameter:

None

Remark:

This parameter is only effective when the value of '*supportmotion*' is equal to '**2**' (the multi-block mode).

Dependency:

supportmotion

Authority:

Operator or Administrator

12.3.6.3 motionenable

Description:

This parameter concerns the retrieval of the status related to motion detection.

- 0 - Disabled
- 1 - Enabled

Parameter:

None

Dependency:

supportmotion

Authority:

Operator or Administrator

12.3.6.4 motionsensitivity

Description:

This parameter concerns the retrieval of the sensitivity associated with motion detection; the reference codes are listed in TAB 7-34.

Parameter:

None

Dependency:

supportmotion

Authority:

Operator or Administrator

12.3.6.5 motionx1

Description:

This parameter concerns the retrieval of the left horizontal coordination related to motion detection.

Parameter:

None

Remark:

This parameter is only effective when the value of '*supportmotion*' is equal to '**1**' (the single-block mode).

Dependency:

supportmotion

Authority:

Operator or Administrator

12.3.6.6 motionx2

Description:

This parameter concerns the retrieval of the right horizontal coordination related to motion detection.

Parameter:

None

Remark:

This parameter is only effective when the value of '*supportmotion*' is equal to '**1**' (the single-block mode).

Dependency:

supportmotion

Authority:

Operator or Administrator

12.3.6.7 motionxblock

Description:

This parameter concerns the retrieval of the maximum horizontal block associated with motion detection.

Parameter:

None

Remark:

This parameter is only effective when the value of '*supportmotion*' is equal to '**2**' (the multi-block mode).

Dependency:

supportmotion

Authority:

Operator or Administrator

12.3.6.8 motionxlimit

Description:

This parameter concerns the retrieval of the maximum horizontal pixel associated with motion detection.

Parameter:

None

Dependency:

supportmotion

Authority:

Operator or Administrator

12.3.6.9 motiony1

Description:

This parameter concerns the retrieval of the upper vertical coordination related to motion detection.

Parameter:

None

Remark:

This parameter is only effective when the value of '*supportmotion*' is equal to '**1**' (the single-block mode).

Dependency:

supportmotion

Authority:

Operator or Administrator

12.3.6.10 motiony2

Description:

This parameter concerns the retrieval of the lower vertical coordination related to motion detection.

Parameter:

None

Dependency:

supportmotion

Authority:

Operator or Administrator

12.3.6.11 motionyblock

Description:

This parameter concerns the retrieval of the maximum vertical block associated with motion detection.

Parameter:

None

Remark:

This parameter is only effective when the value of '*supportmotion*' is equal to '**2**' (the multi-block mode).

Dependency:

supportmotion

Authority:

Operator or Administrator

12.3.6.12 motionylimit

Description:

This parameter concerns the retrieval of the maximum vertical pixel associated with motion detection.

Parameter:

None

Dependency:

supportmotion

Authority:

Operator or Administrator

12.3.6.13 gioinenable

Description:

This parameter concerns the retrieval of the status related to the GIO alarm input.

- 0 - Disabled
- 1 - Enabled

Parameter:

This parameter has to be specified to the channel number when the target is multi-channel video server.

Authority:

Operator or Administrator

12.3.6.14 giooutenable

Description:

This parameter concerns the retrieval of the status related to the GIO alarm output.

- 0 - Disabled
- 1 - Enabled

Parameter:

This parameter has to be specified to the channel number when the target is multi-channel video server.

Authority:

Operator or Administrator

12.3.6.15 recordduration

Description:

This parameter concerns the retrieval of the descriptions related to the alarm duration.

Parameter:

Parameter	Descriptions
0	0 second
1	30 seconds
2	1 minute
3	5 minutes
4	10 minutes
5	Non-Stop
all	All strings combined above

TAB 12-46

Authority:

Operator or Administrator

12.3.6.16 recordtype

Description:

This parameter concerns the retrieval of the descriptions associated with the alarm rate.

Parameter:

Parameter	NTSC/VGA	PAL
0	60F / 1S	50F / 1S
1	30F / 1S	25F / 1S
2	20F / 1S	17F / 1S
3	10F / 1S	12.5F / 1S
4	5F / 1S	6.25F / 1S
5	2.5F / 1S	3.13F / 1S
6	1.25F / 1S	1.56F / 1S
7	0.625F / 1S	0.877F / 1S
8	1F / 4S	1F / 3.2S
9	1F / 6S	1F / 4.8S
10	1F / 8S	1F / 6.4S
all	All strings combined above	All strings combined above

TAB 12-47

Authority:

Operator or Administrator

12.3.6.17 aftpenable

Description:

This parameter concerns the retrieval of the status related to the FTP uploading when an alarm is triggered.

- 0 - Disabled
- 1 - Enabled

Parameter:

None

Authority:

Operator or Administrator

12.3.6.18 ftpip

Description:

This parameter concerns the retrieval of the FQDN related to the uploading FTP server.

Parameter:

None

Authority:

Operator or Administrator

12.3.6.19 ftppassword

Description:

This parameter concerns the retrieval of the password related to the uploading FTP server.

Parameter:

None

Authority:

Operator or Administrator

12.3.6.20 ftppath

Description:

This parameter concerns the retrieval of the path related to the uploading FTP server.

Parameter:

None

Authority:

Operator or Administrator

12.3.6.21 ftppiport

Description:

This parameter concerns the retrieval of the port related to the uploading FTP server.

Parameter:

None

Authority:

Operator or Administrator

12.3.6.22 ftpuser

Description:

This parameter concerns the retrieval of the account related to the uploading FTP server.

Parameter:

None

Authority:

Operator or Administrator

12.3.6.23 maxftppathlen

Description:

This parameter concerns the retrieval of the maximum capacity of the path associated with the FTP login.

Parameter:

None

Authority:

Operator or Administrator

12.3.6.24 maxftppwdlen

Description:

This parameter concerns the retrieval of the maximum capacity of the password associated with the FTP login.

Parameter:

None

Authority:

Operator or Administrator

12.3.6.25 maxftpuserlen

Description:

This parameter concerns the retrieval of the maximum capacity of a user name associated with the FTP login.

Parameter:

None

Authority:

Operator or Administrator

12.3.6.26 maxprealarmjpeg

Description:

This parameter concerns the retrieval of the maximum file number of the pre-alarm buffer.

Parameter:

None

Authority:

Operator or Administrator

12.3.6.27 postalarm

Description:

This parameter concerns the retrieval of the file quantity of the post-alarm mode.

Parameter:

None

Authority:

Operator or Administrator

12.3.6.28 prealarm

Description:

This parameter concerns the retrieval of the file quantity of the pre-alarm mode.

Parameter:

None

Authority:

Operator or Administrator

12.3.6.29 rftpenable

Description:

This parameter concerns the retrieval of the status related to the FTP uploading when a schedule is activated.

- 0 - Disabled
- 1 - Enabled

Parameter:

None

Authority:

Operator or Administrator

12.3.6.30 rftprate

Description:

This parameter concerns the retrieval of the rate related to the FTP uploading; the reference codes are listed in TAB 7-35.

Parameter:

None

Authority:

Operator or Administrator

12.3.6.31 asmtpattach

Description:

This parameter concerns the retrieval of the attached number when an SMTP session is activated.

Parameter:

None

Authority:

Operator or Administrator

12.3.6.32 asmtpenable

Description:

This parameter concerns the retrieval of the status of the SMTP when an alarm is triggered.

- 0 - Disabled
- 1 - Enabled

Parameter:

None

Authority:

Operator or Administrator

12.3.6.33 emailuser

Description:

This parameter concerns the retrieval of the addressee of the SMTP.

Parameter:

None

Authority:

Operator or Administrator

12.3.6.34 maxemailuserlen

Description:

This parameter concerns the retrieval of the maximum capacity of the user name associated with an SMTP login.

Parameter:

None

Authority:

Operator or Administrator

12.3.6.35 smtpip

Description:

This parameter concerns the retrieval of the FQDN of the target SMTP server.

Parameter:

None

Authority:

Operator or Administrator

12.3.6.36 smtpmaxattach

Description:

This parameter concerns the retrieval of the maximum quantity of attached files that an SMTP session will send.

Parameter:

None

Authority:

Operator or Administrator

12.3.6.37 smtpminattach

Description:

This parameter concerns the retrieval of the minimum quantity of attached files that an SMTP session will send.

Parameter:

None

Authority:

Operator or Administrator

12.3.6.38 maxsdrecord

Description:

This parameter concerns the retrieval of the maximum file quantity associated with an SD-Card recording.

Parameter:

None

Dependency:

supportsd

Authority:

Operator or Administrator

12.3.6.39 sdaenable

Description:

This parameter concerns the retrieval of the status of an SD-Card recording when an alarm is triggered.

- 0 - Disabled
- 1 - Enabled

Parameter:

None

Dependency:

supportsd

Authority:

Operator or Administrator

12.3.6.40 sdcount

Description:

This parameter concerns the retrieval of the file quantity when an SD-Card is recording.

Parameter:

None

Dependency:

supportsd

Authority:

Operator or Administrator

12.3.6.41 sdduration

Description:

This parameter concerns the retrieval of the value of the duration when an SD-Card is recording; the reference codes are listed in TAB 7-36.

Parameter:

None

Dependency:

supportsd

Authority:

Operator or Administrator

12.3.6.42 sdrate

Description:

This parameter concerns the retrieval of the rate of an SD-Card recording; the reference codes are listed in TAB 7-37 and TAB 7-38.

Parameter:

None

Dependency:

supportsd

Authority:

Operator or Administrator

12.3.6.43 sdrecordtype

Description:

This parameter concerns the retrieval of the selected recording type in an SD-Card procedure which is triggered or activated by an alarm or a schedule. The reference codes are listed in TAB 7-42.

Parameter:

None

Dependency:

supportsd

Authority:

Operator or Administrator

12.3.6.44 sdrenable

Description:

This parameter concerns the retrieval of the status of an SD-Card recording when a schedule is activated.

- 0 - Disabled
- 1 - Enabled

Parameter:

None

Dependency:

supportsd

Authority:

Operator or Administrator

12.3.6.45 cfaenable

Description:

This parameter concerns the retrieval of the status of a CF-Card recording when an alarm is triggered.

- 0 - Disabled
- 1 - Enabled

Parameter:

None

Dependency:

supportcfcard

Authority:

Operator or Administrator

12.3.6.46 cfcount

Description:

This parameter concerns the retrieval of the file quantity when a CF-Card is recording.

Parameter:

None

Dependency:

supportcfcard

Authority:

Operator or Administrator

12.3.6.47 cfduration

Description:

This parameter concerns the retrieval of the value of the duration of a CF-Card recording; the reference codes are listed in TAB 7-36.

Parameter:

None

Dependency:

supportcfcard

Authority:

Operator or Administrator

12.3.6.48 cfdurationname

Description:

This parameter concerns the retrieval of the descriptions of the duration of recording in a CF-Card.

Parameter:

Parameter	Descriptions
0	0 second
1	30 seconds
2	1 minute
3	5 minutes
4	10 minutes
5	Non-Stop
all	All strings combined above

TAB 12-48

Dependency:

supportcfcard

Authority:

Operator or Administrator

12.3.6.49 cfrate

Description:

This parameter concerns the retrieval of the rate of a CF-Card's recording; the reference codes are listed in TAB 7-37 and TAB 7-38.

Parameter:

None

Dependency:

supportcfcard

Authority:

Operator or Administrator

12.3.6.50 cfrecordtype

Description:

This parameter concerns the retrieval of the selected recording type in a CF-Card procedure which is triggered or activated by an alarm or a schedule. The reference codes are listed in TAB 7-42.

Parameter:

None

Dependency:

supportcfcard

Authority:

Operator or Administrator

12.3.6.51 cfrenable

Description:

This parameter concerns the retrieval of the status of a CF-Card recording when a schedule is activated.

- 0 - Disabled

- 1 - Enabled

Parameter:

None

Dependency:

supportcfcard

Authority:

Operator or Administrator

12.3.6.52 maxcfrecord

Description:

This parameter concerns the retrieval of the maximum items in the recording duration of a CF-Card.

Parameter:

None

Dependency:

supportcfcard

Authority:

Operator or Administrator

12.3.6.53 sddurationname

Description:

This parameter concerns the retrieval of the descriptions of a recording duration in an SD-Card.

Parameter:

Parameter	Descriptions
0	0 second
1	30 seconds
2	1 minute

3	5 minutes
4	10 minutes
5	Non-Stop
all	All strings combined above

TAB 12-49

Dependency:

supportsd

Authority:

Operator or Administrator

12.3.6.54 schedule

Description:

This parameter concerns the retrieval of a schedule table's contents in a specific order. The data format is listed in TAB 7-40.

Parameter:

The parameter is in the order mentioned above.

Authority:

Operator or Administrator

12.3.6.55 aviprealarm

Description:

This parameter concerns the retrieval of the status of pre-alarm function when the AVI recording is performed.

- 0 - Disabled
- 1 - Enabled

Parameter:

None

Authority:

Operator or Administrator

12.3.6.56 gioutname

Description:

This parameter concerns the retrieval of the descriptions of a GIO (General Input/Output) output level.

Parameter:

Parameter	Descriptions
0	Low
1	High
all	All strings combined above

TAB 12-50

Authority:

Operator or Administrator

12.3.6.57 gioinname

Description:

This parameter concerns the retrieval of the descriptions of a GIO (General Input/Output) input level.

Parameter:

Parameter	Descriptions
0	Low
1	High
all	All strings combined above

TAB 12-51

Authority:

Operator or Administrator

12.3.6.58 smtpuser

Description:

This parameter concerns the retrieval of the user account of the SMTP.

Parameter:

None

Authority:

Operator or Administrator

12.3.6.59 maxsmtpuser

Description:

This parameter concerns the retrieval of the maximum length of an e-mail user account.

Parameter:

None

Authority:

Operator or Administrator

12.3.7 Storage

12.3.7.1 defaultcardgethtm

Description:

This parameter concerns the retrieval of the URL accessing the files in the remote storage.

Parameter:

None

Authority:

Viewer or greater

12.3.7.2 defaultstorage

Description:

This parameter concerns the retrieval of the type of default storage inserted in the device; the reference codes are listed as below.

Parameter	Description
0	CF-Card
1	SD-Card
255	No Card

TAB 12-52

Parameter:

None

Authority:

Viewer or greater

12.3.7.3 cfinsert

Description:

This parameter concerns the retrieval of the status in which a CF-Card is inserted in the device.

- 0 - Absent
- 1 - Inserted

Parameter:

None

Dependency:

supportcfcard

Authority:

Viewer or greater

12.3.7.4 cfleft

Description:

This parameter concerns the retrieval of free space in a CF-Card.

Parameter:

None

Dependency:

supportcfcard

Authority:

Operator or Administrator

12.3.7.5 cfused

Description:

This parameter concerns the retrieval of the capacity of a CF-Card.

Parameter:

None

Dependency:

supportcfcard

Authority:

Operator or Administrator

12.3.7.6 sdinsert

Description:

This parameter concerns the retrieval of the status in which an SD-Card is inserted in the device.

- 0 - Absent
- 1 - Inserted

Parameter:

None

Dependency:

supportsd

Authority:

Viewer or greater

12.3.7.7 sdleft

Description:

This parameter concerns the retrieval of free space in an SD-Card.

Parameter:

None

Dependency:

supportsd

Authority:

Operator or Administrator

12.3.7.8 sdused

Description:

This parameter concerns the retrieval of the capacity of an SD-Card.

Parameter:

None

Dependency:

supportsd

Authority:

Operator or Administrator

12.3.7.9 defaultcarddelhtm

Description:

This parameter concerns the retrieval of a URL deleting the file in remote storage.

Parameter:

None

Authority:

Viewer or greater

12.3.7.10 upnpcardread

Description:

This parameter concerns the retrieval of the sharing status on the memory card when an UPnP media player accesses the device.

Parameter:

None

Authority:

Operator or Administrator

12.3.7.11 cardrewrite

Description:

This parameter concerns the retrieval of the re-write status when the memory card on the device is full.

Parameter:

None

Authority:

Operator or Administrator

12.3.8 Miscellaneous

12.3.8.1 supportagc

Description:

This parameter concerns the retrieval of the Auto Gain Control (AGC) service provided in the device.

- 0 - Unavailable
- 1 - Accessible

Parameter:

None

Authority:

Viewer or greater

12.3.8.2 supportaudio

Description:

This parameter concerns the retrieval of the audio service provided in the device.

- 0 - Unavailable
- 1 - Accessible

Parameter:

None

Authority:

Viewer or greater

12.3.8.3 supportawb

Description:

This parameter concerns the retrieval of the Auto White Balance (AWB) service provided in the device.

- 0 - Unavailable
- 1 - Accessible

Parameter:

None

Authority:

Viewer or greater

12.3.8.4 supportbacklight

Description:

This parameter concerns the retrieval of the backlight control service provided in the device.

- 0 - Unavailable
- 1 - Accessible

Parameter:

None

Authority:

Viewer or greater

12.3.8.5 supportbrightness

Description:

This parameter concerns the retrieval of the brightness control service provided in the device.

- 0 - Unavailable
- 1 - Accessible

Parameter:

None

Authority:

Viewer or greater

12.3.8.6 supportcfcard

Description:

This parameter concerns the retrieval of the CF-Card recording service provided in the device.

- 0 - Unavailable
- 1 - Accessible

Parameter:

None

Authority:

Viewer or greater

12.3.8.7 supportcolorkiller

Description:

This parameter concerns the retrieval of the color killer service provided in the device.

- 0 - Unavailable
- 1 - Accessible

Parameter:

None

Authority:

Viewer or greater

12.3.8.8 supportcontrast

Description:

This parameter concerns the retrieval of the contrast control service provided in the device.

- 0 - Unavailable
- 1 - Accessible

Parameter:

None

Authority:

Viewer or greater

12.3.8.9 supportdayandnight

Description:

This parameter concerns the retrieval of the day and night control service provided in the device.

- 0 - Unavailable
- 1 - Accessible

Parameter:

None

Authority:

Viewer or greater

12.3.8.10 supportexposure

Description:

This parameter concerns the retrieval of the exposure control service provided in the device.

- 0 - Unavailable
- 1 - Accessible

Parameter:

None

Authority:

Viewer or greater

12.3.8.11 supportfluorescent

Description:

This parameter concerns the retrieval of the fluorescent control service provided in the device.

- 0 - Unavailable
- 1 - Accessible

Parameter:

None

Authority:

Viewer or greater

12.3.8.12 supportfs

Description:

This parameter concerns the retrieval of the file system service provided in the device.

- 0 - Unavailable
- 1 - Accessible

Parameter:

None

Authority:

Viewer or greater

12.3.8.13 supporthue

Description:

This parameter concerns the retrieval of the hue control service provided in the device.

- 0 - Unavailable
- 1 - Accessible

Parameter:

None

Authority:

Viewer or greater

12.3.8.14 supportkelvin

Description:

This parameter concerns the retrieval of the color temperature control service provided in the device.

- 0 - Unavailable

- 1 - Accessible

Parameter:

None

Authority:

Viewer or greater

12.3.8.15 supportluminance

Description:

This parameter concerns the retrieval of the luminance control service provided in the device.

- 0 - Unavailable
- 1 - Accessible

Parameter:

None

Authority:

Viewer or greater

12.3.8.16 supportmirror

Description:

This parameter concerns the retrieval of the image mirror service provided in the device.

- 0 - Unavailable
- 1 - Accessible

Parameter:

None

Authority:

Viewer or greater

12.3.8.17 supportmotion

Description:

This parameter concerns the retrieval of the motion detection service provided in the device.

- 0 - Unavailable
- 1 - One block mode
- 2 - Multi blocks mode

Parameter:

None

Authority:

Viewer or greater

12.3.8.18 supportmpeg4

Description:

This parameter concerns the retrieval of the MPEG4 codec service provided in the device.

- 0 - Unavailable
- 1 - Accessible

Parameter:

None

Authority:

Viewer or greater

12.3.8.19 supportprotect

Description:

This parameter concerns the retrieval of the IC protection service provided in the device.

- 0 - Unavailable
- 1 - Accessible

Parameter:

None

Authority:

Viewer or greater

12.3.8.20 supportrs232

Description:

This parameter concerns the retrieval of the RS-232 function provided in the device.

- 0 - Unavailable
- 1 - Accessible

Parameter:

None

Authority:

Viewer or greater

12.3.8.21 supportrs485

Description:

This parameter concerns the retrieval of the RS-485 function provided in the device.

- 0 - Unavailable
- 1 - Accessible

Parameter:

None

Authority:

Viewer or greater

12.3.8.22 supportrtc

Description:

This parameter concerns the retrieval of the Real Time Clock (RTC) function provided in the device.

- 0 - Unavailable
- 1 - Accessible

Parameter:

None

Authority:

Viewer or greater

12.3.8.23 supportsaturation

Description:

This parameter concerns the retrieval of the saturation control service provided in the device.

- 0 - Unavailable
- 1 - Accessible

Parameter:

None

Authority:

Viewer or greater

12.3.8.24 supportsd

Description:

This parameter concerns the retrieval of the SD-Card recording service provided in the device.

- 0 - Unavailable
- 1 - Accessible

Parameter:

None

Authority:

Viewer or greater

12.3.8.25 supportsharpness

Description:

This parameter concerns the retrieval of the sharpness control service provided in the device.

- 0 - Unavailable
- 1 - Accessible

Parameter:

None

Authority:

Viewer or greater

12.3.8.26 supportst16550

Description:

This parameter concerns the retrieval of the ST16550 function provided in the device.

- 0 - Unavailable
- 1 - Accessible

Parameter:

None

Authority:

Viewer or greater

12.3.8.27 supporttstamp

Description:

This parameter concerns the retrieval of the time stamping service provided in the device.

- 0 - Unavailable
- 1 - The single channel style
- 2 - The multi channel style

Parameter:

None

Authority:

Viewer or greater

12.3.8.28 supportusb

Description:

This parameter concerns the retrieval of the Universal Serial Bus (USB) function provided in the device.

- 0 - Unavailable
- 1 - Accessible

Parameter:

None

Authority:

Viewer or greater

12.3.8.29 supportwatchdog

Description:

This parameter concerns the retrieval of the watch-dog function provided in the device.

- 0 - Unavailable
- 1 - Accessible

Parameter:

None

Authority:

Viewer or greater

12.3.8.30 supportwireless

Description:

This parameter concerns the retrieval of the wireless function provided in the device.

- 0 - Unavailable
- 1 - Accessible

Parameter:

None

Authority:

Viewer or greater

12.3.8.31 brandname

Description:

This parameter concerns the retrieval of the brand name of the device.

Parameter:

None

Authority:

Guest or greater

12.3.8.32 brandurl

Description:

This parameter concerns the retrieval of the brand URL of the device.

Parameter:

None

Authority:

Guest or greater

12.3.8.33 layoutnum

Description:

This parameter concerns the retrieval of the user-defined variable with an order.

Parameter:

The order ranges from 0 to 9.

Authority:

Guest or greater

12.3.8.34 layoutstr

Description:

This parameter concerns the retrieval of the user-defined string with an order.

Parameter:

The order ranges from 0 to 9.

Authority:

Guest or greater

12.3.8.35 layouturl

Description:

This parameter concerns the retrieval of the user-defined URL with an order.

Parameter:

The order ranges from 0 to 9.

Authority:

Guest or greater

12.3.8.36 supportdncontrol

Description:

This parameter concerns the retrieval of the day/night switch function provided in the device.

- 0 - Unavailable
- 1 - Accessible

Parameter:

None

Authority:

Viewer or greater

12.3.8.37 supportaudio

Description:

This parameter concerns the retrieval of the audio function provided in the device.

- 0 - Unavailable
- 1 - Accessible

Parameter:

None

Authority:

Viewer or greater

12.3.8.38 supportavc

Description:

This parameter concerns the retrieval of the H.264 codec provided in the device.

- 0 - Unavailable
- 1 - Accessible

Parameter:

None

Authority:

Viewer or greater

12.3.9 Day and Night Control

12.3.9.1 dncontrold2n

Description:

This parameter concerns the retrieval of the duration from day mode to turn to night mode; the unit is second.

Parameter:

None

Dependency:

supportdncontrol

Authority:

Operator or Administrator

12.3.9.2 dncontrold2nmax

Description:

This parameter concerns the retrieval of the maximum duration from day mode to turn to night mode; the unit is second.

Parameter:

None

Dependency:

supportdncontrol

Authority:

Operator or Administrator

12.3.9.3 dncontrold2nmin

Description:

This parameter concerns the retrieval of the minimum duration from day mode to turn to night mode; the unit is second.

Parameter:

None

Dependency:

supportdncontrol

Authority:

Operator or Administrator

12.3.9.4 dncontroln2d

Description:

This parameter concerns the retrieval of the duration from night mode to turn to day mode; the unit is second.

Parameter:

None

Dependency:

supportdncontrol

Authority:

Operator or Administrator

12.3.9.5 dncontroln2dmax

Description:

This parameter concerns the retrieval of the maximum duration from night mode to turn to day mode; the unit is second.

Parameter:

None

Dependency:

supportdncontrol

Authority:

Operator or Administrator

12.3.9.6 dncontroln2dmin

Description:

This parameter concerns the retrieval of the minimum duration from night mode to turn to day mode; the unit is second.

Parameter:

None

Dependency:

supportdncontrol

Authority:

Operator or Administrator

12.3.9.7 dncontrolmode

Description:

This parameter concerns the retrieval of the day night switch mode.

Parameter:

None

Dependency:

supportdncontrol

Authority:

Operator or Administrator

12.3.9.8 dncontrolmodename

Description:

This parameter concerns the retrieval of the descriptions related to day/night switch mode.

Parameter:

Parameter	Descriptions
0	Auto
1	Day mode
2	Night mode

3	Schedule
all	All strings combined above

TAB 12-53

Dependency:

supportdncontrol

Authority:

Operator or Administrator

12.3.9.9 dncontrolsen

Description:

This parameter concerns the retrieval of sensitivity of the day night switch.

Parameter:

None

Dependency:

supportdncontrol

Authority:

Operator or Administrator

12.3.9.10 dncontrolnsenname

Description:

This parameter concerns the retrieval of the descriptions related to day/night switch sensitivity.

Parameter:

Parameter	Descriptions
0	Lowest
1	Low
2	Medium
3	High
4	Highest

all	All strings combined above

TAB 12-54

Dependency:

supportdncontrol

Authority:

Operator or Administrator

12.3.9.11 dncontrolschedule

Description:

This parameter concerns the retrieval of schedule information of the day/night switch described in Chapter 7.3.9.5.

Parameter:

None

Dependency:

supportdncontrol

Authority:

Operator or Administrator

13. MJPEG Image Header Format

13.1 Introduction

The most popular image formats are BMP, GIF and MJPEG. Among them, the compression ratio of the MJPEG can be up to 1:10. In most cases, the human eye cannot tell the loss of image continuity due to compression. For image quality and network throughput, of course, MJPEG is clearly the best choice for a IP Camera to adopt.

13.2 JPEG Format

The IP Camera MJPEG image files follow the ISO JPEG format, and its contents are a series of binary data as the following example shows:

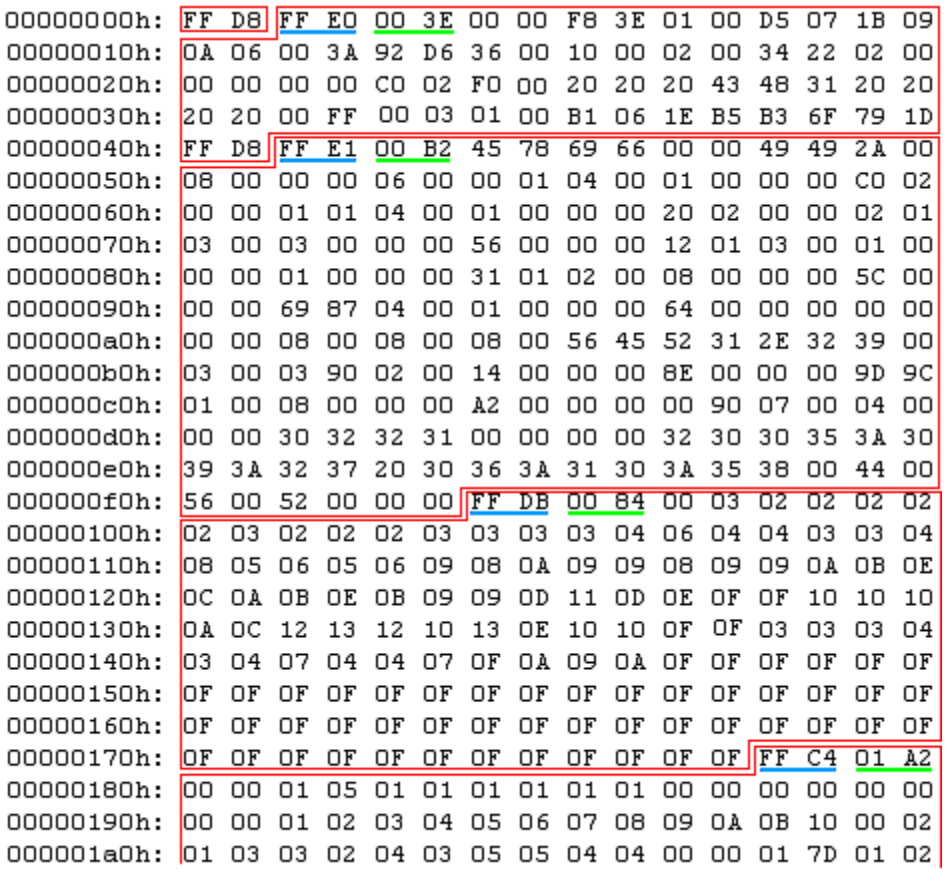

FIG 13-1

According to the JFIF (JPEG File Interchange Format), all data streams must start with the marker '**0xFF**'. For example, '**0xFF 0xD8**' stands for '**SOI**', and '**0xFF 0xD9**' stands for '**EOI**', as the blue underlines show in the above diagram. Except for some special markers, they are usually followed by a 2-byte length, as indicated by the green underline in the above diagram.

But the MJPEG in a IP Camera requires some additional information. For example, what quality an image is, or whether it was triggered by GIO or a motion detection, etc. The current JFIF format will not meet our needs. Although there are alternative formats available, such as '**EXIF**', adopting them will cause compatibility issues. We will follow the JFIF specification to use '**0xFF 0xE0**' for a user-defined field. The definitions of the following categories are as follows:

0x00	0x01	0x02	0x03	0x04	0x05	0x06	0x07
SOI MARKER		APP0		APP0 LENGTH		CSUM	
0x08	0x09	0x0A	0x0B	0x0C	0x0D	0x0E	0x0F
SIZE				YEAR		DAY	MONTH
0x10	0x11	0x12	0x13	0x14	0x15	0x16	0x17
MINUTE	HOUR	MINISEC	SECOND	SERIAL			
0x18	0x19	0x1A	0x1B	0x1C	0x1D	0x1E	0x1F
RES				DEVICE CODE		QUALITY	RES
0x20	0x21	0x22	0x23	0x24	0x25	0x26	0x27
RESOLUTION	RES		ALARM	WIDTH		HEIGHT	
0x28-0x41				0x42	0x43	0x44	0x45
RES				0xFF	0xD8	0xFF	0xE1

TAB 13-2

- **SOI MARKER**

  This category is the beginning of an MJPEG file, marked as '**0xFF 0xD8**'.

- **APP0 MARKER**

  This category indicates the APP0 Marker, '**0xFF 0xE0**'.

- **APP0 LENGTH**

  This category stands for the length of this APP0.

- **CSUM**

  This category shows the check sum of the JPEG header, and it is in the '**Little Endian**' format.

- **SIZE**

  This category shows the size of an MJPEG file, and it is in the '**Little Endian**' format.

- **YEAR**

  This category refers to a year (0-2099), and it is in the '**Little Endian**' format.

- **DAY**

  This category means a day of a month (1-31).

- **MONTH**

  This category means any month from January onwards (1-12).

- **MINUTE**

  This category means the minutes in an hour (0-59).

- **HOUR**

  This category means the hours from midnight onwards (0-23).

- **MINISEC**

  This category is always zero.

- **SEC**

  This category means the seconds in a minute (0-59).

- **SERIAL**

  This category means the serial number of an MJPEG file, and it is in the '**Little Endian**' format.

- **DEVICE CODE**

  Please refer to TAB 3-3.

- **QUALITY**

  This category means the value of the quality, and the value code is as follows.

Value	Quality
0	Highest
1	High
2	Medium
3	Low
4	Lowest

TAB 13-3

- **RESOLUTION**

  This category concerns the value of a resolution, and the value code is as follows.

Value	Resolution
0	Quarter
1	Full
2	Half
3	Resize

TAB 13-4

- **ALARM**

  This category indicates the alarm flags.

Flags	Symbol	Description
0x0001	GIO	This picture is captured during the alarm duration.
0x0002	MOTION	This picture is captured during motion alarm.
0x0004	GIO_ON	The alarm is triggered as this picture is captured.
0x0008	MOTION_ON	The motion is detected as this picture is captured.

0x0010	LOSTVIDEO	The lost video is detected.

TAB 13-5

- **WIDTH**

  This category concerns the quantity of pixels per horizontal line, and is in the '**Little Endian**' format.

- **HEIGHT**

  This category shows the quantity of pixels per vertical line, and is in the '**Little Endian**' format.

- **RES**

  The category is reserved, and should be zero for future compatibility.

14. UART Socket

14.1 Introduction

The IP Camera can simulate a port of the UART or RS-485 as a network socket. It is a point to point socket, and there is a specific structure to make the IP Camera parse the data to avoid misunderstanding between simulation and real UART packets from other devices.

FIG 14-1

FIG 14-2

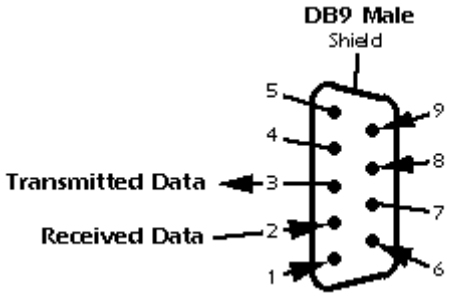

FIG 14-3

Notice: The actual placement associated both with the RS-232 and RS-485 varies on your device; refer to your user manual. A cross-over cable is necessary for a connection.

14.2 The Structure

Field	Size	Description
Magic01	1	The first magic number which is fixed to **0xB3**.
Magic01	1	The second magic number which is fixed to **0xB7**.
Length	1	The packet length from this field to the end of a data.
CSum	1	8-bit checksum
DAddr	1	The destination address and **0xFF** means a broadcast address.
SAddr	1	The source address and **0xFF** is reserved.
Data	1 - 251	The packet context.

TAB 14-4

- All data is in an 8-bit byte.
- All simulated sockets own an authentication of '**ADMINISTRATOR**'; therefore, the login procedure is not necessary.
- All Packet contexts have to obey the HTTP context, for example, [vb.htm?setwlchannel=1], and refer to Chapter 7 for more information.
- The host will disregard packets whose check sum is wrong.

- The host only accepts packets whose target address is identical to the address of the device or the broadcast address.
- The length of a data context cannot be over **251** bytes. Any huge packet should be fragmented into several smaller ones before it transmits.
- The response message may miss due to limitation of a context length.
- The default UART baud rate is **9600 bps**, and that is the IP Camera's factory default.
- A packet with zero-length data is an invalid packet.
- The entire packet must be sent in one second or timeout.
- You cannot touch any configuration related to the RS232 or RS485 by this simulated protocol.

  The following APIs are forbidden when a UART socket is employed.

  - rs232delay
  - rs232output
  - setuartspeed
  - setuarttype
  - rs485delay
  - rs485output
  - set485id
  - set485speed
  - set485type

14.3 The Checksum

The following reference code is the sample code of the checksum mentioned above.

```
unsigned short int csum( unsigned int init, void * dp, size_t count )
{
  unsigned int total;
  size_t   n;
  unsigned short int carries;
  unsigned short int * pointer;
```

```
  total    = init;
  n        = count / 2;
  pointer = ( unsigned short int * ) dp;

  while ( n-- != 0 ) total += ( unsigned int ) *pointer++;
  if ( ( count & 1 ) != 0 ) total += *( unsigned char * ) pointer;

  while ( ( carries = ( unsigned short int ) ( total >> 16 ) ) != 0 )
    total = ( total & (unsigned int ) 0xFFFF ) + carries;

  return( ( unsigned short int ) total );
}
```

15. UPnP How To

15.1 Introduction

This chapter explains the advantages of Universal Plug and Play (UPnP) when used in conjunction with an IP Camera and demonstrates how UPnP can be setup on a Microsoft® Windows XP system.

15.2 A Little Background Information

Universal Plug and Play (UPnP) is a solution to the common problem of locating a network device when we don't know its IP address in a local area network environment. When you have a non-UPnP IP-camera installed in your network, you are immediately confronted with the problem of having to know the exact IP address of this camera.

With a UPnP-enabled IP Camera, users can easily discover and locate their cameras without knowing their IP addresses. When properly installed, Windows can detect existing IP Camera as well as new ones when they are added to the network. In both cases, an indicator is displayed in the notification area to alert you when devices are detected. Also, UPnP devices are displayed in the My Network Places folder. It is unfortunate that UPnP is not enabled by default on most Windows XP systems. One has to turn on UPnP manually before this process of automatic discovery can take place. The procedures of doing this and finding your IP Camera are outlined below:

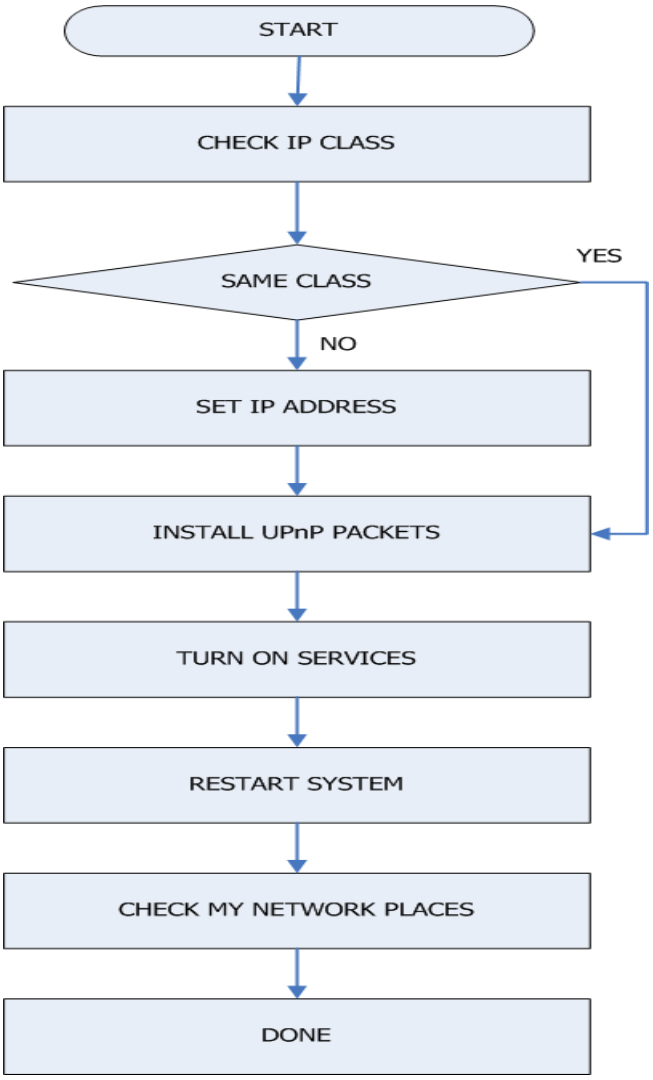

FIG 15-1

15.3 Check the IP class of your PC

Although UPnP can help you discover and locate your IP Camera, it would not work properly unless both the IP Camera and your computer have valid IP addresses. Setting a valid IP address is beyond the scope of this document. We'll only touch briefly in the next few paragraphs on how to make changes to the IP address of your computer so that it falls in the range of the same class as your IP Camera. Keep in mind the settings suggested here are good for small computer network environments that don't involve other computers or routers. If your computer belongs to a company-wide network, you might want

to consult your administrator or refer to other documents before making any changes to your computer's IP address.

Microsoft Windows XP® will, in most cases, assign an IP address of **169.254.*.*** by default to a new machine with a subnet mask of **255.255.0.0** when a DHCP server is absent.

The default IP address of a IP Camera is **192.168.1.168,** with a subnet mask of **255.255.255.0**. These settings put your a IP Camera in a different IP class or a different IP universe from your computer's. As a result, there won't be any communication between the IP Camera and your computer, and you must fix the settings before the UPnP protocol can work.

Please follow these procedures to verify and modify the IP settings on your computer:

From the '**Start**' menu, point to '**Settings**', and then click '**Control Panel**'. See FIG 15-2.

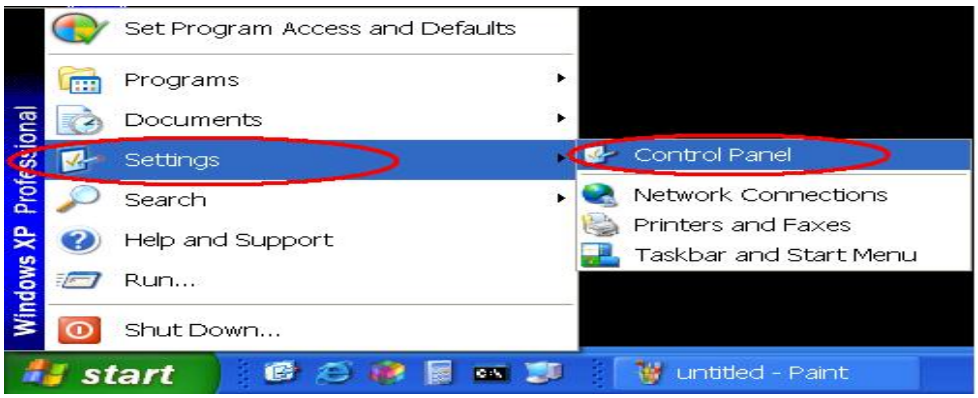

FIG 15-2

When '**Control Panel**' appears, double-click the '**Network Connections**' icon. The '**Network Connections**' dialog box appears. See FIG 15-3.

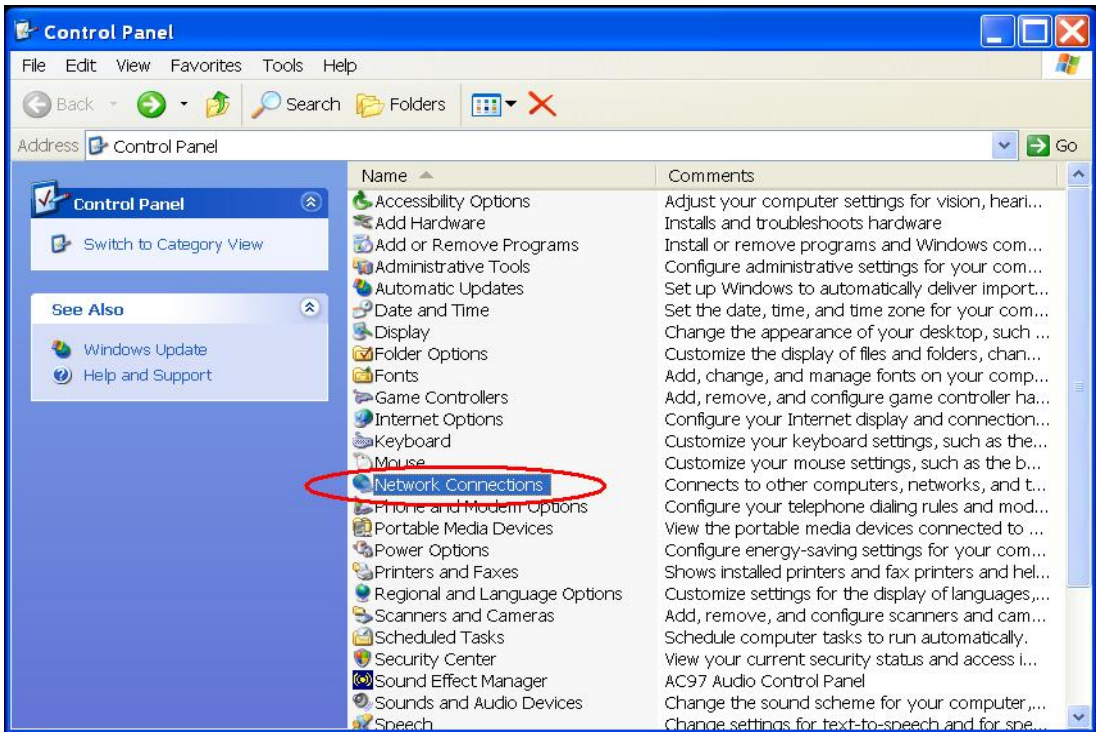

FIG 15-3

Click your right mouse button on '**Local Area Connection**' and select '**Protocols**'. See FIG 15-4.

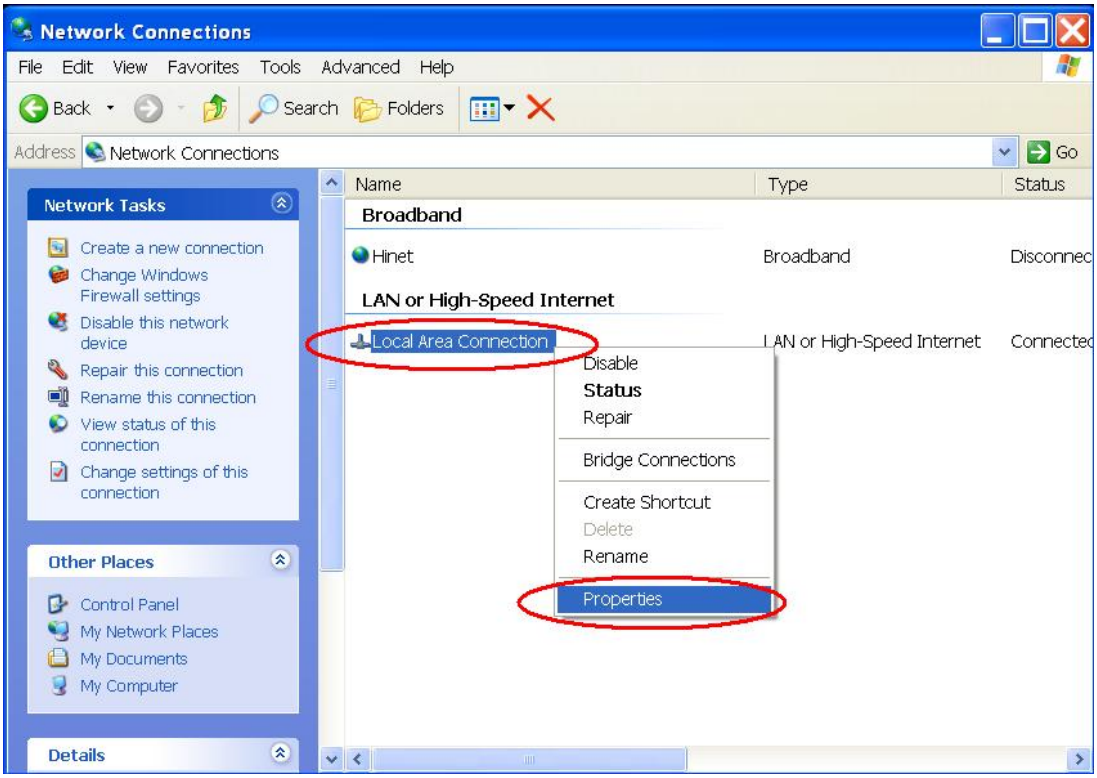

FIG 15-4

When the '**Local Area Connection Properties**' dialog box shows up, choose '**Internet Protocol (TCP/IP)**' and click '**Properties**'. See FIG 15-5.

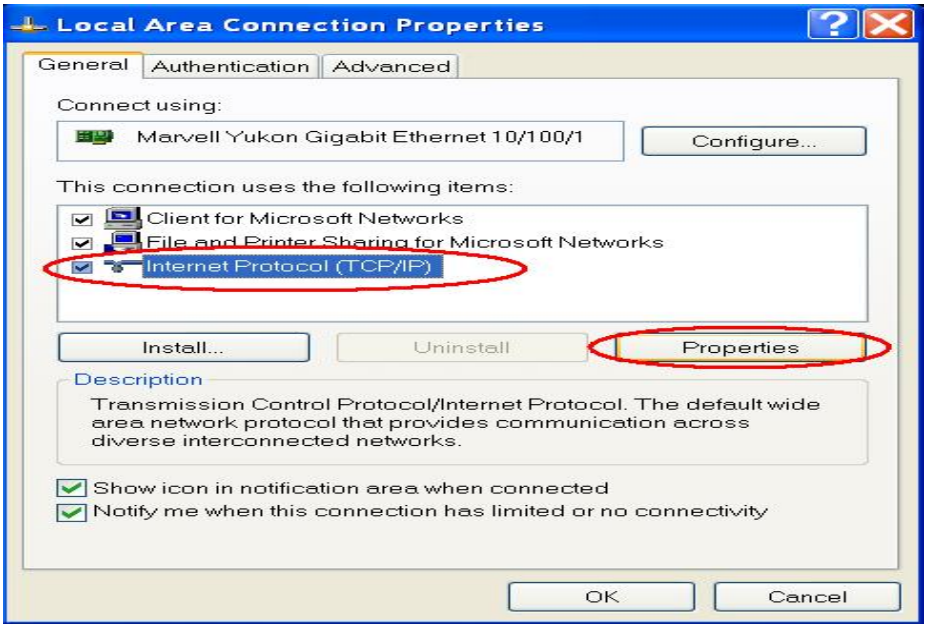

FIG 15-5

In the '**Internet Protocol (TCP/IP) Properties**' dialog box, select '**Use the following IP Address**' and assign IP Address '**192.168.1.200**' with '**Subnet mask**' '**255.255.255.0**'. Click '**OK**'. See FIG 15-6.

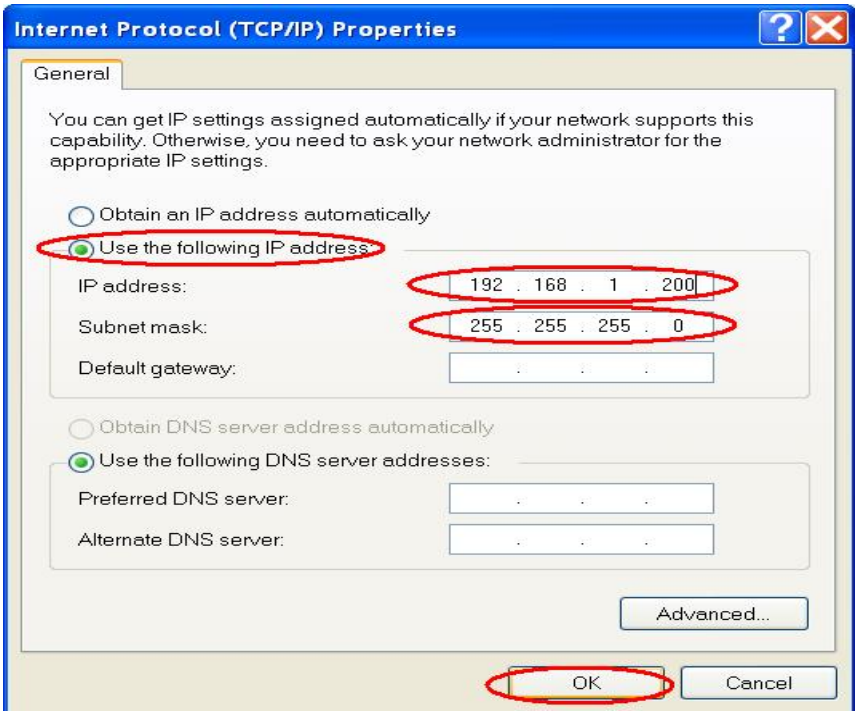

FIG 15-6

Choose '**Close**' to finish the modification. See FIG 15-7.

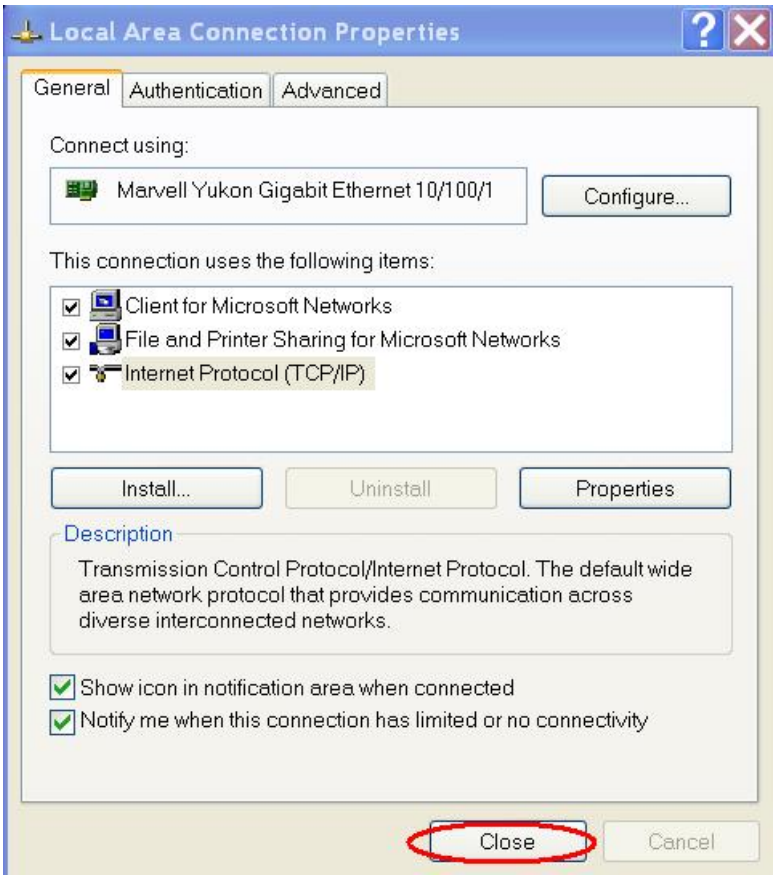
Local Area Connection Properties
General
Authentication
Advanced
Connect using:
Marvell Yukon Gigabit Ethernet 10/100/1
Configure...
This connection uses the following items:
Client for Microsoft Networks
File and Printer Sharing for Microsoft Networks
Internet Protocol (TCP/IP)
Install...
Uninstall
Properties
Description
Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.
Show icon in notification area when connected
Notify me when this connection has limited or no connectivity
Close
Cancel

FIG 15-7

15.4 Install UPnP Package

Please follow the following procedures to install UPnP packages on you computer:

From the '**Start**' menu, point to '**Set Program Access and Default**', and select it. See FIG 15-8.

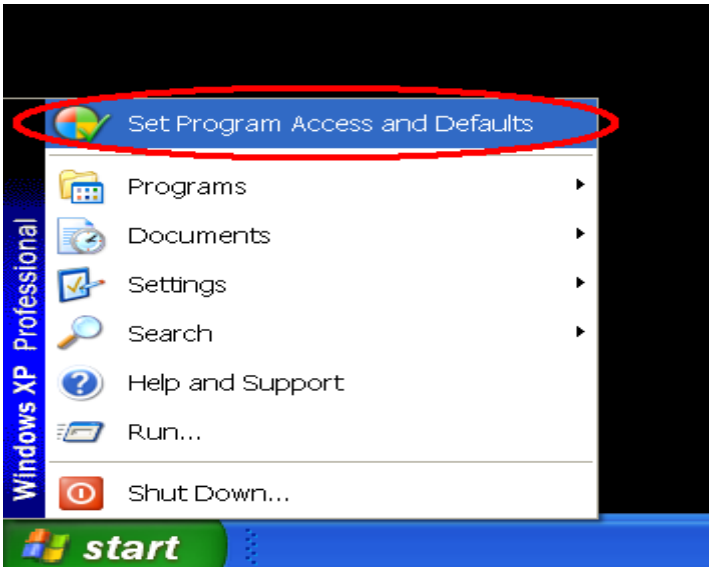

FIG 15-8

When the '**Add or Remove Programs**' dialog box appears, click on the '**Add/Remove Windows Components**' button. See FIG 15-9.

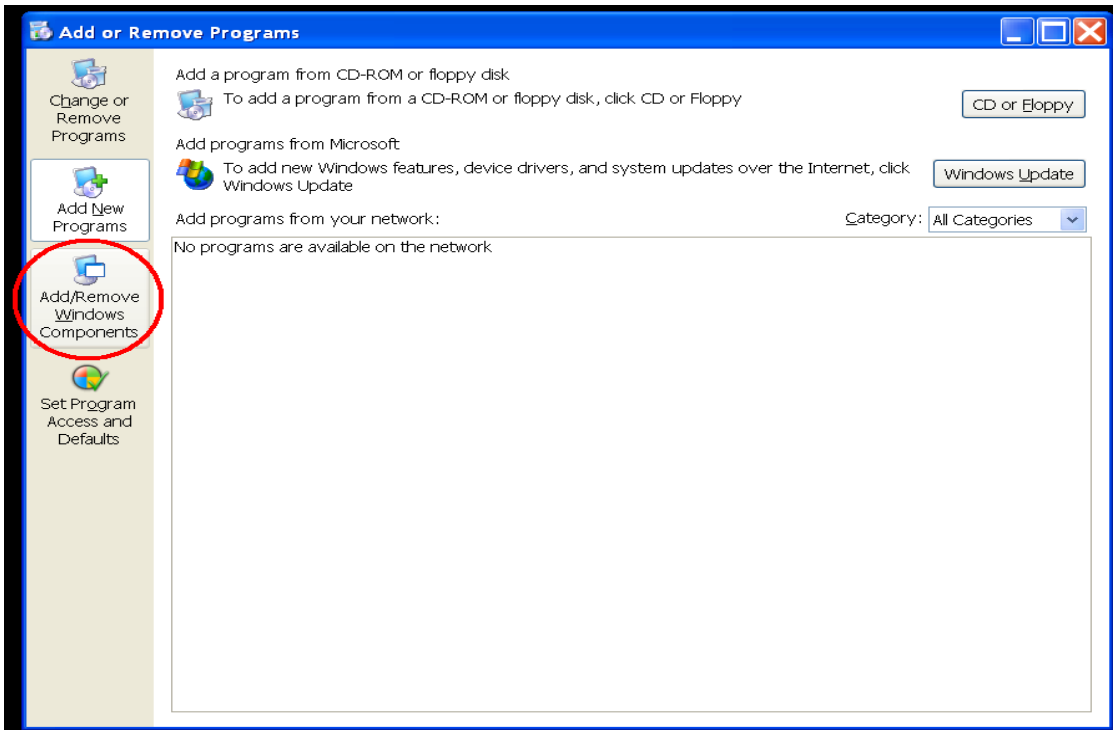

FIG 15-9

Check the '**Network Services in Windows Component Wizard**' dialog box, and then click '**Details...**'. See FIG 15-10.

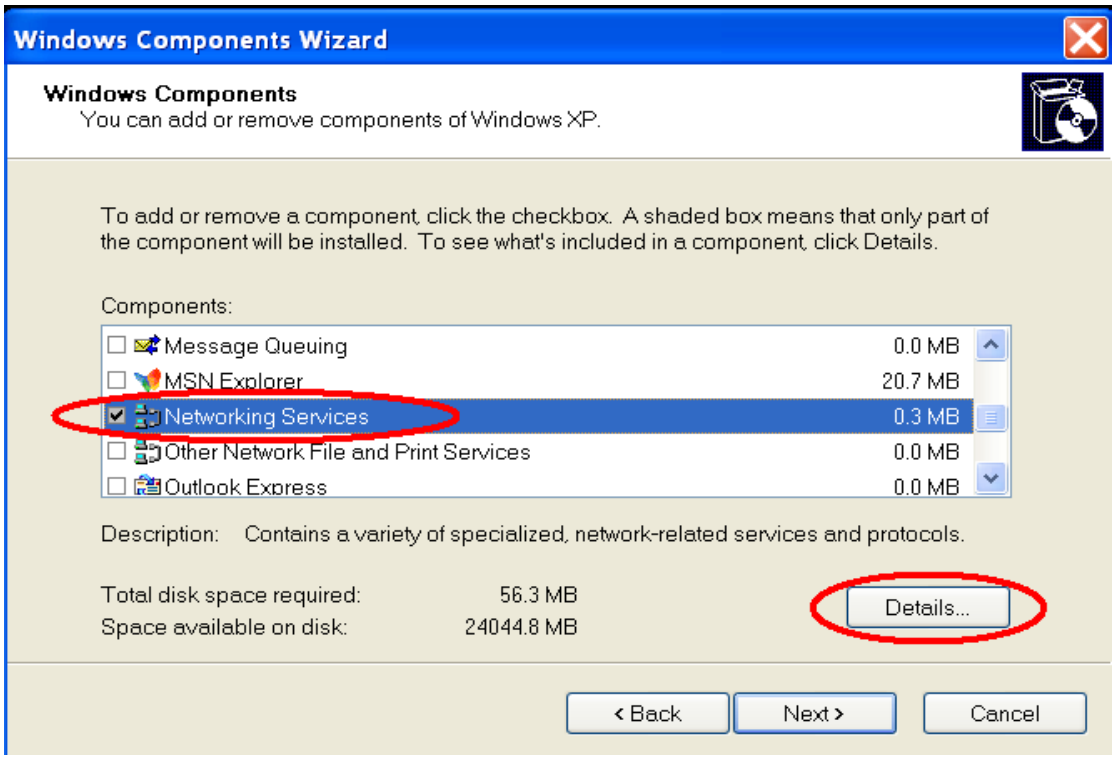

FIG 15-10

Check '**UPnP User Interface**', and click on '**OK**'. See FIG 15-11.

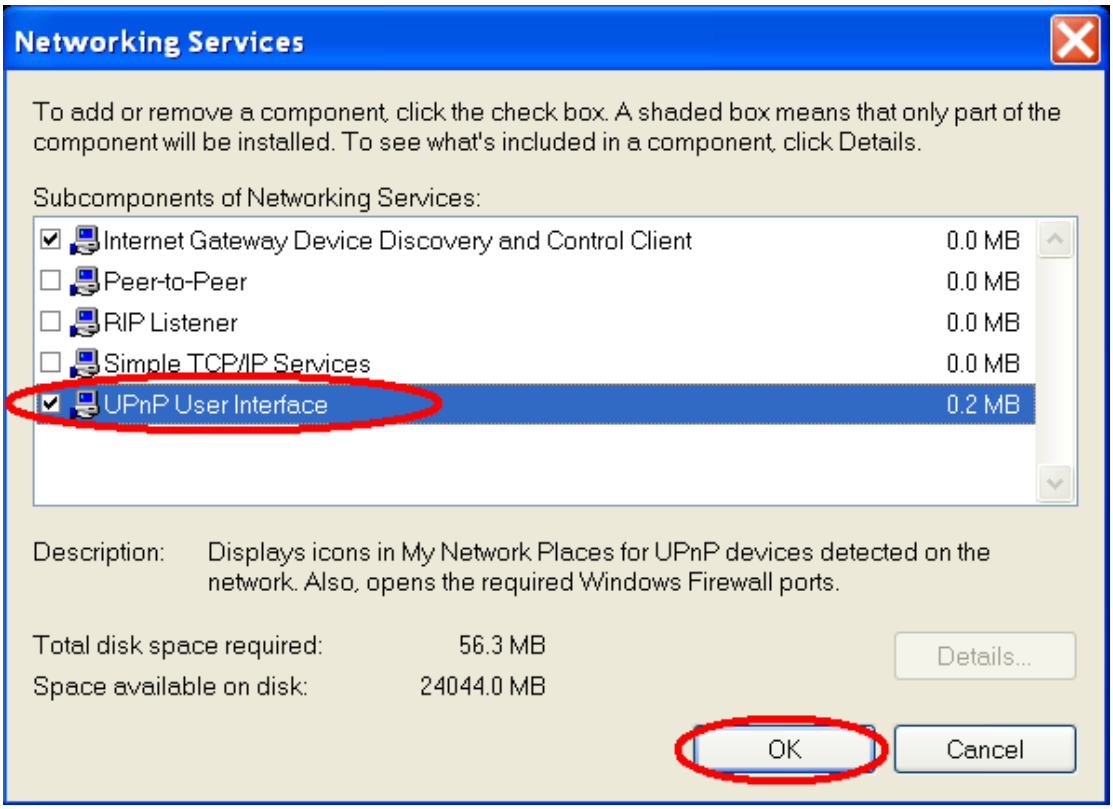

FIG 15-11

Click '**Next**' when the original '**Network Component Wizard**' dialog box returns. See FIG 15-12.

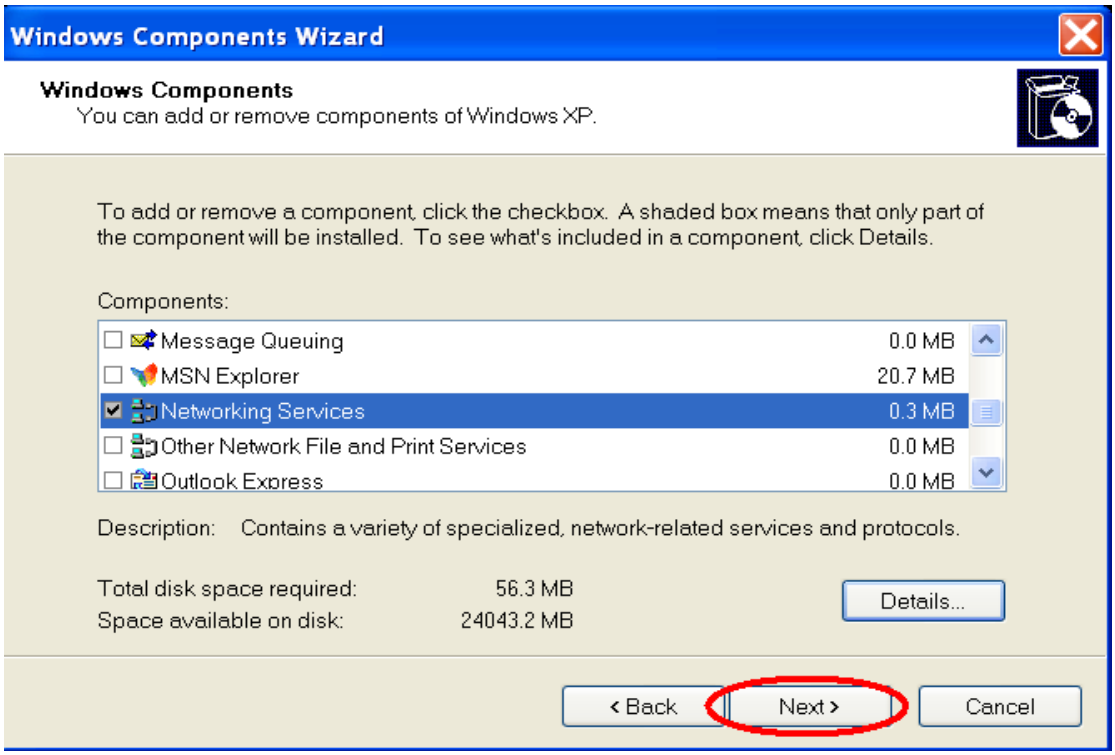

FIG 15-12

The UPnP installation will be done in about one minute. Choose '**Finish**' to close it. See FIG 15-13.

FIG 15-13

15.5 Turn on Services

After installation, we should turn on the related services to start the UPnP protocol. The following procedures will guide you through it.

From the '**Start**' menu, point to '**Settings**', and then click '**Control Panel**'. See FIG 15-14.

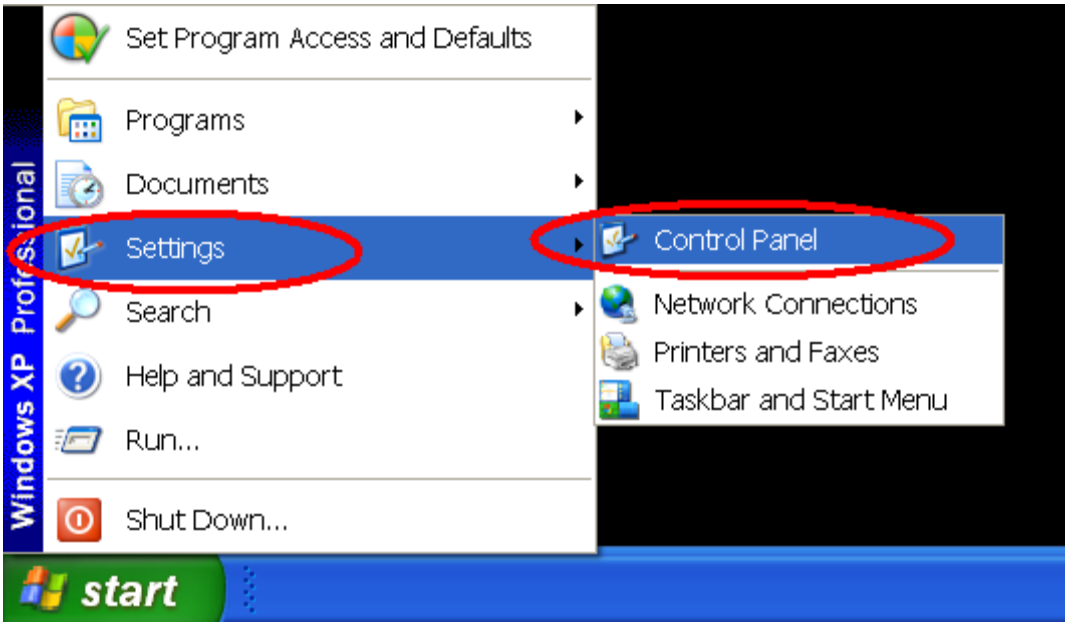

FIG 15-14

When '**Control Panel**' appears, double-click the '**Administrative Tools**' icon. The '**Administrative Tools**' dialog box appears. See FIG 15-15.

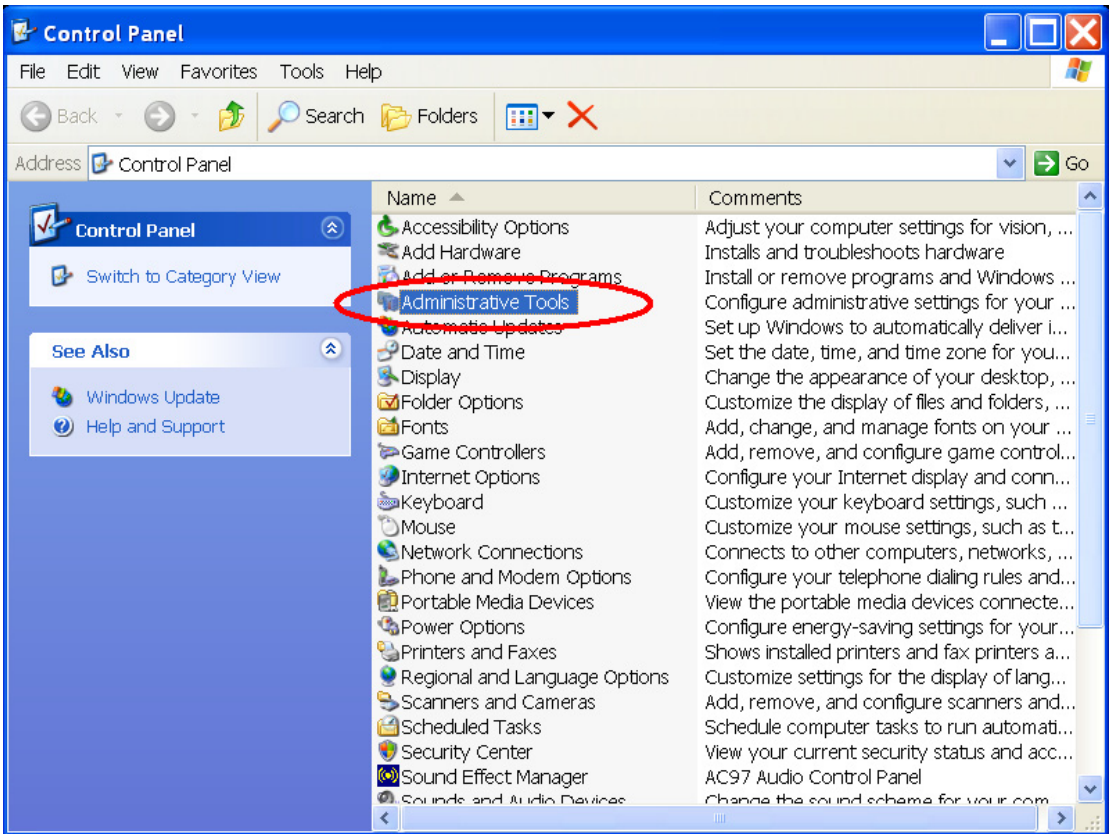

FIG 15-15

Double Click the '**Services**' icon in the '**Administrative Tools**' dialog box. See FIG 15-16.

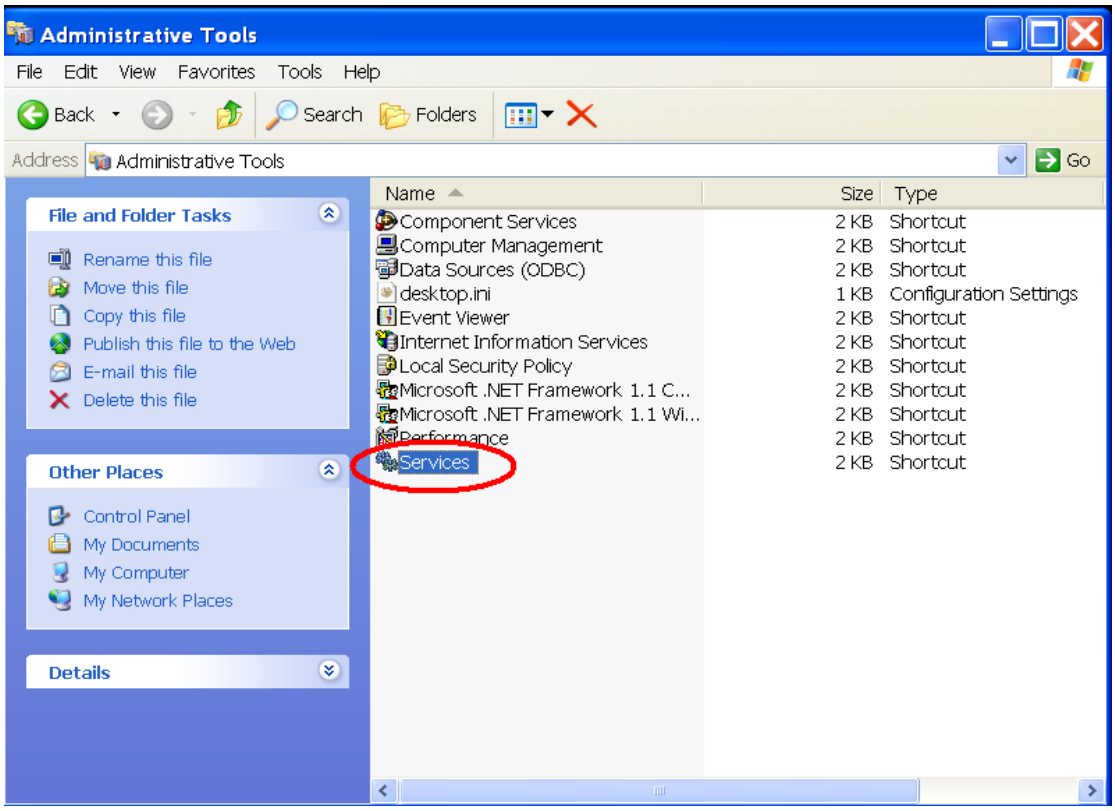

FIG 15-16

When the '**Services**' dialog box shows up, double click the '**SSDP Discovery Service**' icon. See FIG 15-17.

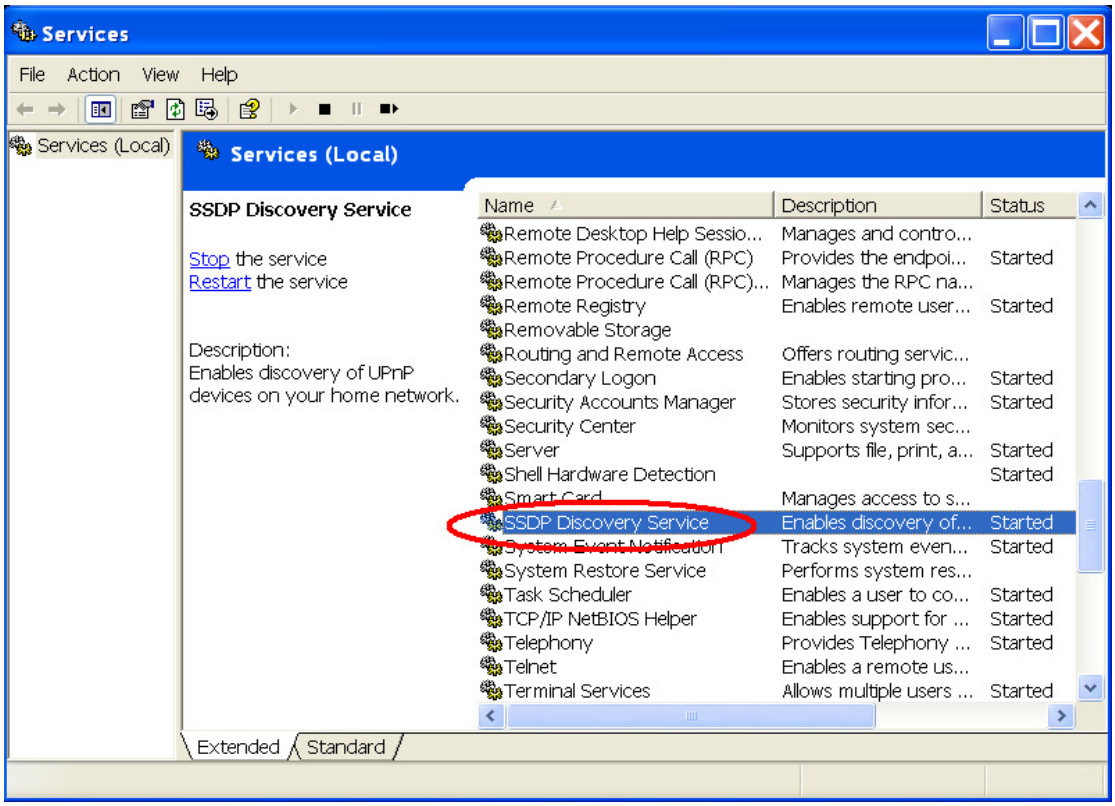

FIG 15-17

Choose '**Automatic**' in the '**Startup type**', and click '**OK**' to start it. See FIG 15-18.

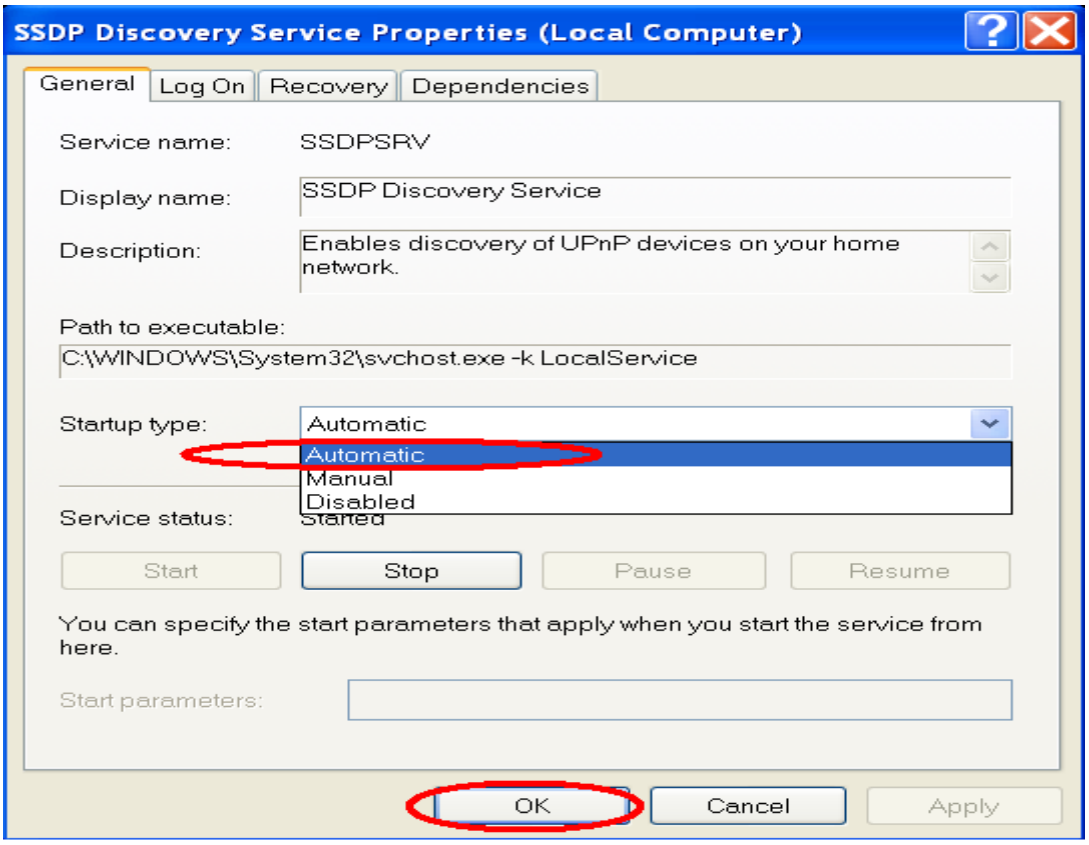

FIG 15-18

When the '**Services**' dialog box appears again, double click the '**Universal Plug and Play Device Host**' icon. See FIG 15-19.

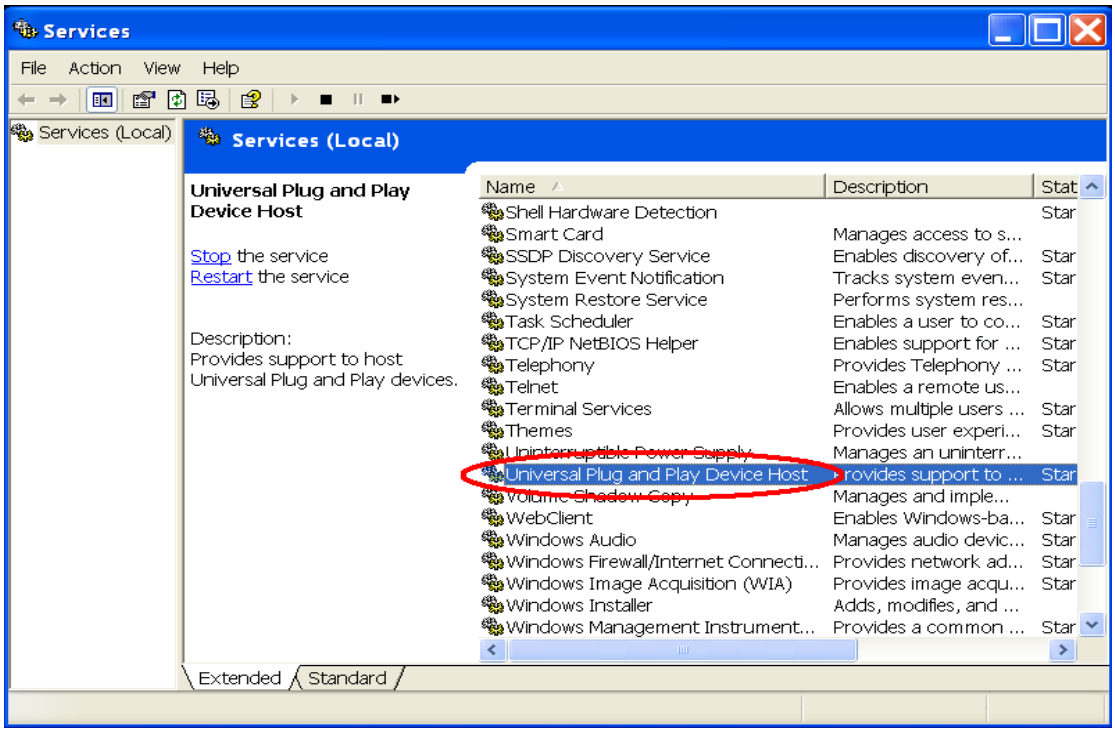

FIG 15-19

Choose '**Automatic**' in the '**Startup type**', press '**Start**' button, and click '**OK**' to start it. See FIG 15-20.

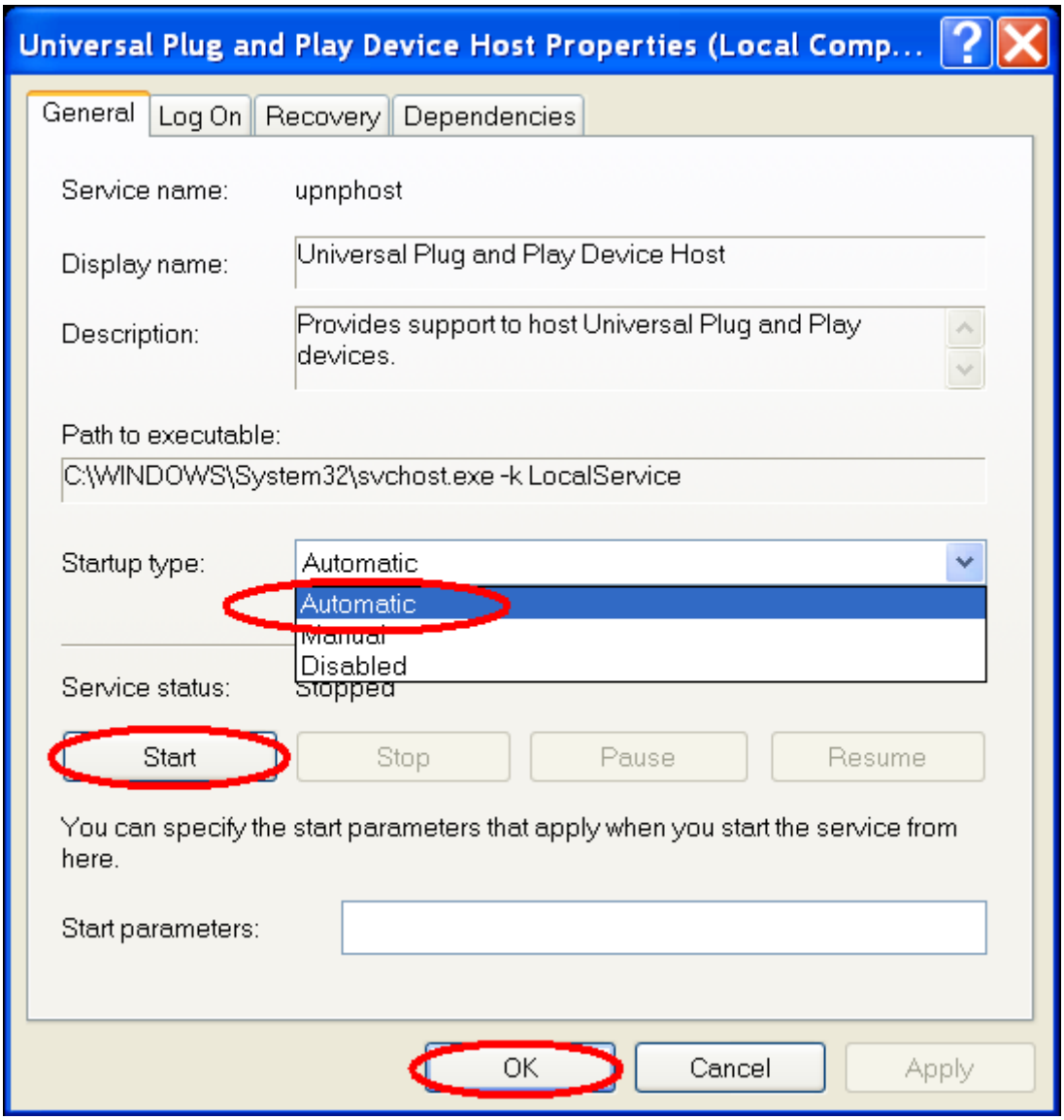

FIG 15-20

Please restart your system after all the procedures are performed.

15.6 Scan IP Camera via My Network Place

The UPnP service should be available after your computer restarts. You can scan all available IP Camera in **'My Network Place'**. Open '**My Network Places**', click '**Start'**, and then click '**My Computer'**. Click '**My Network Places'** under '**Other Places'**. You can control an UPnP device by double-clicking its icon, or view its properties by right-clicking the icon and then clicking '**Properties'**. See the below FIG 15-21 and FIG 15-22.

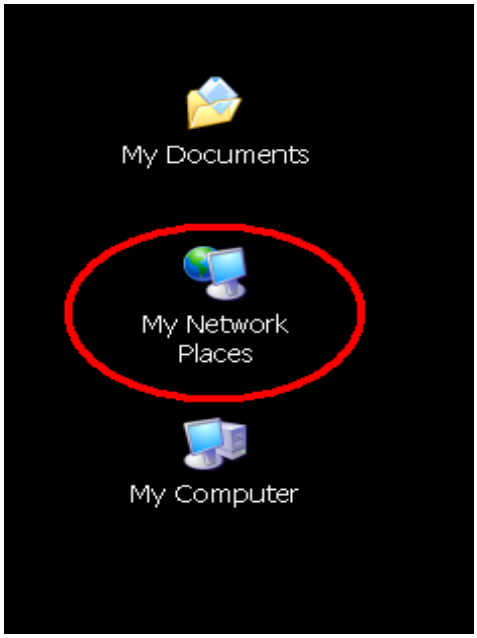

FIG 15-21

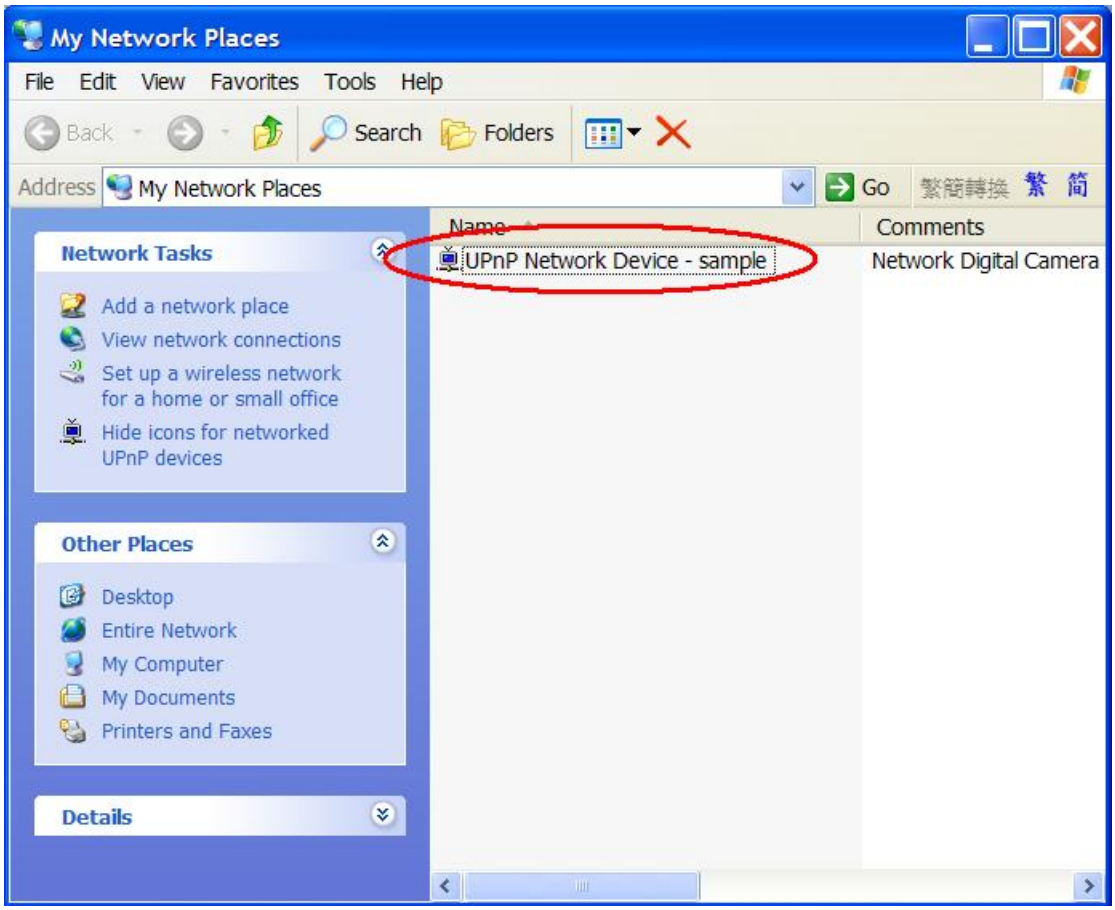

FIG 15-22

Just double click the '**UPnP MPEG4 LC-7224**' icon, and the video live stream will pop up automatically without assigning any IP address in the Microsoft Internet Explorer®.

Notice: The title shown in the above windows relates both to your device and title.

16. Remote Storage Management

The local storage inserted in the device furnishes the users with the ability to save crucial pictures whether the network is alive or not. There are two species of local storage available in the device.

FIG 16-1

FIG 16-2

This chapter illustrates how to access or manage both the storage species remotely.

	CF-Card	SD-Card

Get URL	cfget.htm	sdget.htm
Delete URL	cfdel.htm	sddel.htm

TAB 16-3

But the two different storage types will not exist in the device simultaneously; therefore, the first step is to determine the associated URLs that can be returned by the following ways:

- Retrieve ini.htm and parse both the keywords '**DefaultCardGetHtm**' and '**DefaultCardDelHtm**'.
- Access the parameters '**defaultcardgethtm**' and '**defaultcarddelhtm**'.

Notice: An MMC-Card is also supported when the device can recognize an SD-Card.

16.1 The Get URL

An error page as shown below will be returned when the following conditions occur.

- The storage is not inserted into the device.
- The file system in the storage is wrong or the device does not recognize this file system.
- The storage is damaged.

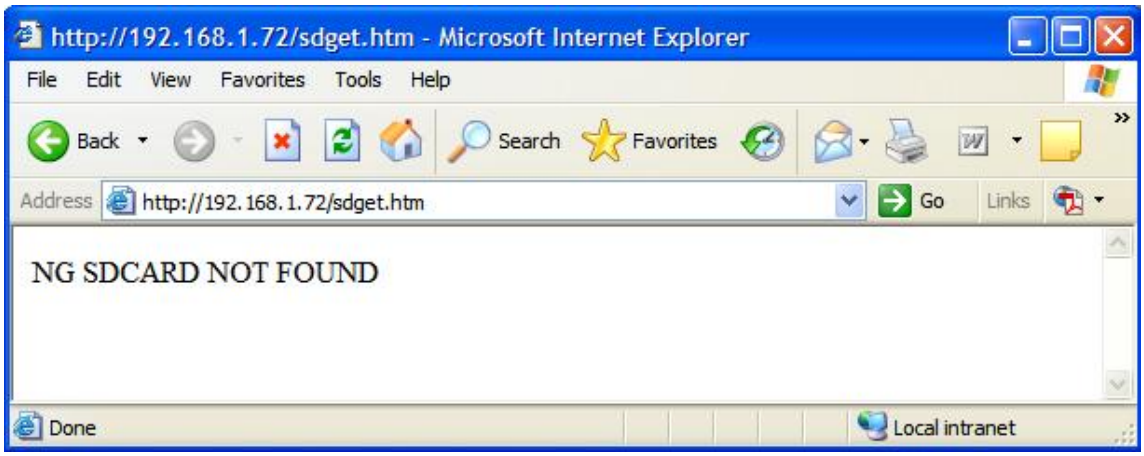

FIG 16-4

If there is no correlative file in the storage or any access to '**Get URL**', another error page will be returned.

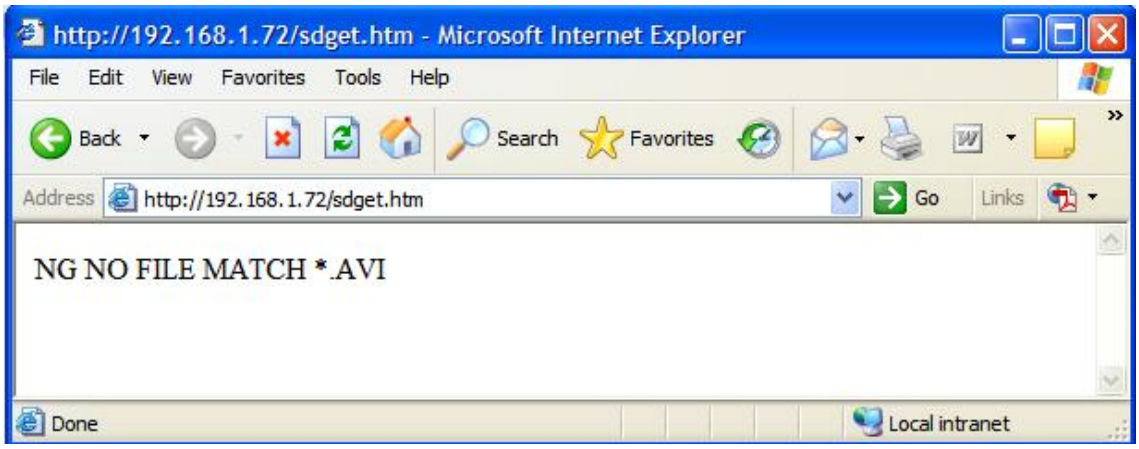

FIG 16-5

The following page will be retrieved if you access '**Get URL**' and associated images already exist in the storage.

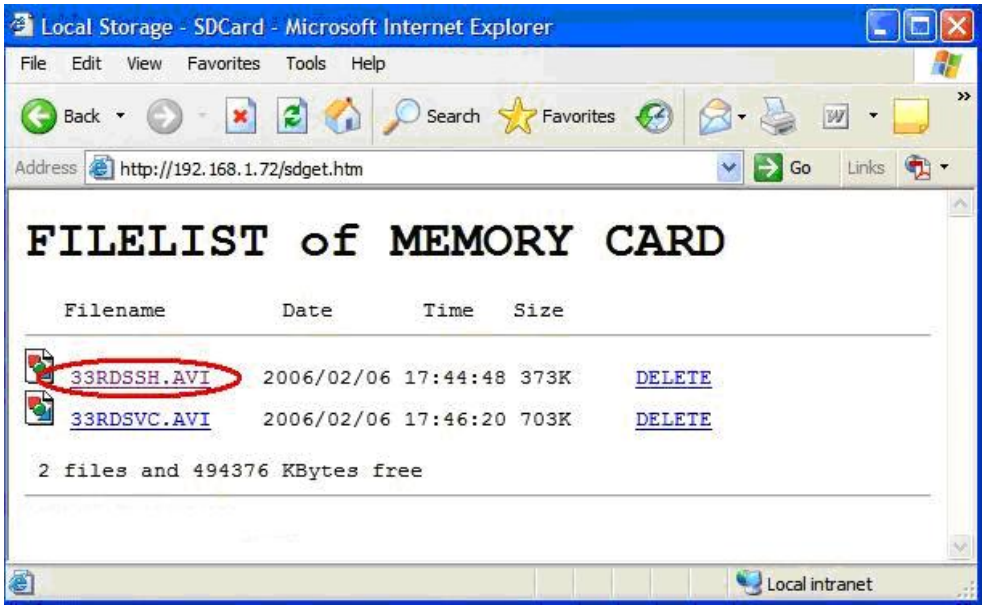

FIG 16-6

If you want to play back or retrieve a file, just click the hyperlink in the title. An application can parse the contents in the above page and retrieve a specific file by using the following URL.

http://<ip>:<port>/sdget.htm?FILE=<*filename*>
http://<ip>:<port>/cfget.htm?FILE=<*filename*>

A wildcard character in the filename is used to retrieve a catalog of the directory as below.

http://<ip>:<port>/sdget.htm?FILE=***.***
http://<ip>:<port>/cfget.htm?FILE=***.***

16.2 The Delete URL

If you want to delete a file, click the '**DELETE**' hyperlink in the page below.

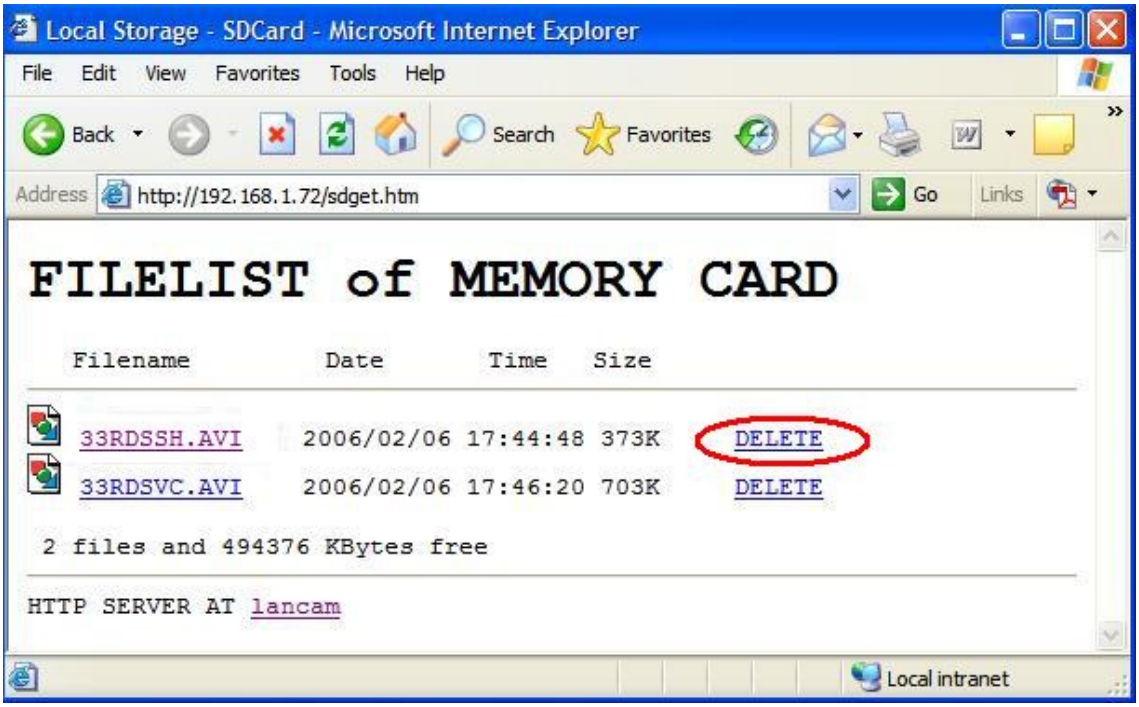

FIG 16-7

An application can explain the contents in this page and erase a file by using the following URL.

http://<ip>:<port>/sddel.htm?FILE=<*filename*>
http://<ip>:<port>/cfdel.htm?FILE=<*filename*>

A wildcard character in the filename can be used to perform a multiple deletion as below.

http://<ip>:<port>/sddel.htm?FILE=***.***
http://<ip>:<port>/cfdel.htm?FILE=***.***

Warning: The selected files will be erased permanently and they cannot be recovered.

17. Advance WebPages

There are several peculiar WebPages built in the device for specific purposes. This chapter will discuss them in detail.

17.1 filelist.htm

This Webpage will represent a list of the whole HTML file system as shown in FIG 17-1. The first field means its sequence; the second one represents its filename; the third one depicts its authority; the fourth and the fifth are its file types; and the last one shows its file size in byte.

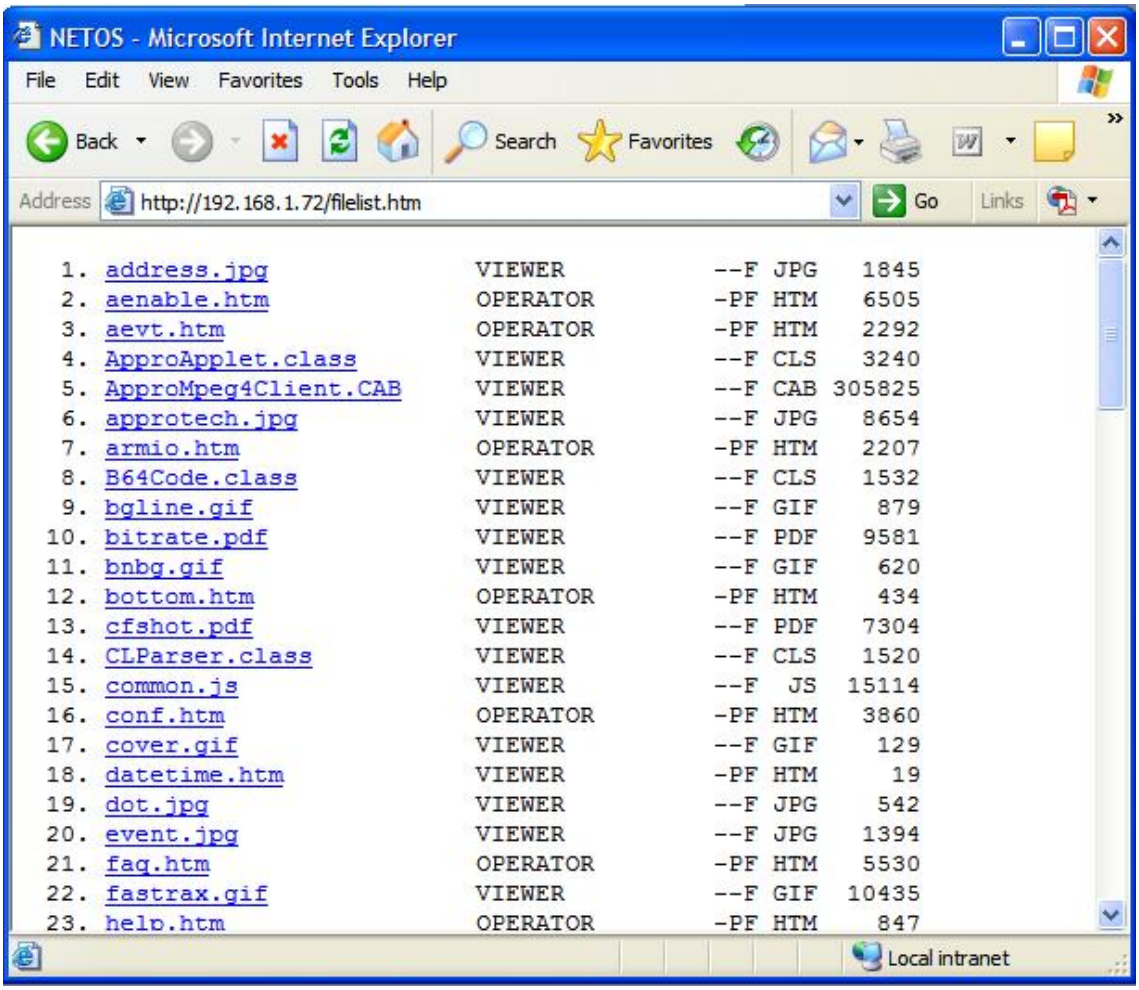

FIG 17-1

17.2 cmdlist.htm

This Webpage shows all the commands defined in the device as shown in FIG 17-2 below. The first field is its sequence; the second is the name of the command; the last one is the minimum authority to exert it.

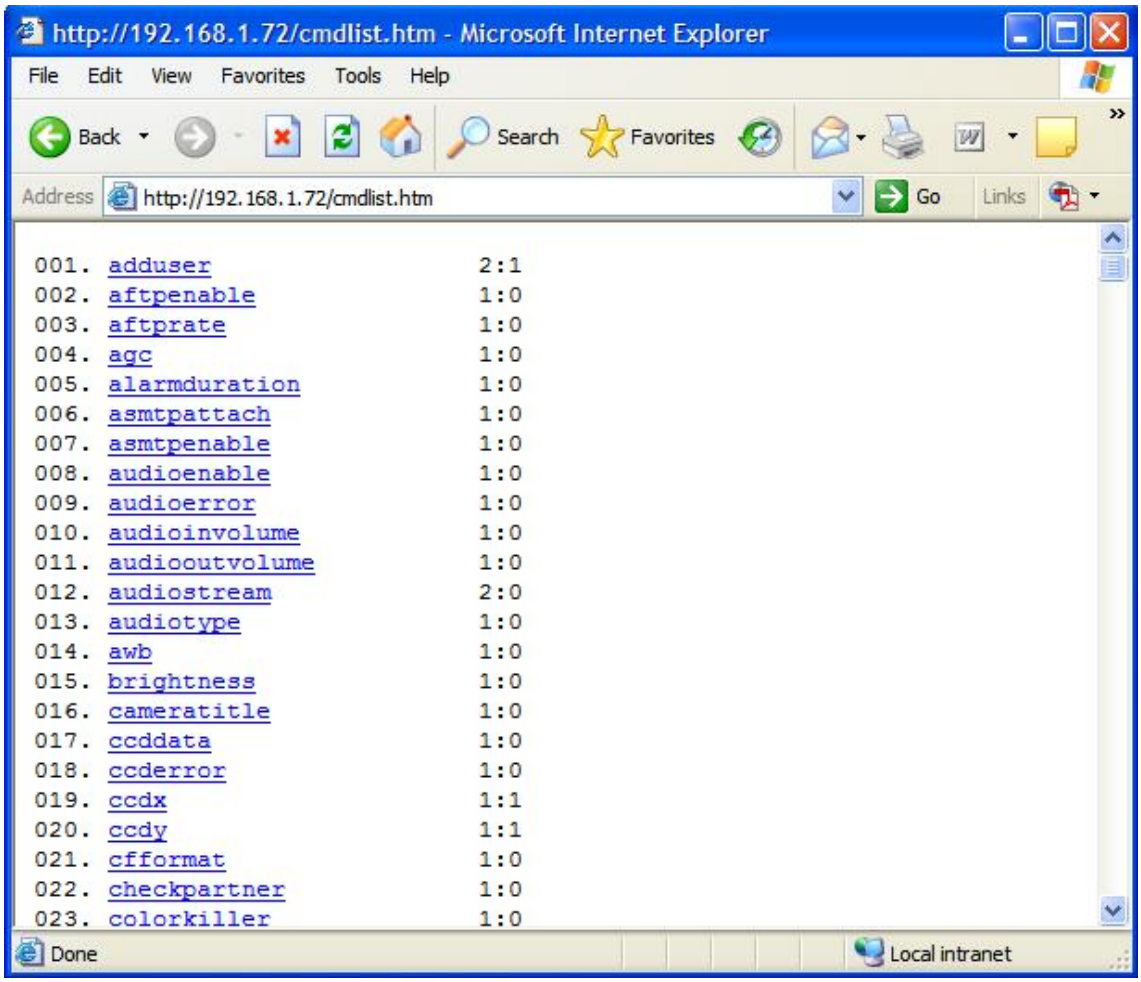

FIG 17-2

17.3 ini.htm

This Webpage lists all properties or settings associated with the device in the plain text format as in FIG 17-3. An application can parse all local configurations from this page.

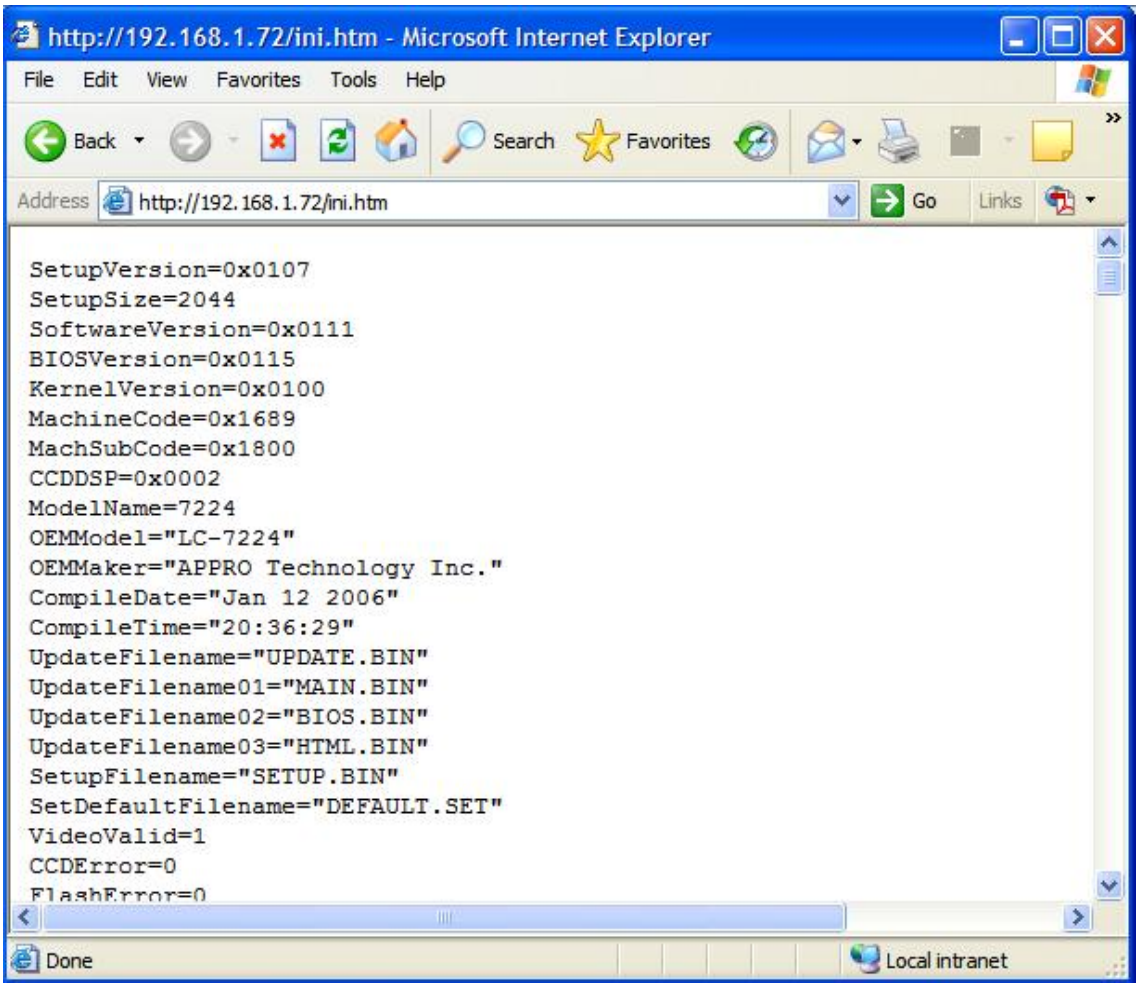

FIG 17-3

17.4 docmenu.htm

This Webpage shows all hyperlinks of the documentation summarized in the device as in FIG 17-4. The first field is its sequence and the next one is its correlative hyperlink.

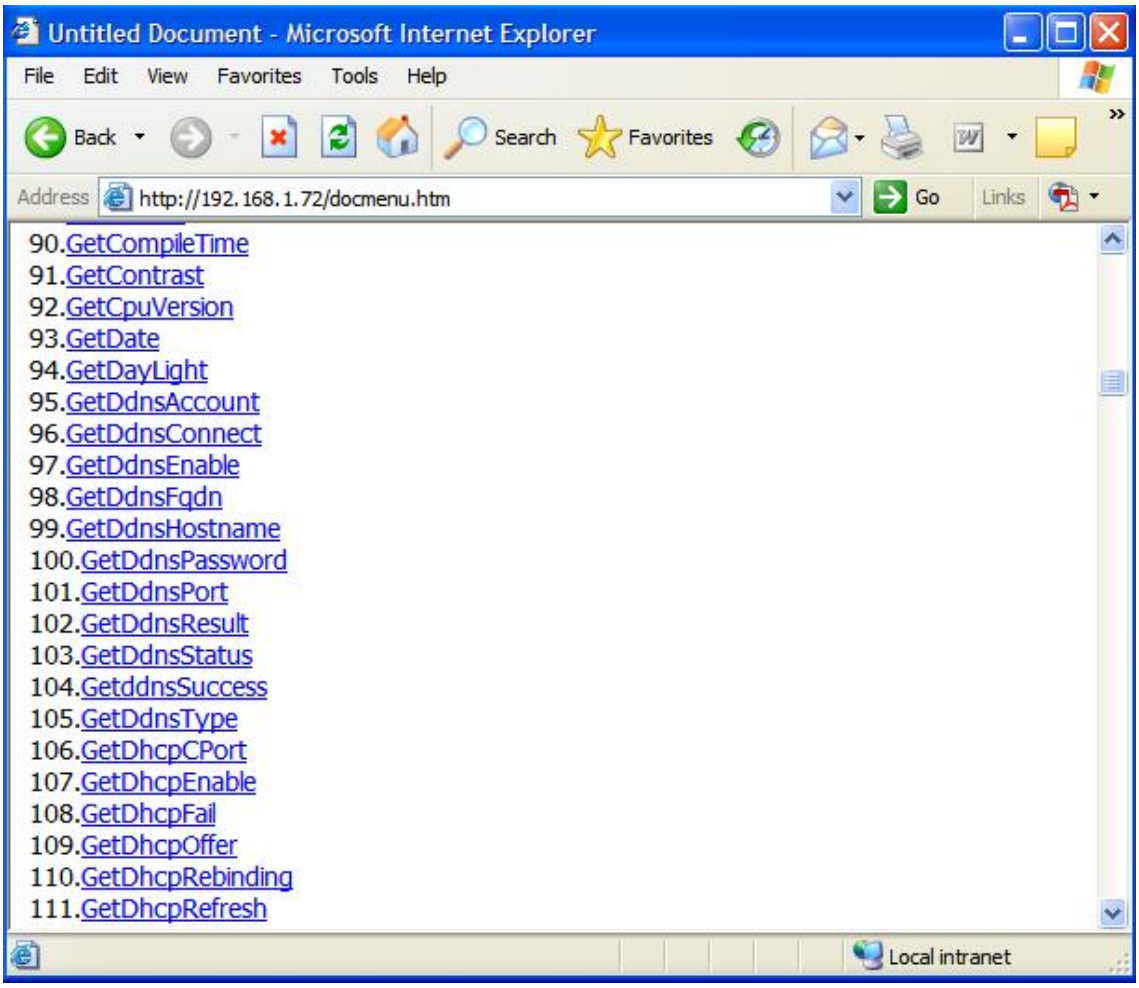

FIG 17-4

17.5 keyword.htm

This Webpage shows all keywords of the parameters mentioned in Chapter 12. The first field is its sequence; the second one is its keyword; the last one is the minimum authority to exert it.

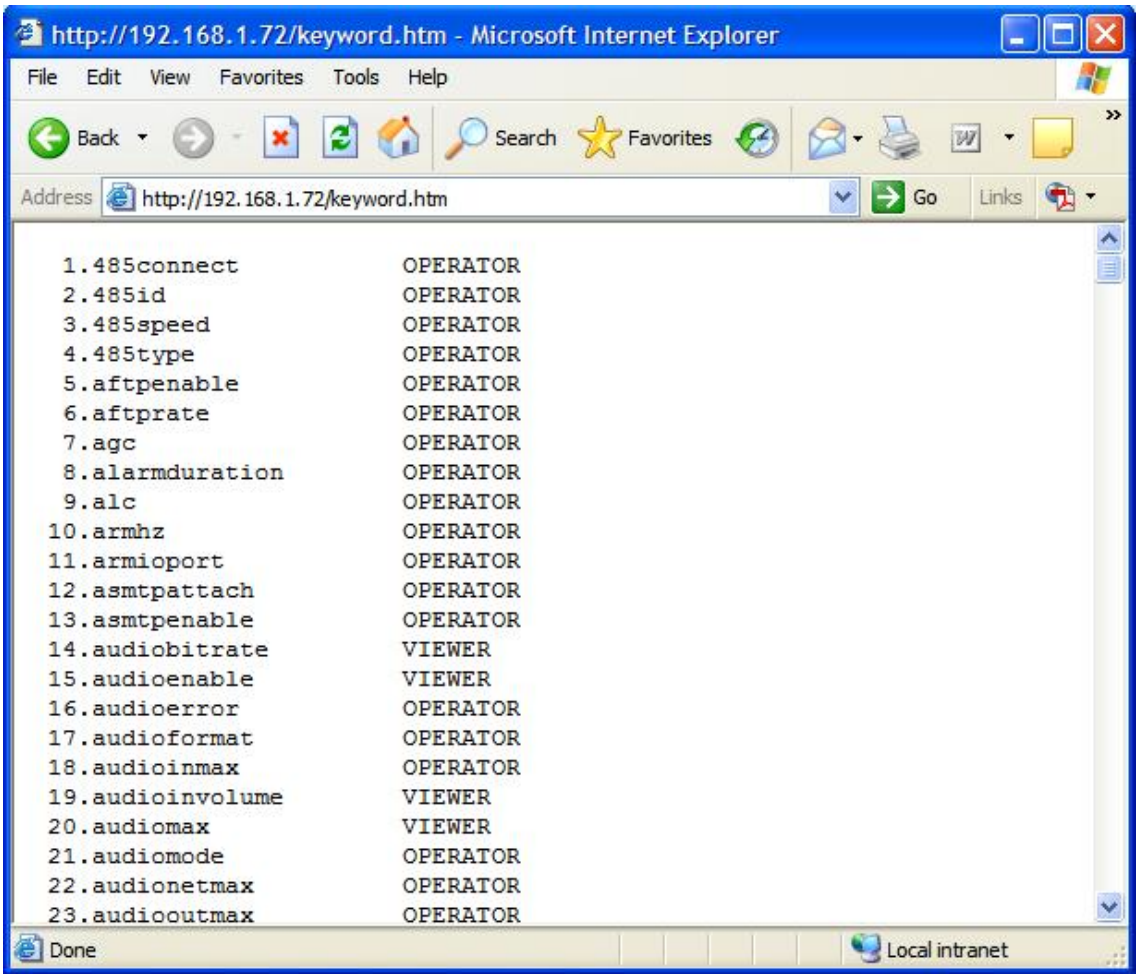

FIG 17-5

17.6 event.htm

This Webpage lists the event log recorded in the device. The combinations of the commands, '**eventstart**' and '**eventcount**', can help you get the equivalent page.

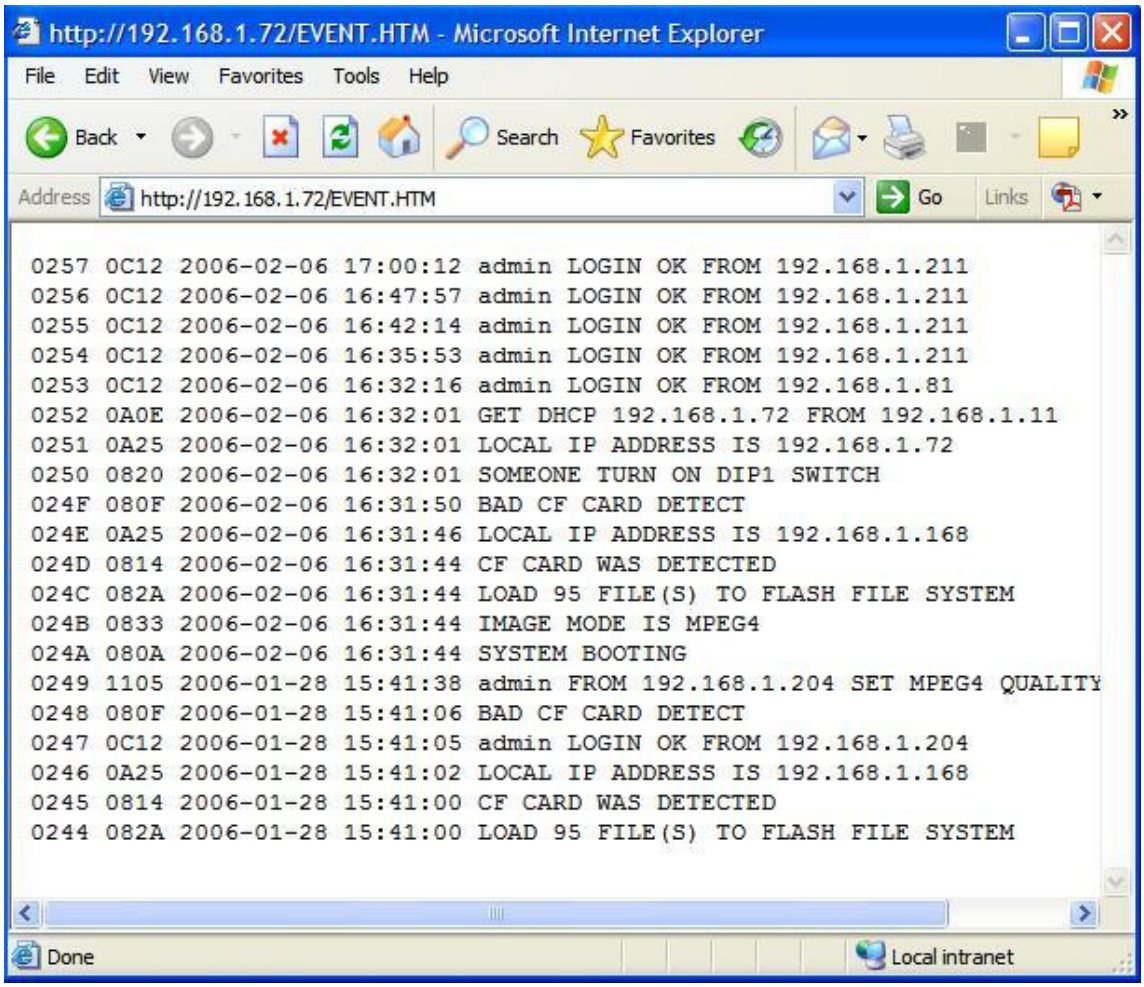

FIG 17-6

17.7 pda.htm

This Webpage is dedicated for a PDA to show a JPEG picture, and it is designed to simplify the operation on a PDA. There are few (three or four) fields on this page and the next paragraph will describe their purposes.

Warning: This page does not support '**MPEG4 / AVC**' codec, and you have to switch your machine to '**MJPEG**' mode before you visit this page.

1. The field shows a reserved URL '**pda.htm**', and it depends on your machine.
2. This field stands for the refresh rate of the page.
3. A JPEG picture will be refreshed manually when this button is pressed.

FIG 17-7

For a multi-channel video server,

1. This field shows a reserved URL '**pda.htm**', and it depends on your machine.
2. This field stands for the refresh rate of the page.
3. This field indicated the channel number.
4. A JPEG picture will be refreshed manually when this button is pressed.

17.8 Calculator.htm

This Webpage is dedicated to estimate the maximum bandwidth of MJPEG/MPEG4/H.264 codec.

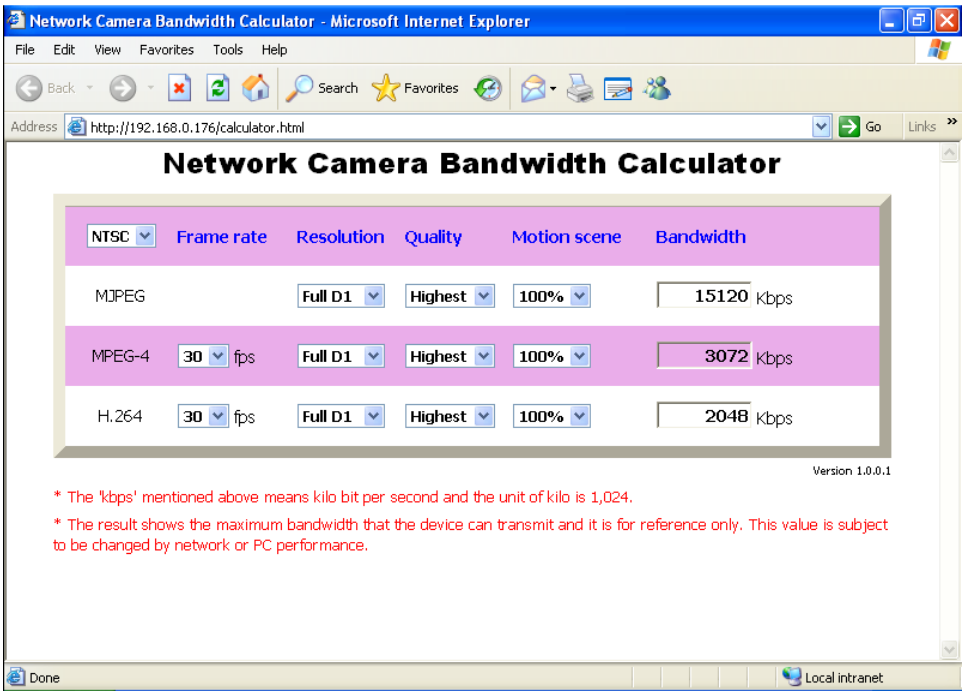

FIG 17-8

Internet Ex
08:06
1
http://192.168.100.15/pda.htm
2
Rate:
1 f/ 3 s
3
CH
2
Refresh
4
檢視 工具

FIG 17-8

18. Integrate SDK with DirectShow

18.1 Overview

The DirectShow is one of the common libraries that Microsoft supported, and applications can easily process the multi-media streams through the library. Our component, '***VideoDeviceControl***', is using the core technology of DirectShow to support users to access the multi-media streaming from a network devices. Our SDK contains lots of filters with the extension filename '***.ax***', and they can be assembled to integrate your specific system flawlessly. This chapter will describe particularly the specifications and functionalities of the filters in our SDK.

18.2 The Descriptions of the Filters

This section will specify the functions, the DLL it associated, both input and output pins, and the interface of each filter.

18.2.1 LanDeviceSourceFilter.ax

Description:

The '***LanDeviceSourceFilter.ax***' filter makes a connection with the device directly and retrieves the audio/video data from the device. It passes the entire video images or audio to the next filter, but the data it passes is still raw and not decompressed yet. It will also clone another copy of the multi-media data to the both pin3 and pin4 when the recording mode is active.

Filter GUID:

FC162f82-206D-42D1-B072-5CD0F0B10B86

Dependency:

None

Input Pins

None

Output Pins

No.	Pin1
Media Major Type	MEDIATYPE_Video GUID: 73646976-0000-0010-8000-00AA00389B71
Media Sub Type	MEDIASUBTYPE_MJPG for MJPEG GUID: 47504A4D-0000-0010-8000-00AA00389B71 MEDIATYPE_Mpeg4DivX for MPEG4 GUID: 30355844-0000-0010-8000-00AA00389B71
Media Format	FORMAT_VideoInfo GUID: 05589F80-C356-11CE-BF01-00AA0055595A

TAB 18-1

No.	Pin2
Media Major Type	MEDIATYPE_Audio GUID: 73647561-0000-0010-8000-00AA00389B71
Media Sub Type	MEDIASUBTYPE_PCM GUID: 00000001-0000-0010-8000-00AA00389B71
Media Format	FORMAT_WaveFormatEx GUID: 05589F81-C356-11CE-BF01-00AA0055595A

TAB 18-2

There are four output pins in the '***LanDeviceSourceFilter.ax***' filter, and both Pin1 and Pin3 are the same while Pin2 and Pin4 are identical. The filter, '***LanDeviceSourceFilte.ax***', will clone another media data to both the Pin1 and Pin2 only when the recording mode is active.

Implement Interface:

ILanDeviceSource, and refer to chapter 18.2.5.

18.2.2 JPEGTransFilter.ax

Description:

The filter, '***JPEGTransFilter.ax***' is an Intel JPEG Decompression Library; it is a transform filter which decodes JPEG images into RGB24 bitmap format.

Filter GUID:

6BD89F75-0E21-41BA-B804-8E2857D10F55

Dependency:

ijl10.dll

Input Pins:

No.	Pin1
Media Major Type	MEDIATYPE_Video GUID: 73646976-0000-0010-8000-00AA00389B71
Media Sub Type	MEDIASUBTYPE_MJPG for MJPEG GUID: 47504A4D-0000-0010-8000-00AA00389B71
Media Format	FORMAT_VideoInfo GUID: 05589F80-C356-11CE-BF01-00AA0055595A

TAB 18-3

Output Pins:

No.	Pin1
Media Major Type	MEDIATYPE_Video GUID: 73646976-0000-0010-8000-00AA00389B71
Media Sub Type	MEDIASUBTYPE_RGB24 GUID: E436EB7D-524F-11CE-9F53-0020AF0BA770
Media Format	FORMAT_VideoInfo GUID: 05589F80-C356-11CE-BF01-00AA0055595A

TAB 18-4

Implement Interface:

None

18.2.2 MPEG4TransFilter.ax

Description:

The filter, '***MPEG4TransFilter.ax***', is an XVID codec; it is a transform filter which decodes MPEG4 images into RGB24 bitmap format.

Filter GUID:

83140B78-5D7F-4BD8-A83f-58A71555E89A

Dependency:

xvidcore.dll

Input Pins:

No.	Description
Media Major Type	MEDIATYPE_Video GUID: 73646976-0000-0010-8000-00AA00389B71
Media Sub Type	MEDIATYPE_Mpeg4DivX for MPEG4 GUID: 30355844-0000-0010-8000-00AA00389B71
Media Format	FORMAT_VideoInfo GUID: 05589F80-C356-11CE-BF01-00AA0055595A

TAB 18-5

Output Pins:

No.	Description
Media Major Type	MEDIATYPE_Video GUID: 73646976-0000-0010-8000-00AA00389B71
Media Sub Type	MEDIASUBTYPE_RGB24 GUID: E436EB7D-524F-11CE-9F53-0020AF0BA770
Media Format	FORMAT_VideoInfo GUID: 05589F80-C356-11CE-BF01-00AA0055595A

TAB 18-6

Implement Interface:

None

18.2.4 BitmapOverlayFilter.ax

Description:

The filter, '***BitmapOverlayFilter.ax***' processes the decoded images and attaches the ICONs, setups the motion detection and the mask area configuration over the images.

Filter GUID:

57EACC48-F349-4DBB-934F-453B122938E9

Dependency:

None

Input Pins:

No.	Description
Media Major Type	MEDIATYPE_Video GUID: 73646976-0000-0010-8000-00AA00389B71
Media Sub Type	MEDIASUBTYPE_RGB24 GUID: E436EB7D-524F-11CE-9F53-0020AF0BA770
Media Format	FORMAT_VideoInfo GUID: 05589F80-C356-11CE-BF01-00AA0055595A

TAB 18-7

Output Pins:

No.	Description
Media Major Type	MEDIATYPE_Video GUID: 73646976-0000-0010-8000-00AA00389B71
Media Sub Type	MEDIASUBTYPE_RGB24 GUID: E436EB7D-524F-11CE-9F53-0020AF0BA770
Media Format	FORMAT_VideoInfo GUID: 05589F80-C356-11CE-BF01-00AA0055595A

TAB 18-8

Implement Interface:

IBitmapOverlay, and please refer to chapter 18.2.6.

18.2.5 ILanDeviceSource

Description:

The interface, '***ILanDeviceSource***' provides the basic parameters for the source filter, '***LanDeviceSourceFilter***'.

Filter GUID:

8253BD8C-A649-42CF-9D89-CD5B9900F2D2

Members:

- get_IP
- put_IP
- get_Username
- put_Username
- get_Password
- put_Password
- get_IsAxisCompatable
- put_IsAxisCompatable
- get_AxisWidth
- put_AxisWidth
- get_AxisHeight
- put_AxisHeight
- get_ChannelID
- put_ChannelID
- get_IsAudioON
- put_IsAudioON
- get_IsRecord
- put_IsRecord
- get_DropTooLarge
- put_DropTooLarge
- get_NetworkTimeout
- put_NetworkTimeout
- ReceiverStop
- get_VideoType
- get_VideoWidth
- get_VideoHeight
- put_HttpStopEvent

18.2.5.1 get_IP

*get_IP(TCHAR *ip,UINT size)*

The function copies the IP address to a prepared memory with the capacity of '***size***'.

18.2.5.2 put_IP

*put_IP(const TCHAR *ip)*
This function specifies the IP address of the device with the parameter, a C-style string.

18.2.5.3 get_Username

*get_Username(TCHAR *user, UINT size)*
The function copies the user name to a prepared memory with the capacity of '***size***'.

18.2.5.4 put_Username

*put_Username(const TCHAR *user)*
This function setups the user name of the device with the parameter, a C-style string.

18.2.5.5 get_Password

*get_Password(TCHAR *pass, UINT size)*
The function copies the password to a prepared memory with the capacity of '***size***'.

18.2.5.6 put_Password

*put_Password(const TCHAR *pass)*
This function setups the password of the device with the parameter, a C-style string.

18.2.5.7 get_IsAxisCompatable

*get_IsAxisCompatable(BOOL * isCompatable)*

This function returns the value which tells the status of Axis compatible mode (*1).

18.2.5.8 put_IsAxisCompatable

put_IsAxisCompatable(const BOOL isCompatable)

This function determines the value which tells the status of Axis compatible mode (*1).

18.2.5.9 get_AxisWidth

get_AxisWidth(INT width)*

This function returns the image width when the device is in Axis compatible mode (*1).

18.2.5.10 put_AxisWidth

put_AxisWidth(const INT width)

This function configures the image width when the device is in Axis compatible mode (*1).

18.2.5.11 get_AxisHeight

get_AxisHeight(INT height)*

This function returns the image height when the device is in Axis compatible mode (*1).

18.2.5.12 put_AxisHeight

put_AxisHeight(const INT height)

This function configures the image height when the device is in Axis compatible mode (*1).

18.2.5.13 get_ChannelID

get_ChannelID(INT chid)*

This function returns the channel identification of the video.

18.2.5.14 put_ChannelID

put_ChannelID(const INT chid)

This function determines the channel identification of the video.

18.2.5.15 get_IsAudioON

get_IsAudioON(BOOL isON)*

This function returns the status whether the audio data is transmitting.

18.2.5.16 put_IsAudioON

put_IsAudioON(const BOOL isON)

This function determines the status whether the audio data is transmitting.

18.2.5.17 get_IsRecord

get_IsRecord(BOOL isRec)*

This function returns the status whether the device is recording.

18.2.5.18 put_IsRecord

put_IsRecord(const BOOL isRec)

This function determines the status whether the device is recording.

18.2.5.19 get_DropTooLarge

get_DropTooLarge(LONG val)*

This function returns a long integer and if the size of retrieving audio data is greater than this value, the application should ignore the redundant data. This will make the audio stream synchronized and real-time.

18.2.5.20 put_DropTooLarge

put_DropTooLarge(const LONG val)

This function sets a long integer and if the size of retrieving audio data is greater than this value, the application should ignore the redundant data. This will make the audio stream synchronized and real-time.

18.2.5.21 get_NetworkTimeout

get_NetworkTimeout(LONG val)*

This function returns the socket timeout of the device and the unit is mini-second.

18.2.5.22 put_NetworkTimeout

put_NetworkTimeout(const LONG val)

This function sets the socket timeout of the device and the unit is mini-second.

18.2.5.23 ReceiverStop

ReceiverStop()

This function terminates the thread that accesses the audio and video data.

18.2.5.24 get_VideoType

get_VideoType(INT type)*

This function returns the format code of the video compression.

Format	Code
LD_VIDEO_STREAM_MJPEG	1000
LD_VIDEO_STREAM_MPEG4	1005

TAB 18-9

18.2.5.25 get_VideoWidth

get_VideoWidth(LONG width)*

This function retrieves the video width.

18.2.5.26 get_VideoHeight

get_VideoHeight(LONG height)*

This function retrieves the video height.

18.2.5.27 put_HttpStopEvent

put_HttpStopEvent(VOID stopEvent)*

This function hooks the specific stop event handler, '***CManualEvent***' which controls the network access.

*1: In Axis compatible mode, only the MJPEG stream without audio data is available, and both the image height (*put_AxisHeight*) and image width (*put_AxisWidth*) should be specified before this function is performed.

18.2.6 IBitmapOverlay

Description:

This interface, '***IBitmapOverlay***' is associated with the mouse events and supports basic parameters of the device.

Filter GUID:

710FFE80-7498-4A54-9959-B51750D75018

Members:

- get_HWnd
- put_HWnd
- put_HttpStopEvent
- get_IP
- put_IP
- get_Username
- put_Username
- get_Password
- put_Password
- get_ChannelID
- put_ChannelID
- put_UIMode

- SaveSetting
- OnMouseMove
- OnMouseDown
- OnMouseUp
- OnMouseDBClick
- OnMouseLeave
- OnMenu
- get_NetworkTimeout
- put_NetworkTimeout

18.2.6.1 get_HWnd

*get_HWnd(HWND *hwnd)*

This function returns the window handler of the display control.

18.2.6.2 put_HWnd

*put_HWnd(const HWND *hwnd)*

This function sets the window handler of the display control.

18.2.6.3 put_HttpStopEvent

put_HttpStopEvent(VOID stopEvent)*

This function hooks the specific stop event handler, '***CManualEvent***' which controls the network access.

18.2.6.4 get_IP

*get_IP(TCHAR *ip, UINT size)*

The function copies the IP address to a prepared memory with the capacity of '***size***'.

18.2.6.5 put_IP

*put_IP(const TCHAR *ip)*

This function sets the specific IP address of the device.

18.2.6.6 get_Username

*get_Username(TCHAR *user, UINT size)*

The function copies the user name to a prepared memory with the capacity of '***size***'.

18.2.6.7 put_Username

*put_Username(const TCHAR *user)*

This function setups the valid user name of the device with the parameter, a C-style string.

18.2.6.8 get_Password

*get_Password(TCHAR *pass,UINT size)*

The function copies the password to a prepared memory with the capacity of '***size***'.

18.2.6.9 put_Password

*put_Password(const TCHAR *pass)*

This function setups the valid password of the device with the parameter, a C-style string.

18.2.6.10 get_ChannelID

get_ChannelID(INT chid)*

This function returns the channel identification of the video.

18.2.6.11 put_ChannelID

put_ChannelID(const INT chid)

This function sets the channel identification of the video.

18.2.6.12 put_UIMode

put_UIMode(const LONG uimode, const LONG imgWidth, const LONG imgHeight, const LONG mouseWidth, const LONG mouseHeight)

This function determines the display mode of the user interface; the '***uimode***' are listed as followed.

code	uimode
0	normal mode
2	motion mode
3	mask area mode

TAB 18-10

The parameters, '***imgWidth***' and '***imgHeight***' are the width and height of the video respectively.

The parameters, '***mouseWidth***' and '***mouseHeight***' are the maximum scope of mouse motion respectively, and they are for axis transformation.

18.2.6.13 SaveSetting

SaveSetting(const BOOL isShowMsg)

This function stores the settings back to the device. A window will pop up to show the result when the parameter, '***isShowMsg***' is true.

18.2.6.14 OnMouseMove

OnMouseMove(const INT x, const INT y, const LONG mouseBtn, const LONG keyValue)

This function handles the mouse move event, and '***x***' is the horizontal position of the mouse cursor while '***y***' is the vertical position of the mouse cursor respectively.

The parameter, '***mouseBtn***,' indicates the triggered mouse key.

code	key
0x01	left

0x02	right
0x10	middle

TAB 18-11

The parameter, '***keyValue***', shows the keyboard status when an event occurs.

code	key
0x00	none
0x01	ctrl key
0x02	left ctrl key pressed
0x04	shift key
0x08	left shift key pressed
0x10	alt key
0x20	left alt key pressed

TAB 18-12

18.2.6.15 OnMouseDown

OnMouseDown(const INT x, const INT y, const LONG mouseBtn, const LONG keyValue)

This function handles the mouse click down event; '***x***' is the horizontal position of the mouse cursor while '***y***' is the vertical position of the mouse cursor respectively.

The parameter, '***mouseBtn***,' indicates the triggered mouse key. Please refer to TAB 18-11.

The parameter, '***keyValue***', shows the keyboard status when an event occurs. Please refer to TAB 18-12.

18.2.6.16 OnMouseUp

OnMouseUp(const INT x, const INT y, const LONG mouseBtn, const LONG keyValue)

This function handles the mouse button releasing event; '***x***' is the horizontal position of the mouse cursor while '***y***' is the vertical position of the mouse cursor respectively.

The parameter, '***mouseBtn***', indicates the triggered mouse key. Please refer to TAB 18-11.

The parameter, '***keyValue***', shows the keyboard status when an event occurs. Please refer to TAB 18-12.

18.2.6.17 OnMouseDBClick

OnMouseDBClick(const INT x, const INT y, const LONG mouseBtn, const LONG keyValue)

This function handles the mouse double clicking event; '***x***' is the horizontal position of the mouse cursor while '***y***' is the vertical position of the mouse cursor respectively.

The parameter, '***mouseBtn***', indicates the triggered mouse key. Please refer to TAB 18-11.

The parameter, '***keyValue***', indicates the keyboard status when an event occurs. Please refer to TAB 18-12.

18.2.6.18 OnMouseLeave

OnMouseLeave()
This function handles the mouse leaving event.

18.2.6.19 OnMenu

OnMenu(const DWORD msgID)

This function processes menu message when a pop-up menu is selected. And the parameter, '***msgID***', is the message identification.

18.2.6.20 get_NetworkTimeout

get_NetworkTimeout(LONG val)*

This function returns the socket timeout and the unit of the parameter is mini-second.

18.2.6.21 put_NetworkTimeout

put_NetworkTimeout(const LONG val)

This function sets the socket timeout and the unit of the parameter is min-second.

19. Miscellaneous

19.1 The Authority of a Guest

As mentioned before, there are four authorities in the system. They are

- Administrator
- Operator
- Viewer
- Guest

The essential video/audio stream (refer to Chapter 5 or 6) needs an authority of '**VIEWER**' or greater, but it is inconvenient to some applications because the authentication is imperative. There is a compromise solution for convenience and security to the device, and the strategy is as follows.

- If the authentication system is untouched (i.e., no additions, no modifications have been made to the password or account, meaning the commands, '**adduser**' or '**deluser**', have never been employed), the initial authority of any user will be assigned to a '**VIEWER**'.
- If the registration table is changed, the initial authority of any user will be a '**GUEST**'; this means an authentication for every action is mandatory.

19.2 PPPoE recovery

Please read this chapter carefully before you setup the PPPoE settings. You may need the information to disable, or enable, the PPPoE functions to get rid of a dead lock, or simply for mode switching.

19.2.1 Case 1

- **Situation:**

  You try to connect the device to a LAN but fail, and you find it is in a dead lock situation. The reason may be

  - An authentication failure.
  - The PPPoE is set in the '**On**' mode, forcing the device to keep searching for a PPPoE hub which does not exist in the LAN.

- **Actions:**

  Step 1:

  Find out a pair of DIP switches on the RIGHT hand surface of the device as you face the lens.

  Step 2:

  Poke ONLY the 3-4 DIP switch back and forth at least 5 times until the '**power**' and '**LAN**' LEDs, located near the DIP switches, start flashing a red light in turn. Now the PPPoE setting successfully goes back to the '**Off**' mode.

19.2.2 Case 2

- **Situation:**

  In a special case, like an electrical power cut, you reboot the device in which the PPPoE is set in the '**TEST**' mode. Rebooting needs only 10 seconds, but a PPPoE hub needs about 1 minute to complete the whole rebooting procedure. This time difference will cause the device to

misjudge that a PPPoE hub does not exist in the environment. As a result, the device will turn to search for a LAN and connect with it.

Actions:

Please just reboot your device again if you actually want to enable the PPPoE function. As long as a PPPoE hub gets ready after 1 minute, the device will find and connect with it automatically.

19.3 The Icons in the OSD

This chapter lists all icons displayed in the OSD and explains what their meanings are when they are shown.

This icon means the IP address of the device is retrieved by a DHCP server instead of a static address.

This icon indicates that the network is activated by an HTTP or FTP connection.

This icon shows that the network connection is lost.

This icon means that the wireless module works fine.

This icon means that the wireless module is searching for an AP device.

This icon means that the device has received a configuration setup, but the data has not been flushed into the memory.

This icon means that the device is flushing all configurations into the memory.

This icon shows that the device is in the alarm duration mode.

This icon shows there is a motion alarm triggered by the motion detection mode.

This icon indicates that a CF-Card or a wireless card inserted into the device is working properly.

This icon indicates that a CF-Card inserted into the device is damaged or the expected wireless card has not been inserted.

This icon indicates that an SD-Card inserted into the device is working properly.

This icon indicates that a CF-Card inserted into the device is damaged.

This icon means that an SMTP session is activating.

This icon means that an FTP session is activating.

This icon means that an FTP session is activating.

This icons means that a PPPoE session is active or the data associated with the RS-232 or RS-485 is active.

This icon means there is luminance detection.

20. H.264 Stream Format

20.1 Background

H.264 is a standard for video compression. It is also known as MPEG-4 Part 10 or MPEG-4 AVC (for Advanced Video Coding). As of 2009, it is the latest block-oriented motion-compensation-based codec standard developed by the ITU-T Video Coding Experts Group (VCEG) together with the ISO/IEC Moving Picture Experts Group (MPEG), and it was the product of a partnership effort known as the Joint Video Team (JVT). The ITU-T H.264 standard and the ISO/IEC MPEG-4 Part 10 standard (formally, ISO/IEC 14496-10) are jointly maintained so that they have identical technical content. The final drafting work on the first version of the standard was completed in May 2003.

H.264/AVC experienced widespread adoption within a few years of the completion of the standard. It is employed widely in applications ranging from television broadcast to video for mobile devices. In order to ensure compatibility and problem-free adoption of H.264/AVC, many standards bodies have amended or added to their video-related standards so that users of these standards can employ H.264/AVC.

20.2 Introduction

This chapter will introduce the H.264 audio/video-stream of the IP Camera, and explain its composition. Basically, this stream comprises of a series of multiple frames and audio fragments with a boundary marker; therefore, the application can handily parse its contents and extract the expected image from the stream.

Not every IP Camera can support H.264; therefore, please check the support status of the H.264 first, and the IP Camera returns a message of '**NS AVC**'. Please refer to Chapter 7.3.1.44 to check its codec status.

This process needs an authority '**VIEWER**' or any of the higher authorities, '**OPERATOR**' and '**ADMINISTRATOR**'; the corresponding settings 'resolution', 'frame rate' and 'quality' have to be pre-determined.

The audio stream can be synchronized with the video stream if the status related to the audio is enabled, and it will be repeated every 200 mini-seconds.

20.3 Snapshot

There is no player which can decode a single '**I**' or '**P**' frames of the H.264 stream independently; therefore, the function of the H.264 snapshot is not provided. An application has to transform the receiving stream into the format of MJPEG by itself. If the bandwidth of the stream is too huge to receive, you can try the parameter, '***ifrmonly=1***'.

20.4 H.264 Stream Request

The following URL will return an unfailing audio/video-stream if H.264 codec is supported in this device.

http://<servername>:<serverport>/avc.cgi?parameters

Index	Parameter
1	*audiostream=[0/1]*
2	*ifrmonly=[0/1]*

TAB 20-1

Here the <*servername*> is the FQDN of the IP Camera; the <*serverport*> can be ignored if it is equal to the well-known HTTP port, 80; the <*audiostream*> stands for the switch of the audio (please refer to Chapter 7.3.3.26); the

<*ifrmonly*> means the only-I-frame output which reduces the bandwidth dramatically (please refer to Chapter 7.3.3.36).

Notice: The audio function is device-dependent; some countries consider audio recording a matter of privacy.

20.5 H.264 Stream Response

When the H.264 audio/video-stream is requested, it returns a continuous flow of the H.264 frames. The content type is '**multipart/x-mixed-replace**' and each image ends with a boundary string '***<boundary>***'. The result looks as follows.

```
HTTP/1.0 200 OK\r\n
Connection: Close\r\n
Server: NETOS\r\n
Content-Type: multipart/x-mixed-replace;boundary=--myboundary\r\n
\r\n
--myboundary\r\n
Content-Type: image/mpeg4\r\n
Content-Length: <size>\r\n
X-Status: <status>\r\n
X-Tag: <tag>\r\n
X-Flags: <flags>\r\n
X-Alarm: <alarm>\r\n
X-Framerate: <framerate>\r\n
X-Resolution: <resolution>\r\n
X-Time: <time>\r\n
\r\n
<H.264 image data>\r\n
--myboundary\r\n
Content-Type: audio/wav\r\n
Content-Length: <size>\r\n
X-Codec: <codec>\r\n
X-Bitrate: <bitrate>\r\n
X-Tag: <tags>\r\n
\r\n
< H.264 audio data>\r\n
--myboundary\r\n
.
.
.
```

FIG 20-2

The above tags in the H.264 stream section is listed as follows.

- X-Status

  This field will show the total counts of alarm and motion after each rebooting.

- X-Tag

This field indicates the serial number of the H.264 frame.

- X-Flags

The field is reserved, and should be zero for future compatibility.

- X-Alarm

This flag shows the combination status of alarm or motion when this picture is captured. Please refer to the TAB 5-4.

- X-Framerate

This field indicates the frame rate of this H.264 stream. The relation between frame rate and file size is depicted in APPENDIX XII.

- X-Resolution

The field shows the resolution of this H.264 video stream.

- X-Time

This field is the time-string stamp of this frame.

The above keywords in the H.264 audio section are listed as follows.

- X-Codec

This field shows what kind of audio codec this stream adopts.

- X-Bitrate

This field indicates the bit rate of this audio stream, and the unit is bytes per second.

- X-Tick

This field indicates the system tick which application can use this variable to synchronize with the video.

- X-Tag

This field shows the serial number of the corresponding MPEG4 frame.

20.6 Stream Exception

The connection will cease if one of the following conditions occurs.

- The system is going to reboot.

- The resolution, frame rate or bit rate is modified by another application.

21. RTP

21.1 Background

RTP was originally designed as a multicast protocol, but has since been applied in many unicast applications. For host-to-host transport, RTP and RTCP use the User Datagram Protocol (UDP) predominantly, although other Transport Layer protocols, in particular Datagram Congestion Control Protocol (DCCP) and Stream Control Transmission Protocol (SCTP) may be used because of their congestion control mechanisms. Transmission Control Protocol (TCP) has been documented for RTP usage, but is rarely deployed in such applications. Applications using RTP are less sensitive to packet loss, but typically very sensitive to delays resulting from network latency, so UDP is a better choice than TCP for such applications.

According to RFC 1889, the services provided by RTP include:

- Payload-type identification - Indication of what kind of content is being carried
- Sequence numbering - PDU sequence number
- Time stamping - allow synchronization and jitter calculations
- Delivery monitoring

The protocols themselves do not provide mechanisms to ensure timely delivery. They also do not give any Quality of Service (QoS) guarantees. These things have to be provided by some other mechanism.

Also, out of order delivery is still possible, and flow and congestion control are not supported directly. However, the protocols do deliver the necessary data to the application to make sure it can put the received packets in the correct order. Also, RTCP provides information about reception quality which the application

can use to make local adjustments. For example if a congestion is forming, the application could decide to lower the data rate.

RTP was also published by the ITU-T as H.225.0, but later removed once the IETF published a stable standards-track RFC. It exists as an Internet Standard (STD 64) defined in RFC 3550 (which obsoletes RFC 1889). RFC 3551 (STD 65) (which obsoletes RFC 1890) defines a specific profile for Audio and Video Conferences with Minimal Control. RFC 3711 defines the Secure Real-time Transport Protocol (SRTP) profile (actually an extension to RTP Profile for Audio and Video Conferences) which can be used (optionally) to provide confidentiality, message authentication, and replay protection for audio and video streams being delivered.

21.1 RTP Stream Request

The following URL will return an unfailing video-stream within a socket.

http://<servername>/camera.stm

For multi-channel video server:
Not provided.

Here the <*servername*> is the FQDN of the IP Camera; this protocol will bind both the UDP ports, 5550 (RTP) and 5551 (RTCP). Please note that most of the firewalls will block these ports if your application is in internet environment. The most excellent frame rate in NTSC is 30 images per second it is 25 images per second in PAL.

21.2 How to Connect

Before you use the RTP protocol, you should download a RTP player something like VLC. Let's take 'VLC' as an example before we go any further, because 'VLC' is a free and popular RTP player.

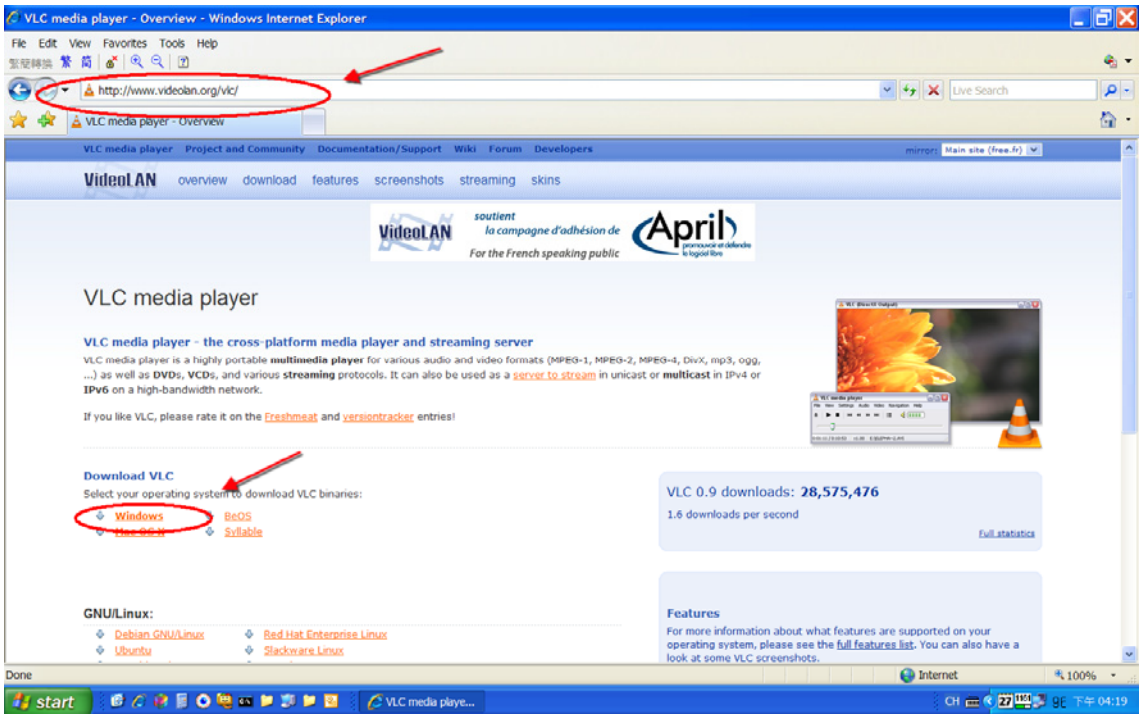

FIG 21-1

Please visit this hyperlink 'http://www.videolan.org/vlc' to download 'VLC' installation software.

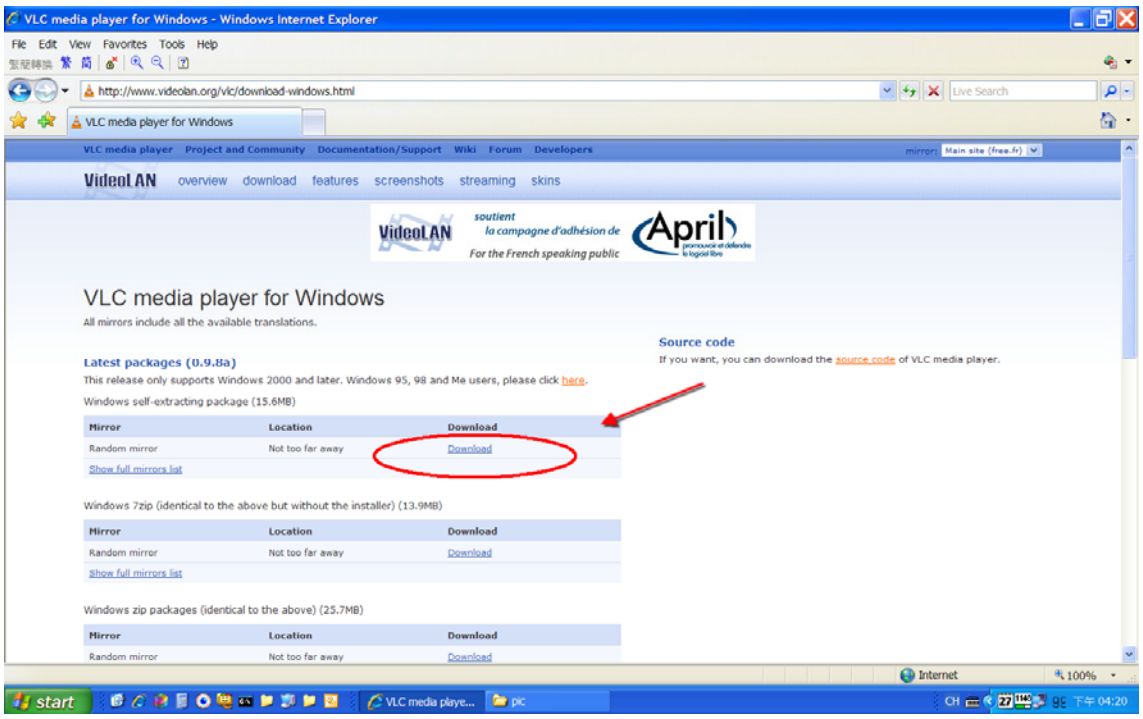

FIG 21-2

Please select your platform and download server from this web page. The latest version is 0.9.8a.

After a normal installation, you will have a shortcut in your desktop. Just follow the procedures if you want to access an RTP connection. Please open this shortcut and select the '***Media***' and then choose ***'Open Network'***.

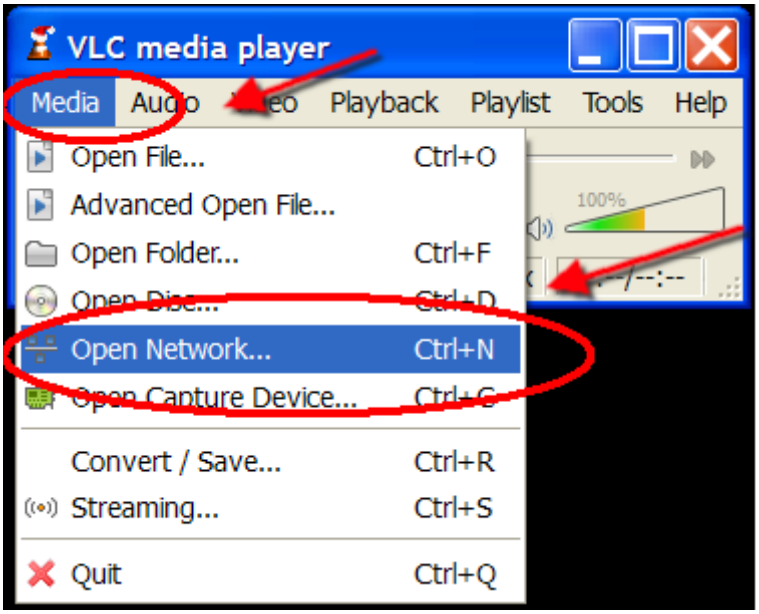

FIG 21-3

And then please input the network protocol address like '***rtsp://192.168.1.168/camera.stm***'. Please ignore the combo box of the protocol and this box will change automatically when you type '***rtsp***'. Please note that the address mentioned above is related to your device IP address.

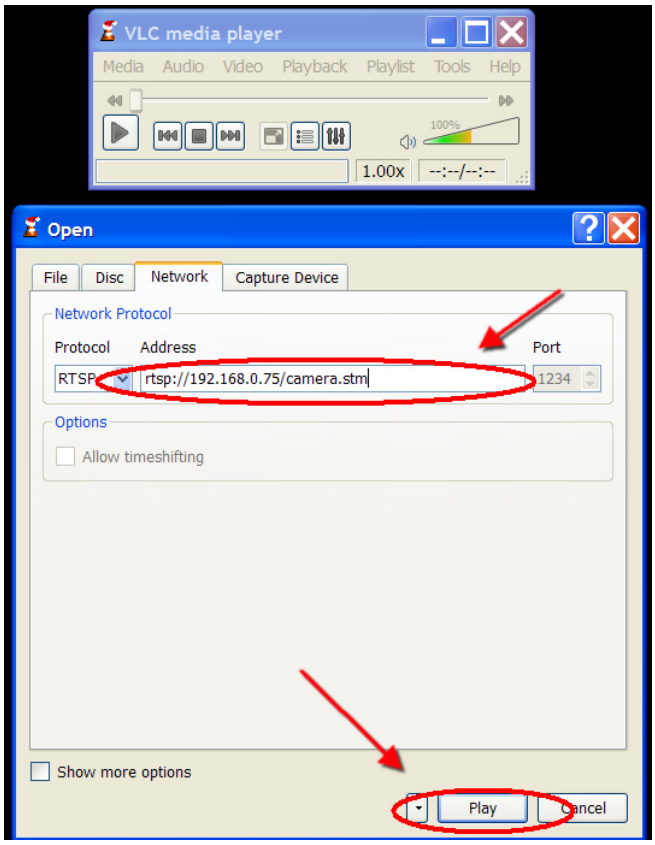

FIG 21-4

If everything is okay, please press the '***Play***' button to start the RTP connection; and you will see a live RTP streaming on your VLC player like below.

FIG 21-5

21.3 Latency

The default setting of 'VLC' has a large buffer memory size to keep '***Real time***' instead of latency. If you want to lower the latency of your connection, please follow the steps to fine tune the '***VLC***' configurations.

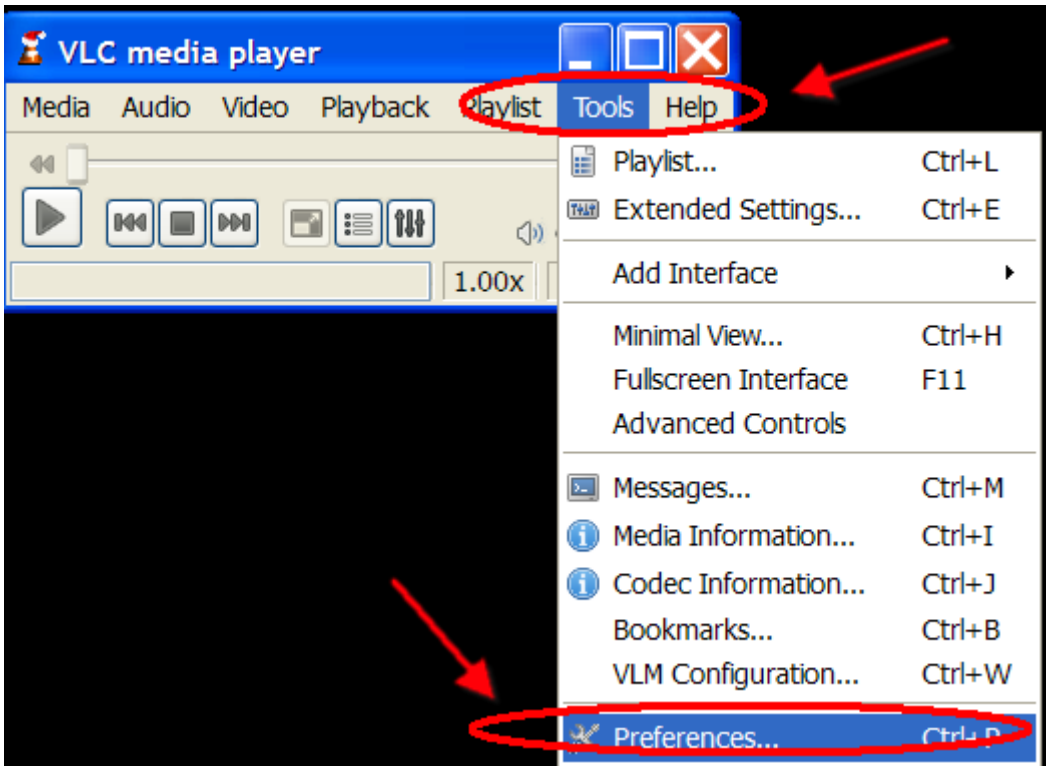

FIG 21-6

Select the '***Tools***' and then click the option '***Preferences***'

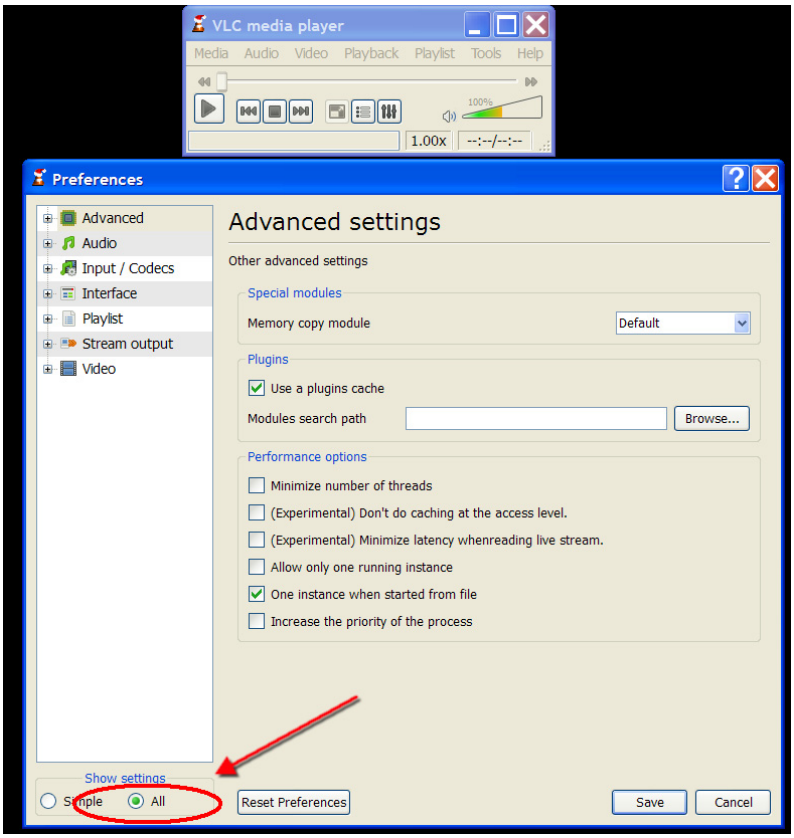

FIG 21-7

And then change to '***All*** in the '***Show setting***'.

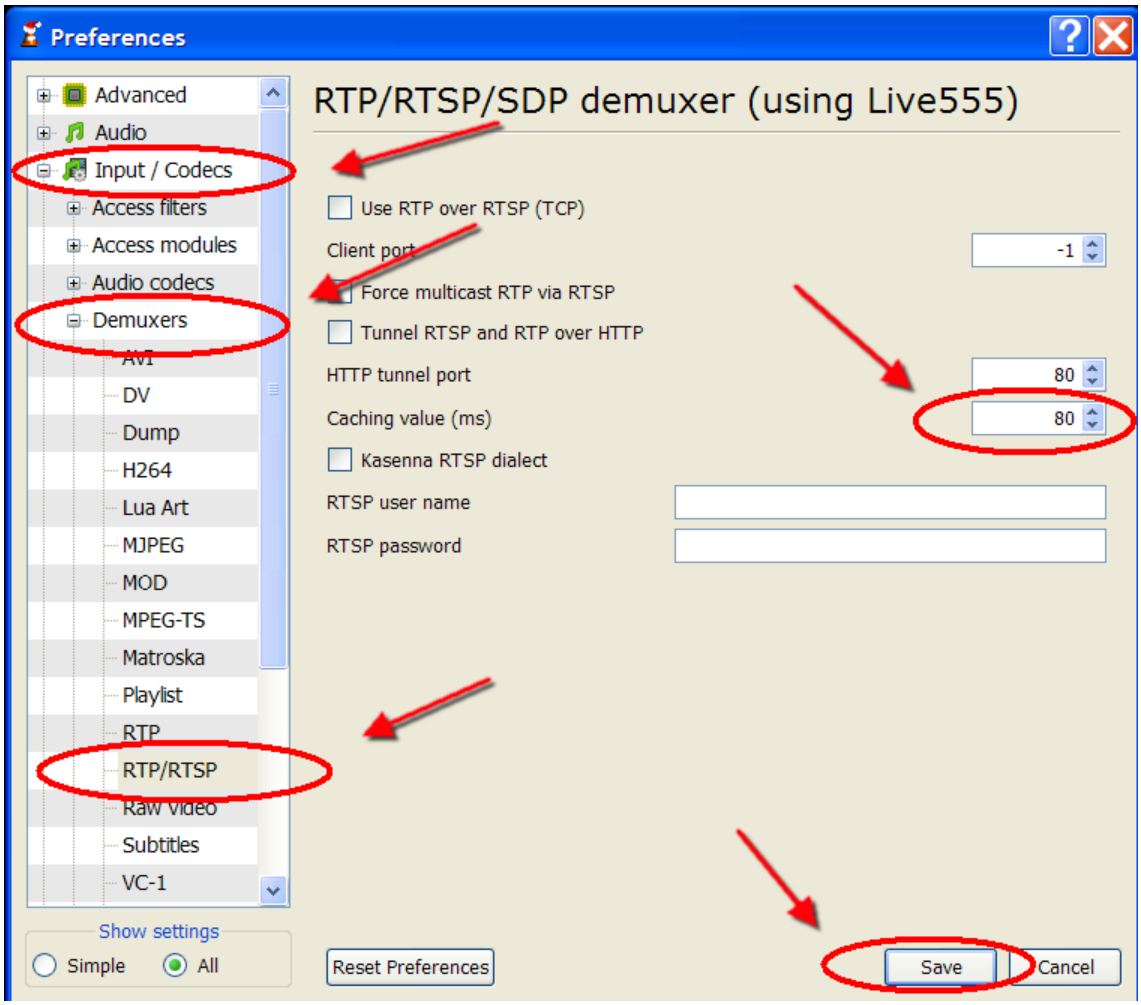

FIG 21-8

Select the '***RTP/RTSP*** of the '***Demuxers***' and change the value of the '***Caching value***' to '***80*** ms; and restart your '***VLC*** player after saving the settings.

APPENDIX I - Glossary

AGC

Auto Gain Control

AIPDK

Advance IP Camera Development Kit

ANNP

Advance News Notification Protocol

AVI

A video/audio file format

AWB

Auto White Balance

BOOTP

Bootstrap Protocol

BLC

Backlight control

DHCP

Dynamic Host Configuration Protocol

DDNS

Dynamic Domain Name Service

ESSID

Extended Service Set Identifier

FTP

File Transfer Protocol

FQDN

Fully Qualified Domain Name

HTTP

Hypertext Transfer Protocol

ICMP

Internet Control Message Protocol

JPEG

Joint Photographic Experts Group, JPEG is a lossy compression technique for color images

LAN

Local Area Network

MJPEG

Motion JPEG

NBNS

NetBIOS Name Service

OSD

On Screen Display

PPPoE

PPP over Ethernet

RTC

Real-Time Clock

SMTP

Simple Mail Transfer Protocol

SNTP

Simple Network Time Protocol

TCP

Transmission Control Protocol

URL

Uniform Resource Locator

USB

Universal Serial Bus

UDP

User Data Protocol

UPnP

Universal Plug and Play

VCA

Video Device Control

WCM

Webpage Custom Maker

WEP

Wired Equivalent Privacy

WWW

World Wide Web

WINS

Windows Internet Name Service

APPENDIX II - ANNP Code

This appendix outlines the '**EVENT CODE**', '**ARGUMENT**', and '**MESSAGES**' of the IP Camera series.

EVENT CODE	ARGUMENT	MESSAGES
0x0001	0x0000	Alarm triggered
0x0002	0x0000	CCD failure
0x0003	0x0000	DSP error
0x0004	0x0000	FTP server is full
0x0005	0x0000	Motion occurred
0x0006	0x0000	Audio component breakdown
0x0007	0x0000	RTC component error
0x0008	0x0000	Flash memory error
0x0009	0x0000	Luminosity alarm
0x000A	0x0000	CF-Card in error
0x000B	0x0000	CF-Card is full
0x000C	0x0000	Signal acknowledged
0x000D	0x0000	Alarm key released
0x000E	0x0000	Alarm reset key pressed
0x000F	0x0000	Motion event vanished
0x0010	0x0000	Luminosity event vanished
0x0011	0x0000	SD-Card missing
0x0012	0x0000	SD-Card is full
0x0013	0x0000	System rebooting
0x0014	0x0000	PPPoE is active
0x0015	0x0000	System location
0x0016	0x0000	Net update
0x0017	0x0000	Video mode changed
0x0018	0x0000	Digital alarm in

0x0019	0x0000	Digital alarm reset
0x001A	0x0000	Video lost
0x001B	0x0000	Video recovered
0x001C	0x0000	SD card rewrite
0x001D	0x0000	H.264 Co-processor error
0x001E	0x0000	CF card rewrite

TAB B-1

APPENDIX III - MPEG4 Bit Rate Lookup

1. When the frame rate is higher than 15 frames/second (15 is not included)

	Highest	High	Medium	Low	Lowest
FULL D1	0x300000	0x280000	0x200000	0x180000	0x100000
VGA	0x2A0000	0x240000	0x1C0000	0x150000	0x0E0000
Half D1	0x180000	0x140000	0x100000	0x0C0000	0x080000
Half VGA	0x150000	0x120000	0x0E0000	0x0A8000	0x070000
CIF	0x0C0000	0x0A0000	0x080000	0x060000	0x040000
QVGA	0x0A8000	0x090000	0x070000	0x060000	0x038000

TAB C-1

2. When the frame rate is lower than or equal to 15 frames/second.

	Highest	High	Medium	Low	Lowest
FULL D1	0x240000	0x1E0000	0x180000	0x120000	0x0C0000
VGA	0x1F0000	0x1B0000	0x150000	0x0FC000	0x0A8000
Half D1	0x120000	0x0F0000	0x0C0000	0x090000	0x060000
Half VGA	0x0FC000	0x0D8000	0x0A8000	0x07E000	0x054000
CIF	0x090000	0x078000	0x060000	0x048000	0x030000
QVGA	0x080000	0x070000	0x058000	0x040000	0x030000

TAB C-2

Notice: The unit is bits per second, for example, 0x300000 means 3Mega bits/sec.

APPENDIX IV - FTP Update

1. Click on the '**Start**' menu (at the lower left corner on your screen) and select '**Run...**' Then, type '**command**' or '**cmd**' in the box and click '**OK**' button.

FIG D-1

2. An MS-DOS Prompt window should show up as follows.

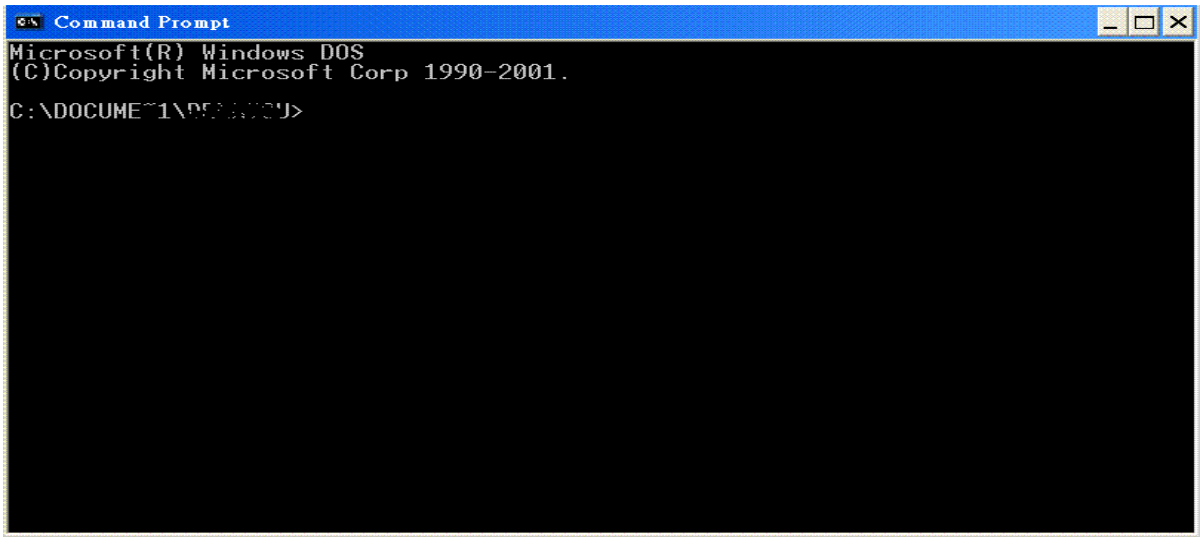

FIG D-2

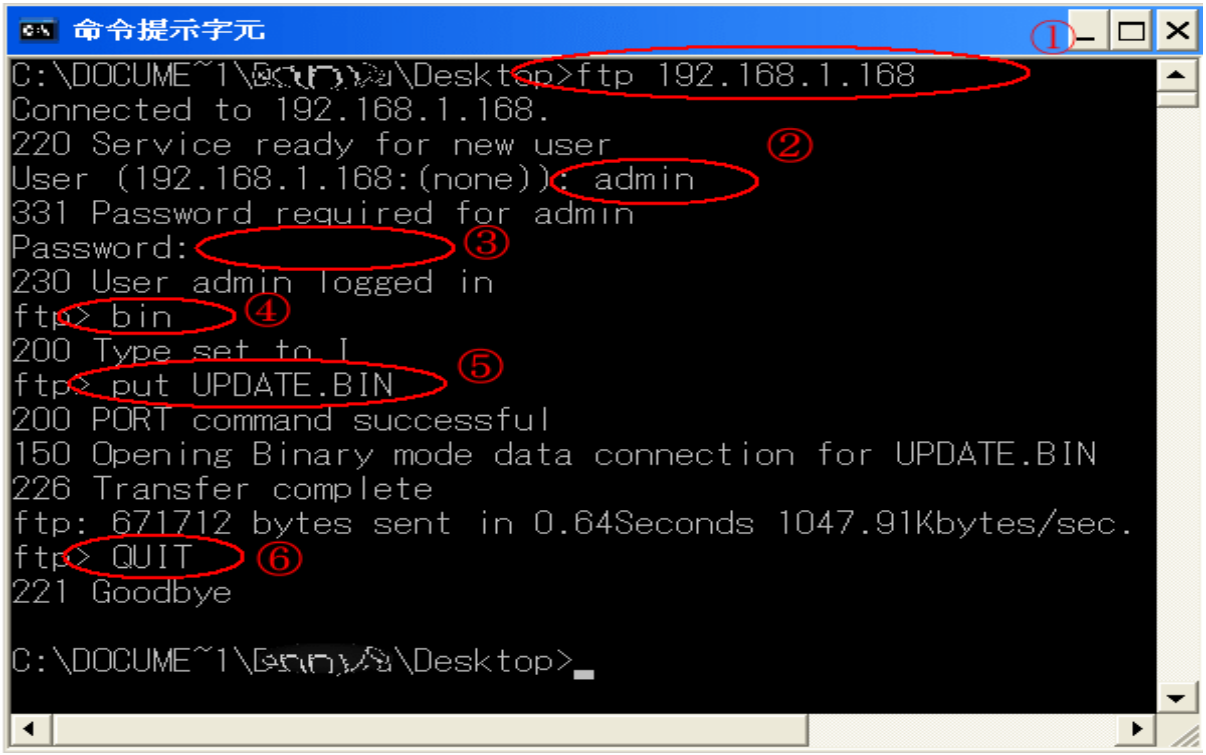

FIG D-3

3. Now we are ready to FTP! After getting your computer online, type in the IP address of your IP Camera (such as '**ftp 192.168.1.168**') marked above as procedure ①.

Notice: The IP Address of '**192.168.1.168**' is just an example, and it should be modified according to your own IP Camera setting.

4. Type in your login account and password as in procedures ② and ③ (the default setting of the IP Camera is '**admin**' and '**9999**').

5. Before uploading any files, you need to type in the command '**bin**' first as in procedure ④. This is to ensure that the files transferred from your computer to the FTP server are in binary format, not in the ASCII type.

6. Use the '**put**' command to start uploading the updated file. Now enter '**put update.bin**' as in procedure ⑤. After your file is uploaded, a message appears

to tell you that the transfer is complete. Some basic statistics about the data transfer show up in the end.

7. To end your FTP session, type in '**quit**' or '**bye**' as in procedure ⑥, and to quit out of the MS-DOS prompt, enter '**exit**'.

8. The IP Camera itself will invoke an update procedure in 10 seconds after receiving your file. The red LED on its rear side will be flickering during the updating period. The IP Camera will reboot automatically after all the steps have been completed correctly.

Notice:

- The illustrations shown above may be a little different depending on your Windows® OS.
- The filename in procedure ⑤ *must be* '**update.bin**'. Make sure of its validity, or ***a vital error may occur due to a wrong source.***
- Use the '**cd**' command to change the path of the uploading file if necessary.
- All network services of the IP Camera are in temporary shutdown during the processing of the updating procedure; however, reconnecting to the IP Camera is suggested after about one minute.
- Please don't power-off the IP Camera in step 8, or physical damages will occur.

APPENDIX V - Ping Reset

The Ethernet interface on the IP Camera has a default IP address (**192.168.1.168**) that most likely needs to be changed to make it work in your local network. You need to acquire a unique IP address (consult your network administrator). For the initial setting of the IP address, the IP Camera needs to be connected to the same network segment as your client, and the IP address can then be configured by using a combination of ARP and ping command.

Use any of the following ways to set the IP address within thirty seconds after booting the IP Camera (re-cycle the power). Setting the IP by using the following methods can only be done in the Ethernet interface.

Warning: The '**PING RESET**' procedure is not allowed when the PPPoE session is activated.

ARP and ping from Windows or MS-DOS:

The user can open the MS-DOS windows from the Windows® 98 operation system, or open the Command Prompt windows from either the Windows® 2000 or the Windows® XP operation system.

1. Start a DOS prompt window
2. Type in the following commands within 30 seconds of the booting:

arp -s <IP address> <Ethernet address>

[**or** arp -s <IP address> < MAC address>]

ping <IP address>

Example:

arp -s 192.168.1.100 00-0C-0C-00-00-01

ping 192.168.1.100

The IP address now is: 192.168.1.100

Warning: The MAC address depends on your own device.

ARP and ping from UNIX or GNU/Linux:

1. Start a shell.
2. Type in the following as a super user (root):

arp -s <IP address> <Ethernet address>

[**Or** arp -s <IP address> < MAC address>]

ping <IP address>

Example:

arp -s 192.168.1.100 00-0C-0C-00-00-01

ping 192.168.1.100

Warning: The MAC address depends on your own device.

The device responds to ping in the examples above if the new address has already been configured. Note that this method will set the IP address permanently.

Notice: The default account and password after reset are '**admin**' and '**9999**'.

APPENDIX VI - SD-Card Troubleshooting

1. Check out if the SD-Card position is correct. Please refer to the manual for the related information.

2. After powering on the IP Camera, insert an SD-Card in the correct position. A little icon of '**SD**' will show up in the upper-right corner of the monitor screen. If it doesn't, it means the device detection has failed. Please contact your technical support and ignore the following steps.

3. If no cross sign appears beside the '**SD**' icon, please go forward to the next step. If a cross sign appears, please check out the following:

   - Is it really an SD '**Memory**' Card?
   - Is this SD-Card formatted in the FAT16 format?
   - Connect the SD-Card with a PC and test whether the PC can read the data or not.
   - Does this SD-Card have enough space for storing data?
   - Is the SD-Card set to be writable?

   If all the answers are '**yes**' but the cross sign still persists, please contact your technical support and ignore the following steps.

4. Please make sure the function of '**SD CARD ENABLE**' is enabled on the ALARM and SCHEDULE pages if no cross sign appears beside the '**SD**' icon on the screen.

5. After recording, read the data through the web page of '**sdget.htm**'. If the data cannot be read through the network, please read it by a PC instead and check out the data stored in the '**LANCAM**' directory; please contact your technical support no matter there is data or not.

PS:

1. Performing this troubleshooting process may need a monitor, a PC, a card reader and some cables.
2. If an SD-Card is removed while storing or accessing data, the data will be lost.
3. If there is a cross sign beside the '**SD**' icon, it means the SD-Card has been inserted in the IP Camera but cannot perform a writing function. Possible reasons are:

   - This is not an SD-Card.
   - The SD-Card is unformatted or formatted in a non-FAT16 format.
   - There is damage in the file format information.
   - The capacity of the SD-Card is full.
   - The SD-Card is set to be read only.

APPENDIX VII - CF-Card Troubleshooting

1. Check out if the CF-Card position is correct. Please refer to the manual for the related information.

2. After powering on the IP Camera, insert a CF-Card in the correct position. A little icon of '**CF**' will show up in the upper-right corner of the monitor screen. If it doesn't, it means the device detection has failed. Please contact your technical support and ignore the following steps.

3. If no cross sign appears beside the '**CF**' icon, please go forward to the next step. If a cross sign appears, please check out the following:

   - Is it really a CF '**Memory**' Card?
   - Is this CF-Card formatted in the FAT16 format?
   - Connect the CF-Card with a PC and test whether the PC can read the data or not.
   - Does this CF-Card have enough space for storing data?
   - Is the CF-Card set to be writable?

   If all the answers are '**yes**' but the cross sign still persists, please contact your technical support and ignore the following steps.

4. Please make sure the function of '**CF CARD ENABLE**' is enabled on the ALARM and SCHEDULE pages if no cross sign appears beside the '**CF**' icon on the screen.

5. After recording, read the data through the web page of '**cfget.htm**'. If the data cannot be read through the network, please read it by a PC instead and check out the data stored in the '**LANCAM**' directory; please contact your technical support no matter there is data or not.

PS:

1. Performing this troubleshooting process may need a monitor, a PC, a card reader and some cables.
2. If a CF-Card is removed while storing or accessing data, the data will be lost.
3. If there is a cross sign beside the '**CF**' icon, it means the CF-Card has been inserted in the IP Camera but cannot perform a writing function. Possible reasons are:

   - This is not a CF-Card.
   - The CF-Card is unformatted or formatted in a non-FAT16 format.
   - There is damage in the file format information.
   - The capacity of the CF-Card is full.
   - The CF-Card is set to be read only.

APPENDIX VIII - Local Update

1. Format a CF/SD Card using the FAT16 format if it is unformatted; there are no limits to its capacity.
2. Create a directory named LANCAM/VSERVER in the CF/SD Card; if the directory already exists, move to Step3.
3. Copy the file of UPDATE.BIN to the directory.
4. If the device is running, please power it off first.
5. Insert the CF/SD CARD in their correct positions (please refer to the manual).
6. Remove the Ethernet cable from the RJ-45 port and then power on the device.
7. In 5 to 10 seconds, a message of '**UPDATE PROCESSING**' will show on the screen on a blue background; if not, please check out steps 1 to 6 carefully or inform your technical support while ignoring the following steps.
8. Do not power off the device while this updating process is running until '**UPDATE OK RESET PLEASE**' appears on the screen; this will take 15 to 30 seconds.
9. If '**UPDATE NG RESET PLEASE**' appears rather than '**UPDATE OK RESET PLEASE**', please write down the error messages shown on the screen and inform your technical support while ignoring the following steps.
10. Power off the device when this updating process is complete, and remove the CF/SD Card from the device.
11. Reconnect the Ethernet cable in the RJ-45 port if necessary.
12. Reboot the device and it will work normally if the entire updating procedure has been conducted correctly.

PS:

- DO NOT use FAT32 or NTFS or any other file format in step1.
- Steps 1 to 3 have to be done on a PC.
- Make sure the file of UPDATE.BIN is a correct one in step3, or the device will not work normally after being updated.

- If the device loses power suddenly lost in step8, please remove the CF/SD Card first and power on the device next to test its operation. If it keeps working normally, please go back to step4; otherwise, please inform your technical support.
- In step10, if the CF/SD Card is not removed and the device does not go online as well, the updating process will repeat again after rebooting.
- Make sure that the CF/SD Card is inserted in their correct positions in step5, or the device will suffer permanent physical damage.
- If '**CSUM ERROR**' appears in step8, it implies a problem in the UPDATE.BIN file.

APPENDIX IX - The MPEG4 Codec Installation

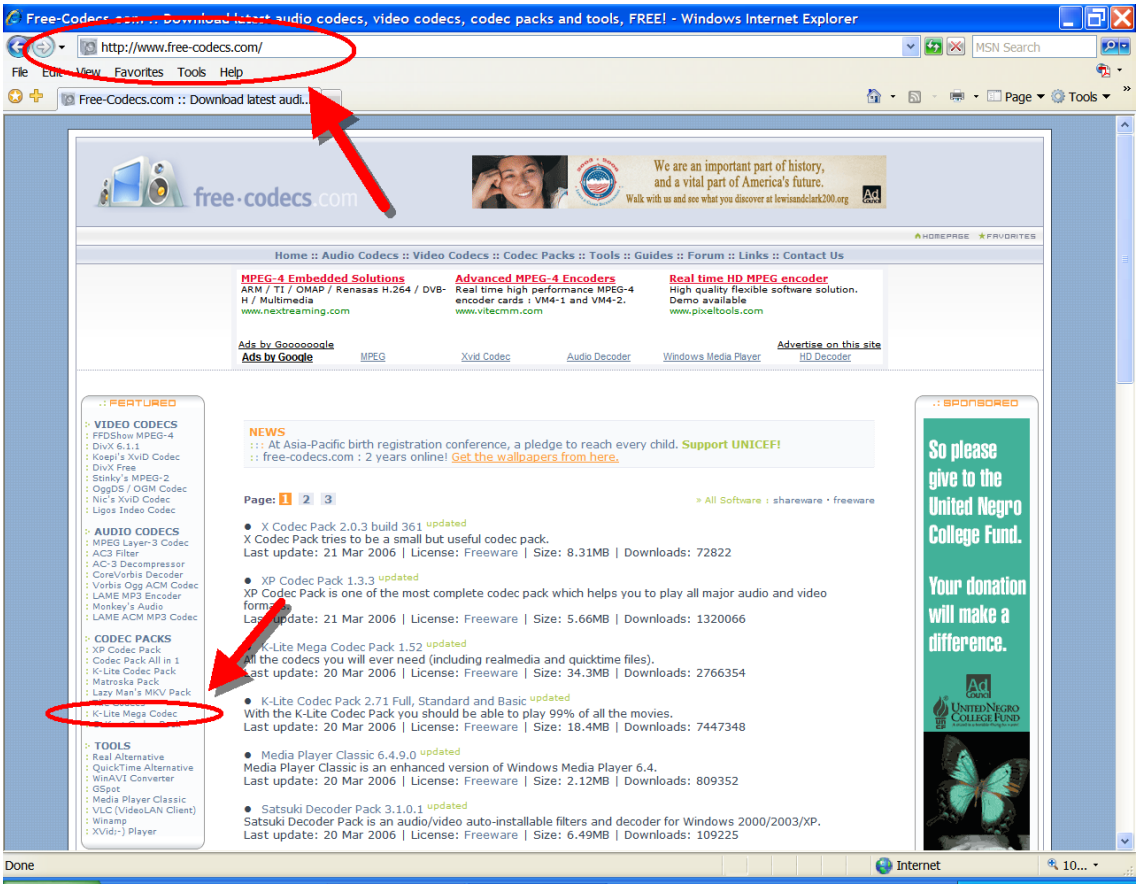

FIG I-1

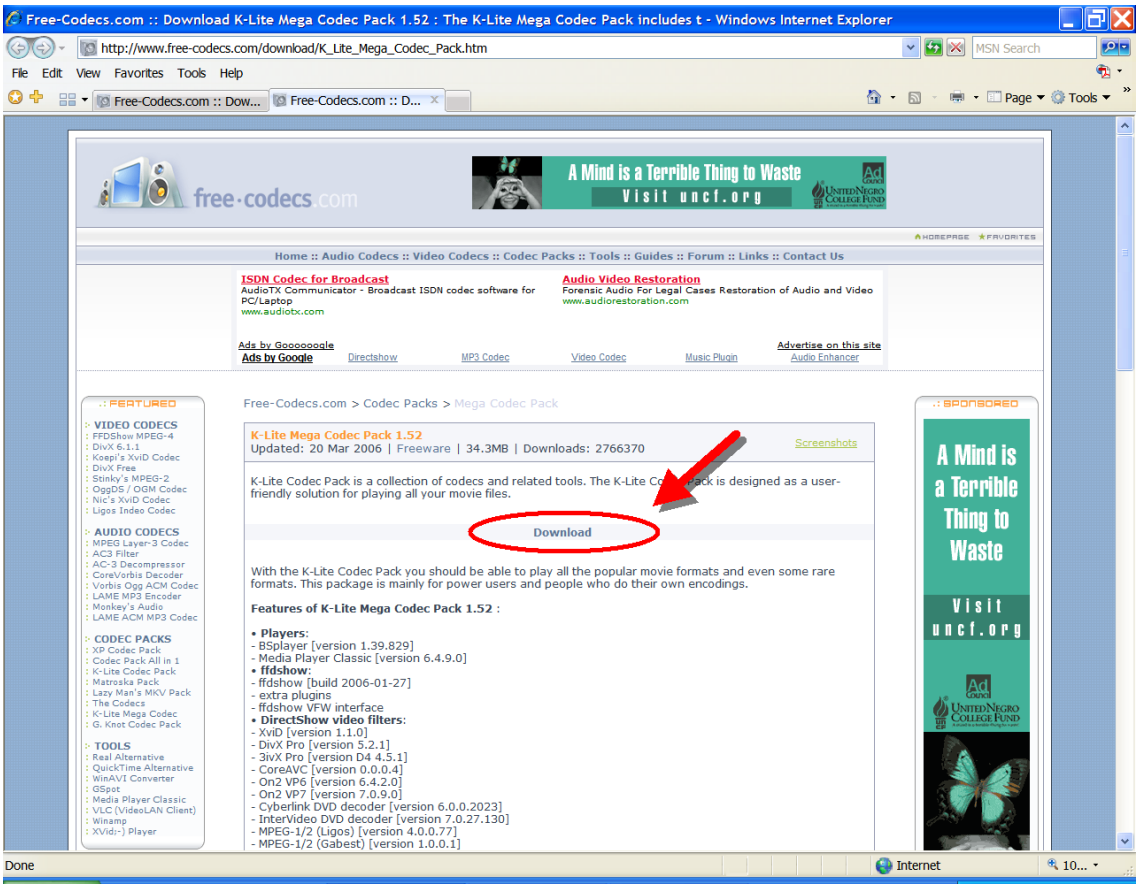
Free-Codecs.com :: Download K-Lite Mega Codec Pack 1.52 : The K-Lite Mega Codec Pack includes t - Windows Internet Explorer
http://www.free-codecs.com/download/K_Lite_Mega_Codec_Pack.htm
File Edit View Favorites Tools Help
free-codecs.com
A Mind is a Terrible Thing to Waste
Visit uncf.org
Home :: Audio Codecs :: Video Codecs :: Codec Packs :: Tools :: Guides :: Forum :: Links :: Contact Us
ISDN Codec for Broadcast
AudioTX Communicator - Broadcast ISDN codec software for PC/Laptop
www.audiotx.com
Audio Video Restoration
Forensic Audio For Legal Cases Restoration of Audio and Video
www.audiorestoration.com
Free-Codecs.com > Codec Packs > Mega Codec Pack
K-Lite Mega Codec Pack 1.52
Updated: 20 Mar 2006 | Freeware | 34.3MB | Downloads: 2766370
Screenshots
Download
With the K-Lite Codec Pack you should be able to play all the popular movie formats and even some rare formats. This package is mainly for power users and people who do their own encodings.
Features of K-Lite Mega Codec Pack 1.52 :
Done
Internet

FIG I-2

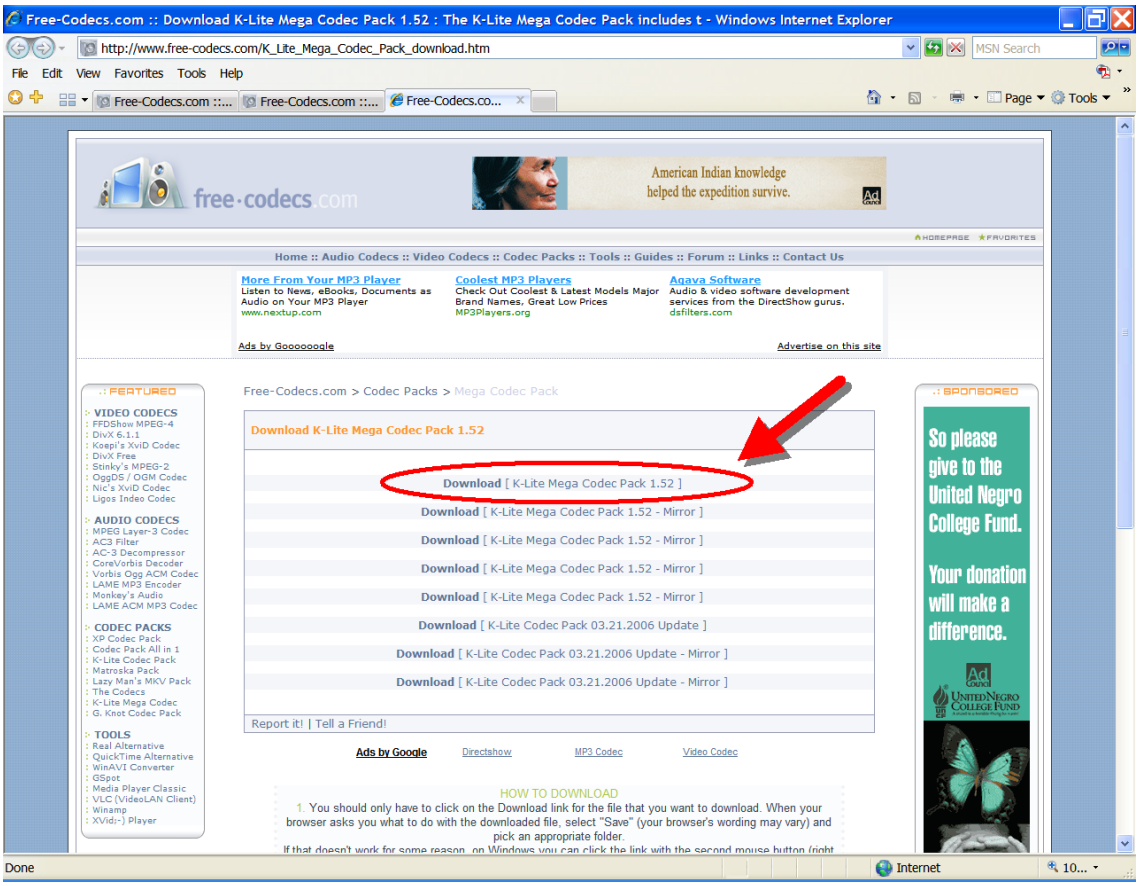
Free-Codecs.com :: Download K-Lite Mega Codec Pack 1.52 : The K-Lite Mega Codec Pack includes t - Windows Internet Explorer
http://www.free-codecs.com/K_Lite_Mega_Codec_Pack_download.htm
File Edit View Favorites Tools Help
free-codecs.com
American Indian knowledge helped the expedition survive.
Home :: Audio Codecs :: Video Codecs :: Codec Packs :: Tools :: Guides :: Forum :: Links :: Contact Us
More From Your MP3 Player
Listen to News, eBooks, Documents as Audio on Your MP3 Player
www.nextup.com
Coolest MP3 Players
Check Out Coolest & Latest Models Major Brand Names, Great Low Prices
MP3Players.org
Agava Software
Audio & video software development services from the DirectShow gurus.
dsfilters.com
Free-Codecs.com > Codec Packs > Mega Codec Pack
Download K-Lite Mega Codec Pack 1.52
Download [K-Lite Mega Codec Pack 1.52]
Download [K-Lite Mega Codec Pack 1.52 - Mirror]
Download [K-Lite Mega Codec Pack 1.52 - Mirror]
Download [K-Lite Mega Codec Pack 1.52 - Mirror]
Download [K-Lite Mega Codec Pack 1.52 - Mirror]
Download [K-Lite Codec Pack 03.21.2006 Update]
Download [K-Lite Codec Pack 03.21.2006 Update - Mirror]
Download [K-Lite Codec Pack 03.21.2006 Update - Mirror]
Report it! | Tell a Friend!
HOW TO DOWNLOAD
So please give to the United Negro College Fund.
Your donation will make a difference.
Done
Internet

FIG I-3

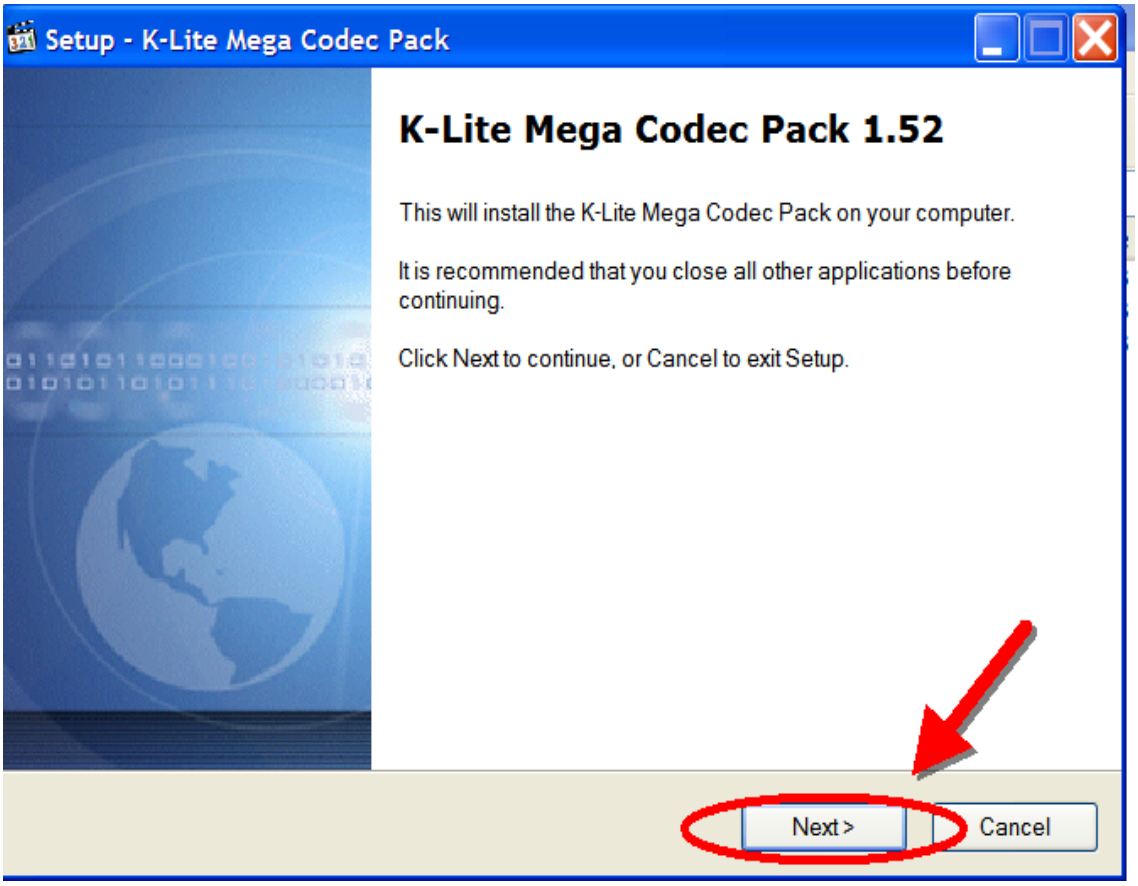
Setup - K-Lite Mega Codec Pack
K-Lite Mega Codec Pack 1.52
This will install the K-Lite Mega Codec Pack on your computer.
It is recommended that you close all other applications before continuing.
Click Next to continue, or Cancel to exit Setup.
Next >
Cancel

FIG I-4

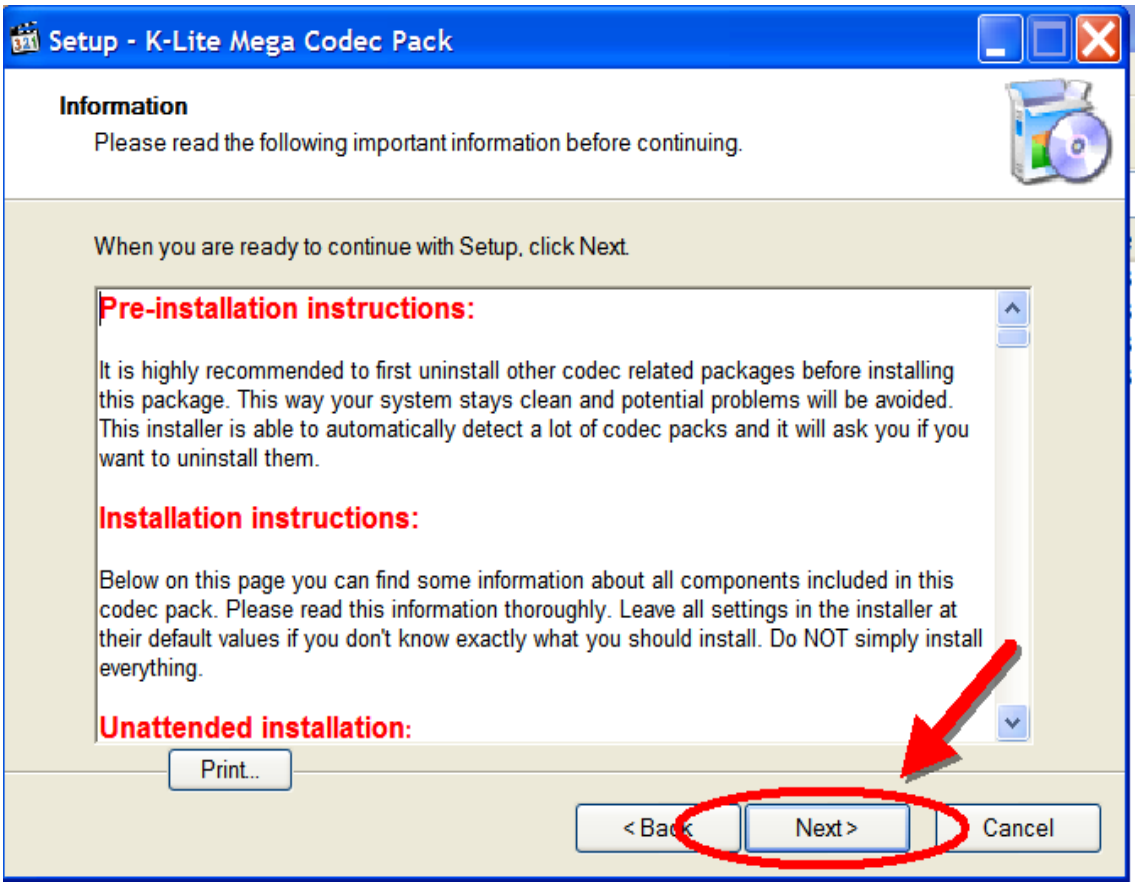
Setup - K-Lite Mega Codec Pack
Information
Please read the following important information before continuing.
When you are ready to continue with Setup, click Next.
Pre-installation instructions:
It is highly recommended to first uninstall other codec related packages before installing this package. This way your system stays clean and potential problems will be avoided. This installer is able to automatically detect a lot of codec packs and it will ask you if you want to uninstall them.
Installation instructions:
Below on this page you can find some information about all components included in this codec pack. Please read this information thoroughly. Leave all settings in the installer at their default values if you don't know exactly what you should install. Do NOT simply install everything.
Unattended installation:
Print...
< Back
Next >
Cancel

FIG I-5

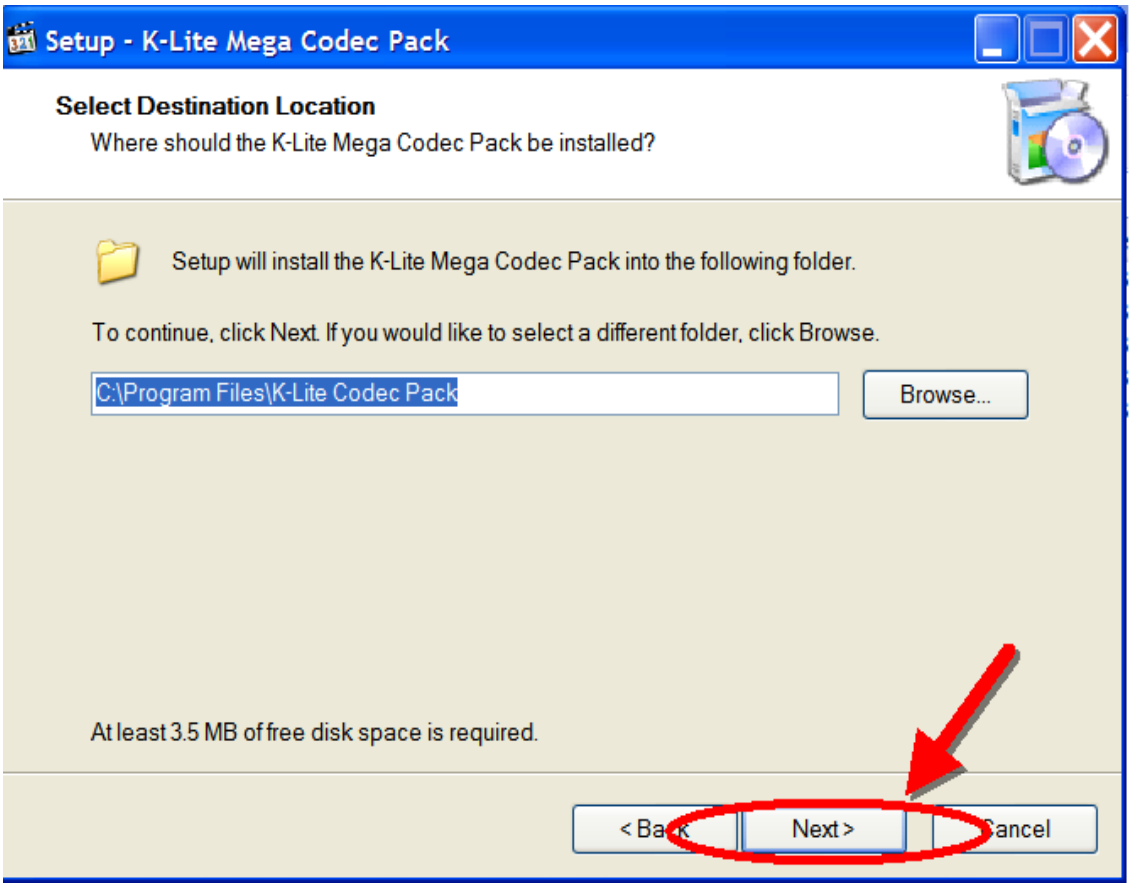
Setup - K-Lite Mega Codec Pack
Select Destination Location
Where should the K-Lite Mega Codec Pack be installed?
Setup will install the K-Lite Mega Codec Pack into the following folder.
To continue, click Next. If you would like to select a different folder, click Browse.
C:\Program Files\K-Lite Codec Pack
Browse...
At least 3.5 MB of free disk space is required.
< Back
Next >
Cancel

FIG I-6

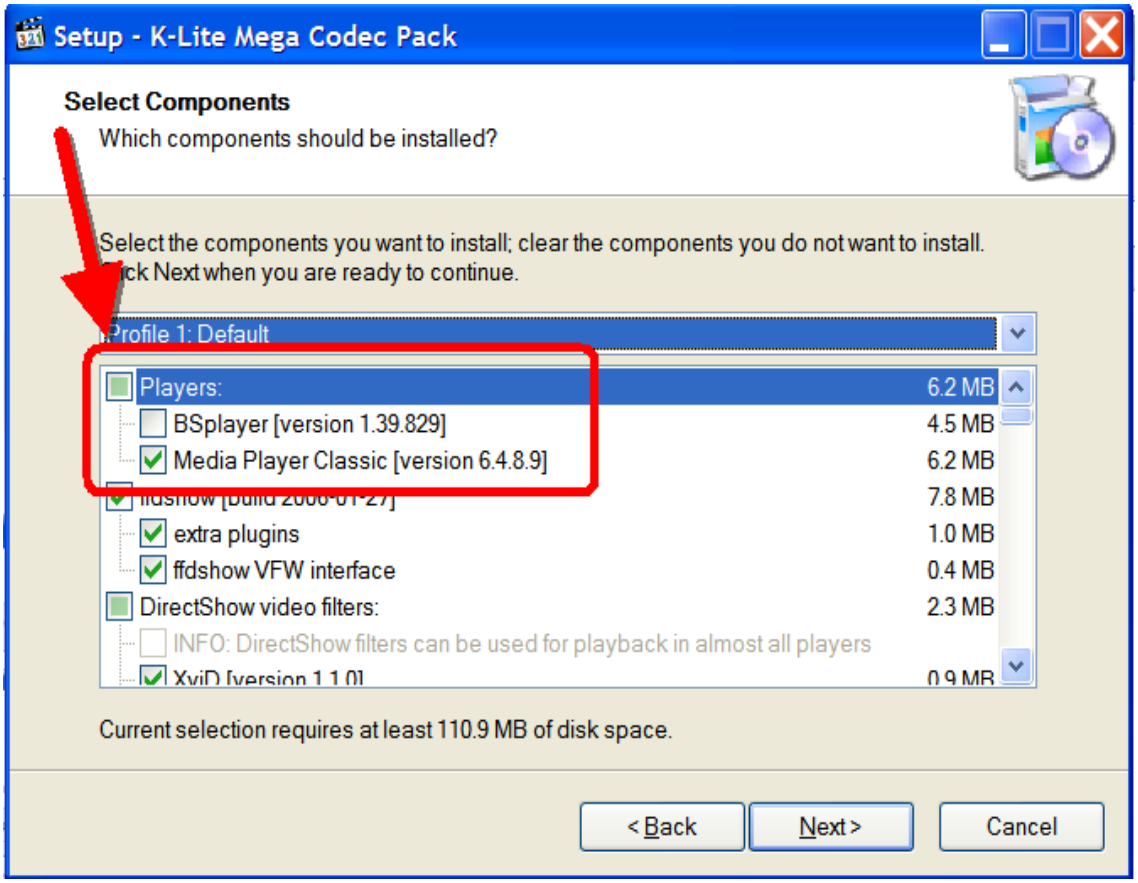
Setup - K-Lite Mega Codec Pack
Select Components
Which components should be installed?
Select the components you want to install; clear the components you do not want to install.
ick Next when you are ready to continue.
Profile 1: Default
Players: 6.2 MB
BSplayer [version 1.39.829] 4.5 MB
Media Player Classic [version 6.4.8.9] 6.2 MB
7.8 MB
extra plugins 1.0 MB
ffdshow VFW interface 0.4 MB
DirectShow video filters: 2.3 MB
INFO: DirectShow filters can be used for playback in almost all players
0.9 MB
Current selection requires at least 110.9 MB of disk space.
< Back
Next >
Cancel

FIG I-7

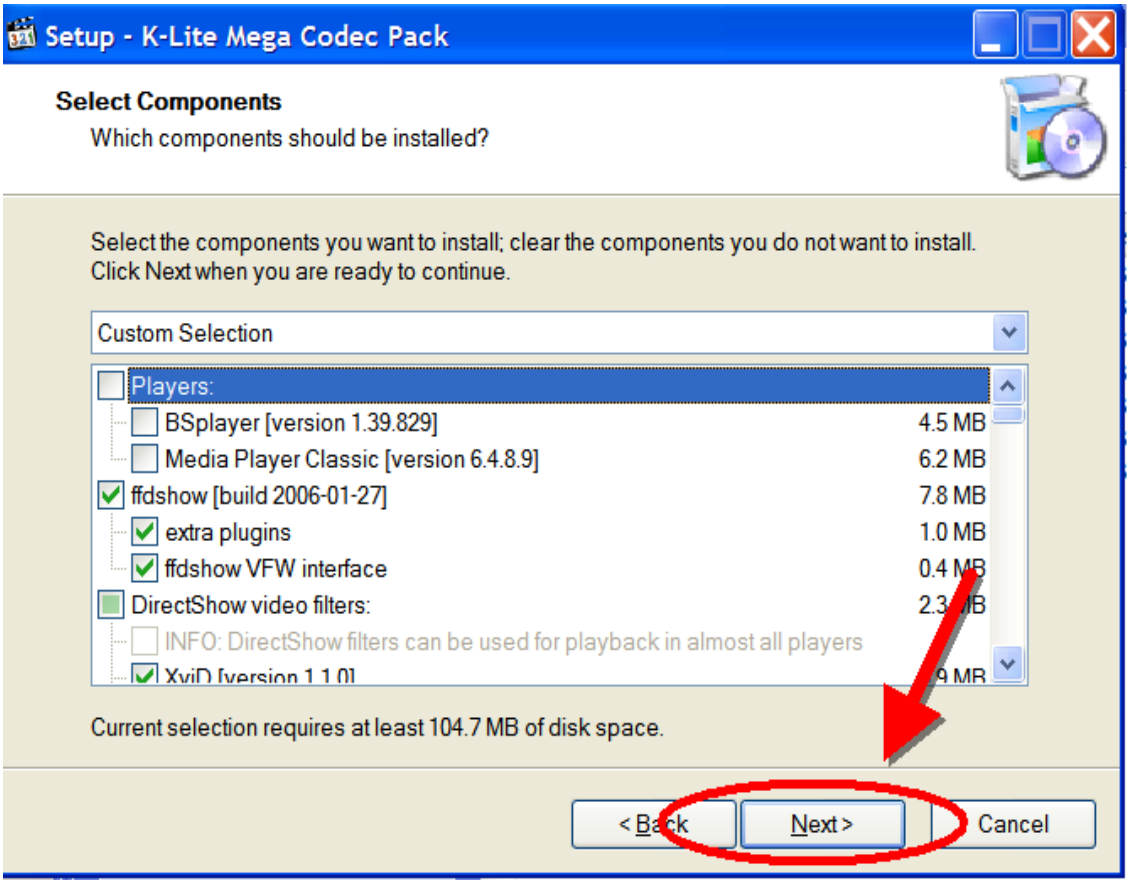
Setup - K-Lite Mega Codec Pack
Select Components
Which components should be installed?
Select the components you want to install; clear the components you do not want to install.
Click Next when you are ready to continue.
Custom Selection
Players:
BSplayer [version 1.39.829] 4.5 MB
Media Player Classic [version 6.4.8.9] 6.2 MB
ffdshow [build 2006-01-27] 7.8 MB
extra plugins 1.0 MB
ffdshow VFW interface 0.4 MB
DirectShow video filters: 2.3 MB
INFO: DirectShow filters can be used for playback in almost all players
Current selection requires at least 104.7 MB of disk space.
< Back
Next >
Cancel

FIG I-8

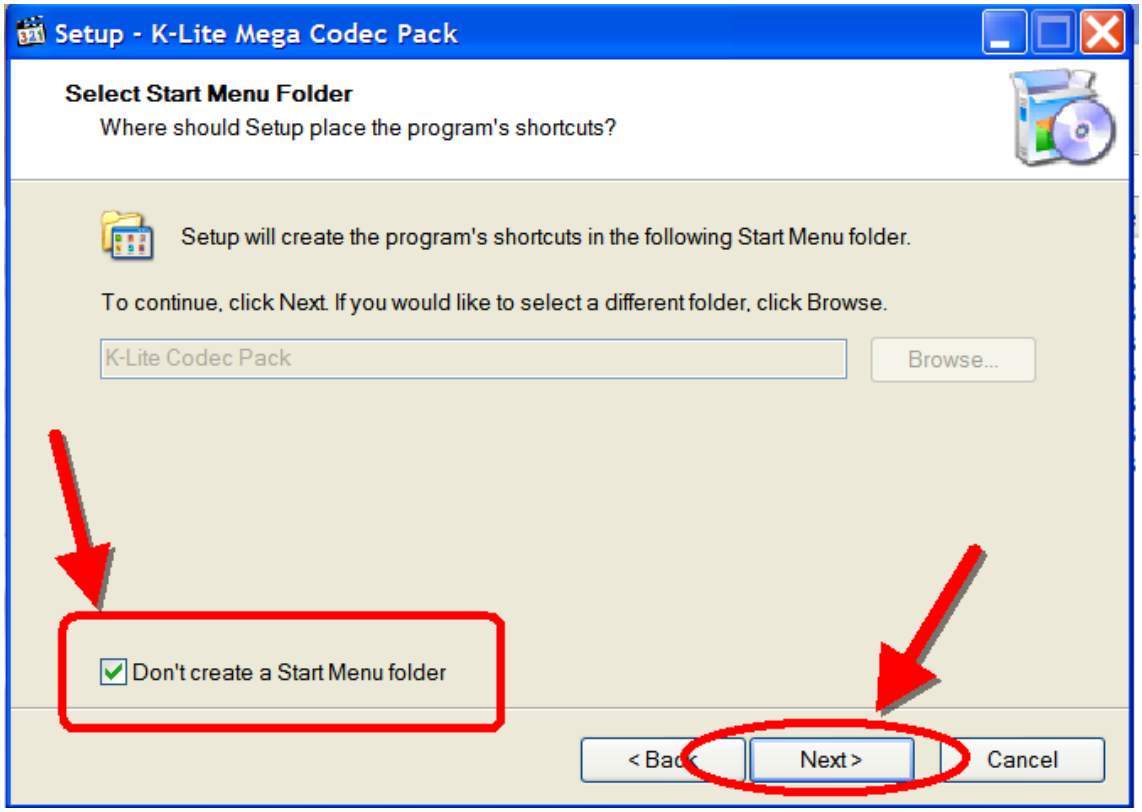

FIG I-9

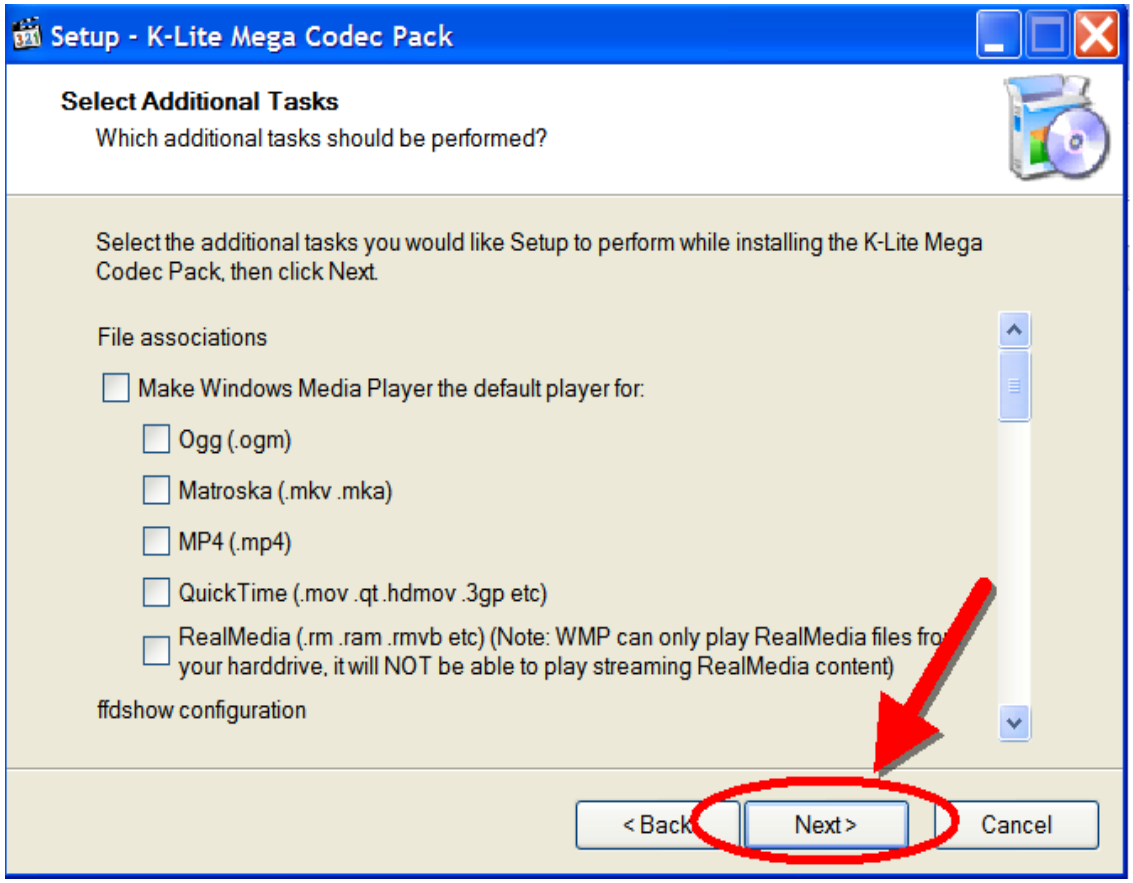

FIG I-10

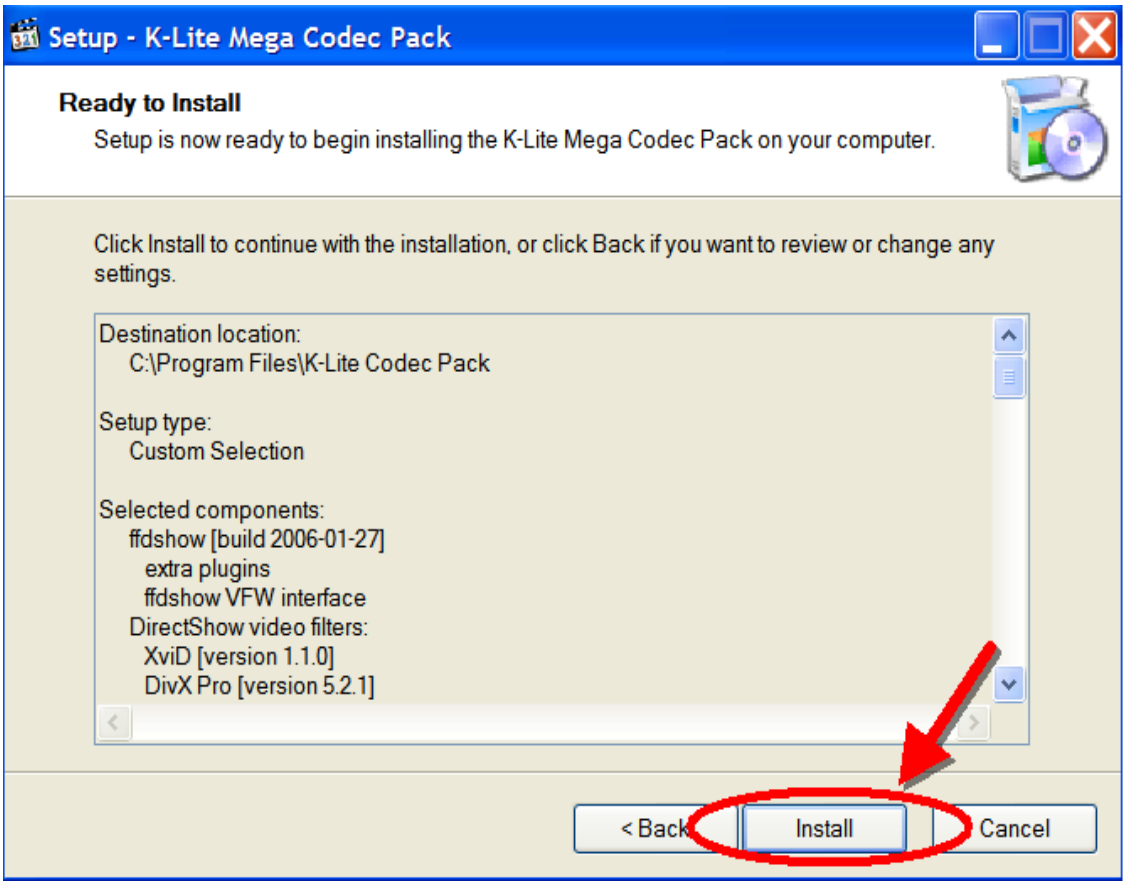
Setup - K-Lite Mega Codec Pack
Ready to Install
Setup is now ready to begin installing the K-Lite Mega Codec Pack on your computer.
Click Install to continue with the installation, or click Back if you want to review or change any settings.
Destination location:
C:\Program Files\K-Lite Codec Pack
Setup type:
Custom Selection
Selected components:
ffdshow [build 2006-01-27]
extra plugins
ffdshow VFW interface
DirectShow video filters:
XviD [version 1.1.0]
DivX Pro [version 5.2.1]
< Back
Install
Cancel

FIG I-11

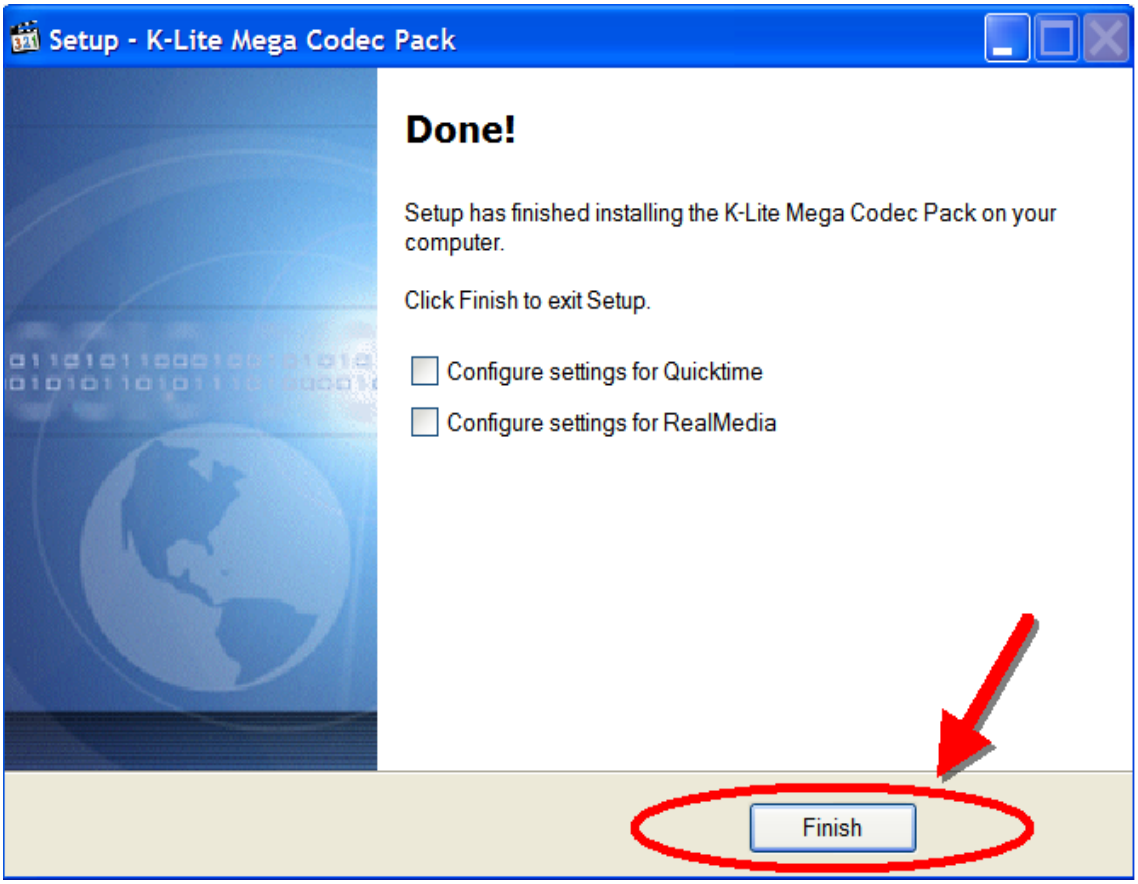
Setup - K-Lite Mega Codec Pack
Done!
Setup has finished installing the K-Lite Mega Codec Pack on your computer.
Click Finish to exit Setup.
Configure settings for Quicktime
Configure settings for RealMedia
Finish

FIG I-12

APPENDIX X – IE ActiveX Installation

Question: How can I install an unsigned ActiveX component?

FIG J-1

Answer: Please add your device to the trusted sites.

Tools->Internet Options -> Security (Tab) ->Trusted Sites -> Click the '**Sites**' button

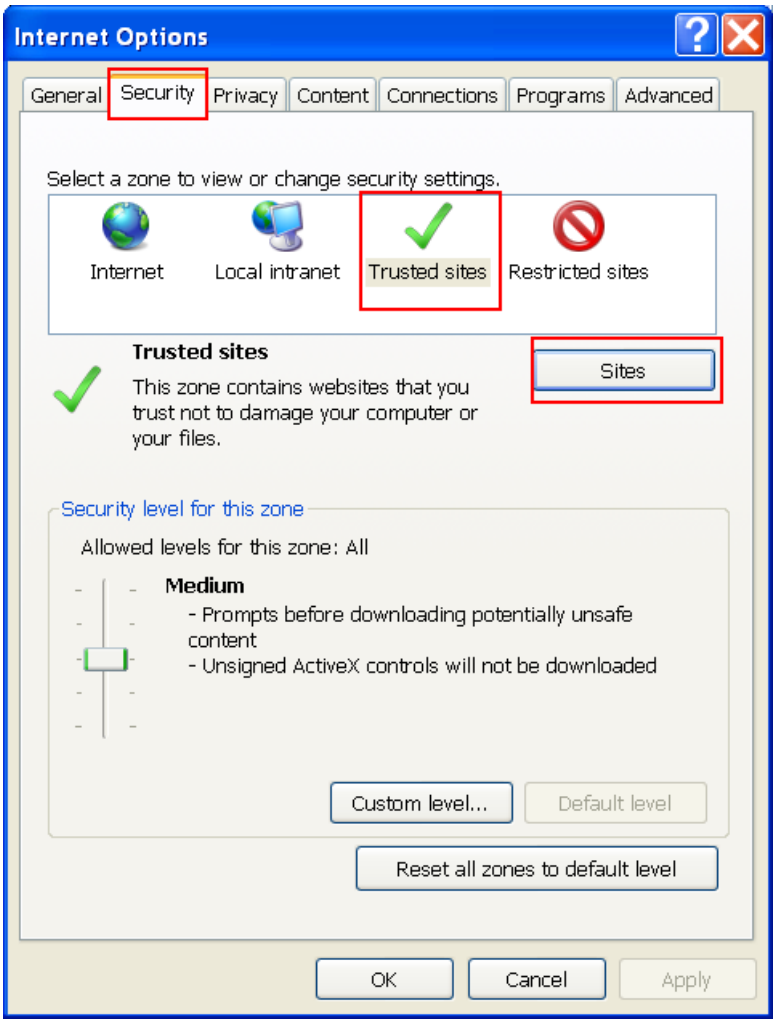

FIG J-2

Please unchecked the '**Require server verification (https:) for all sites in this zone**' option.

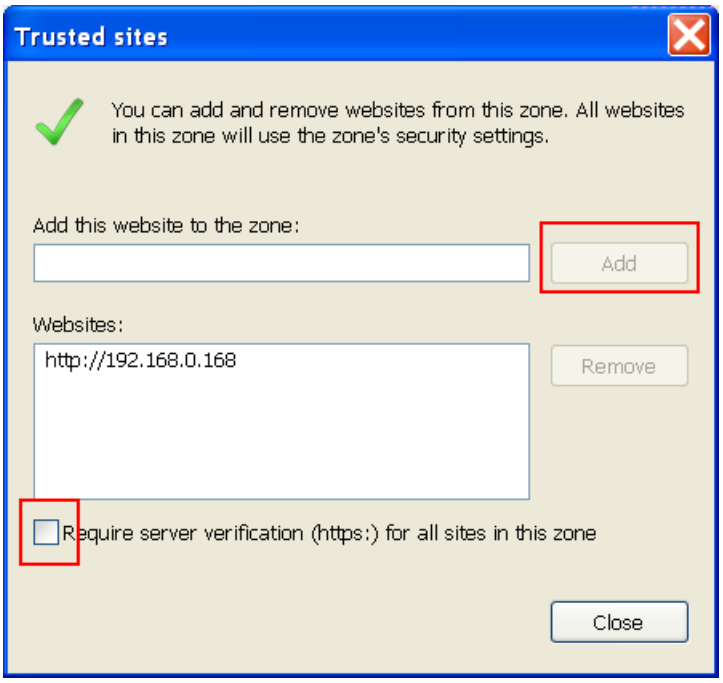

FIG J-3

Please click the '**Add**' button to add your device to the list. The whole procedure is done if your browser is Microsoft IE6, but if your browsers is Microsoft IE7 or above, please chooses one of the two methods to continue.

- Method 1:

  Lower down your security level.

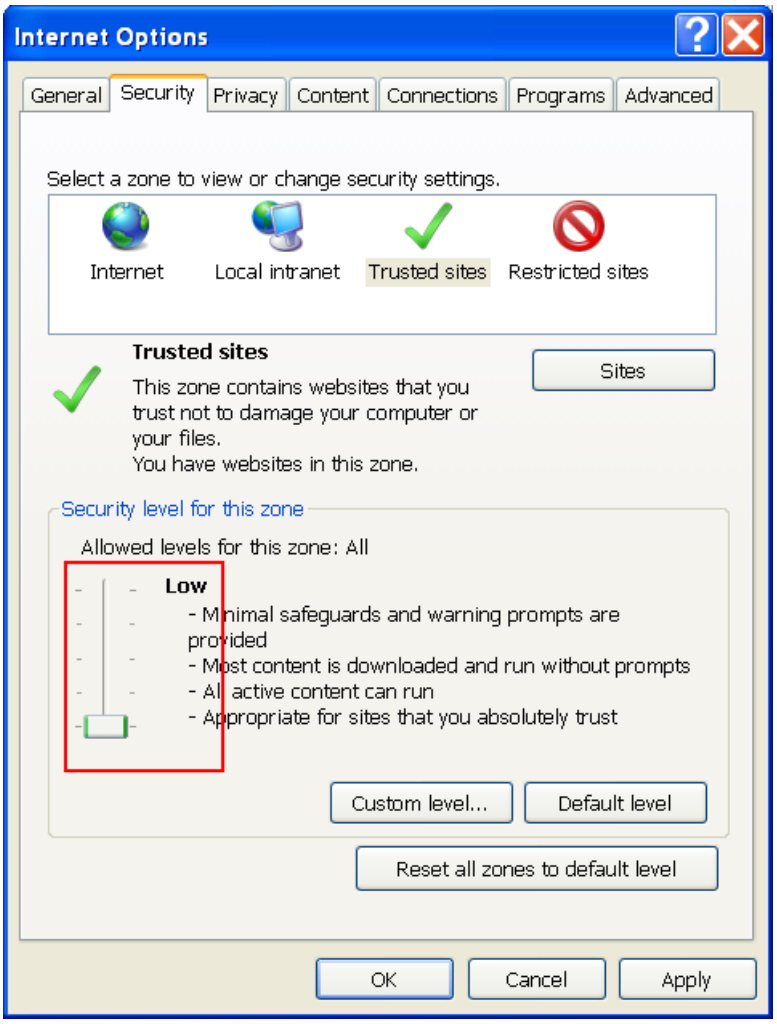

FIG J-4

- Method2:
  - Click the '**Custom level...**' button in the '**Security**' page
  - Move to the '**ActiveX controls and plug-ins**'.
  - Select the '**Download unsigned ActiveX controls**'.
  - Check the '**Enable**' button.
  - Click the '**OK**' button.

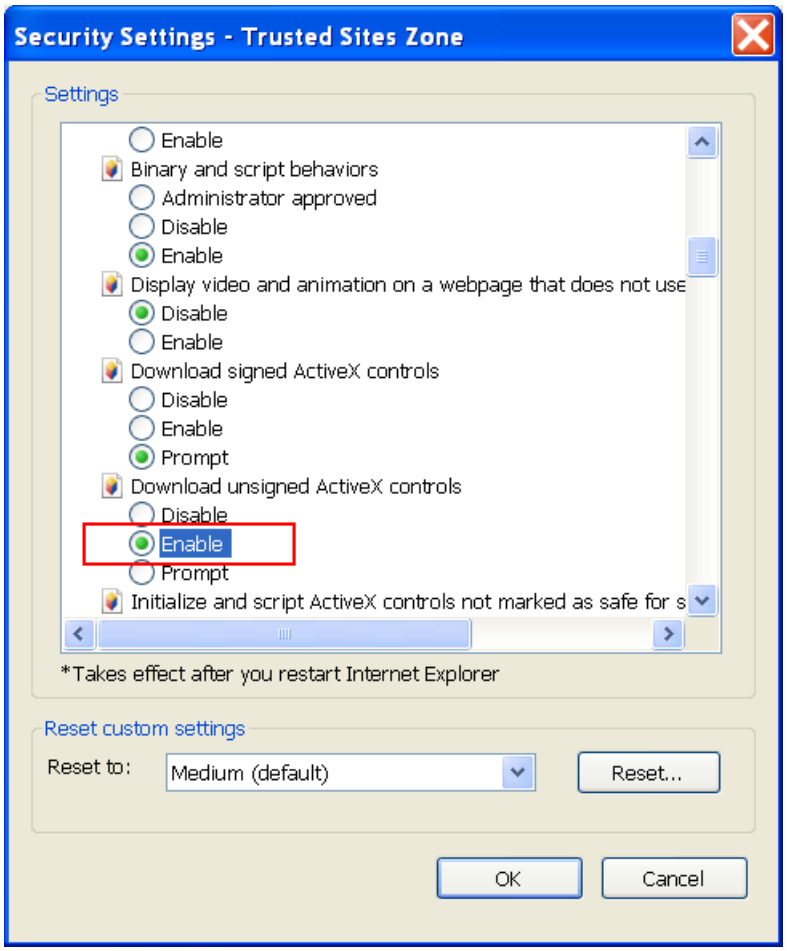
Security Settings - Trusted Sites Zone
Settings
Enable
Binary and script behaviors
Administrator approved
Disable
Enable
Display video and animation on a webpage that does not use
Disable
Enable
Download signed ActiveX controls
Disable
Enable
Prompt
Download unsigned ActiveX controls
Disable
Enable
Prompt
Initialize and script ActiveX controls not marked as safe for s
*Takes effect after you restart Internet Explorer
Reset custom settings
Reset to:
Medium (default)
Reset...
OK
Cancel

FIG J-5

APPENDIX XI – How to Remove IE ActiveX

1. Microsoft Internet Explorer 6.

First, open a blank page in IE6.

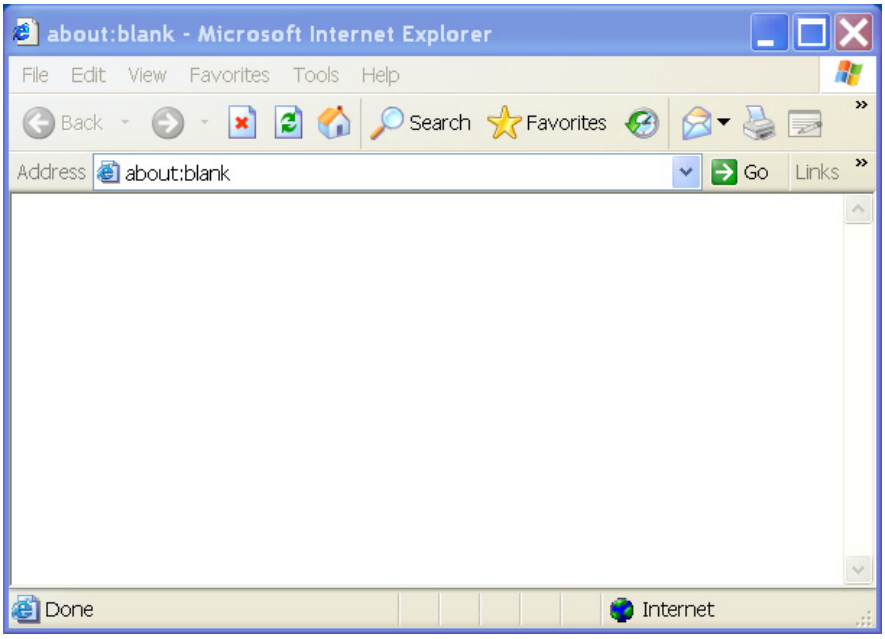

FIG K-1

Select '**Tools**' -> '**Internet Options**'.

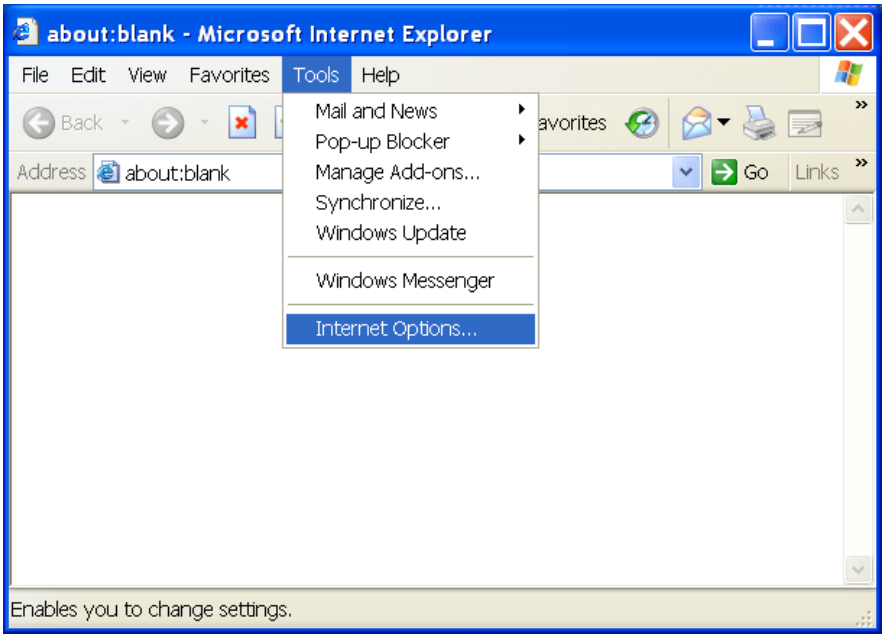

FIG K-2

Move the cursor to '**Settings...**' and press this button.

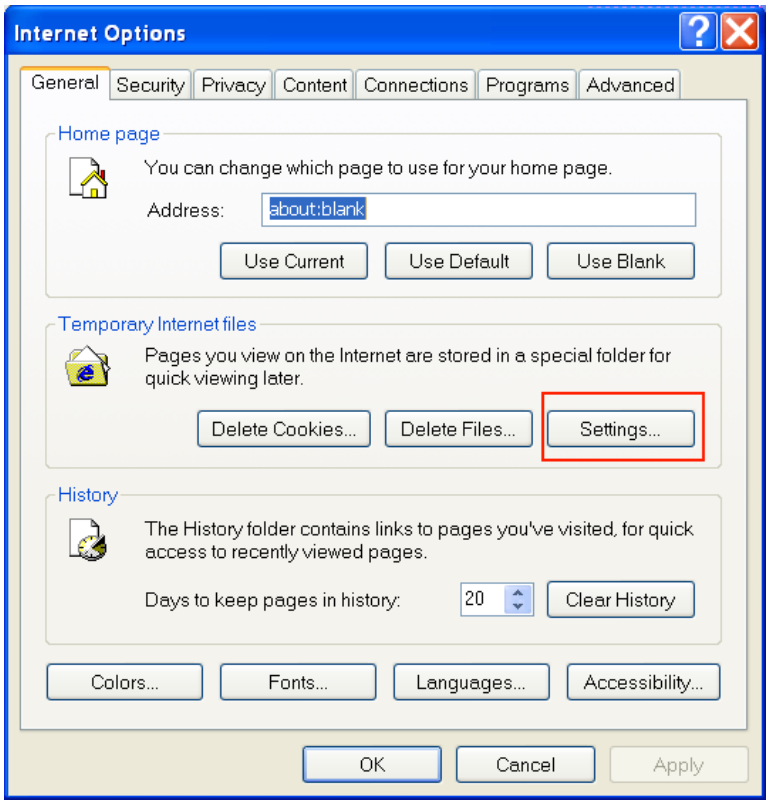

FIG K-3

Press the '**View Objects...**' button.

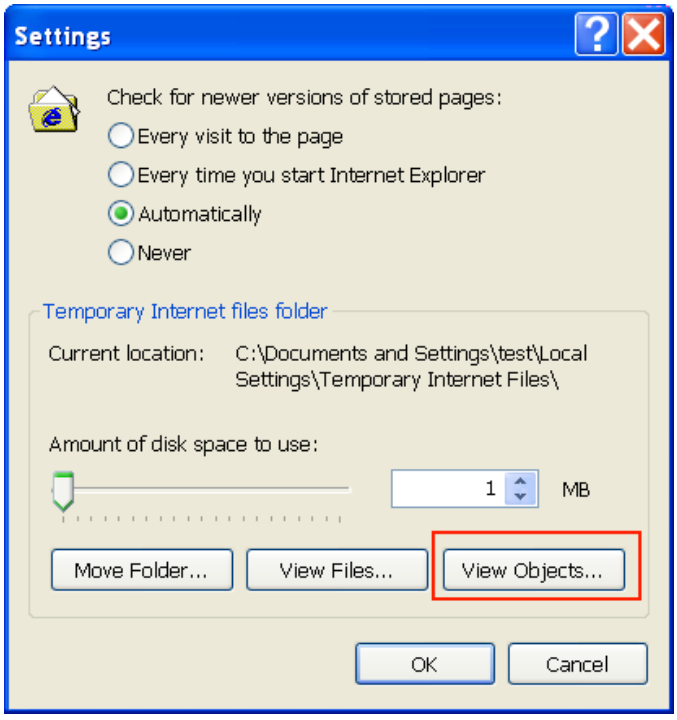

FIG K-4

Select the '**VideoDeviceControl Class**' object and click the mouse right button.

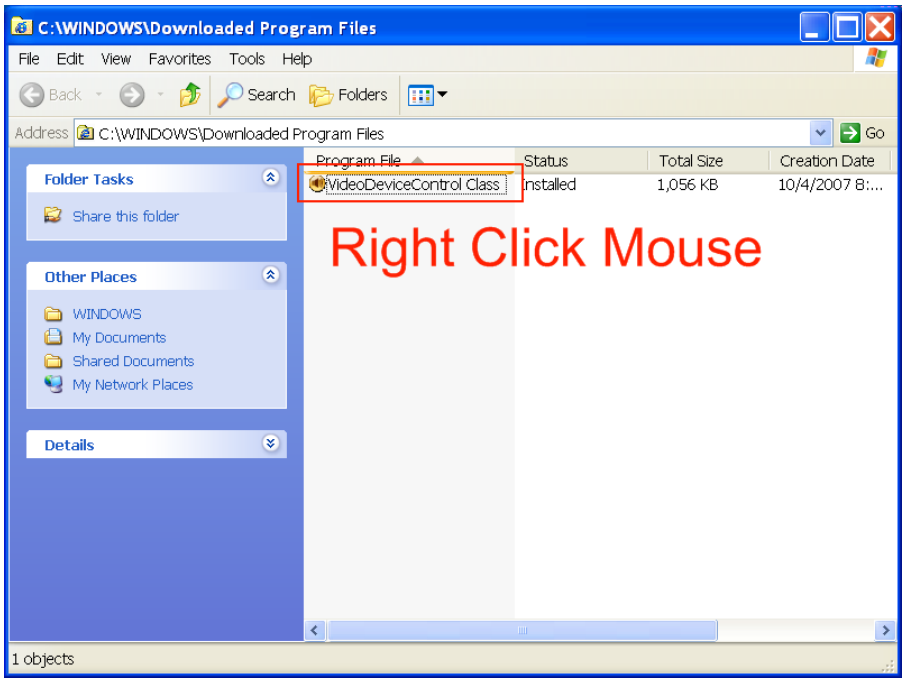

FIG K-5

Choose the '**Remove**' option.

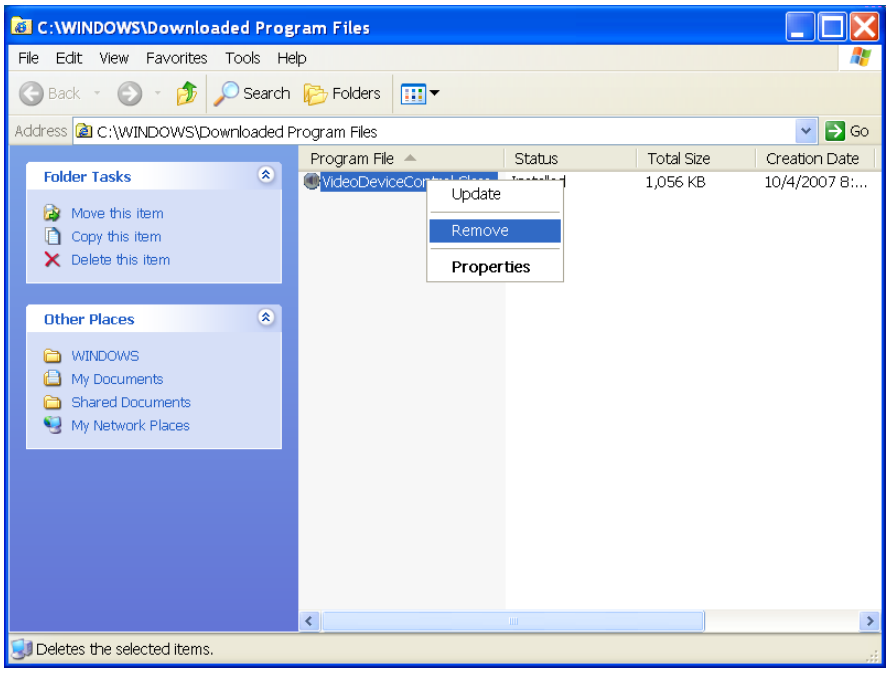

FIG K-6

Please press '**Yes**' button to finish deleting this object.

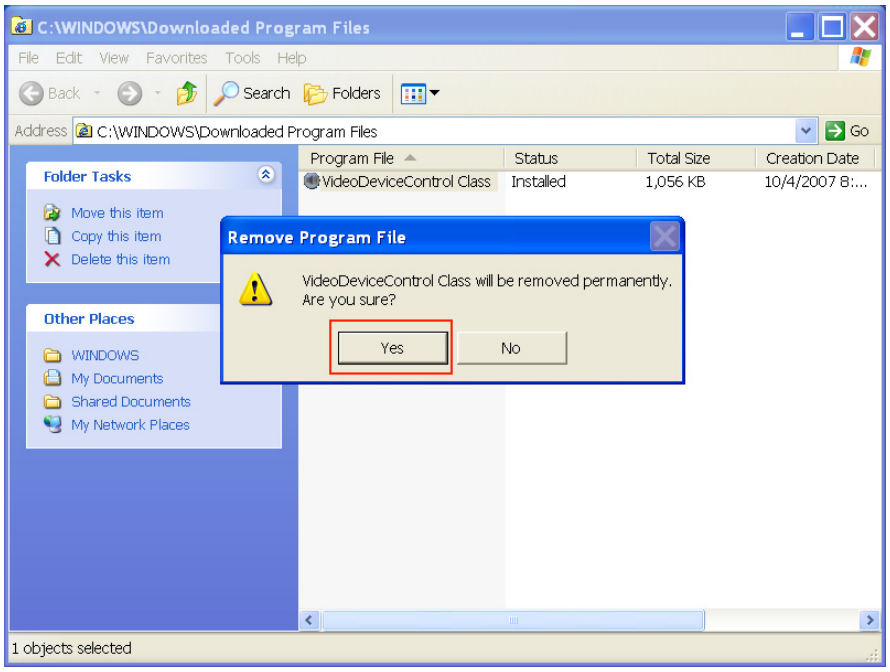

FIG K-7

2. Microsoft Internet Explorer 7

First, open a blank page in IE7.

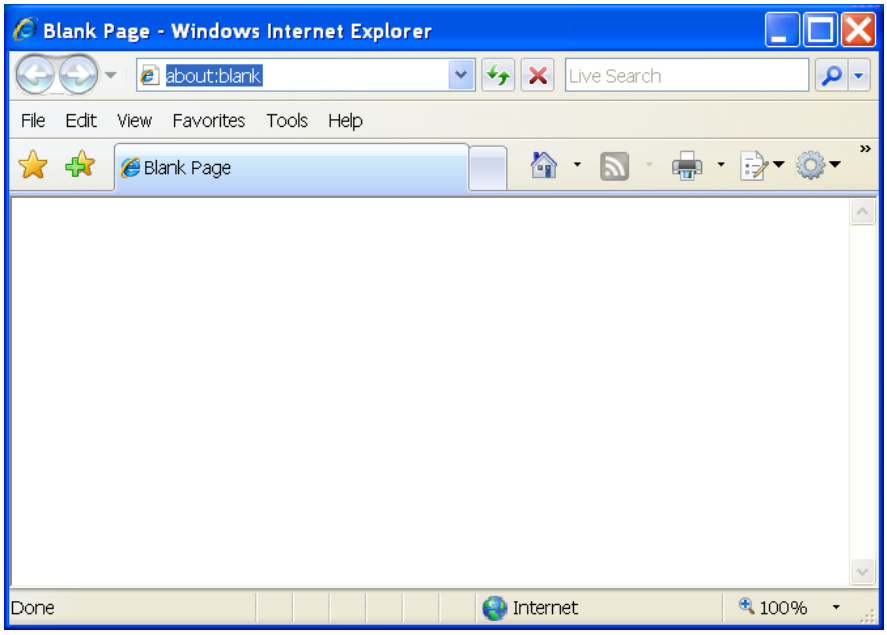

FIG K-8

Select '**Tools**' -> '**Manage Add-ons**' -> '**Enable or Disable Add-ons...**'

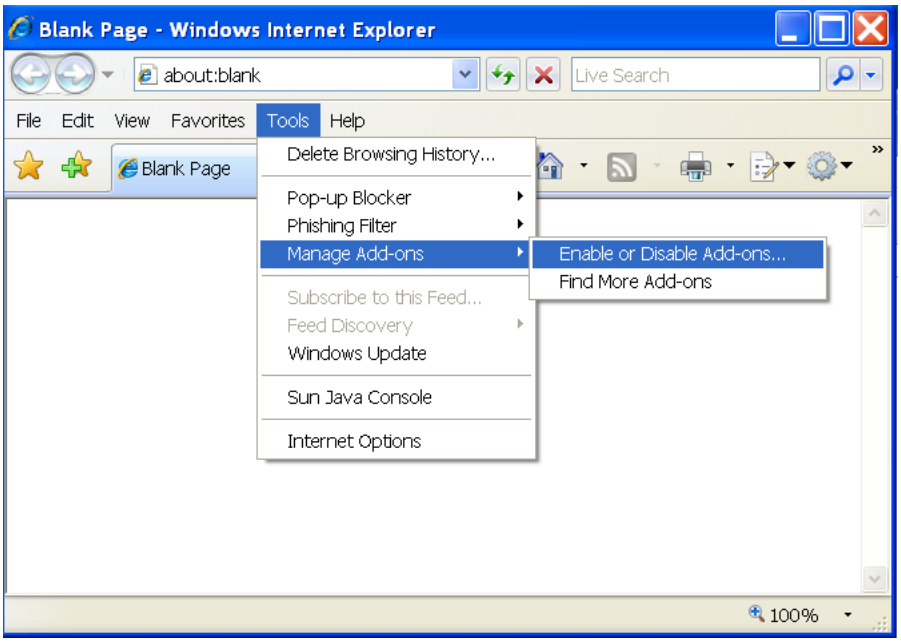

FIG K-9

Choose the '**Add-ons that have been used by Internet Explorer**' option.

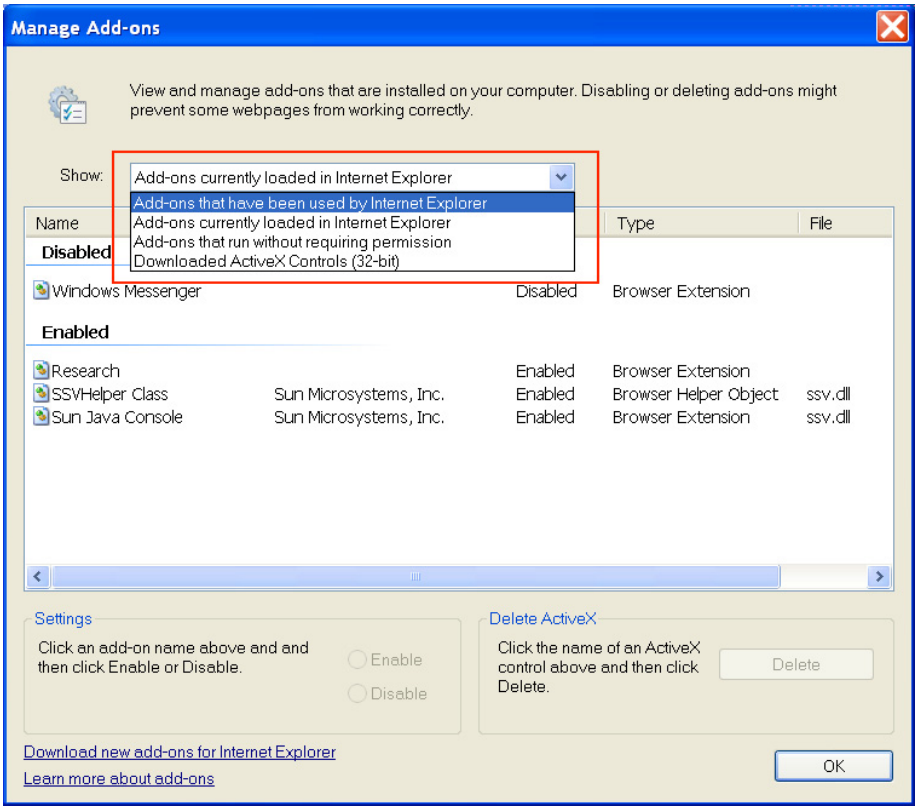

FIG K-10

Select the '**CViewerControl Object**' object and press the '**Delete**' button to remove the ActiveX file..

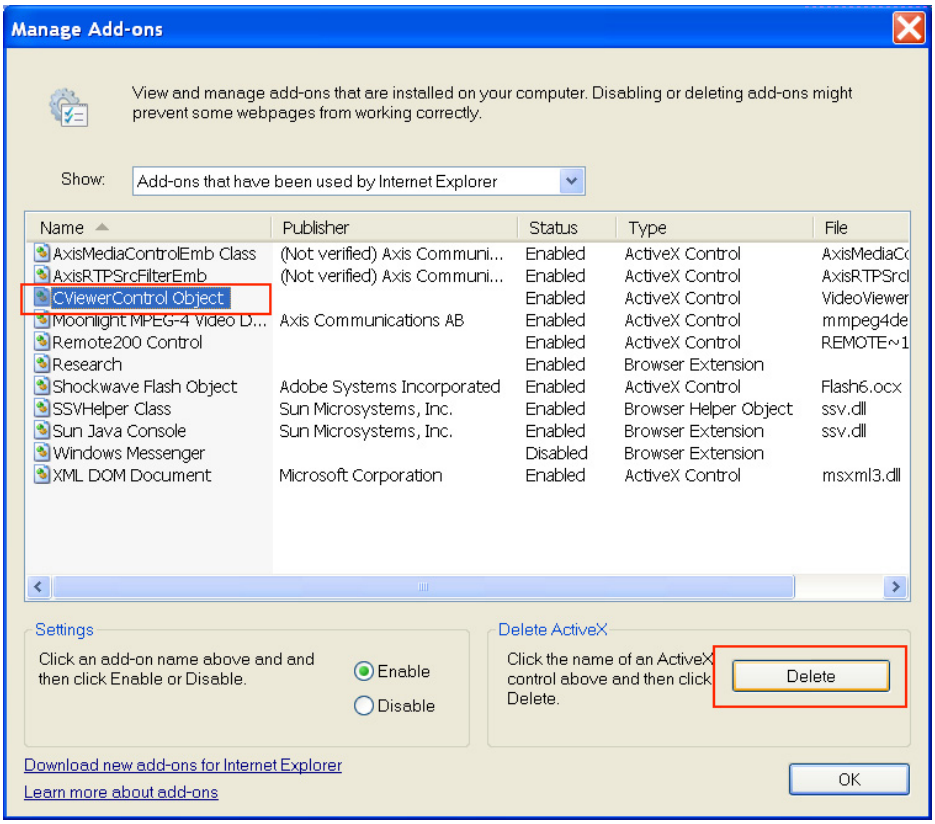
Manage Add-ons
View and manage add-ons that are installed on your computer. Disabling or deleting add-ons might prevent some webpages from working correctly.
Show:
Add-ons that have been used by Internet Explorer
Name
Publisher
Status
Type
File
AxisMediaControlEmb Class
(Not verified) Axis Communi...
Enabled
ActiveX Control
AxisMediaC
AxisRTPSrcFilterEmb
(Not verified) Axis Communi...
Enabled
ActiveX Control
AxisRTPSrcl
CViewerControl Object
Enabled
ActiveX Control
VideoViewer
Moonlight MPEG-4 Video D...
Axis Communications AB
Enabled
ActiveX Control
mmpeg4de
Remote200 Control
Enabled
ActiveX Control
REMOTE~1
Research
Enabled
Browser Extension
Shockwave Flash Object
Adobe Systems Incorporated
Enabled
ActiveX Control
Flash6.ocx
SSVHelper Class
Sun Microsystems, Inc.
Enabled
Browser Helper Object
ssv.dll
Sun Java Console
Sun Microsystems, Inc.
Enabled
Browser Extension
ssv.dll
Windows Messenger
Disabled
Browser Extension
XML DOM Document
Microsoft Corporation
Enabled
ActiveX Control
msxml3.dll
Settings
Click an add-on name above and and then click Enable or Disable.
Enable
Disable
Delete ActiveX
Click the name of an ActiveX control above and then click Delete.
Delete
Download new add-ons for Internet Explorer
Learn more about add-ons
OK

FIG K-11

APPENDIX XII – H.264 Bit Rate Lookup

1. When the frame rate is higher than 15 frames/second (15 is not included)

	Highest	High	Medium	Low	Lowest
FULL D1	0x200000	0x1B0000	0x150000	0x100000	0x0B0000
Half D1	0x100000	0x0E0000	0x0B0000	0x080000	0x060000
CIF	0x0A0000	0x080000	0x060000	0x040000	0x040000

TAB L-1

2. When the frame rate is equal to 15 frames/second.

	Highest	High	Medium	Low	Lowest
FULL D1	0x180000	0x140000	0x100000	0x0C0000	0x080000
Half D1	0x0C0000	0x0A0000	0x080000	0x060000	0x040000
CIF	0x080000	0x050000	0x040000	0x030000	0x020000

TAB L-2

3. When the frame rate is lower than or equal to 5 frames/second.

	Highest	High	Medium	Low	Lowest
FULL D1	0x0C0000	0x0A0000	0x080000	0x060000	0x040000
Half D1	0x060000	0x050000	0x040000	0x030000	0x020000
CIF	0x090000	0x030000	0x020000	0x018000	0x010000

TAB L-3

Notice: The unit is bits per second, for example, 0x300000 means 3Mega bits/sec.