

D-Link Training

IP Surveillance

What, Why, When and How



Agenda: What, why, when and how

Network Camera Function Introduction.

- › **Video:** Compression, CODEC, Resolution/Frame rate/Bit rate, Digital Zoom, WDR, Privacy mask, 3A(AWB, AES, AGC)...
- › **Audio:** AAC, AMR, 2 way, SIP.
- › **Network:** DHCP, UPnP, Wireless, HTTPS, IPv6.
- › **Internet:** PPPoE/Port forwarding, DDNS.
- › **Events:** Motion detection, DI/DO, send email, to FTP.
- › **Recording:** Samba, Local storage, event/Schedule/Manual.
- › **Streaming:** RTSP, HTTP, Multiple stream, Multicast.
- › **Mobile view:** 3G mobile setup.
- › **Advanced features:** day and night, ICR, RS485.

Network Video Recorder Function Introduction.

- › **NVR:** Live view, recording, playback, smart search.

Network Camera

Function Introduction



Video



Video: Compression

› What is **Compression**

- Video compression is a technique to reduce or remove some quantity of video data with acceptable quality so that the digital video can be stored or sent in an efficient size.
- Most popular compressions are H.264, MPEG4 and Motion JPEG(M-JPEG).

› Why need **Compression**

- Uncompressed or raw video data consumes very large amount of data storage and requires high bandwidth to transmit.

› When to use **Compression**

- Uncompressed or raw video data consumes very large amount of data storage and requires high bandwidth to transmit. All IP surveillance servers use compression to transmit.

› How to use **Compression**

- Network camera and Video Encoder are used to compress the video to remote client.
- Select from GUI to change the compression algorithm.

Video: Resolution

› What is **Resolution**

- Resolution is the number of distinct pixels in each dimension that can be displayed. It is simply the physical number of columns and rows of pixels creating the display.

› Why need **Resolution**

- To get better quality of picture, higher resolution is always better than low resolution, and we need different resolution for different application, for instance the PC and mobile phone must use different resolution.

› When to use **Resolution**

- IP surveillance has many different resolutions used. For camera has its capture resolution; IP encoder has the resolution of compression; monitor has display resolution.
- Most of the time, we change the compression resolution from setup GUI to get different compressed video size.

› How to use **Resolution**

- Setup resolution in the Setup\Audio and Video page.
- Multiple stream can have multiple resolution setups.

Video: Frame rate

› What is **frame rate**

- Camera produces unique consecutive images called frames.

› Why need **frame rate**

- Human visual system can accept 30 frames per second(fps) in NTSC TV system and 25 FPS in PAL as real-time video.
- Frame rate can decide the smoothness of the video.

› When to use **frame rate**

- Higher frame rate will cause higher bandwidth in MJPEG video. Usually the recorded surveillance video for evidence only need 5 to 10fps is enough, it can save the upload bandwidth from camera as well as the storage space.

› How to use **frame rate**

- Setup frame rate in the Setup\Audio and Video page.
- Multiple stream can have multiple frame rate setups.

Video: Bit rate

› What is **Bit rate**

- Bit rate is the number of bits that are conveyed or processed per unit of timeframes. It is quantified using the bits per second (**bit/s** or **bps**)

› Why need **Bit rate**

- In video surveillance, bit rate often refers to the number of bits used per unit of playback time to represent a continuous medium such as audio or video after source coding (data compression). It represents the amount of information, or detail, that is stored per unit of time of a recording.

› When to use **Bit rate**

- Both video compression and audio compression will use bit rate. Higher bit rate means better quality, also equivalent to bandwidth used.
- Video bit rate:
 - ◆ 3-4Mb/s: DVD quality, 1-2Mb/s:VCD quality, 32-128Kb/s:mobile use
- Audio bit rate:
 - ◆ 96-128Kb/s: FM quality, 32Mb/s:AM quality, 4-12Kb/s:mobile use

› How to use **Bit rate**

- Setup bit rate in the Setup\Audio and Video page.
- Multiple stream can have multiple bit rate setups.

Video: Digital Zoom

› What is **digital zoom**

› Digital zoom is a method of decreasing (narrowing) the apparent angle of view of video image. Digital zoom is accomplished by cropping an image down to a centered area with the same aspect ratio as the original, and usually also interpolating the result back up to the pixel dimensions of the original.

› Why need **digital zoom**

- Digital zoom is accomplished electronically, without any adjustment of the camera's optics, and no optical resolution is gained in the process.

› When to use **digital zoom**

- To get a better identification from video content.

› How to use **digital zoom**

- Setup digital zoom from live view page.
- 4x or 16x digital zoom are available for different model.

Video: WDR

› What is **WDR**

- When there are both very bright and very dark areas simultaneously in the field of view of the camera. WDR enables the capture and display of both bright areas and dark areas in the same frame, in a way that there are details in both areas, i.e. bright areas are not saturated, and dark areas are not too dark.

› Why need **WDR**

- WDR allows a camera to filter the intense back light surrounding a subject and thus enhances the ability to distinguish features and shapes on the subject.

› When to use **WDR**

- WDR cameras are usually recommended for situations where light enters a premise from various angles such as a multi-window room. A camera placed on the inside of the room will be able to see through the intense sunlight or artificial light coming in. If an indoor security camera is pointed towards a window or an entrance door, you will see the background washed out during daytime. This is very common situation in restaurants and stores which have big glass windows.

› How to use **WDR**

- Setup WDR from image setup page. DCS-6111 dome camera can set WDR schedule, DCS-3710 box camera is always on.
- Different level is selectable

Video: Privacy mask

› What is **privacy mask**

- Privacy Mask is a technology which blocks from view things that should not be seen by the general public.

› Why need **privacy mask**

- Since surveillance camera monitor the target area with very wide angle, and it's possible viewed by safety guard or some others, so it is necessary to have a better way to protect privacy from invasion.

› When to use **privacy mask**

- When the surveillance camera is installed toward to a privacy sensitive place, like bathroom window, toilet, motel... etc. privacy can physically block the area by a graphic.

› How to use **privacy mask**

- Setup privacy mask from image setup page.

Video: 3A (AES, AWB, AGC)

› What is 3A(AES, AWB, AGC)

- 3A is auto video adjustment algorithm:
 - Automatic Electronic Shutter (AES)
 - Automatic Gain Control (AGC)
 - Automatic White Balance (AWB)

› Why need 3A(AES, AWB, AGC)

- With 3A control, camera can adjust the color, brightness and frame rate by itself. Make it easier to use.

› When to use 3A(AES, AWB, AGC)

- Usually 3A are all turned on as factory default, for some advance model user can adjust it by change it to manual control.

› How to use 3A(AES, AWB, AGC)

- Setup 3A from image setup page.

Audio



Audio: AAC

› What is AAC

- Advanced Audio Coding (AAC) is a standardized encoding mechanism for digital audio that uses lossy compression. AAC generally offers better sound quality than MP3 at many bit rates. AAC encoding compresses more efficiently and thus produces higher quality audio with smaller file sizes.

› Why need AAC

- With AAC video, it can has good audio quality with low bandwidth. Using AAC need to pay royalty to Licensing Corporation and it requires more computing power of codec.

› When to use AAC

- Some model can use AAC audio codec for live view and recording. It also benefic from QuickTime plug-in for cross-platform browsers.

› How to use AAC

- Setup AAC from Audio and Video setup page.
- Multiple bit rate is selectable.

Audio: AMR

› What is **AMR**

- Adaptive Multi-Rate (AMR) is an audio data compression scheme optimized for speech coding. AMR is now widely used in GSM and UMTS.

› Why need **AMR**

- With AMR video, it can has audio access from mobile phone with low bandwidth. Using AMR need to pay royalty to VoiceAge and it requires more computing power of codec.

› When to use **AMR**

- Some model can use AMR audio codec for mobile live view.

› How to use **AMR**

- Setup AMR from Audio and Video setup page.
- Multiple bit rate is selectable.

Audio: 2 way audio

› What is 2-way audio

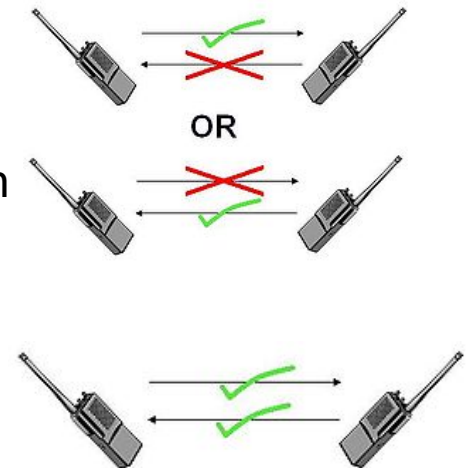
- A two-way audio is a audio that can both transmit and receive. A mobile phone or cellular telephone is an example of a two-way audio that both transmits and receives at the same time (or full-duplex).

› Why need 2-way audio

- Camera or encoder can connect external microphone and speaker. So it can receive and record audio to remote client, and remote client can speak to surveillance site as a warning or announcement.

› When to use 2-way audio

- We have both *half-duplex* and *full-duplex* 2-way audio.
 - *half-duplex* system provides for communication in both directions, but only one direction at a time (not simultaneously).
 - *full-duplex* system allows communication in both directions, and, unlike half-duplex, allows this to happen simultaneously. Land-line telephone networks are full-duplex



› How to use 2-way audio

- Setup 2-way audio from live view page. Volume adjustable.

Audio: SIP

› What is SIP

- The **Session Initiation Protocol (SIP)** is a signaling protocol, widely used for controlling multimedia communication sessions such as voice and video calls over Internet Protocol (IP).

› Why need SIP

- The protocol can be used for creating, modifying and terminating two-party (unicast) or multiparty (multicast) sessions consisting of one or several media streams.

› When to use SIP

- Some of our camera support SIP, it can create 2-way audio by SIP protocol.

› How to use SIP

- Setup SIP 2-way audio from live view page. Volume adjustable.

Network



Network: DHCP

› What is DHCP

- D-Link IP camera supports DHCP. When the DHCP option is chosen, D-Link IP Cameras can be set to receive dynamic IP addresses from the DHCP server.

› Why need DHCP

- DHCP uses a client-server architecture. The client sends a broadcast request for configuration information. The DHCP server receives the request and responds with configuration information from its configuration database.
- In the absence of DHCP, all hosts on a network must be manually configured individually - a time-consuming and error-prone undertaking.

› When to use DHCP

- When there has DHCP server in the network

› How to use DHCP

- Setup DHCP enabled in the Setup\Network page.

Network: Static IP

- › What is **Static IP**(Manual IP address assignment)
 - When this option is chosen, the administrator will have to manually configure the IP address and other related parameters, such as subnet mask, default gateway, primary and secondary DNS, to assign them to the network Camera.
- › Why need **Static IP**
 - To fixed the IP address of the device in the surveillance system or public internet.
- › When to use **Static IP**
 - When DHCP server is not available in the network.
 - Static public IP is used.
 - If D-Viewcam or NVR is used to management the recording, it is recommend to use static IP for each camera.
- › How to use **Static IP**
 - Setup static IP in the Setup\Network page.

Network: Wireless

› What is **Wireless**

- Wireless communication is the transfer of information over a distance without the use of electrical conductors or "wires".

› Why need **Wireless**

- To reach the place which is not able to install the cable or reduce the troublesome of wiring.

› When to use **Wireless**

- When the distance or location is not possible for cabling.
- When the cabling cost is too high.
- When the signal transmission require encryption.

› How to use **Wireless**

- Enable wireless and setup connection parameter in the Setup\Network page (for wireless model only)

Network: HTTPS

› What is **HTTPS**

- Hypertext Transfer Protocol over Secure Socket Layer or HTTPS is a URI scheme used to indicate a secure HTTP connection.
- Using an https: URL indicates that HTTP is to be used, but with a different default TCP port (443) and an additional encryption/authentication layer between the HTTP and TCP.

› Why need **HTTPS**

- To encrypt the web page data transmission include video signal.

› When to use **HTTPS**

- When secure connection is necessary for live viewing video.

› How to use **HTTPS**

- There are three possible ways make you can enable the HTTPS:
 - Create certificate request and upload the certificate file which is signed by third party already
 - Create self-signed certificate automatically.
 - Create self-signed certificate manually.
- Enable and setup in the Setup\Advanced\HTTPS page

Network: IPv6

› What is IPv6

- **Internet Protocol version 6 (IPv6)** is the next-generation Internet Protocol version designated as the successor to IPv4.

› Why need IPv6

- IPv6 has a vastly larger address space than IPv4. This results from the use of a 128-bit address, whereas IPv4 uses only 32 bits. The new address space thus supports 2^{128} (about 3.4×10^{38}) addresses. This expansion provides flexibility in allocating addresses and routing traffic and eliminates the primary need for network address translation (NAT), which gained widespread deployment as an effort to alleviate IPv4 address exhaustion.

› When to use IPv6

- Only in IPv6 enabled network.

› How to use IPv6

- Setup IPv6 address in the Setup\Network page.
- Use IPv6 address to connect to network camera by IPv6 client.

Internet



Internet: PPPoE

› What is PPPoE

- PPPoE is used mainly with ADSL services, where individual users connect to ADSL transceiver (modem) over Ethernet or plain Metro Ethernet networks.

› Why need PPPoE

- PPPoE is used to allow Internet Service Providers (ISPs) the use of their existing Radius authentication systems from their Dial-Up service on a Broadband / Ethernet based service. Dial-Up is PPP, most broadband connections are Ethernet, hence Point to Point Protocol over Ethernet.

› When to use PPPoE

- Connect Internet with ADSL.

› How to use PPPoE

- Setup PPPoE user name and password in the Setup\Network page.
- Camera will dialup to internet during boot up when it connect to ADSL.

Internet: UPnP

› What is UPnP

- The goals of UPnP are to allow devices to connect seamlessly and to simplify the implementation of networks in the home (data sharing, communications, and entertainment) and in corporate environments for simplified installation of computer components.

› Why need UPnP

- UPnP devices are "plug-and-play" in that when connected to a network they automatically announce their network address and supported device and services types, enabling clients that recognize those types to immediately begin using the device.

› When to use UPnP

- D-Link cameras are default enable the UPnP.

› How to use UPnP

- Enable/disable UPnP in the Setup\Network page.

Internet: Port forwarding

› What is **port forwarding**

- **Port forwarding** or **port mapping** is the practice of forwarding a TCP/IP packet in a network address translator gateway to a predetermined network port.

› Why need **port forwarding**

- It can allow Internet access to the camera(s) by setup the router.

› When to use **port forwarding**

- When the camera is inside of NAT, it need to setup port forwarding on the router to allow Internet access to the camera(s).

› How to use **port forwarding**

- Setup second HTTP port in the Setup\Network page.
- Setup router port forwarding.

Internet: DDNS

› What is **DDNS**

- Dynamic DNS (Domain Name Service) is a feature where a device with dynamic IP address can have its DNS hosted so users can access the device over the Internet using the DNS name (e.g. ip-camera.dlink.com) instead of using the IP address, which is more difficult to remember.

› Why need **DDNS**

- **Dynamic DNS** is a method, protocol, or network service that provides the capability for a networked device, such as a router or computer system using the Internet Protocol Suite, to notify a domain name server to change, in real time (ad-hoc) the active DNS configuration of its configured hostnames, addresses or other information stored in DNS.

› When to use **DDNS**

- A popular application of dynamic DNS is to provide a residential user's Internet gateway that has a variable, often changing, IP address with a well known hostname resolvable by network applications through standard DNS queries.

› How to use **DDNS**

- D-Link provides a tool in its IP Camera configuration software to enable DDNS hosting facility.
- Customers can alternatively register directly with DynDNS.com to use DDNS.

Event



Event: Motion Detection

› What is **Motion detection**

- Motion detection is based on comparing of the current video frame with one from the previous frames.

› Why need **Motion detection**

- Motion detection is a kind of alarm trigger for video signal process.

› When to use **Motion detection**

- Motion detection is useful to reduce the recording capacity.
- Motion detection can be a reference of alarm, but it has issue of accuracy. It compare the video pixels or luminance but not objects, so it can't distinguish is it the light on/off, animal pass, wind blow the tree leaf or rain. Scenes like those are easily cause false alarm of motion detection.
- The IVS(Intelligent Video System) can solve most of the issue but it costs high. Before IVS become popular technology, motion detection is an exist solution for video alarm.

› How to use **Motion detection**

- Enable/disable and setup motion detection in the Setup\Motion Detection page.
- It uses percentage and threshold to define the trigger sensitive.

Event: DI/DO

› What is **DI/DO** (Digital Input / Digital Output)

- DI/DO is the interface for external devices connect to camera and work as a event trigger.
- DI have two states: off and on. If voltage is flowing, the circuit is on. If it's not flowing, the circuit is off. To make a digital circuit, you need a circuit, and a movable conductor which can either complete the circuit.
- Digital output is use to control an electrical device, you would either turn something off or on.

› Why need **DI/DO**

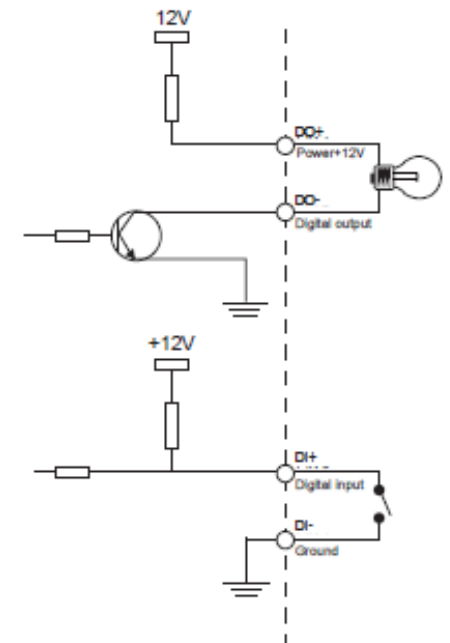
- Surveillance location can act as an security check point, with DI/DO device, it can accomplish the automation control and alarm system.

› When to use **DI/DO**

- When external equipment is physically connected to surveillance devices, we can setup DI/DO as a trigger and alarm.

› How to use **DI/DO**

- Enable/disable DI/DO in the Setup\Advance\DI and DO page.
- Enable the trigger in the Setup\Event Setup page.



Event: Send email

› What is **send email**

- Event from motion detection or DI can trigger an action to send email to specify receipt with attachment of snapshot or video clip.

› Why need **send email**

- Thru email can receive instant alarm message from camera.

› When to use **send email**

- If event notification is necessary for surveillance area, send email can simply get a quick feedback of security status.

› How to use **send email**

- Setup email account in the Setup\Event Setup\Add Server page.
- Enable the trigger in the Setup\Event Setup page.

Event: Send to FTP

› What is **send to FTP**

- Alarm trigger can send snapshot or video clip to a specify remote FTP server for evidence.

› Why need **send to FTP**

- With a large storage space and fast file transfer protocol, FTP server is a good approach for event captures.

› When to use **send to FTP**

- User who have an FTP account and would like to receive the event captures in the FTP site.

› How to use **send to FTP**

- Setup FTP account in the Setup\Event Setup\Add Server page.
- Enable the trigger in the Setup\Event Setup page.

Recording



Recording: Samba

› What is **Samba**

- Samba provides file services for various Microsoft Windows clients and can integrate with a Windows Server domain. The name *Samba* comes from SMB (Server Message Block), the name of the standard protocol used by the Microsoft Windows network file system.

› Why need **Samba**

- Samba sets up network shares for chosen directories (including all contained subdirectories). These appear to Microsoft Windows users as normal Windows folders accessible via the network.
- Camera use Samba to record files to a remote NAS share folder.

› When to use **Samba**

- User who want to record video to NAS server instead of FTP site and also use for continuous recording.

› How to use **Samba**

- Setup remote event recording in the Setup\Event Setup\Add Server page.
- Enable the trigger in the Setup\Event Setup page.

Recording: Local storage

- › What is **Local storage** (CF/SD/micro SD)
 - Many camera has the slot for memory card, it can store the event captures in the camera site despite of network connection and doesn't require a remote servers like FTP or Samba.
- › Why need **Local storage** (CF/SD/micro SD)
 - If the event captures are very important and there is no remote server available, local storage is become a major recording of the events.
- › When to use **Local storage** (CF/SD/micro SD)
 - To keep event recording of the event or continuous snapshot/video to a local storage card.
 - In the future, local storage can also support buffering of video stream or temporary backup of network disconnection.
- › How to use **Local storage** (CF/SD/micro SD)
 - Setup remote event recording in the Setup\Event Setup\Add Server page.
 - Enable the trigger in the Setup\Event Setup page.

Recording: Recording mode

- › What is Event/Schedule/Manual **recording mode**
 - Camera can provide simple recording of event or continuous video in a file format. It is useful for small surveillance site.
 - NVR and management software can provide remote full function recording in a database format, it is used for professional surveillance applications.
- › Why need Event/Schedule/Manual **recording mode**
 - Recording is very important to a surveillance application. It can provide clue or evidence of events.
- › When to use Event/Schedule/Manual **recording mode**
 - Event recording can save storage capacity and network bandwidth.
 - Schedule recording is useful for customized recording.
 - Manual recording is use for instant record for emergency.
- › How to use Event/Schedule/Manual **recording mode**
 - Setup camera recording in the Setup\Event Setup\recording schedule page.
 - Setup NVR and manger

Streaming



Streaming: Streaming technologies

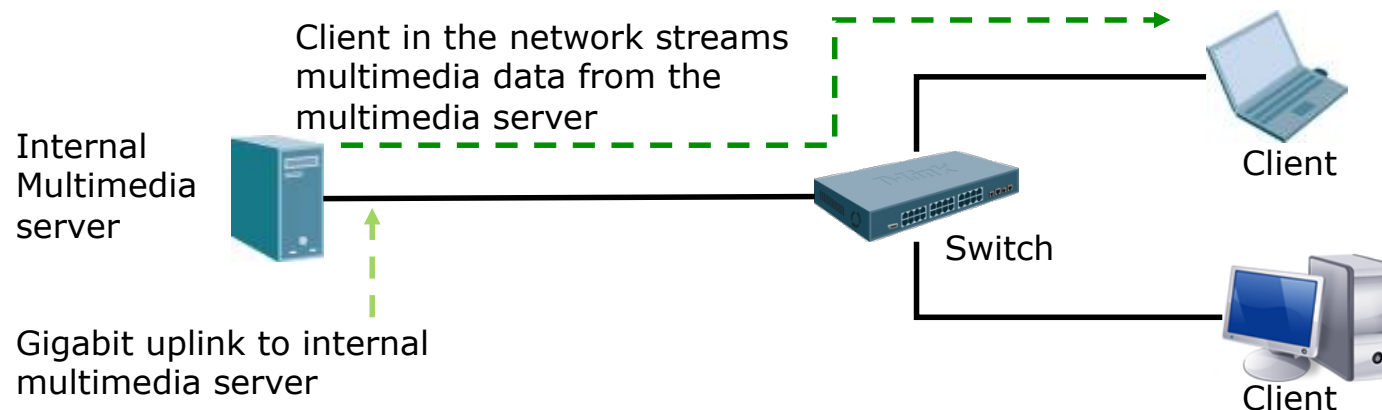
[Reference]

› What is **Streaming**?

- Streaming provides the ability to grab multimedia data (i.e. audio, video, and other types of multimedia) from a source or a streaming provider to deliver to the end user, which in the following illustration, is the user's computer.

› Different technologies for data streaming:

- RTP (Real-time Transport Protocol)
- RTCP (Real Time Control Protocol)
- RTSP (Real Time Streaming Protocol)



Streaming: RTSP

› What is RTSP

- The Real Time Streaming Protocol (RTSP) is a network control protocol designed for use to control streaming media servers. It will establish and control media sessions between end points. Clients of media servers issue VCR-like commands, such as play and pause, to facilitate real-time control of playback of media files from the server.
- The transmission of streaming data itself is not a task of the RTSP protocol. Most RTSP servers use the Real-time Transport Protocol (RTP) for media stream delivery.

› Why need RTSP

- The RTSP protocol is a stateful protocol and no permanent TCP connection is required. The default transport layer port number is 554.

› When to use RTSP

- MPEG4 and H.264 compression use RTSP for video streaming. And it also apply to 3GPP video.

› How to use RTSP

- Camera is automatically chosen the streaming method by client status.

Streaming: HTTP

› What is HTTP

- The Hypertext Transfer Protocol (HTTP) is a request/response standard typical of client-server computing. In HTTP, web browsers typically act as clients. An HTTP session is a sequence of network request-response transactions. An HTTP client initiates a request. It establishes a TCP connection to a particular port on a host (typically port 80).

› Why need HTTP

- It is the basic protocol of live view video streaming.
- RTSP streaming can also link over HTTP protocol when necessary.

› When to use HTTP

- Whenever connect from browser will need HTTP.

› How to use HTTP

- Connect from remote browser by HTTP.

Mobile





Mobile: 3G mobile

› What is 3G mobile

- 3GPP was defined by the 3rd Generation Partnership Project, a telecommunications standards body with the goal of providing uniform delivery of video and audio content to mobile devices over high-speed wireless networks.

› Why need 3G mobile

- Video: MPEG4 Simple Profile Level0
- Audio: GSM-AMR NB
- RTSP, SDP, RTP/RTCP

› When to use 3G mobile

- 3GPP handset can be used to view live streaming.
- User selected active notification: SMS, MMS, E-Mail

› How to use 3G mobile

- Handset with 3GPP player
 - Realplayer(Symbian, Palm OS 5, Pocket PC), PacketVideo(Symbian/ Pocket PC)
 - Sony Ericsson, Nokia, Motorola...
 - Quicktime, RealOne, I.E. Browser of PC(with D-Link Active X)
 - Example: Open media player of handset,



(1) Open Url

(2) input "RTSP://3GPP camera IP address/live.sdp"

Advanced Features



Advanced: Multiple stream

› What is **Multiple stream**

- Camera can provide more than one streaming simultaneously different purpose, like live view, recording or 3G mobile view.

› Why need **Multiple stream**

- Different usage may use different compression method, resolution or frame rate.
- Depends on application can choose different profile to get best result.

› When to use **Multiple stream**

- User can manually setup different profile parameters and use them accordingly.
- When user use different browser to view the video, camera will determine which profile need to use. For example, if Firefox is used will use MJPEG streaming automatically.

› How to use **Multiple stream**

- Select from live view page of different streaming.
- Or select from client setup page at live view page.

Advanced: Multicast

› What is **Multicast**

- IP multicast is a technique for one-to-many communication over an IP infrastructure in a network. It scales to a larger receiver population by not requiring prior knowledge of who or how many receivers there are.
- Multicast uses network infrastructure efficiently by requiring the source to send a packet only once, even if it needs to be delivered to a large number of receivers.

› Why need **Multicast**

- Camera main chip has performance limitation of max. unicast connections. Use multicast can solve this issue.

› When to use **Multicast**

- If there has application need over 10 client connections, choose multicast.

› How to use **Multicast**

- Enable multicast in the router setup.
- Enable camera multicast stream from Setup/Network Setup page.
- Select from client setup page at live view page to enable multicast connection.

Advanced: ICR

› What is ICR

- Infrared (IR) Cut Removable(ICR) filters are used for best performance of day and night. The IR cut filter is in front of the image sensor during the day for true color rendition and at night, is removed to take advantage of increased infrared sensitivity.

› Why need ICR

- With ICR can get best color performance of day and night camera.

› When to use ICR

- It suitable for parking lots, building entryways and driveways. The changeover from day to night is controlled by light sensor based on scene illumination, FW schedule or manually setup.

› How to use ICR

- Setup ICR from Setup\Advanced\ICR page.

Advanced: RS485

› What is RS-485

- RS-485 is a standard defining for use in balanced digital multipoint systems. 485 standard can be used effectively over long distances and in electrically noisy environments.
- Multiple receivers may be connected to such a network in a linear, multi-drop configuration. These characteristics make such networks useful in industrial environments and similar applications.
- RS-485 offers high data transmission speeds (35 Mbit/s up to 10 m and 100 kbit/s at 1200 m).

› Why need RS-485

- Camera use RS-485 to connect external scanner for pan and tilt application.
- Speed dome also use RS-485 for it's remote keyboard controller.

› When to use RS-485

- When fixed camera connect to external scanner.

› How to use RS-485

- Enable and setup RS-485 from Setup\Advanced\RS-485 page.

Network Video Recorder

Function Introduction



NVR



NVR: Live View

› What is **NVR Live View**

- NVR can view up to 8 channel video.(FW v1.1). It support screen split to 1/4/9, full screen, digital zoom, snapshot and PTZ.

› Why need **NVR Live View**

- It can easily monitor multiple channel at the same time, no need to open multiple browsers. And the full screen function can utilize the big monitor screen for all the surveillance video.

› When to use **NVR Live View**

- Monitor multiple cameras.

› How to use **NVR Live View**

- Search and setup the network camera from setup page, and click live view page.
- Drag and drop the camera name to monitor area.

NVR: Recording

› What is **NVR recording**

- NVR is majorly used for recording. It support schedule, event and manual(FW v1.1) record.

› Why need **NVR recording**

- DNS-722-4 support schedule, manual and event(motion detection trigger) record. (FW v1.1)
- DNS-726-4 supports schedule, manual and event(DI, motion detection trigger) record. (FW v1.1)

› When to use **NVR recording**

- Schedule is for planed recording by day or by week. It has two different mode can select: always record and event record.
- Event record can save HDD space, it only record when event happen. It also in the schedule
- Manual record is for emergency. Usually it is used when event happen during live view.

› How to use **NVR recording**

- Enable and setup recording at NVR Setup page.

NVR: Playback

› What is **Playback**

- After recording, user can playback from NVR directly.
- DNS-726-4 supports 4 channel simultaneous playback on a screen.
- DNS-722-4 supports 1 channel.

› Why need **Playback**

- NVR can search the database by calendar, user even can have preview before play it. This is major different between samba or NAS recording and NVR recording.
- NVR support full function of playback, like pause, fast forward, fast rewind, and step playback.

› When to use **Playback**

- When user need to see the recorded video in the NVR.

› How to use **Playback**

- Select Open record from playback page to open the calendar page.
- Select the date and tick Show records to display the record data on the time bar. Click or drag the area of channel and time on the time bar and click OK to playback.

NVR: Smart search

› What is **NVR Smart search**

- Searching through recorded data is normally time consuming and it's a tedious and frustrating job for users.
- The NVR supports smart search function which can search the data by selecting an area on the video and set search sensitivity. Once the NVR found the area has motion detected, object missing, object abandoned, focus lost or camera occlusion, it will display the list and play from the event time frame. (DNS-726-4 only)

› Why need **NVR Smart search**

- End user no need to stay in front of monitor to find out the event. It is convenient for user to search when playback.

› When to use **NVR Smart search**

- When user doesn't know the exactly event happen time, it will take a lot of time to check thru whole video, smart search can make the job easier.

› How to use **NVR Smart search**

- Open the smart search window from playback page, setup the search type, area and then wait for search result in the list.
- Click the time on the list can jump to the event and playback directly.