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Multimedia Communication Solutions



3GPP Camera User Guide

Project code management 2006

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Revision History

Version	Issue date	Editor	Comment
1.0	2006/11/20	ShengFu	Initial draft
1.1	2007/10/19	ShengFu	■ Add support for dual stream server(IP7138/9) ■ Update IP address of 3GPP demo site

Project code management 2006

Table of Contents

Introduction	3
Network setting for 3GPP camera	4
Mobile viewing setting of Camera	9
Supporting handsets list.....	11
FAQ.....	13

Introduction

3GPP cameras meet the requirement of surveillance anywhere and anytime. However, it usually gives users a hard time to configure and make it work. Working 3GPP camera surveillance needs three parts:

- (1) A correct setting for 3GPP camera.
- (2) An operator supporting streaming service via 3G handset
- (3) A correct setting of 3G handset with RTSP complaint application on it.

For item 2 and 3, they are co-related. Different operator will need different setting of the 3G handset to enable streaming setting. Usually you can call your service provider to send you the streaming setting via SMS. Anyway, customer service of your cell phone operator will solve this problem for you. This document will focus on the camera setting part to guide user to install a 3GPP camera with correct media and network setting. In addition to that, a FAQ will also be available for trouble shooting.

Network setting for 3GPP camera

We divided network environment into 2 categories to guide user to install 3GPP camera correctly for mobile viewing.

(1) With IP router

If your 3GPP camera will be installed behind IP router, port forwarding is necessary for your IP router. You can just check the check box of “Enable UPnP port forwarding” (see figure 1) and network camera will automatically try to open all the necessary port for you.

If your IP router does not support UPnP, the error message of UPnP port forwarding will be shown in network page (See Figure 2). You will need to open the port forwarding manually. There are 6 ports totally needed to be opened in the IP router. They are HTTP port for TCP (1), RTSP port for TCP (2), RTP video port (3), RTCP video port (4), RTP audio port (5) and RTCP audio port (6). Just open these 6 ports in your router mapping to the IP address of your network camera. For example:

- (1) Open the port of HTTP (80) with TCP protocol in the router mapping to the IP address 192.168.1.100 of camera with HTTP port (80)
- (2) Open the port of RTSP (554) with TCP protocol in the router mapping to the IP address 192.168.1.100 of camera with RTSP port (554)
- (3) Open the port of RTP/video (5558) with UDP protocol in the router mapping to the IP address 192.168.1.100 of camera with RTP/video port (5558)
- (4) Open the port of RTCP/video (5559) with UDP protocol in the router mapping to the IP address 192.168.1.100 of camera with RTCP/video port (5559)
- (5) Open the port of RTP/audio (5556) with UDP protocol in the router mapping to the IP address 192.168.1.100 of camera with RTP/audio port (5556)
- (6) Open the port of RTCP (5557) with UDP protocol in the router mapping to the IP address 192.168.1.100 of camera with RTCP/audio port (5557)

Make sure port mapping will be the same both in the router and camera.

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It is also feasible to install multiple 3GPP network cameras behind one IP router. Each camera should use a different set of ports. For example:

Camera 1: HTTP port (8080), RTSP port (1554), RTP/RTCP video port (8000/8001), RTP/RTCP audio port (8002/8003)

Camera 2: HTTP port (8081), RTSP port (1555), RTP/RTCP video port (8004/8005), RTP/RTCP audio port (8006/8007)

Camera 3: HTTP port (8082), RTSP port (1556), RTP/RTCP video port (8008/8009), RTP/RTCP audio port (8010/8011)

Note that each camera has different ports from each other. This is because all these ports need to be open in the router.

This way, each camera will share the same public IP and you can access each one by different port number. For example: if the domain name of the IP router is livecam.VIVOTEK.com, the URL of each camera for handset to input would be

Camera 1: rtsp://livecam.VIVOTEK.com:1554/live.sdp

Camera 2: rtsp://livecam.VIVOTEK.com:1556/live.sdp

Camera 3: rtsp://livecam.VIVOTEK.com:1556/live.sdp

From above, all we want to know is RTSP port to obtain a valid URL to access each camera

When “Enable UPnP port forwarding” is checked, camera will automatically communicate with router and assign necessary ports by itself except HTTP port. HTTP port need to assign by user otherwise camera can not be accessed once HTTP port is random assigned. All that user need to do is assign HTTP port for each camera and check “Enable UPnP port forwarding”. Again, you have to choose different HTTP port for each of your camera if you are installing multiple ones and camera will take care of rest of the ports for you. After all the cameras are installed, user can then obtain the assigned RTSP port.

VIVOTEK Configuration

> Network

Network type

- LAN
 - Get IP address automatically
 - Use fixed IP address
 - IP address: 192.168.1.64
 - Subnet mask: 255.255.255.0
 - Default router: 192.168.1.1
 - Primary DNS: 192.168.0.10
 - Secondary DNS: 192.168.0.30
 - Enable UPnP presentation
 - Enable UPnP port forwarding
- PPPoE
 - User name: _____
 - Password: _____
 - Confirm password: _____

HTTP

- HTTP port: 80 **1**

RTSP streaming

- Enable RTSP authentication
- Access name: live.sdp
- RTSP port: 554 **2**
- RTP port for video: 5558 **3**
- RTCP port for video: 5559 **4**
- RTP port for audio: 5556 **5**
- RTCP port for audio: 5557 **6**

Version: 0201i

Figure 1



Figure 2

(2) Without IP router

The network setting becomes more straightforward in this scenario. Either fixed IP or PPPoE can be set in network camera. It depends on which kind of internet service user are subscribing. If PPPoE is applied, DDNS is strongly recommended since IP is floating. There are several DDNS services supported in VIVOTEK network camera. Pick up anyone you prefer! Without IP router, port forwarding is no more an issue and you don't have to set each camera with different streaming port. You can just leave all of them default value. In fact, leaving rtsp port as default one will get the most compatibility for handsets.

Mobile viewing setting of Camera

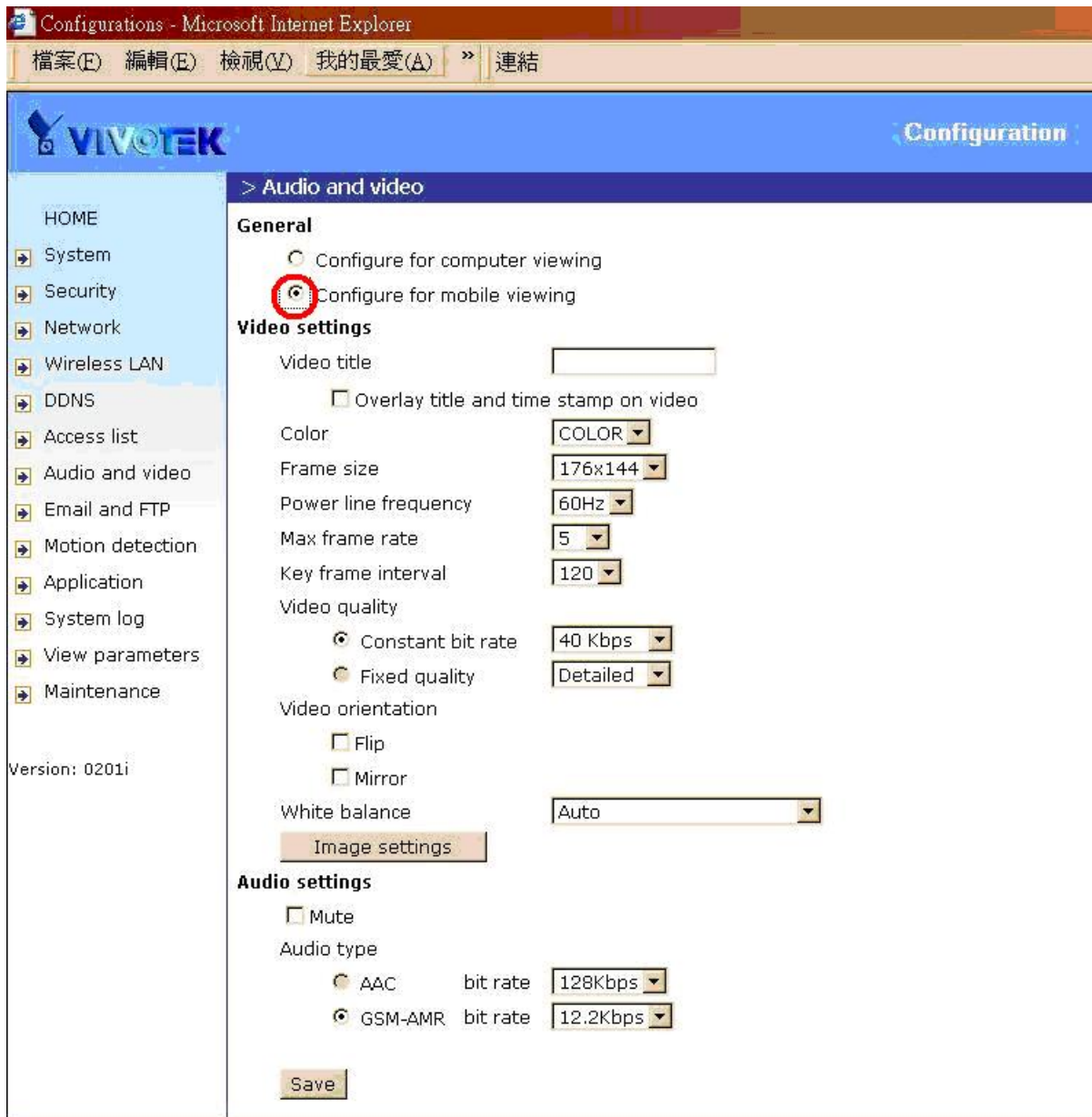


Figure 3

From the page of video and audio setting (For IP7135/7), there is a radial check of “configuration for mobile viewing”. Checking this will automatically set all the media setting to fit 3GPP standard for both video and audio. This is the minimum requirement of 3GPP. If your operator provides higher bandwidth of 3G network, you can change “Constant bit rate” to better one as well as “Max frame rate”. Just tune these 2 parameters to optimize your 3GPP

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setting. The higher frame rate will lead to worse video quality. If you saw broken video on your handset, you might overdo the bandwidth adjusting

As regarding to network camera of dual stream (IP7138/9), there is no mobile viewing option. Please make sure that video setting is correct in either stream 1 or stream 2.

Video:

- Video Mode: MPEG4
- Frame size: 176x144
- Max frame rate: no more than 10 fps
- Intra frame period: 120
- Video quality: fixed constant bit rate (no more than 100K bps, depends on 3G bandwidth)

Audio:

- Audio type: GSM-AMR (12.2 K bps)

Supporting handsets list

Table below is the tested handsets that support VIVOTEK 3GPP camera. Basically, Nokia, Motorola and Sony-Ericsson use the same streaming player for most of their models. So the compatible handsets should be much more than the listed ones below.

If you only want to install one camera behind IP router for mobile viewing, please choose RTSP default port 554. This will make the most compatibility of streaming to handsets.

If several 3GPP cameras are installed behind IP router, user need to access different camera via different RTSP port. However, not all of the handsets support streaming with other port instead of default one. That is because some players in the handset do not support port probing and rely on the RTSP proxy installed in operator side. This leads to only default RTSP port (554) will work for streaming. Anyway, below is the table listing the streaming capability of handsets.

Basically, S60 platform of Nokia uses real player which supports port probing. In other words, if your handset has real player on it, then you can use different port to distinguish different cameras which enable you to install multiple cameras behind IP router accessible to your handset. If you do not have real player for your handset, please install your cameras in fixed IP or PPPoE network environment. This way you can install each camera with default RTSP port 554 and most of the handsets can streaming without problem.

Brand	Model	Brand	Model
Nokia	3230	Sony Ericsson	K600i
Nokia	6111	Sony Ericsson	K750i
Nokia	6230	Sony Ericsson	W800i
Nokia	6630	Sony Ericsson	Z800i
Nokia	6680	Sony Ericsson	K300i
Nokia	7270	Sony Ericsson	K508i
Nokia	7380	Sony Ericsson	K700i
Nokia	7610	Sony Ericsson	P910i
Nokia	N70	Sony Ericsson	W550i
Nokia	6280	Sony Ericsson	W810i

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Nokia	6170	Sony Ericsson	W900i
Nokia	6260	Sony Ericsson	Z1010
Nokia	6270	Sony Ericsson	Z520i
Nokia	6600	Sony Ericsson	W810i
Nokia	6670	Sony Ericsson	K600i
Nokia	7280	Sony Ericsson	K750i
Nokia	7370	Sony Ericsson	W800i
Nokia	7600	Sony Ericsson	Z800i
Nokia	8800	Sony Ericsson	K300i
Nokia	K600i	Sony Ericsson	K508i
Nokia	6280	Sony Ericsson	K700i
Nokia	6230i	Sony Ericsson	P910i
Nokia	6170	Sony Ericsson	W550i
Nokia	6260	Sony Ericsson	W810i
Motorola	E770		

FAQ

1. How to configure my handset to support live streaming

Ans. Call your phone company. Usually they will send you the configuration to your handset or show you where to download the configuration document. Please make sure your handset support streaming before install 3GPP camera. Test with some streaming provided by your phone company to make sure the handset is ready for streaming

2. How to know that my handset support VIVOTEK's 3GPP network camera?

Ans.

(1) Make sure your handset is configured correctly for 3GPP streaming (see FAQ1)

(2) Use IE browser to connect to <http://60.248.39.152> to make sure VIVOTEK's 3GPP demo site is available

(3) Input <rtsp://60.248.39.152/live.sdp> to your player of your handset. If it is working, your handset is compatible to VIVOTEK's 3GPP network camera

3. How do I know that I installed my 3GPP camera correctly for handset streaming?

(1) Use IE browser to check if you can access your 3GPP camera from a different network domain. For example: if camera is installed in your home, connect it from your office or call your friend to try.

(2) If it is not working, check below

(a) Make sure IP address or domain name is correct in your url

(b) Make sure you input the correct http port in your url

(c) If you got a IP router, make sure you open port forwarding correctly in your IP router or there is no error message in your network page (See Figure 2)

(d) If you do not have an IP router, make sure network configuration is correct when fixed IP is used. When PPPoE is used, make sure you input the correct username and password. Also, ping the domain name of your 3GPP camera to check if DDNS is working.

(3) If your 3GPP network camera is available from internet, make sure "configure for mobile viewing" is checked in the video and audio page or video setting is correct for mobile viewing

4. I have installed camera and still can't see anything on my handset.

Ans. please follow the procedures step by step to test:

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- (1) Make sure your handset can view some streaming provided by your phone company.
If it does not, (see FAQ1)
- (2) Use IE browser to <http://60.248.39.152> to check VIVOTEK's 3GPP camera demo site is working and make sure your PC is connecting to internet.
- (3) If your handset can see streaming, try to input "rtsp://60.248.39.152/live.sdp" to your player. If you can see the video, this means your handset is ready. Let's check the camera
- (4) Use IE browser to connect to your 3GPP camera, check if your camera is working well via IE browser. Make sure you are NOT using a PC in the same LAN with your 3GPP camera. If it is not working, check if your UPnP port forwarding is OK or port mapping is the same with your 3GPP camera.
- (5) If it is working fine via IE browser, make sure "configure for mobile viewing" is checked in the video and audio page or video setting is correct for mobile viewing.

5. I don't know how to open port in the router

Ans. you can open ports in the router for your camera in 2 ways

- (1) Let camera do it automatically as long as your router support UPnP. For detail, see [network camera setting](#)
- (2) Do it manually. Please see the user's manual of your SOHO router.

6. How can I use domain name to access camera instead of IP address?

Ans. Activate the DDNS in the DDNS page of the camera. If you are using a IP router and it has DDNS function, you can let router do the DDNS update for all of your cameras.

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