

Backup Recovery Booting

User's Guide

Version 1.1

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Index

Chapter 1 Introduction.....	3
Chapter 2 Recover A CAMCODER in a Simple Environment.....	4
Chapter 3 Recover a CAMCODER with a DHCP server	7
Chapter 4 Trouble Shooting.....	11

Chapter 1 Introduction

VIVOTEK cameras/video servers (hereinafter referred as CAMCODER) which are based on Linux/Arm platform have architecture of binary firmware stored in flash memory. Whenever a CAMCODER system is upgrading its firmware, there might be risk of external power lost. Users encounter this problem are not able to location the CAMCODER in a computer network.

VIVOTEK has protected the boot-up sector of the flash memory, so that the system can be recovery by a skilled technician. The following briefly describes the idea of Backup Recovery Booting (hereinafter referred as BRB):

1. BRB starts with an IP address of a Wintel platform PC, and the user should specify an available IP address for the CAMCODER. After BRB started properly, the PC became a BRB server.
2. A CAMCODER boots up with searching a BRB server, after the BRB server is connect with the CAMCODER, an executable program is loaded to the CAMCODER.
3. The CAMCODER executes the program with another IP address, a web server and a webpage.
4. Users can upgrade the CAMCODER with a normal firmware, such as *.pkg or *.rom.

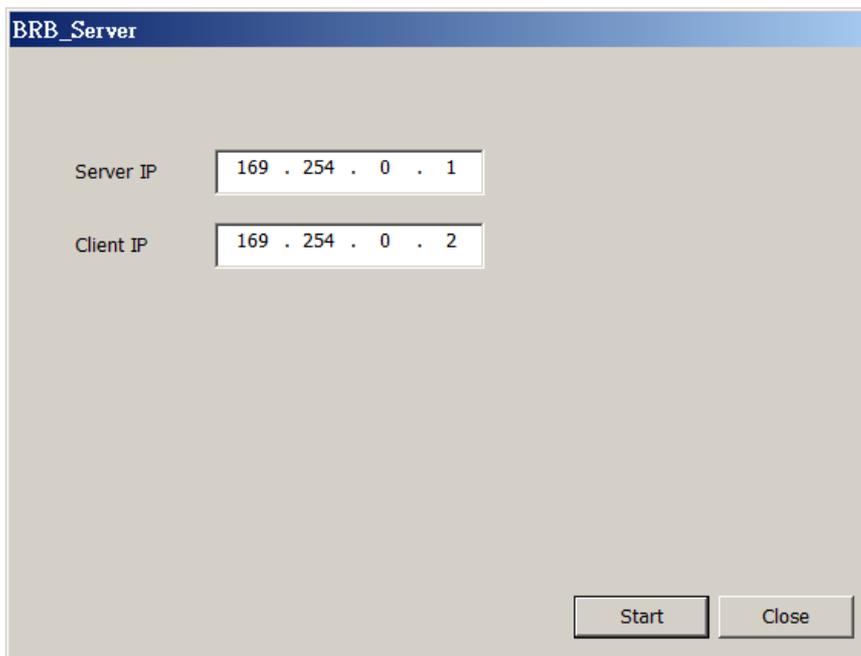
The BRB tool should contain at least an executable binary, BRB_Server.exe and several binary programs: bach8, haydn8, MOZART365SF16, MOZART380SF16, vivaldi4 and vivaldi8 in one directory.

Chapter 2 Recover A CAMCODER in a Simple

Environment

To be simple and step by step, the following scenario is to recover a CAMCODER in a simple network environment without DHCP server.

1. Connect a PC to a CAMCODER to be recovered directly with a network cable (cat 5E). (Note: don't power on the CAMCODER now).
2. Assign an IPv4 address, A1 (169.254.0.1) with subnet mask 255.255.255.0, to a Wintel PC.
3. Start BRB program. A1 will be assigned to "Server IP" and users should assign an IPv4 address, B1 (169.254.0.2), for "Client IP". (Note: If A1 is not assigned as "Server IP", please assign A1 manually).



4. Click on "Start" button.
5. Power on the CAMCODER, the CAMCODER will boot up with IP address B1 and the MAC address: 00-ab-cd-ab-cd-ef.
6. Start command window in Windows system and input command:

```
ping 169.254.0.99 -t
```

The response messages may like the following:

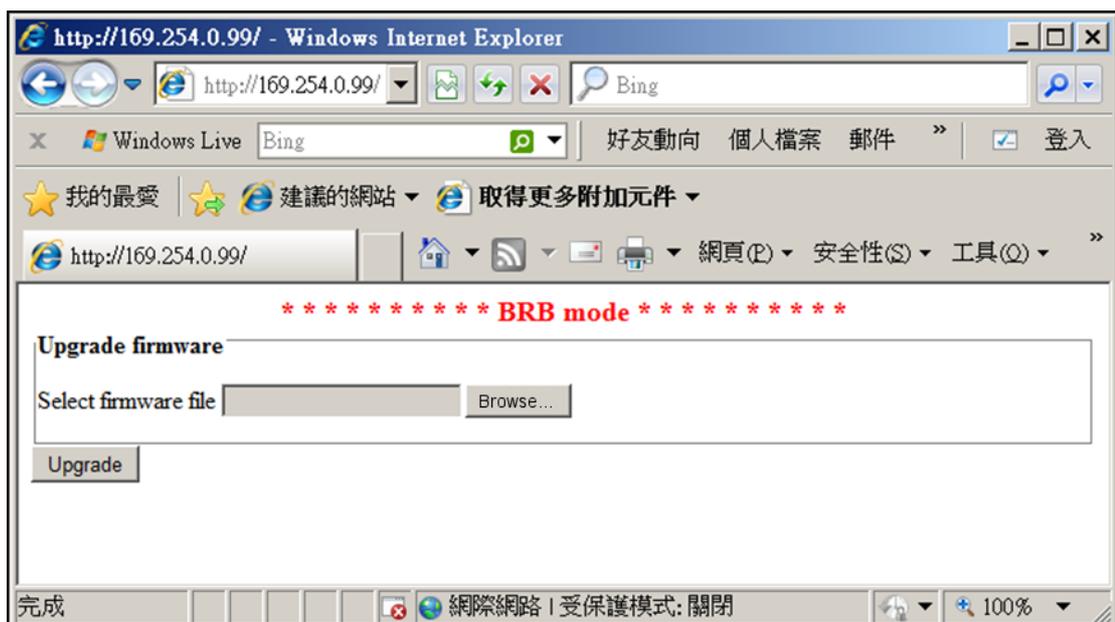
Ping 169.254.0.99 with data of 32 bytes:

Reply from 169.254.0.1: destination host unreachable.

Reply from 169.254.0.99: bytes=32 time=1995ms TTL=64

Reply from 169.254.0.99: bytes=32 time<1ms TTL=64

7. Wait until there is response from the CAMCODER. And the CAMCODER boots up with its original MAC address.
8. Open a web browser and visit: <http://169.254.0.99>, the recovery web page is loaded as:



9. Select your firmware, wait until the upgrade is 100% completed, the webpage

will be updated as follows:

Starting firmware upgrade...

Do not power down the server during the upgrade.

The server will restart automatically after the upgrade is completed.

It will take about 1 - 5 minutes.

Firmware version : PZ71X1-VVTK-0201a

Support script version : 0101a

System image size = 7658298

out filename=/mnt/ramdisk/kernel.mkimg, crcname=/mnt/ramdisk/kernel.crc, magic number=0x0

out filename=/mnt/ramdisk/cramfs.img, crcname=/mnt/ramdisk/cramfs.crc, magic number=0x6b65726e

out filename=/mnt/ramdisk/l2boot.bin, crcname=/mnt/ramdisk/l2boot.crc, magic number=0x6372616d

out filename=/mnt/ramdisk/l0boot.bin, crcname=/mnt/ramdisk/l0boot.crc, magic number=0x61726d62

out filename=/mnt/ramdisk/bootenv, crcname=/mnt/ramdisk/bootenv.crc, magic number=0x60445587

out filename=/mnt/ramdisk/jffs2.img, crcname=/mnt/ramdisk/jffs2.crc, magic number=0x62746576

Unpack success

Stopping applications (about 10 seconds..)

Running install

/mnt/ramdisk/setup

Write system

Updating system image

Erasing flash...

Erasing flash start 0x0 + 0x20000, size 0x3e0000

Erasing flash start 0x400000 + 0x0, size 0x300000

written 1 % ...

written 2 % ...

written 3 % ...

written 4 % ...

written 5 % ...

.

.

.

.

written 99 % ...

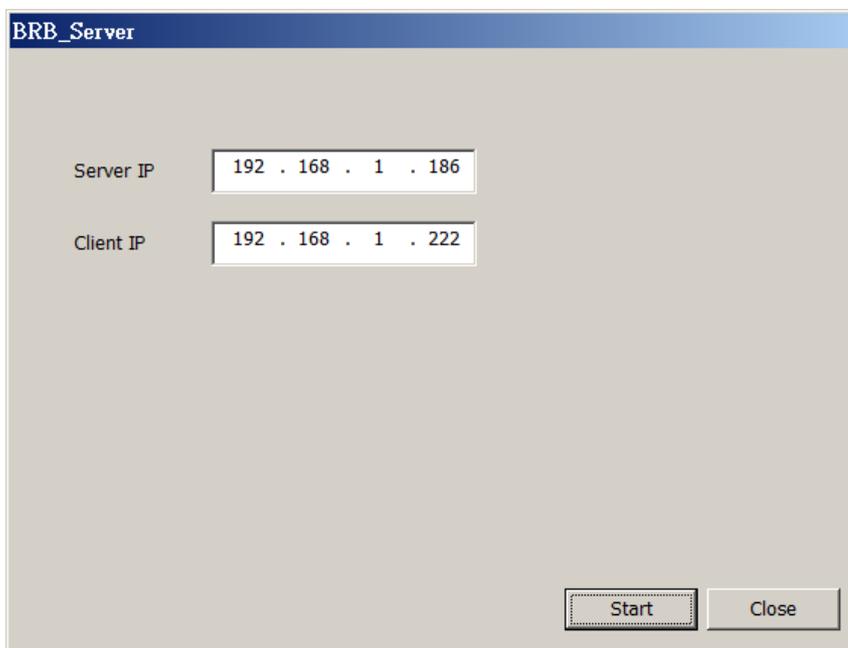
written 100 % ...

10. The CAMCODER is available by installation wizards again.

Chapter 3 Recover a CAMCODER with a DHCP server

In a network environment with a DHCP server, the idea is the same. If there is trouble, try to remove other CAMCODERs in the same LAN.

1. Run BRB program, the “Server IP” is assigned as the IP address A1 of current Wintel PC. Please assign an available IP address B1 to “Client IP” to avoid IP addresses conflict. A1 and B1 should be in the same network domain.



2. Click on “Start” button.
3. Power on the CAMCODER, the CAMCODER will boot up with IP address B1 and the MAC address: 00-ab-cd-ab-cd-ef.
4. Start command window in Windows system and input command (*Note: IP address B1 does not have to be 192.168.1.222, please remember to replace 192.168.1.222 with your own IP address B1*):

```
ping 192.168.1.222 -t
```

The response messages may like the following:

```
Ping 192.168.1.186 with data of 32 bytes:
```

Request time out.

Request time out.

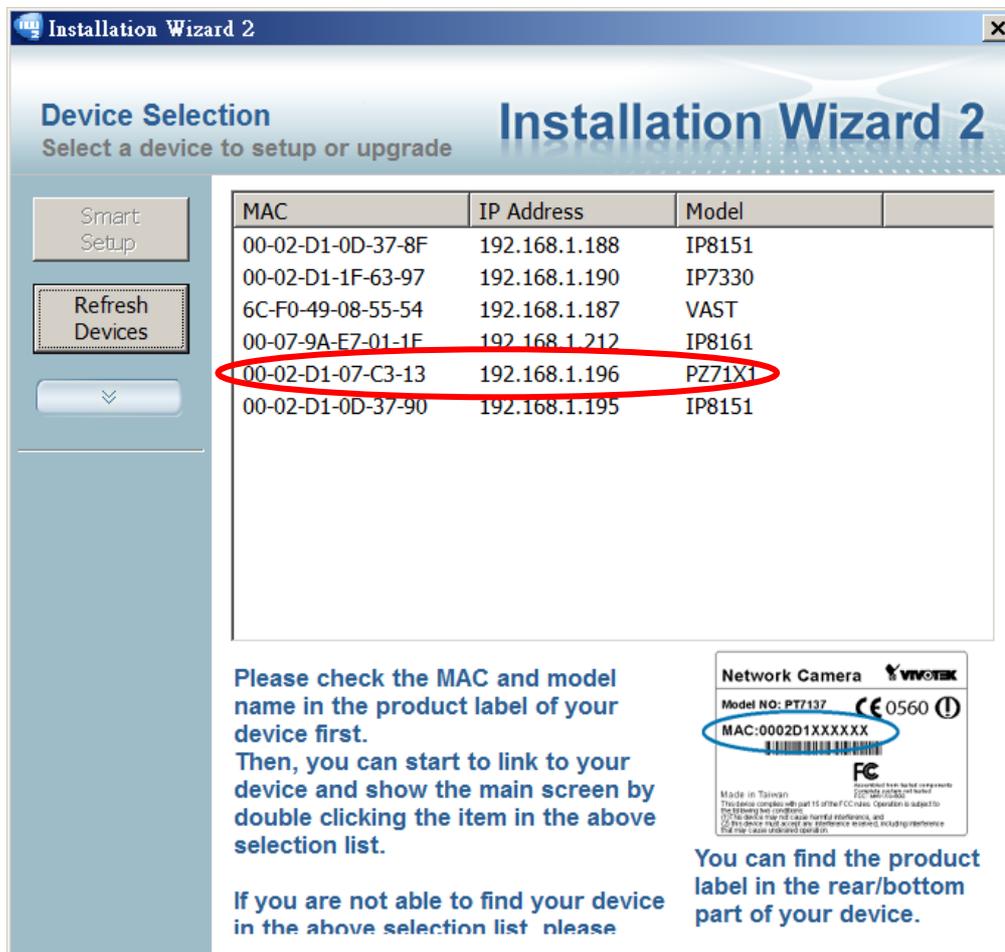
Reply from 192.168.1.222: bytes=32 time=1995ms TTL=64

Reply from 192.168.1.222: bytes=32 time<1ms TTL=64

Reply from 192.168.1.222: bytes=32 time<1ms TTL=64

Reply from 192.168.1.222: bytes=32 time<1ms TTL=64

5. After there is reply from the CAMCODER, start Installation Wizard 2 (IW2).



Installation Wizard 2

Device Selection
Select a device to setup or upgrade

MAC	IP Address	Model
00-02-D1-0D-37-8F	192.168.1.188	IP8151
00-02-D1-1F-63-97	192.168.1.190	IP7330
6C-F0-49-08-55-54	192.168.1.187	VAST
00-07-9A-E7-01-1F	192.168.1.212	IP8161
00-02-D1-07-C3-13	192.168.1.196	PZ71X1
00-02-D1-0D-37-90	192.168.1.195	IP8151

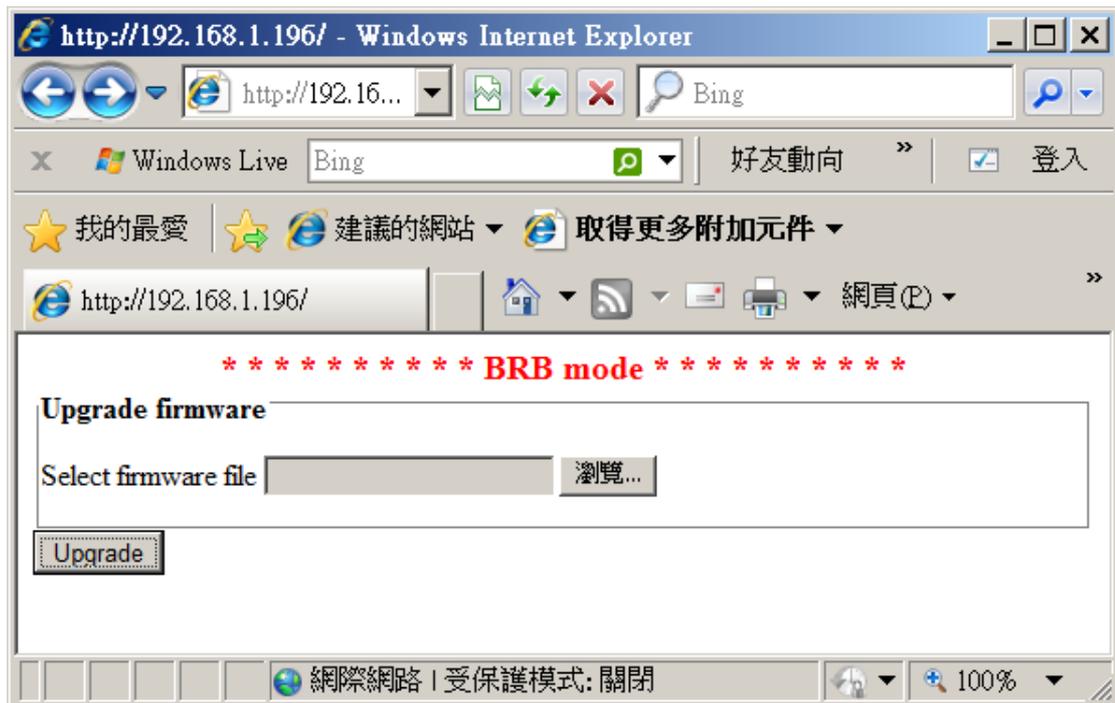
Please check the MAC and model name in the product label of your device first. Then, you can start to link to your device and show the main screen by double clicking the item in the above selection list.

If you are not able to find your device in the above selection list please

Network Camera **VIVOTEK**
Model NO: PT7137 CE 0560
MAC: 0002D1XXXXXX
FC
Made in Taiwan
This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:
1) This device may not cause harmful interference, and
2) This device must accept any interference received, including interference that may cause undesired operation.

You can find the product label in the rear/bottom part of your device.

6. Click "Refresh Devices" until the CAMCODER is found by IW2. Note the CAMCODER now boots up with its original MAC address and an IP address C1 assigned by the DHCP server.
7. Visit the webpage of the CAMCODER by double click on the item listed in IW2. (Or open the browser and visit the BRB webpage of the CAMCODER)



8. Select your firmware, wait until the upgrade is 100% completed, the webpage will be updated as follows:

Starting firmware upgrade...

Do not power down the server during the upgrade.

The server will restart automatically after the upgrade is completed.

It will take about 1 - 5 minutes.

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Support script version : 0101a

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out filename=/mnt/ramdisk/l0boot.bin, crcname=/mnt/ramdisk/l0boot.crc, magic number=0x61726d62

out filename=/mnt/ramdisk/bootenv, crcname=/mnt/ramdisk/bootenv.crc, magic number=0x60445587

out filename=/mnt/ramdisk/jffs2.img, crcname=/mnt/ramdisk/jffs2.crc, magic number=0x62746576

Unpack success

Stopping applications (about 10 seconds..)

Running install

/mnt/ramdisk/setup

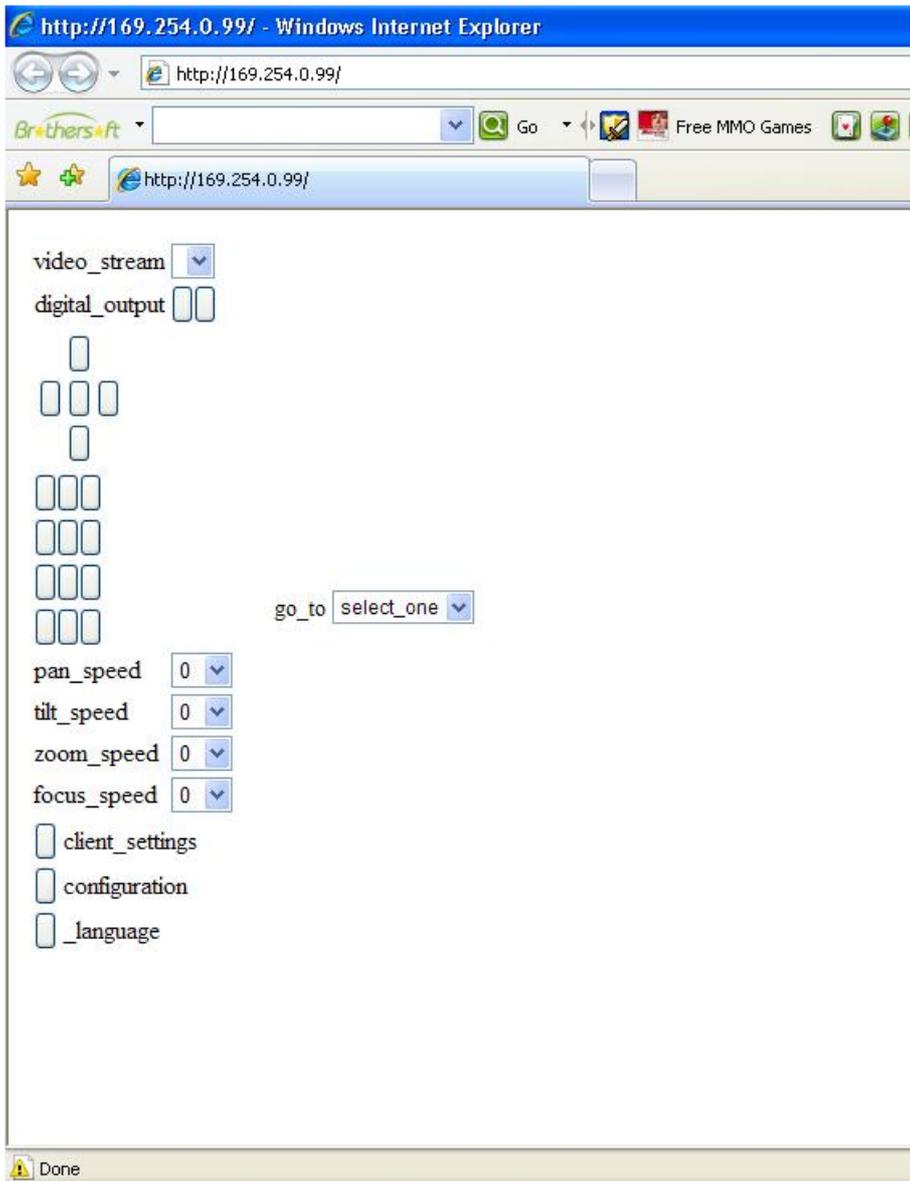
Write system

```
Updating system image
Erasing flash...
Erasing flash start 0x0 + 0x20000, size 0x3e0000
Erasing flash start 0x400000 + 0x0, size 0x300000
written 1 % ...
written 2 % ...
written 3 % ...
written 4 % ...
written 5 % ...
.
.
.
.
written 99 % ...
written 100 % ...
```

9. The CAMCODER is available by installation wizards again.

Chapter 4 Trouble Shooting

When users are recovering cameras in a LAN without DHCP, sometimes there will be a problem of webpage cache, like snapshot of the webpage follows:



To correctly access the BRB webpage, you have to clear the cache and/or browsing history of web browsers.

P.S. The webpage above is from PZ7000 products, because the last recovered camera is PZ7000. If you have recovered other model, the webpage will be different.