CGI TUTORIAL

From AVTECH

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1 CGI

1.1 How to Get Function

Use capability.cgi

http://ip:port/cgi-bin/nobody/Capability.cgi?action=get

The result will be as follows:

0

OK

…….

Capability.Function=PortMapping,Record,AlarmOutManual,,AudioVolume.....

.....

Example:

http://10.1.1.17/cgi-bin/nobody/Capability.cgi?action=get

The result will be as follows:

0

OK

…….

Capability.Function=PortMapping,Record,AlarmOutManual,ResolutionIndependent,AudioVolume,MFTest,TriggerMethodB,PushVideo

……

Then parse value of

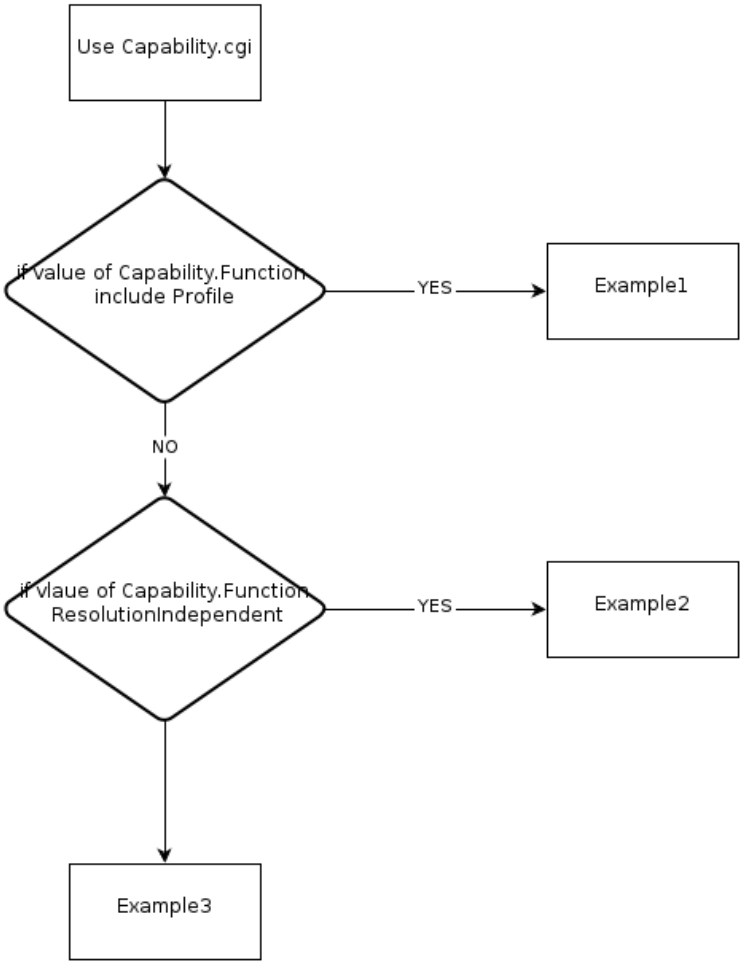
then the device supports Capability.Function

You can know the function of this device support:

PortMapping,Record,AlarmOutManual,ResolutionIndependent,AudioVolume,MFTest,TriggerMethodB,PushVideo

1.2 How to Get URL

Must be accordance with the process



Example 1:

Use cgi

http://10.1.1.121/cgi-bin/nobody/Capability.cgi?action=get

The result will be as follows:

0

OK

……..

Capability.Video.Profile.Count=4

Capability.Video.Profile1.Format=H264

Capability.Video.Profile1.Quality=BASIC

Capability.Video.Profile1.Resolution=352x240

Capability.Video.Profile2.Format=H264

Capability.Video.Profile2.Quality=HIGH

Capability.Video.Profile2.Resolution=720x480

Capability.Video.Profile3.Format=H264

Capability.Video.Profile3.Quality=HIGH

Capability.Video.Profile3.Resolution=352x240

Capability.Video.Profile4.Format=JPEG
Capability.Video.Profile4.Quality=HIGH
Capability.Video.Profile4.Resolution=1920x1080
……
Capability.Function=PortMapping,ONVIF,Multicast,AlarmOutManual,Profile,MFTest,GMap,SMS,TriggerMethodB,FocusZone
……..
If check the value of Capability,Function, profile means the resolution should be profile 1,2,3 or 4.
Account:admin
Password:admin
IP:10.1.1.121
Port:80
Format:h264,the format only support h264
Resolution:profile1
rtsp://admin:admin@10.1.1.121:80/live/video/profile1
ps: include audio url is
rtsp://admin:admin@10.1.1.121:80/live/video_audio/profile1

Example 2:
Use cgi
http://10.1.1.17/cgi-bin/nobody/Capability.cgi?action=get
The result will be as follows:
0
OK
…….
Capability.Video.Format=H264,MPEG4,MJPEG
Capability.Video.Resolution=SXGA,HD720P,VGA,QVGA
……
Capability.Function=PortMapping,Record,AlarmOutManual,ResolutionIndependent,AudioVolume,MFTest,TriggerMethodB,PushVideo
……..
You can select resolution of Capability.Video.Resolution as SXGA ,HD720P,VGA or QVGA
and select format of Capability.Video.Format as H264,MPEG4,MJPEG
Account:admin
Password:admin
IP:10.1.1.121
Port:80

Format:h264
Resolution:VGA
rtsp://admin:admin@10.1.1.121:80/live/h264/VGA
ps: include audio url is
rtsp://admin:admin@10.1.1.121:80/live/h264_ulaw/VGA

Example 3:
Use cgi
http://10.1.1.33/cgi-bin/nobody/Capability.cgi?action=get
The result will be as follows:
0
OK
.....
Capability.Video.Format=H.264,H264,M.PEG4,MJPEG
.....
You can select format of Capability.Video.Format as H.264,H264,M.PEG4,MJPEG

and account:admin
Password:admin
IP:10.1.1.121
Port:80
Format:h264
rtsp://admin:admin@10.1.1.121:80/live/h264

1.3 How to Change Profile Content

This function only supports resolution of profile model.
Use config.cgi to modify
A. Change format
http://ip:port/cgi-bin/user/Config.cgi?action=set&Media.Profiles.Profile1.VideoEncoderConfiguration.Encoding=format

B. Change resolution
http://ip:port/cgi-bin/user/Config.cgi?action=set&Media.Profiles.Profile1.VideoEncoderConfiguration.Resolution.Width=width&Media.Profiles.Profile1.VideoEncoderConfiguration.Resolution.Height=heigh

C. Change quality (1:Best, 0.6:High, 0.4:Normal, 0.1:Basic)
http://ip:port/cgi-bin/user/Config.cgi?action=set&Media.Profiles.Profile1.VideoEncoderConfiguration.Quality=quality

D. Change FPS (max is 30, min is 1)
http://ip:port/cgi-bin/user/Config.cgi?action=set&Media.Profiles.Profile1.VideoEncoderConfiguration.RateControl.FrameRateLimit=fps

E. Change maxbitrate
http://ip:port/cgi-bin/user/Config.cgi?action=set&Media.Profiles.Profile1.VideoEncoderConfiguration.RateControl.BitrateLimit=max

Example
Use Config.cgi
http://10.1.1.120/cgi-bin/user/Config.cgi?action=get&category=Media.*
The result is as follows
0
OK
.....
Media.Profiles.VideoResolution.Value=1920x1080,1280x720,720x480,352x240
.....
You can parse result , from Media.Profiles.VideoResolution.Value to know resolution is 1920x1080,1280x720,720x480,352x240
Current only support H264 and JPEG formats ,so
change resolution to 352x240
http://10.1.1.120/cgi-bin/user/Config.cgi?action=set&Media.Profiles.Profile1.VideoEncoderConfiguration.Resolution.Width=352&Media.Profiles.Profile1.VideoEncoderConfiguration.Resolution.Height=240

1.4 How to Config Video

http://ip:port/cgi-bin/user/Config.cgi?action=get&category=Video.*
The result will be as follows: take h264 as an example. The others are as follows
0
OK

.....

Video.I0.H264.ResolutionList=SXGA;HD720P;VGA;QVGA;QQVGA

Video.I0.H264.Resolution=SXGA

Video.I0.H264.Quality=HIGH

Video.I0.H264.RateCtrlMode=EVBR

Video.I0.H264.MaxBitrate=5000

Video.I0.H264.HD720P.Quality=BEST

Video.I0.H264.HD720P.RateCtrlMode=EVBR

Video.I0.H264.HD720P.MaxBitrate=5000

Video.I0.H264.HD720P.Framerate=30

Video.I0.H264.VGA.Quality=BEST

Video.I0.H264.VGA.RateCtrlMode=EVBR

Video.I0.H264.VGA.MaxBitrate=3000

Video.I0.H264.VGA.Framerate=30

Video.I0.H264.QVGA.Quality=BEST

Video.I0.H264.QVGA.RateCtrlMode=EVBR

Video.I0.H264.QVGA.MaxBitrate=3000

Video.I0.H264.QVGA.Framerate=30

Video.I0.H264.QQVGA.Quality=HIGH

Video.I0.H264.QQVGA.RateCtrlMode=EVBR

Video.I0.H264.QQVGA.MaxBitrate=3000

Video.I0.H264.QQVGA.Framerate=30

You can setup Max Bitrate, framerate and quality of resolution according to resolution list of Video.I0.H264.

The following table is based on figures as above.

Format	Resolution	Quality	Framerate	MaxBitrate
H264	SXGA/HD720P	BEST	30	5000
	VGA	BEST	30	5000
	QVGA	BEST	30	3000
	QQVGA	HIGH	30	3000

ps:HD720P and SXGA are the same value.

Example

Setup format: H264 Resolution: Framerate value of QQVGA is 15.

http://ip:port/cgi-bin/user/Config.cgi?action=set&Video.I0.H264.QQVGA.Framerate=15

Setup format: H264 Resolution: MaxBitrate of QQVGA is 6000.

http://ip:port/cgi-bin/user/Config.cgi?action=set&Video.I0.H264.QQVGA.MaxBitrate=6000

Setup format: H264 Resolution: Framerate value of QQVGA is 10 and MaxBitrate value is 1000.
http://ip:port/cgi-bin/user/Config.cgi?action=set&Video.I0.H264.QQVGA.MaxBitrate=1000&Video.I0.H264.QQVGA.Framerate=10

ps:Framerate range is 1-30 , MaxBitrate range is 512-10M

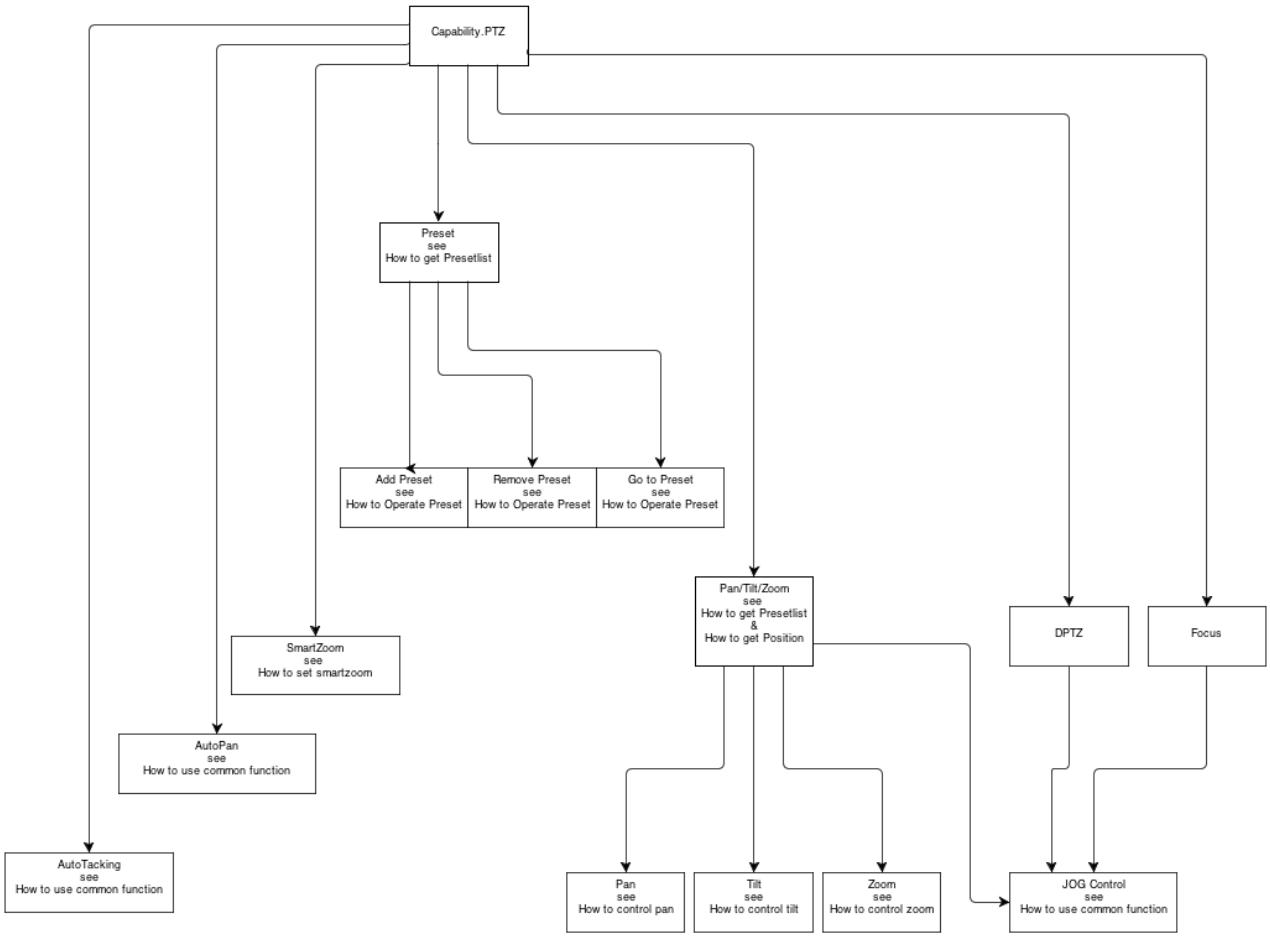
1.5 How to Get Snapshot

Use video.cgi
http://ip:port/cgi-bin/guest/Video.cgi?media=jpeg
The result save jpeg file

1.6 How to Control PTZ

Use capability.cgi,Check Capability.PTZ of result, you can get some ptz function
Example:
Use http://10.1.1.122/cgi-bin/nobody/Capability.cgi?action=get
The result is as follows.
0
OK
.....
Capability.PTZ=Pan,Tilt,Zoom,Focus,AutoTracking,Preset,HotPoint,AutoPan
....

And you can follow the picture to control ptz functions



1.7 How to Get Preset List

Use preset.cgi, the format is as follows
http://ip:port/cgi-bin/supervisor/Preset.cgi?action=list

Example:
Use http://10.1.1.122:80/cgi-bin/supervisor/Preset.cgi?action=list
The result is as follows
0
OK
Count=3
Preset.1.Name=A
Preset.1.Pan=9183
Preset.1.Tilt=3584
Preset.1.Zoom=1550

Preset.1.Focus=841
Preset.2.Name=B
Preset.2.Pan=16491
Preset.2.Tilt=3584
Preset.2.Zoom=1220
Preset.2.Focus=713
Preset.3.Name=C
Preset.3.Pan=30845
Preset.3.Tilt=3584
Preset.3.Zoom=1625
Preset.3.Focus=877

The result data can be converted into the following forms

Index	Name	Pan	Tilt	Zoom	Focus
1	A	9183	3584	1550	841
2	B	16491	3584	1220	713
3	C	30845	3584	1625	877

1.8 How to Operate Preset

A. Add preset , the cgi format is
http://ip:port/cgi-bin/supervisor/Preset.cgi?action=join&name=addname

B. Remove preset, the cgi format is
http://ip:port/cgi-bin/supervisor/Preset.cgi?action=del&no=index

C. Go to preset, the cgi format is
http://ip:port/cgi-bin//user/PTZ.cgi?action=goto&preset_name=gotoname

Example:
Add Preset
1. Move Lens to the position whose name is AA
2. Use cgi
http://10.1.1.122:80/cgi-bin/supervisor/Preset.cgi?action=join&name=AA
Verify Preset, you can reload Preset data

Remove Preset

1. Select removing index of position
2. Use cgi

http://10.1.1.122:80/cgi-bin/supervisor/Preset.cgi?action=del&no=index

Verify Preset, you can reload Preset data

Go to Preset

1. Select you name of position
2. Use cgi

http://10.1.1.122:80/cgi-bin//user/PTZ.cgi?action=goto&preset_name=AA

1.9 How to Get Limit

Use the cgi http://ip:port/cgi-bin/user/PTZ.cgi?action=query&info=ptz_limit

The result is as follows

0

OK

PanLLimit=36096

PanRLimit=4096

TiltULimit=2894

TiltDLimit=10894

ZoomWLimit=1624

ZoomTLimit=448

The data can be converted into the following forms

Name	Vale
Pan Left Limit	36096
Pan Right Limit	4096
Tilt Up Limit	2894
Tilt Down Limit	10894
Zoom W Limit	1624
Zoom T Limit	448

1.10 How to Get Position

Use the cgi http://ip:port/cgi-bin/user/PTZ.cgi?action=query&info=location
The result is as follows
0
OK
Location-Pan=27762
Location-Tilt=3584
Location-Zoom=1625
Location-Focus=877
The data can be converted into the following forms

Name	Vale
Pan	27762
Tilt	3584
Zoom	1625
Focus	877

1.11 How to Set Pan

Use cgi
http://ip:port/cgi-bin/user/PTZ.cgi?action=set&Mode=4&info=location&LocationP=position
Position refers to where you want to move and it needs to be in the range of Pan limit.

1.12 How to Set Tilt

Use cgi
http://ip:port/cgi-bin/user/PTZ.cgi?action=set&Mode=5&info=location&LocationT=position
Position refers to where you want to move and it needs to be in the range of Tilt limit.

1.13 How to Set Zoom

Use cgi
http://ip:port/cgi-bin/user/PTZ.cgi?action=set&Mode=6&info=location&LocationZ=position
Position refers to where you want to move and it needs to be in the range of Zoom limit.

1.14 How to Set Smartzoom

Use cgi to enable smartzoom
http://ip:port/cgi-bin/user/Config.cgi?action=set&Camera.SmartZoom.Enabled=ENABLE

Use cgi to disable smartzoom
http://ip:port/cgi-bin/user/Config.cgi?action=set&Camera.SmartZoom.Enabled=DISABLE

1.15 How to Use Common Function

Use Serial.cgi control the format of ptz and cgi are as follows
http://ip:port/cgi-bin/user/Serial.cgi?action=write&device=MASTER&channel=1&data=control
Control parartmeer is as follows

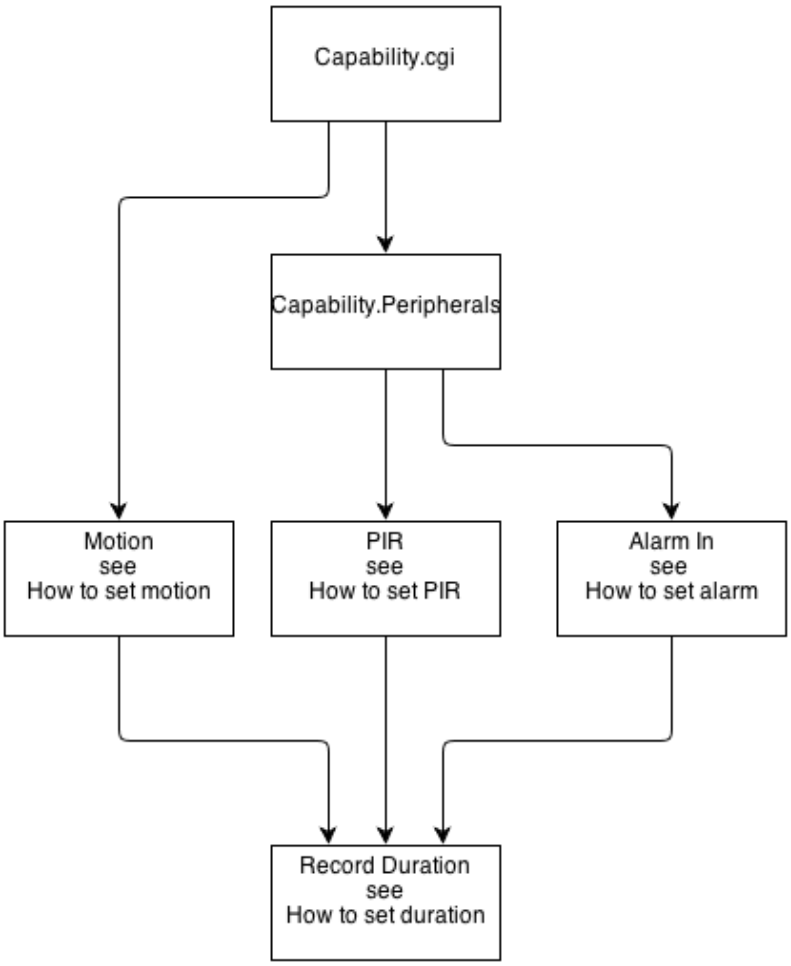
Item	Control
Up	07 D0 01 55 4B EF FF 5F 00 23
Left	07 D0 01 55 4B BF FF 2F 00 23
Right	07 D0 01 55 4B 7F FF EF 00 23
Dowm	07 D0 01 55 4B DF FF 4F 00 23
Left Up	07 D0 01 55 4B AF FF 1F 00 23
Right Up	07 D0 01 55 4B 6F FF DF 00 23
Left Dowm	07 D0 01 55 4B 9F FF 0F 00 23
Right Down	07 D0 01 55 4B 5F FF CF 00 23
Zoom In	07 D0 01 55 4B FE FF 6E 00 23
Zoom Out	07 D0 01 55 4B FD FF 6D 00 23
Zoom In Max	07 D0 01 55 4B FE FF 6E 00 23
Zoom Out Max	07 D0 01 55 4B FD FF 6D 00 23

Auto Tracking	07 D0 01 55 4B FF FD 6D 00 23
Focus In	07 D0 01 55 4B F7 FF 67 00 23
Focus Out	07 D0 01 55 4B FB FF 6B 00 23
AutoPan	07 D0 01 55 4B FF EF 5F 00 23

Example:
If you want to zoom in and use cgi is as follows
http://ip:port/cgi-bin/user/Serial.cgi?action=write&device=MASTER&channel=1&data=07 D0 01 55 4B FE FF 6E 00 23

1.16 How to Use Peripheral

Use capability.cgi
The data result is as follows
0
OK
…….
Capability.Peripherals=AudioIn,AlarmIn,AlarmOut,PIR,StatusLED,Memory
…..
Then you know the Peripherals of device support
And you can follow the picture to use function which you want to control



1.17 How to Set Motion

Enable motion
http://ip:port/cgi-bin/user/Config.cgi?action=set&Notification.Trigger.Motion=Enable

Disable motion
http://ip:port/cgi-bin/user/Config.cgi?action=set&Notification.Trigger.Motion=DISABLE

1.18 How to Set PIR

Enable PIR
http://ip:port/cgi-bin/user/Config.cgi?action=set&Notification.Trigger.PIR=ENABLE

Disable PIR
http://ip:port/cgi-bin/user/Config.cgi?action=set&Notification.Trigger.PIR=DISABLE

1.19 How to Set Alarm

Enable alarm
http://ip:port/cgi-bin/user/Config.cgi?action=set&Notification.Trigger.Alarm=ENABLE

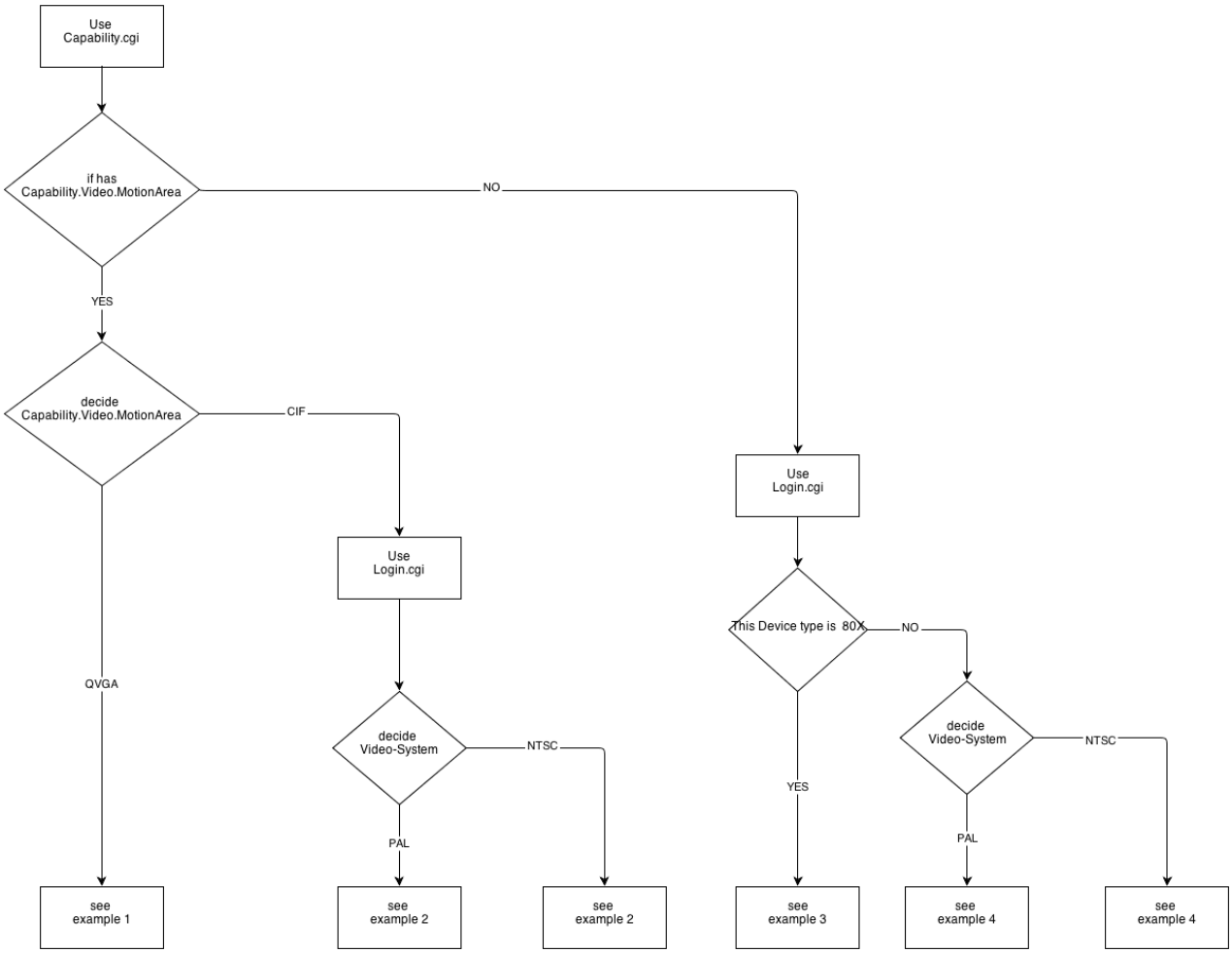
Disable alarm
http://ip:port/cgi-bin/user/Config.cgi?action=set&Notification.Trigger.Alarm=DISABLE

1.20 How to Set Duration

Use cgi foramt is
http://ip:port/cgi-bin/user/Config.cgi?action=set&Notification.Trigger.Duration=time
The time is 5,10,20,40 cane be use

1.21 How to Set Detection Area

First you know definition of detection area
Must follow the picture which describes set flow



Example 1:

1. Use Capability.cgi

http://10.1.1.17/cgi-bin/nobody/Capability.cgi?action=get

The result is as follows

0

OK

.....

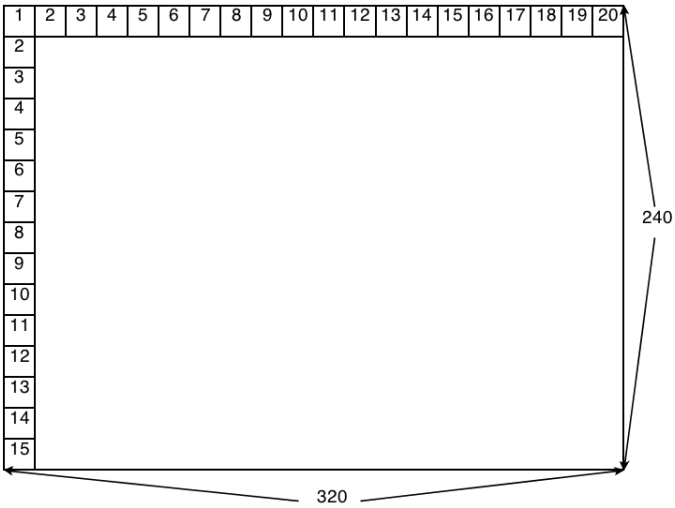
Capability.Video.MotionArea=QVGA

.....

2. If result has Capability.Video.MotionArea=QVGA

Then retangle width of detection is 320 and its height is 240

The division is 20*15 as follows



Example2

1. Use Capability.cgi

http://10.1.1.121/cgi-bin/nobody/Capability.cgi?action=get

The result is as follows

0

OK

.....

Capability.Video.MotionArea=CIF

.....

2. If Capability.Video.MotionArea=CIF

The use http://10.1.1.121/Login.cgi

The result is as follows

0

OK

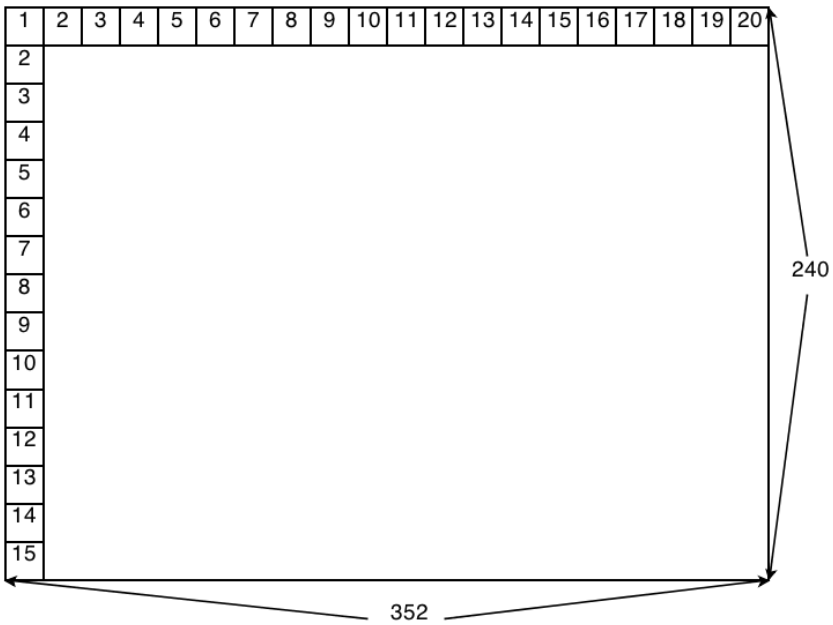
.....

Video-System=NTSC

.....

If Video-System is NTSC. Rectangle width of detection is 352 and its height is 240

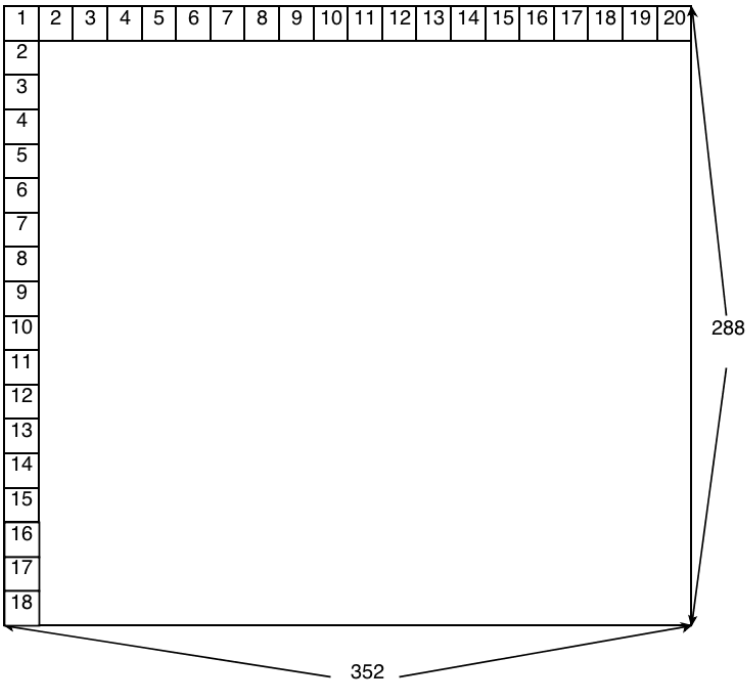
The division is 20*15 as



follows

If Video-System is PAL. Rectangle width of detection is 352 and its height is 288

The division is 20*18 as follows



Example 3

1. Use capability.cgi

http://10.1.1.3/cgi-bin/nobody/Capability.cgi?action=get

The result is as follows

0

OK

….

2. If result no Video-System

Then, use Login.cgi

http://10.1.1.3/Login.cgi

The result is as follows

0

OK

……

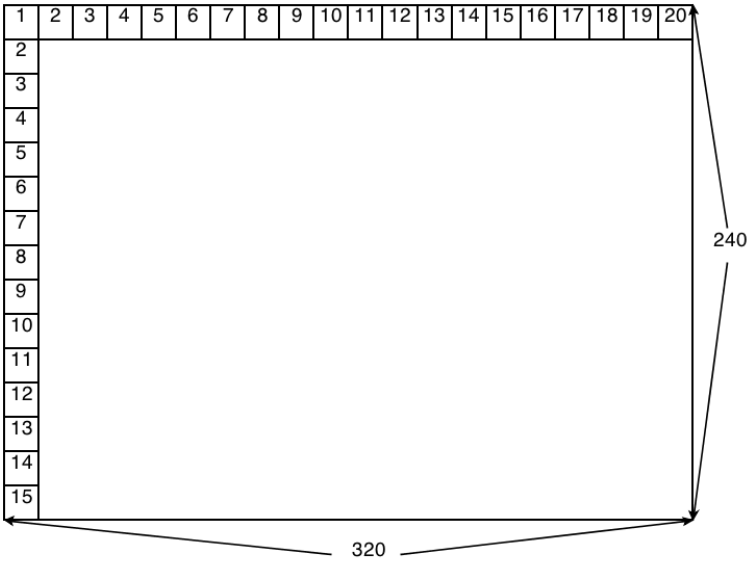
Product-ID=35X

……

3. If Product-ID is 35X

Then, rectangle width of detection is 320 and its height is 240

The division is 20*15 as follows



Example4

1. Use Capability.cgi

http://10.1.1.122/cgi-bin/nobody/Capability.cgi?action=get

The result is as follows

0

OK

…..

2. If result no Video-System

Then, use Login.cgi

http://10.1.1.122/Login.cgi

The result is as follows

0

OK

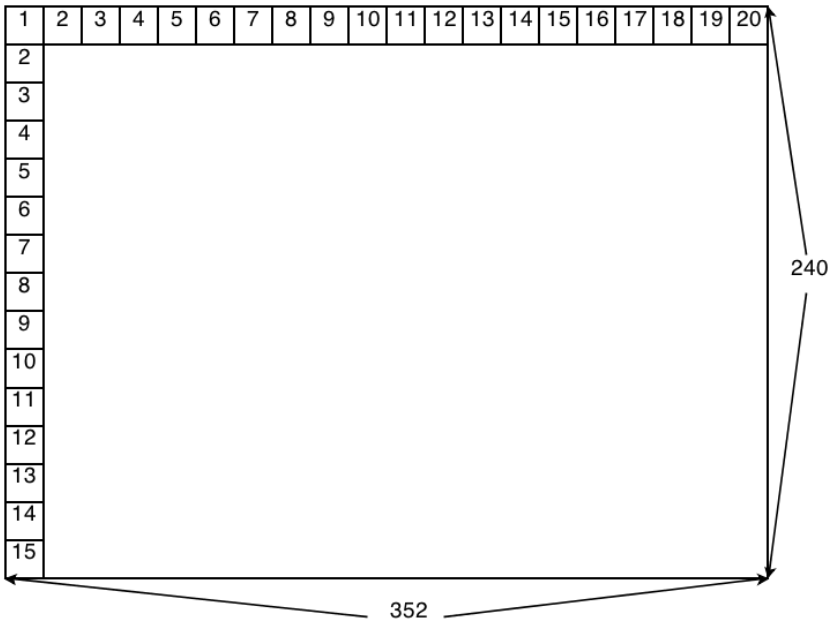
.....

Video-System=NTSC

.....

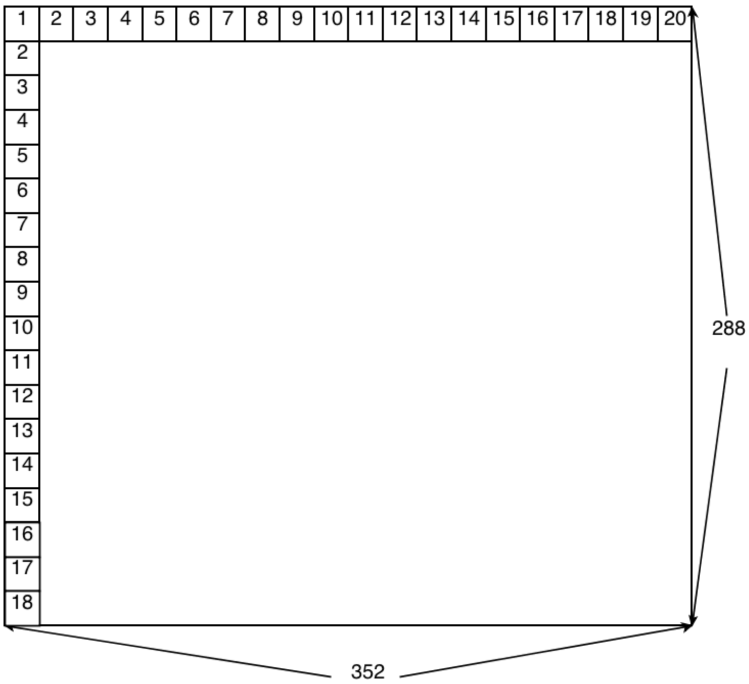
3. If Video-System is NTSC. Rectangle width of detection is 352 and its height is 240

The division is 20*15 as follows



if Video-System is PAL. Rectangle width of detection is 352 and its height is 288

The division is 20*18 as follows



Now you know how to get detection range

Then, you can follow step to set camera detection area

1. Use config.cgi , get Sensitivity and MaskArea

http://ip:port/cgi-bin/user/Config.cgi?action=get&category=Camera.Detection.*

The result is as follows

0

OK

Camera.Detection.Sensitivity=1

Camera.Detection.MaskArea=0,1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
,0,0,0,0

2. Use method to make your area

```
// get state
GOT_MOTIONSET(LONG x)
  BYTE bTemp = (m_bArea[(x/8) + (((x/8)%2) ? -1 : 1)] & (0x01 << (x%8)));

// set state on
SET_MOTIONSET(LONG x)
BYTE bTemp = (m_bArea[(x/8) + (((x/8)%2) ? -1 : 1)] |= (0x01 << (x%8)));

//set state off
CLEAR_MOTIONSET(LONG x)
```

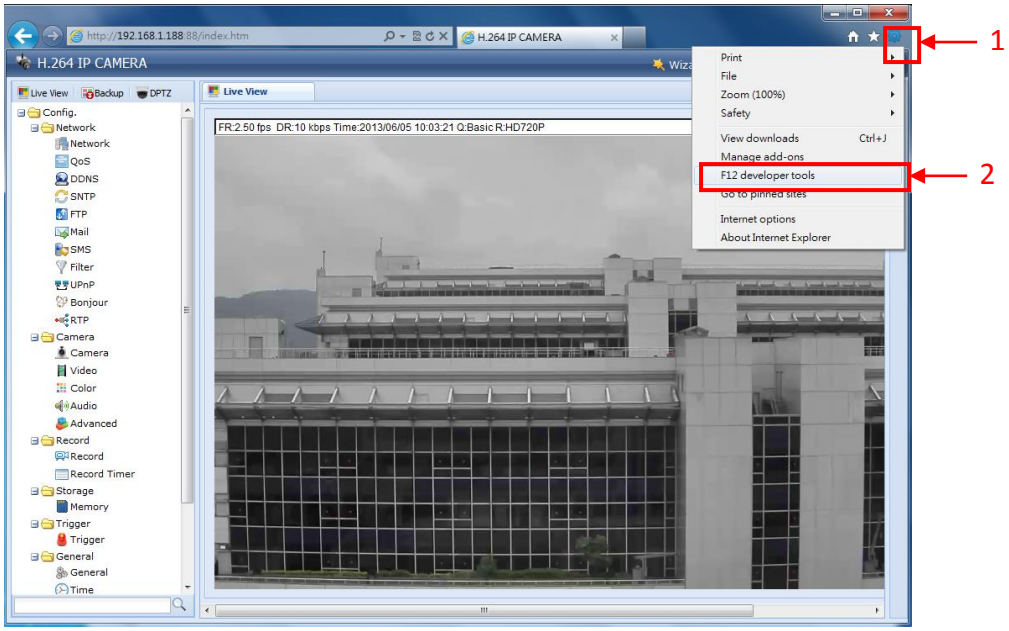
BYTE bTemp = (m_bArea[(x/8) + (((x/8)%2) ? -1 : 1)] &= ~(0x01 << (x%8)));
BYTE m_bArea[50];
x Space index , zero base

3. Use config.cgi change MaskArea or sensitivity(Hight:0, Normal:1, Low:2)
Change sensitivity
http://ip:port/cgi-bin/user/Config.cgi?action=set&Camera.Detection.Sensitivity=0
Change MaskArea
http://ip:port/cgi-bin/user/Config.cgi?action=set&Camera.Detection.MaskArea=ff,ff,ff,ff,ff,ff,ff,ff,ff,ff,0,1f,1,ff,1f,f0,ff,0,f0,1,0,1f,1,ff,1f,f0,ff,0,f0,1,ff,ff,ff,ff,ff,ff,ff,ff

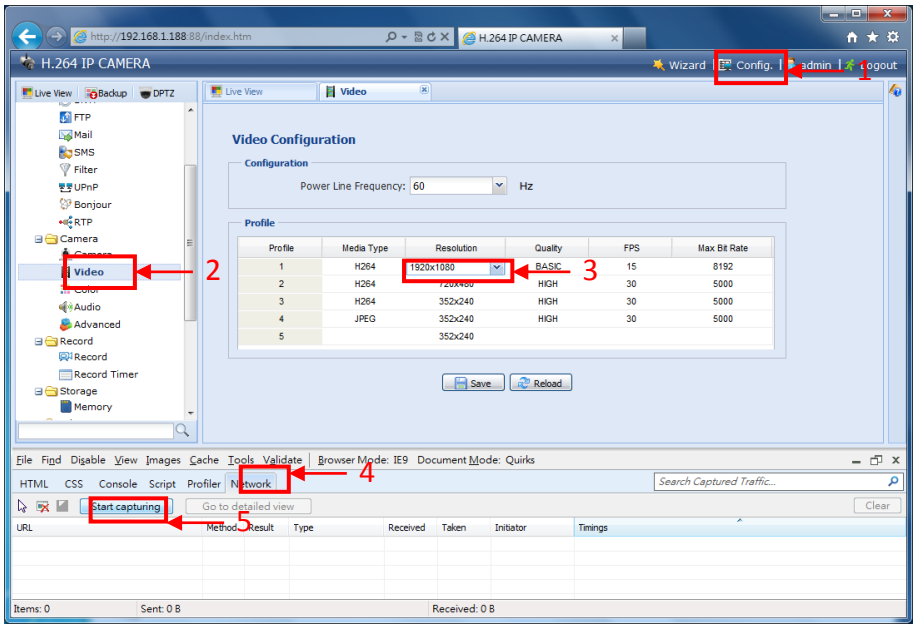
Appendix A: Read CGI command from your IP Camera

You can find AVTECH product CGI command from this document, also AVTECH web management UI is base CGI command to created, You can start IE Browser and press F12 hot key start Developer Tools to check which CGI command we used

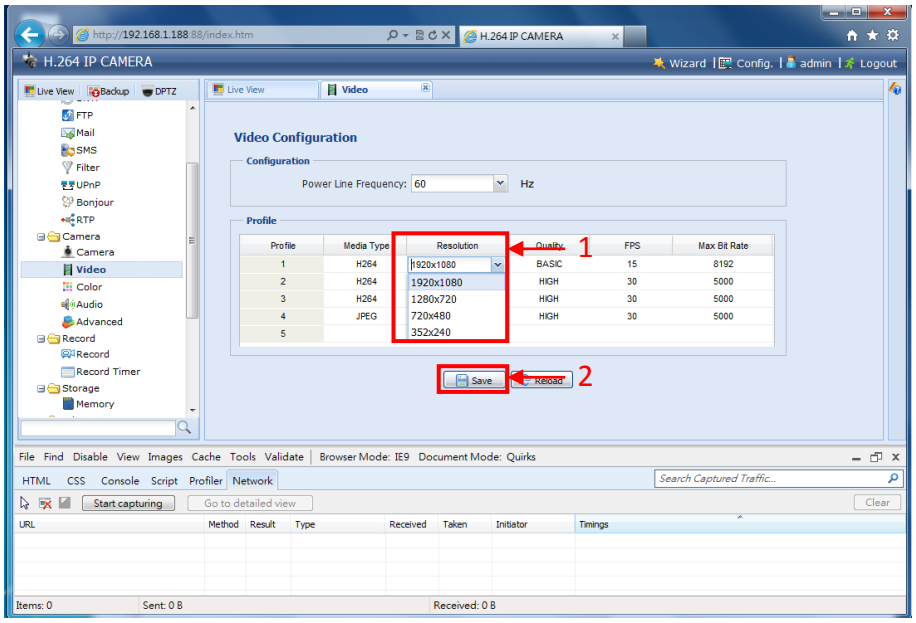
1. Use IE browser to access IP Camera, Login it and press F12 hot key to start Developer



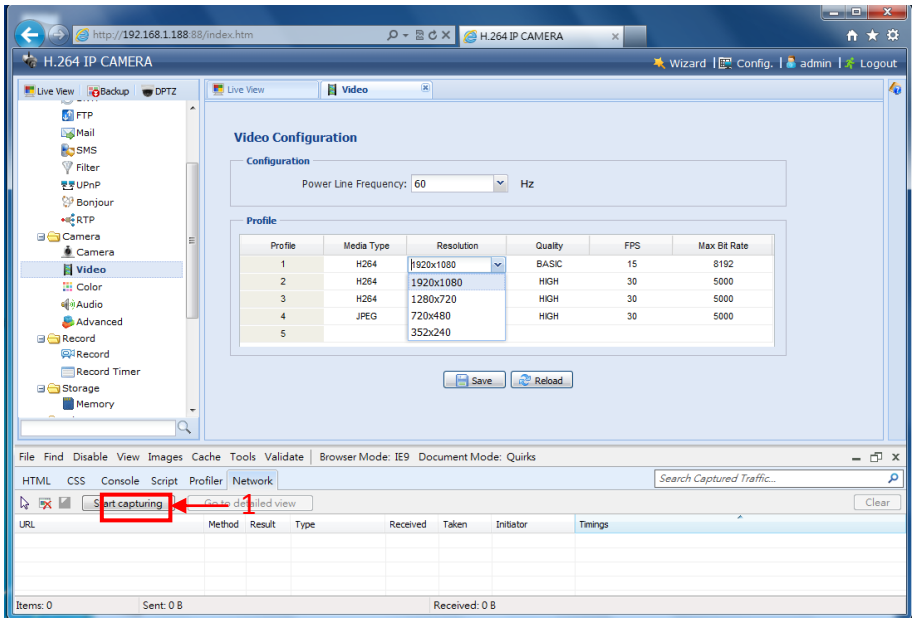
2. If you want to know who is change resolution to 1920x1080 CGI command, please press Config icon and select Video find Resolution. And find Developer Tools Capture function press it.



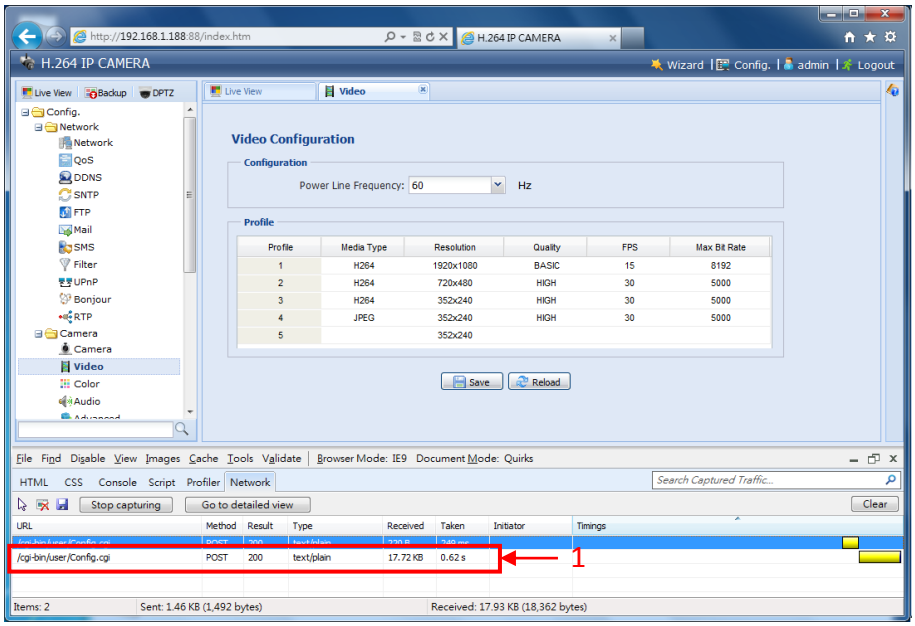
3. Change resolution 1920x1080 press Save icon



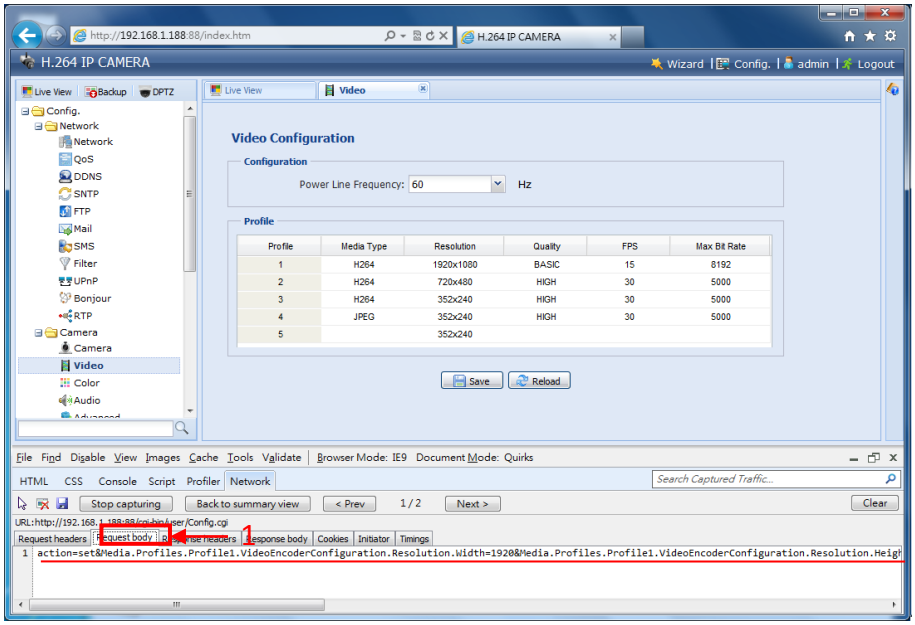
4. Stop networking capture



5. Find /cgi-bin/user/Config.cgi command and double click it



6. Select Require content sheet and you can find CGI command

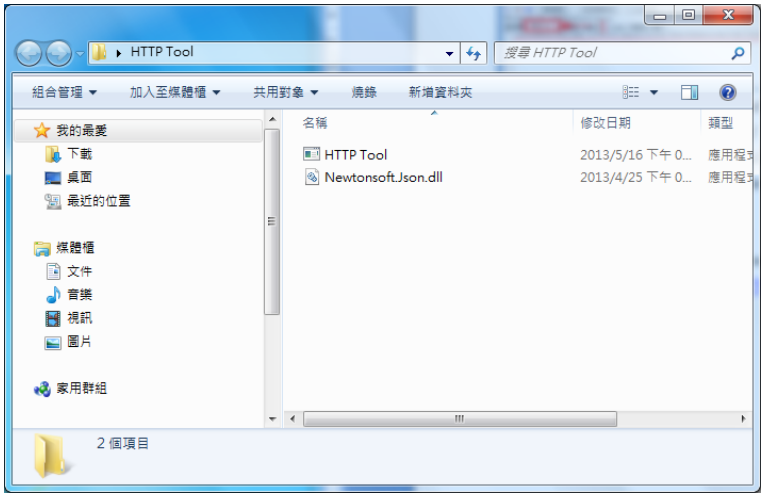


Complete change resolution command will be http://xxx.xxx.xxx.xxx:xx/cgi-bin/user/Config.cgi?action=set&Media.Profiles.Profile1.VideoEncoderConfiguration.Resolution.Width=1920&Media.Profiles.Profile1.VideoEncoderConfiguration.Resolution.Height=1080

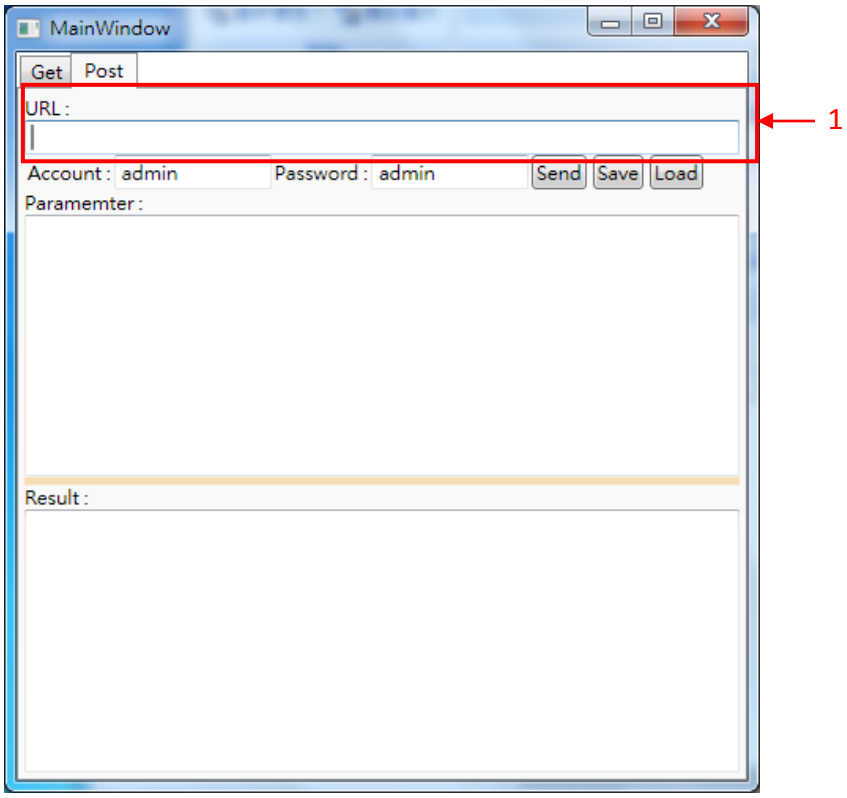
Appendix B: CGI command test tool

You can find below link and please download it

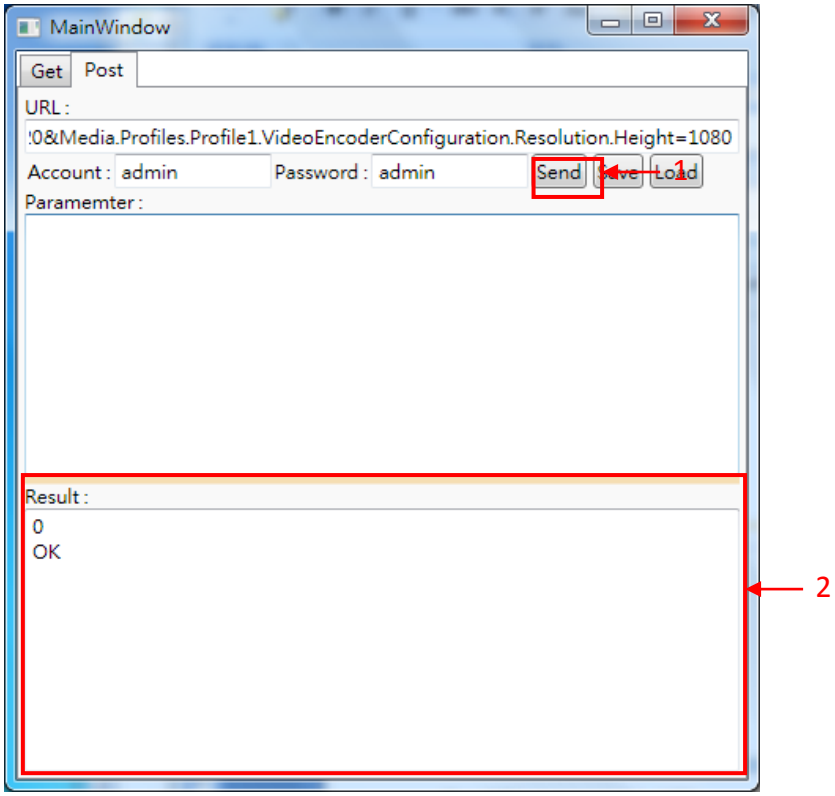
ftp://211.75.84.102/AVTECH_SDK/HTTP_Tool.rar



Un-zip this file you can find HTTP test tool and start it.



Put CGI command to URL command line and press Send icon



You can find IP Camera Response message and you can use IE browser to check is it already change resolution base your command.