

VAIDIO CORE 8.0.0 TECHNICAL SUPPORT GUIDE

By Aicuda Technology

TABLE OF CONTENTS

<u>Adj</u>	<u>ust Vaidio Core IP Address</u>	Red
	<u>Change Network</u>	
	Change IP Address of Vaidio	
Add	<u>d Camera to Vaidio</u>	
	<u>Camera</u>	Sim
	IP Address/Domain Name	RTS
	<u>RTSP</u>	<u>IXI 3</u>
	Common Camera RTSP URLs	<u>Oth</u>
	<u>Camera Auto Discovery</u>	
Cal	<u>culate Camera Parameters</u>	
	Calculate Camera Parameters	
	JVSG Calculator	
	IPVM Calculator	
	Resolution & Focal Length	Fact



- luce Network Bandwidth
- Reduce Network Bandwidth
- <u>Architectures</u>
- Network Bandwidth & Storage Calculator
- ulate File as RTSP Stream Using Happytime
- P Server
- er Technical Issues
- Live View Limitation
- Whoops Error
- Sync Data & Time
- Invalid Parameter for ROI
- Crowd Detection Use Case
- tory Reset Server

ADJUST VAIDIO CORE IP ADDRESS

<u>Change Network</u>

Change IP Address of Vaidio



Back to Table of Contents

STEP 1: CHANGE NETWORK

If the Vaidio server was shipped from Aicuda Technology, follow these steps to put the user's PC on the same network as the Vaidio Server's default IP address: 192.168.100.100.

- For a Windows PC, go to Network Connections
- Right-click on the Ethernet to which Vaidio is connected and go to Properties
- Click Internet Protocol Version 4
 - Click "Use following IP address"
 - Fill in an IP address that is on the same subnet as Vaidio's default IP
 - E.g., 192.168.100.90
- Click "OK" when done

Vetwork Connections						
←	\rightarrow \sim	1 💆	 Network and Int 			
Or	ganize •	Disa	able this network de			
		Blueto Not co Blueto	ooth Network Conn onnected ooth Device (Person			
		Etherr	net 3			
-	Disable Status Diagnose					
•	Bridge Co	onnecti	ons			
•	Create Sh Delete	ortcut				
•	Rename Propertie	s				





Return to Adjust Vaidio IP Address

STEP 2: CHANGE IP ADDRESS OF VAIDIO

- □ Vaidio Core 4.2.0 and onwards:
 - Log into the Admin Portal at <u>http://192.168.100.100:8000</u>
 - Network > fill out new <u>IP address</u> and <u>Netmask</u>
- □ Vaidio 4.1.0: Contact the Aicuda Technology <u>Support</u>
 - Portal for assistance.
- □ Vaidio 4.0.0 and prior:
 - □ System > Network
 - Click on "eth1"
 - Input the desired IP address for Vaidio

	admin Logo
	O Shutdown C Resta
New Pastword	
Confirm Password:	
Time Zone:	Am/Tape
System Tame	analesea 📷 en Cillan Cillan C
	Sync with NTP Server
	NTP server host names or address (Press Enter to add multiple server names or address in different lines)
	Constructe the system time are late:
	Check Consection
Interface	Select interface
Interface * IPv4 Address:	Select interface
Interface * IPv4 Address: * Netmask	Select interface
Interface * IPv4 Address: * Netmask Gateway	Select interface
interface * IPv4 Addreas: * Netmask Gateway	Select interface
interface * IPv4 Address: * Netmask Gateway DNS Server:	Select interface
interface * IPv4 Address: * Netmask Gateway DNS Server:	Select interface
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Interface * IPv4 Address: * Netmatic Gateway: DNS Server: DNS Server: Current Version: Check for Update	Select interface Image: Select interface Image: Select interface Image: Select interface Image: Select interface Image: Select interface Image: Select interface Image: Select interface Image: Select interface Image: Select interface Image: Select interface Image: Select interface Image: Select interface Image: Select interface Image: Select interface Image: Select interface Image: Select interface Image: Select interface Image: Select interface Image: Select interface Image: Select interface Image: Select interface Image: Select interface Image: Select interface Image: Select interface Image: Select interface Image: Select interface Image: Select interface Image: Select interface Image: Select interface Image: Select interface Image: Select interface Image: Select interface Image: Select interface Image: Select interface Image: Select interface Image: Select interface Image: Select interface Image: Select interface Image: Select interface

Return to Adjust Vaidio IP Address

ADD CAMERAS TO VAIDIO





Add Camera

- IP Address/Domain Name
- <u>RTSP</u>
- Common Camera RTSP URLs
- Camera Auto Discovery

Back to Table of Contents

ADD CAMERA

	Edit Camera	a			
	Camera I	Info			Advanced
		* Camera Name :	Public - London Abbey Road Studios		Al Model : 1 selected
		Cluster :	localhost	v	General ROI LPR '
Input camera info and URL	to	Location Type :	GPS Map	•	C C
receive camera live stream	ing	Description :			
		Activate :	Activate Deactivate		
	amera l	URL			
Support 5 types of camera		Type :	RTSP	•	
source inputs:		* RTSP :	https://video2archives.earthcam.com/archives/_d	efinst_/	The state
2 PTCP		User Name :		1	
3 Camera APP		Password :		1	
4. External		FPS :	Manual v 15		
5. Video File		TCP/UDP :	Both	•	- /
(For types 3-5, refer to the					
Vaidio Core Setup User Guide)				
		NV/P ·	Please select	T	
		Channel ID :			
		Channel ID .			
To enable video playback of th	ne car	nera			GCancel Of
stream, link the NVR to the car	nera.	Add NV	R		
to Vaidio first for it to be availa	ble ir	n the			
Guide for more information		<u>ore Setup</u>	2		







Preview to check the connection

Note: If Camera APP is selected as the camera type, Preview is not supported

ADD CAMERA (CONT.)

<u>IP Address/Domain Name</u>: If the camera being added has ONVIF enabled, then connect to the camera using its IP address, port number (default usually 80), username, and password. Click <u>Get RTSP</u> after filling in the camera's credentials to select the stream. Click **Preview**. Note: Not all cameras are ONVIF enabled by default. For more info, refer to the <u>Next Slide</u>.

<u>**RTSP</u>**: If the camera is not ONVIF compatible or the</u> user does not want to enable ONVIF, then it is possible to add the camera through RTSP stream. Click <u>Preview</u> to check camera connectivity when done.

Note: Refer to the <u>RTSP</u> slide for help on getting RTSP streams.

	Camera IP Address/Domain Name	۲
* IP/ Domain Name :	192.168.100.233	80 🗘
User Name :	admin	
Password :		0
Get RTSP	rtsp://admin:admin888@192.168.100.233;	554/cam/ 🔻
	Estimated v 20	
FPS :		
FPS : TCP/UDP :	Both	•

Type :	RTSP	*
*RTSP:	rtsp://192.168.100.233:554/	/cam/realmonitor?channel=1
User Name :	admin	
Password :		•••••
FPS :	Estimated v	20
TCP/UDP :	Both	*
Detail Extraction:	Standard	*



ADD CAMERA USING IP ADDRESS/DOMAIN NAME

To connect a camera to Vaidio using IP Address/Domain name, the camera must have ONVIF enabled. Most cameras already have this enabled, but a few brands such as Axis and Hikvision do not have <u>ONVIF setup by default.</u>

Axis Cameras must create ONVIF users to connect to Vaidio using IP Address/Domain name as the camera type:

- Log in to the Axis camera and create an ONVIF user. The username & password can be the same as the regular camera user.
- If the camera is still unable to connect after creating an user, try the next two steps.
 - Disable "Replay Attack Protection" on the camera by going to System > Plain config > Web Service and uncheck the box. Users can do this temporarily to check whether the time is an issue.
 - Update the camera's firmware to the latest version.

<u>Hikvision Cameras</u> must have ONVIF enabled:

Log in to the Hikvision camera and go to Configuration > Advanced Settings > Integration Protocol > Check on the 'Enable ONVIF' or 'Enable Open Network Video Interface' box > Add User

If the user does not want to set up ONVIF, connect using the camera's <u>RTSP stream</u>.





ADD CAMERA USING RTSP

- When encountering issues adding a camera using its IP address, we recommend directly adding the camera RTSP
- Refer to the chart on the next slide for common RTSP streams. If the user's camera brand is not listed or if the stream listed does not work:
 - Google "rtsp stream for [insert camera brand]" to find the format of the RTSP URL
 - Example: Toshiba IP camera: <u>https://www.ispyconnect.com/camera/toshiba</u>
 - Locate the camera model from the list of RTSP URLs for that brand and follow the format to add the URL to Vaidio



COMMON CAMERA RTSP URLS

Camera/NVR Brand	RTSP Stream
Axis	rtsp:// <mark><cameraip>:<port></port></cameraip></mark> /axis-media/media.amp
Cisco	rtsp:// <mark><cameraip< mark="">>/StreamingSetting?version=1.0&actic nnelName=Channel1</cameraip<></mark>
Dahua NVR	rtsp:/ <nvr_ip>:<port>/cam/realmonitor?channel=came</port></nvr_ip>
Digital Watchdog, Network Optix, Hanwha Wave VMS	rtsp:/ <mark><nvr_ip></nvr_ip></mark> :7001/{camera_id}?stream=0
Hanwha	rtsp:// <mark><cameraip>:<port></port></cameraip></mark> /profile1/media.smp
Hikvision Camera (ONVIF disabled by default)	rtsp:// <mark><cameraip>:<port></port></cameraip></mark> /Streaming/Channels/101
Hikvision NVR	rtsp:// <mark><nvr_ip>:<port></port></nvr_ip></mark> /Streaming/Channels/{channel_id
Panasonic	rtsp:// <mark><cameraip></cameraip></mark> /MediaInput/h264
Samsung	rtsp:// <mark><cameraip></cameraip></mark> /profile<#>/media.smp

Copy the RTSP stream into Vaidio; replace the text in red with the correct IP and port for the camera/NVR. Default RTSP port for most cameras is 554.

If user's camera/VMS is not listed, it can be easily found with a Google search.



on=getRTSPStream&ChannelID=1&Cha

erach&subtype=stream

d}1

CAMERA AUTO DISCOVERY

VAIDIO [®] > Camera					* 😵 🔥
Al Engines: All Al Engines: All Al Add Camera Detect Cameras Camera Name	Click <u>Detect Cameras</u> to automa discover cameras that are on the network with Vaidio (cameras sho ONVIF compatible to be found)	tically same ould be	Q Search Status	Anomaly Check	 Manage Columns Actions
Camera Auto Discovery	704x576	ID X	Not in use		· · · ·
Camera Found: 8 IP Address Port 169.254.163.39 80 192.168.100.2 Indicate can 192.168.100.2 added to th 192.168.100.230 80	Info Imported C8033 meras that have already been he system IPC-HFW1431SN-3.6mm	Add Add Add Add	Camera Auto Discovery Add Camera IP Address (port) : Info : * User Name : * Password :	Put camera 192.168.1 IPC-HFW OK to add	* 's and click camera



CALCULATE CAMERA PARAMETERS





Calculate Camera Parameters

- JVSG Calculator
- **IPVM Calculator**

Resolution & Focal Length

Back to Table of Contents

CALCULATE CAMERA PARAMETERS

- Purpose: find the necessary focal Tools: length, pixel density, and viewing IPVM camera calculator: angle for a camera to estimate the https://calculator.ipvm.com/ suitable equipment for an JVSG camera calculator: application and vice versa https://www.jvsg.com/calculators/cct Example: find the detection range of
- a camera for access control using Face Recognition



v-lens-calculator/

JVSG CALCULATOR

- Select the camera parameters: resolution, lens focal length, and installation height
- Adjust the FOV (distance, target height, horizontal angle) to view whether the target fits into the required zone for detection
- Tutorial materials: <u>https://www.jvsg.com/</u>
- Note: for Vaidio, the minimum pixels for FR is ~160 ppf and LPR is ~40 ppf
- Smaller horizontal angles are better for AI recognition, even if the targets are in the identification (red) zone with high pixel density, since heavy distortion of the features will cause more mismatches





Sample image and pixel per unit length (ppf / ppm) value

IPVM CALCULATOR





Adjust the parameters to display the changes in PPF value, or input required PPF to view at which distances a target can be detected





Adjustable parameters in the IPVM calculator (<u>https://calculator.ipvm.com/</u>)

- Resolution
- Distance
- Pixel per meter (ppm) / Pixel per foot (ppf) <u>Note</u>: Vaidio requires at least 10 px on target for detection (e.g., 14 ppf for person)
 Width of field of view
- Horizontal angle of view (HAoV)
- Imager
- Focal length

RESOLUTION & FOCAL LENGTH (CONT.)





RESOLUTION & FOCAL LENGTH (CONT.)





REDUCE NETWORK BANDWIDTH





<u>Reduce Network Bandwidth</u>

<u>Architectures</u>

Network Bandwidth & Storage Calculator

Return to Table of Contents

REDUCE NETWORK BANDWIDTH WHEN APPLYING VAIDIO

Resolution	Fra
Vaidio only requires 20 pixels on target, so	\vee
1080p is sufficient for most use cases	fe
Input the 2 nd stream (lower resolution) from	C
the camera	fr
Pros: does not affect the main stream	Ρ
recorded in the VMS	te
Cons: increase the total bandwidth (albeit by	h
a small amount) due to adding a second	C
stream into the transmission load	ir



- ame rate
- Vaidio only requires 8 frames per second or wer, depending on the analytics
- Change the camera setting to output fewer
- Pros: maintain the same or even reduce the cotal bandwidth + analytics to extract useful, high-accuracy alert events and metadata Cons: reduce the number of frames recorded n the VMS

REDUCE NETWORK BANDWIDTH WHEN APPLYING VAIDIO (CONT.)

- Bandwidth calculator: <u>https://www.cctvcalculator.net/en/calculations/bandwidth-calculator/</u>
- Example: for each 3MP stream with H.264 medium-quality compression and 15 fps
 - First stream to the VMS takes 3.2 Mb/s; Add the stream to Vaidio for analytics processing with no change: + 3.2 Mb/s \Box total bandwidth consumption = 6.4 Mb/s
 - Reducing the resolution from 3MP to 1080p decreases the bandwidth consumption for Vaidio by 34%; total bandwidth consumption = 5.3 Mb/s; i.e., 17% decrease
- Changing the camera output from 15 fps to 4 fps: transmission to the VMS = 0.8 Mb/s; transmission to Vaidio = 0.8 Mb/s; total bandwidth consumption = 1.6 Mb/s; i.e., 75% decrease
- Reducing resolution and reducing the frame rate together: decrease the total bandwidth consumption from 6.4 Mb/s to 1.4 Mb/s; i.e., 78% decrease. In fact, the total bandwidth consumption is now 2x less than that required by just the VMS originally





NETWORK BANDWIDTH & STORAGE CALCULATOR

							Bai	ndwi
NVR St	torage Ca	lculator					htt	nc·//
It is suggested to efficiency due to This calculator g	o calculate camera band different camera types enerates values which sh	width by CBR (Constant bit rate). Same of and manufacturers. hould be used for planning purposes on	camera setting (such as resolution ly.	and frame rate) ma	y have different bar	ndwidth	<u>1111</u>	<u> </u>
The actual band The results assur	width is an approximate me that the camera setti	reference value, and it may vary accordings for each camera are configured to the	ing to different recording environr he same settings.	nents.			То	calcı
Camera	Recording B	Bandwidth and Stora	age Calculator				neo	cessa
Configuration	Camera Units	Video Streaming Ritrate (Khan) Par Cam	Recording Hours	Recording	Total Bandwidth	Total Storage		Νu
1			rei Day	Days	(mphs)	(15)	_	
2		~						Str
		Total						De
RAID Ca		2TB 3TB 4TB 6TE	8 8TB 10TB 1	2TB 14TB	16TB 18T	в 20ТВ		Re
· /· ·	DIGIEV	/ER	<u>).</u>				Exa	ampl
							inp	out 20
		Click	on an HDD				stre	eami
							 30	days



width calculator:

//www.digiever.com/support/calculator.php

- Iculate the approximate bandwidth and storage
- ssary, input the following for each Vaidio server:
- Number of streams connected to that Vaidio server Streaming bitrate
- Desired recording hours per day
- Recording days
- ple: For 20 1080p camera streams on a VSB-550:
- 20 for camera units, 1920 x 1080 for the video
- ning bitrate. If these cameras record 24 hrs/day for
- ys, the total estimated storage is 18.10 TB.

SIMULATE FILE AS RTSP STREAM USING HAPPYTIME RTSP SERVER

o <u>F</u>



Happytime RTSP Server

Back to Table of Contents

HAPPYTIME RTSP SERVER

- Purpose: simulate large video file(s) as RTSP stream(s) for analytics processing in Vaidio The user can upload a video (< 1 GB) and select <u>Camera</u> > <u>Add Camera</u> > <u>Camera URL</u> > <u>Type > Video File</u> to simulate the uploaded video as a stream
- Download from this link: http://www.happytimesoft.com/downloads/happytime-rtsp-server-x64.zip
- Extract Folder
- Note: Complete list of download options: http://www.happytimesoft.com/products/rtsp-server/index.html



Place video in the "happytime-rtsp-server" Folder



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				▲ ?
	Now Proportion	Gpen ▼ 🚦	Select all Select none	
to v v	folder •	👃 History	Invert selectio	n
Organize	New C	pen	Select	
p-server-x64 🔌 happytime-rt	sp-server-x64	∨ ひ Se	arch happytim	e-rt P
^	Date modified	Туре	Size	
	12/11/2019 3:25 PM	File folder		
dll	11/1/2019 9:28 AM	Application e	xtens 45	5,476 KB
.dll	11/1/2019 9:28 AM	Application e	xtens	5,967 KB
	11/1/2019 9:28 AM	Application e	xtens	638 KB
	11/7/2019 3:08 PM	XML Docume	ent	3 KB
	12/11/2019 3:22 PM	Text Docume	nt	0 KB
	11/1/2019 9:28 AM	Text Docume	nt	6 KB
D)	11/1/2019 9:28 AM	Application e	xtens	594 KB
	11/1/2019 9:28 AM	Application e	xtens	810 KB
	11/1/2019 9:28 AM	Text Docume	nt	1 KB
	11/1/2019 9:28 AM	Application		329 KB
-3.dll	11/1/2019 9:28 AM	Application e	xtens	368 KB
	11/1/2019 9:28 AM	Application e	xtens	526 KB
	11/1/2019 9:28 AM	MP4 File	7	7,996 KB
	11/1/2019 9:28 AM	PDF File		424 KB



K

To run the video ONLY once (<u>Note</u>: video is looped by default):

- Go to the "config" file in the Happytime folder
- Change "loop_nums" to 1
- Save

Config - Notepad <u>File Edit Format View Help</u> <?xml version="1.0" en <config> <serverip></server <serverip></server <serverport>554</s <loop_nums>1</loop <multicast>0</mult <metadata>1</metad <rtsp_over_http>1< <http_port>80</htt <need_auth>0</need <log_enable>1</log <log_level>1</log_ Ln



			_	Х	
ncoding="utf-8"	?>				^
rip> serverport> o_nums> ticast> data> tp_port> d_auth> g_enable> _level>	0>				~
				>	
14, Col 2	100%	Windows (CRLF)	UTF-8		

Run the RTSP server



Happytime rtsp server V4.2 Play streams from this server using the URL: rtsp://192.168.2.195/<filename> where <filename> is a file present in the current directory. rtsp://192.168.2.195/screenlive stream from live screen. rtsp://192.168.2.195/videodevice stream from camera device. rtsp://192.168.2.195/audiodevice stream from audio device. rtsp://192.168.2.195/screenlive+audiodevice stream from live screen and audio device rtsp://192.168.2.195/videodevice+audiodevice stream from camera device and audio device. play pusher streams from this server using the URL: rtsp://192.168.2.195/pusher (We use port 80 for optional RTSP-over-HTTP tunneling, or for HTTP live streaming)

See the log file ipsee.txt for additional information.



Get the corresponding RTSP stream

C:\Users\14apr\Documents\Ironyun\happytime-rtsp-server-x64\happytime-rtsp-server-x64\RtspServer.exe

- Add RTSP stream as Camera to Vaidio
- RTSP stream:

rtsp://ipaddress:554/videoname

Add Camera		×
Camera Info		Advanced
*Camera Name:	Happytime	Al Engines: Select Al Engines V Profile: Default V
Camera Location:		General ROI
GPS Coordinate:	Latitude , Longitude	Resolution: 1280x720 pixel Preview
Activate:	Resource taken:1	Mar and a second and
Camera URL		
Use Camera IP Address	or Domain Name	
*IP Address/Domain Name:		
User Name:		
Password:	Get RTSP	
*RTSP:	▼	
• Use RTSP	rtsp://192.168.2.195:554/testvideo.mp4	
TCP/UDP:	Both	
NVR		
Select NVR:	Please select	
Channel ID:		
		Cancel OK



OTHER TECHNICAL ISSUES



- □ <u>Syn</u>
- $\Box \quad \underline{lnv}$
 - Crowd Detection Use Case



Live View Limitation

- Whoops Error
- Sync Date & Time
- Invalid Parameter for ROI

Back to Table of Contents

LIVE VIEW LIMITATION





When opening the camera live view (e.g., in the Alert dashboard, instead of the usual map view) the user should have <u>at most 2 Vaidio tabs</u> opened simultaneously; otherwise, the UI may have issues due to Google Chrome's limitation. There are no limits to the number of tabs opened if

there is no live view.

WHOOPS ERROR

- Situation: device responds to ping normally, but login via web UI takes the user to the page <[ip address]/system/license> and shows the following error message:
 - "Whoops, looks like something went wrong"

Typical Cause: GPU problem (i.e., loose, unplugged, or broken)

How to fix:

- Shutdown the device through the Admin Portal and unplug the server. If comfortable, remove the server lid and check if the GPU card or cables are loose.
- Clear the cookies for the site



SYNC DATE & TIME

- Situation: Camera is not synced within 5 seconds of the server
- How to fix:
 - Make sure both server and cameras are synced with a Network Time Protocol (NTP) server; OR,
 - Instead of connecting to the camera via ONVIF, use the RTSP stream directly, which does not require time sync

Time Zone:	Asia/Taipei 🗸	
System Time:	2020-11-13 🗰 15 🗘 : 33 🎝 : 05 🇘	
	Sync with NTP Server	
	NTP server host names or address (Press Enter to add multiple server names or address in lines)	different
	Synchronize the system time regularly	Connection



Note: This is also useful for cameras that are streaming data from other time zones

INVALID PARAMETER FOR ROI

- Situation: This error will occur if an ROI is dragged outside of the acceptable camera window (refer to screenshot)
- The "Invalid Parameter" error message will pop up if the ROI is dragged so far over the edge that it is treated as a negative value

Invalid Parameter

How to fix:

 Pull the ROI back in the camera bounds and make sure that all points are visible





FACTORY RESET SERVER

To factory reset the Vaidio server, log into the Admin Portal at port 8000 (e.g., http://192.168.100.100:8000) and click the Factory Reset button at the bottom of the page.

") Factory Reset		





Back to Table of Contents

CROWD DETECTION USE CASE

- Crowd Detection for a stadium crowd levels with a 4k or 8k camera from far distance.
- Special note for this kind of use case:
- We recommend setting the camera device's bitrate to the highest level to ensure the video's quality after transmission to Vaidio for analytics. A high bitrate will help maintain the video's original quality from the camera.
- Below example is the use case with ultra mode from different bitrate, :

3840x2150, 1:1 view, bitrate: average 2mbps







3840x2150, 1:1 view, bitrate: average 9mbps

SUPPORT

For technical support, please go to the <u>Support Portal</u> to fill out a ticket.

For additional guides and training, please visit the Aicuda Technology Download Center.

Request access at <u>info@Aicuda.world</u> to register for an account.





THANK YOU

For more information, visit <u>Aicuda Technology</u> <u>Support Page</u> on the Partner Portal

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