# User Manual of the Bandwidth Calculator Software (V1.0)

Thank you for purchasing our product. This manual applies to Bandwidth Calculator software, please read it carefully for the better use of this software. The contents in this manual are subject to change without notice.

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# **Chapter 1 Introduction**

### **1.1 Overview**

The Bandwidth Calculator software can be used to calculate the bandwidth needed when the device is in main stream live view, sub-stream live view or main stream playback, and calculate the recommended encoding parameters when the bandwidth and the other conditions of the device are given.

### **1.2 System Requirements**

Operating System: Microsoft Windows XP / Windows 2003 32-bit, Windows 7 / Windows 2008 32-bit or 64-bit CPU: Intel Pentium IV 3.0 @ 3.00 GHz or above RAM: 512M or above Display: 1024\*768 resolution or above

### **1.3 Conventions**

In order to simplify the description, we define the "Bandwidth Calculator software" as "software" in the following chapters.

### **1.4 Version Information**

After installing the software successfully, run the software and click About to view the version information of the software.

## **Chapter 2 Bandwidth Calculation**

Calculate Bandwidth Click the tab to enter the Calculate Bandwidth interface, shown as

follows:



### 2.1 Adding the Device

#### Purpose:

Before any operation, you need to add the device to the device list. The software provides three ways for adding the device: adding manually, adding online devices and importing from client. Before you start:

You can select the video standard as PAL or NTSC at the bottom of the main interface as shown below:

Video Standard: PAL INISC	Video Standard:	O PAL	NTSC	
---------------------------	-----------------	-------	------	--

#### Notes:

- The software supports only DVRs and IPCs. 1)
- Up to 1024 devices can be added to the device list. 2)
- 3) The client refers to iVMS-4200 client software.

### 2.1.1 Adding Manually

Perform the following steps to add the device manually.

#### Steps:

1. Click Add Manually button, and the Add Device dialog box pops up.

		Add Device			×
Device					
Device Number: 1					
Prefix: Device	9				
Configuration					
Device Type: DVR	•				
Main Stream Live Vi	ew				
Connection Number	4	Deselution:	1015		
Connection Number.		Resolution.	401	· · · · · · · · · · · · · · · · · · ·	
Frame Rate:	25 ~	Image Quality:	Level 1(best)	~	
Bitrate(kbps):	3072	Recommended Bitrate(kbps):	3072		
Sub-stream Live Vie	w				
Connection Number:	1	Resolution:	4CIF	~	
Frame Rate:	25 ~	Image Quality:	Level 1(best)	~	
Bitrate(kbps):	3072	Recommended Bitrate(kbps):	3072		-
🔽 Main Stream Playba	ck				
Connection Number:	1	Resolution:	4CIF	~	
Frame Rate:	25 ~	Image Quality:	Level 1(best)	~	
Bitrate(kbps):	3072	Recommended Bitrate(kbps):	3072		
				Add Device>>	Cancel

2. Input the device number and you can also set the device prefix as desired by checking the

Prefix: checkbox.

- 3. Configure the device parameters including device type, connection number, resolution, frame rate and so on. For detailed information, please refer to *Section 2.2 Configuring the Device*.
- 4. Click Add Device button to add the device.
- 5. Click **Cancel** button to exit the dialog box. And the device will be displayed on the device list.

				Bandwidt	h Calculator		- <b>D</b> ×
Calculate B	landwidth 🏣 Ca	alculate Encoding P	arameter	🕡 Help			
Device Configura	ition						BandWidth
Device List:  -	Add Manually	Modify Device 🕺	Delete Device	Show Online	Device 🔝 Impo	ort From Client	Calculate
				Main Stree	m Live View		The bandwidth required for all the devices on the list is:
Device Type	Device Name	Connection Number	Resolution	Frame Rate	Image Quality	Bitrate(kbps	
DVR	Device 1	1	4CIF	25	Level 1 (best)	3072	0 kbps
▼ Video Standard:		• PAL		01	VTSC		

### 2.1.2 Adding Online Devices

Perform the following steps to add online devices.

#### Steps:

1. Click **Show Online Device** button and the active online devices within the same subnet with the software will be displayed on the list.

Show Online Devices	×
You can click and drag to select multiple devices and then click Add Device button to add all the devices to the device list.	
IP Address $\nabla$ Port Device Serial Nur Version Status	
172.6.23.72 8000 DS-7316HI-ST V2.0.4build 12 Logged in	
172.6.23.196 8000 DS-9116HF-S V2.2.1build 12 Logged in	
172.6.23.105 8000 DS-7216HVI-S V2.1.2build 12 Logged in	
172.6.23.176 8000 DS-2CD8153F V4.0.1build 12 Logged in	
Login Add Davi	ice>>
	uerr

Notes:

1) The software will log in the online devices automatically by the user name of *admin* and

the password of 12345.

 You are also allowed to log in the device manually: Select the device and click Login button. And then input the user name and password of the selected device and click Confirm button.

	Login	
User Name:   Password:		
	Confirm	Cancel

2. Click to select the device on the list and then click **Add Device** button to add the selected device.

		Shov	v Online Devices			×
You can click to add all the	and drag to selec devices to the dev	t multiple devices a rice list.	ind then click Add I	Device button		
IP Address 🛛	Port	Device Serial Nur	Version	Status		
172.6.23.72	8000	DS-7316HI-ST	V2.0.4build 12	Logged in		
172.6.23.196	8000	DS-9116HF-S	V2.2.1build 12	Logged in		
172.6.23.105	8000	DS-7216HVI-S	V2.1.2build 12	Logged in		
172.6.23.176	8000	DS-2CD8153F	V4.0.1build 12	Logged in		
					Login	Add Device>>

*Note:* You can click and drag to select multiple devices and then click **Add Device** button to add all the selected devices to the device list.

3. Click the icon is to close the Show Online Devices interface. And the device added will be displayed on the device list.



### 2.1.3 Importing From Client

#### Before you start:

The database file "NetSys.db" needs to be exported from the iVMS-4200 client software. For detailed information, please refer to *iVMS-4200 Client Software User Manual*.

Perform the following steps to import and add the device from the client software.

#### Steps:

1. Click **Import From Client** button, and the Import From Database interface shows up as follows:



2. Click the icon and select the path of the database file "NetSys.db" exported from the client software.

	Select Database	×
Look in: 🛛 🔒 F:\database	~	•••
My Comp Resource	Sys.do	
File name: NetSys.db		Open
Files of type: *.db		Cancel

3. Click **Open** button to open the database file and close the Select Database window.

Select Database							×
Look in: 🔐 F:\database	~	Θ	0	0		::	≣
My Comp zhangxiu NesourceSys.db							
File name: NetSys.db		_	_	_		Оре	R
Files of type: *.db					~	Can	cel

4. Click **Load** button to load the database file and you can check the status of the device on the list.

		Impo	rt From Database		×
Device Name	IP Address	Port	Status		
IPC	172.6.23.176	8000	Not Imported		
73	172.6.23.72	8000	Not Imported		
91	172.6.23.196	8000	Not Imported		
Database Path:	F:/database/NetSys	s.db			Load
				Add Device>>	Cancel

5. Click to select the device and then click **Add Device** button to add the selected device to the device list.

		Impo	ort From Database		×
Device Name	7 IP Address	Port	Status		
IPC	172.6.23.176	8000	Not Imported		
73	172.6.23.72	8000	Not Imported		
91	172.6.23.196	8000	Not Imported		
					_
Database Path:	F:/database/NetSys	s.db			Load
				Add Device>>	Cancel

6. Click **Cancel** button to exit the Import From Database interface and the device is added to the device list shown below:

				Bandwidt	h Calculator		_ 0 ×
Calculate E	Bandwidth 🏣 Ca	alculate Encoding P	arameter	🕡 Help			
Device Configura	ation						BandWidth
Device List: 🛟	Add Manually	Modify Device 🕺	Delete Device	show Online	Device 🔝 Imp	oort From Client	Calculate
							The bandwidth required for all the devices on the list is:
Device Type	Device Name			Main Strea	am Live View		
		connection Numbe	Resolution	Frame Rate	Image Quality	Bitrate(kbps	0 khora
DVR	172.6.23.196	16	4CIF	25	Level 3	1792	
							to the particular state of the second s
4						•	
Video Standard:		• PAL		0	NTSC		

### 2.2 Configuring the Device

#### Purpose:

The software supports configuration of the devices on the device list. You can configure the device type, connection number, resolution, frame rate and so on. The video standard is also selectable.

#### Before you start:

The device needs to be added to the device list for device configuration. You can select the video standard as PAL or NTSC at the bottom of main interface as shown below:

Video Standard: O PAL O NTSC

Perform the following steps to configure the device on the device list.

### Steps:

1. Select the device on the device list and click **Modify Device** button, or just double-click the device on the list. The Modify Device dialog box pops up shown below:

			Modify Device			×
Device Type: DVF	۲. (۲					
Main Stream Live Vi	ew					
Connection Number:	16		Pesolution:	ACIE		
Connection Number.	10		Nesoluton.	401		
Frame Rate:	25	~	Image Quality:	Level 3	~	
Bitrate(kbps):	1792	_	Recommended Bitrate(kbps):	1792		
Sub-stream Live Vie	w					
Connection Number:	0	_	Resolution:	4CIF		
Frame Rate:	25		Image Quality:	Level 1(best)		
Bitrate(kbps):	0	_	Recommended Bitrate(kbps):	3072		
Main Stream Playba	ick					
Connection Number:	0	_	Resolution:	4CIF		
Frame Rate:	25		Image Quality:	Level 1(best)		
Bitrate(kbps):	0		Recommended Bitrate(kbps):	3072		
Copy to				c	Confirm Car	ncel

- 2. Click the icon and select the device type in the drop-down list. Only DVR and IPC are selectable.
- 3. Select the working mode of the device by checking the corresponding checkbox. *Note:* The software provides 3 working modes for the device: main stream live view, sub-stream live view and main stream playback.
- 4. Configure the parameters in each selected mode. Please refer to the following table for details.

Device Parameter	
	The connection

Description of Device Parameters:

Device Parameter	Description		
	The connection number refers to the number of		
<b>Connection Number</b>	streams that the device sends to the client for live view		
	or playback.		
	For DVRs, the resolution can be selected as 4CIF, 2CIF,		
Resolution	CIF or QCIF. For IPCs, the resolution can be selected as		
	2560*1920, QXGA (2048*1536), 1080P and so on.		
Frome Date	The frame rate ranges from 1/16 to 25 in PAL format		
Frame Kale	and from 1/16 to 30 in NTSC format.		
Imaga Quality	6 levels of image quality are provided, including Level 1		
image Quality	(best), Level 2, Level 3, Level 4, Level 5 and Level 6.		
Dituate	The bitrate adopts the recommended bitrate by default.		
Bitrate	And it also can be customized.		
Decommonded Ditrote	The software calculates and displays the recommended		
Recommended Bitrate	bitrate automatically after other parameters are set.		

#### Notes:

- 1) The Image Quality is invalid when the device type is selected as IPC.
- 2) The Bitrate ranges from 32 to 16384.
- 5. Click **Confirm** button to save the new configurations and close the dialog box.

You can click **Copy to** button to copy the new configurations to the other devices on the list.

Сор	by to	×			
Please select the device to copy to					
172.6.23.105					
172.6.23.176					
Select All					
	Orafina	Quant			
	Confirm	Cancel			

Select the device to copy to by checking the corresponding checkbox and you are also allowed to select all the devices by clicking the **Select All** button.

To delete the device added, select the device on the list and click **Delete Device** button. Then the selected device will be deleted.

### 2.3 Calculating the Bandwidth

### Purpose:

The bandwidth needed for the device can be calculated when the device is in main stream live view, sub-stream live view or main stream playback.

Perform the following steps to calculate the bandwidth.

### Steps:

- 1. Add the device to the device list and configure the corresponding device parameters. For details, please refer to *Section 2.1 Adding the Device* and *Section 2.2 Configuring the Device*.
- 2. Click **Calculate** button and the bandwidth required for all the devices on the list is displayed shown as follows:

				Bandwidt	n Calculator		_ D ×
Calculate Ba	andwidth 🏣 Ca	Iculate Encoding P	arameter	🕡 Help			
Device Configurat Device List: 다 A	ion Add Manually 🖉	Modify Device 🏾 🛪	Delete Device	n Show Online	Device 🔛 Impo	ort From Client	BandWidth-
							The bandwidth required for all the devices on the list is:
				Main Strea	Im Live View		
Device Type	Device Name	connection Numbe	Resolution	Frame Rate	Image Quality	Bitrate(kbps	
DVR	172.6.23.196	16	4CIF	25	Level 3	1792	54.3 Mbps
IPC	172.6.23.176	1	4CIF	25	Level 1 (best)	2048	proprieta for strange of the second
DVR	172.6.23.169	16	CIF	25	Level 3	512	
4							
Video Standard:		PAL		1	ITSC		

# **Chapter 3 Encoding Parameters Calculation**

Click the Calculate Encoding Parameter tab to enter the Calculate Encoding Parameter interface shown as follows:

		Bandwidth Calculator	×
🔛 Calculate Bandwidth 陆 Ca	Iculate Encoding Parameter	🕡 Help	
Conditions			Result
Device Type:	DVR		Calculate
Customize Bandwidth:	0	Mbps	Beault 4 (Beaultrice Briteth)
Network Connections:	Link Share ADSL		Result I (Resolution Priority).
BandWidth:	0.128 Mbps	0	Resolution:
Video Standard:	PAL		Frame Rate:
Image Quality:	Level 1(best)	•	
Stream Type:	Sub-stream Live View		Bitrate:
Connection Number.:	1		Result 2 (Frame Rate Priority):
			Development
			Resolution.
			Frame Rate:
			Bitrate:

### 3.1 Setting the Conditions

#### **Purpose:**

The conditions of the device need to be set for the encoding parameters calculation. Perform the following steps to set the conditions.

### Steps:

1. Click the icon in and select the device type in the drop-down list. Only DVR and IPC are

selectable.

2. Configure the parameters of the device condition. Please refer to the following table for details.

Parameter	Description		
	The software supports 6 types of network connections:		
<b>Network Connections</b>	Link Share ADSL, Dedicated ADSL, SDSL, Cable Modem,		
	T1 and Ethernet.		
Dondwidth	Different ranges are provided for different network		
Danuwiuth	connections. The bandwidth can also be customized.		
Video Standard	You can select the video standard as PAL or NTSC.		
Imaga Quality	6 levels of image quality are provided, including Level 1		
inage Quality	(best), Level 2, Level 3, Level 4, Level 5 and Level 6.		
Streem Tune	The stream type can be selected as main stream live		
Stream Type	view or sub-stream live view.		
	The connection number refers to the number of		
<b>Connection Number</b>	streams that the device sends to the client for live view		
	or playback.		

Description of device condition parameters:

#### Notes:

To customize the bandwidth, you can check the 🔽 Customize Bandwidth: checkbox and 1)

then input the bandwidth value in the text field as desired.

2) The Image Quality is invalid when the device type is selected as IPC.

### 3.2 Calculating the Encoding Parameters

#### Purpose:

The recommended encoding parameters can be calculated after the device type and the device conditions are set.

Perform the following steps to calculate the encoding parameters.

Steps:

- 1. Select the device type and set the device conditions. For detailed information, please refer to Section 3.1 Setting the Conditions.
- 2. Click **Calculate** button and the results will be displayed as follows:

		Bandwidth Calculator		- <b>B</b> ×	
🔜 Calculate Bandwidth 🚟 Calculate Encoding Parameter 🛛 🕡 Help					
Conditions			Result		
Device Type:	IPC 👻			Calculate	
Customize Bandwidth:	0	Mbps	Result 1 (Resolution Prio	ritv):	
Network Connections:	Link Share ADSL ~		[		
BandWidth:	0.128 Mbps 🗸 🗸		Resolution:	2560*1920	
Video Standard:	PAL ~		Frame Rate:	1/16	
Image Quality:	Level 1(best)		Bitrate:	48 khns	
Stream Type:	Main Stream Live View			40 1003	
Connection Number.:	1		Result 2 (Frame Rate Priority):		
			Resolution:	QCIF	
			Frame Rate:	8	
			Bitrate:	80 kbps	

*Note:* Two kinds of results are provided: Result 1 (giving priority to the resolution) and Result 2 (giving priority to the frame rate).