

# **Bandwidth Calculator Software**

## **User Manual**

UD.6L0202D1296A01

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.

# Contents

|   |    |
|---|----|
| Chapter 1 Introduction.....                     | 3  |
| 1.1 Overview .....                              | 3  |
| 1.2 System Requirements.....                    | 3  |
| 1.3 Conventions.....                            | 3  |
| 1.4 Version Information .....                   | 3  |
| Chapter 2 Bandwidth Calculation .....           | 4  |
| 2.1 Adding the Device .....                     | 4  |
| 2.1.1 Adding Manually .....                     | 4  |
| 2.1.2 Adding Online Devices.....                | 6  |
| 2.1.3 Importing From Client .....               | 7  |
| 2.2 Configuring the Device .....                | 8  |
| 2.3 Calculating the Bandwidth .....             | 10 |
| Chapter 3 Encoding Parameters Calculation ..... | 12 |
| 3.1 Setting the Conditions.....                 | 12 |
| 3.2 Calculating the Encoding Parameters.....    | 13 |

# 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 7 / Windows 2008 32 / 64-bit  
Windows XP / Windows 2003 32-bit

**CPU:** Intel Pentium IV @ 3.0 GHz or above

**RAM:** 1G or above

**Video Card:** RADEON X700 Series


**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

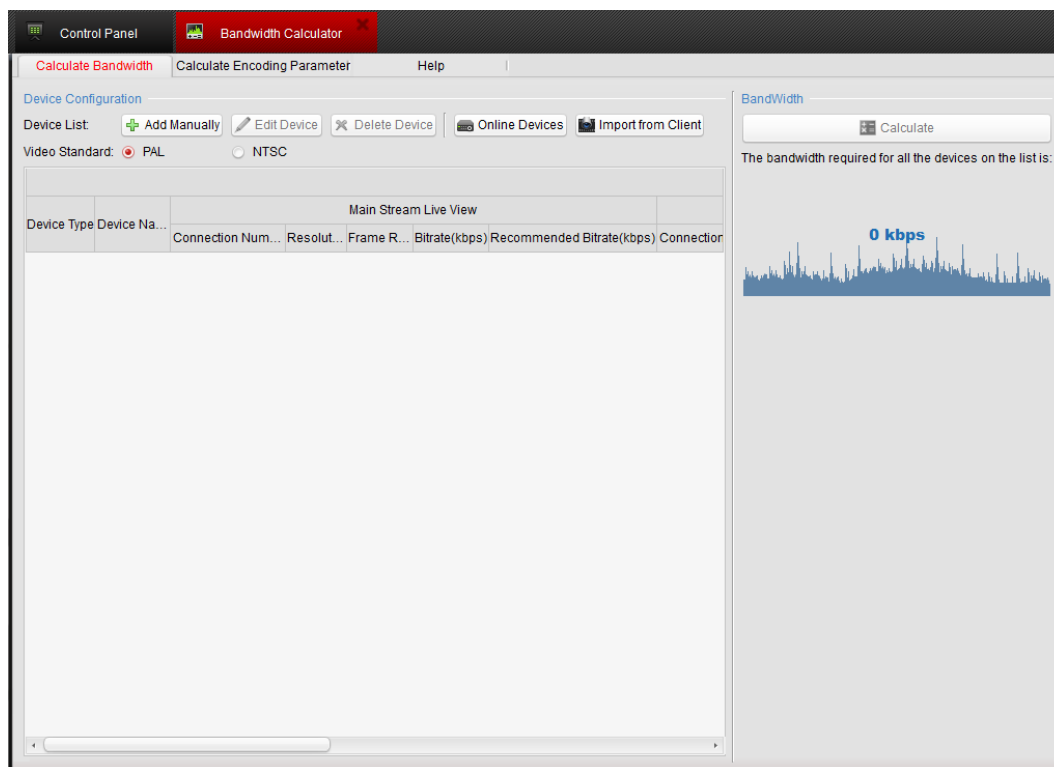


After installing the software, run the software and click  on the control panel to enter the Bandwidth Calculator interface.

Click the **Help > About** tab at the top to view the version information or click **Help > User Manual** and get the User Manual of the software.

## Chapter 2 Bandwidth Calculation

Click the **Calculate Bandwidth** tab to enter the Calculate Bandwidth interface, shown as follows:



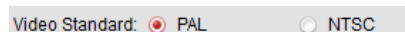
### 2.1 Adding the Device

#### **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 top of the main interface as shown below:




#### **Notes:**

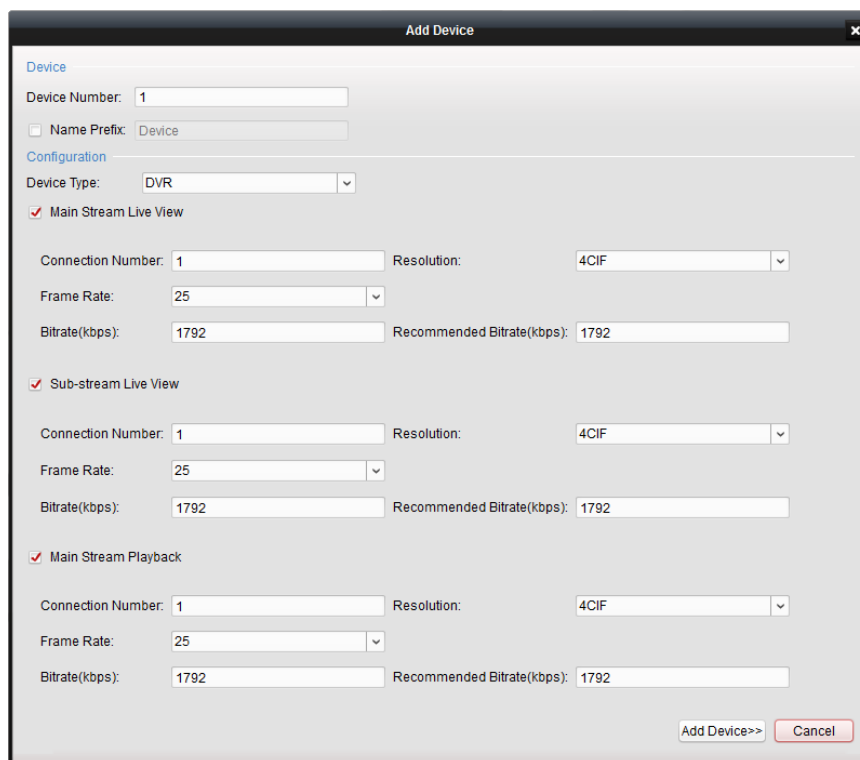
- 1) The software supports only DVRs and IPCs.
- 2) Up to 1024 devices can be added to the device list.
- 3) The client refers to iVMS-4200 client software.

#### 2.1.1 Adding Manually

Perform the following steps to add the device manually.

### Steps:



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



The 'Add Device' dialog box is shown with the following configuration:

- Device:** Device Number: 1, Name Prefix: Device (unchecked).
- Configuration:**
  - Device Type: DVR
  - ☒ Main Stream Live View:
    - Connection Number: 1, Resolution: 4CIF, Frame Rate: 25, Bitrate(kbps): 1792, Recommended Bitrate(kbps): 1792.
  - ☒ Sub-stream Live View:
    - Connection Number: 1, Resolution: 4CIF, Frame Rate: 25, Bitrate(kbps): 1792, Recommended Bitrate(kbps): 1792.
  - ☒ Main Stream Playback:
    - Connection Number: 1, Resolution: 4CIF, Frame Rate: 25, Bitrate(kbps): 1792, Recommended Bitrate(kbps): 1792.

Buttons at the bottom: Add Device>>, Cancel.

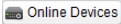
2. Input the device number and you can also set the device prefix as desired by checking the ☒ Name Prefix checkbox.
3. Configure the device parameters including device type, connection number, resolution, frame rate and so on. For detailed information, please refer to *Section 2.2 Configuring the Device*.
4. Click  button to add the device.
5. Click  button to exit the dialog box. The device will be displayed on the device list.

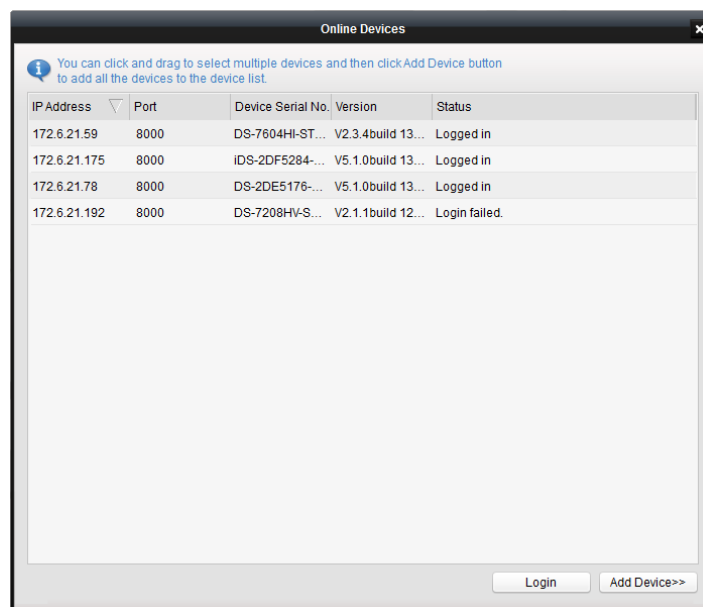
| Main Stream Live View |              |                   |            |            |               |                           |            |
|-----------------------|--------------|-------------------|------------|------------|---------------|---------------------------|------------|
| Device Type           | Device Na... | Connection Num... | Resolut... | Frame R... | Bitrate(kbps) | Recommended Bitrate(kbps) | Connection |
| DVR                   | Device 1     | 1                 | 4CIF       | 25         | 1792          | 1792                      | 1          |

## 2.1.2 Adding Online Devices



Perform the following steps to add online devices.

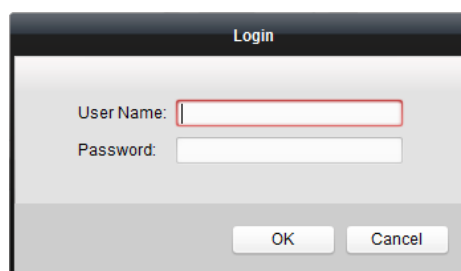
**Steps:**

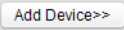
1. Click  button and the active online devices within the same subnet with the software will be displayed on the list.





**Notes:**

- 1) The software will log in the online devices automatically by the user name of *admin* and the password of *12345*.
- 2) You are also allowed to log in the device manually: Select the device and click  button. And then input the user name and password of the selected device and click  button.



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

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

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

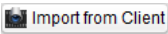

| Main Stream Live View |              |                   |            |            |               |                           |            |
|-----------------------|--------------|-------------------|------------|------------|---------------|---------------------------|------------|
| Device Type           | Device Na... | Connection Num... | Resolut... | Frame R... | Bitrate(kbps) | Recommended Bitrate(kbps) | Connection |
| DVR                   | 172.6.21.64  | 31                | 4CIF       | 25         | 1792          | 1792                      | —          |

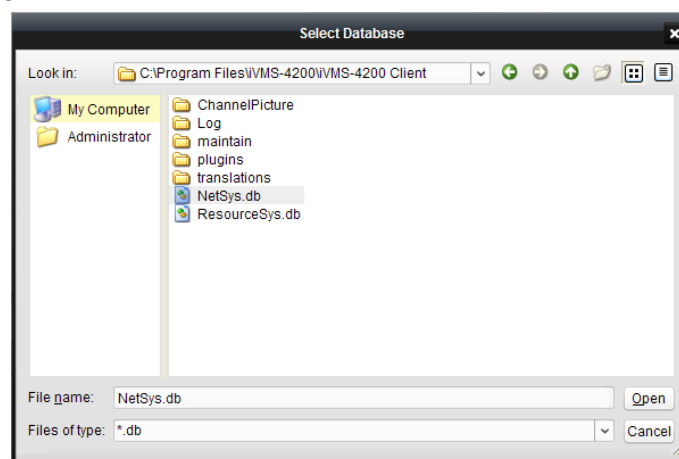
### 2.1.3 Importing From Client



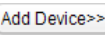
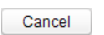
**Purpose:**

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

**Steps:**

1. Click  button, and the corresponding interface shows up.
2. Click the icon  and select the path of the database file “NetSys.db” exported from the client software.



3. Select NetSys.db file and click  button to open the database file and close the Select Database window.
4. Click  button to load the database file and you can check the status of the device on the list.
5. Click to select the device and then click  button to add the selected device to the device list.
6. Click  button to exit the Import From Database interface and the device is added to the device list shown below:

| Main Stream Live View |              |                   |            |            |               |                           |            |
|-----------------------|--------------|-------------------|------------|------------|---------------|---------------------------|------------|
| Device Type           | Device Na... | Connection Num... | Resolut... | Frame R... | Bitrate(kbps) | Recommended Bitrate(kbps) | Connection |
| DVR                   | 172.6.21.64  | 31                | 4CIF       | 25         | 1792          | 1792                      | —          |
| DVR                   | 172.6.21.... | 8                 | CIF        | 25         | 512           | 448                       | —          |

## 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 top of main interface as shown below:

Video Standard: ☒ PAL ☐ NTSC

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

### ***Steps:***


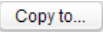
1. Select the device on the device list and click  button, or just double-click the device on the list. The Edit Device dialog box pops up shown below:

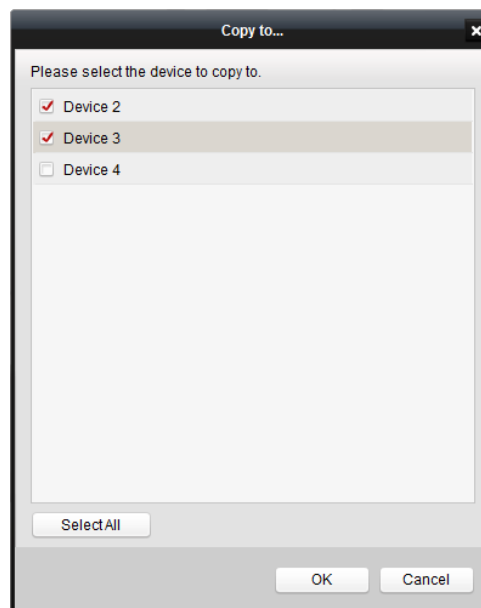
- Click the icon  and select the device type in the drop-down list. Only DVR and IPC are selectable.
  - Select the working mode of the device by checking the corresponding checkbox.
- Note:** The software provides 3 working modes for the device: main stream live view, sub-stream live view and main stream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

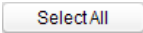
Description of Device Parameters:

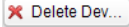
| Device Parameter           | Description  |
|----------------------------|--|
| <b>Connection Number</b>   | The connection number refers to the number of streams that the device sends to the client for live view or playback.   |
| <b>Resolution</b>          | For DVRs, the resolution can be selected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

**Notes:** The Bitrate ranges from 32 to 16384.

- Click  button to save the new configurations and close the dialog box.
- You can click  button to copy the new configurations to the other devices on the list.



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

To delete the device added, select the device on the list in the main interface and click  button. Then the selected device will be deleted.

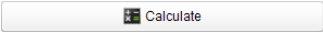
## 2.3 Calculating the Bandwidth

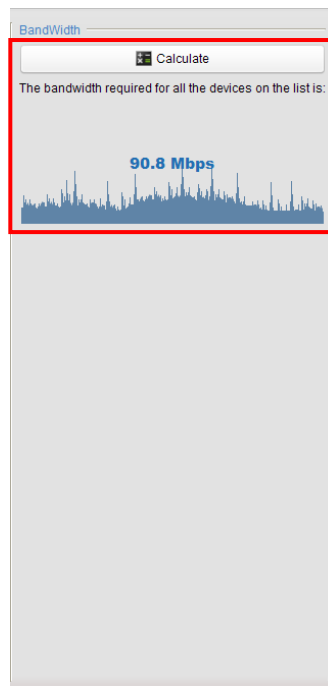
### **Purpose:**

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  button and the bandwidth required for all the devices on the list is displayed shown as follows:



## Chapter 3 Encoding Parameters Calculation

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


### 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 arrow  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.

Description of device condition parameters:

| Parameter                  | Description  |
|----------------------------|--|
| <b>Network Connections</b> | The software supports 6 types of network connections: Link Share ADSL, Dedicated ADSL, SDSL, Cable Modem, T1 and Ethernet. |
| <b>Bandwidth</b>           | Different ranges are provided for different network connections. The bandwidth can also be customized.                     |
| <b>Video Standard</b>      | You can select the video standard as PAL or NTSC.  |
| <b>Stream Type</b>         | The stream type can be selected as main stream live view or sub-stream live view.  |
| <b>Connection Number</b>   | The connection number refers to the number of  |

|  |  |
|--|--|
|  | streams that the device sends to the client for live view or playback. |
|--|--|

**Notes:** To customize the bandwidth, you can check the ☒ Custom Bandwidth checkbox and then input the bandwidth value in the text field as desired.


## 3.2 Calculating the Encoding Parameters

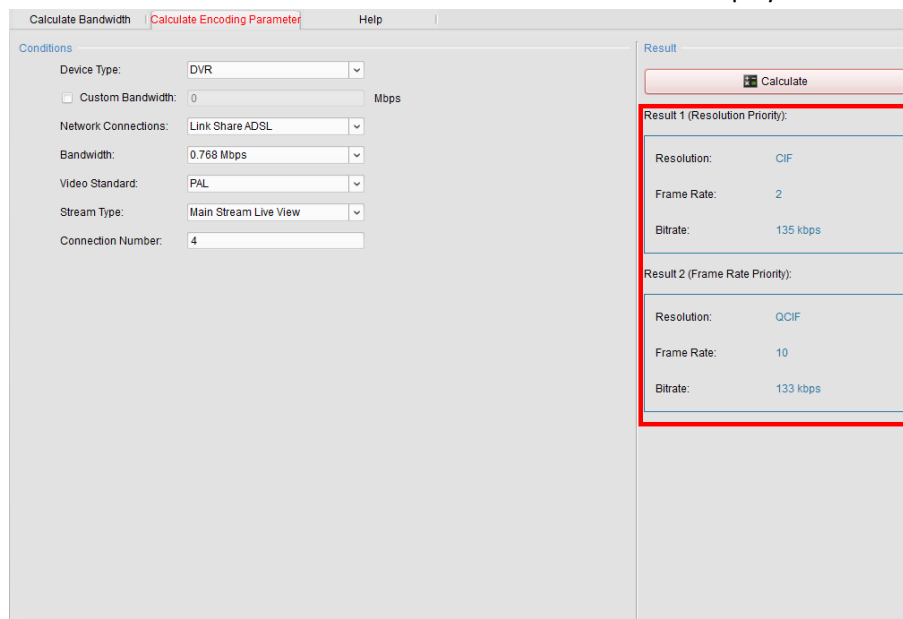
### Purpose:

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  button and the results will be displayed as follows:



| Conditions                                 |                       |
|--|-----------------------|
| Device Type:                               | DVR                   |
| <input type="checkbox"/> Custom Bandwidth: | 0 Mbps                |
| Network Connections:                       | Link Share ADSL       |
| Bandwidth:                                 | 0.768 Mbps            |
| Video Standard:                            | PAL                   |
| Stream Type:                               | Main Stream Live View |
| Connection Number:                         | 4                     |

| Result  |          |
|---|----------|
|  |          |
| <b>Result 1 (Resolution Priority):</b>  |          |
| Resolution:   | CIF      |
| Frame Rate:   | 2        |
| Bitrate:  | 135 kbps |
| <b>Result 2 (Frame Rate Priority):</b>  |          |
| Resolution:   | QCIF     |
| Frame Rate:   | 10       |
| Bitrate:  | 133 kbps |

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