HiDebugger

User Guide

Issue 05

Date 2015-06-26

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HiSilicon Technologies Co., Ltd.

Address: Huawei Industrial Base
Bantian, Longgang
Shenzhen 518129
People's Republic of China

Website: http://www.hisilicon.com

Email: support@hisilicon.com

About This Document

Purpose

This document describes the usage of the HiDebugger, including how to obtain the debugging information, how to obtain and display proc information, and how to record streams.

Related Versions

The following table lists the product versions related to this document.

Product Name	Version
Hi3716C	V2XX
Hi3719C	V1XX
Hi3719M	V1XX
Hi3718C	V1XX
Hi3718M	V1XX
Hi3716M	V4XX
Hi3716M	V31X
Hi3110E	V5XX
Hi3798C	V2XX

Intended Audience

This document is intended for:

- Technical support engineers
- Software development engineers

Change History

Changes between document issues are cumulative. Therefore, the latest document issue contains all changes made in previous issues.

Issue 05 (2015-06-26)

This issue is the fifth official release, which incorporates the following changes:

Some figures are replaced due to the update of GUI layout.

Issue 04 (2015-04-30)

This issue is the fourth official release, which incorporates the following changes:

Hi3798C V200, Hi3716M V420, and Hi3716M V410 are supported.

Section 1.2 is modified.

Issue 03 (2015-03-10)

This issue is the third official release, which incorporates the following changes:

Hi3110E V500 is supported.

Issue 02 (2014-11-05)

This issue is the second official release, which incorporates the following changes:

Modifications are made to support Hi3716M V310.

Chapter 3 is added.

Issue 01 (2014-05-23)

This issue is the first official release, which incorporates the following change:

Chapter 2 GUI and Function Description

Section 2.1.3 is modified.

Issue 00B01 (2013-12-20)

This issue is the first draft release.

Contents

Figures

1 Overview

1.1 Introduction

The HiDebugger is used to obtain logs and record streams. It has the following functions:

- Obtains and displays debugging information by classification.
- Obtains and displays proc information.
- Records streams.

1.2 Environment Preparations

Before you use the HiDebugger, perform the following steps:

Step 1 Copy **HiTool-STB-X.X.X.zip** and **jre-6u1-windows-i586-p.rar** (in **$SDK_DIR/tools/windows/HiTool**) in the SDK to a local disk drive on a PC that runs Windows 7 or Windows XP.

Step 2 Ensure that JRE 1.6 (jre-6u1-windows-i586-p) or later is preinstalled on the PC. Otherwise, the HiTool cannot run properly. You can download JRE 1.6 from http://www.oracle.com/technetwork/java/javase/downloads/java-archive-downloads-javase6-419409.html.

Step 3 Decompress **HiTool-STB-X.X.X.zip**, and double-click **HiTool.exe**.

Step 4 Configure the board IP address by running the **udhcpc** command.

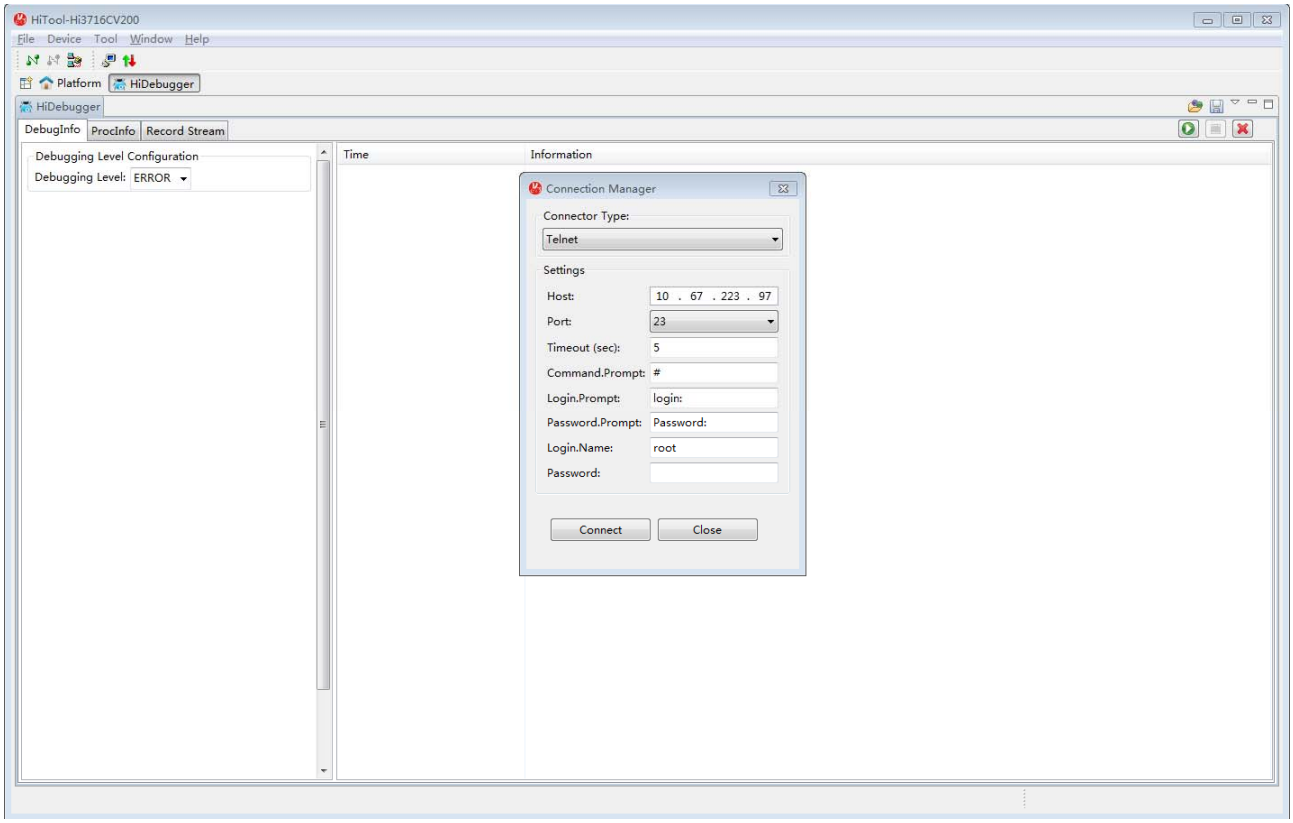
Step 5 Run the services that need to be debugged.

Step 6 Select a chip (for example, Hi3716C V200), and click **HiDebugger**, as shown in Figure 1-1.

Figure 1-1 Selecting HiDebugger

Step 7 Click  (connection manager), create a telnet connection, set **Host** to the IP address of the board, and click  to establish the connection, as shown in Figure 1-2.

Figure 1-2 Creating a Telnet connection



After the connection is set up, the tool automatically starts msp_debug. When the telnet connection is disconnected, the tool automatically stops msp_debug.

NOTE

If the board image is an Android image, open the Busybox telnet by running **busybox telnetd -l /system/bin/sh**.

----End

2 GUI and Function Description

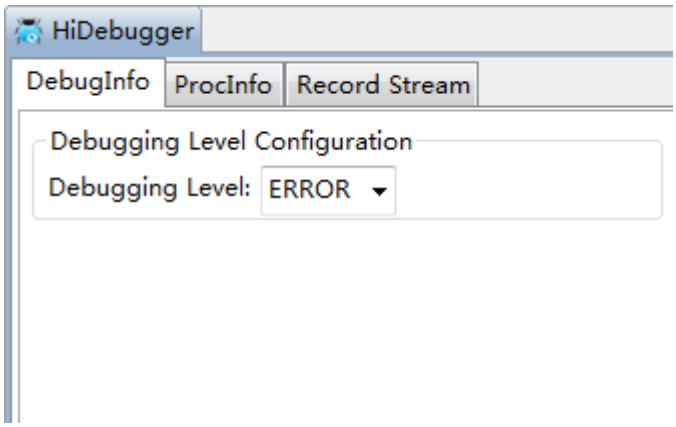
2.1 DebugInfo

2.1.1 Obtaining Debugging Information by Classification

To obtain debugging information by classification, perform the following steps:

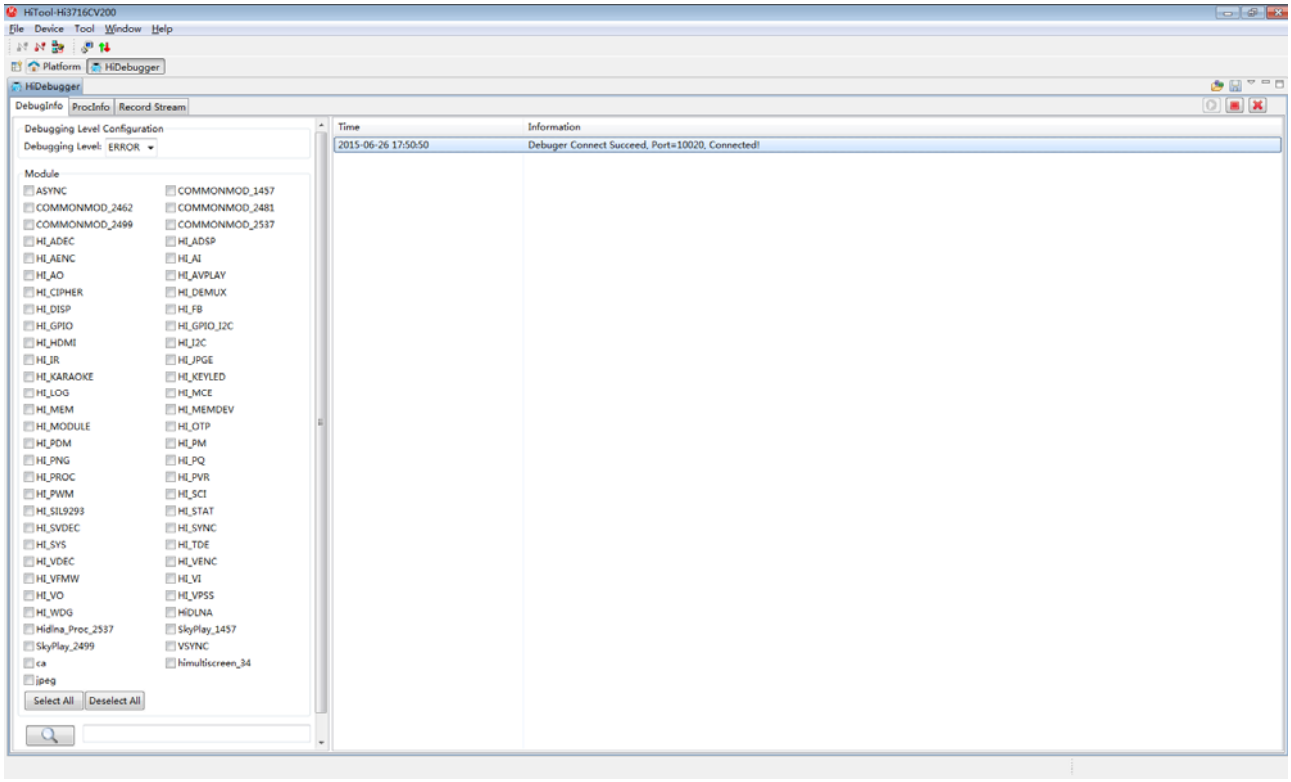
Step 1 Start the HiDebugger tool. The **DebugInfo** UI is displayed by default, as shown in Figure 2-1.

Figure 2-1 DebugInfo UI



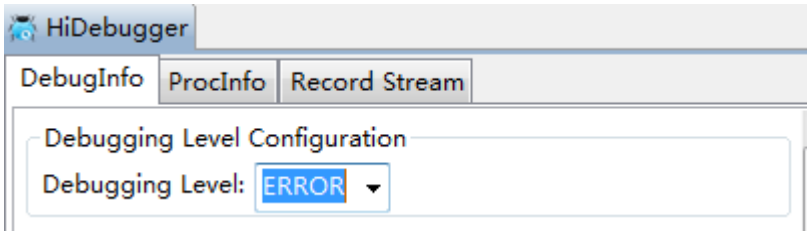
Step 2 Click  on the right of the HiDebugger. The left pane is refreshed, as shown in Figure 2-2.

Figure 2-2 Clicking the start button



Step 3 Select a debugging level from the **Debugging Level** drop-down list. The debugging levels include **FATAL**, **ERROR**, **WARN**, **INFO**, and **DBG**, which indicate fatal information, error information, warning information, all information, and debugging information respectively. See Figure 2-3.

Figure 2-3 Setting the debugging level

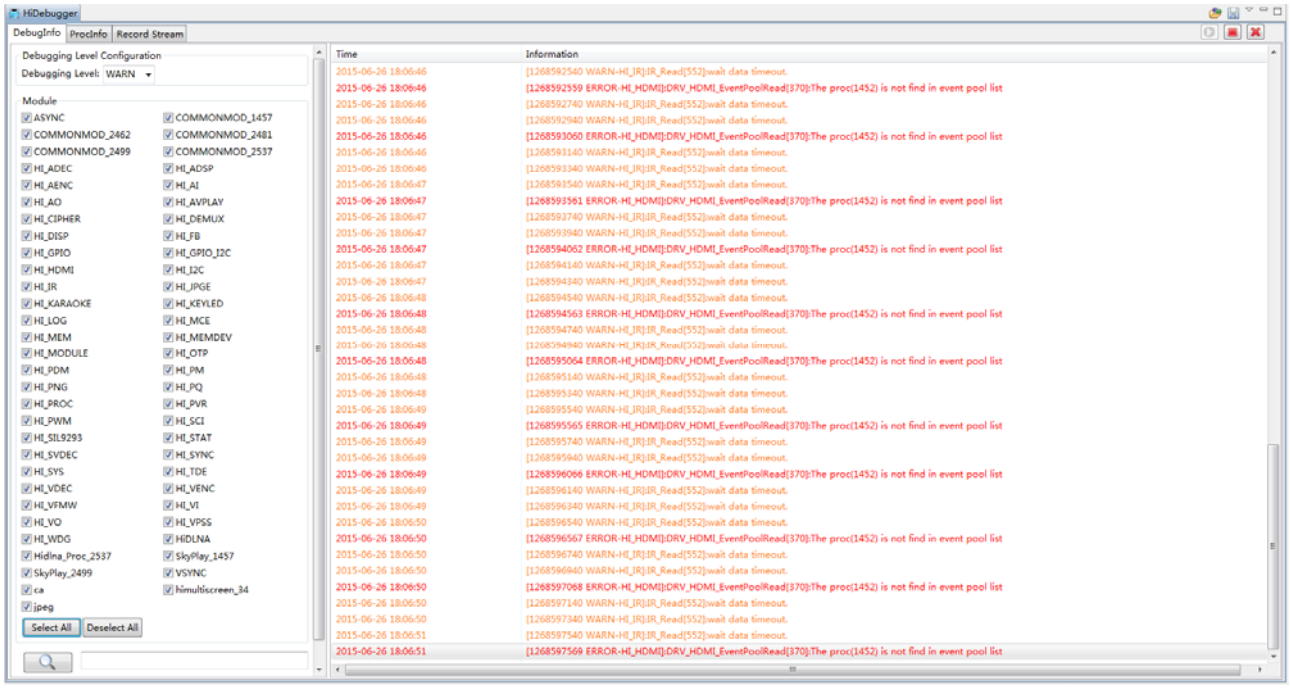


Step 4 Select the modules whose logs need to be obtained. In Figure 2-4, all modules are selected.

Figure 2-4 Selecting the modules whose logs need to be obtained

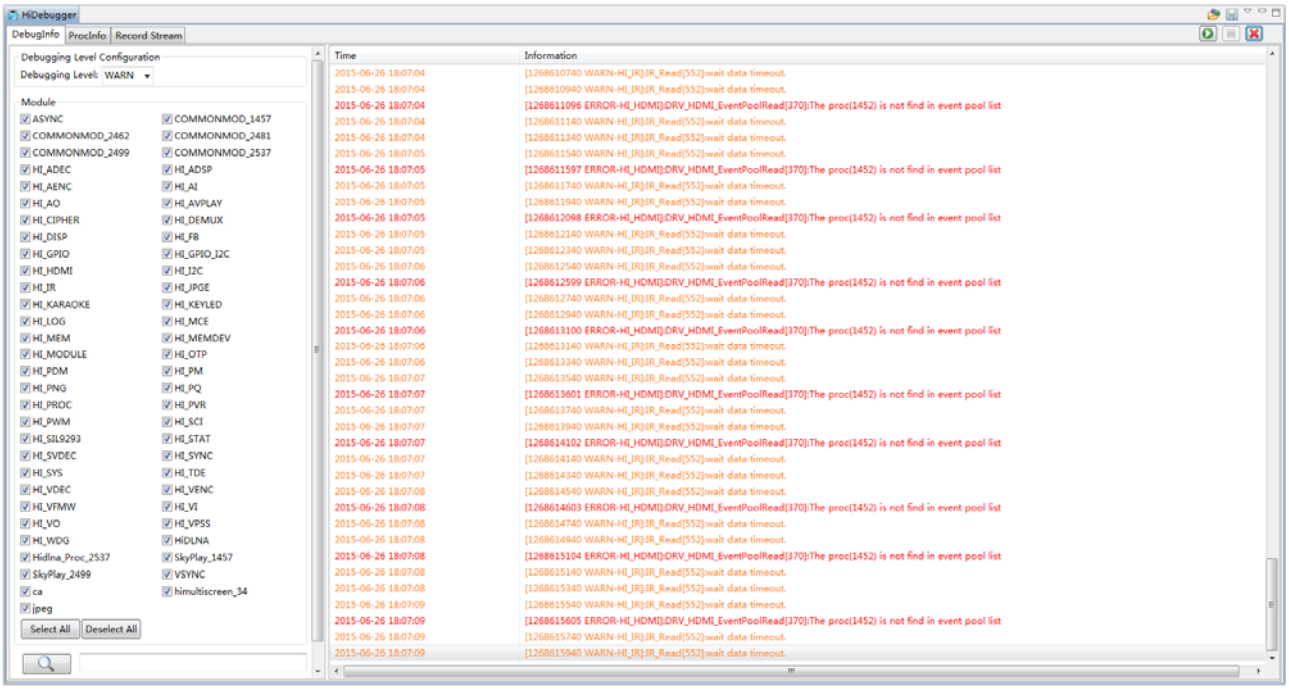
For example, if you set the debugging level to **WARN** and select all modules, the obtained logs are displayed on the right pane, as shown in Figure 2-5.

Figure 2-5 Displaying logs



You can click  in the upper right corner to stop obtaining the debugging information, as shown in Figure 2-6.

Figure 2-6 Stopping obtaining debugging information



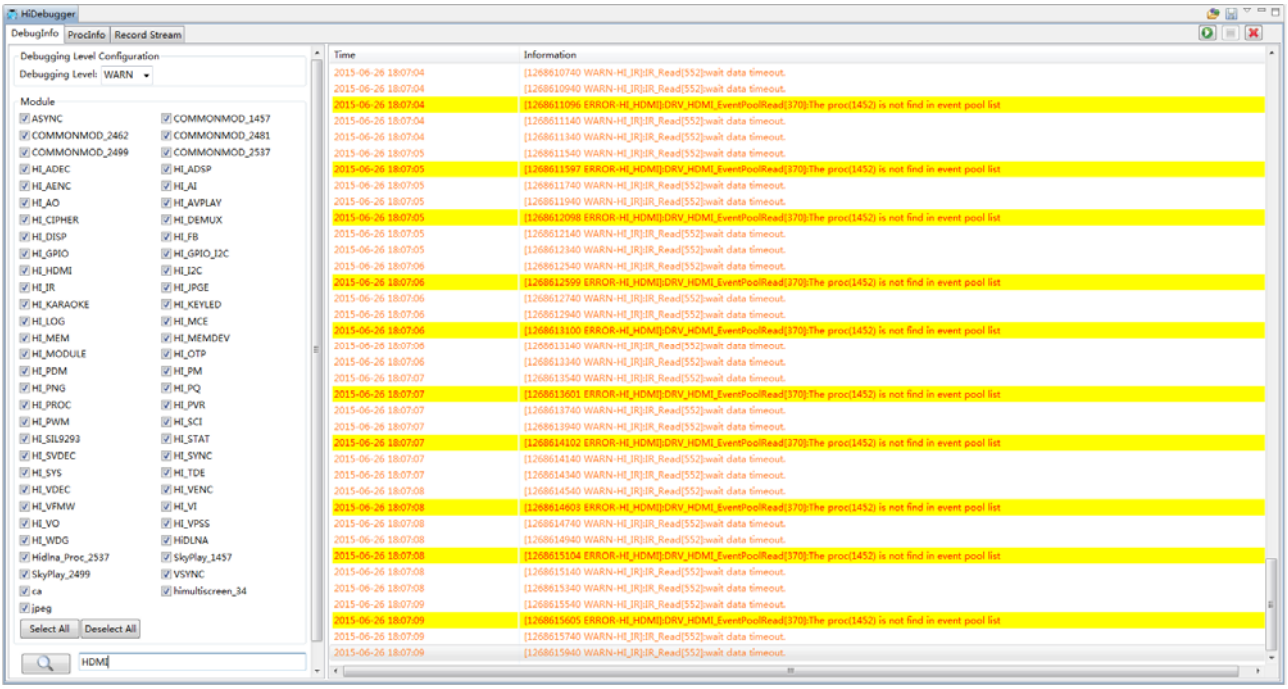
You can click  in the upper right corner to remove all log information in the right pane.

----End

2.1.2 Searching for Debugging Information

To search for specific debugging information, enter the field to be searched for in the search box in the lower left corner, then press **Enter** or click  , as shown in Figure 2-7.

Figure 2-7 Searching for specific debugging information



2.1.3 Manually or Automatically Saving Logs

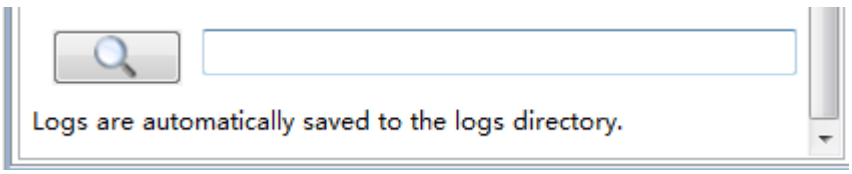
- Manually saving logs

  Click  in the upper right corner, and specify the path for saving the logs. After that, the displayed logs on the UI are stored in the specified directory.

- Automatically saving logs

  Each time you click  , logs are automatically saved to the **Hidebugger.log** file in **hitool/logs/HiDebugger**. After the HiDebugger is closed and opened again, the logs saved previously in **Hidebugger.log** are removed and the logs being obtained are stored. A message is displayed in the lower left corner indicating the number of logs saved to the file (the message is refreshed for every 10000 rows). See Figure 2-8.

Figure 2-8 Displayed message indicating the number of saved logs



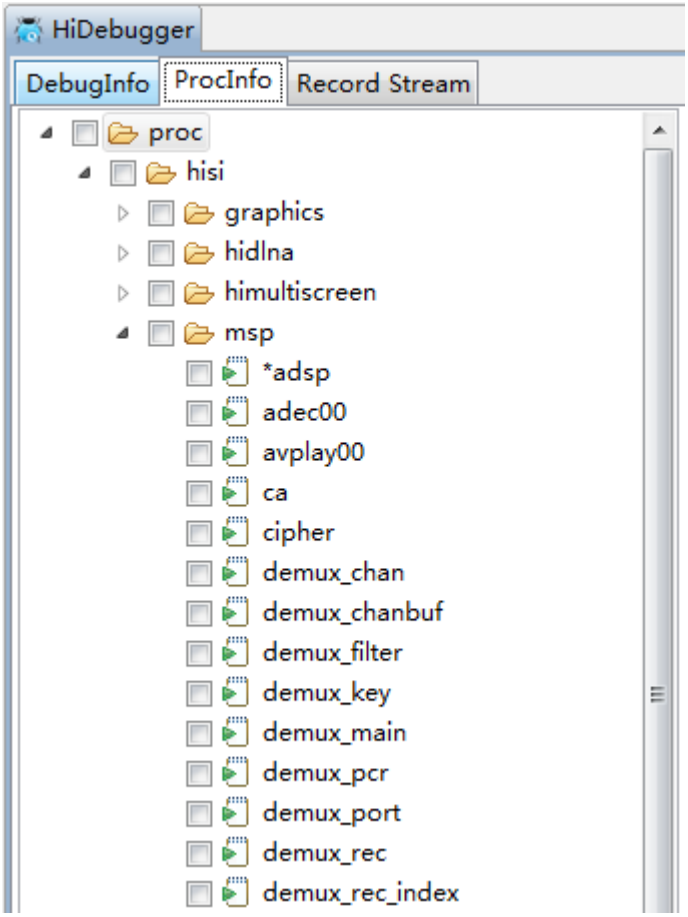
2.2 ProInfo

2.2.1 Obtaining and Displaying Proc Information

To obtain and display proc information on the board, perform the following steps:

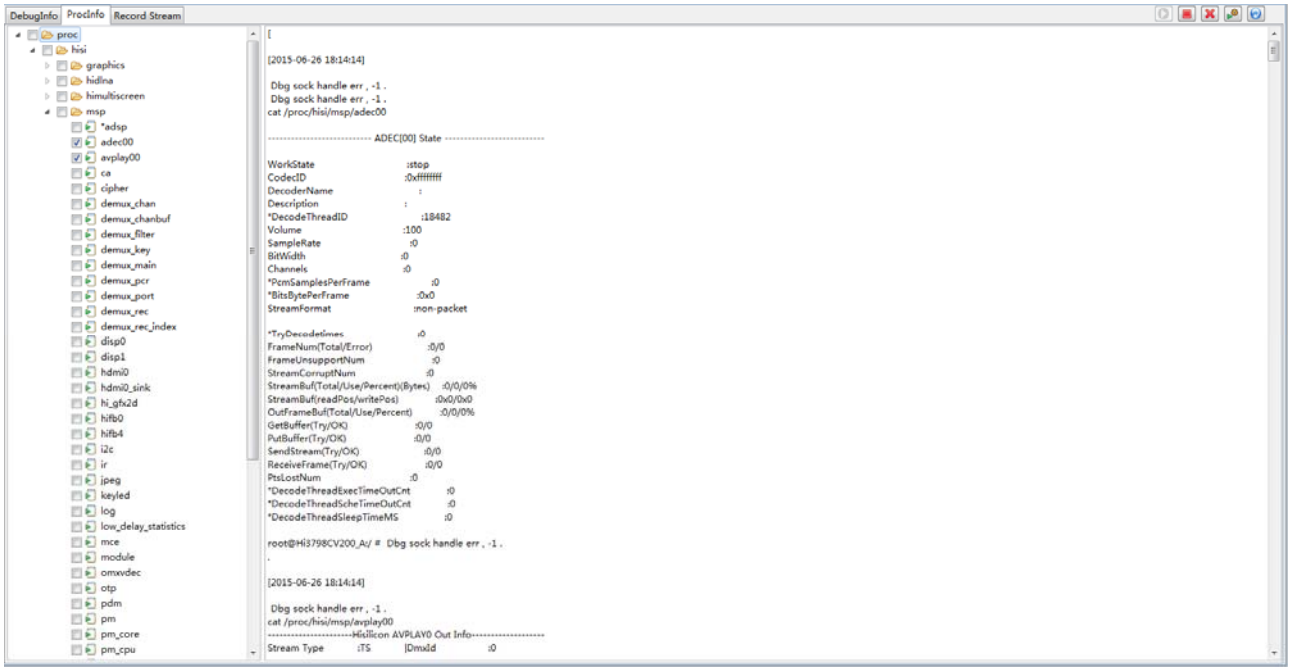
Step 1 Click the **ProcInfo** tab, and expand the proc file system tree, as shown in Figure 2-9.

Figure 2-9 Proc file tree on the ProcInfo tab page



Step 2 Select the files for which proc information is to be obtained and click  in the upper right corner to start obtaining proc information, as shown in Figure 2-10.

Figure 2-10 Obtaining proc information

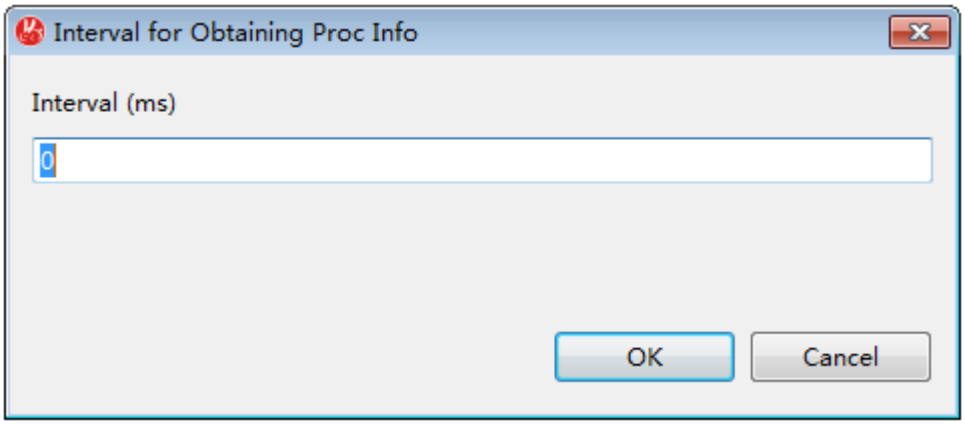


----End

2.2.2 Setting the Interval for Obtaining Proc Information

Click  in the upper right corner of the HiDebugger and set the interval (0 by default) for obtaining proc information on the displayed dialog box, as shown in Figure 2-11. Then the proc information is obtained based on the configured time interval.

Figure 2-11 Setting the interval for obtaining proc information

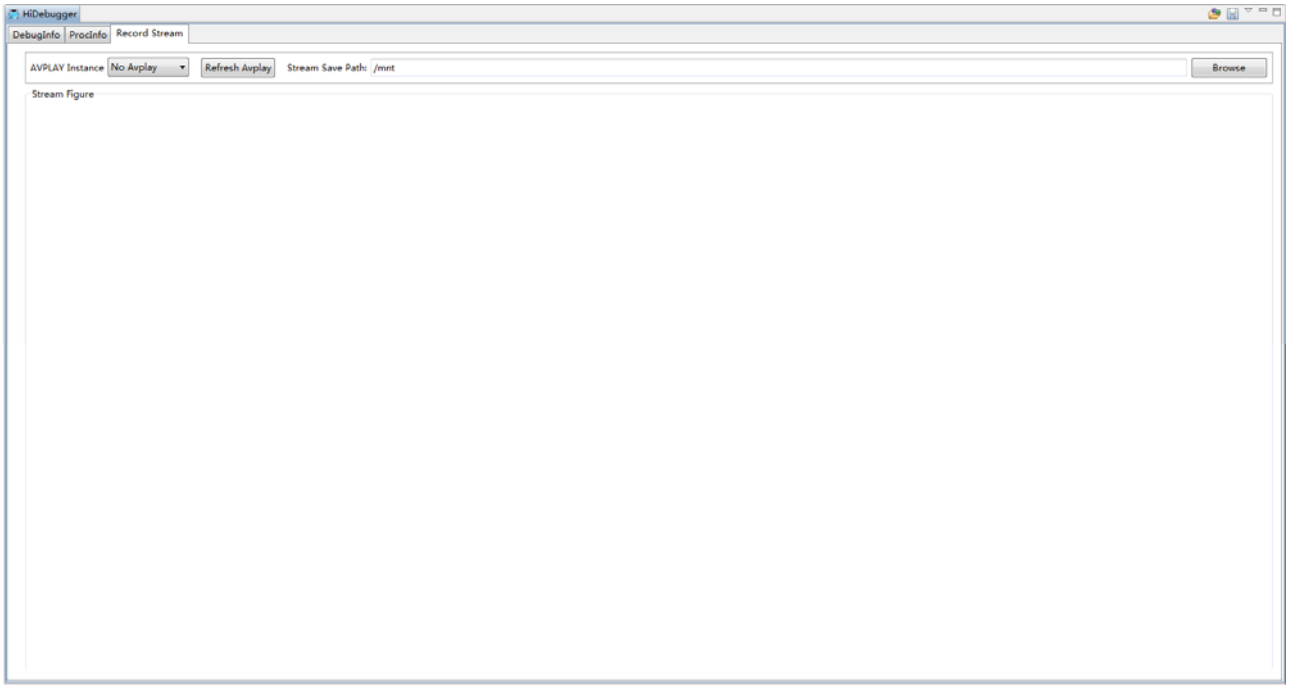


2.2.3 Setting Parameters Before Recording Streams

Perform the following steps:

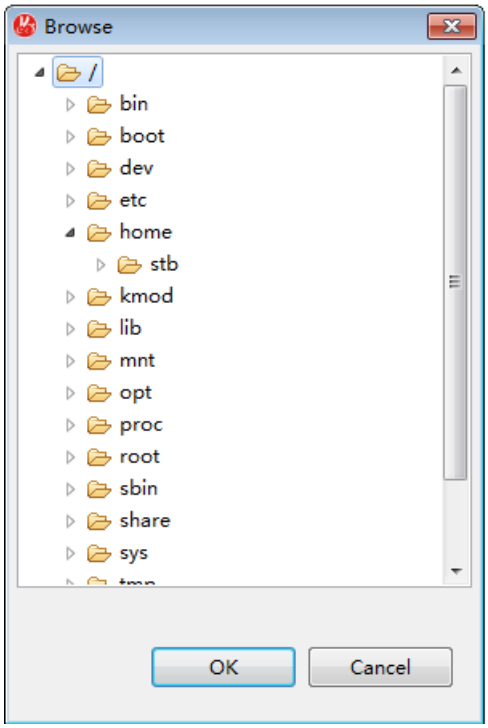
Step 1 Click  in the upper right corner of the HiDebugger to open the UI for recording streams, as shown in Figure 2-12.

Figure 2-12 Recording streams



Step 2 Click **Browse**, and set the path for storing streams, as shown in Figure 2-13.

Figure 2-13 Setting the path for saving streams



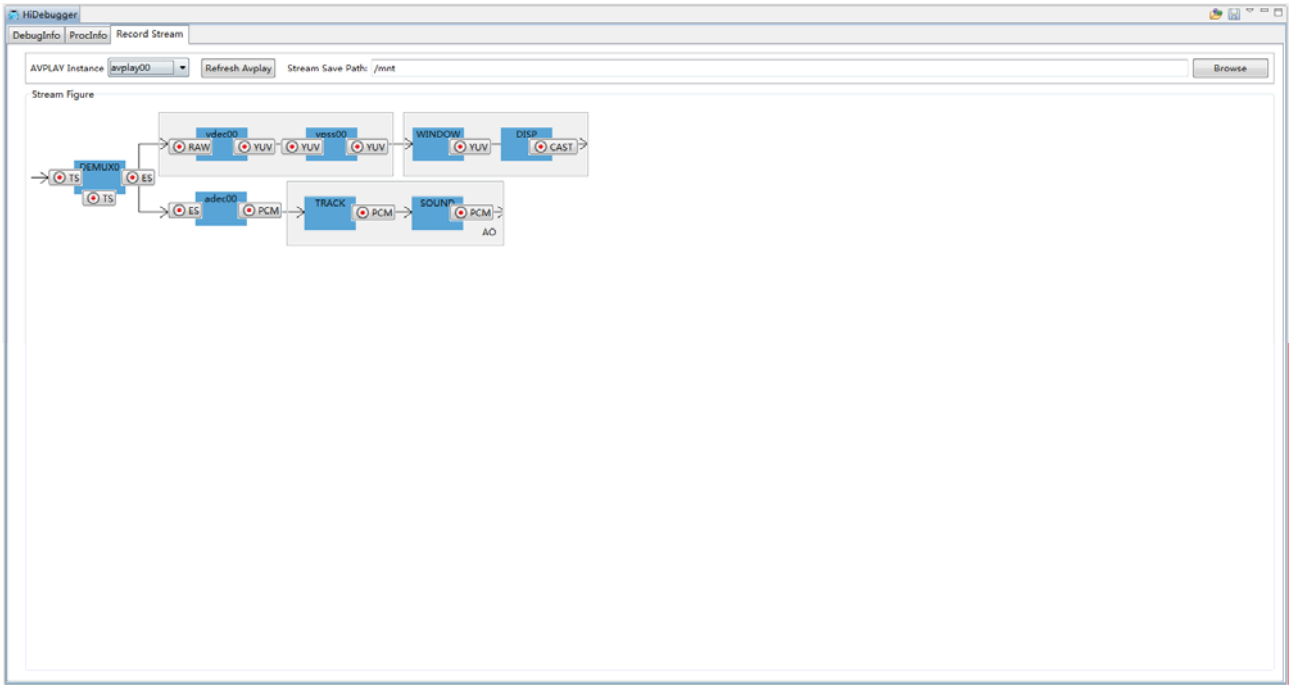
CAUTION

- If the storage space of the configured directory for storing recorded streams is insufficient, recorded streams may be incomplete.
- The recorded streams may also be incomplete due to poor network environment or read/write speed.

Therefore, you are advised to store recorded streams in a network mapping directory or mounted removable hard disk.

Step 3 Select the AVPLAY instance for recording streams, as shown in Figure 2-14.

Figure 2-14 Selecting the AVPLAY instance



CAUTION

The player must be started on the board; otherwise, no AVPLAY instance can be selected.

After the AVPLAY is selected, the **Recording Streams** UI is refreshed, and the stream diagram is displayed based on the AVPLAY type. There are two types of streams:

- Streams that are transmitted through the DEMUX. See Figure 2-15.
- Streams that are directly injected into the AVPLAY. See Figure 2-16.

Figure 2-15 Streams that are transmitted through the DEMUX

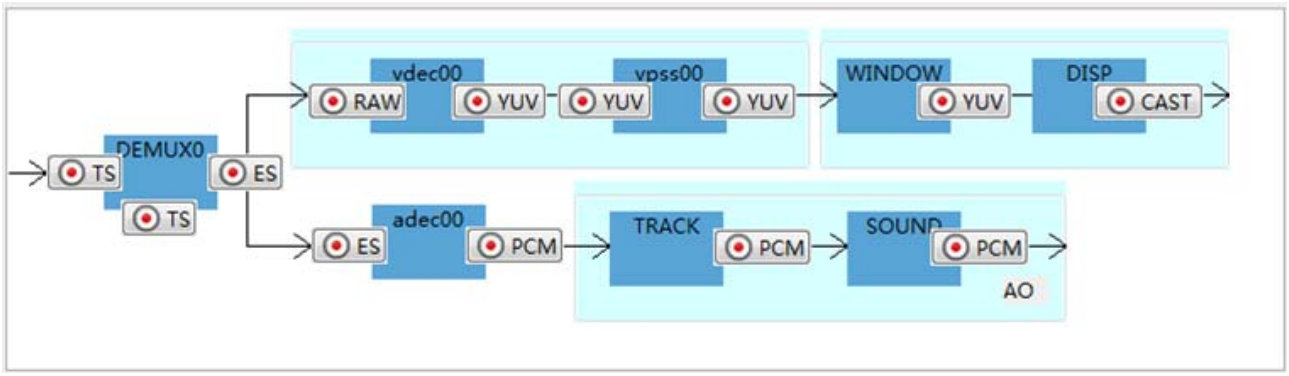
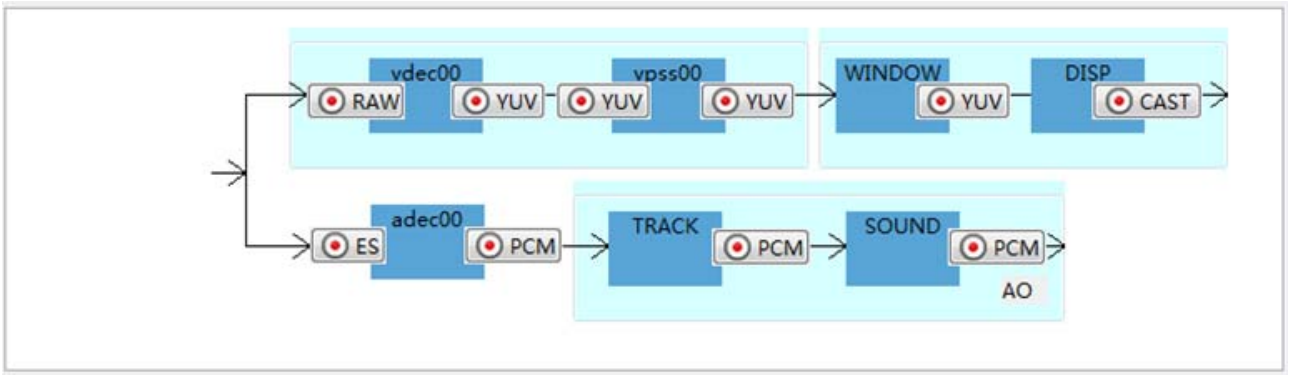


Figure 2-16 Streams that are directly injected into the AVPLAY



----End

2.2.4 Recording Streams

Currently 13 input/output streams of eight modules can be recorded.

- Recording all input transport streams (TSs) of the DEMUX module
- Recording output TSs of the DEMUX module
- Recording output elementary streams (ESs) of the DEMUX module (including video and audio ESs)
- Recording input ESs of the VDEC module
- Recording output YUV streams of the VDEC module
- Recording input YUV streams of the VPSS module
- Recording output YUV streams of the VPSS module
- Recording output YUV streams of the WINDOW module
- Recording output CAST streams of the DISP1 module
- Recording input ESs of the ADEC module
- Recording output pulse-code modulation (PCM) streams of the ADEC module
- Recording output PCM streams of the TRACK module

- Recording output PCM streams of the SOUND module

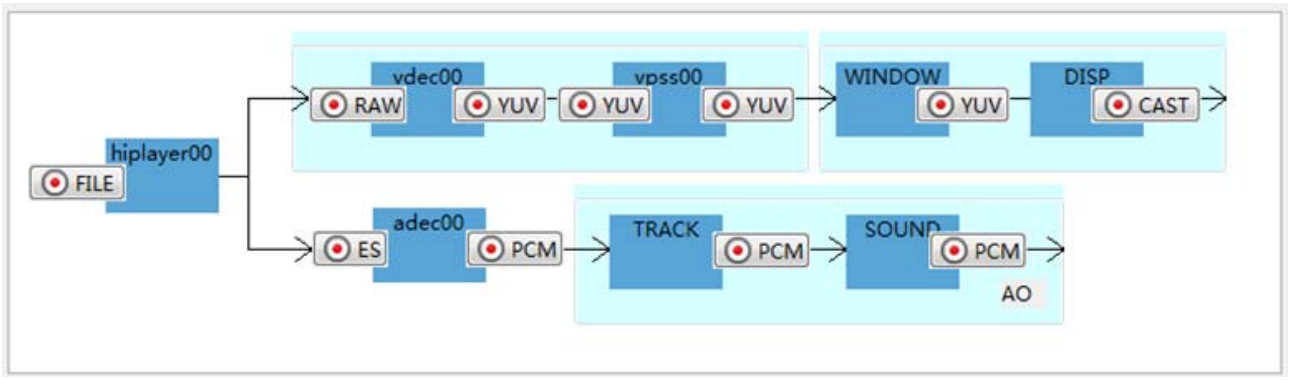
Recording All Input TSs of the DEMUX Module

All TSs from a specific port that is bound to the DEMUX can be recorded. Click the **TS** button on the left of the DEMUX module to start recording, and click the button again to stop recording. The button is 

when the streams are not recorded, and it turns into 

when the streams are being recorded. See Figure 2-17.

Figure 2-17 Recording all input TSs of the DEMUX module



TSs are saved in **dmx_allts_*x*.ts**. If a tuner port is used, *x* starts from 0 and increases by 1 each time TSs are saved. If an RAM port is used, *x* is numbered from 128 and does not change each time data is saved. You can check the port type by running the **demux_port** command.

You can set the recording duration and cycles by using the shortcut menu.

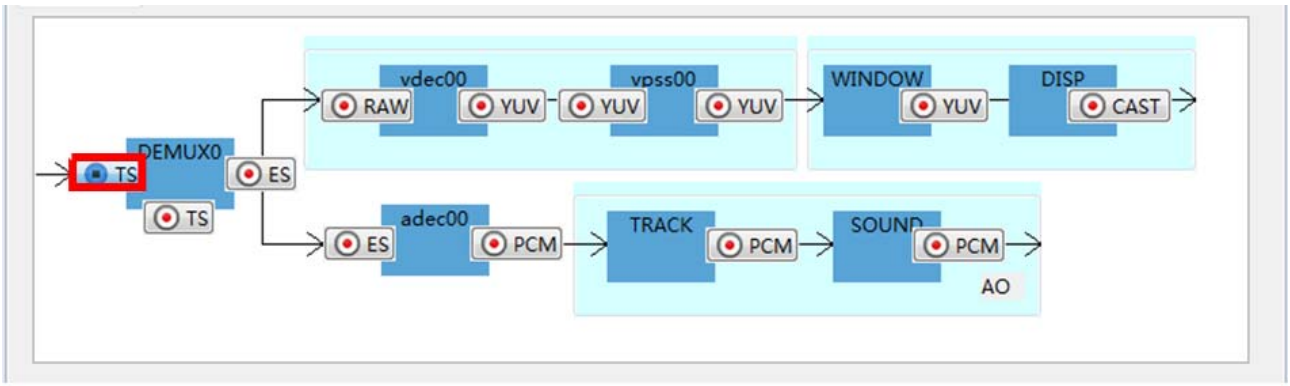
Recording Output TSs of the DEMUX Module

Click the **TS** button below the DEMUX module to start recording, and click the button again to stop recording. The button is 

when the streams are not recorded, and it turns into 

when the streams are being recorded. See Figure 2-18.

Figure 2-18 Recording output TSs of the DEMUX module



TSs are saved in **dmx_rects_*x*.ts**. *x* starts from 0 and increases by 1 each time TSs are saved.

You can set the recording duration and cycles by using the shortcut menu.

CAUTION

The input TSs and output TSs of the DEMUX module cannot be recorded at the same time.

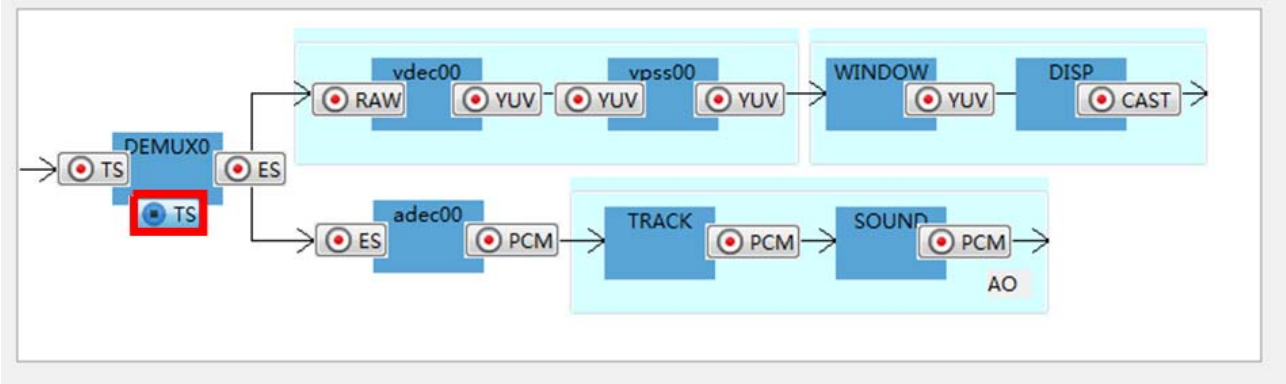
Recording Output ESs (Video and Audio ESs) of the DEMUX Module

Click the **ES** button on the right the DEMUX module to start recording, and click the button again to stop recording. The button is 

when the streams are not recorded, and it turns into 

when the streams are being recorded. See Figure 2-19.

Figure 2-19 Recording output ESs of the DEMUX module



- Audio data is saved in **dmx_aud_*x*.es**. *x* starts from 0 and increases by 1 each time audio data is saved.
- Video data is saved in **dmx_vid_*x*.es**. *x* starts from 0 and increases by 1 each time video data is saved.

You can set the recording duration and cycles by using the shortcut menu.

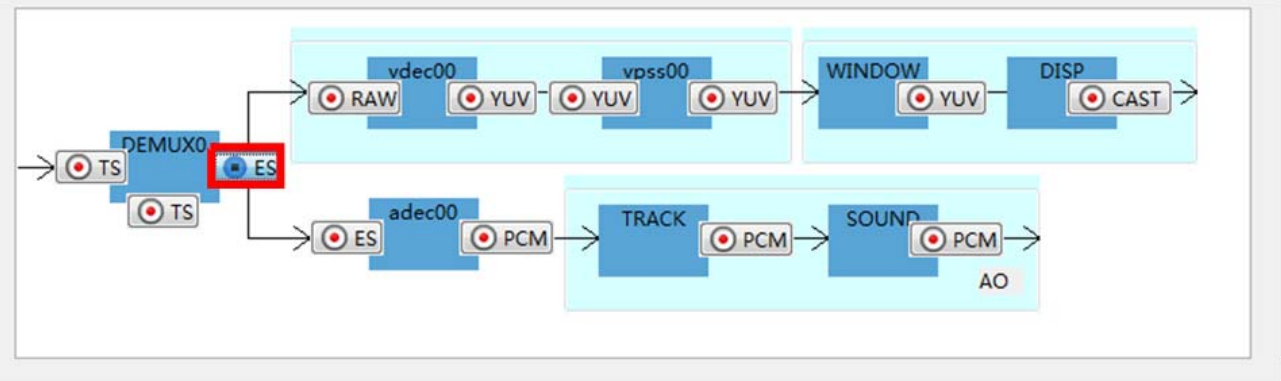
Recording Input ESs of the VDEC Module

Click the **RAW** button on the left of the VDEC module to start recording, and click the button again to stop recording. The button is 

when the streams are not recorded, and it turns into 

when the streams are being recorded. See Figure 2-20.

Figure 2-20 Recording input ESs of the VDEC module

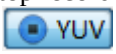


The ES data is saved in **vdec_raw_chan*X*_*Y*.raw**. *X* indicates the decoder ID, and *Y* starts from 0 and increases by 1 each time ES data is saved.

You can set the recording duration and cycles by using the shortcut menu.

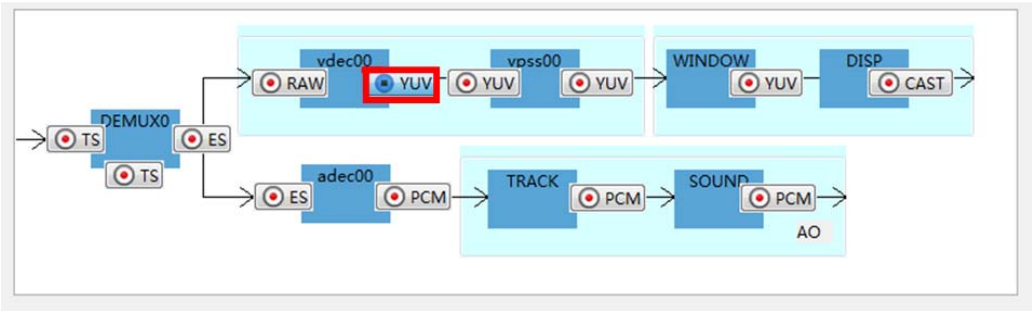
Recording Output YUV Streams of the VDEC Module

Click the **YUV** button on the right of the VDEC module to start recording, and click the button again to stop recording. The button is 

when the streams are not recorded, and it turns into 

when the streams are being recorded. See Figure 2-21.

Figure 2-21 Recording output YUV streams of the VDEC module



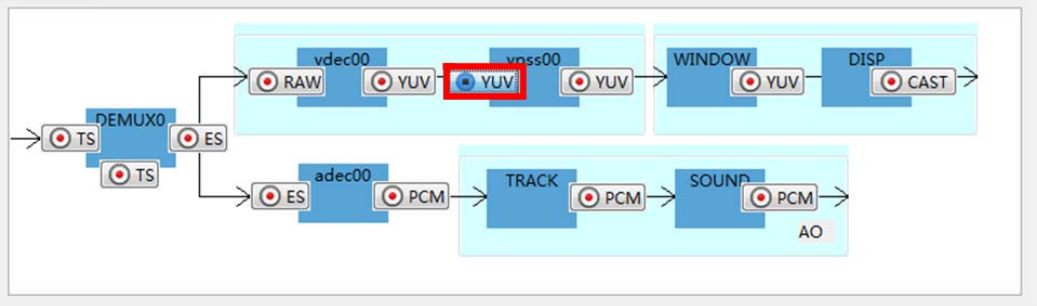
The ES data is saved in **vdec_yuv_chan*X*_*Y*.raw**. *X* indicates the decoder ID, and *Y* starts from 0 and increases by 1 each time ES data is saved.

You can set the recording duration and cycles by using the shortcut menu.

Recording Input YUV Streams of the VPSS Module

Click the **YUV** button on the left of the VPSS module to record a stream frame, and click it again to record another frame. To record streams cyclically, right-click the button, choose **Cyclic Recording** from the shortcut menu, and enter the number of recording cycles. After the specified number of cycles is reached, the black square on the button changes to a red circle. See Figure 2-22.

Figure 2-22 Recording input YUV streams of the VPSS module



You can set the number of recording cycles by using the shortcut menu.

Recording Output YUV Streams of the VPSS Module

Right-click the **YUV** button on the right of the VPSS module, choose **Set Port ID** from the shortcut menu, and set the port for recording streams in the displayed dialog box, as shown in Figure 2-23.

Figure 2-23 Setting the port ID

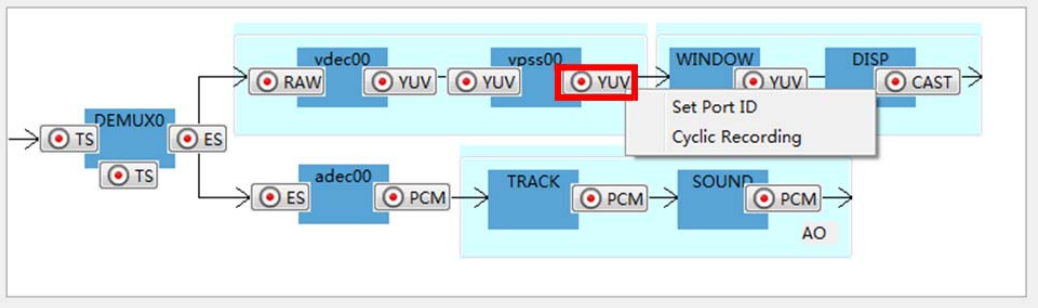
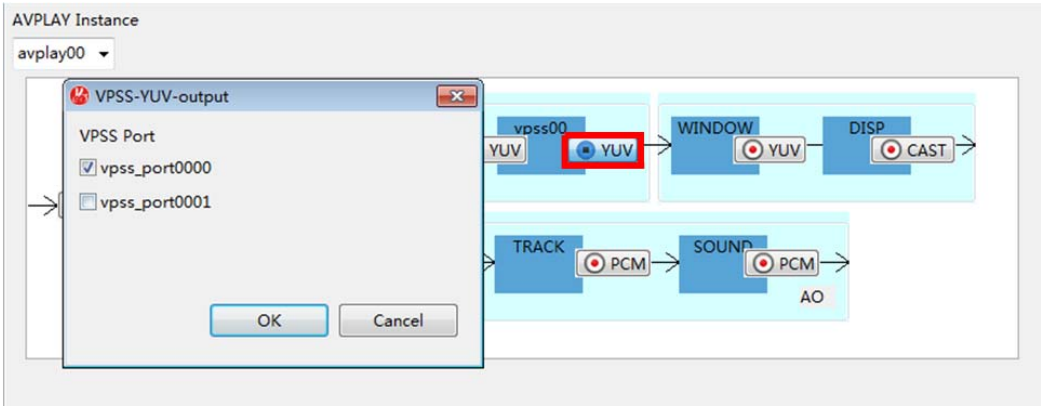


Figure 2-24 Setting the port for recording streams



Click the **YUV** button on the right of the VPSS module to record a stream frame, and click it again to record another frame. Each time you click the button, a frame is recorded.

You can set the port ID and number of recording cycles by using the shortcut menu.

Recording Output YUV Streams of the WINDOW Module

Right-click the **YUV** button on the right of the WINDOW module, choose **Set Window ID** from the shortcut menu, and set the ID of the window for recording streams in the displayed dialog box, as shown in Figure 2-25.

Figure 2-25 Setting the window ID

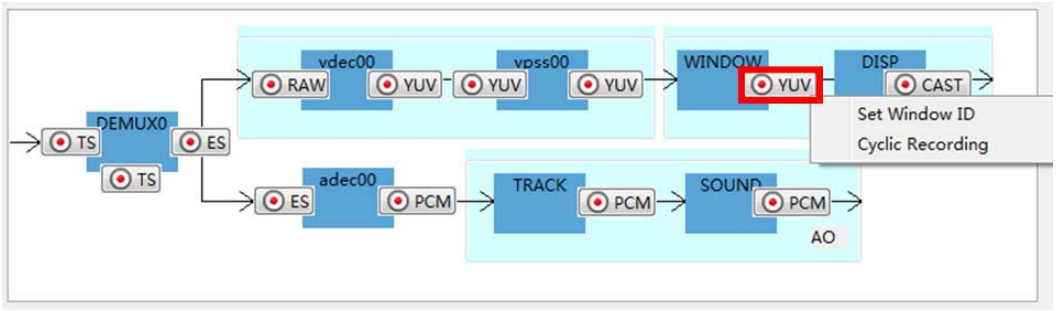
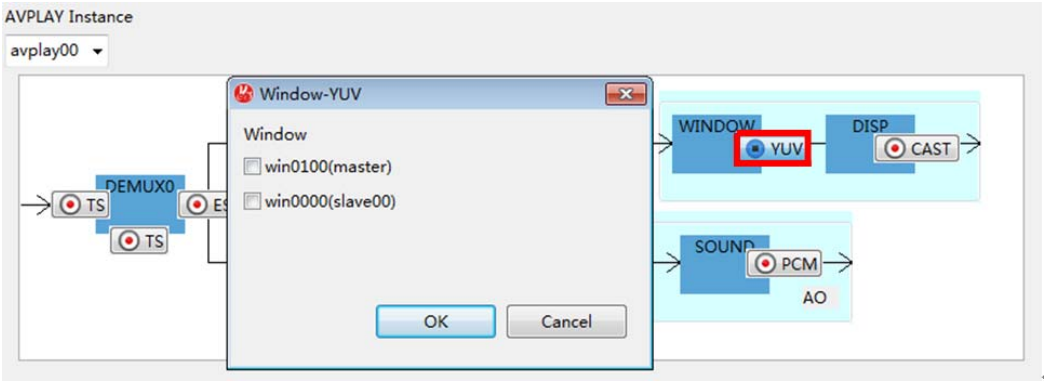


Figure 2-26 Setting the ID of the window for recording streams



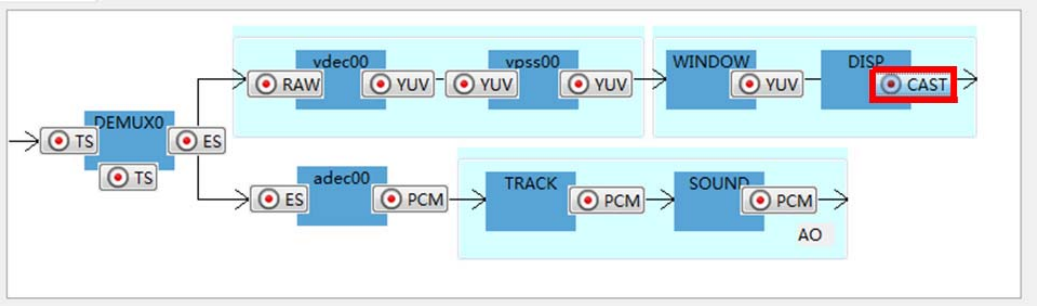
Click the **YUV** button on the right of the WINDOW module to record a stream frame, and click it again to record another frame. Each time you click the button, a frame is recorded.

You can set the window ID and number of recording cycles by using the shortcut menu.

Recording Output CAST Streams of the DISP1 Module

Click the **CAST** button on the right of the DISP1 module to record a stream frame, and click it again to record another frame. Each time you click the button, a frame is recorded. See Figure 2-27.

Figure 2-27 Recording output CAST streams of the DISP1 module



You can set the number of recording cycles by using the shortcut menu.

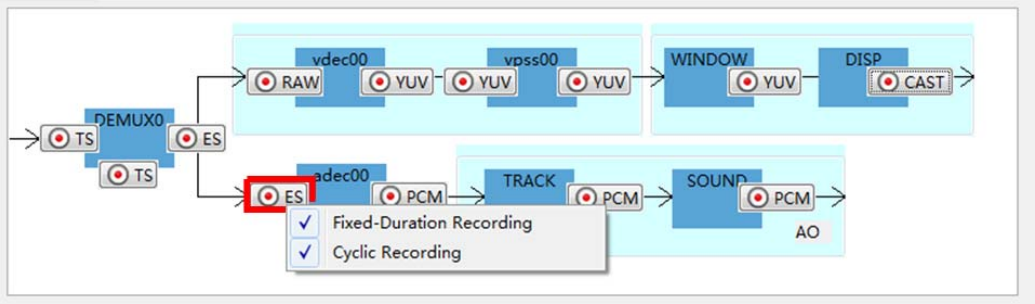
CAUTION

You can record only output CAST frames of the DISPLAY1 module.

Recording Input ESs of the ADEC Module

Click the **ES** button on the left of the ADEC module to start recording, and click the button again to stop recording. See Figure 2-28.

Figure 2-28 Recording input ESs of the ADEC module



You can select **Fixed-Duration Recording** and **Cyclic Recording** from the shortcut menu. You need to specify the recording duration and number of recording cycles (1 by default). The black square on the button automatically changes to a red circle when the time duration and number of cycles are reached.

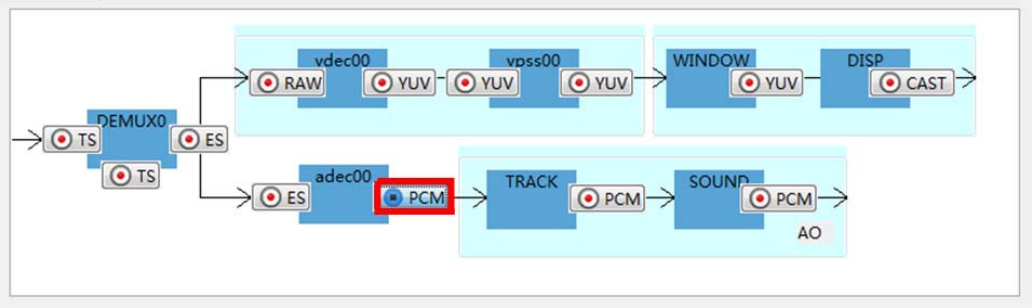
You can find files similar to the following in the configured directory after recording:

- **adec0_00.es**: file for storing ES data of adec00 saved for the first time
- **adec0_01.es**: file for storing ES data of adec00 saved for the second time

Recording Output PCM Streams of the ADEC Module

Click the **PCM** button on the right of the ADEC module to start recording, and click the button again to stop recording. See Figure 2-29.

Figure 2-29 Recording output PCM streams of the ADEC module



You can select **Fixed-Duration Recording** and **Cyclic Recording** from the shortcut menu. You need to specify the recording duration and number of recording cycles (1 by default). The black square on the button automatically changes to a red circle when the time duration and number of cycles are reached.

You can find files similar to the following in the configured directory after recording:

- **adec0_00.pcm**: file for storing PCM data of adec00 saved for the first time
- **adec0_01.pcm**: file for storing PCM data of adec00 saved for the second time

Recording Output PCM Streams of the TRACK Module

Right-click the **PCM** button on the right of the TRACK module, choose **Set Track ID** from the shortcut menu, and set the track for recording streams in the displayed dialog box, as shown in Figure 2-30.

Figure 2-30 Setting the track ID

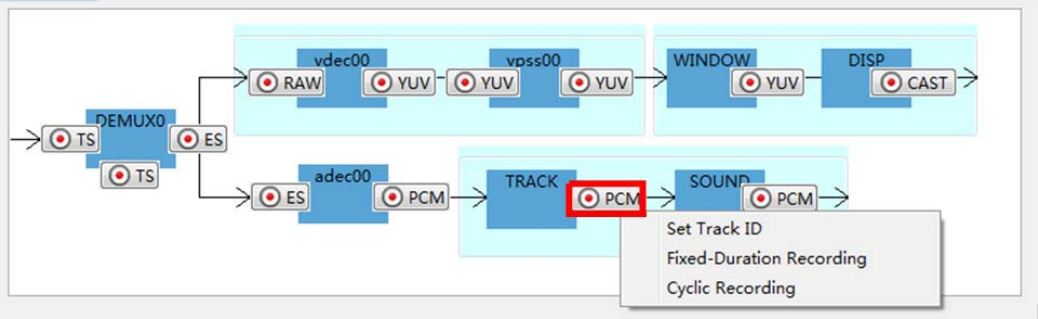
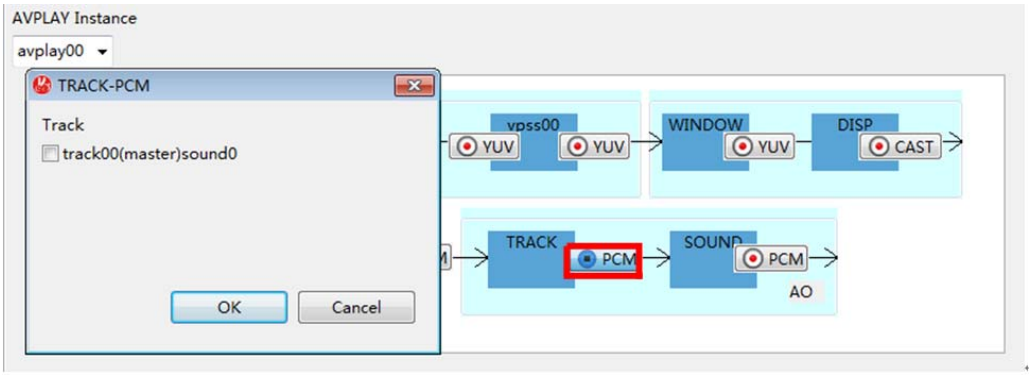
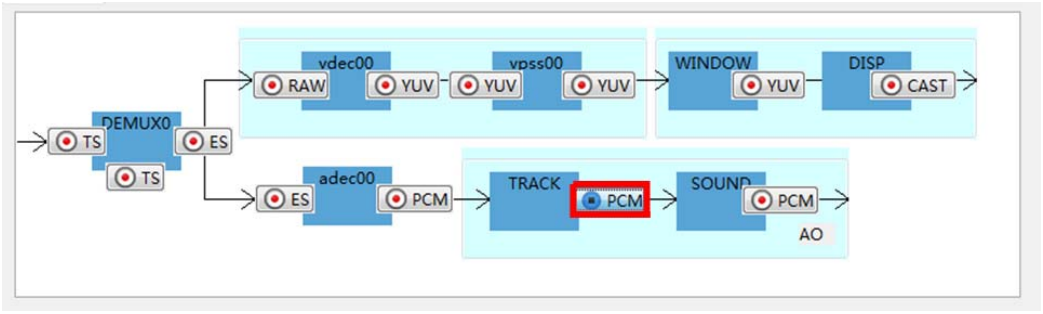


Figure 2-31 Setting the track for recording streams



Click the **TRACK** button on the right of the TRACK module to start recording, and click the button again to stop recording. See Figure 2-32.

Figure 2-32 Recording output PCM streams of the TRACK module



You can select **Fixed-Duration Recording** and **Cyclic Recording** from the shortcut menu. You need to specify the recording duration and number of recording cycles (1 by default). The black square on the button automatically changes to a red circle when the time duration and number of cycles are reached.

You can find files similar to the following in the configured directory after recording:

- **track0_00.pcm**: file for storing PCM data of track0 saved for the first time
- **track0_01.pcm**: file for storing PCM data of track0 saved for the second time

Recording Output PCM Streams of the SOUND Module

Right-click the **PCM** button on the right of the SOUND module, choose **Set Sound ID** from the shortcut menu, and set the ID of the sound device for recording streams in the displayed dialog box, as shown in Figure 2-33.

Figure 2-33 Setting the sound ID

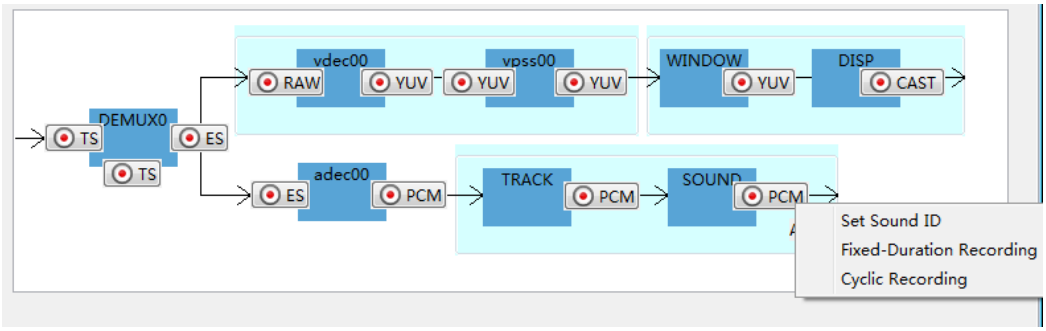
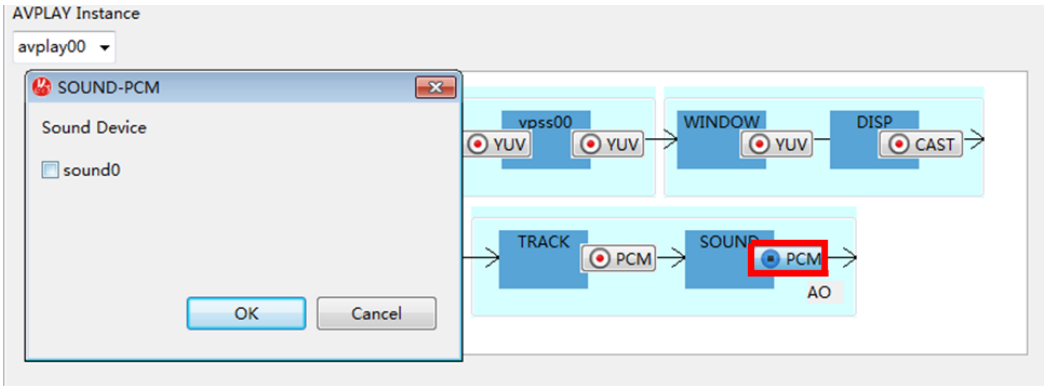
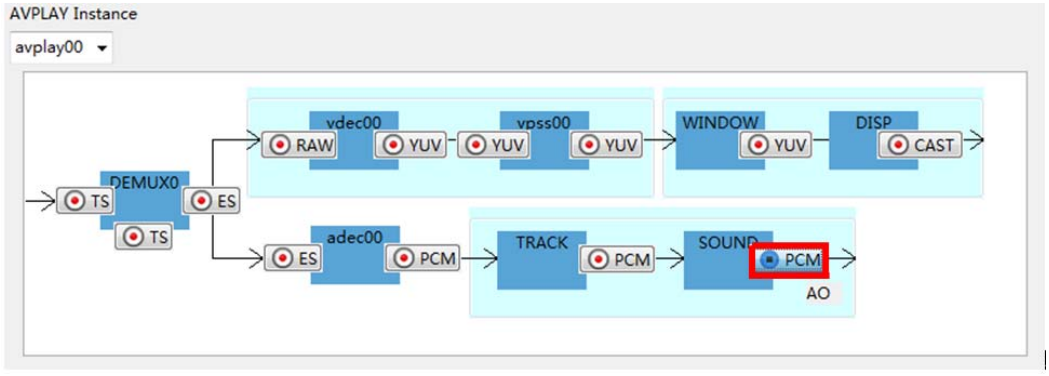


Figure 2-34 Setting the sound device for recording streams



Click the **PCM** button on the right of the SOUND module to start recording, and click the button again to stop recording. See Figure 2-35.

Figure 2-35 Recording output PCM streams of the SOUND module



You can select **Fixed-Duration Recording** and **Cyclic Recording** from the shortcut menu. You need to specify the recording duration and number of recording cycles (1 by default). The black square on the button automatically changes to a red circle when the time duration and number of cycles are reached.

You can find files similar to the following in the configured directory after recording:

- **sound0_00.pcm**: file for storing PCM data of sound0 saved for the first time
- **sound0_01.pcm**: file for storing PCM data of sound0 saved for the second time

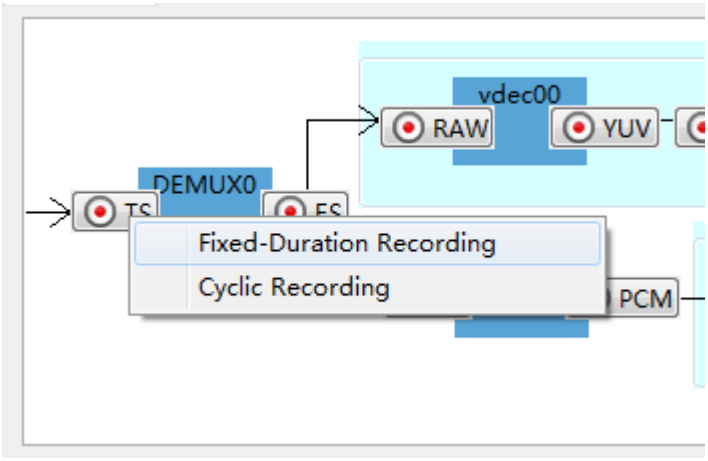
2.2.5 Setting the Recording Duration

After the recording duration (1000 ms by default) is set, the start recording command is sent when you click the stream button, and the stop recording command is sent when the recording duration is reached.

To set the recording duration, perform the following steps:

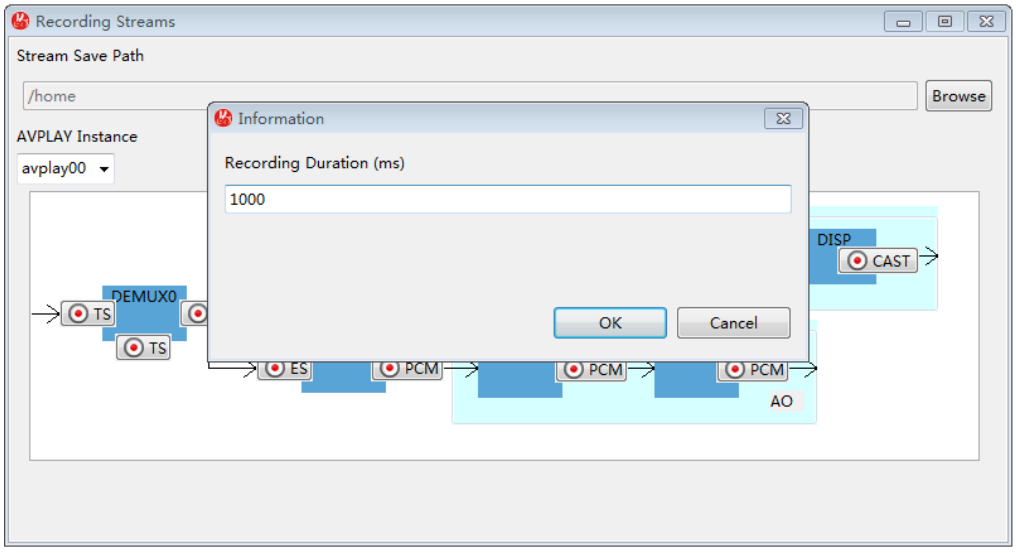
Step 1 Right-click the stream button, as shown in Figure 2-36.

Figure 2-36 Shortcut menu



Step 2 Choose **Fixed-Duration Recording**. The dialog box shown in Figure 2-37 is displayed.

Figure 2-37 Setting the recording duration



Then you can start to record steams.

----End

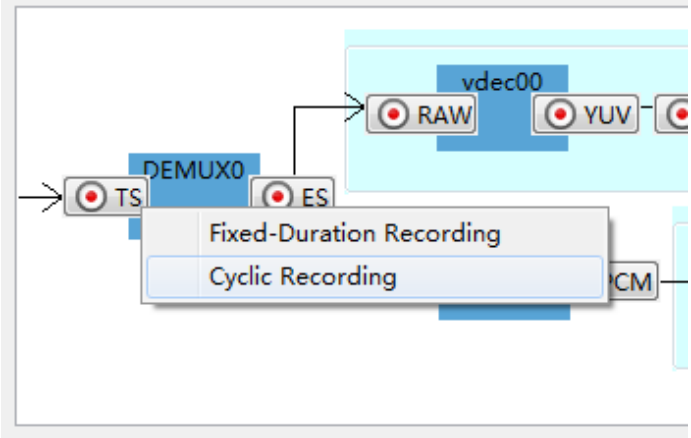
2.2.6 Setting the Number of Recording Cycles

After the number of recording cycles is set, the tool records streams based on the configured recording duration and cycles. Click the stream button to start recording. After the configured cycles, the black square on the button automatically changes to a red circle.

To set the number of recording cycles, perform the following steps:

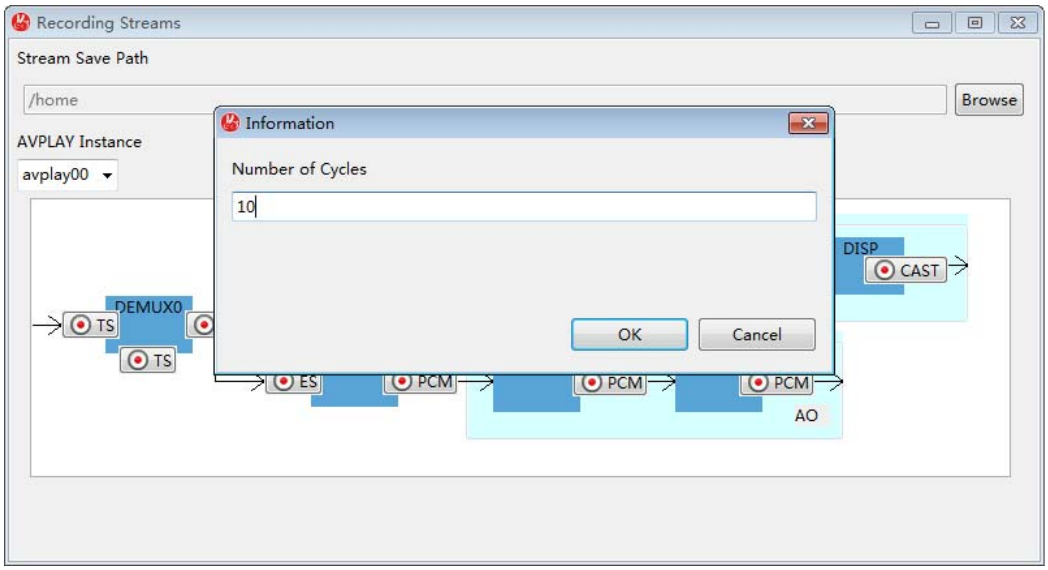
Step 1 Right-click the stream button, as shown in Figure 2-38.

Figure 2-38 Shortcut menu



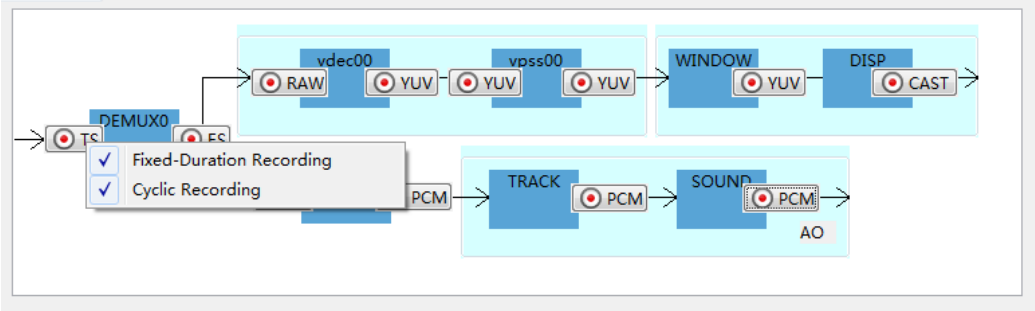
Step 2 Choose **Cyclic Recording**. The dialog box shown in Figure 2-39 is displayed.

Figure 2-39 Setting recording cycles



After the recording duration and cycles are set, right-click the stream button. The two options in the shortcut menu are selected, as shown in Figure 2-40.

Figure 2-40 Setting the recording duration and cycles



----End

3 FAQ

3.1 What Do I Do If Intermittence and Audio/Video Asynchronization Occur During the Playback of Recorded Streams Stored in the /mnt/sdcard Directory?

Problem Description

Intermittence and audio/video asynchronization occur during the playback of recorded streams stored in the **/mnt/sdcard** directory.

Solution

This issue occurs because the read/write speeds of the memory file system and the flash memory are different, and **/mnt** is in the memory file system whereas **/sdcard** is in the flash memory. You are advised to record streams by using a storage device with high read/write performance.