



***DMR Radio Record***  
***Application Notes***



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# Documentation Information

This section describes the conventions and revision history of this document.

## Documentation Conventions

### Icons

Icon	Description
 <b>Tip</b>	Information that helps you make better use of your product.
 <b>Note</b>	References that further describes the related topics.
 <b>Caution</b>	Situations that could cause data loss or equipment damage.
 <b>Warning</b>	Situations that could cause minor personal injury.
 <b>Danger</b>	Situations that could cause major personal injury or even death.

### Notations

Notation	Description
<b>Bold</b>	The text in boldface denotes the name of a hardware button or a software interface element. For example, press the <b>PTT</b> key.
->	The symbol directs you to access a multi-level menu. For example, to select <b>New</b> from the File menu, we will describe it as follows: “File -> New”.

## Revision History

Version	Release Date	Description
R2.0	September 2018	<ul style="list-style-type: none"><li>Modified CPS path of <a href="#">Call Record</a> feature for PD98X and PD78XE</li><li>Added operation of <b>Ignore Date</b> in section <a href="#">3.3.3.4 Search the File</a>.</li></ul> Software version: R9.0.
R1.0	August 2017	Initial Release.

# 1. Overview

## 1.1 Introduction

The Record is a feature that enables a radio to store a call (both calling party and called party) or on-site voice as an audio file through its recording program.

It includes Call Record and Live Record.

- Call Record: record the calls for future inquiry, management or evidence.
- Live Record: record the on-site voice for further evidence.

## 1.2 Restrictions

- The record feature is available only for Conventional or XPT Trunking radio, including:
  - PD70XS
  - PD98X with the firmware R8.0 (V8.00.06.007) or above
  - PD78XE with the firmware R8.5 (V8.05.06.005) or above
- PD70XS only supports Call Record feature; PD98X and PD78XE support both Call Record and Live Record features.
- The record feature of PD98X and PD78XE is a paid feature. You need to buy License for authorization.
- The duration for single live recording is 495 minutes. During live recording, the radio neither gives alert tones, nor responds to VOX feature and talk around button, but can be interrupted by the voice service and emergency call.

## 1.3 Principle

The PD70XS realizes the record feature through a third party option board. The radio automatically records calls and saves files in the board. You need to use the third-party software to play and manage the files.

PD98X and PD78XE are with self-developed recorder. With the feature enabled, the radio stores all record files in its Micro SD card (TF card). You can play and manage the files through radio menu or through DMR Record Manager. For the operations, see [3.2 File Management via Radio](#) and [3.3 File Management via DMR Record Manager](#) respectively.

## 1.4 Application

The record feature can be applied in the following three scenarios.

- Record the calls of all members

Company A uses PD98X Conventional for communication. To improve work efficiency, the manager expects to record the calls among all members. In this situation, the Call Record feature can be enabled to make the records through CPS.

- Record the crucial call

The action group uses PD98X Conventional for communication. During the mission executing, the dispatching command needs to be recorded for future inquiry and evidence. In this situation, the Call Record feature can be enabled through the programmable key to make the records.

- Record the on-site Voice

The action group uses PD98X XPT Trunking for communication. During task executing, the on-site voice needs to be recorded as the legal evidence. In this situation, the Live Record feature can be enabled through radio menu to make the records.

## 1.5 Versions

- R9.0: Modified CPS path of Call Record for PD98X and PD78XE.
- R8.5: PD78XE supports the record feature.
- R8.0: PD98X supports the record feature.
- R1.0: PD70XS supports the record feature.

## 2. Configuration

The record feature is configured through CPS. For PD98X and PD78XE, the feature can also be enabled or disabled through radio menu.

The configuration varies from models. This chapter will introduce them respectively. Operations for the Conventional radio is the same as that for the XPT Trunking radio, the Conventional radio is taken as an example.

For better configuration, you can also refer to the Help for details.

### 2.1 Configuration Tool

V9.00.07.712.iM or above CPS

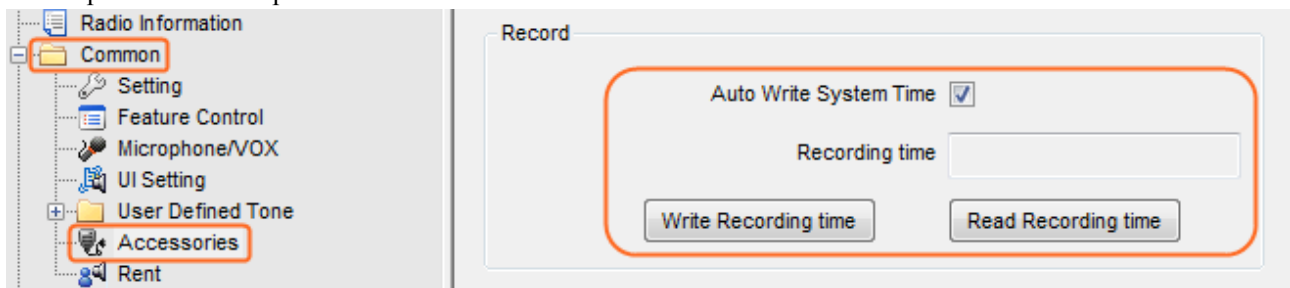
### 2.2 Procedure

#### 2.2.1 PD70XS

PD70XS only supports the Call Record feature, and it automatically records during a call. You are required to configure the following parameters in CPS.

**CPS Path:** Common -> Accessories -> Record.

**Parameters:** Auto Write System Time, Write Recording Time and Read Recording Time. Refer to CPS Help for the parameter description.



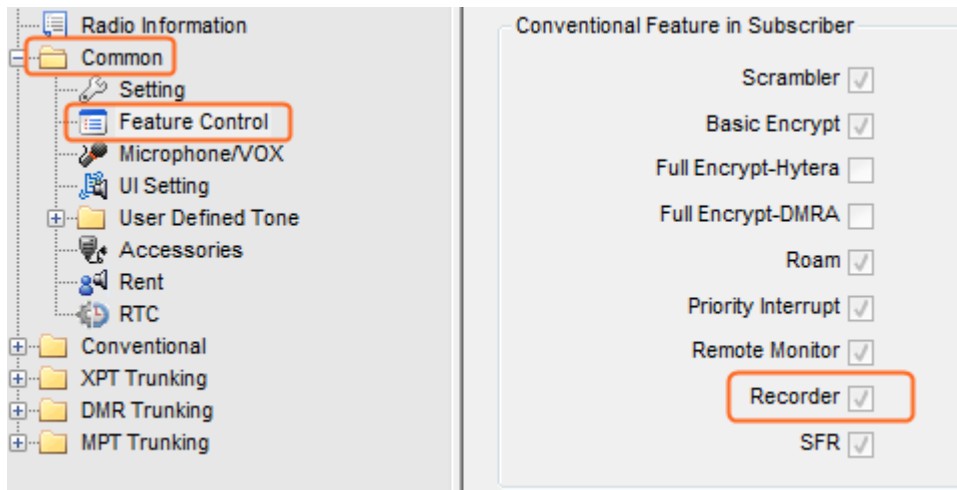
#### 2.2.2 PD98X/PD78XE

**Step 1** Activate the Record feature.

This feature is a paid feature and requires a license for authorization. For operations, refer to *DMR Radio\_Authorization\_Operation Guide*.

**CPS Path:** Common -> Feature Control -> Conventional Feature in Subscriber -> Recorder.

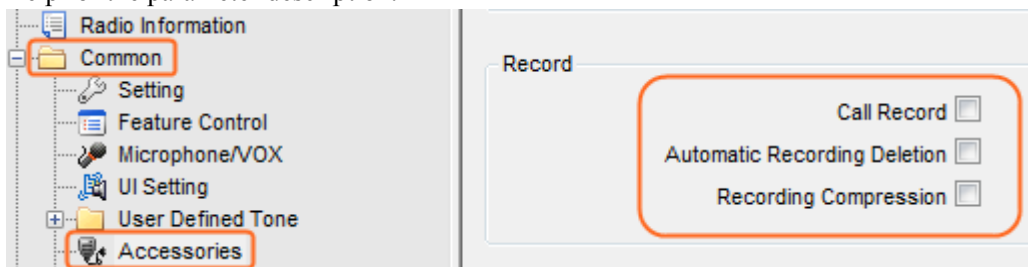
**Parameters:** Recorder. Refer to CPS Help for the parameter description.





**Step 2** Enable the Call Record feature.

**CPS Path:** Common -> Accessories -> Record.

**Parameters:** Call Record, Automatic Recording Deletion and Recording Compression. Refer to CPS Help for the parameter description.



Parameter	Description	Note
Call Record	<p>With this feature enabled, the radio records calls.</p> <ul style="list-style-type: none"> <li>● Checked: Enable Call Record.</li> <li>● Unchecked: Disable Call Record.</li> </ul>	<p>The radio displays  on status bar after this feature is enabled.</p>
Automatic Recording Deletion	<p>With this feature enabled, the radio deletes the earliest record files when the record files exceed the capacity of Micro SD card (TF card).</p> <ul style="list-style-type: none"> <li>● Checked: Enable Automatic Recording Deletion.</li> <li>● Unchecked: Disable Automatic Recording Deletion. When the record files exceed the capacity of Micro SD card, the radio</li> </ul>	<p>The radio displays  on status bar when the capacity of Micro SD card is less than 200M.</p>

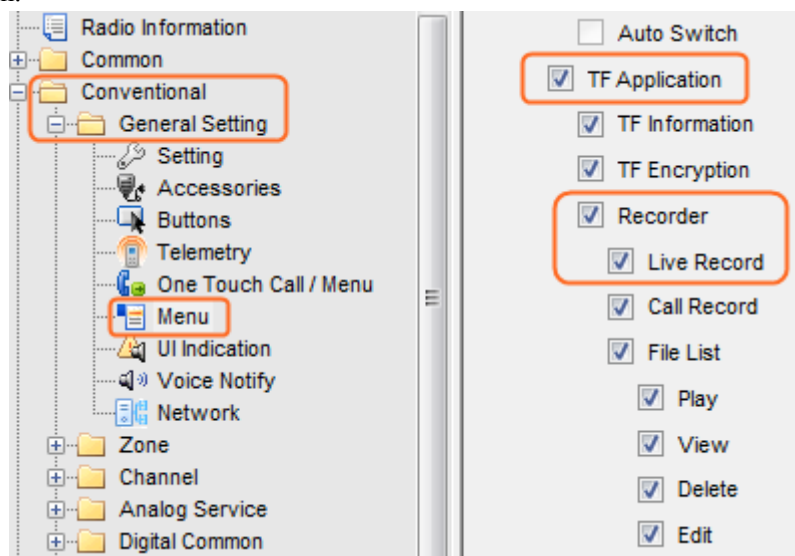


Parameter	Description	Note
	prompts "TF Card Full".	
Recording Compression	<p>With this feature enabled, the radio compresses the record files at a ratio of 4:1 to save the capacity of Micro SD card. This will not impact the file quality.</p> <ul style="list-style-type: none"> <li>● Checked: Enable Recording Compression.</li> <li>● Unchecked: Disable Recording Compression.</li> </ul>	<p>With the feature enabled, the view feature is backward compatible only. The record files of the radio with R8.5 (V8.05.06.005) or above firmware cannot be viewed normally by the radio with R8.0 (V8.00.06.007) firmware.</p>

**Step 3** Configure Live Record menu to enable or disable Live Record feature via radio menu.

**CPS Path:** Conventional / XPT Trunking -> General Setting -> Menu -> Common Menu -> TF Application -> Recorder -> Live Record.

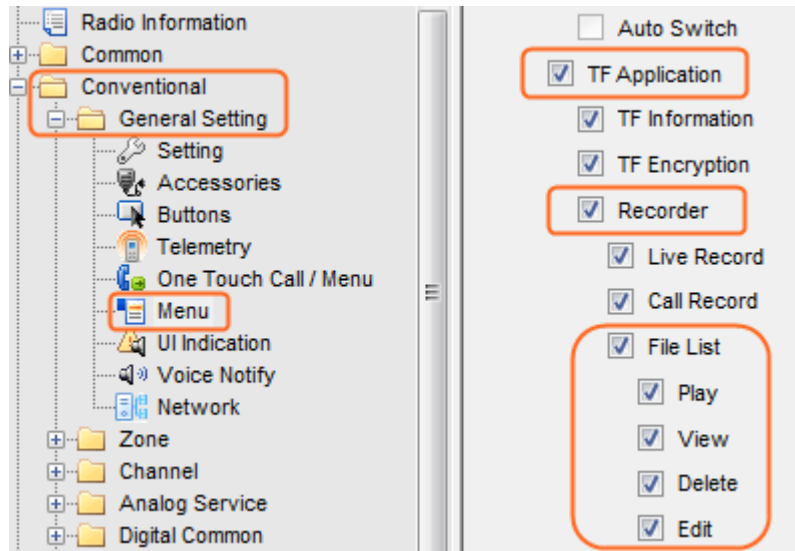
**Parameters:** TF Application, Recorder and Live Record. Refer to CPS Help for parameter description.



**Step 4** Configure File List menu to manage the record files via radio menu.

**CPS Path:** Conventional / XPT Trunking -> General Setting -> Menu -> Common Menu -> TF Application -> Recorder -> File List.

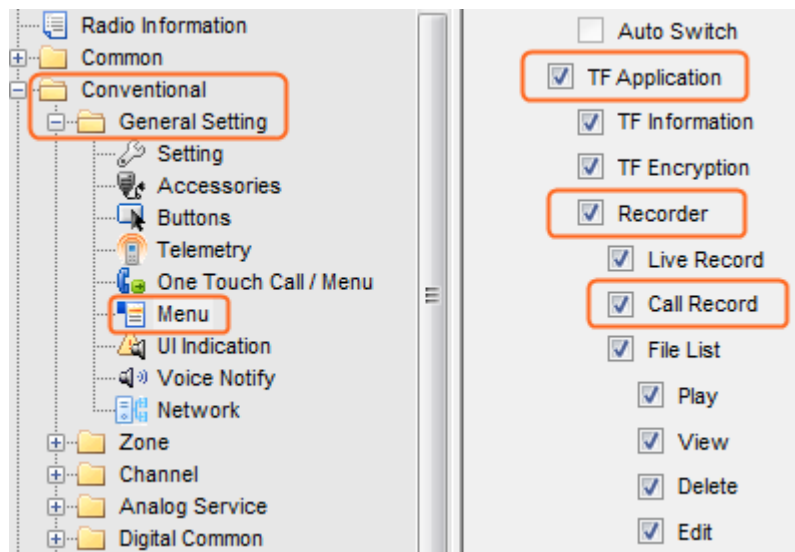
**Parameters:** TF Application, Recorder, File List, Play, View, Delete and Edit. Refer to CPS Help for parameter description.



**Step 5** (Optional) Configure Call Record menu to enable or disable the Call Record feature via radio menu.

**CPS Path:** Conventional / XPT Trunking -> General Setting -> Menu -> Common Menu -> TF Application -> Recorder -> Call Record.

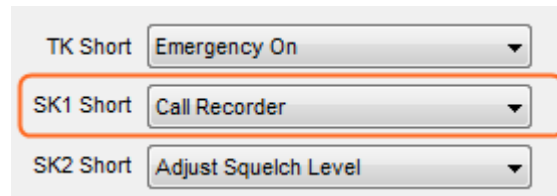
**Parameters:** TF Application, Recorder and Call Record. Refer to CPS Help for parameter description.



**Step 6** (Optional) Configure a programmable key to enable or disable Call Record feature via this key.

**CPS Path:** Conventional / XPT Trunking -> General Setting -> Buttons.

**Parameters:** Call Recorder. **SK1 Short** is taken as an example.



## 2.3 Radio Operations

Operations for the record feature vary from different models.

- For PD70XS, it only supports Call Record feature and automatically records calls.
- For PD98X and PD78XE, the record feature is enabled or disabled through the radio menu or the programmable key.


This chapter introduces the operations of PD98X and PD78XE.

### 2.3.1 Radio Menu

If the “Recorder” menu is configured through CPS, you can enable or disable Call Record and Live Record features through radio menu “Menu -> TF Application -> Recorder”.




- Call Record

After the feature is enabled, “Call Record On!” pops up and icon  appears on radio screen.

- Live Record

After **Live Record** is selected, the recording interface appears. You can select **Start** to start the recording (left figure below), and **Save** to end it (right figure below).

During the recording, the icon  keeps flashing, and when it's completed, all icons are recovered.



### 2.3.2 Programmable Key

If the programmable key is configured through CPS, you can enable or disable the Call Record feature through the key. For configurations, see [Step 6](#) in section [2.2.2](#).

## 3. Record File Management

As the files are significant to show up the scene, they must be properly saved and filed as the evidence.

- For PD70XS, the files are stored in the third party option board. You have to manage them through the third-party software. For details, please contact local agency.
- For PD98X and PD78XE, the files are stored in the Micro SD card (TF card) of the radio. You can manage them through radio menu or through DMR Record Manager.

This chapter introduces the operations of PD98X and PD78XE.

### 3.1 Naming Rules

During recording, folders are automatically generated in the Micro SD card (TF card) to store the record files.

Each folder can store 200 files at most. The naming rules of the folder and the file are as follows:

- Folder: Record\_XXXX  
XXXX refers to the serial number of the folder, starts at 0001 and ends at 9999. When the folder quantity is over 9999, the folder will be overwritten from the earliest one.
- Record File: Xyyy\_MMDDHHMMSS.zz
  - X refers to the record type. “C” is for Call Record and “R” for Live Record.
  - yyy refers to one complete record, starts at 001 and ends at 999. The same yyy indicates the call is made with a same Private/Group/All Call ID within the Group/Private Call Hang Time.
  - MMDDHHMMSS refers to the record time.
  - zz: The duration for a single file is 5 minutes. If more than 5 minutes, the record file will be split into multiple ones. “zz” refers to the number of these files.

For example: A calls B at 9:00:11 on April 13, 2017 and talks for 6 minutes. And then B replies A for 2 minutes. In this situation, 3 record files will be generated: C001\_0413090011.01, C001\_0413090011.02 and C001\_0413090611.

### 3.2 File Management via Radio

The file can be directly managed through radio menu, including Play, View, Edit and Delete.

**Step 1** Configure the Record File List through CPS.

See [Step 4](#) in section [2.2.2](#) for the operations.

**Step 2** Select “Menu -> TF Application -> Recorder -> Record File List” on radio menu.



**Step 3** Select the folder in Record File List, and then select the file to play, view, edit or delete.



#### Note

- Only the recorded files can be played.
- You can select **Delete Folder** in a folder to delete the folder.

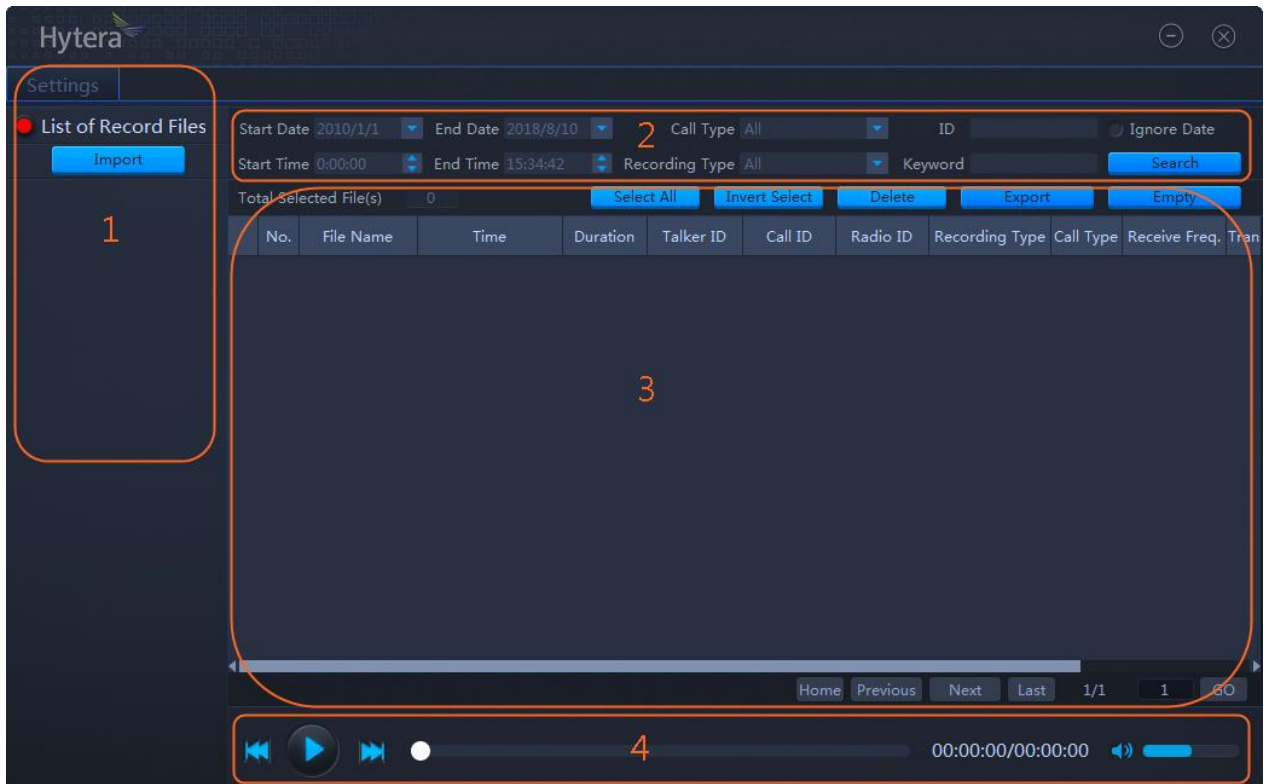


## 3.3 File Management via DMR Record Manager

### 3.3.1 Software Introduction

Because the storage capacity of the Micro SD card (TF card) is limited, and it's inconvenient to manage the files in batch through the radio, you can also use the DMR Record Manager to manage the files on PC.

The home page of the software is as follows:



Area	Name	Description
1	Navigation	Set language, list number of each page and import the record files.
2	Index	Set the condition to quickly find out the corresponding file
3	List	View and manage the record files.
4	Player	Play the record file.

### 3.3.2 Restriction

The software is applicable to the files of PD98X (V8.00.06.007 or above) and PD78XE (V8.05.06.005 or above).

### 3.3.3 User Operations

#### 3.3.3.1 Prerequisite

Please prepare the following items before you start.

- PC with operating system Win 7, Win 8, Win 8.1 or Win 10 of 32/64-bit  
Win7 is taken as the example hereinafter.
- PC38 Programming Cable
- USB Driver: ensure the program has been successfully installed in the PC, otherwise, the PC will not be able to recognize the radio. If the USB driver is not installed yet, Refer to *Digital USB Driver Installation Guide R5.0* for the installation.

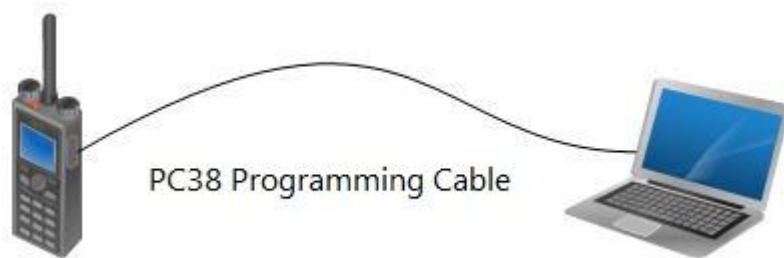
- Installation Package of DMR Record Manager: Follow the installation wizard to install the DMR Record Manager. You need to enter the key for installation, which is in the SN.txt of the package.

### 3.3.3.2 Enter U-disk Mode

Before file management, please make the radio enter the U-disk mode.

**Step 1** Power off the radio.


**Step 2** Connect the radio to PC.



**Step 3** Hold **TK** and **SK2** keys, and then power on the radio.

When the radio enters the U-disk mode successfully, its LED indicator glows green and “U-disk Mode!” appears on radio screen. If not, please power off the radio and repeat the above steps.

#### Caution

- In the U-disk mode, the radio can only read or write the data of the Micro SD card (TF card), and all features are invalid.
- The icon  and “No Devices!” appear on radio screen if there is no Micro SD card, or Micro SD card is invalid or disconnects with the radio.
- If the Micro SD card is encrypted, “Special Device, No Read & Write” appears on radio screen. The Micro SD card can still be read and written normally.

**Step 4** Choose the new U-disk on PC, and copy the record files to PC.

#### Note

Some unexpected situations (power-cut during upgrade) may cause the failure to read or write the data of Micro SD card (TF card). Please power off the radio and try again.

**Step 5** Power off the radio to exit the U-disk mode.

### 3.3.3.3 Import the File

Do as follows to import the files to the DMR Record Manager.

**Step 1** Run the application.

**Step 2** Click **Import** in the navigation area.

The following dialog box pops up.



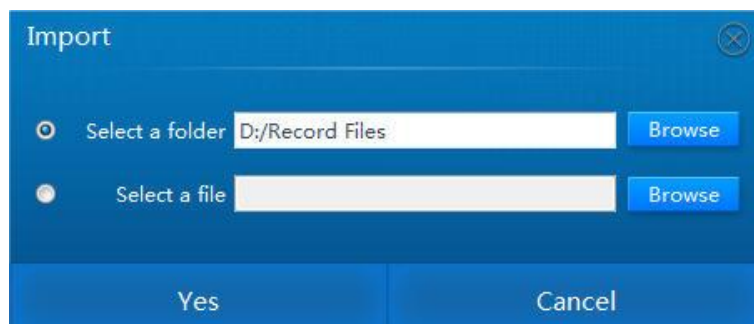


There are two methods to import the files: in batch with the whole folder or one by one. The former is the default one introduced hereinafter.

**Note**

Only one folder or file can be imported once.


**Step 3** Click **Browse**, choose the folder, and then click **Choose**.

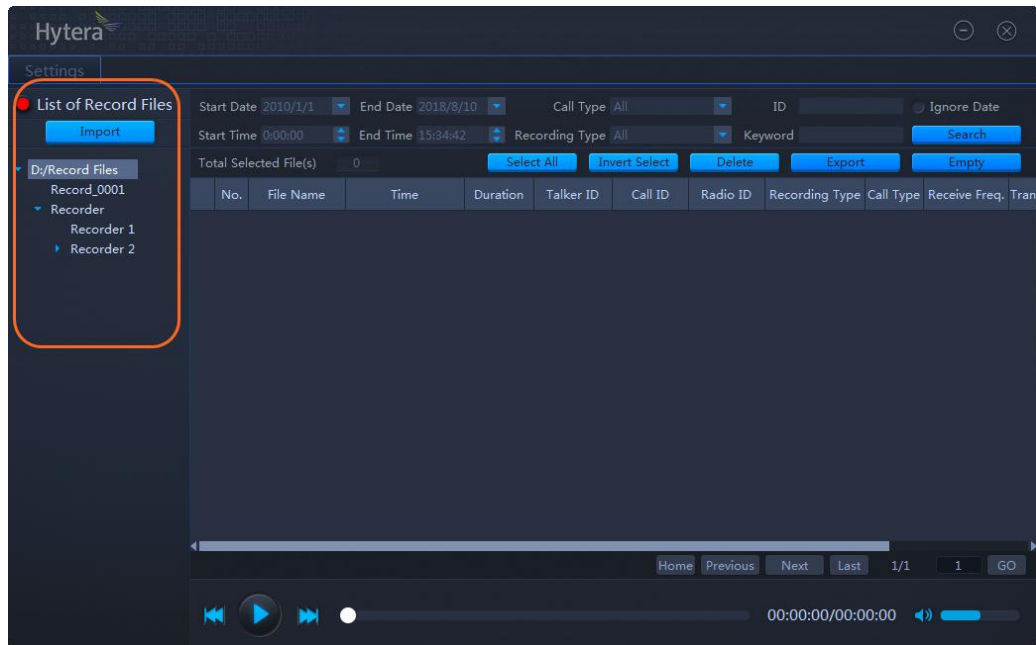


**Step 4** Click **Yes** to import the files.

The imported files or folders are listed on the left pane of the interface, see figure below.

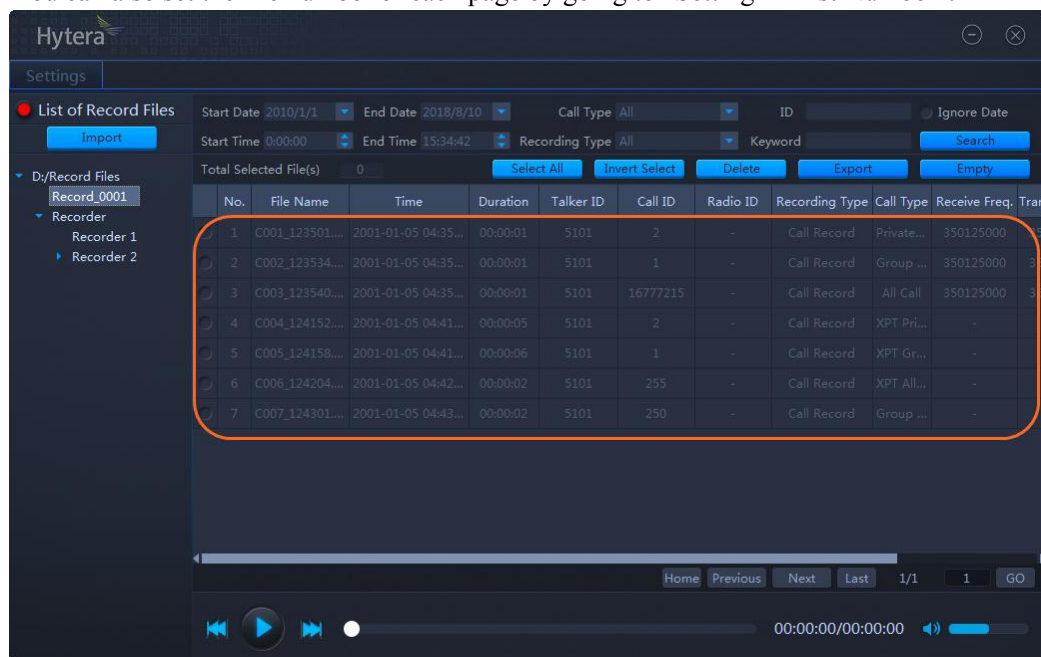
**Note**

Click  to expand and view the sub-folders of the root folder.



Click the file or folder to view the file list. You can see the details of the file.

You can also set the file number of each page by going to “Setting -> List Number”.



### 3.3.3.4 Search the File

You can set one or multiple search conditions to quickly find a file, including date, time, call type, record type, talker ID, call ID, radio ID and file name.

#### Search through Date or Time

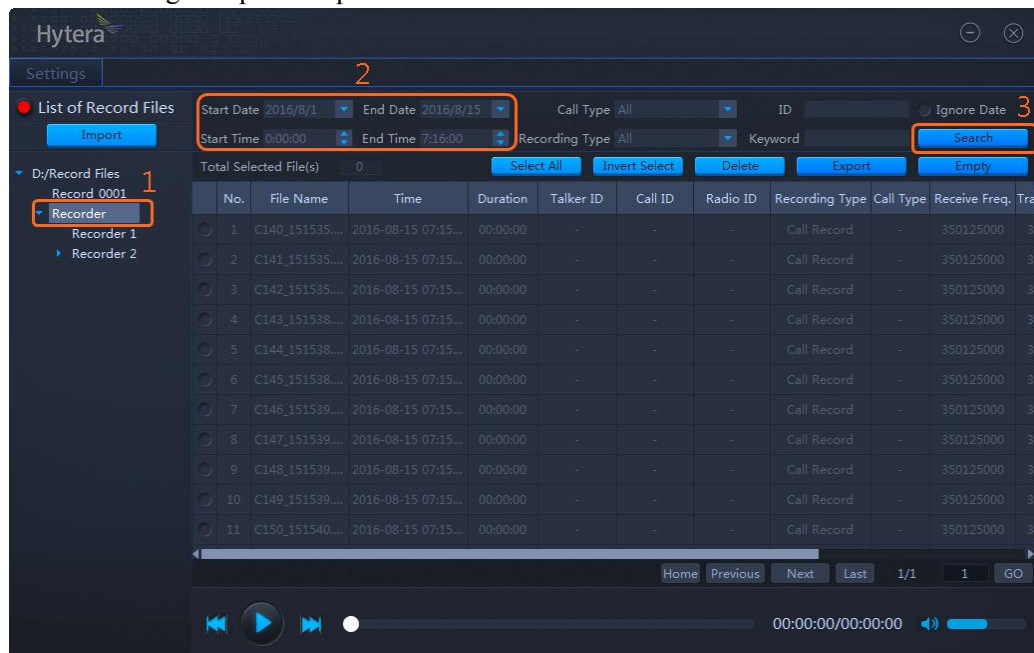
**Step 1** Select the folder in the left Navigation.

**Step 2** Set the date and time.

For example, search for the files in time period 0:00-7:16 a.m., 2016-8-01- 2016-8-15.

**Step 3** Click **Search**.

All files during the specified period are listed.

**Search through Call Type or Record Type**

**Step 1** Select the folder in the left Navigation.

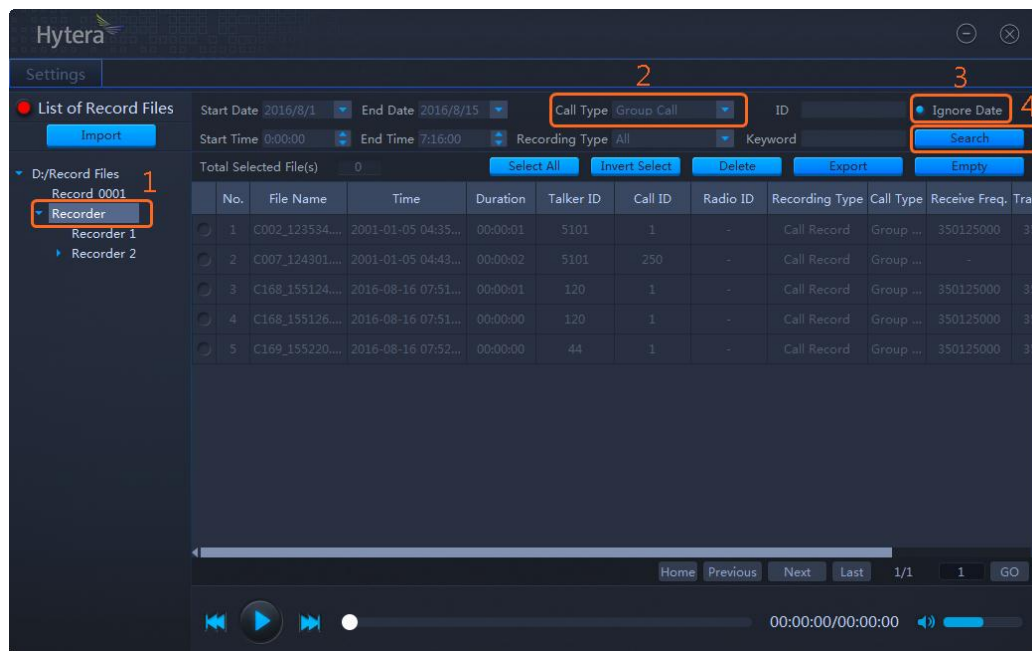
**Step 2** Choose the call or record type from the drop-down list.

For example, choose Group Call to search for the corresponding files.

**Step 3** (Optional) Select **Ignore Date** if necessary.

**Step 4** Click **Search**.

All files that meet the condition are listed.



### Search through ID or Key Word

**Step 1** Select the folder in the left Navigation.

**Step 2** Enter the ID or Key Word.

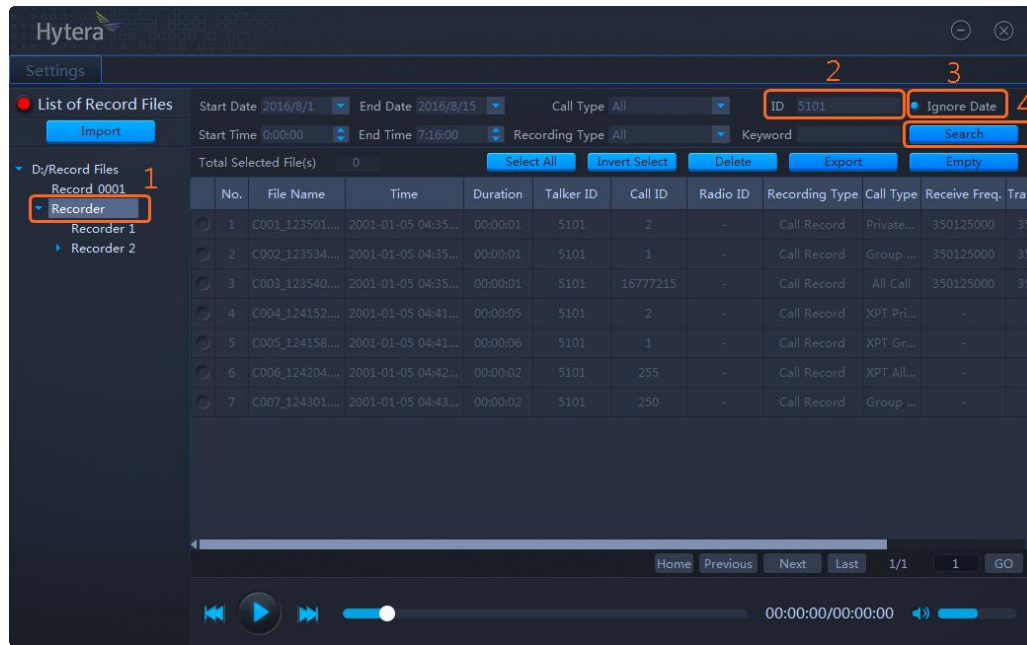
- ID: Talker, Call or Radio ID, and it must be a number. You need to enter the complete ID.
- Keyword: Fuzzy search is available through the key word of the file name.

For example, enter 5101 in the ID field to search for the files of the corresponding receiver ID.

**Step 3** (Optional) Select **Ignore Date** if necessary.

**Step 4 Click Search.**

All files of ID 5101 are listed, see figure below.



### 3.3.3.5 Play the File

You can play the files after they are imported.

#### Play Single File

There are three methods to play the file.

- Double click the file.
- Right click the file and choose **Play**.
- Play the file according to [Play Multiple Files](#).

#### Play Multiple Files

**Step 1** Select the files.







#### Note

You can click **Select All** or **Invert Select** to select files.

**Step 2** Click  button to play the file.

The selected files are played sequentially. During the playing, you can:

- Drag the progress bar to fast forward or reverse.
- Click  or  button to play the next one or previous one.
- Click the volume bar to adjust the volume.
- Click  or  button to enter or exit the silent mode.

### 3.3.3.6 Save the File

**Step 1** Select the file (s).

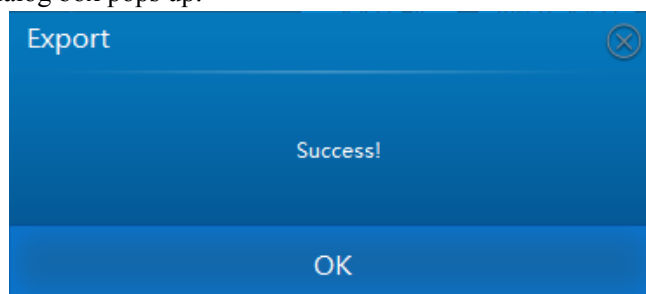


- You can click **Select All** or **Invert Select** to select files.
- If you want to modify the file name, right click the selected file, and then choose **Rename**.

**Step 2** Click **Export**.

**Step 3** In the popped up window choose the directory, and then click **Choose**.

The following dialog box pops up.



**Step 4** Click **OK** in the dialog box.

### 3.3.3.7 Delete the File

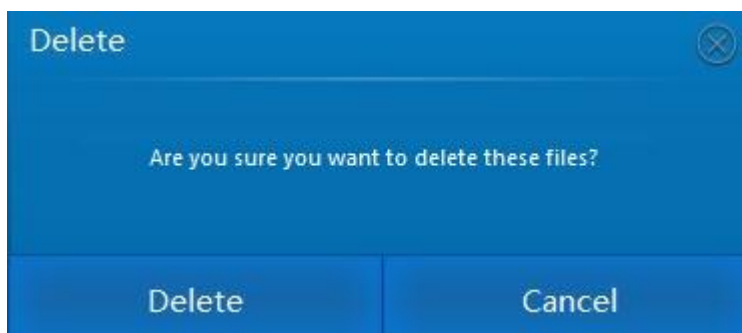
#### Delete the File

**Step 1** Select the file (s).



You can click **Select All** or **Invert Select** to select files.

**Step 2** Click **Delete**.

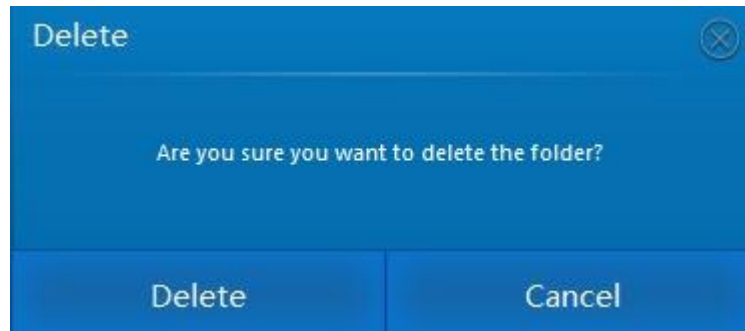


**Step 3** Click **Delete** in the dialog box.

The file (s) is deleted from the list. Meanwhile, the corresponding file saved on PC is deleted as well.

#### Delete the Folder

**Step 1** Select the folder of **List of Record Files** in the navigation area, right click and select **Delete**.



**Step 2** Click **Delete** in the dialog box.

The folder is deleted from the list.

## 4. FAQ

**Q: Why are some record files in the Micro SD card (TF card) unrecognizable?**

A: The files are not recorded by PD98X or PD78XE. The DMR Record Manager recognizes only the files recorded by PD98X or PD78XE.

**Q: What should I know when using the Micro SD card (TF card)?**

A: Please be advised to:

- Avoid recording and reading the Micro SD card when the battery is low, e.g., only one bar left.
- Avoid hot plugging, or the card may be damaged or gets data lost.
- Avoid virus infection.
- The radio plays only the recorded files. Don't copy other audio files into the Micro SD card.
- Please ensure the Micro SD card has enough storage capacity.

**Q: Why there's no response from clicking "Import", "Search", "Select All", "Invert Select", "Delete", "Export" or "Empty"?**

A: Check whether the file is under playing. No response will be given by the operations mentioned above during playing.

**Q: Why does the playing stops before the finish?**

A: Two operations as follow will stop the playing at once.

- Turning the page. Exactly, the playing stops when you click Home, Previous, Next or Last.
- Switching the file directory. E.g., click "D:/Recorder\_0001" in the left pane when it plays the file in "D:/Recorder".



## Abbreviations

Abbreviation	Full Name
CPS	Customer Programming Software
XPT	Extended Pseudo Trunk



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