ECG Viewer Manager

User Manual

Introductions to User

Dear Users,

Thank you very much for purchasing our Easy ECG Monitor series products. This manual is intended to assist the user in uploading ECG Data from Easy ECG Monitor to PC in a safe and effective manner. Please read this manual carefully before running the system, and follow it to operate.

The Manual is published in English and we have the ultimate right to explain the Manual. No part of this manual may be photocopied or modified without the prior written consent. We reserve the right to improve and amend it at any time without prior notice.

ECG Viewer Manager is application software running on a personal computer with Microsoft Windows operating system, so the user should be acquainted with some knowledge to operate computer.

Version of the Manual: Ver1.8

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Software version: V4.0

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The version of this user manual is applicable to the PC software "ECG Viewer Manager" with version V4.0 or afterward which can be used to connect the "Easy ECG Monitor" device with version V1.2 or afterward.

3502-2430012

Information for Operation

➢ Please make sure the well connection of the data cable between PC and Easy ECG Monitor before uploading data, do not pull out the data cable arbitrarily during the data upload.

➢ Data transmission may be interrupted during uploading the data in case of low battery voltage for Easy ECG monitor.

➢ Do not do the key operation on Easy ECG Monitor during the data upload.

➢ While installing printer driver on PC, please quit "ECG Viewer Manager" software firstly if it's running.

Notes：

➢ 1. Connect/Disconnect the data cable to Easy ECG Monitor gently and carefully, do not bring or shake the data cable plug with force to insert into or unplug from data interface port.

➢ 2. Before updating the software "ECG Viewer Manager", please uninstall the previous version if there is and manually delete all the files in the default installation folder ("C: \ECG Data Manager\") or your customized installation folder.

For example: "ECG Viewer Manager" is installed under the file folder of "C:\ECG Data Manager for 80D". At first, uninstall the "ECG Viewer Manager for PC-80D/Prince 180D" software from "Control Panel → Add/Uninstall Programs", and then manually delete the all files under the directory "C:\ECG Data Manager for 80D". Next, install the new version of "ECG Viewer Manager".

Table of Contents

1 Overview

1.1 Features

The waveforms and data saved in Easy ECG Monitor which have been uploaded to PC through USB data cable can be archived and reviewed by ECG Viewer Manager. It is convenient for user to browse the stored data records, view the ECG waveforms and SpO_2 and pulse rate trend graph as well as back up the uploaded data.

1.2 Prerequisite

Computer Hardware Requirement:

PC with Intel Pentium Ⅲ CPU, 800MHz speed or higher; 256MB or higher memory; CD-ROM drive; at least 1GB space available in the hard disk to install "ECG Viewer Manager" software.

Requirement for Operating System:

Microsoft Windows XP, Windows 2000, Windows Vista or Windows 7

1.3 Procedure of Data Uploading

1. Install "ECG Viewer Manager" software and "USB Driver".

2. Set the resolution of screen display as "1024×768" pixel or higher.

3. Connecting the Easy ECG monitor to PC with the data cable provided. (As shown in the figure 2-8);

4. Power on the Easy ECG Monitor.

5. Double-click the icon " " on desktop to start running "ECG Viewer Manager" Software and click " " (button for user info) on the main menu screen to add a new user.

6. Click " " (button for data import) on the main menu to preview the records to be uploaded, select the record needed to upload, click the " " button to load the data into PC. After that the user can do further review and analysis on those records dumped into PC.

Notes: More information about the operation refers to the following sections in details.

2 Installation, Connection and Settings

2.1 Installation of ECG Viewer Manager

Insert the CD-ROM which contains the installation software into CD-ROM drive, the software installation will be automatically running or directly running the program "setup.exe" in the root directory of CD-ROM drive, then the window of "ECG Viewer Manager Setup" will be prompted on the screen as shown in Figure 2-1A. Selecting the installation option for device type "PC-80D/ Prince 180D (V4.0)" to enter into the next screen, as shown in Figure 2-1B.

Note:

Selection of device type: "PC-80 D / Prince 180 D   (V4.0)"

This selection is applicable to the device "Easy ECG Monitor" with model of PC-80D and Prince 180D with hardware version is V1.2 or later.

(Checking the hardware version of the device: the version will be displayed on screen once you power on the monitor.)
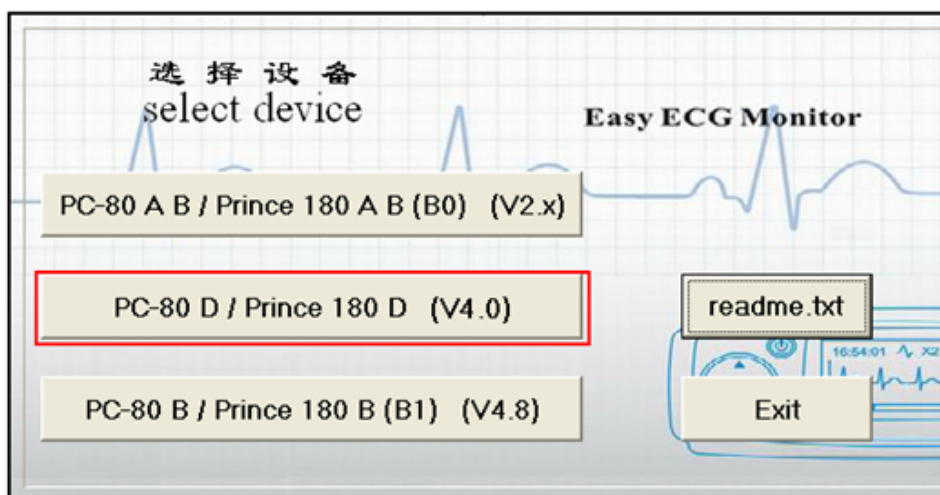

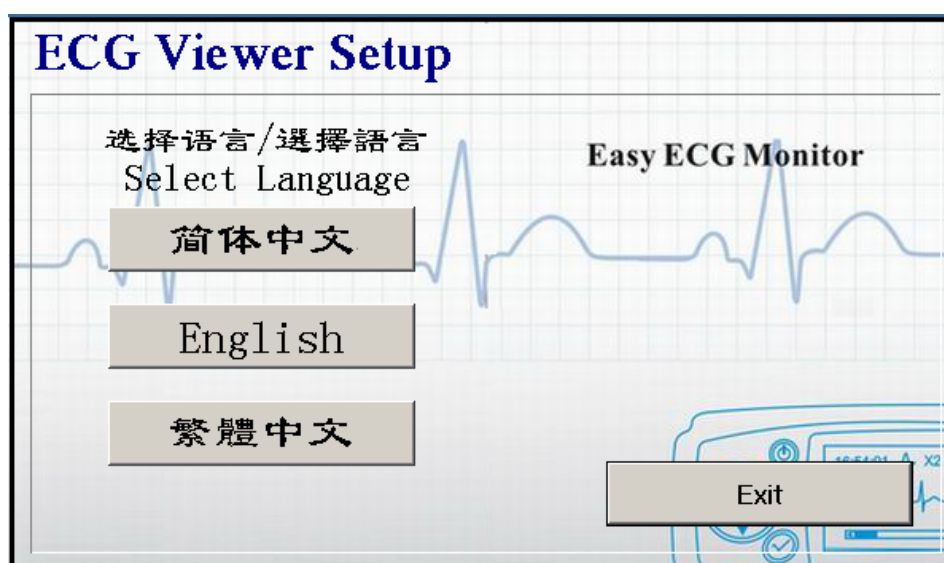Figure 2-1A ECG Viewer Manager Setup Screen

Figure 2-1B ECG Viewer Manager Setup Screen

Note: the setup screen may not display Figure 2-1A as for the configuration.

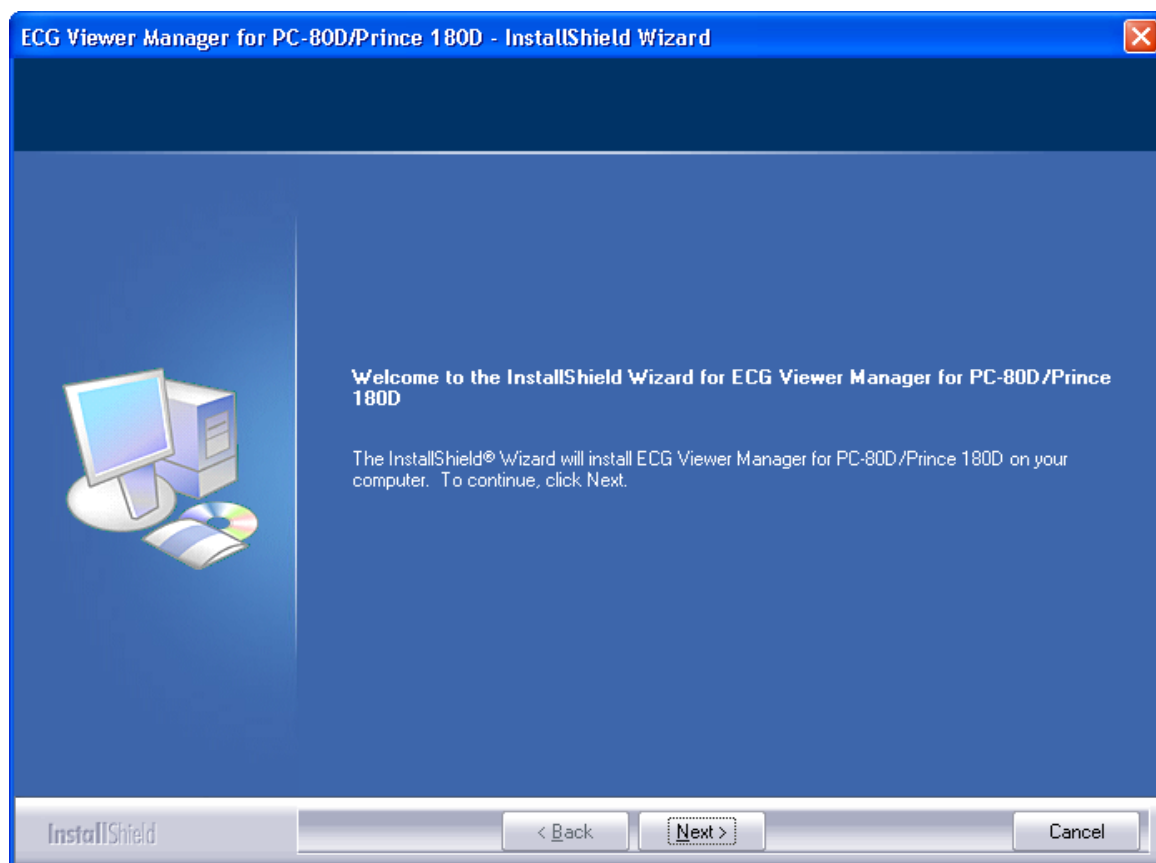According to the prompts of installation of ECG Viewer Manager for PC-80D/Prince 180D to operate, as shown in figure 2-2—figure 2-6;
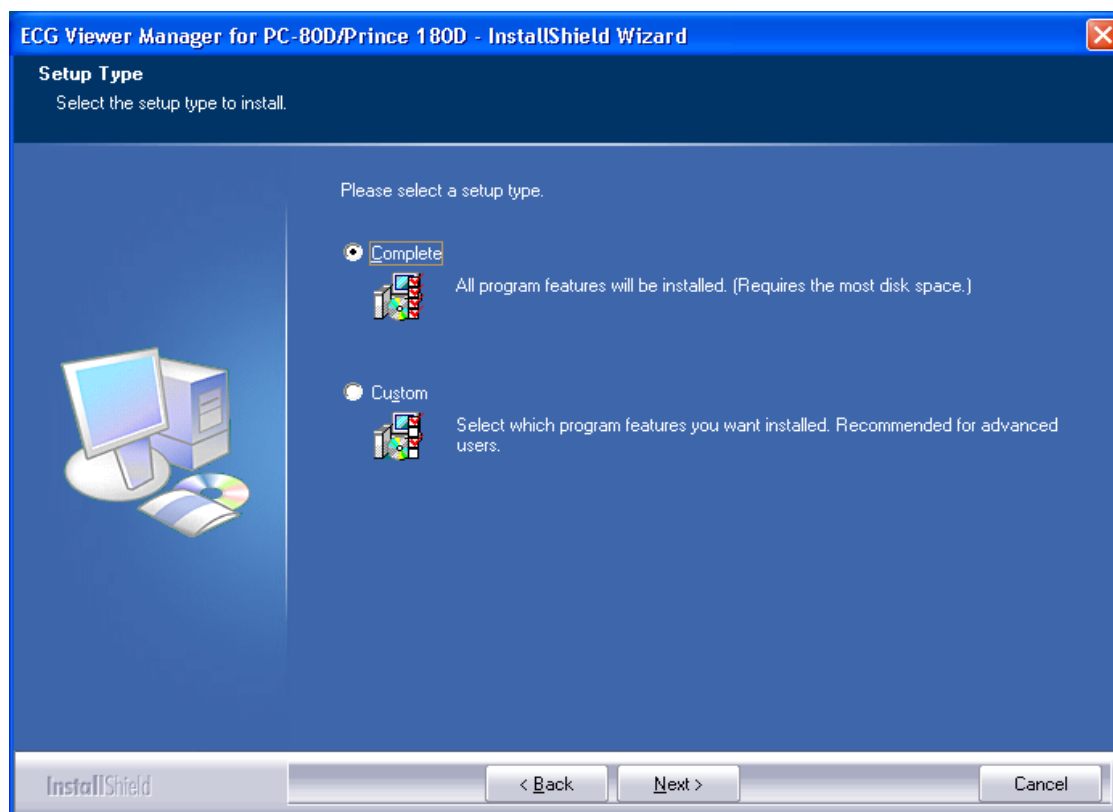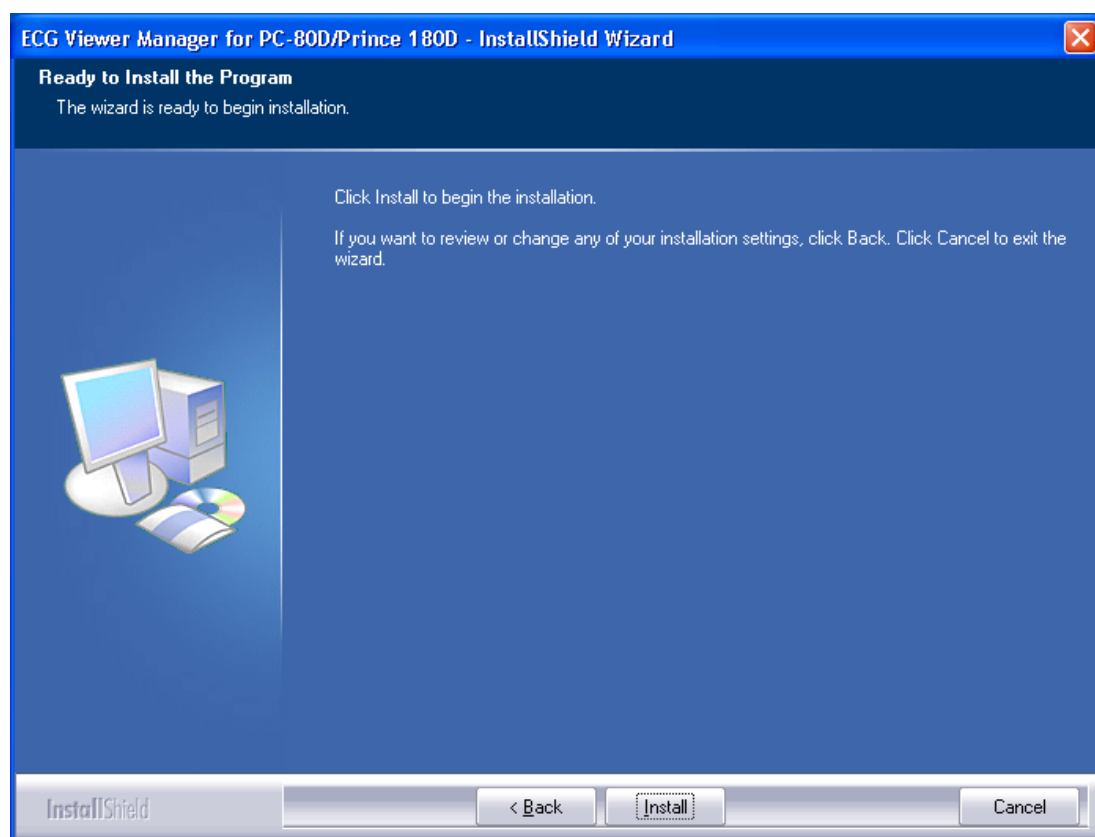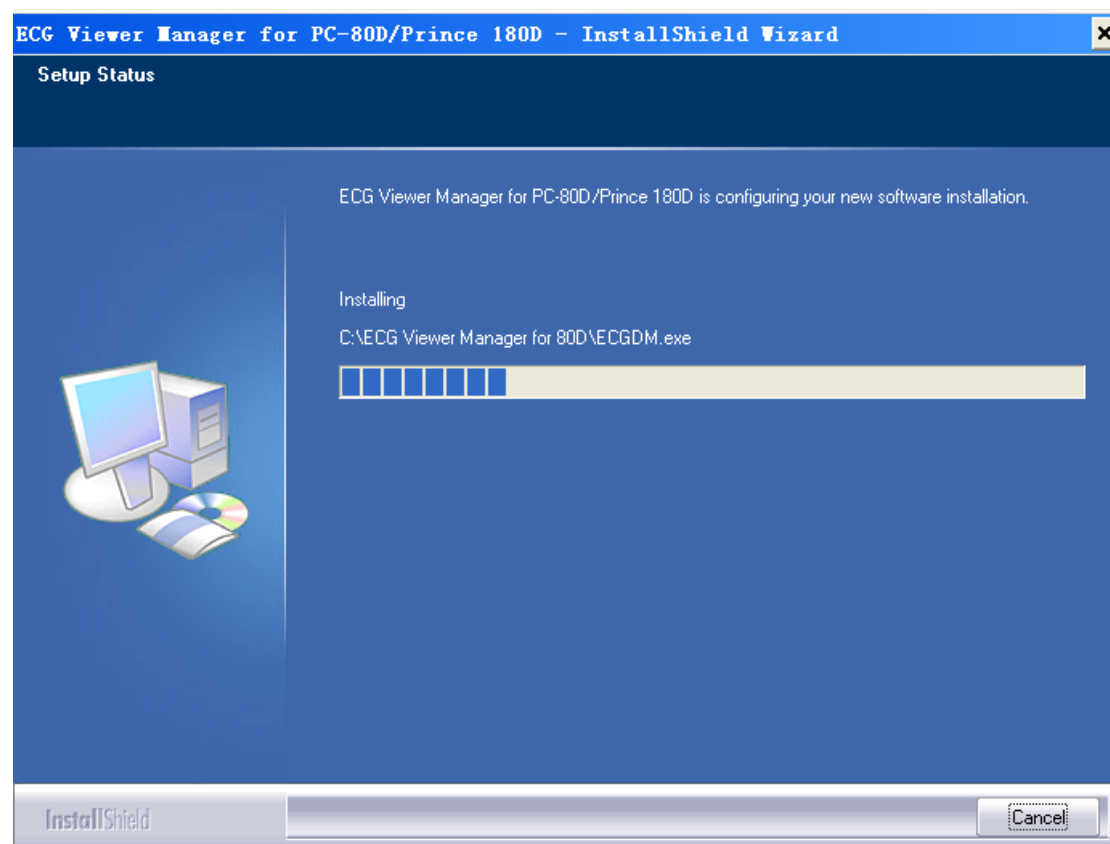

Figure 2-2

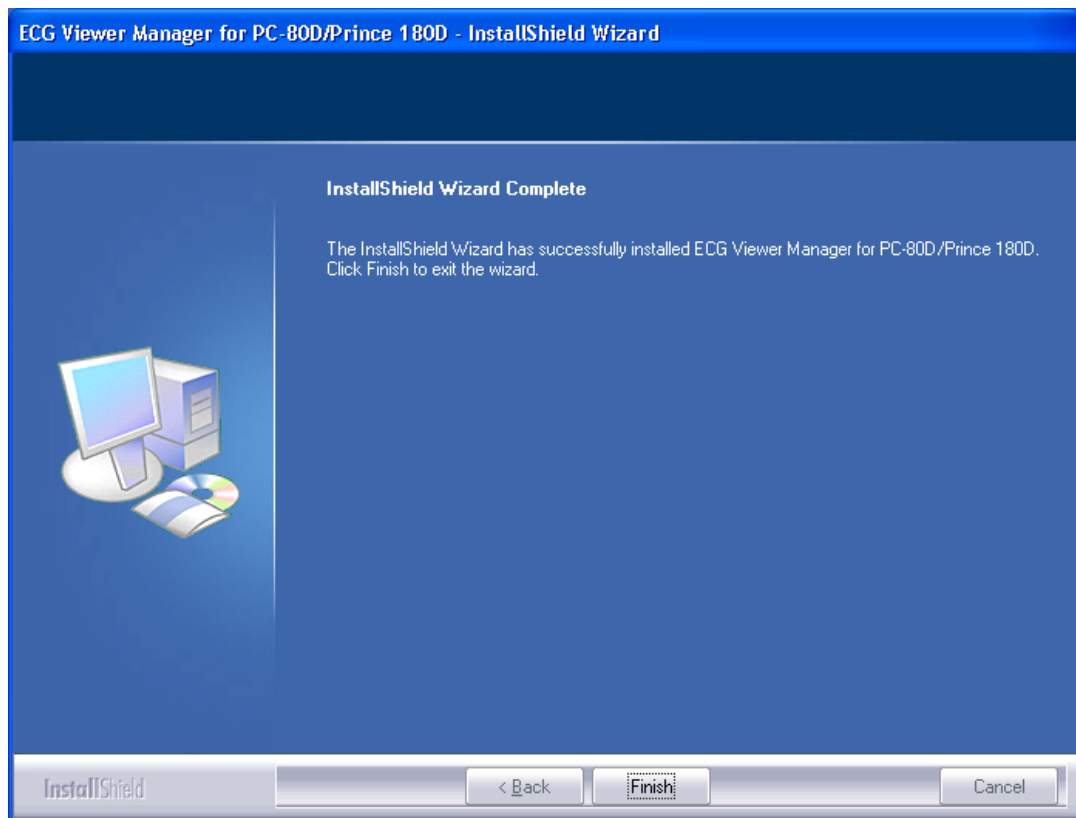
Figure 2-3

Figure 2-4

Figure 2-5

Figure 2-6

Note: If "Complete" (default) installation is selected, the installed program files will be located in the disk path "C: \ECG Data Manager for 80D". If user doesn't want to use default installation, please select "Custom" and click "Next" to choose the root directory for locating the program files as shown in Figure 2-3.

2.2 PC Setting

1. Setting Display Properties

On desktop screen of Windows operating system, click the right button of the mouse, it will bring up a quick menu, then move the cursor to select "Properties". Choose "Settings" on the "Display Properties" window, then set the "Screen resolution" option as "1024 by 768 pixels", and set the "Color quality" option as 16bit or higher, as shown in Figure 2-7.
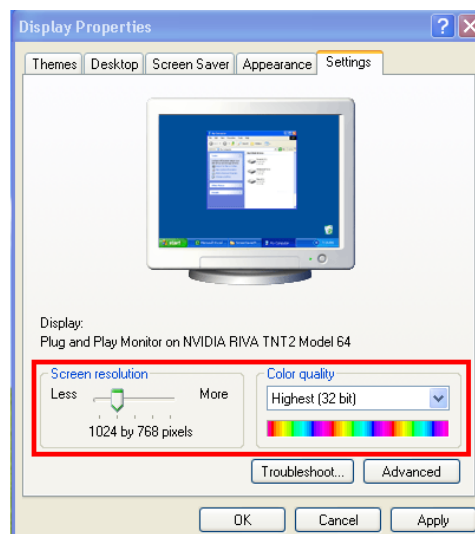

Figure 2-7 Display Properties Setup

2.3 Device Connection

After "ECG Viewer Manager" software is installed, refer to Figure 2-8 to perform cable connection:
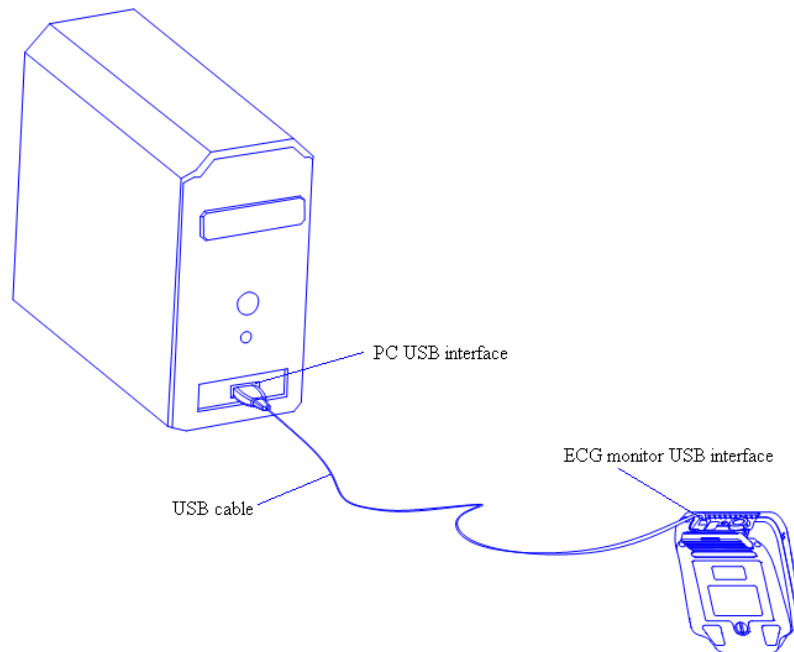
Figure 2-8
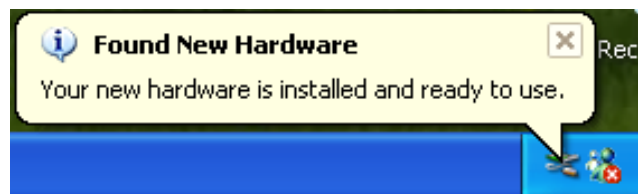
Figure 2-9

2.4 Easy ECG Monitor Setting

Please power on the Easy ECG Monitor before uploading data.

3 Operations

3.1 Main Menu

Double-click the icon " " of "ECG Viewer Manager" on the desktop with the Mouse, then ECG Viewer Manager will run automatically and pops up the main menu screen, as shown in Figure 3-1.
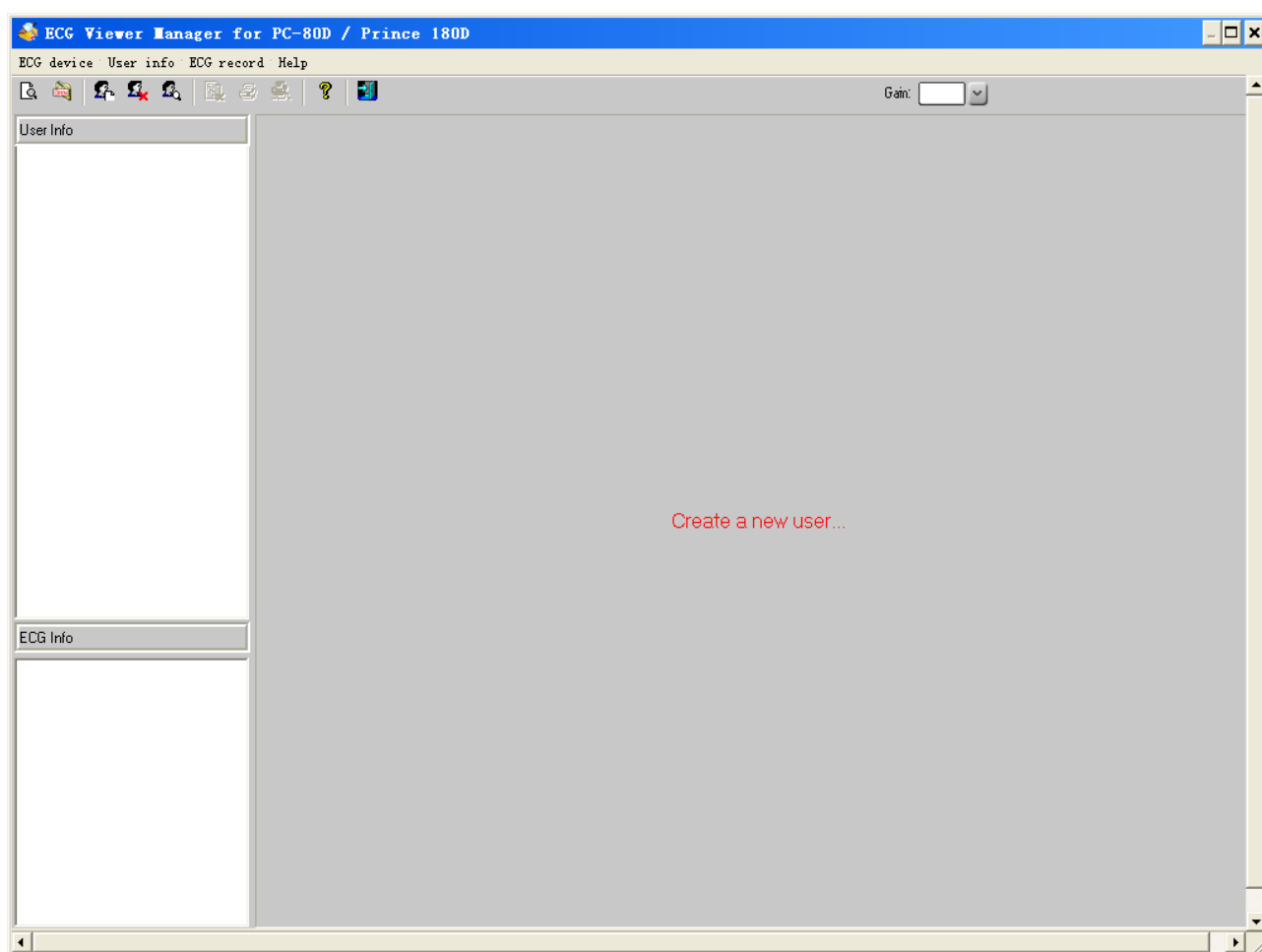
Figure 3-1 Main Menu

Description of menu bar: ECG device   User info   ECG record   Help

❖**Menu items**

| Menu name	pull-down menu	Function description
ECG Device	Import device data	Transfer the data to PC from the device through provided USB data cable.
	Import disk data	Copy the data to PC from the disk as it looks like a data disk.
	Exit	Exit the manager system
User info.	Create a new user	Create a new user archives
	Delete user	For deleting the archives
	Find user	For browsing the user archives
ECG record	Delete ECG info	For deleting the ECG records
	Print result	Print the interpretation of the ECG records including the statistical result and the trend graphs for SpO_2 and PR.
	Print waveform	Print signal waveform of the ECG record
Help	About	Display the ECG view manager version, the disk space information and so on.

✧ **Menu operations:**

Select the functional buttons from the pull-down menu to enter the corresponding operation screen.

Description of tool bar:

✧ The Tool bar contains shortcut for menu selection, the user can operate from the menu bar, or shortcut keys for quick operation. Click "Exit" to exit the manager system.

3.2 User Archive Management

On user archive management screen, adding new user ID, modification and deleting archive can be performed. On the left of screen is the list of user name.

3.2.1 Create New User

Click the submenu "Create a new user" in the pull-down menu of the "User info" button, or click the Tool bar icon " ", and then window appears on the desktop, as shown in the figure 3-2.

Figure 3-2 Create a New User

Description：

✧ **Name：** User name; display or enter user name; length of name is less than 30 ASCII characters.

✧ **ID：** Identification number; display or enter ID number; length of ID is less than 30 characters.

✧ **Sex：** Choose Male/Female in submenu "▼"

✧ **Age:** display or enter user's age. Please enter Arabic numerals.

✧ **Blood type:** Display or enter user's blood type in the submenu "▼", you can also enter manually

✧ **Telephone：** Display or enter User's telephone number.

✧ **Height:** User's height; display or enter user's height. Please enter Arabic numerals.

✧ **Weight:** User's weight; display or enter user's weight. Please enter Arabic numerals.

✧ **Remark:** Display or enter the contents of the note; the length of the contents is less than 160 bytes or 80 characters.

3.2.2 Modify the User Info.

After enter the information of the selected user, click the "OK" button. The user name list is on the left side of window, the detail of User Info and ECG Info is on the right side of window, as shown in figure 3-3. In this screen, you can modify the user information, finally click the "update" button.

Notes ：ID and name can not be modified.

Figure 3-3 User Info.

3.2.3 Find User

On main menu screen, click the submenu "find user" in the pull-down menu of the "User info" button, or click the Tool bar icon " ", then the window appears on the desktop, as shown in the figure 3-4.
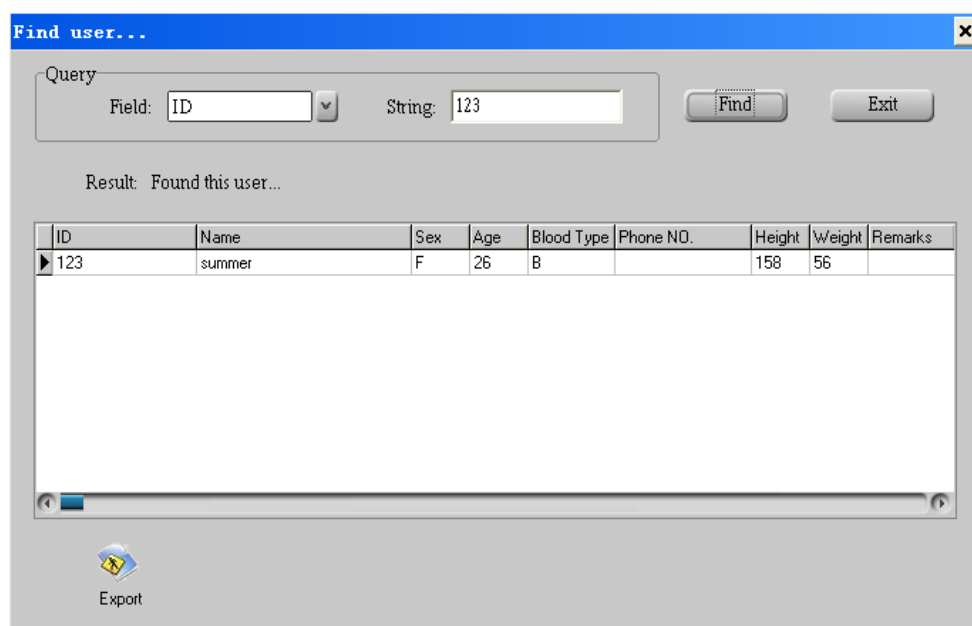

Figure 3-4 Find User

Figure 3-5 Found User

Screen Description:

✧ **Field:** "ID" and "Name" are optional: you can search user through the ID and name.

✧ **String:** Key word to be searched. Enter the ID and the full name or the first alphabet or character of the name or the first ID number to search the user. If no key word is entered into the "String" field, all the user info will be displayed after clicking "Find".

✧ **Result:** Click the "find" after enter the Search criteria, if the user exists, it will prompt "Found the user" and spring the information of the archive in the screen as shown in the figure 3-5. If the user does not exist, it will prompt "the user information is not being found".

✧ Export: click it to export the user information list to a data file, the file name will be ""xxx.csv" which can be opened by software "Excel".

3.2.4 Delete User

On the left of main menu screen is user name list, click the user information who you want to delete. On main menu screen, click the submenu "Delete" in the pull-down menu of the "User info", or click the Tool bar icon " ", then a window appears on the desktop, as shown in the figure 3-6.

Note: this operation will delete all records under this user and can not be recovered.
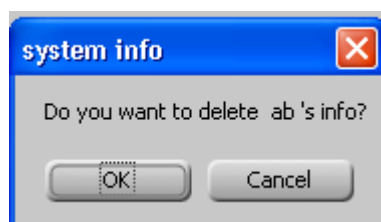

Figure 3-6 Delete User

3.3 Device Management

3.3.1 Import Device Data

Ensure correct connection between the device and PC via USB data cable, select the ECG records you want to upload from the user name list on the left side of the main menu, click the submenu "Import device data" in the pull-down menu of the "ECG device" or click the Tool bar icon " ", then a window pops up , as shown in the figure 3-7A and figure 3-7B, select the records needed to upload, click the " Read " button to load the data into PC. After that the user can review the records in the user name list.
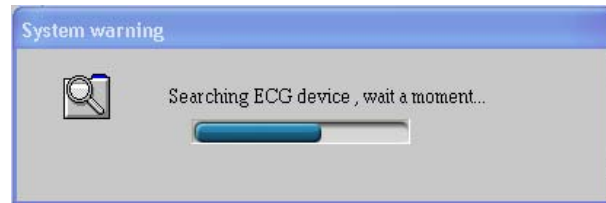

Figure 3-7A

Note: The scanning time for ECG device will be different from the data storage and computer speed; it would last for 6 minutes at most if the device contains large amounts of data. Please wait a moment!
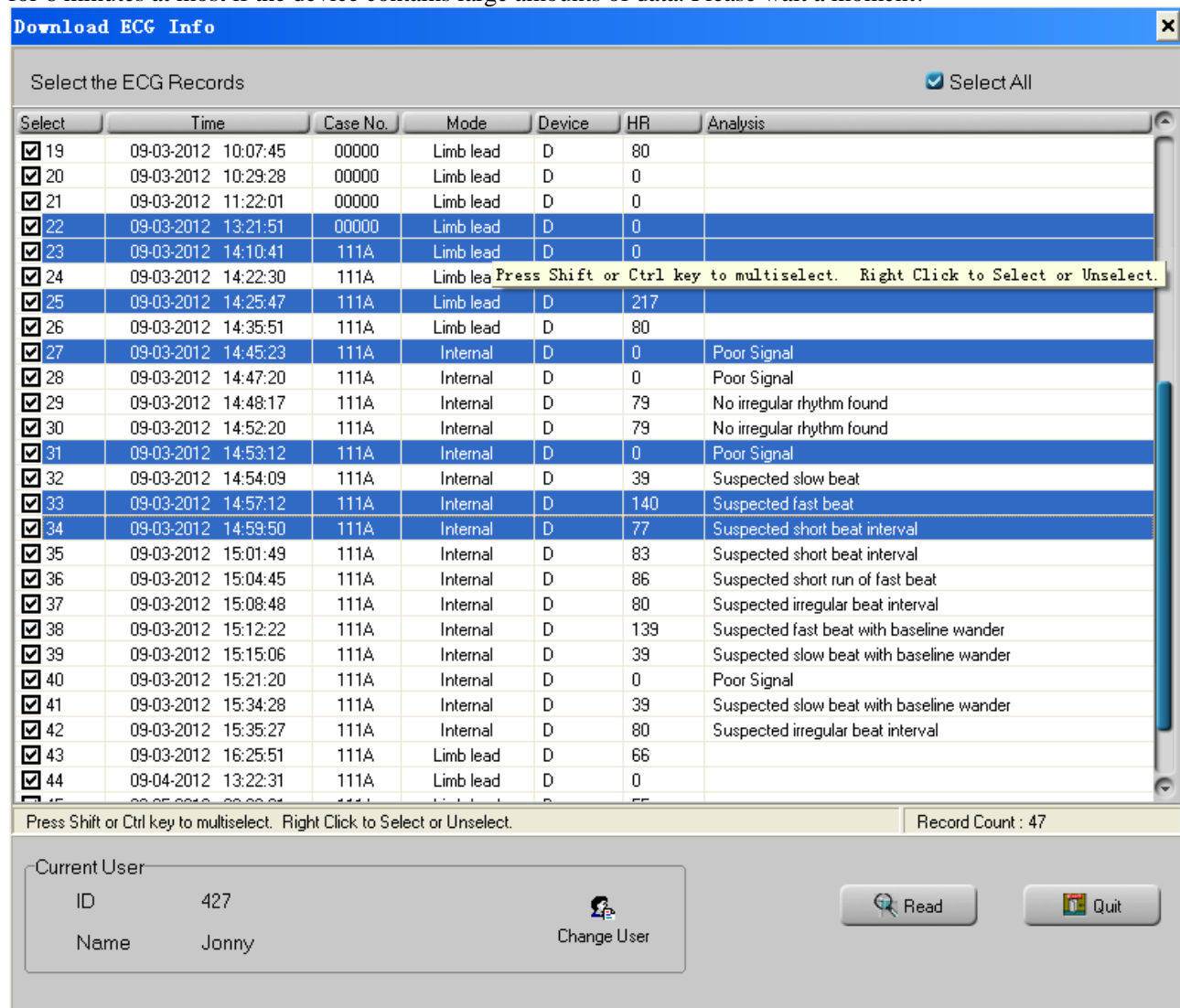
Figure 3.7B Extract the summary of data records within device
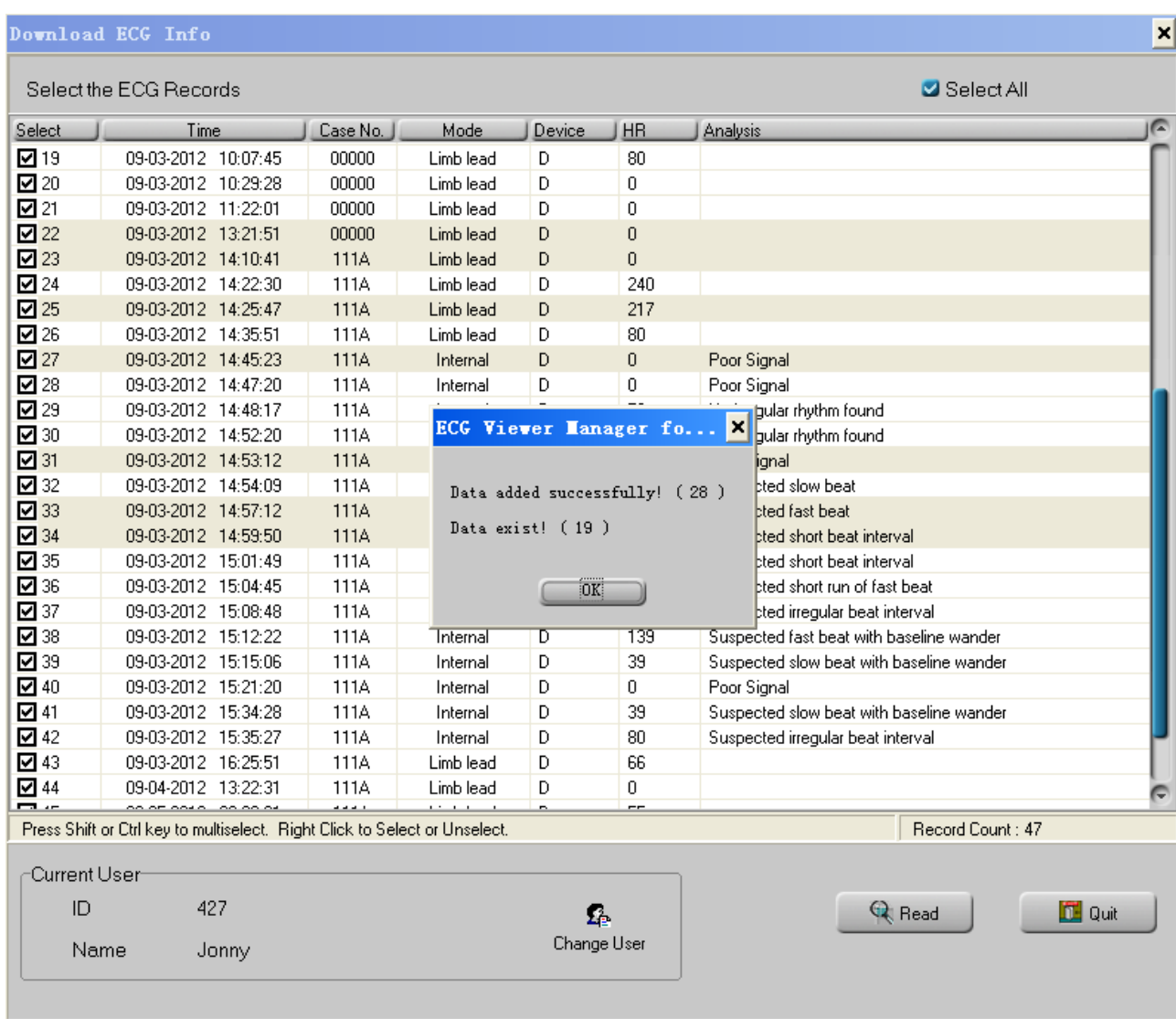
Figure 3-7C The prompt after reading data records

If you want to upload data for another user account, you can change user firstly and then perform data uploading with the following steps. Step1: click on " Change user "icon, an edit box pops up on the screen, as shown in figure 3.8, then you can select the user in user information list (if there is no the user you want, then you can create a new user account in figure 3.8), click on " ✕ " icon to close the current window. Step 2: go back to window shown in figure 3.7B, select the data you want to upload, then click on " Read " icon to read data. The user can perform data uploading (step 2) firstly, and change user (step 1) later.
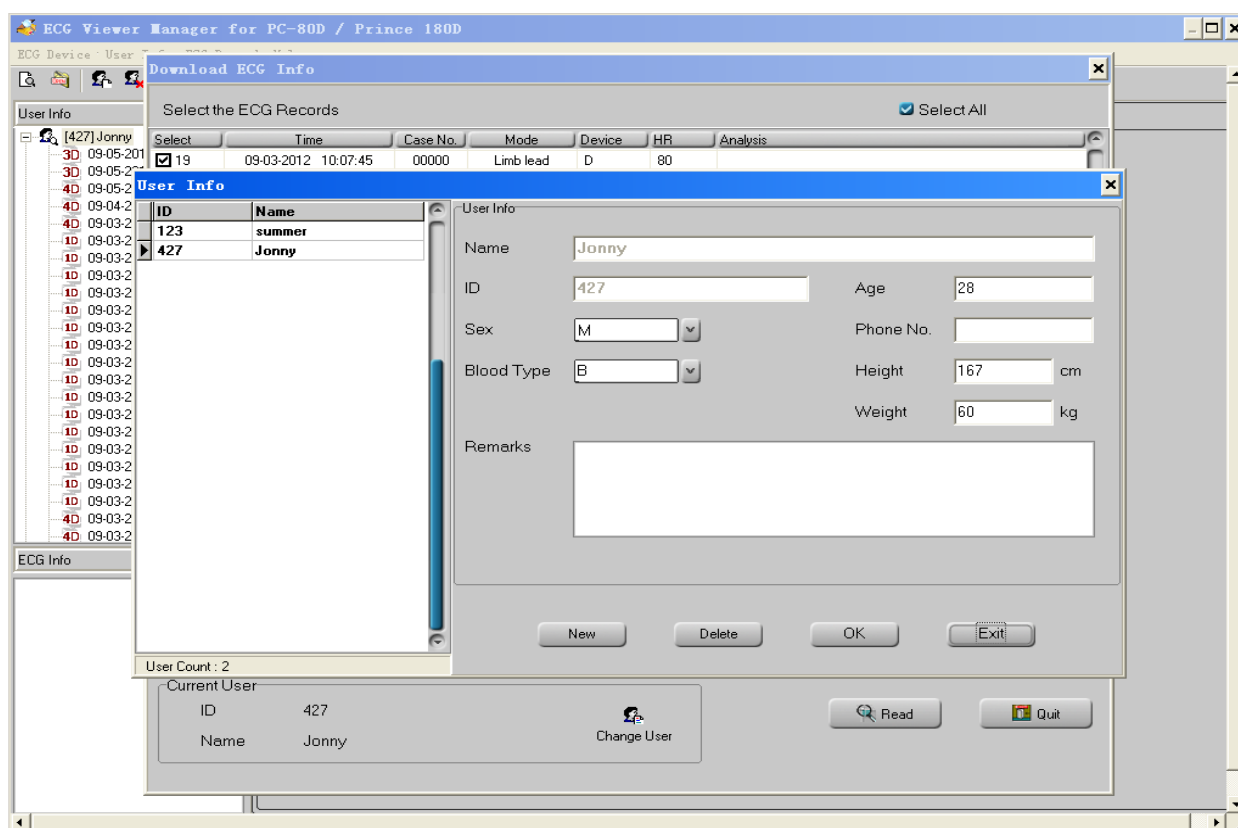
Figure 3.8 Change user account

3.3.2 Import Disk Data

Method 1(live disk data): Ensure correct connection between the device and PC via USB data cable, select the patient from the user name list for uploading destination, click the submenu "Import disk data" in the pull-down menu of the "ECG device", or click the Tool bar icon " ", the system will add a removable disk named "Removable Disk (H:)" after it performs automatic scanning as shown in Figure 3-9. Click the root directory "Removable Disk (H:)" and "OK" button, then a window pops up, as shown in the figure 3-7A and figure 3-7B, select the record you want to read, click the " Read " button to read the data on PC. After that you can check the uploaded data records in the user name list.

Figure 3-9

Method 2(local disk data): After the device is connected to PC via USB data cable, the PC operating system will detect a removable disk is connected and mount it automatically as shown in Figure 3-10. Double click this disk name, you will find there are four file folders and one text file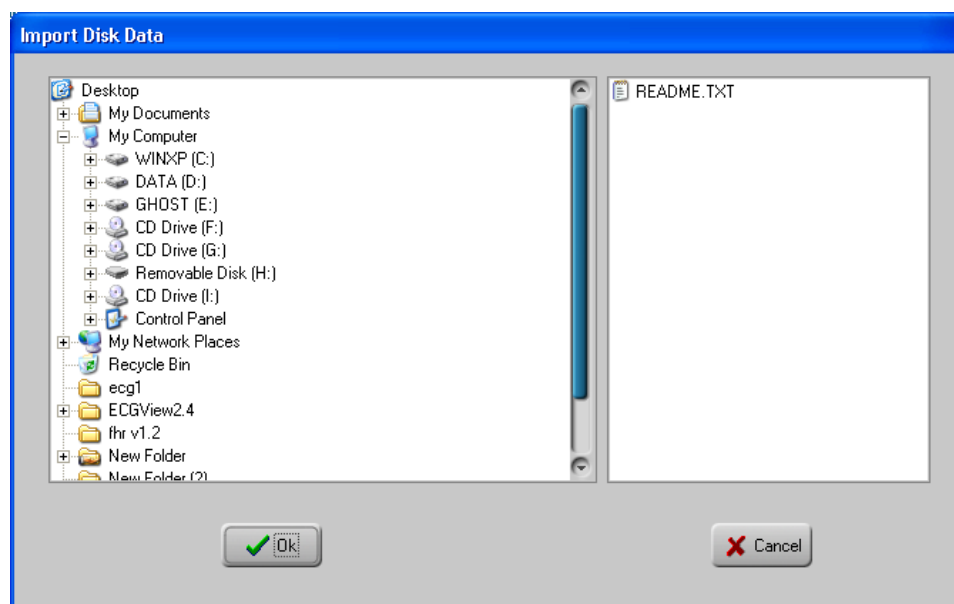: ECG0, ECG1, ECG2, ECG3 and README.TXT" which can be copied to PC directly. After data uploading, the data memory in the device can be cleared by operation at the device side. Meanwhile, the user can use software "ECG Data Manager" to review and analyze the imported data records while the device isn't connected to PC.

For example, copy these four file folders and the text file to a local file folder named " September ECG" in disk D with volume name "DATA", then click the submenu "Import disk data" in the pull-down menu of the "ECG device", or click the Tool bar icon " " to import the data records as shown in Figure 3-11. Click the root directory " September ECG" and "OK" button, then a window pops up, as shown in the figure 3-7 and figure 3-8, select the record you want to read, click the " Read " button to read the data to PC. After that you can review these data records in the user name list.
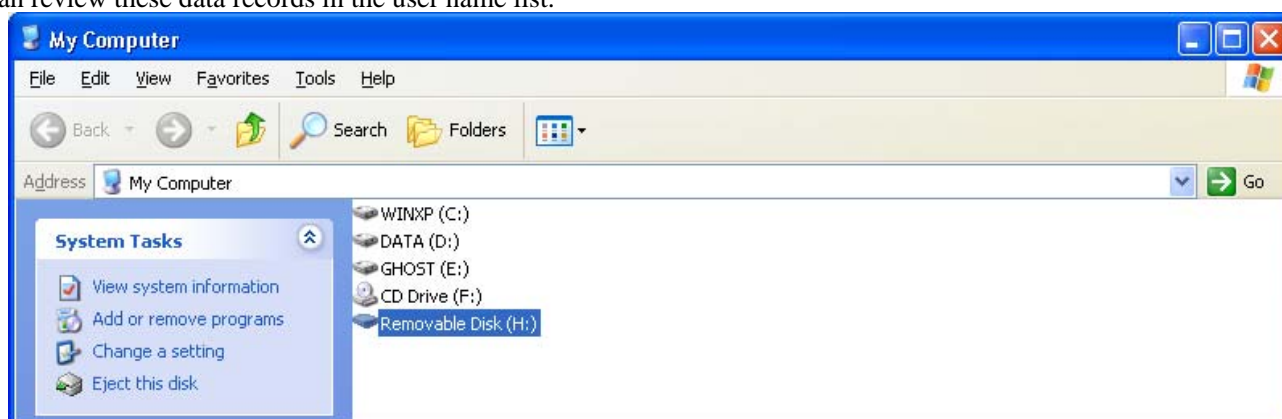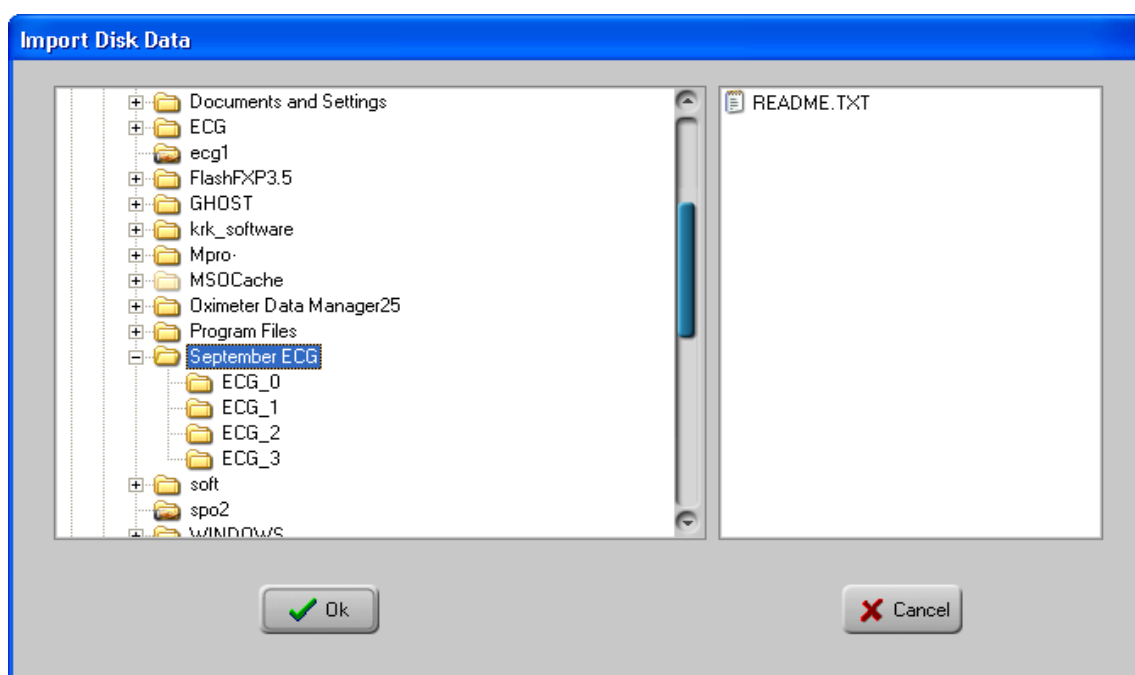

Figure 3-10

Figure 3-11

3.3.3 Backup, Restore and Delete the ECG Records

Select the corresponding user account in the user name list and click the " ECG Info " icon to review the ECG

record list, you can delete the selected records, backup multipile data records to a single data file and restore a given data file as shown in Figure 3-12.

Specify the file folder to be backed up on the left side, click the " ECG Backup " to back up the selected records to the corresponding file folder within the computer.

Click " Delete " to delete the selected record(s).

Select the data file in the backup file list, click the " Restore ECG " to restore that data file into the current user account.
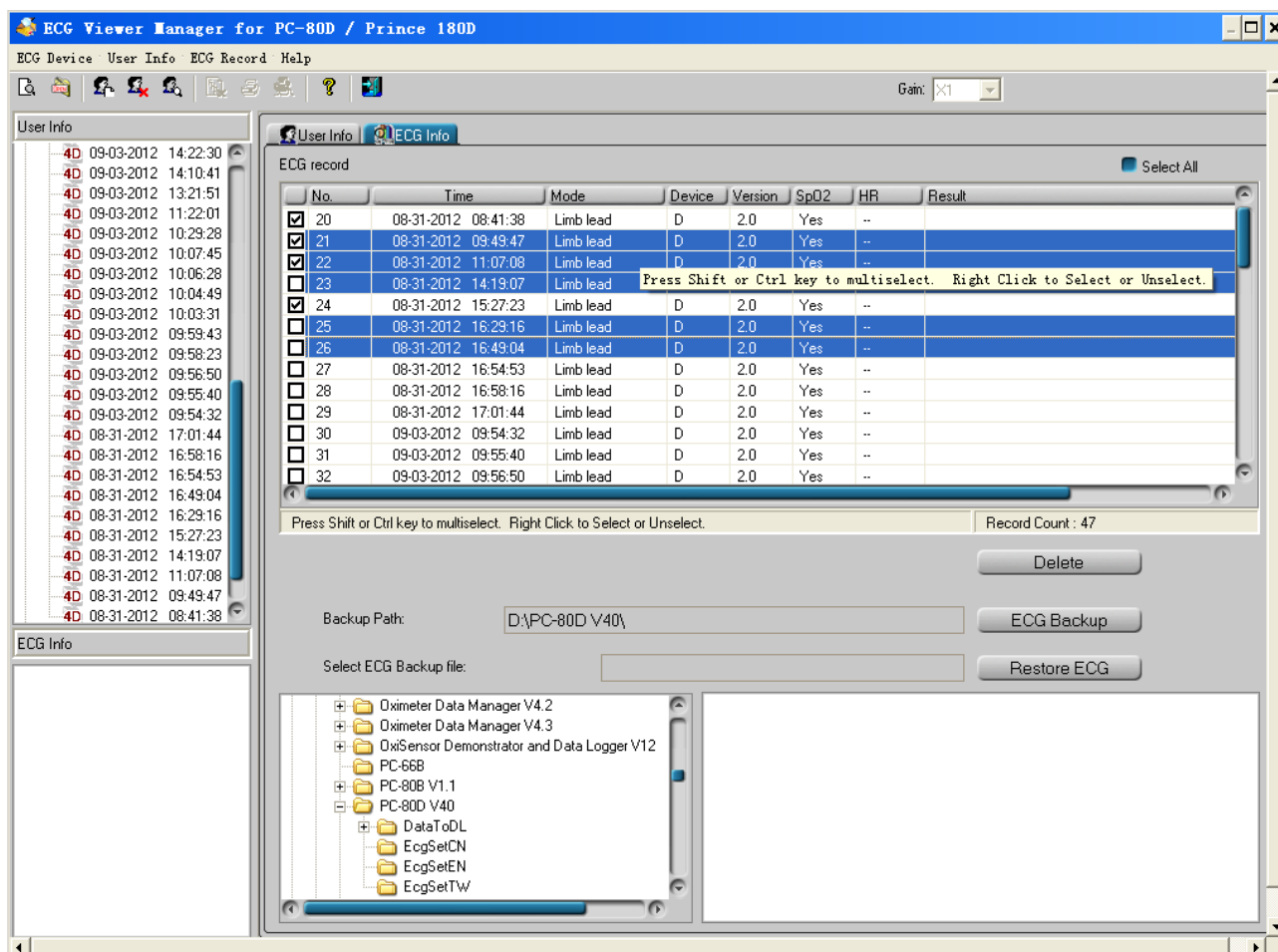
Figure 3-12 ECG data records mainpulation

3.4 Review ECG Waveforms and Statistical Result, Plot Trend Graphs for Irregular Heart Beats, SpO$_2$ and Pulse Rate

Select the ECG record you want to review in user name list on the left of main menu, and then you can not only review this record in detail, but also enter some remarks and store them. On the left of main menu are user name list and the detail of ECG record information. The information such as ECG data record, ECG signal waveform, statistical result, irregular heart beats, trend graphs for SpO$_2$ & PR and zoom of QRS complex, etc. is displayed on the right of the main menu.

3.4.1 ECG Waveform Review (Page by Page)

Click the " ECG Wave " to view the waveform of ECG signal as shown in Figure 3-13, Figure3-14 and Figure 3-15.

According to different measurement modes, there are three display modes for ECG waveform record: Quick

measurement by built-in electrodes, Limb lead, and Single Lead (Lead I/II/III/V/V1~6). Corresponding specifications are as follows:

① Select the waveform gain through the pull-down submenu " " above the right corner of waveform area.

② Click any point within the ECG waveform area, a dashed box will display on waveform area, and the zoomed signal within this box will show on the waveform zooming area. Right click this dashed box, the waveform within it can be fixedly displayed on a new movable window. The doctor or professionals can observe the detail of ECG waveform by moving two vertical lines.

Vertical (amplitude in mV): the vertical distance between the cross point of two vertical lines and the waveform;
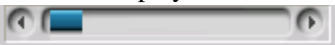
Horizontal (time interval in ms): the horizontal distance of two vertical lines.

If the waveform on this dashed box is normal, only the heart rate value will be shown and the display area of Irregular Rhythm List is blank.

If the waveform on this dashed box is identified with any irregularity, Irregular Rhythm List will show the type of irregularity. The segment of irregular ECG waveform will be marked by a upside-down red triangle above it. If you want to cancel this mark, click the button "Cancel", then a dialog box pops up on the screen and reminds you that "Are you sure to cancel this irregular rhythm mark?", finally, click the "OK" button to cancel this mark and corresponding event. After that a normal triangle will be shown beside the upside-down triangle as shown in figure 3-13, and the statistical result and irregular rhythm event plot will skip this event. If you want to re-mark the canceled irregular rhythm event, click the "Cancel" button, then a dialog box pops up on the screen and reminds you that "Are you sure to resume this irregular rhythm mark", finally, click the "OK" button to re-mark this event. After that the normal triangle will disappear, and this irregular rhythm event will be taken into account in the statistical result and irregular rhythm event plot again.

③ Enter notes on the note area, click "update" to save.

④ On the left corner of the ECG info screen displays: Period, Mode, HR, Analysis, Hardware Version, SpO$_2$ Data and Source device.

⑤ Below the ECG waveform record screen, display the record time, average HR value, total pages, and the current page number. Click the " " button can turn the page up and down. The average HR value is the ECG waveforms of the current page; the ECG waveform displays 30 seconds in one page.

Difference: The records of the Limb lead measuring mode display the signal channel for lead I, lead II and lead III in the wave area; the waveform thumbnails display below the screen, move the zooming box (blue) on the thumbnails can browse the corresponding waveforms in the waveform area.
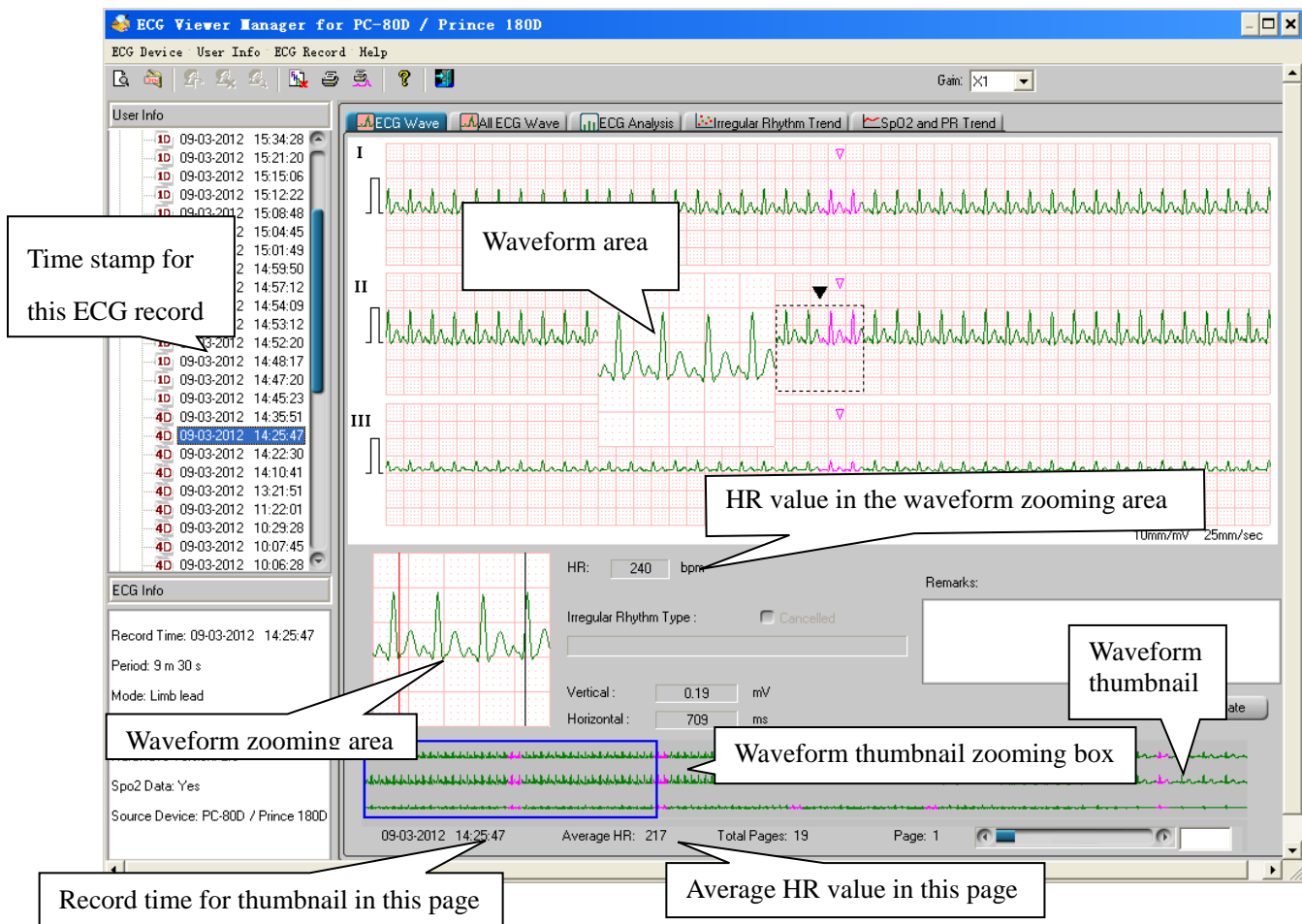
Figure 3-13 ECG Waveform Review（3 channels for External Limb leads）

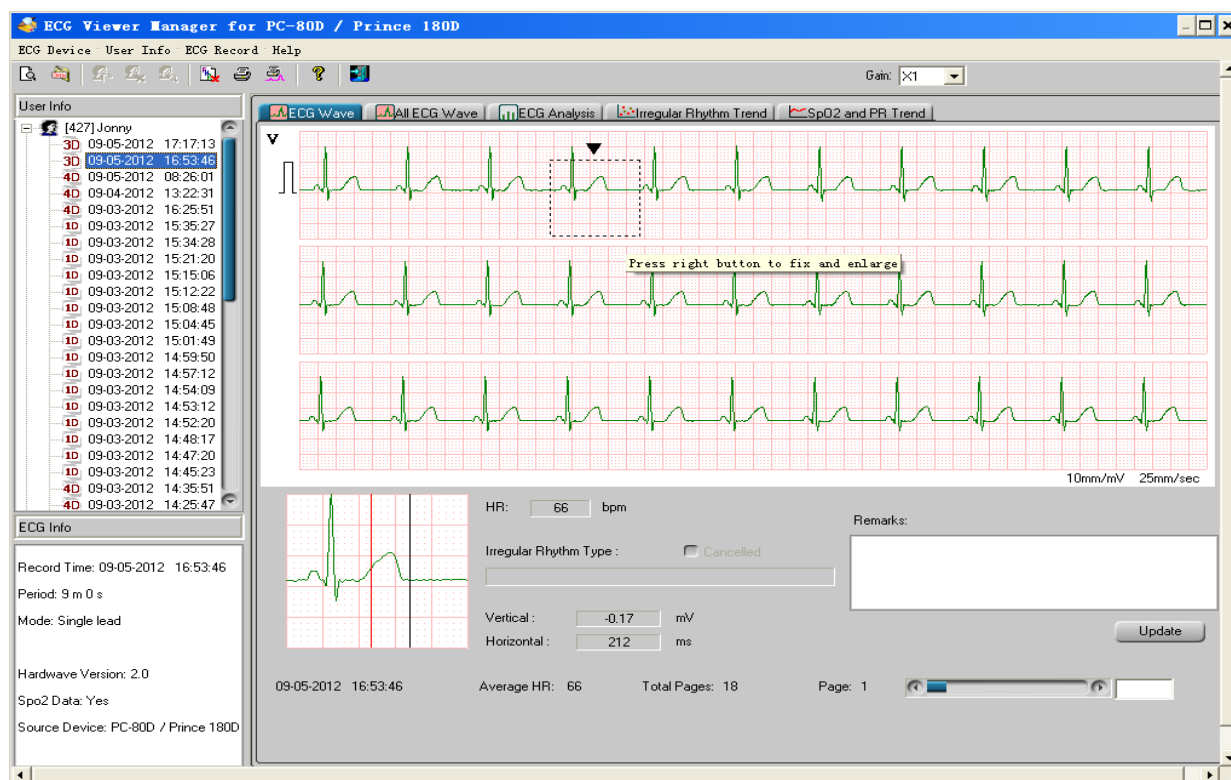Figure 3-14 ECG Waveform Review (Single Channel for Built-in Electrodes)
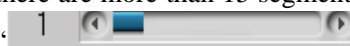
Figure 3-15 ECG Waveform Review (Single Channel for External Single Lead)

3.4.2 ECG Waveform Review (Record by Record)

Click the icon " " to browse all the signal waveforms for this ECG record as shown in figure 3-16. Each page contains 15 segments of ECG waveform. If there are more than 15 segments for display, you can review other segments on the next page by moving the slider " " to turn the page up and down. The number "1" on this bar indicates the first page, and the "4" is the number of total pages. Double click any segment of ECG waveform on this screen to return to its corresponding ECG waveform screen for a particular review.

Figure 3-16 View All ECG Waveforms for One Record

3.4.3 Statistical Result

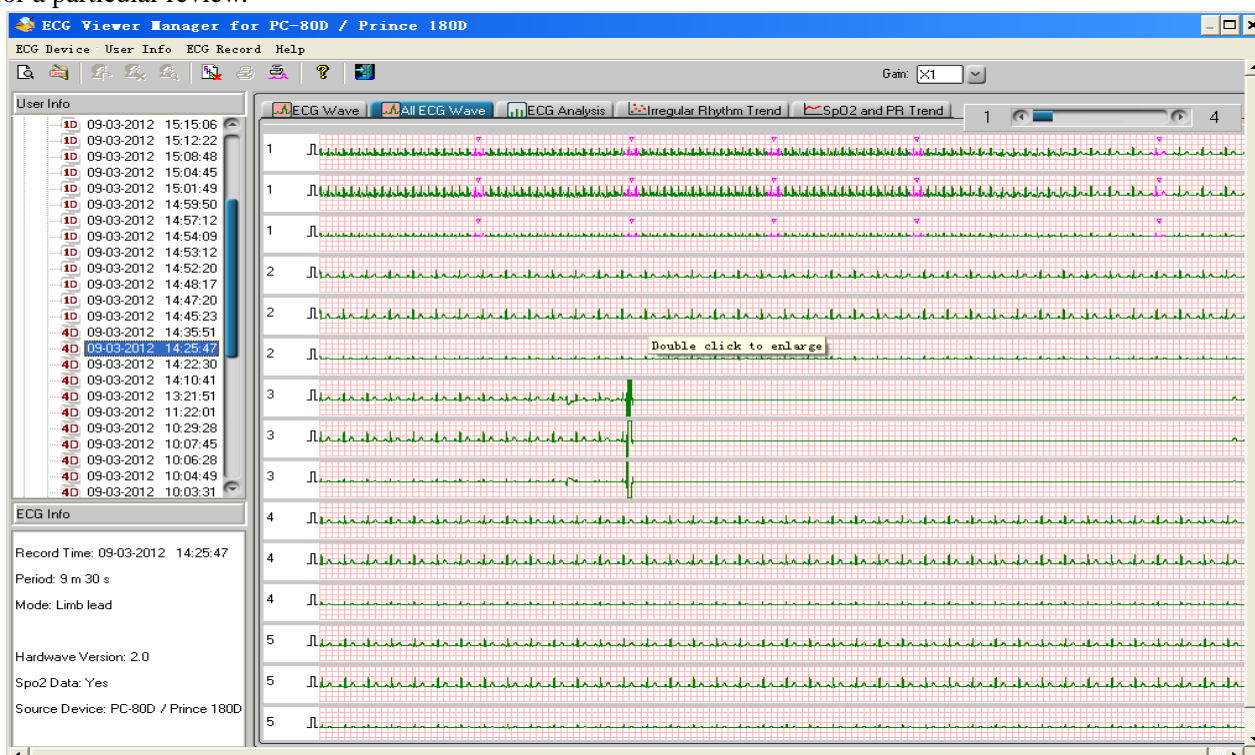The statistical result is for the ECG record with long-term measurement, such as for Single lead and Limb lead situation. Click the " ECG Analysis " to get the statistical result for this ECG record, as shown in figure 3-17. On the statistical result screen, you can not only browse the HR trend graph and the irregular rhythm event list, but also read the maximal, minimal and average heart rate value which is displayed within the time in current trend graph.

Move the blue line to browse the HR value measured in different time. The number "140" is the current HR value. Right click the mouse at this time to shift the screen to the corresponding ECG waveform screen. Click the pull-down button of "Scale" to select the time scale of horizontal coordinate, move the slide " " to turn the page up and down so as to view the HR trend graph. Click " " or " " to zoom in or out the HR trend graph around the blue cursor line.

The irregular rhythm event list displays all irregular rhythm events and whether the listed events occur or not.
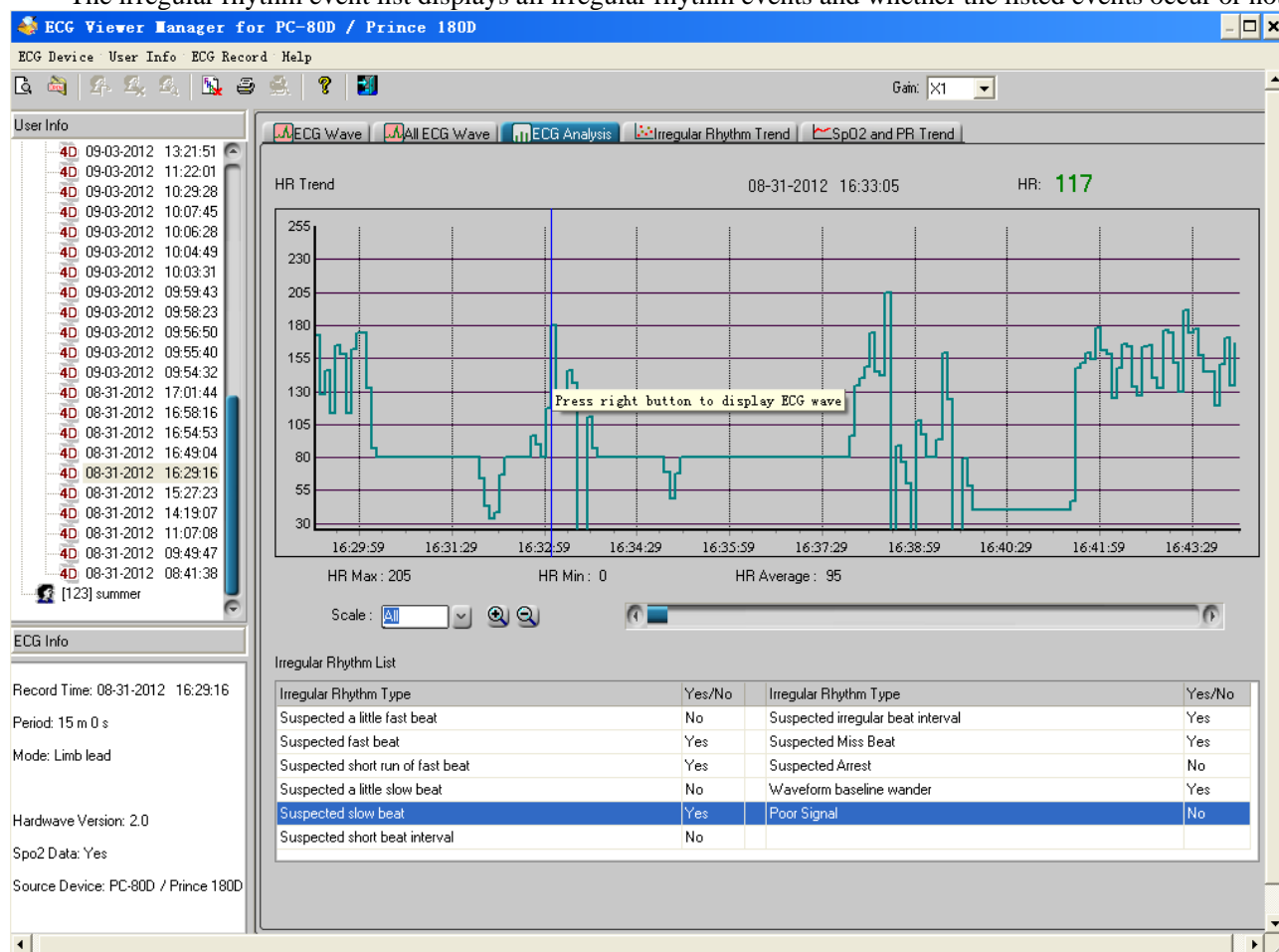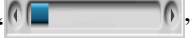
Figure 3-17 View Statistical Result

3.4.4 Irregular Rhythm Event Plot

Click the icon " Irregular Rhythm Trend " to enter the irregular rhythm event plot screen where the distribution and types of irregular rhythm event can be reviewed as shown in Figure 3-18.

Move the blue line to browse the irregular rhythm event occurring in different time, "Type No: 6" in the screen indicates the irregular rhythm type "Suspected short beat interval" which is displayed with yellow background in the list. Right click any point in the event plot at this time, the screen will be shifted to ECG waveform screen whose measuring time is corresponded with that the blue line pointed. Meanwhile, click the pull-down button of

"Scale" to select the time scale of horizontal coordinate, move the slide " ![slide] " to turn the page up and down so as to view the HR trend graph. Click " ![zoom in] " or " ![zoom out] " to zoom in or out the irregular rhythm event trend graph around the blue cursor line.
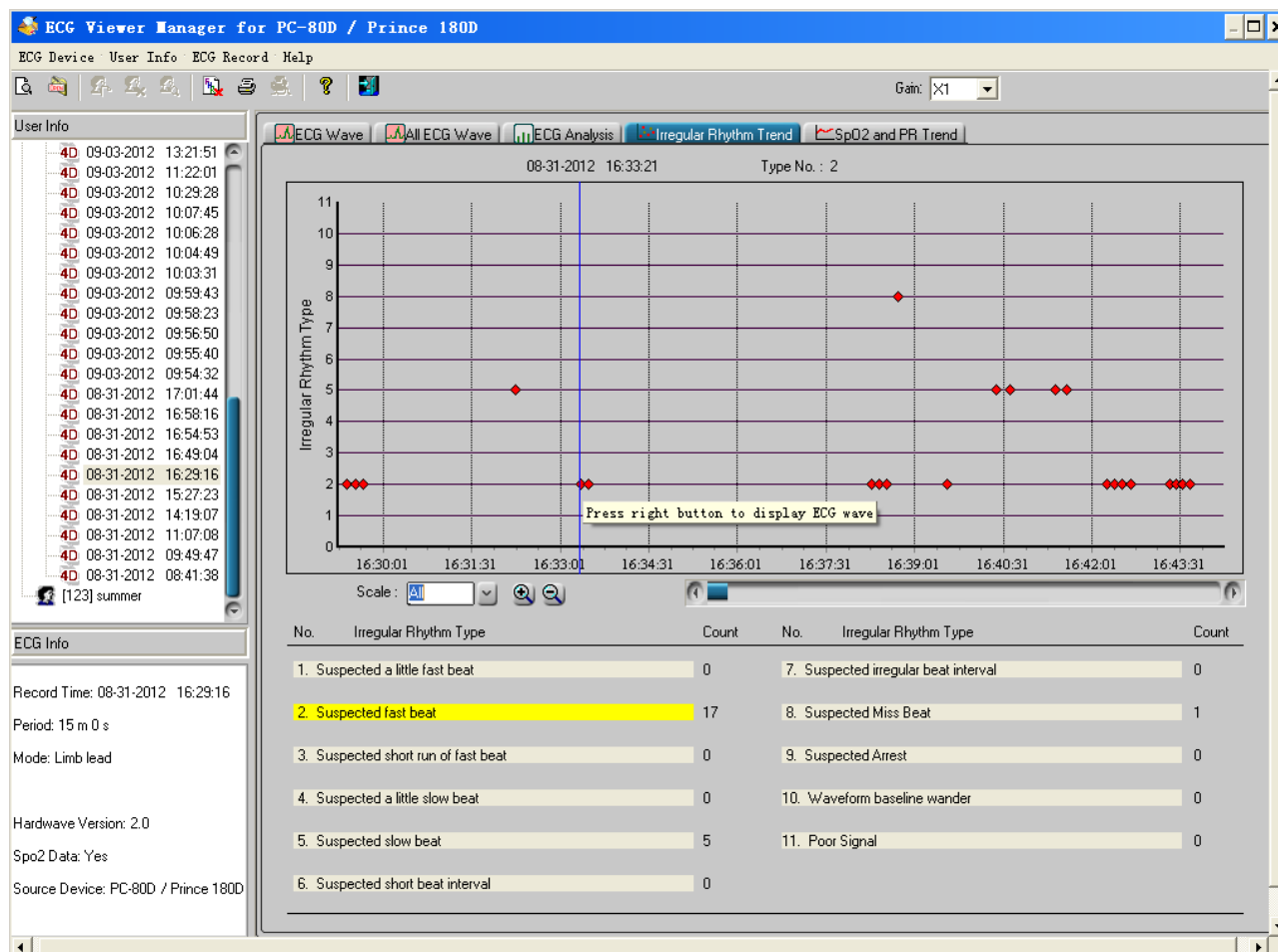
Figure 3-18 Irregular Rhythm Event Plot Screen

3.4.5 SpO₂ and Pulse Rate Trend Graph

If the device has the optional accessory to measure SpO$_2$ and the SpO$_2$ data has been uploaded to the PC, the user can review the trend graph of SpO$_2$ and pulse rate as well as detailed information of SpO$_2$ event and pulse rate event in the screen shown in figure 3-19.
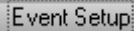
In the SpO$_2$ and PR trend graph screen, the value of SpO$_2$ and pulse rate measured in different time can be viewed by moving the blue line. The number "92" in the screen shows the current value of SpO$_2$, and the "67" is the current value of pulse rate. Meanwhile, the user can click the pull-down button of "Scale" to select the time scale of horizontal coordinate, move the slide " ![slide] " to turn the page up and down so as to view the SpO$_2$ and PR trend graph. Besides, some information such as the maximal, minimal and average value of SpO$_2$ and pulse rate, the occurring times of SpO$_2$ event and pulse rate event and so on, can be displayed in this screen.

Figure 3-19 SpO₂ and PR trend graph

Click the icon " Event Setup " to enter the event setup screen which include four tabs: SpO₂ Event (SE), Pulse Rate Event (PE) and SpO₂ Comparing Rule. Click the tab to shift page to its relevant page as shown in Figure 3-20, Figure 3-21 and Figure 3-22.

If the SpO₂ Event occurred, the icon " Desaturation Report " would be activated. Click this icon to preview the oxygen desaturation report as shown in Figure 3-29, please refer to chapter 3.5.2 for printing operation instruction.

Figure 3-20 SpO₂ Event Screen
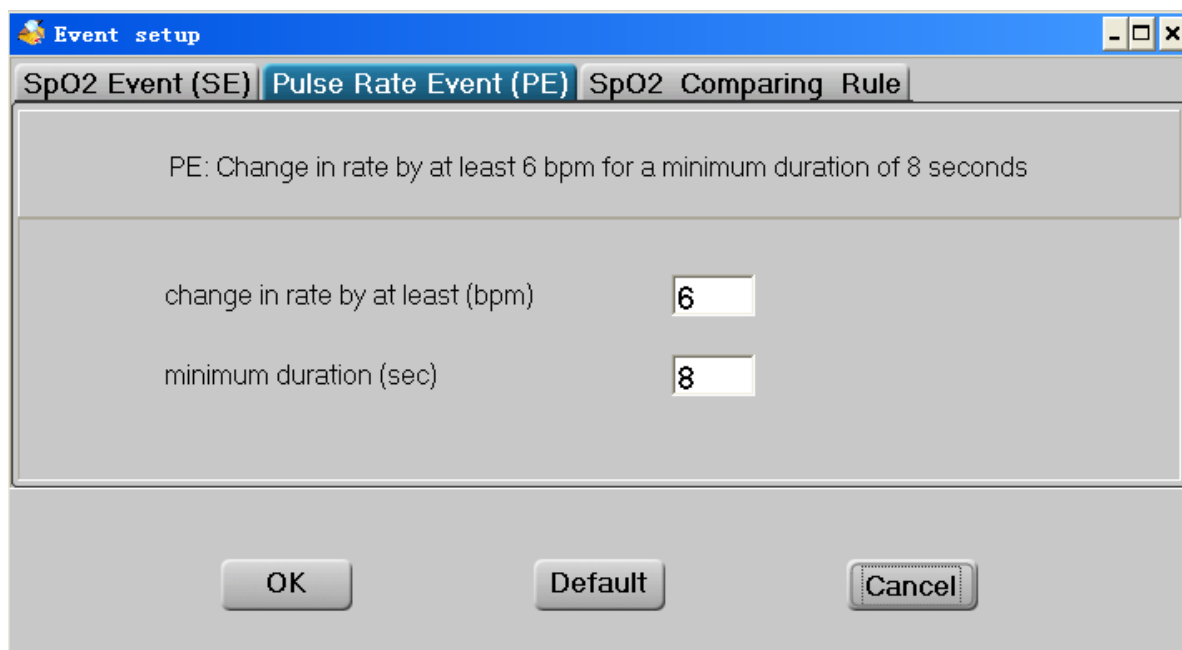
Figure 3-21 Pulse Rate Event Screen
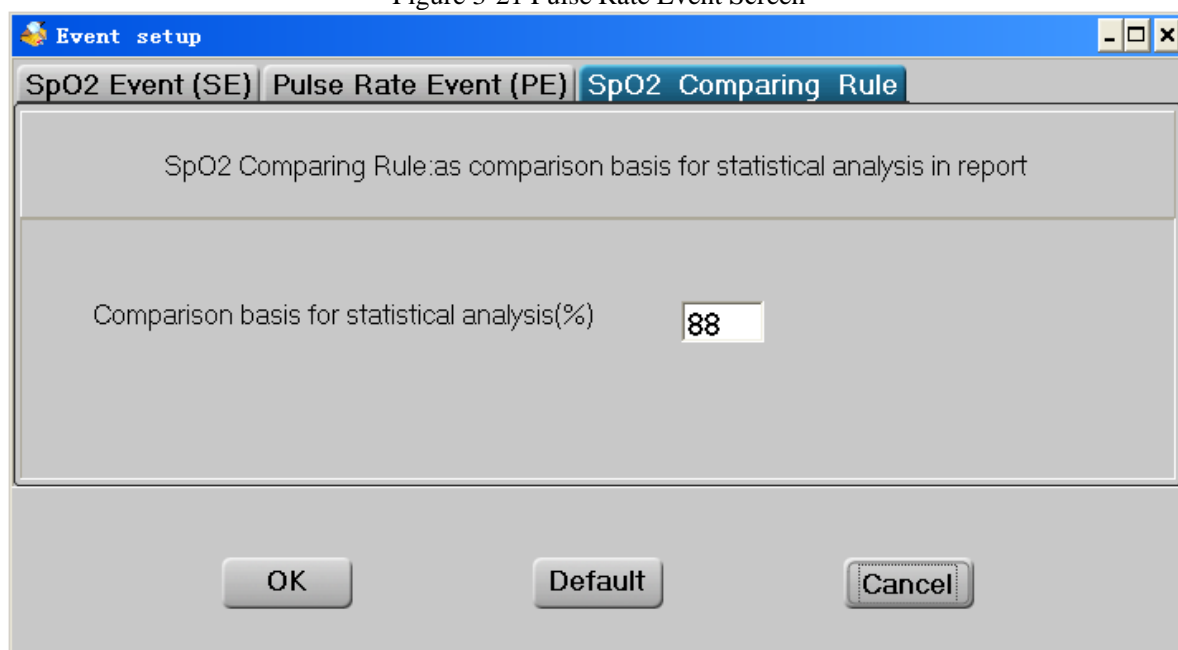
Figure 3-22 SpO₂ Comparing Rule Screen

SpO₂ Event (SE)

If the SpO₂ value exceeds the preset "drop in SpO₂ by at least (%)" and this status lasts not less than the preset "minimum duration (sec)", it will be recorded as a SpO₂ event. For example, set "drop in SpO₂ by at least (%)" as "4" and set "minimum duration (sec)" as "10", when drop in SpO₂ by at least 4% for a minimum duration of 10 seconds, SpO₂ event will be triggered and recorded as a SpO₂ event.

Pulse Rate Event

If the PR value exceeds the preset "change in rate by at least (bpm)" and this status lasts not less than the preset "minimum duration (sec)", it will be recorded as a Pulse Rate event. For example, set "change in rate by at least (bpm)" as "6" and set minimum duration as "8", when change in PR rate by at least 6bpm for a minimum duration of 8 seconds, PR event will be triggered and recorded as a PR event.

SpO₂ Comparing Rule

You can define a SpO$_2$ value as a comparison base for statistical analysis according to your own needs. For example, if you set "Comparison basis for statistical analysis (%)" as "88"), you can know how many times the SpO$_2$ event occur (SpO$_2$ <88% Event Count: 4) and the time percentage below 88% in measuring time.

3.5 Delete and Print ECG Waveform Records

3.5.1 Delete the ECG Waveform Records

Select the corresponding record, click the submenu "Delete" in the pull-down menu of the "ECG record" or click the Tool bar icon " ", then a window appears on the desktop, as shown in the figure 3-23. Please follow the prompts to operate.
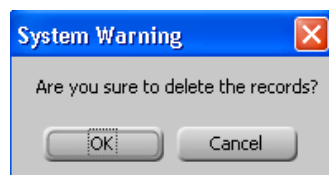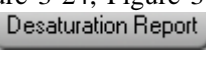

Figure 3-23 Delete the Records

3.5.2 Print the ECG Data Records

At first, select a record, then if you want to print the ECG waveform record, statistical result, irregular rhythm event plot or SpO$_2$ and PR trend graph, the next step you should take is clicking the submenu "print record" in the pull-down menu of "ECG record" or click the Tool bar icon " ". But if your choice is to print the all ECG waveform for this record, the next step is clicking the submenu "Print all ECG" in the pull-down menu of "ECG record" or click the Tool bar icon " ". After that their preview screen windows will appear on the desktop, as shown in the Figure 3-24, Figure 3-25, Figure 3-26, Figure 3-27 and Figure 3-28. If the SpO$_2$ Event occurred, click the icon " Desaturation Report " in SpO$_2$ and PR trend graph to enter the preview screen of Oxygen Desaturation report as shown in Figure 3-29.

Operation Description:

" " Fit to width: Preview the report in proper width.

" " Fit to page: Full screen preview the report in proper proportion.

" " Zoom in: Click it to zoom in the report.

" " Zoom out: Click it to zoom out the report.

"107%" Zooming proportion: Displays the zooming proportion for the current report preview.

" ": Print the current report displayed. If the content of records is more than one page, click this button to set the start and end page according to your need.

" ": Save. Click this button can save the ECG records in picture format on.

" ": If the content of records is more than one page, click this button to turn the page up and down so as to preview all records.

" ": Exit. Exit from the current preview.

Figure 3-24 Print Review (ECG Waveform)

ECG Analysis Report

ID No.: 427   Sex: M   Age: 28

Name : Jonny   Print Out Time: 07 - 17 - 2015   16 : 02 : 53

HR Trend: Start at: 08 - 31 - 2012   16 : 54 : 53   End at: 08 - 31 - 2012   16 : 57 : 23

HR Max : 160   HR Min : 0   HR Average : 81

Irregular Rhythm List: Start at: 08 - 31 - 2012 16 : 54 : 53   End at: 08 - 31 - 2012 16 : 57 : 23

Irregular Rhythm Type	Yes/No	Irregular Rhythm Type	Yes/No
Suspected a little fast beat	No	Suspected irregular beat interval	No
Suspected fast beat	No	Suspected Miss Beat	Yes
Suspected short run of fast beat	Yes	Suspected Arrest	No
Suspected a little slow beat	No	Waveform baseline wander	Yes
Suspected slow beat	No	Poor Signal	No

Remarks :

Doctor: _____

Figure 3-25 Print Preview (ECG Statistical Result)

Irregular Rhythm Analysis Report

ID No.: 427   Sex: M   Age: 28

Name : Jonny   Print Out Time: 07 - 17 - 2015   16 : 16 : 24
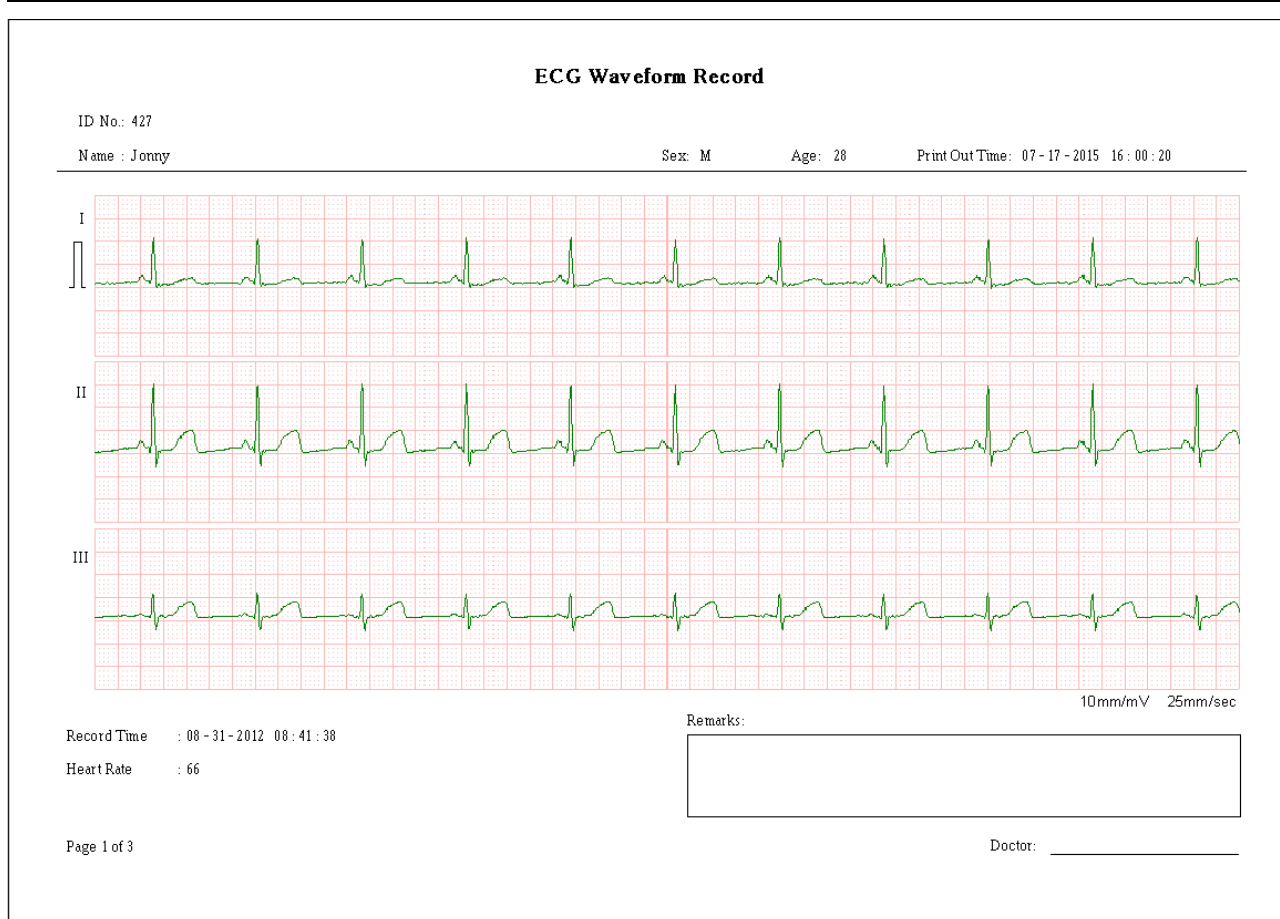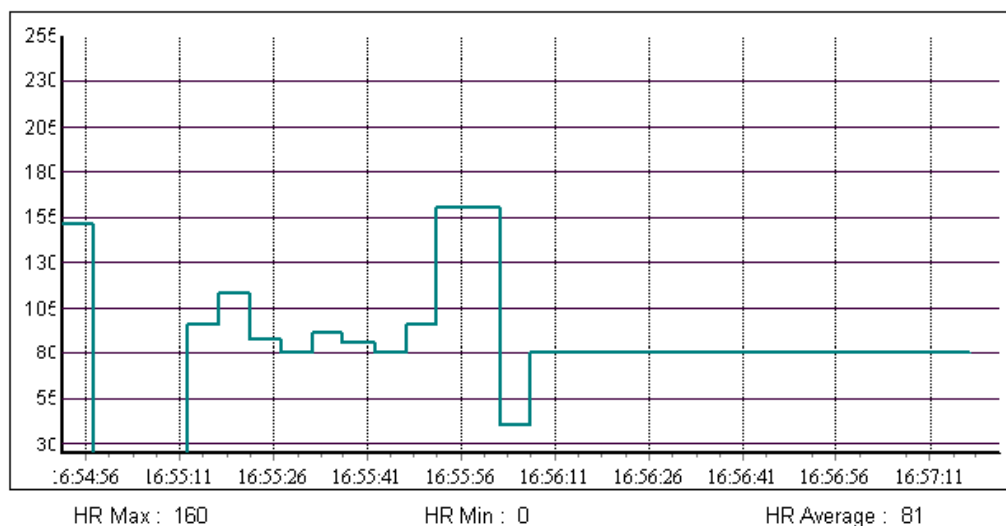
Irregular Rhythm Trend: Start at: 08 - 31 - 2012 16 : 29 : 16   End at: 08 - 31 - 2012 16 : 44 : 16
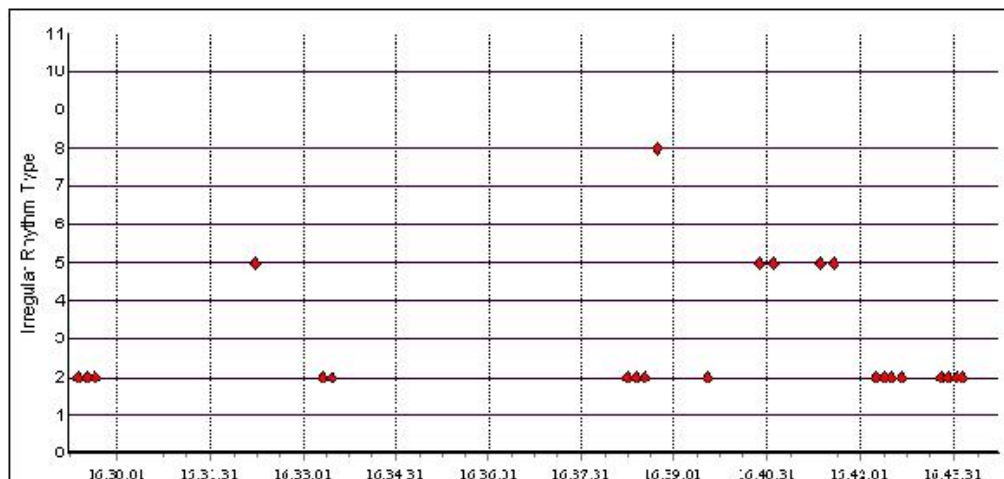
Irregular Rhythm List: Start at: 08 - 31 - 2012 16 : 29 : 16   End at: 08 - 31 - 2012   16 : 44 : 16

No.	Irregular Rhythm Type	Count
1.	Suspected a little fast beat	0
2.	Suspected fast beat	17
3.	Suspected short run of fast beat	0
4.	Suspected a little slow beat	0
5.	Suspected slow beat	5
6.	Suspected short beat interval	0
7.	Suspected irregular beat interval	0
8.	Suspected Miss Beat	1
9.	Suspected Arrest	0
10.	Waveform baseline wander	0
11.	Poor Signal	0

Remarks:

Doctor: _____

Figure 3-26 Print Preview (Irregular Rhythm Event Plot)

SpO2 and PR Trend Report

ID No.: 427   Sex: M   Age: 28

Name : Jonny   Print Out Time: 07 - 17 - 2015   16 : 16 : 57

Start at: 08-31-2012 08:41:38   End at: 08-31-2012 09:44:08   Duration: 0 01:02:30

Analyzed: 0 00:46:10

SpO2 and PR Trend:

SE: Drop in SpO2 by at least 4 % for a minimum duration of 10 seconds

PE: Change in rate by at least 6 bpm for a minimum duration of 8 seconds

SpO2 Max : 99	PR Max : 101	ODI : 14.30
SpO2 Min : 84	PR Min : 60	SE Count : 11
SpO2 Average : 95	PR Average : 66	PE Count : 0

SpO2< 88 Time(%) : 3.65   SpO2< 88 Event : 4

Remarks:

Doctor: _____

Figure 3-27 Print Preview (SpO$_2$ and PR Trend Graph)

Figure 3-28 Print Preview (All ECG Waveforms)

Desaturation Report

ID No.: 427   Sex: M   Age: 28

Name : Jonny   Print Out Time: 07 - 17 - 2015 16 : 23 : 33
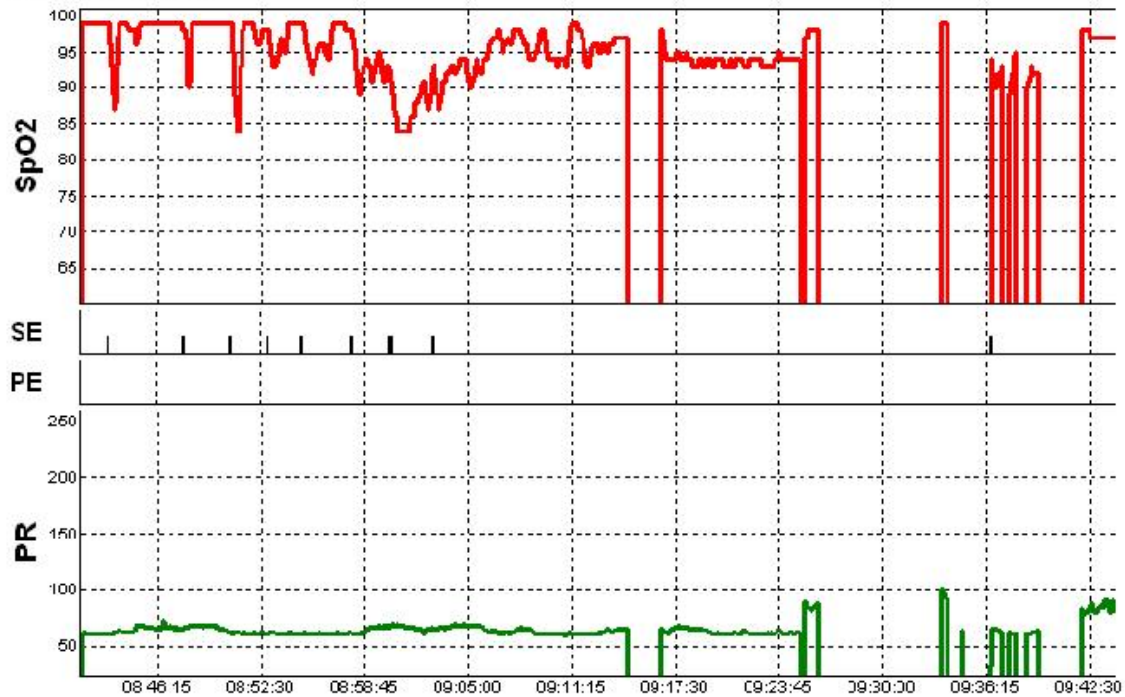
Start at: 08-31-2012 08:41:38   End at: 08-31-2012 09:44:08   Duration: 0 01:02:30
   Analyzed: 0 00:46:10

	Start time	End time	Duration	Saturation: Onset	Saturation: Low	Pulse Range: Low	Pulse Range: High
1	08-31 08:43:21	08:43:51	00:00:30	99	87	61	63
2	08-31 08:47:52	08:48:18	00:00:26	98	90	67	69
3	08-31 08:50:42	08:51:22	00:00:40	99	84	62	63
4	08-31 08:53:01	08:53:32	00:00:31	98	93	61	63
5	08-31 08:55:03	08:56:01	00:00:58	99	92	62	63
6	08-31 08:58:05	08:58:43	00:00:38	97	89	62	63
7	08-31 09:00:14	09:00:27	00:00:13	93	89	68	71
8	08-31 09:00:28	09:01:29	00:01:01	89	84	68	71
9	08-31 09:02:56	09:03:24	00:00:28	93	87	65	67
10	08-31 09:11:54	09:12:22	00:00:28	98	93	61	62
11	08-31 09:36:33	09:36:51	00:00:18	94	90	65	66

Comment:

                                                                            Doctor:

1

Figure 3-29 Print Preview (Oxygen Desaturation Report)

3.6 About

Click the submenu "About" in the pull-down menu of the "Help" or click the Tool bar icon " ", and then the dialogue box about the systems appears, as shown in the figure 3-30.
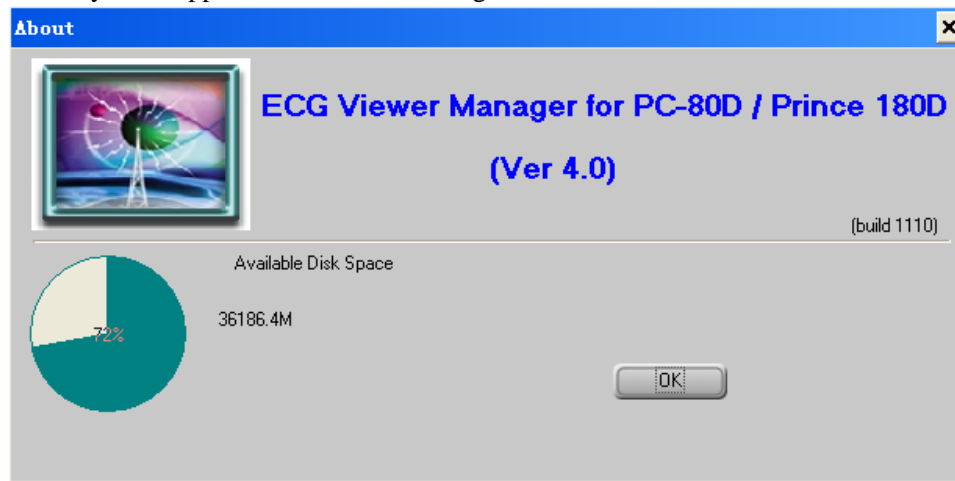

Figure 3-30 About System

3.7 Exit the System

Click the submenu "Exit" in the pull-down menu of the "ECG device", or t or click the Tool bar icon " ", and then the dialogue about the systems appears, as shown in the figure 3-31.
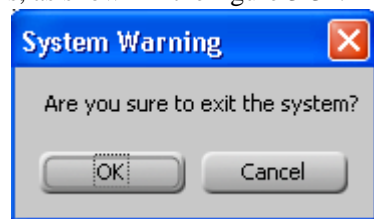

Figure 3-31 Exit the System

Troubleshooting

No.	Misinformation	Possible Reason	Solution
1	Failing to search the device!	1. The ECG monitor and the PC USB interface dose not contact well! 2. The device is out of power! 3. The PC USB interface is damaged. 4. The PC USB cable provided is damaged! 5. The device is in trouble.	1. Please try again to check whether the USB cable is contact well with the PC and the ECG monitor. 2. Please power on the ECG monitor. 3. Please install the provided USB cable drive program again. 4. Please upload the data again after replacing a USB interface 5. Please contact the local dealer in case of any problems. 6. Please contact the local dealer in case of any problems.
2	No searched ECG information!	No found the ECG information in the device.	Please upload the data after the device detects the ECG waveforms.
3	No searched the ECG device!	1. The USB cable is damaged. 2. The device is in trouble! 3. The PC USB interface is damaged.	1. Please contact the local dealer in case of any problems. 2. Please contact the local dealer in case of any problems. 3. Please upload the data again after replacing the USB in interface.
4	No found printer in the system, please try again after installing!	The system does not install the printer.	Please install a printer.