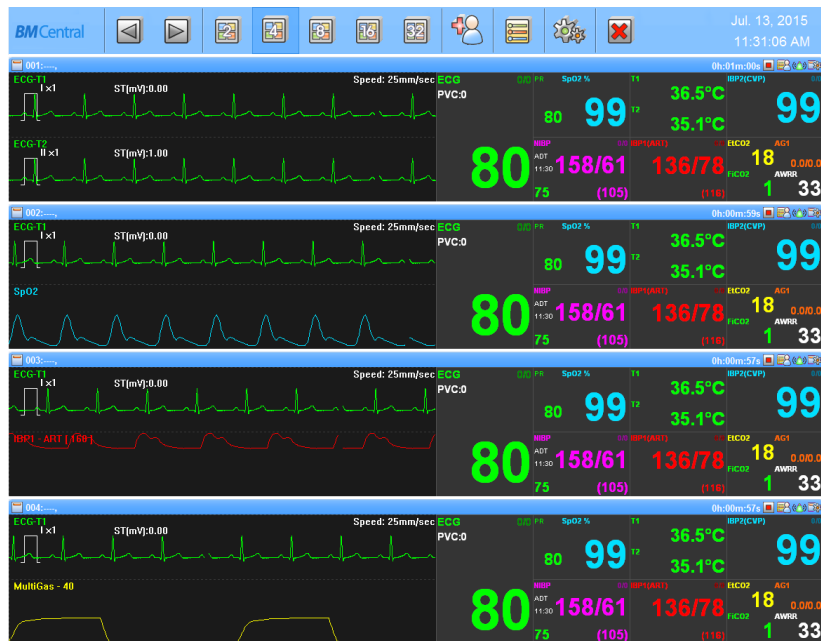


# BM Central Manual

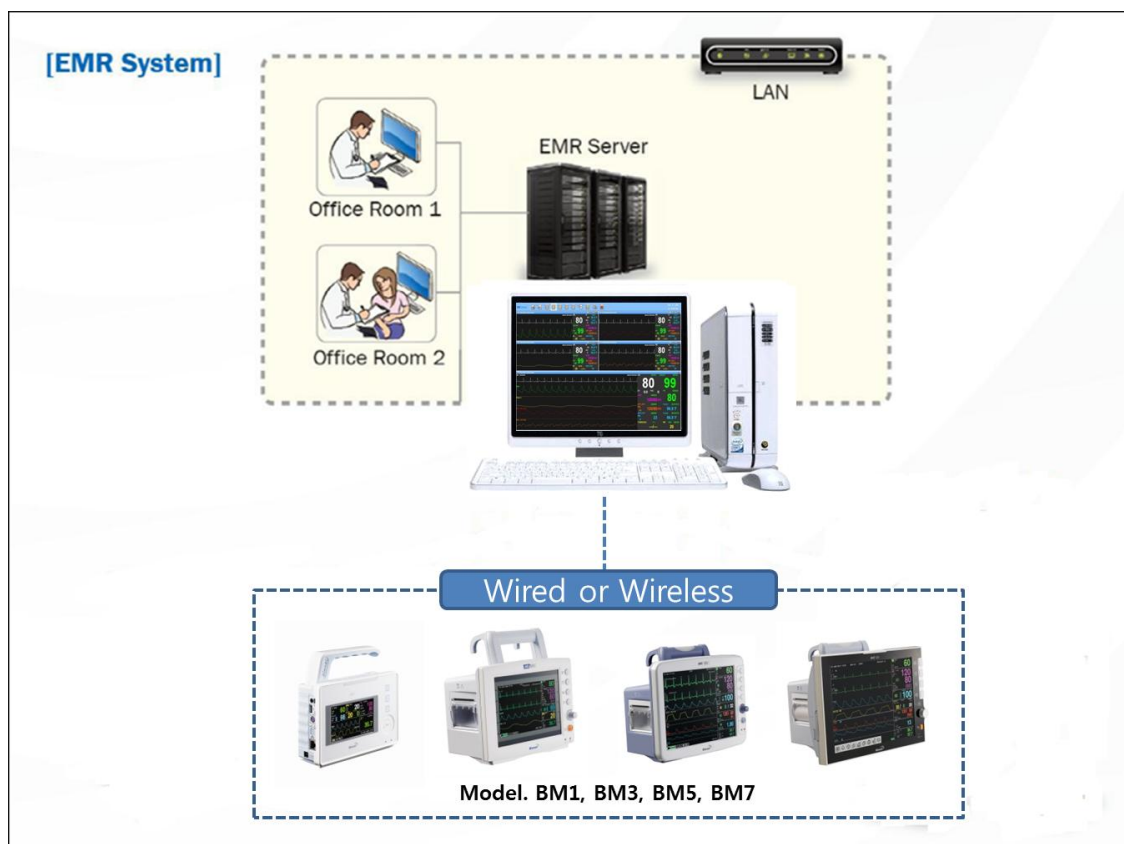
## Patient Monitor Central System

Ver. 2.1 – 2015/07/13



Bionet Co.,LTD.





This manual includes the basic use of BM Central. For proper use and maintenance, please read the guide and use it accurately. For the equipment included in the manual, please refer to the manual provided with the equipment.

*All rights copyrighted  
Copyright © 2004~13 BIONET Co., LTD*

#1101, E&C Venture Dream Tower 3 Cha, 38-21, Digital-ro 31-gil, Guro-gu, Seoul  
(ZIP 152-719)  
Tel: 070-7585-6418 Fax: 02-6499-7789



# Table of Contents

<b>Table of Contents .....</b>	<b>2</b>
<b><i>General .....</i></b>	<b><i>7</i></b>
<b>1.1 Checkpoints before use.....</b>	<b>8</b>
Registered Trademarks .....	8
How to reach us .....	9
Warranty Period .....	10
Warning, Caution, Note .....	11
General Precaution on Environment .....	11
<b>1.2 Outline .....</b>	<b>12</b>
Introduction of BM Central .....	12
Specification.....	12
<b>1.3 Product Component.....</b>	<b>13</b>
Main features of the product .....	13
Program Composition .....	13
Hardware Preference.....	13
System Requirement .....	14
<b><i>Installation .....</i></b>	<b><i>15</i></b>
<b>1. Installation of BM Central .....</b>	<b>16</b>
1.1. Installation in Window XP & Windows 7, 8.....	16
<b>2. Uninstallation of BM Central.....</b>	<b>22</b>
2.1. Uninstallation in Window XP & Windows 7, 8.....	22
<b>3. Execute / Close BM Central .....</b>	<b>24</b>
3.1. Execute BM Central.....	24
3.2. Close BM Central.....	26
<b><i>How to use .....</i></b>	<b><i>27</i></b>
<b>1. Basic functions of the program.....</b>	<b>28</b>
1.1. BM Central Structure .....	28
Basic Design of BM Central.....	28
Main Menu .....	28

Client Window .....	28
<b>1.2. Main Menu.....</b>	<b>29</b>
Previous / Next Page .....	29
2, 4, 8, 16,32 Channels.....	29
Patient Manager .....	29
Configuration.....	29
Executes BMReview .....	29
Exit .....	29
Date/Time .....	29
<b>1.3. Client Window.....</b>	<b>30</b>
Client Information.....	30
Alarm Alert .....	30
Recording Time.....	30
Basic Menu .....	30
Display Waveform.....	31
Display Parameter .....	31
<b>2. Operation of Program .....</b>	<b>32</b>
<b>2.1. Minimization/Maximization of Program Window .....</b>	<b>32</b>
Screen Maximization .....	32
Screen Minimization .....	33
Screen Return.....	33
<b>2.2. Channel layout and display .....</b>	<b>34</b>
Normal Mode (2, 4, 8, 16, 32 Channels) .....	34
Enlarge Mode (4, 8, 16 Channels).....	35
Previous / Next Page .....	35
<b>2.3. To manage patient information .....</b>	<b>36</b>
To search specific patient .....	36
To register new patient information .....	37
To change the patient information .....	38
To delete patient information .....	39
<b>2.4. Preference Setting.....</b>	<b>40</b>
General Tab .....	40
System Tab.....	42
Display Unit Change .....	43
Display Layout Change.....	44

Setting of Multi Monitor .....	45
Setting of Screen Locking Function .....	46
Setting of Code for Screen Locking Function .....	47
Setting of Sound Function in Case of Alarm.....	49
Setting of Automatic Printing Function in Case of Alarm.....	50
To set up automatic database deletion.....	51
Setting of Automatic Recording Function on Equipment On/Off .....	52
Setting of Client Window Automatic Shutdown .....	53
Setting of HL7 Export Function.....	54
Display Language Setting .....	55
<b>2.5. Client Window Menu .....</b>	<b>56</b>
Admit / Discharge .....	56
Record Start/Stop .....	57
Alarm Sound On/Off .....	57
Client Window Close Setting .....	58
Display Setting .....	58
NIBP Start/Stop.....	59
Synchronization of Equipment Settings .....	60
 <b>BM Review .....</b>	 <b>62</b>
<b>1. Execute and Close BM Review.....</b>	<b>63</b>
<b>1.1. Execute BM Review.....</b>	<b>63</b>
Use of BM Review .....	63
Execute BM Review.....	63
<b>1.2. Close BM Review.....</b>	<b>64</b>
Close BM Review .....	64
<b>2. BM Review Program Structure .....</b>	<b>65</b>
<b>2.1. BM Review Program Structure.....</b>	<b>65</b>
BM Review Structure .....	65
Menu .....	65
View .....	65
<b>3. How to use BM Review Menu .....</b>	<b>66</b>
<b>3.1. BM Review Menu .....</b>	<b>66</b>
BM Review Menu.....	66
Study List .....	66

Close Study.....	66
Print Preview.....	66
Print.....	66
Configuration.....	66
Start/End Position, Previous/Next Page, Previous/Next, Move.....	66
Alarm View.....	66
Wave View.....	67
Tabular Trend.....	67
Graphic Trend.....	67
ECG View.....	67
Exit.....	67
<b>3.2. BM Review File Control .....</b>	<b>68</b>
File Open.....	68
File Close.....	69
File Modify.....	70
File Delete.....	73
<b>3.3. BM Review 5 Views .....</b>	<b>74</b>
Alarm View.....	74
Wave View.....	75
Tabular Trend View.....	76
Graphic Trend View.....	77
ECG View.....	78
<b>3.4. BM Review Print preview .....</b>	<b>79</b>
BM Review Preview settings.....	79
BM Review Preview result.....	80
BM Review Print.....	80
<b>3.5. BM Review Preference.....</b>	<b>81</b>
BM Review Preference.....	81
Display.....	82
System Setting.....	83
 <b><i>Broker System(Optional product).....</i></b>	 <b><i>84</i></b>
<b>1. Broker System .....</b>	<b>85</b>
<b>1.1. What is a Broker system? .....</b>	<b>85</b>
<b>1.2. Broker System Structure .....</b>	<b>85</b>

BM Central Server ..... 86

BM Central Client..... 86

**2. How to use Broker System ..... 87**

    2.1. Installation / Uninstallation of BM Central Client..... 87

    2.2. How to use BM Central Client ..... 87

    2.3. Difference between BM Central Server and BM Central Client ..... 89

**Appendix ..... 90**

**1. BM Central Menu Tree..... 91**

        1.1. BM Central Main Menu Tree ..... 91

        1.2. BM Central Client Menu Tree..... 92

        1.3. BM Review Menu Tree ..... 93

**2. Administrator authority settings in Windows 7 & 8 ..... 94**

**3. Q & A ..... 96**

**NOTE**

The specifications and functions described in this instruction manual can be modified without notice for product improvement.

# General

## 1.1 Checkpoints before use

Registered Trademark

How to reach us

Warranty Period

Warning, Caution, Note

General Precaution for service environment

General Precaution on Electrical Safety

Equipment connection, Maintaining and cleaning equipment connection

## 1.2 Outline

Introduction of BM Central

Main functions of BM Central

## 1.3 Product components

Main features of the product

Program Composition

Hardware Preference

System Requirement

---



## 1.1 Checkpoints before use

### Registered Trademarks

- Microsoft Windows and Windows Logo are trademarks of Microsoft Corporation.
- Mac is a trademark of Apple Corporation.
- HDMI, HDMI Logo and High Definition Multimedia Interface are trademarks of HDMI Licensing LLC.
- Wi-Fi and Wi-Fi logo are trademarks of Wi-Fi association.
- Patient Monitor in the manual is a Bionet product (BM1, BM3, BM5, BM7 etc).
- BM1 is a trademark of Bionet
- BM3 is a trademark of Bionet
- BM5 is a trademark of Bionet
- BM7 is a trademark of Bionet
- BM Central and BM Review are trademarks of Bionet
- Trademarks and product names indicated in the manual are the trademarks of each company.

- Product standard or the contents of the manual may be modified without notice, due to the product improvements.
- Copying the whole or the part of the manual is prohibited unless authorized.
- Use the product in the country where you purchased.
- BM Central use the product provided by our company or the one with recommended specification.

### How to reach us

BIONET services are always available to you.

The followings are address and phone number for contacting information, services, and product supplies.

However, the service is limited for genuine products only. Service may not be provided for other cases.

---

**Product Supply  
Information**

**Bionet Co., Ltd. – Sales Department**

Address #1101 11F E&C Venture Dream Tower3, 38-21, Digital-Ro  
31-Gil, Guro-Gu, Seoul, REPUBLIC OF KOREA (ZIP 152-719)

Overseas sales dept. TEL: 82-2-6300-6410 (International)  
82-70-7585-6418 (Domestic)

FAX : 82-2-6499-7789

E-mail : [sales@ebionet.com](mailto:sales@ebionet.com)

URL : <http://www.ebionet.com>

---

**Consumables Order**

**Bionet Co., Ltd. – Sales Department**

TEL : 82-2-6300-6418 (International)  
82-2-6300-6477 (Domestic)

FAX : 82-2-6499-7789

E-mail : [sales@ebionet.com](mailto:sales@ebionet.com)

URL : <http://www.ebionet.com>

Any Authorized Bionet Distributor

<http://www.bionetus.com/locate-a-dealer>

---

**A/S and Technical  
Support**

**Bionet Co., Ltd. – Customer Service Department**

TEL : 82-80-801-6410

FAX : 82-2-6499-7789

E-mail : [service@ebionet.com](mailto:service@ebionet.com)

---

**Internet**

URL : <http://www.bio2net.com>  
<http://www.ebionet.com>

\* In the event of malfunction or failure, contact us along with the model name, serial number, and product name of the product.

### **Warranty Period**

- This product is manufactured and passed through strict quality control and through inspection.
- Warranty period is 1 year.
- We will repair or replace any part of the product that fails due to manufacturer defects.
- This warranty does not apply to any defect caused by improper abuse, misuse or exposure to poor management.

## Warning, Caution, Note

For special emphasis on agreement, terms are defined as listed below in user's manual. Users should operate the equipment according to all the warnings and cautions.

### Warning

To inform that it may cause serious injury or death to the patient, property damage, material losses against the "warning" sign

### Caution

To inform that it may cause no harm in life but lead to injury against the "caution" sign

### Note

To inform that it is not dangerous but important "note" sign for proper installation, operation, and maintenance of the equipment.

## General Precaution on Environment

Be sure to keep at room temperature

## **1.2 Outline**

### **Introduction of BM Central**

BM Central is a software only for patient monitors which are manufactured by BIONET Co.,Ltd. BM Central can be connected to up to 64 units of patient monitors. This system is able to monitor and save parameters and waveforms. You can retrieve and register patient information, you can have various data by using this system also.

### **Specification**

<b>Functions</b>	<b>Description</b>
Monitoring units	Max. 64 units
Supported device	BM1, BM3, BM5, BM7
View Mode	2, 4, 8, 16, and 32 Channel View Mode (Supported Dual Monitor)
Data Save	Max 10 days
Alarm	Sound and Display
Communication type	Bidirectional communication with patient monitor
Reviewer	Alarm View, Wave View, Graphic Trend View, Tabular Trend View, ECG View
Print and Report	Supported Preview and Print (5 kinds of Report Form)
Supported Language	English, Italian, French, Spanish, German, Chinese, Russian, Polish, Czech, Turkish, Romanian, Portugues, Bulgarian, Korean

## 1.3 Product Component

### Main features of the product



BM Central Program is software produced by Bionet, and it is used as patient monitor, providing 64 patient monitors maximum. it provides a variety of functions other than monitoring, such as saving files and images, and review functions such as measurement data.

### Program Composition

BM Central Program is consisted of three programs. They are, BM Central, which implements server function, BM Review, which can analyze and make a judgment on measurement data, and BM Central Client(Broker), in which the measurement data of server may be checked in each work area.

BM Central Client(Broker) is an optional product.

### Hardware Preference

Type	Central system	Description
Common		BM Central Software CD
Common		USB Lock Key (For License)

## **System Requirement**

Minimum requirement for BM Central is Windows 2000. Installation is available for BM Central CD only.

The minimum requirements of installation of BM Central are as below.

	<b>Minimum Requirement</b>	<b>Recommended Requirement</b>
<b>OS</b>	Windows XP	Windows XP (32bit) or Windows 7, 8 (32/64bit)
<b>CPU</b>	Core2Duo 1.86GHz	Core2Duo 3.0 GHz or more
<b>RAM</b>	2GB	3GB or more
<b>Monitor</b>	19 inches	24 inches or more
<b>Graphic Card</b>	VGA RAM 256 MB 1600 x 900	VGA RAM 512MB or more 1920 x 1080
<b>CD-ROM drive</b>	24X	48X
<b>HDD</b>	500 GB	1 TB or more
<b>LAN</b>	10 Mbps	100 Mbps or more
<b>USB</b>	2 ports	3 ports or more

# Installation

## **1. Installation of BM Central**

1.1 Installation in Window XP & Windows 7

## **2. Uninstallation of BM Central**

2.1 Uninstallation in Window XP & Windows 7

## **3. Execute / Close BM Central**

3.1 Execute BM Central Program

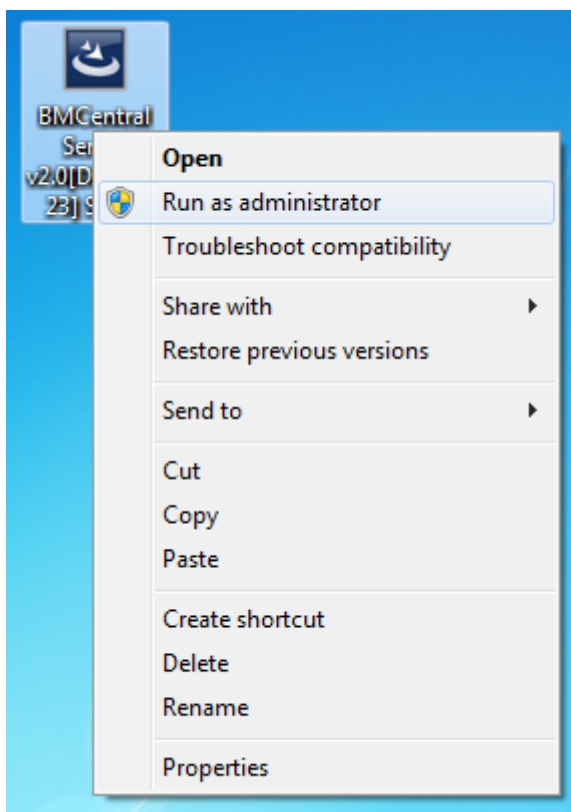
3.2 Close BM Central Program



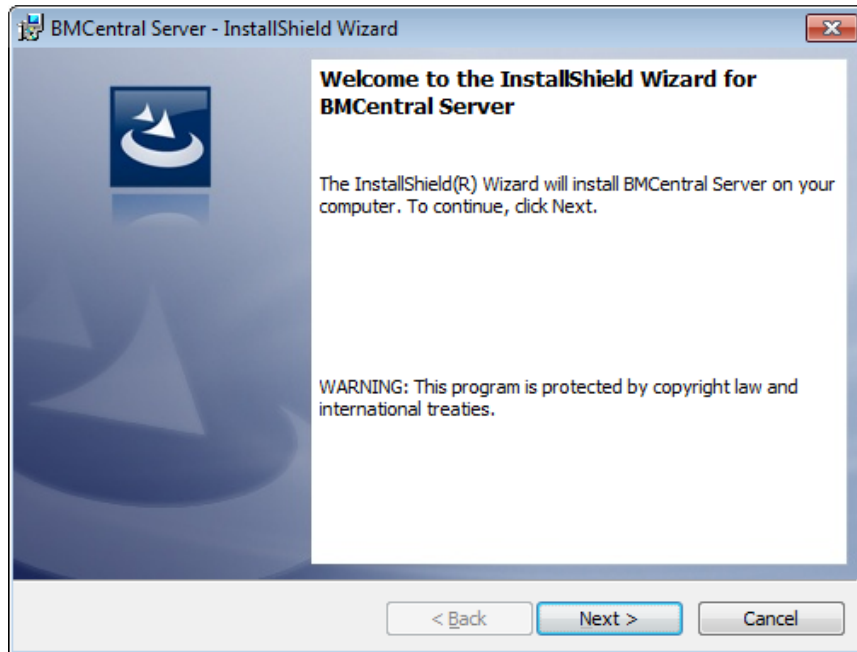
# 1. Installation of BM Central

## 1.1. Installation in Window XP & Windows 7, 8

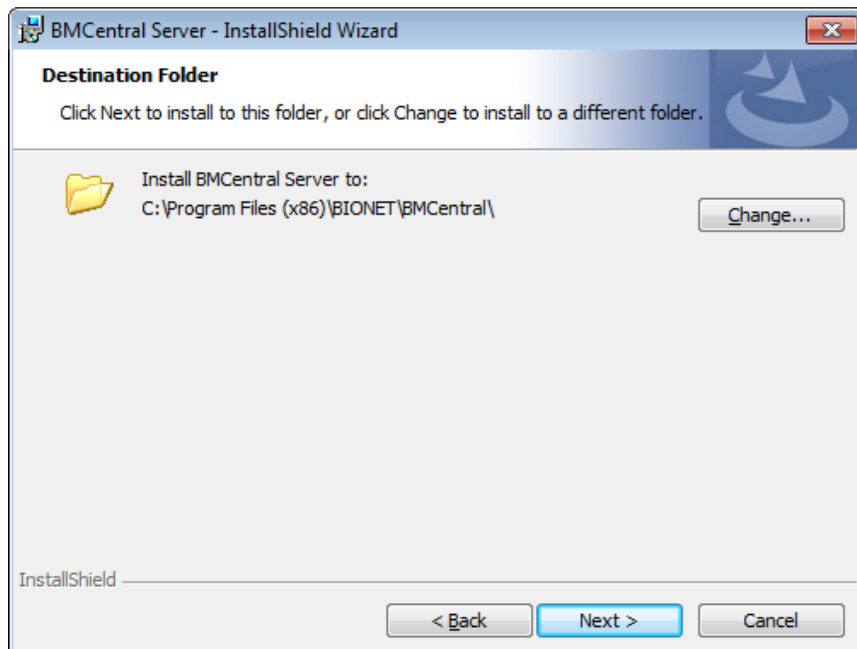
- 1) If you were using BM Central, you should back up measurement data and DB data files which manage the data in order to secure the safety of data. After that, start the installation
- 2) The folder where DB files managing the measurement data are located is in "C:\Program Files\BIONET\BM Central". Find "BEyeII.mdb" here in this folder or in the subfolder and back it up.
- 3) For patient measurement data, it is located in the folder designated in user settings. Check the relevant location and back up the folder where data is saved. This backup files and DB files can be placed back to their relevant location, after reinstallation.
- 4) Insert BM Central Installation CD to the CD Drive.
- 5) Open CD-ROM drive and run "BMCentral Setup.exe".
- 6) You should use the management mode when you install or operate the software in Windows 7.



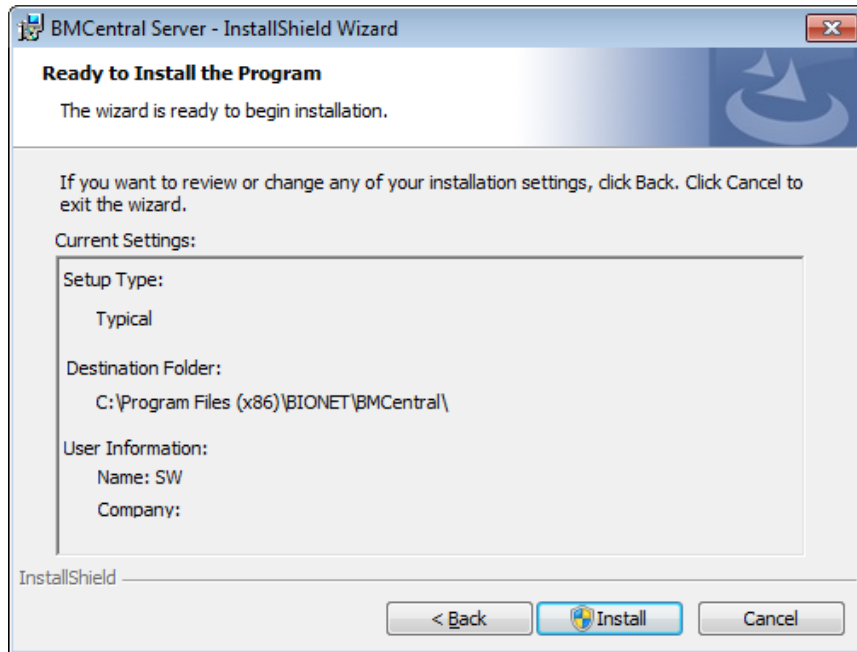
- 7) If window-browser pops up as follows, click “Next”



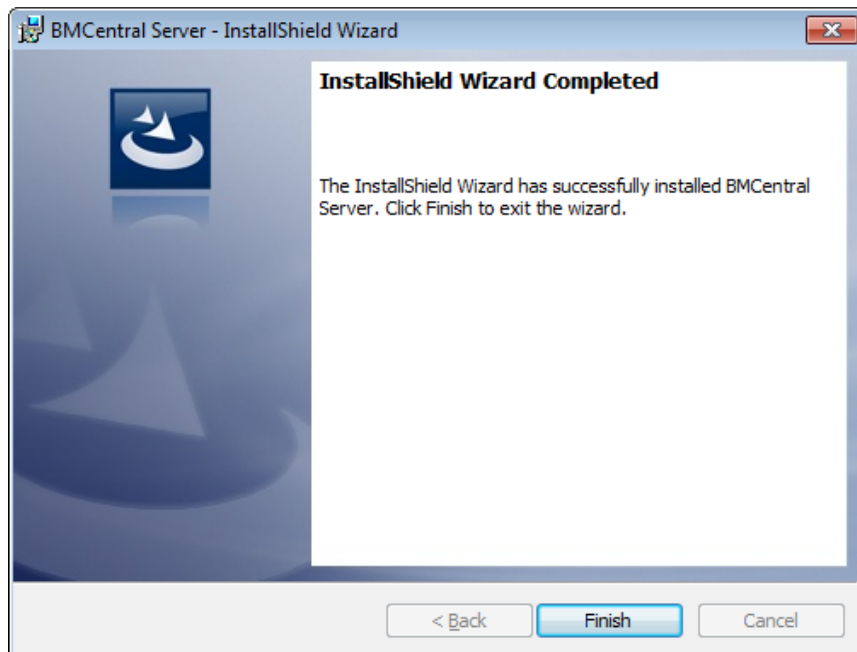
- 8) Select 'folder' where you want to install BM Central. If you want to install the program to another folder, click “Browse” and select folder.



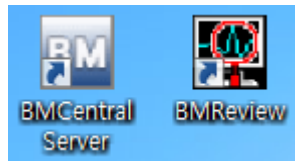
9) Install the relevant program in the folder which is set above. Click “Next” button.



10) If installation is completed, click “Finish”.



11) If installation is successful, you may see the “BM Central” and “BM Review” Icon.



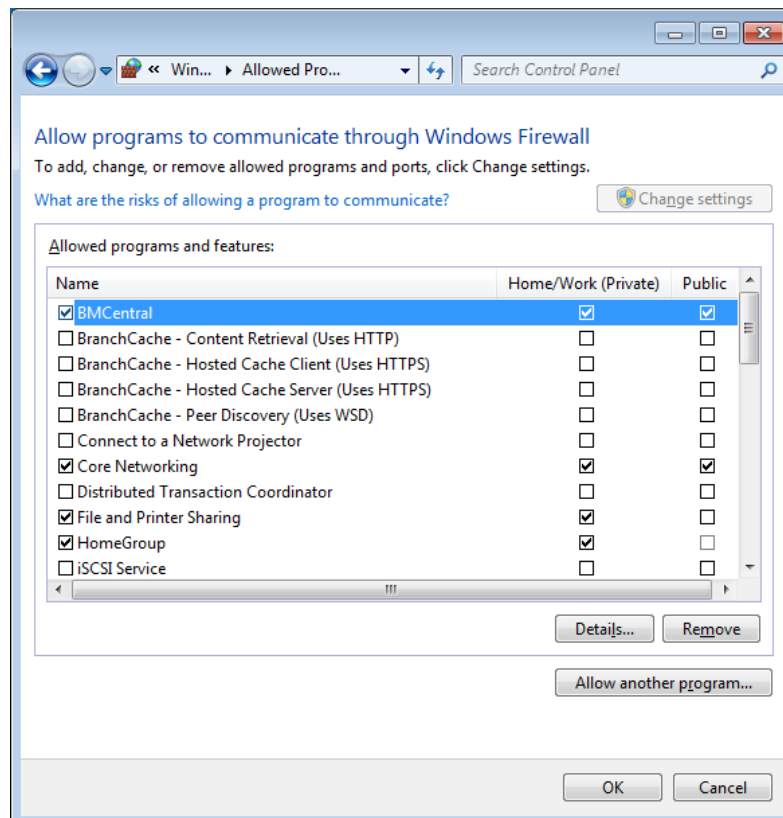
12) After finishing the installation, access right should be given in order to make network communication work in Windows 7 and Windows 8. You can register the program to be allowed in Windows Firewall.

13) Enter “System and security” in Control Panel.

14) Select “Windows Firewall” in system and security.

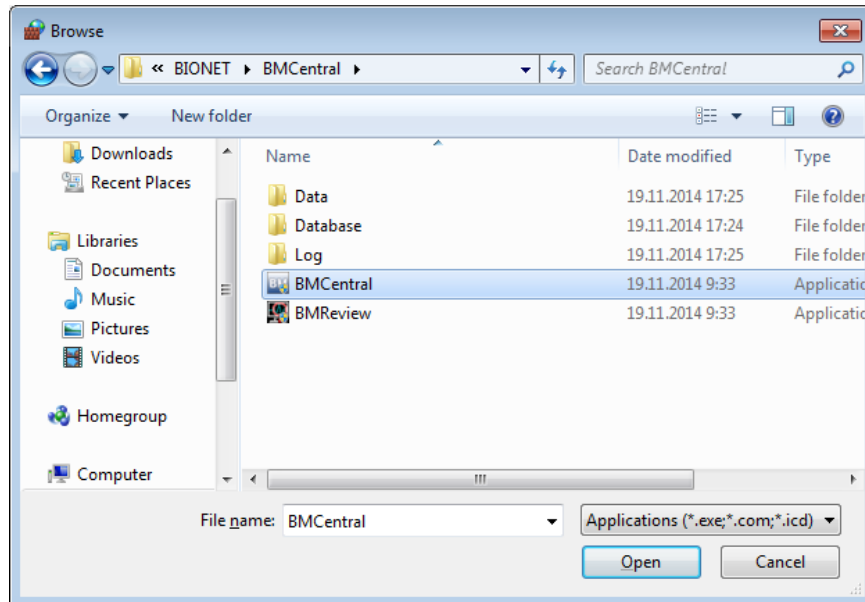
15) Select “Allowed programs” in Windows Firewall.

16) Click “Allow other programs” in allowed programs.

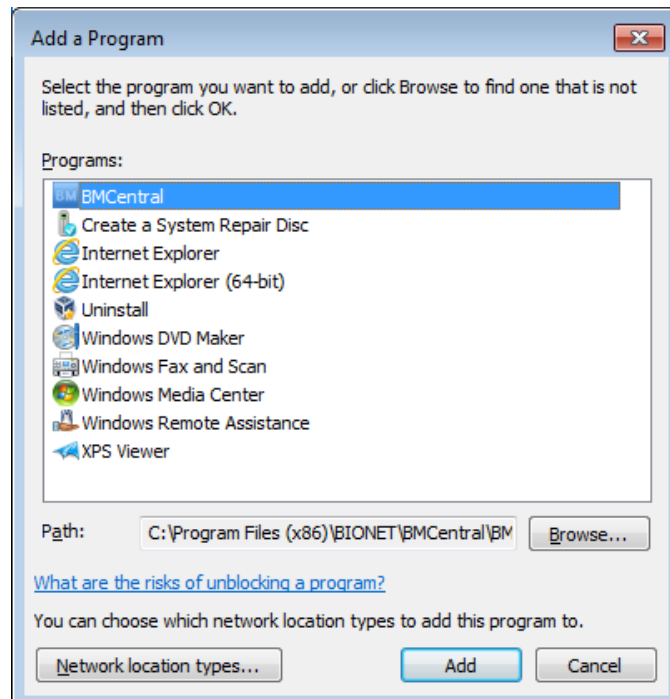


17) In 'Allow other programs' dialogue, select 'search'

18) Move to the folder "C:\Program Files\BIONET\BMCentral" where program is located, and select "BMCentral"



19) Select the program and click "add"



20) If “BM Central Application” is on the allowed program list, it is properly registered. If it is not properly registered, wave may not be seen even if the program is executed and equipment is interlocked.

21) Register installed program in allowed program list. If you have backup files before installation, copy it to the same folder and use the system.

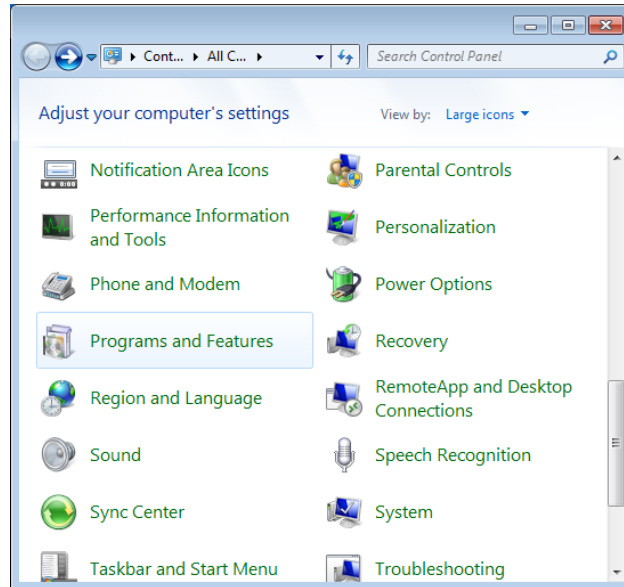
**Caution**

Please check for the remaining space, for the data generated while executing the program. While executing BM Central program, measured data and image saving process for interlocking with EMR will occur. In “preference”, “system” of BM Central program, select the hard disk folder which has a sufficient amount of remaining space.

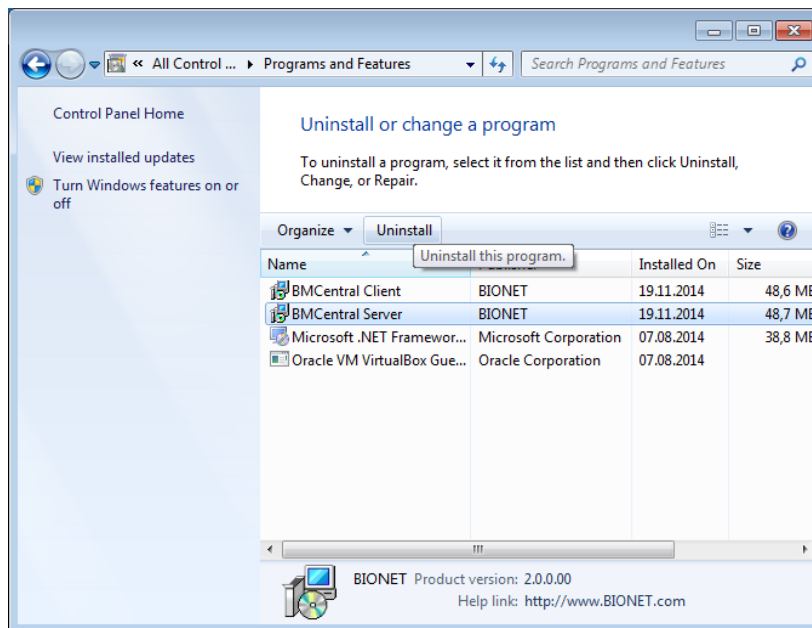
## 2. Uninstallation of BM Central

### 2.1. Uninstallation in Window XP & Windows 7, 8

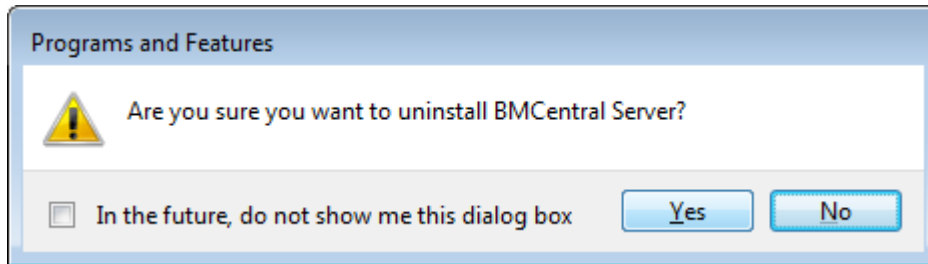
1) Move to Start->Control Panel->"Program addition/deletion" or "Program and Features"



2) Then, select "BM Central Server". Click "Remove/Modify" or "Uninstall" button.



3) Click "OK" or "Yes" to delete program.



**Caution**

Measured data and images saved for interlocking with EMR, which are occurred while executing BM Central program, are not deleted. Decide whether you are going to use the data and remove it manually.



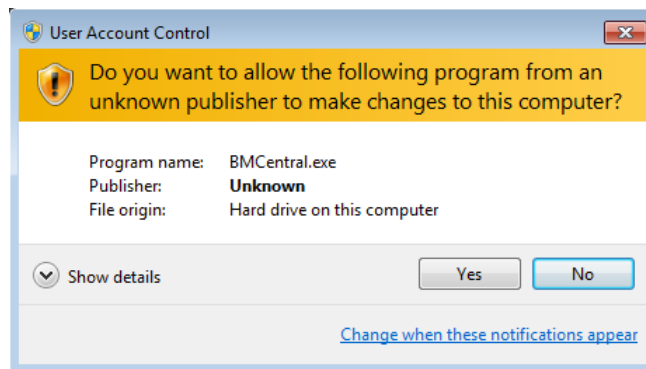
## 3. Execute / Close BM Central

### 3.1. Execute BM Central

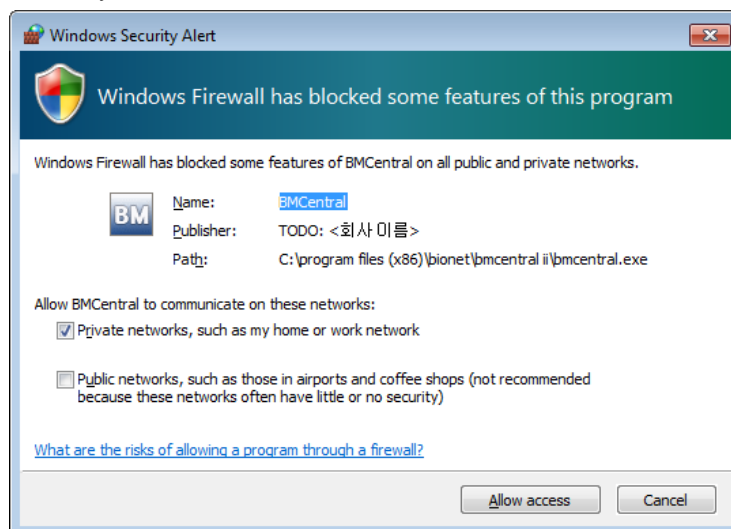
- 1) Double-click “BM Central Server” Icon on Desktop.



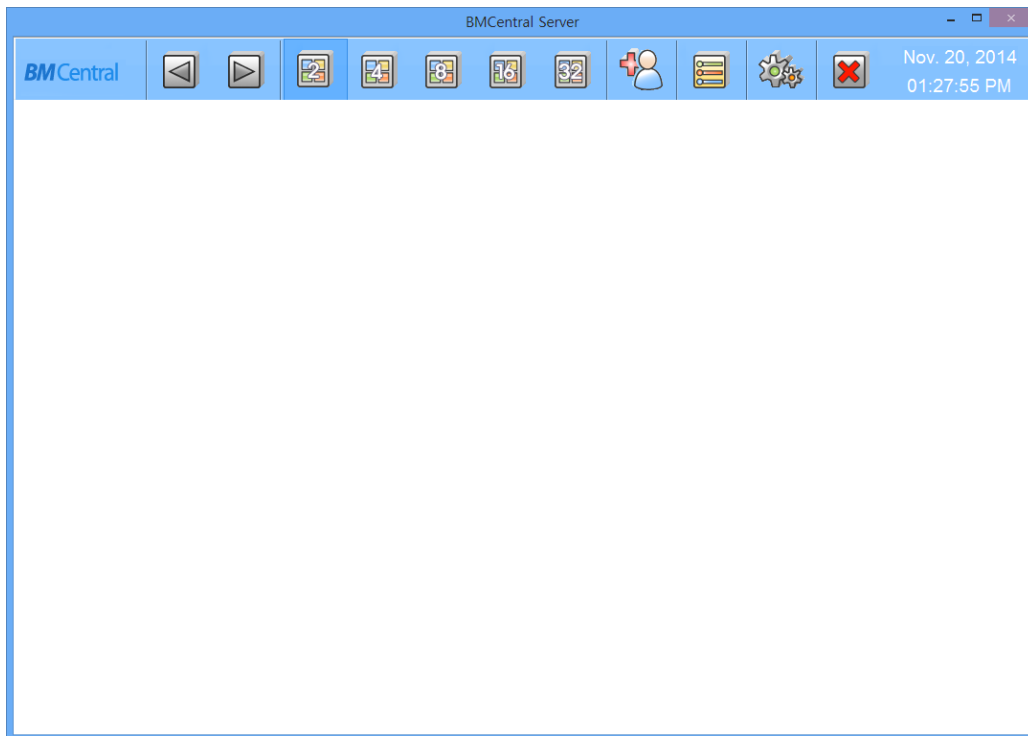
- 2) When starting the program for the first time, the dialogue below might appear due to the authority problem. Click “Yes”, or “Confirm”



- 3) When starting the program for the first time, the dialogue might appear with a message that blocks some features in the firewall for security purposes. Click “Allow access” button to acquire the authority.



4) This is basic design of BM Central.



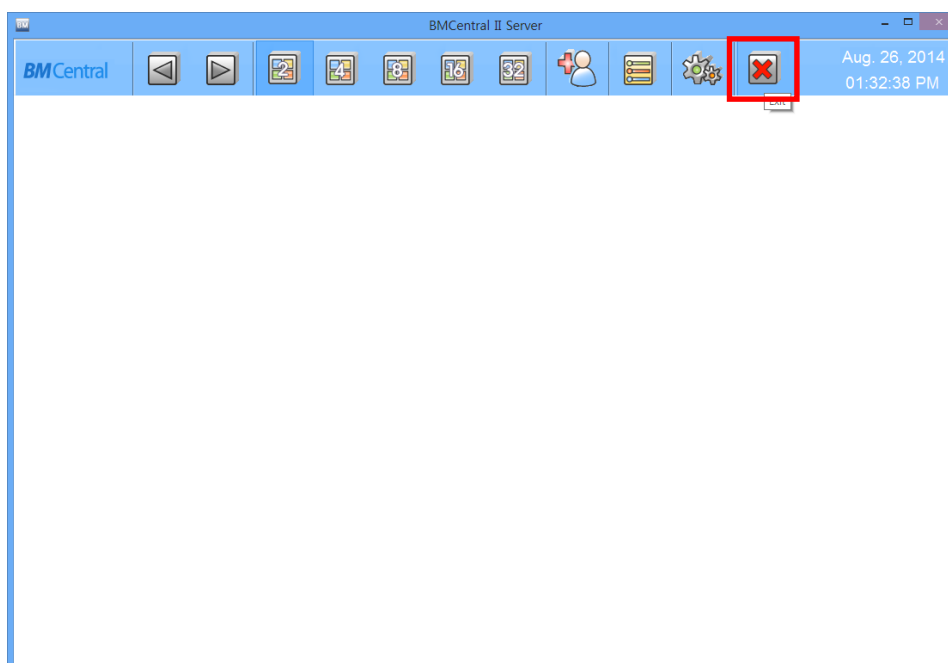
**Note**

BM Central provides two types of connecting method, Patient Monitor, and LAN & WIFI. Make a setting for BM Central and Patient Monitor by referring to the manual. If the preference is properly set, the connection will be automatically made and Client Window will be formed.

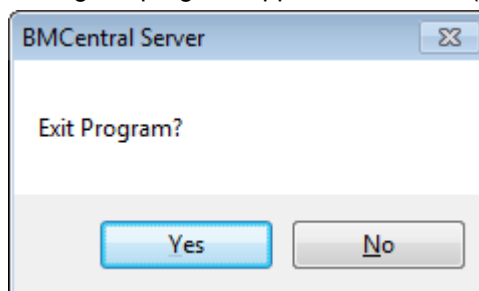
When BM Central and Patient Monitor are connected, you can monitor the patient data in real time. When you want to save data, set the patient information and you should admit it.

### 3.2. Close BM Central

- 1) If you want to close BM Central program, click the close button indicated below.



- 2) When the dialogue for closing the program appears, click "Yes(Y)" button.



- 3) Program is then closed.

#### Caution

Before closing BM Central program, it is recommended that you should close the data of real-time measurement for the patient. Data being measured might be deleted.

# How to use

## **1. Basic functions of the program**

1.1 BM Central Structure

1.2 Main Menu

1.3 Client Window

## **2. Operation of Program**

2.1 Minimization/Maximization of Program Window

2.2 Channel layout and display

2.3 To manage patient information

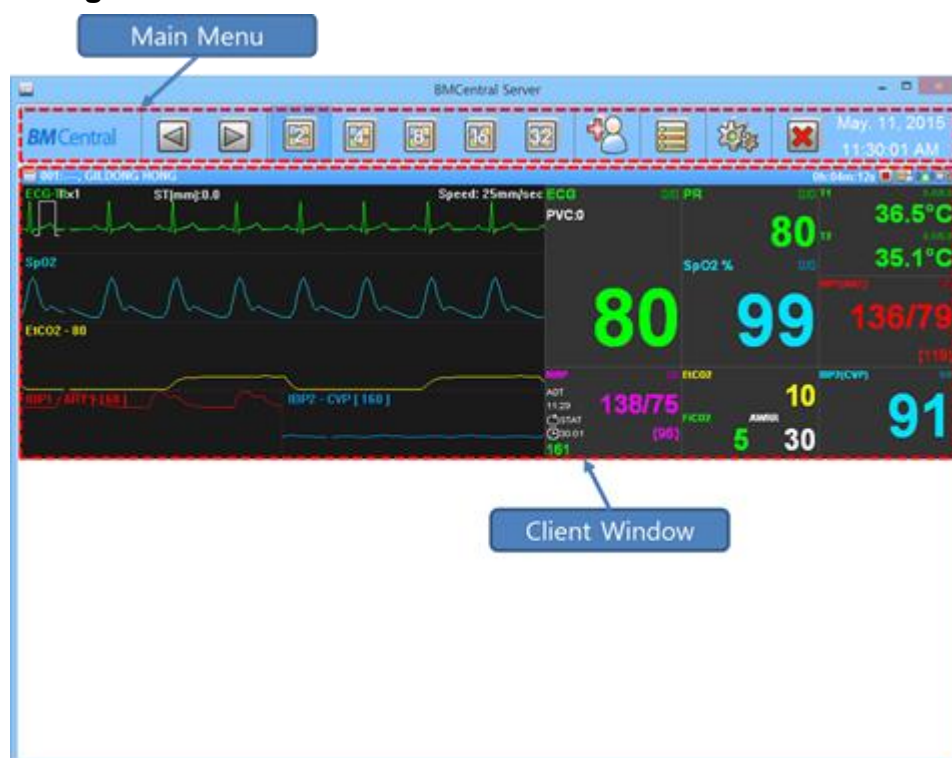
2.4 Preference Setting

2.5 Client Window Menu

# 1. Basic functions of the program

## 1.1. BM Central Structure

### Basic Design of BM Central



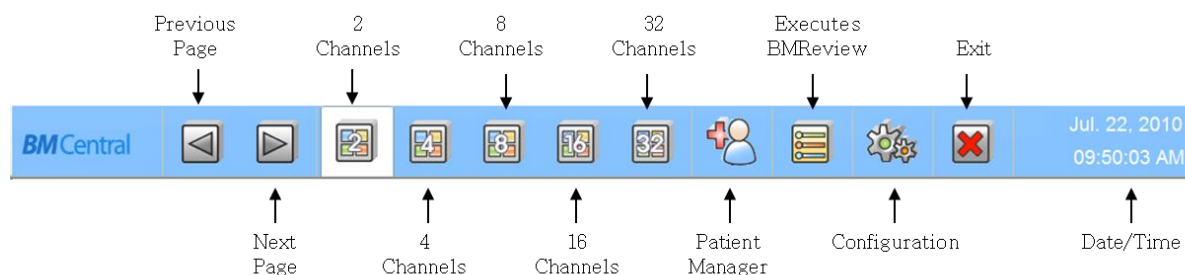
#### Main Menu

The main menu consists of Patient Manager, User Manager, Channel Display for connected clients, Client Window Setting, and Run "Review Program".

#### Client Window

The client window automatically opens when the patient monitor is connected to BM Central. One client window displays one patient monitor. You can check the monitor's parameter and waveform in real time, remotely control the monitor settings, and print the information in real time.

## 1.2. Main Menu



### Previous / Next Page

To shift "channel page"

(In case you can ship page any more, this button will be deactivated.)

### 2, 4, 8, 16,32 Channels

To select number of clients(patient monitor) on screen.

### Patient Manager

To register "patient information".

### Configuration

To set up the environment of system.

### Executes BMReview

To call up and open the saved file regarding patient information.

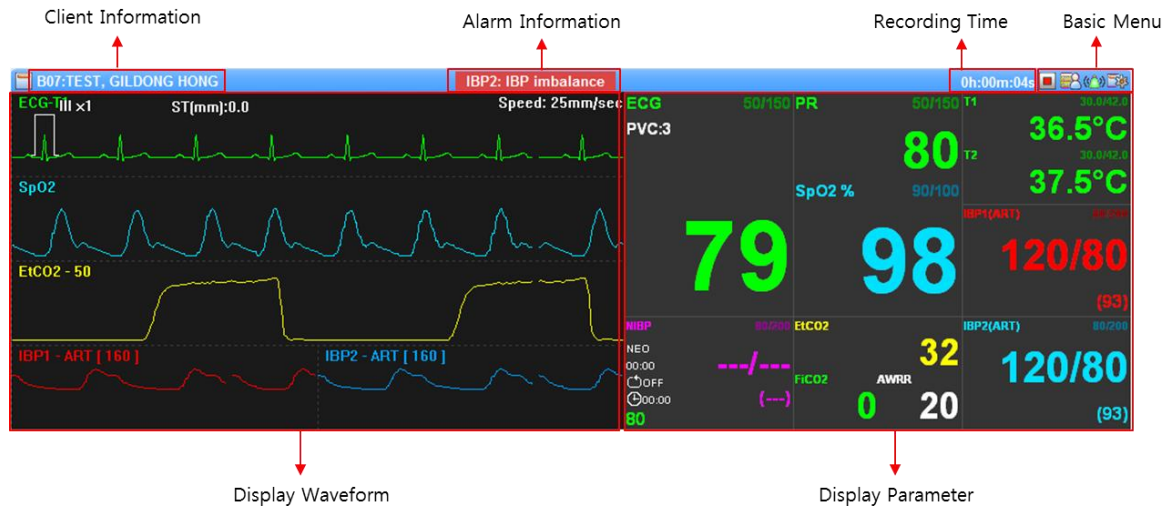
### Exit

To quit the program.

### Date/Time

To show the present date/time.

### 1.3. Client Window



#### Client Information

To show patient information from client(patient monitor).  
 (Message format : “Bed number: Unit name, Patient name”)

#### Alarm Alert

To make sound for attention and show what parameter has problem.

#### Recording Time

To show how long the patient information is being saved.

#### Basic Menu



: To Admit/Discharge patient information from each patient monitor.  
 (After setting up the “Admit”, Record start button will be activated.)



: Recording function is not being used.  
 (Click this button, Recording will start.)



: Recording function is being used.  
 (Click this button, recording will stop.)



: Alarm sound is "ON".

(Click this button, alarm sound function will be deactivated.)



: Alarm sound is "OFF".

(Click this button, alarm sound function will be activated.)



: To set up the client environment.



: To close the client window

(If the connection with the patient monitor is lost, it is displayed.)

## Display Waveform

To show waveforms (biosignal) from patient.

(If you want to see the other waveforms, click the parameter of which you want to monitor)

## Display Parameter

To display parameters from patient.

※ Display type of waveforms & parameters will depend on the number of channels.

(Specific display will be shown by setting up the client environment.)



## 2. Operation of Program

### 2.1. Minimization/Maximization of Program Window

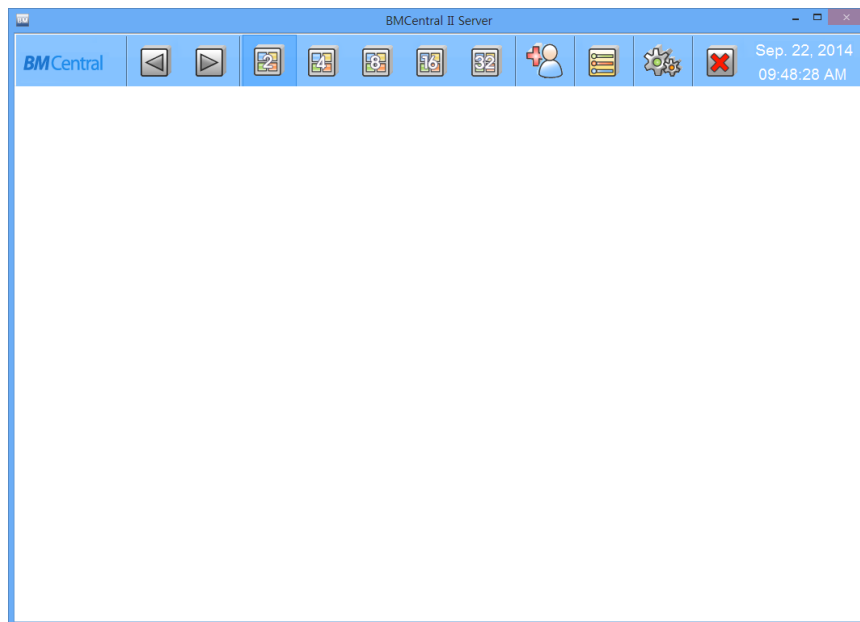
When the BM Central window mode is set as a window mode, the maximization/minimization function can be used.

#### Screen Maximization

(1) Click on the maximization icon in the top right side of the window.

The window is then adjusted to the maximum size matching the monitor size.

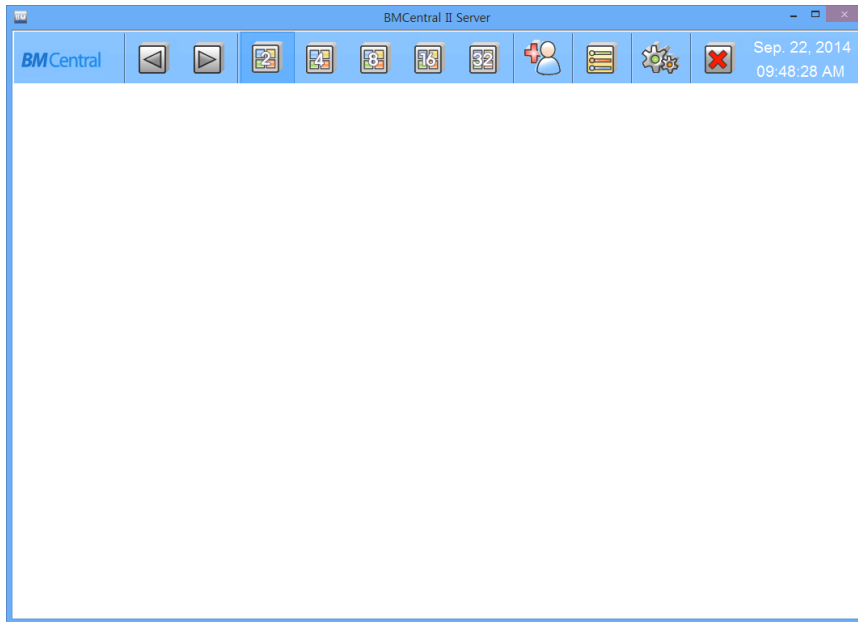
(If you click on the icon again when the window is maximized, it is changed to a general mode in which the adjustment of window size is possible.)



### Screen Minimization

(1) Click on the minimization icon in the top right side of the window.

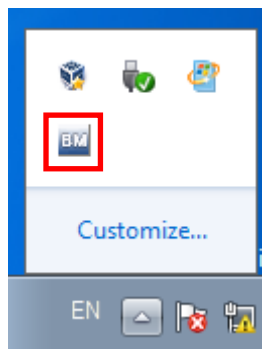
(If the window minimization function is activated, the tray icon is displayed in the bottom right side and the window disappears from the screen. To change the screen to its original state, use the "Screen Return" function.)



### Screen Return

(1) If you move the mouse pointer to the tray icon in the bottom right side and then click the left button, the window is displayed on the screen. If you click the mouse again, the window disappears from the screen.


(If you move the mouse pointer to the tray icon and then click the right button, the menu is displayed, and using the "Hide" and "Show" functions on the menu also performs the same functions.)



## 2.2. Channel layout and display

The screen display by channels is divided into a general mode and an enlargement mode.

The general mode is composed of one client window per connected equipment, and the enlargement mode has a maximum of two client windows per connected equipment. The enlargement mode displays all parameters and waveforms. To change channels, click on the “2, 4, 8, 16, 32 Channels” button (

) in the Main Menu. And if you double-click the left mouse button on the caption part of the client window that you want to change, conversion between the enlargement mode and general mode is available.


### Normal Mode (2, 4, 8, 16, 32 Channels)



### Enlarge Mode (4, 8, 16 Channels)




### Previous / Next Page

The “Previous and Next buttons(  )” appear only when the number of patient monitors connected to BM Central exceeds the number of available client windows. By clicking these buttons, you can check the information of the monitors that are not displayed on the client window.



[Example : 8 monitors connected in 4-CH display]

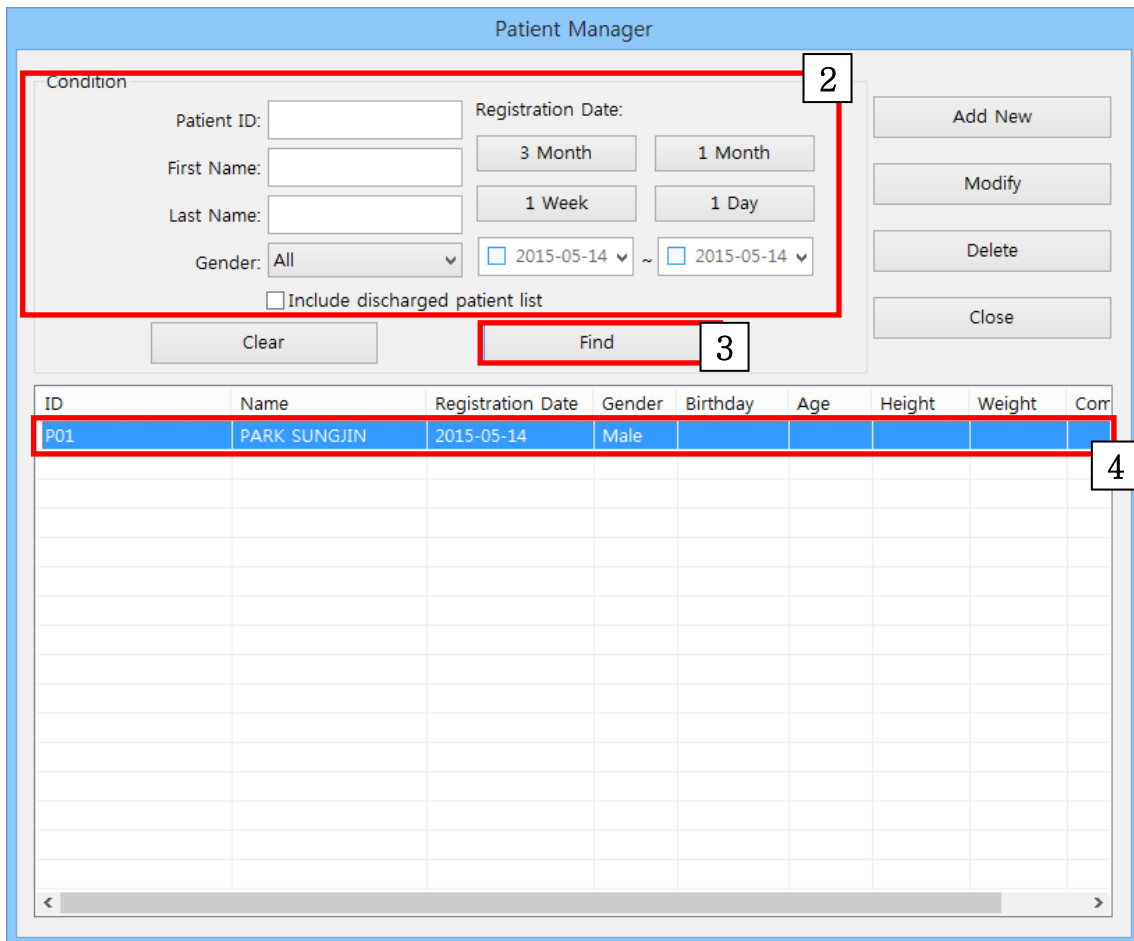
## 2.3. To manage patient information

To manage patient information, use "Patient Manager" (  ) in the Main Menu.

If you use Patient Manager, you can add, change, and delete the patient information.

### To search specific patient

- (1) Click "Patient Manager" of "Main Menu".
- (2) Input the specific patient information in conditions.
  - ※ If you want to find all patient, click "Clear" button and "Find" button as follows.
  - ※ If you want to find all patient including discharged patient , check "Show Discharged Patient List".
- (3) Click "Find" button.
- (4) You may see patient as follows.



The screenshot shows the "Patient Manager" window. A red box labeled "2" highlights the search filters: Patient ID, First Name, Last Name, Gender (All), Registration Date (3 Month, 1 Month, 1 Week, 1 Day), and a date range (2015-05-14 to 2015-05-14). Below the filters are "Clear" and "Find" buttons, with "Find" highlighted by a red box labeled "3". On the right side, there are buttons for "Add New", "Modify", "Delete", and "Close". Below the filters is a table with the following data:

ID	Name	Registration Date	Gender	Birthday	Age	Height	Weight	Corr
P01	PARK SUNGJIN	2015-05-14	Male					

The first row of the table is highlighted with a red box labeled "4".

### To register new patient information

- (1) Click "Patient Manager" of "Main Menu".
- (2) Click "Add New" button.

The screenshot shows the 'Patient Manager' window. The 'Add New' button is highlighted with a red box, and a callout box with the number '2' points to it. The window contains a search form with fields for Patient ID, First Name, Last Name, Gender, and Registration Date. Below the search form is a table with columns: ID, Name, Registration Date, Gender, Birthday, Age, Height, Weight, and Comment. The first row of the table is highlighted in blue and contains the following data: P01, PARK SUNGJIN, 2015-05-14, Male, , , , , .

- (3) Input the patient information (Input the Name in English)
- (4) If you finish registration of patient information, click "O.K".

The screenshot shows the 'Add Patient' window. The 'Ok' button is highlighted with a red box, and a callout box with the number '4' points to it. The window contains a form with the following fields: Patient ID (P10), Status (Admit), First Name (GILDONG), Birthday (2015-05-13), Last Name (HONG), Height (cm), Gender (Male), Weight (kg), Registration Date (2015-05-13), and Comment (text area). The 'Close' button is also visible at the bottom right.

### To change the patient information

- (1) Click "Patient Manager" of "Main Menu".
- (2) Find a specific patient information.
- (3) Click "patient information" on the list.
- (4) Click "Modify" button and open "Modify Patient".

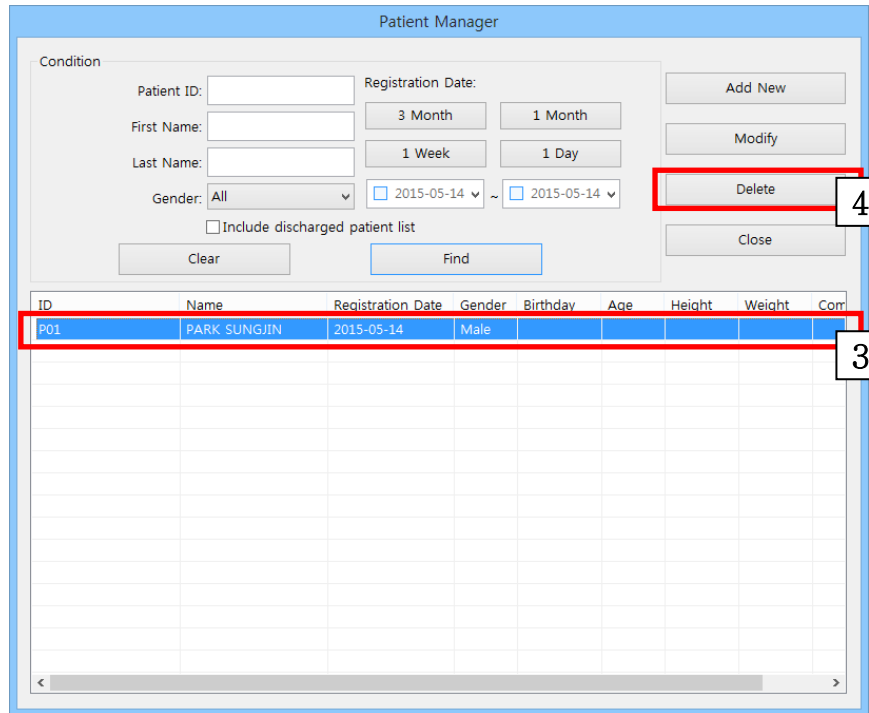
The screenshot shows the 'Patient Manager' window. At the top, there are search filters for Patient ID, First Name, Last Name, Gender, and Registration Date. A red box highlights the 'Modify' button on the right side of the filter area, with a '4' in a box next to it. Below the filters is a table with columns: ID, Name, Registration Date, Gender, Birthday, Age, Height, Weight, and Comment. The first row of the table is highlighted in blue and has a red box around it, with a '3' in a box next to it. The first row contains the following data: P01, PARK SUNGJIN, 2015-05-14, Male.

- (5) Change the patient information.
- (6) Click "OK" button to save.

The screenshot shows the 'Add Patient' dialog box. It contains several input fields: Patient ID (P10), First Name (GILDONG), Last Name (HONG), Gender (Male), Registration Date (2015-05-13), Status (Admit), Birthday (2015-05-13), Height (cm), and Weight (kg). A red box highlights the entire form area, with a '5' in a box next to it. At the bottom of the dialog, there are two buttons: 'Ok' and 'Close'. The 'Ok' button is highlighted with a red box, with a '6' in a box below it.

**To delete patient information**

- (1) Click "Patient Manager" of "Main Menu".
- (2) Input the specific patient information in conditions.
- (3) Click "patient information on the list."
- (4) Click "Delete" button as follows.





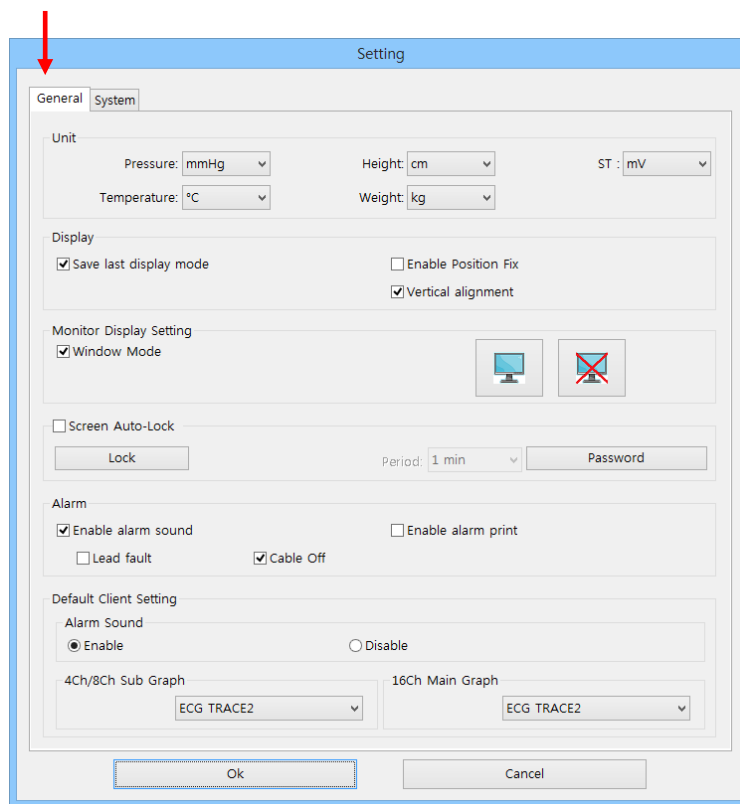
## 2.4. Preference Setting

And if you set the environment, use “Configuration” (  ) in the Main Menu.

If you use "Configuration" you can use the system information check, set the basic layout for the client window, set the alarm sound on/off, and set the unit and HL7 service.

The environment setting is divided into a “General” setting tab which sets generally, and a “System” setting tab, which sets major system information.

### General Tab



✓ **Unit**

This performs the function of setting the pressure, temperature, height, and weight, which will be displayed on the screen.

✓ **Display**

This saves the channel value that has been selected last and sets the alignment of the client window that will be displayed on the screen.

✓ **Monitor Display Setting**

This provides the selection of the monitor on which the user wants to display BM Central S/W. It supports dual monitors.

✓ **Screen Auto-Lock**

This provides a screen lock function to prevent general users from changing programs arbitrarily. The lock function has a one-time lock and cycle lock. The cycle lock function locks the screen if there is no movement of the keyboard or mouse for a duration the user designates. The initial code can be changed to one that the user wants.

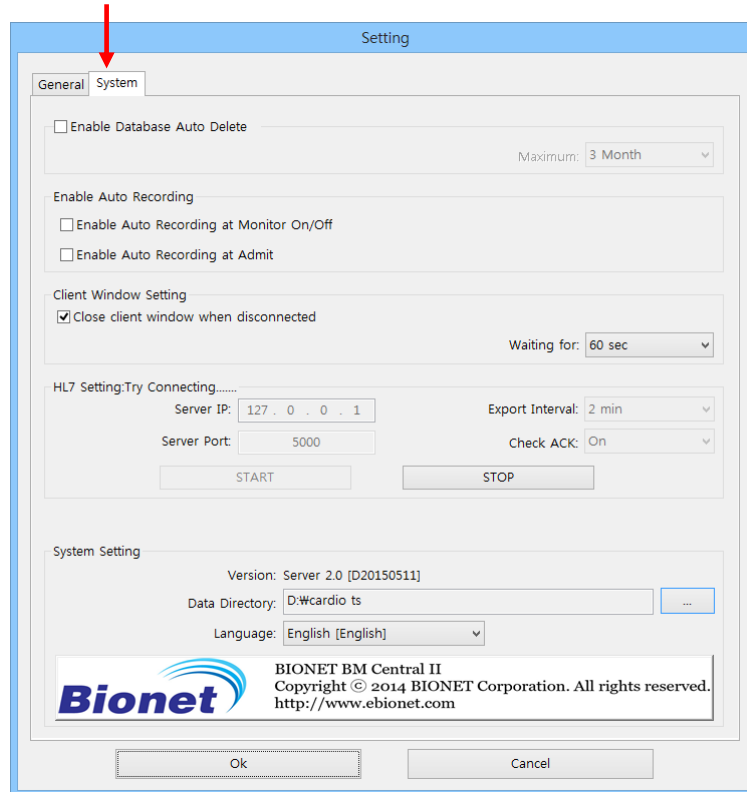
✓ **Alarm**

It performs the function of powering the alarm sound on/off and sets the option for automatic print in case of alarm. When it powers off the alarm sound, there is no sound, even if the alarm sound icon of the client window is activated.

✓ **Default Client Setting**

This designates the display basic value for the waveforms and parameters that will be displayed in the client window.

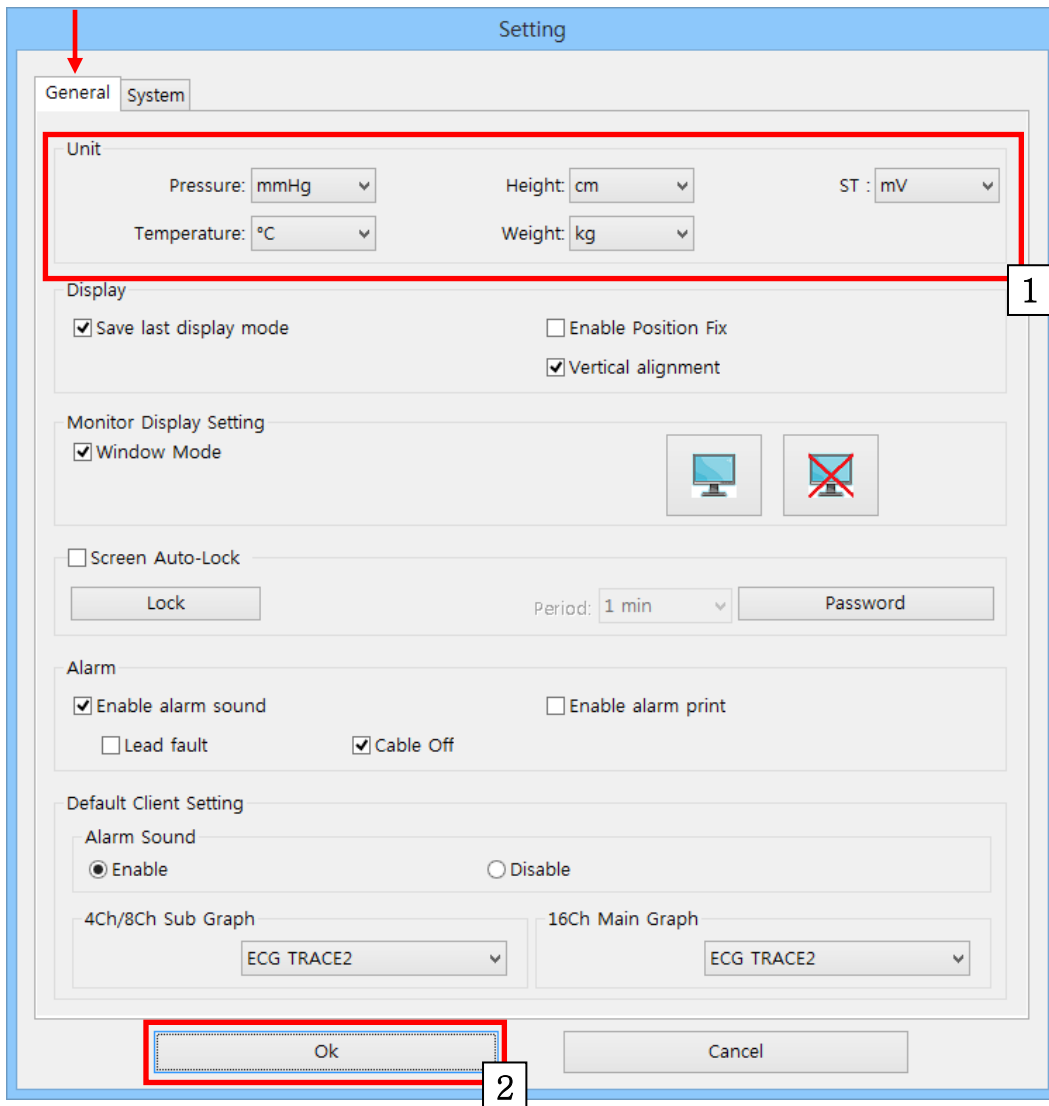
## System Tab



- ✓ **Enable Auto Recording at Monitor On/Off**  
When the patient monitor is powered on/off, it performs the function of automatic start/end of recording. (As the Admit is automatically performed, the patient's ID is registered in the form of "Unknown\_" + "Bed Number.")
- ✓ **Enable Database Auto Delete**  
This performs the function of automatic deletion of the database and files out of a range the user designates.
- ✓ **Client Window Setting**  
When the patient monitor is abnormally disconnected, it performs the function of time designation for the confirmation of the disconnection and shutdown of the client window when disconnection occurs.
- ✓ **System Setting**  
This designates the path to save data or changes languages.

### Display Unit Change

- (1) Select unit and change.
- (2) Click "OK" button



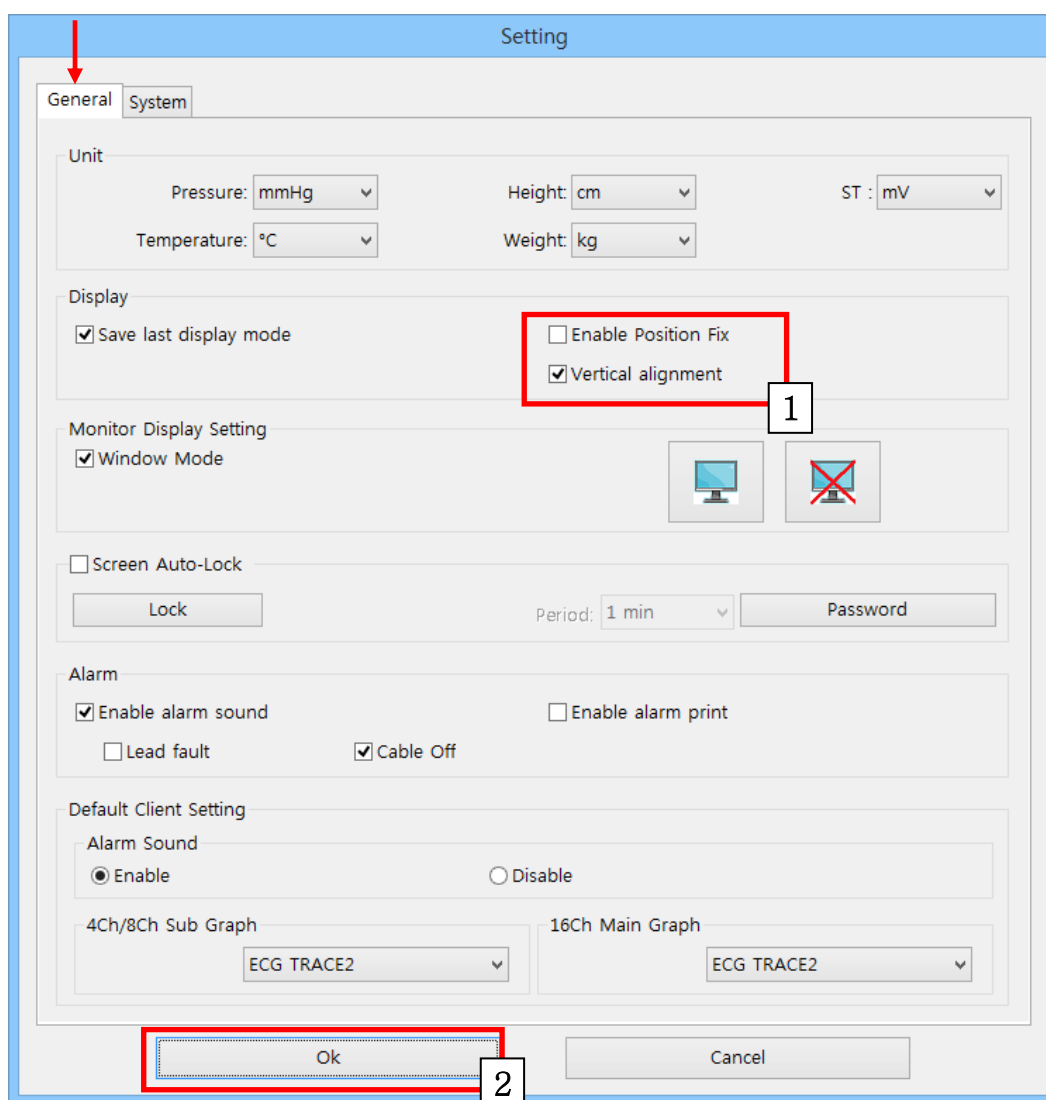
## Display Layout Change

(1) Check the “Enable Position Fix” item to fix the location of the client window with a bed number, and check “Vertical Alignment” if you want a vertical alignment of the client window.

(When the “Enable Position Fix” function is used, the range of “Bed Number” should be fixed as 1~64.)

(2) Click "OK" button

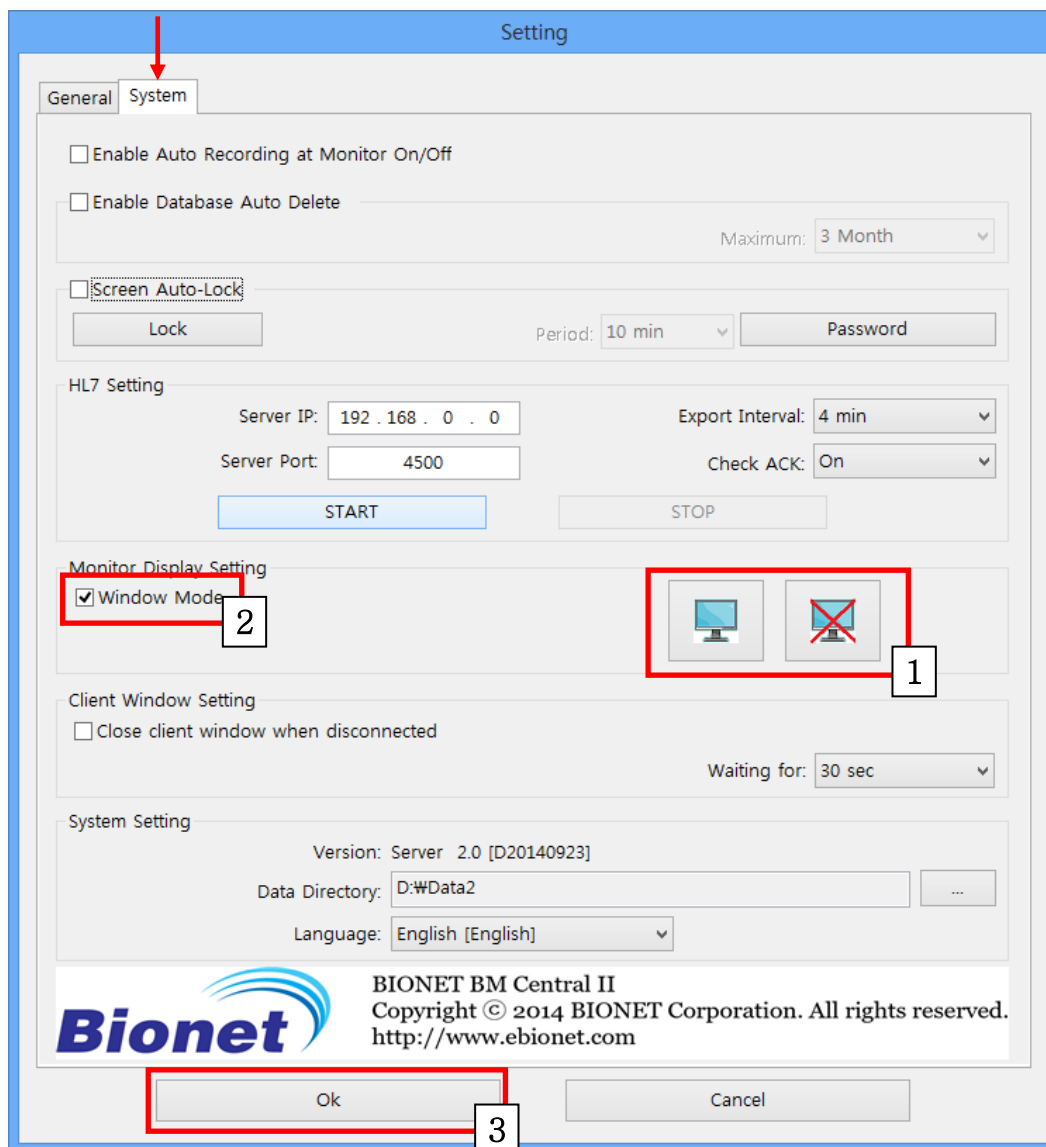
(To release the function, remove check mark and click “OK”)



## Setting of Multi Monitor

This function sets one or more monitors.

- (1) Select the monitor you want to use. (The “X” symbol means “deactivated.”)
- (2) Check the “Window Mode” item when you want to use window mode.
- (3) Click "OK" button



## Setting of Screen Locking Function

The screen locking function locks the screen automatically if there is no input by the keyboard or mouse for a certain amount of time.

(1) Check “Screen Auto-Lock.”

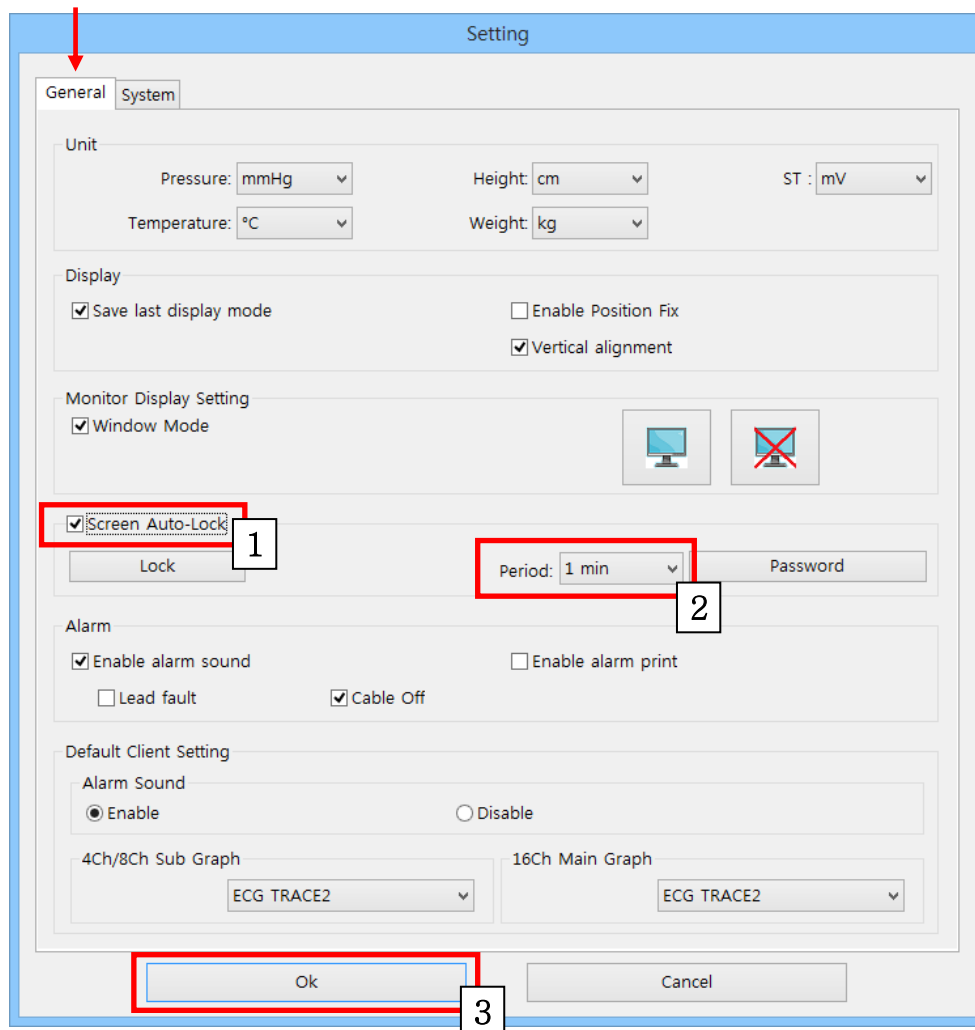
(If you click on the “Lock” button without checking “Screen Auto-Lock,” it functions in a one-time lock mode.)

(2) Select the locking cycle at the “Period” item.

(If there is no input by the keyboard or mouse, the screen is locked for the designated period.)

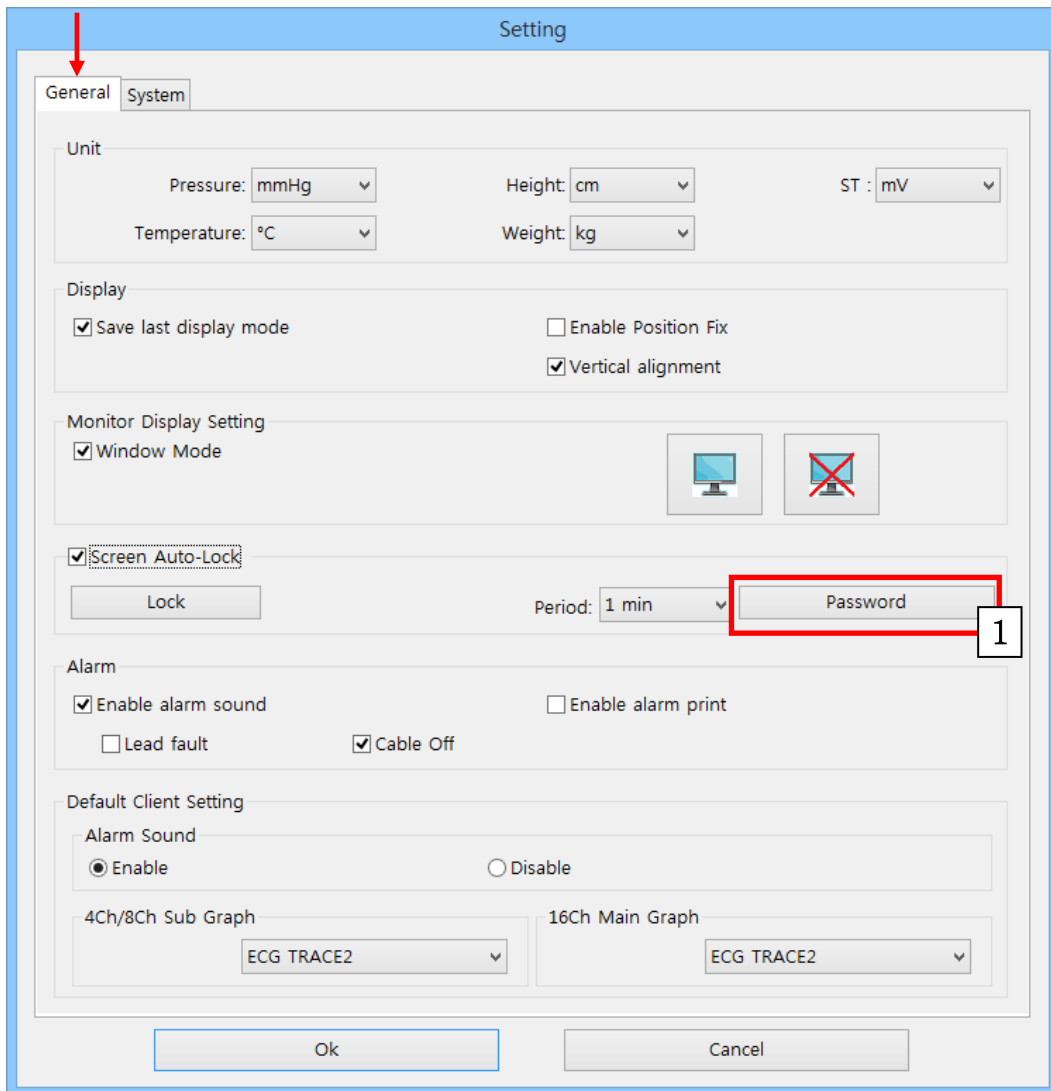
(3) Click "OK" button

(To release the function, remove check mark and click “OK”)



## Setting of Code for Screen Locking Function

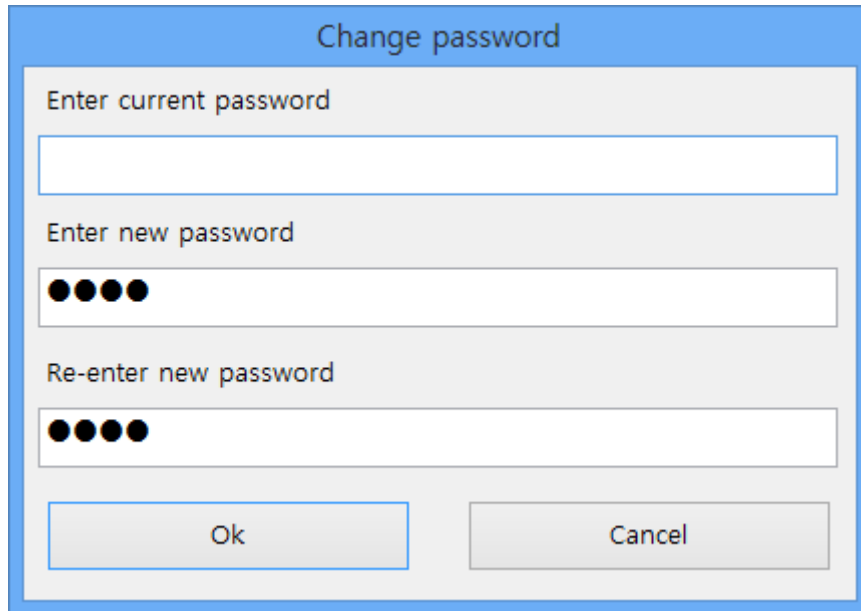
(1) Click on the "Password" button.





(2) Once the “Change Password” dialog box is displayed, input the existing code and then input the new code two times and click on the “OK” button. Then the code change is completed.

(The BM Central initial code has no characters.)



The image shows a "Change password" dialog box with a blue title bar. It contains three input fields: "Enter current password" (empty), "Enter new password" (filled with four black dots), and "Re-enter new password" (filled with four black dots). At the bottom, there are two buttons: "Ok" and "Cancel".

### Setting of Sound Function in Case of Alarm

This provides an alarm sound on/off in case of alarm.

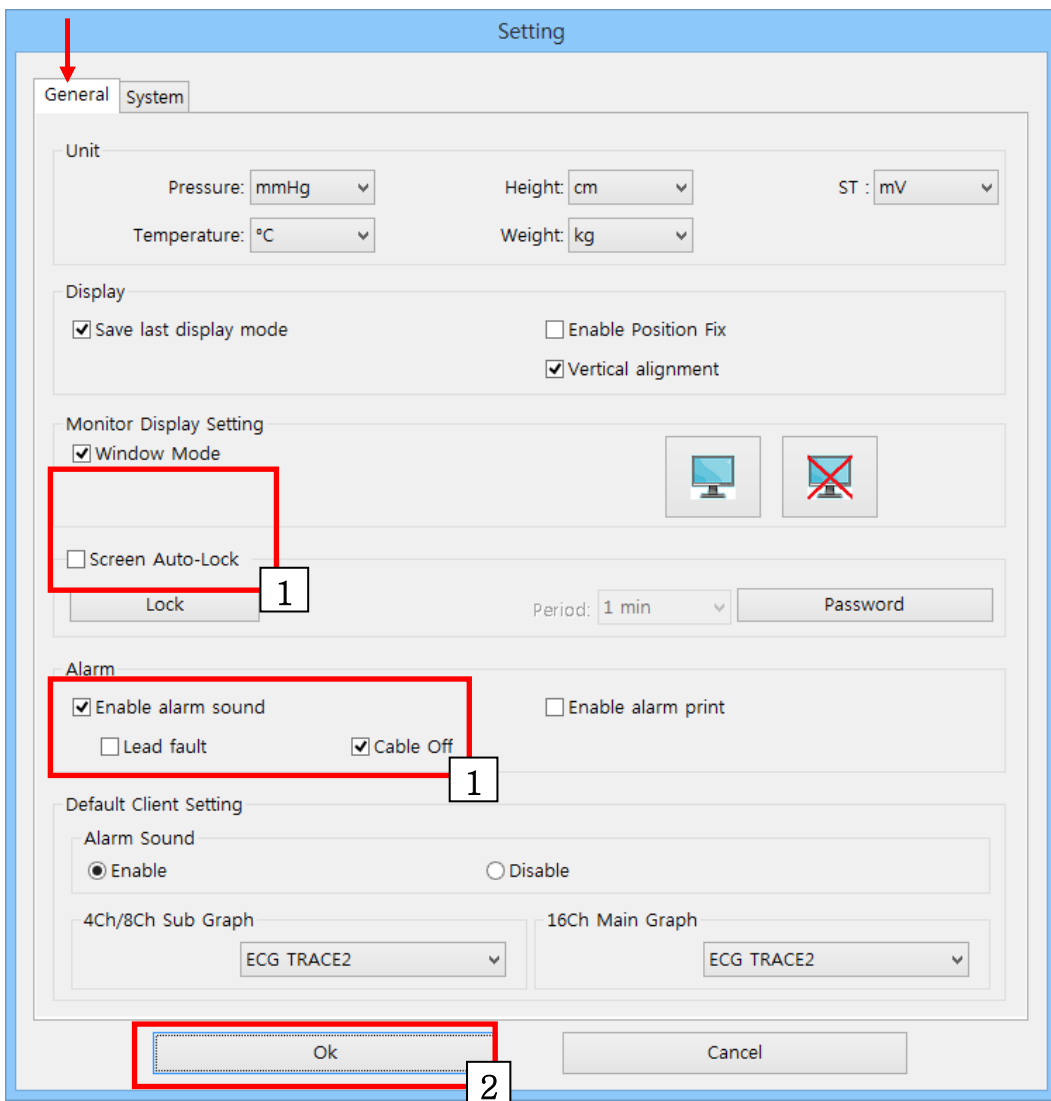
It also provides the function of powering the lead fault on/off and cable off alarm.

(1) Check the "Enable alarm Sound."

And check "Lead Fault" and "Cable Off" items as necessary.

(2) Click "OK" button

(To release the function, remove check mark and click "OK")



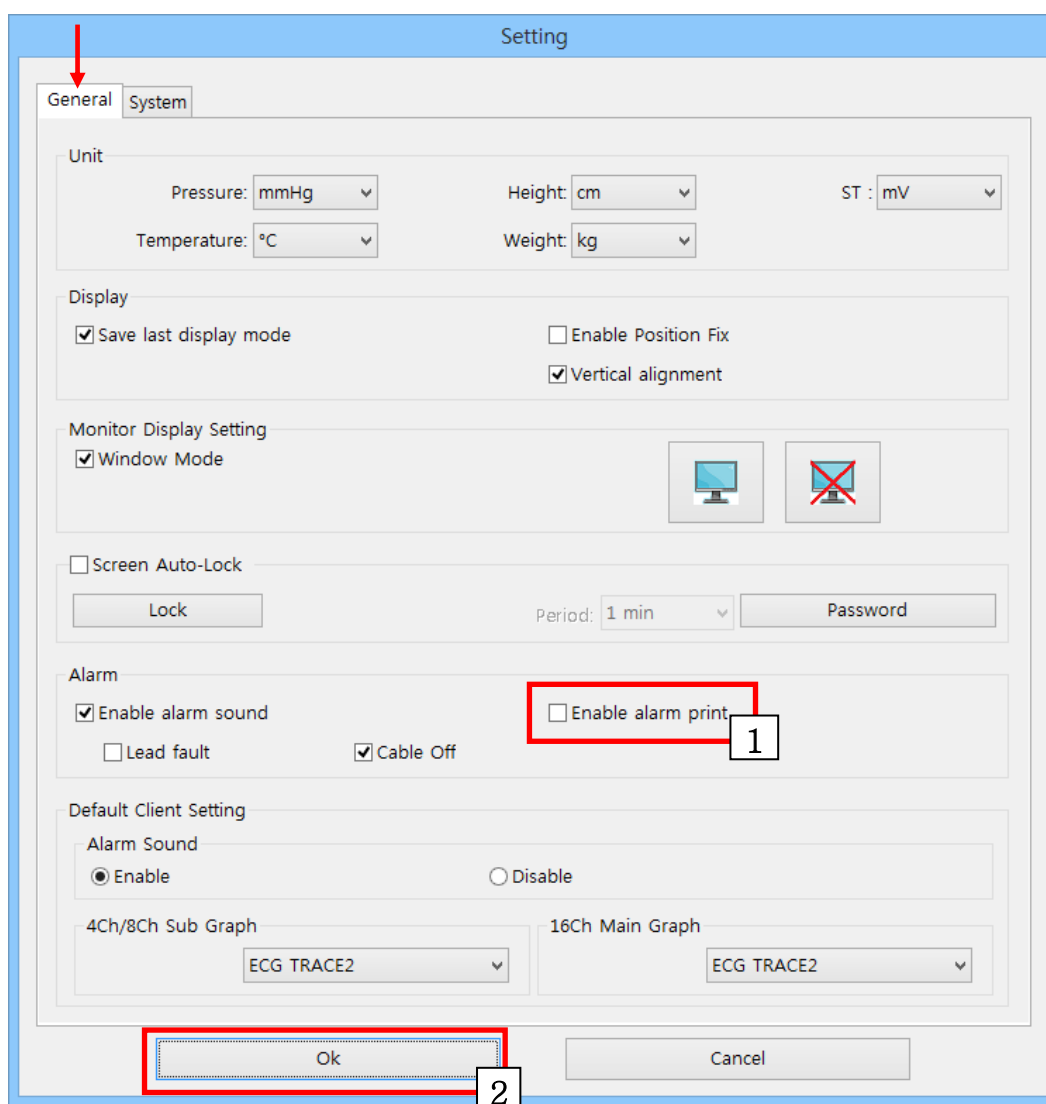
### Setting of Automatic Printing Function in Case of Alarm

In case of alarm, it automatically prints the information on the waveforms and parameters for 10 seconds in total, with 5 seconds each before and after the alarm occurrence.

(1) Check "Enable alarm print"

(2) Click "OK" button

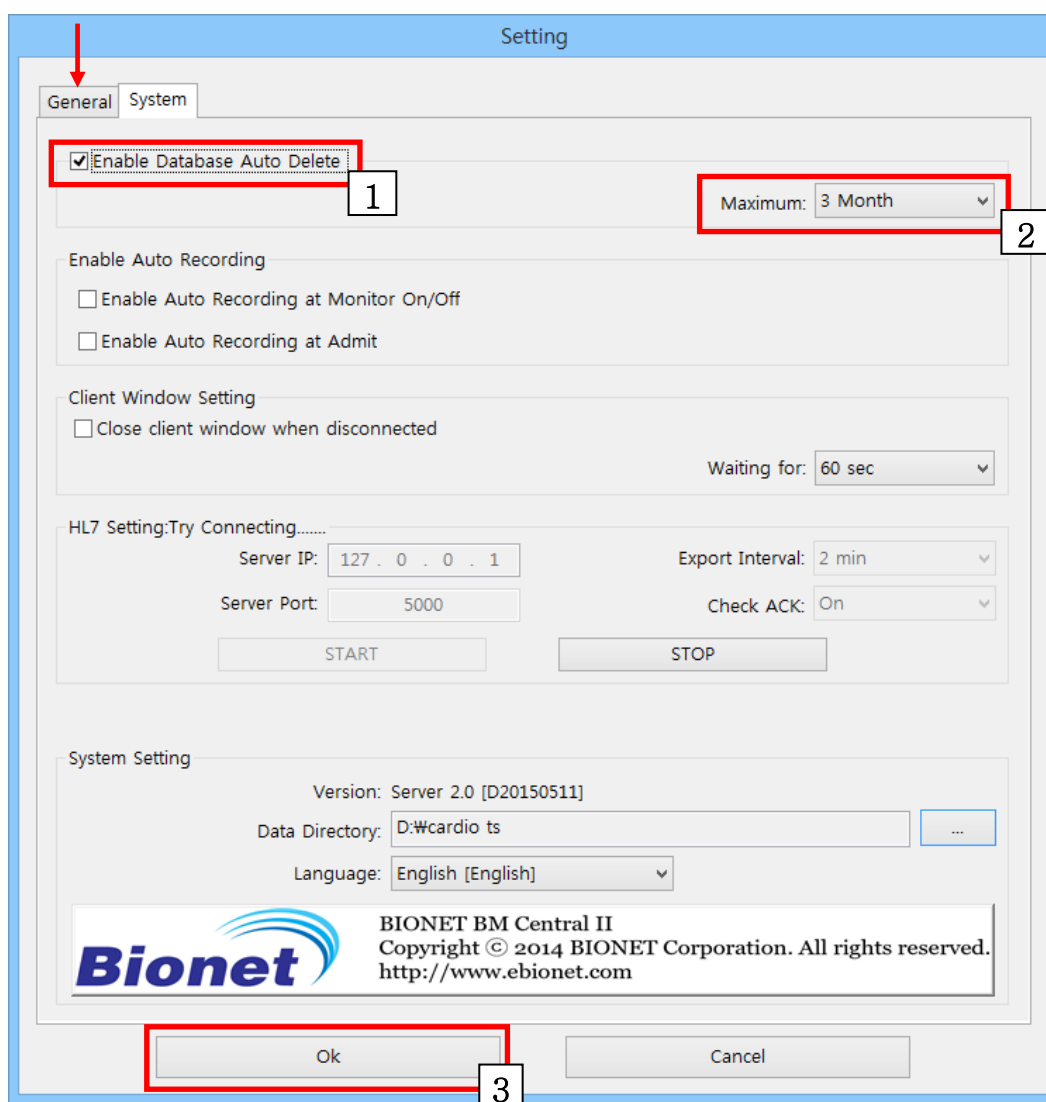
(To release the function, remove check mark and click "OK")



### To set up automatic database deletion

It automatically deletes the data and database information that's past a certain period.

- (1) Check "Enable Database Auto Delete".
- (2) Select number of month of "Maximum" options.  
(For example: if you select "1 Month", all data will be deleted except for 1 month before from now.)
- (3) Click "OK" button  
(To release the function, remove check mark and click "OK")



### Setting of Automatic Recording Function on Equipment On/Off

When powering equipment on/off, this is used to start/stop the recording without the admit process. Because the admit process is omitted, the patient's ID for saved study information is stored in the form of "Unknown\_BedNumber."

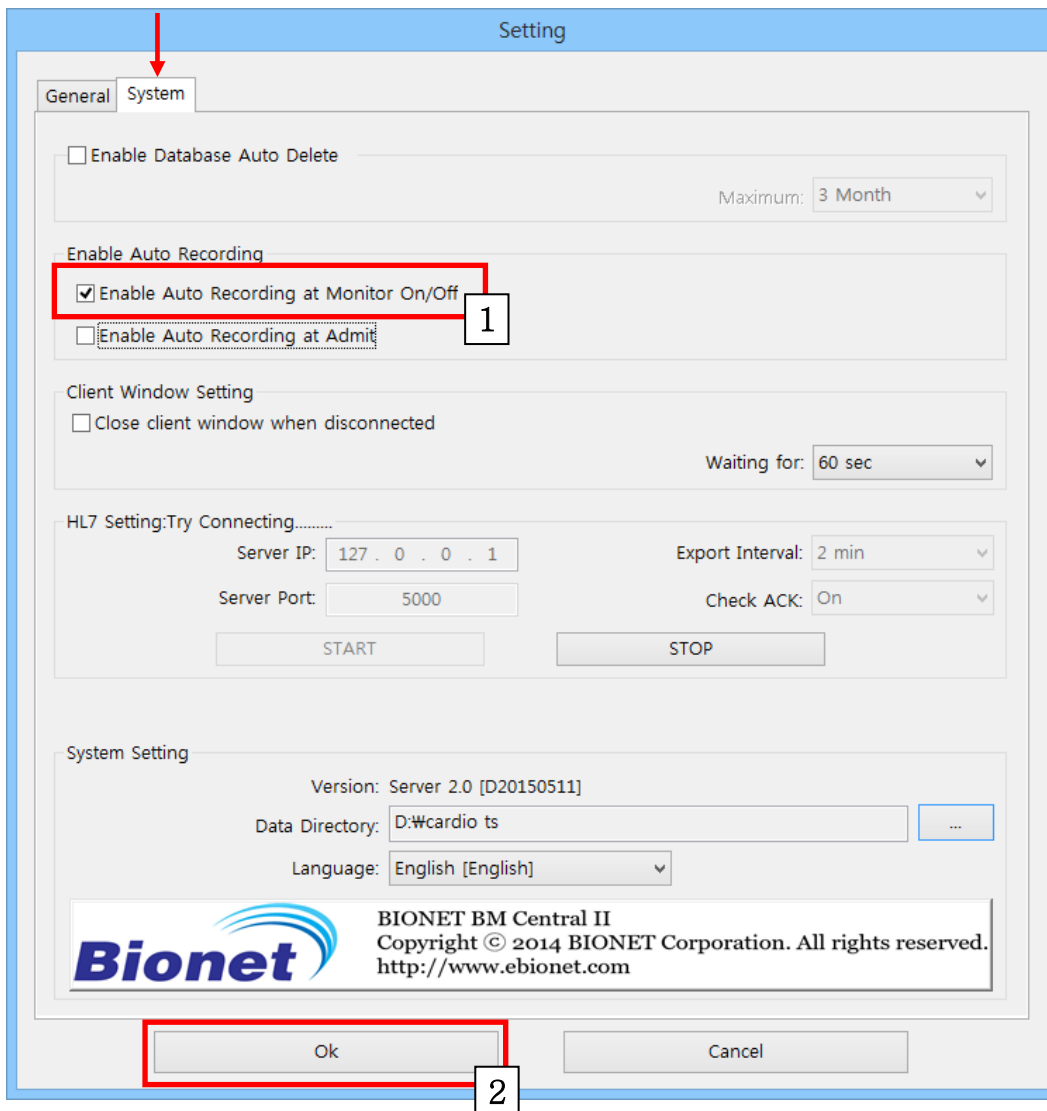
A specific patient's ID can be changed by using the "File Modify" function in BM Review after saving. Note that the function is performed only when a bed number is input in the equipment.

(1) Check "Enable Auto Recording at Monitor On/Off."

(After the function is applied, the recording start/stop button becomes disabled.)

(2) Click "OK" button

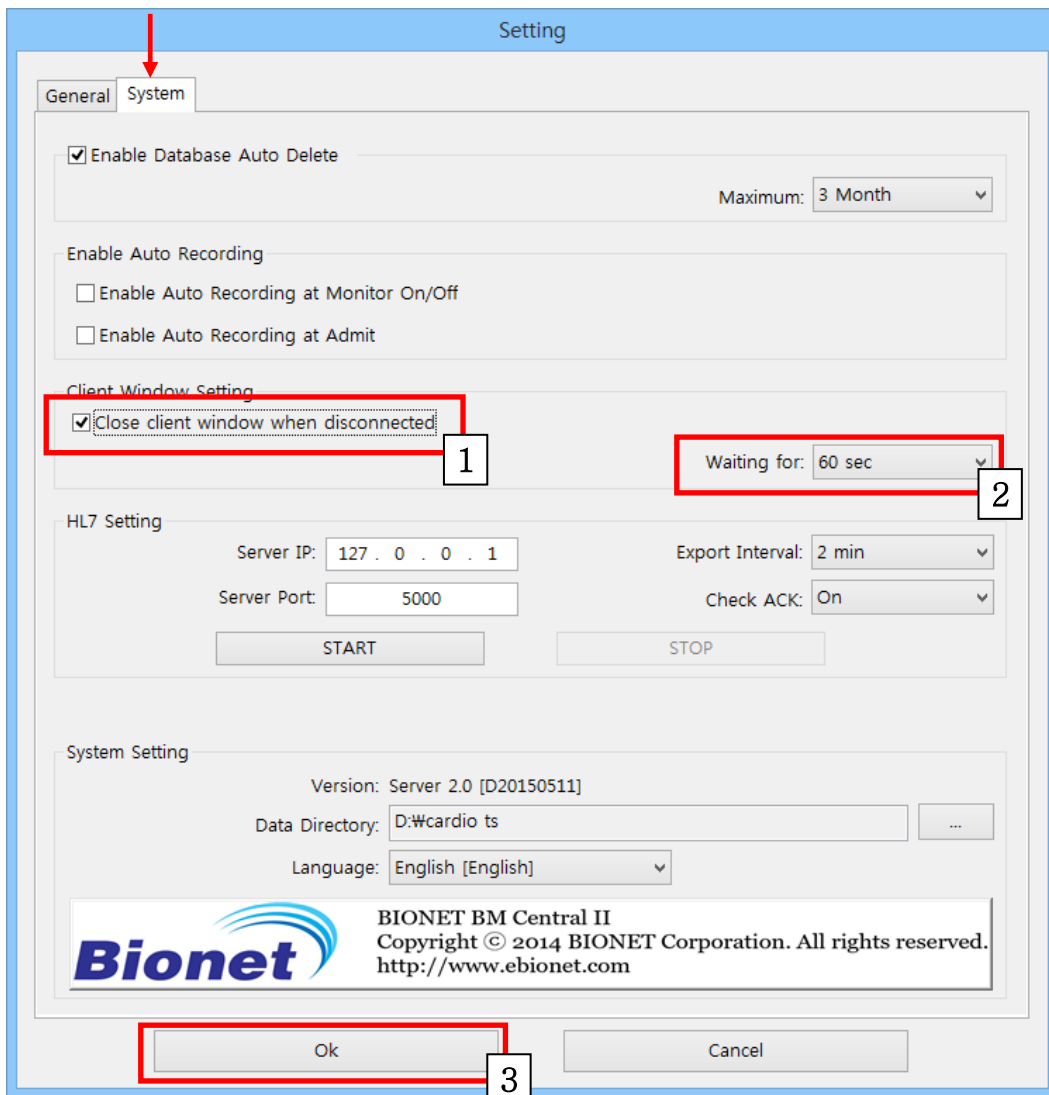
(To release the function, remove check mark and click "OK")



### Setting of Client Window Automatic Shutdown

If a certain amount of time passes after an abnormal disconnection, it shuts down the client window automatically.

- (1) Check the "Close client window when disconnected" item.
- (2) Set the disconnection-detecting time in the "Waiting for" item.
- (3) Click "OK" button



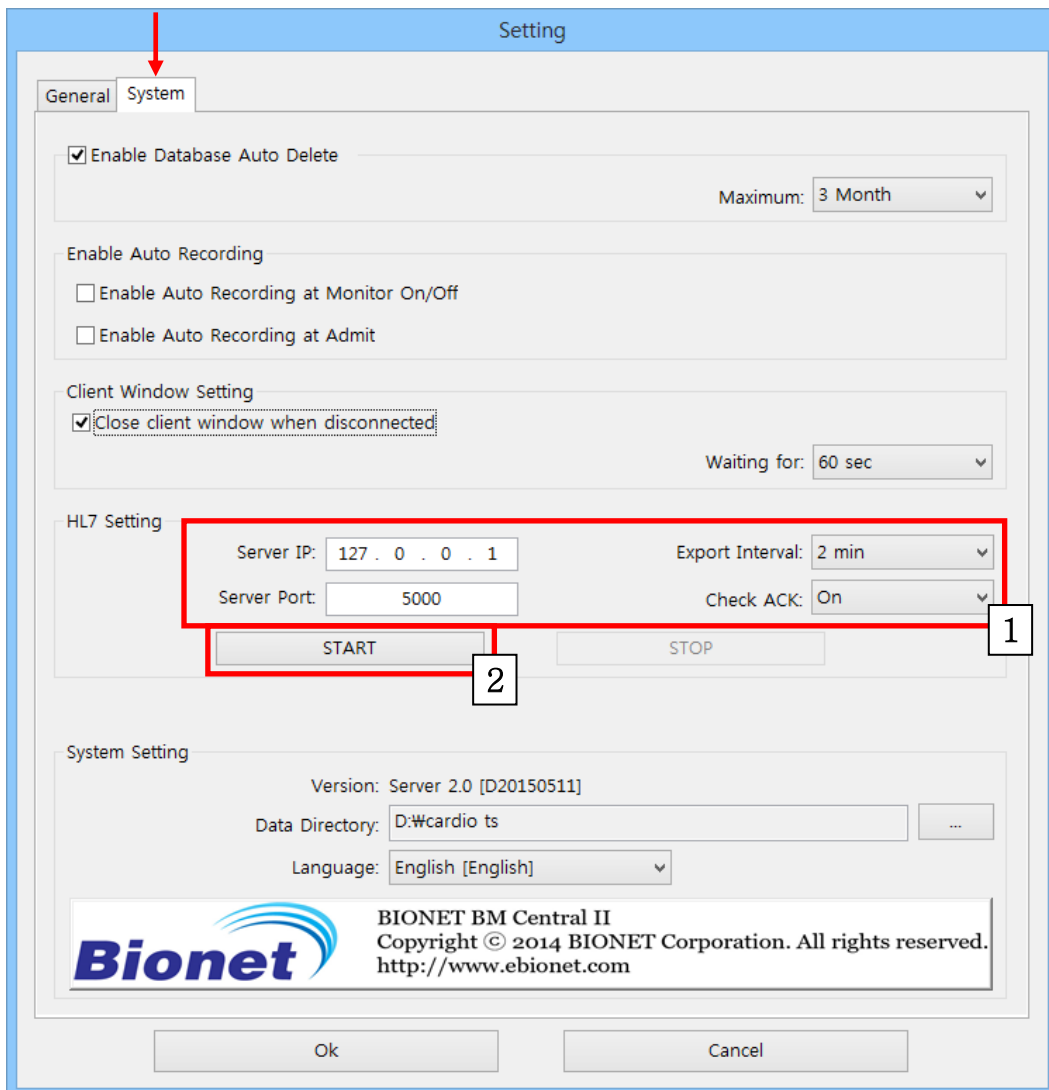
### Setting of HL7 Export Function

This sends out data in the HL7 format to an external EMR server on a cycle.

(1) Input the “Server IP” and “Port” of the EMR server and select the ACK message confirmation function for data export cycle with “Check ACK” in “Export Interval.”

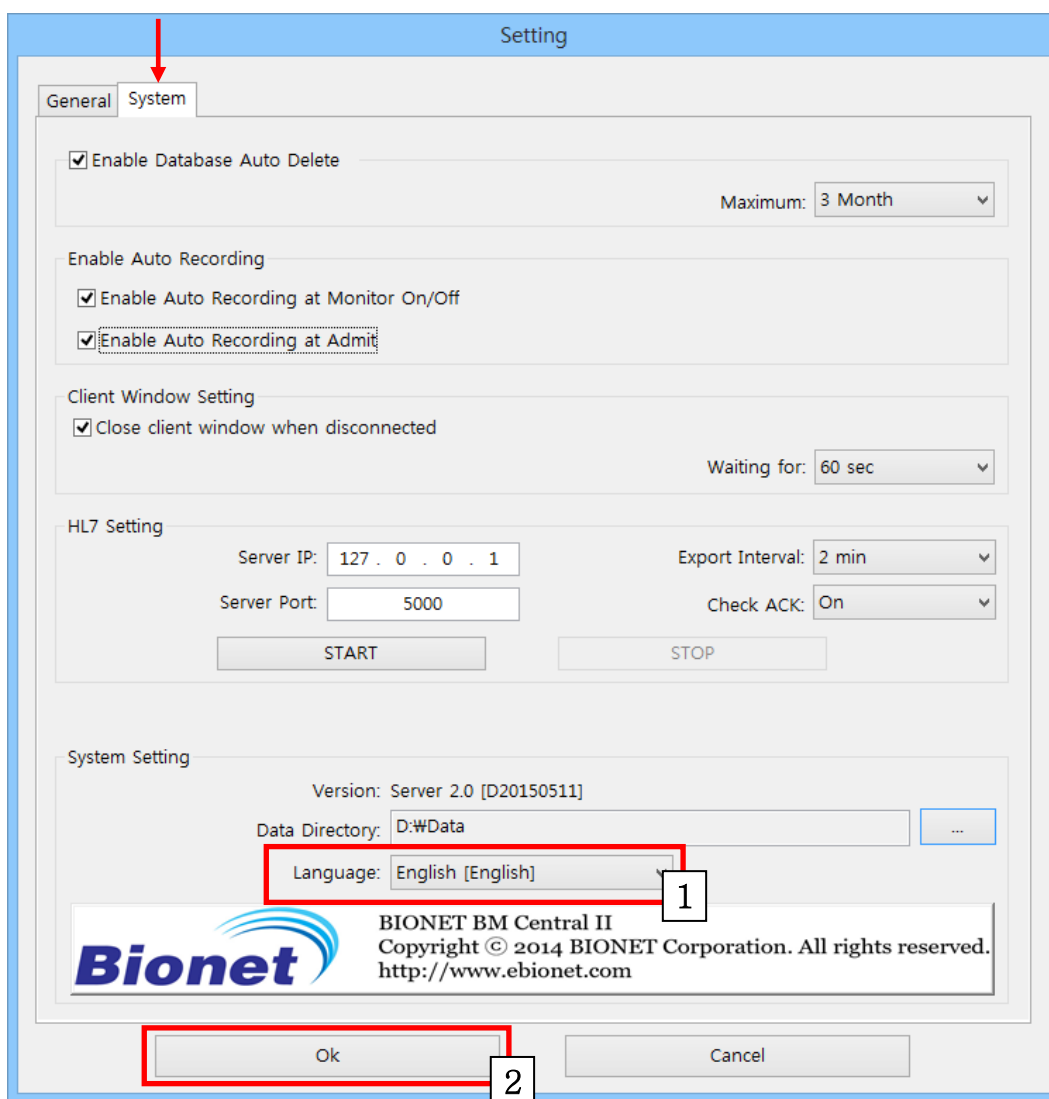
(2) Click on the “Start” button.

(If you click on “Stop,” the function is cancelled.)



## Display Language Setting

- (1) Select "Language".
- (2) Click "OK" button
- (3) The new selected language will be applied after restarting the BMCentral.





## 2.5. Client Window Menu Admit / Discharge

This is the function for connection/disconnection between the equipment and the information of registered patients.

(1) Click Admit/Discharge Icon(  ) from "client window menu".

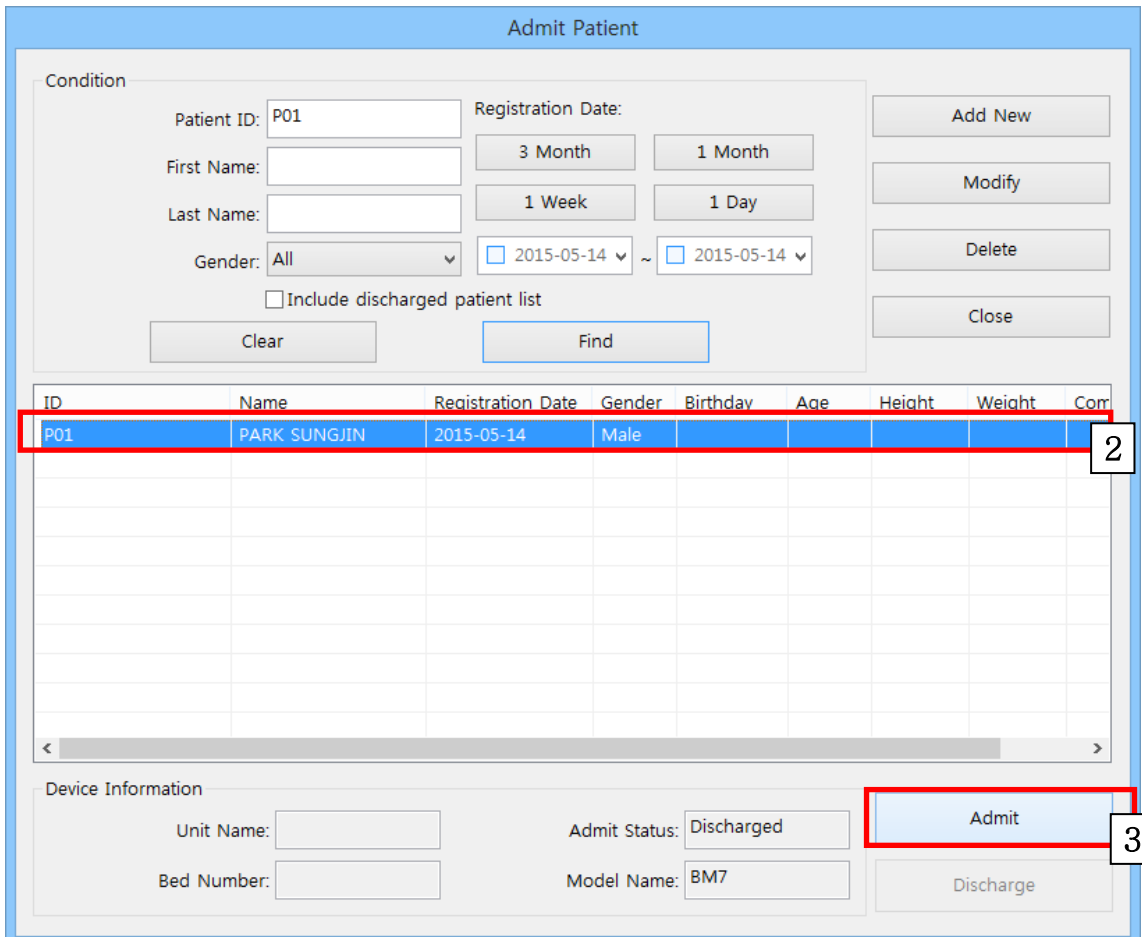
(2) Input "Patient Information" and click "Find" button.

(If you want to see all registered patient information, click "Clear" button, and "Find" button. Then, you may see all registered patient information as follows.)

Find patient information of which you want to admit from the list and then, select it.

(3) Click "Admit" button.

(When you want to discharge it, click on the "Discharge" button.)



The screenshot shows the 'Admit Patient' window with the following sections:

- Condition:**
  - Patient ID: P01
  - Registration Date: 3 Month, 1 Month, 1 Week, 1 Day
  - First Name: [Empty]
  - Last Name: [Empty]
  - Gender: All
  - Search Range: 2015-05-14 ~ 2015-05-14
  - Include discharged patient list
  - Buttons: Add New, Modify, Delete, Close, Clear, Find
- Table:**


ID	Name	Registration Date	Gender	Birthday	Age	Height	Weight	Com
P01	PARK SUNGJIN	2015-05-14	Male					
- Device Information:**
  - Unit Name: [Empty]
  - Bed Number: [Empty]
  - Admit Status: Discharged
  - Model Name: BM7
  - Buttons: Admit, Discharge

## Record Start/Stop

This is the function of storing waveforms and parameters received from the equipment in the file and database.

(1) Click Record Start Icon() from “client window menu”.

(Note: Recording function is only available in “Admit condition”.)

If you click on the Record Stop Icon () when you want to stop the recording, the recording stops.



<The screen that is not being recorded>




<The screen that is being recorded>

## Alarm Sound On/Off

This is the alarm sound function when an alarm is received from the equipment.

(1) Click Alarm Sound Disable Icon() from “client window menu”.

(If you click on the Alarm Sound Activated State Icon () when you want to deactivate the alarm sound, the alarm sound does not occur.)



< Screen with deactivated alarm sound>



< Screen with activated alarm sound>

### Client Window Close Setting

This function shuts down the client window when the connection with the equipment is lost. It is displayed on the screen only when the connection was lost.

(1) Click Close Icon(  ) from “client window menu”.

(In the Enlarge Mode, it operates with the function of closing the Enlarge window, not shutting down.)

### Display Setting

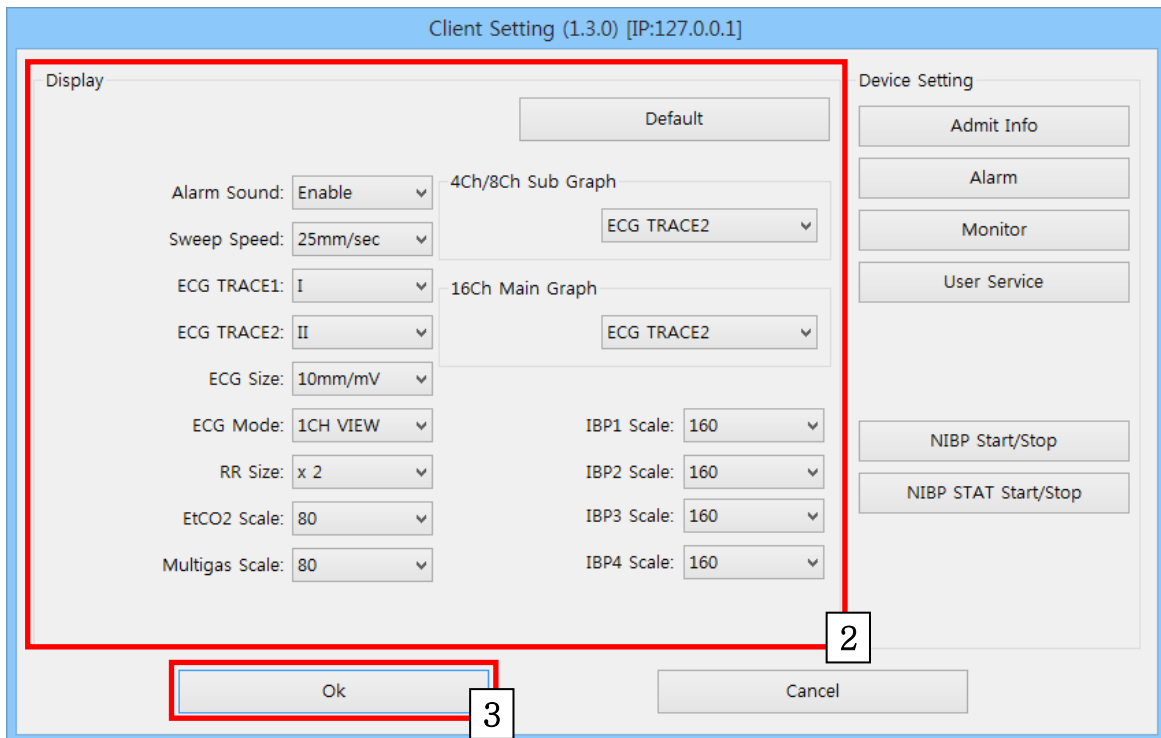
This function sets the display method of the waveforms and parameters in the client window.

(1) Click on the Client Setting Icon (  ) in the “Client Window Menu.”

(2) When the “Client Window” dialog box is displayed on the screen, change the information that will be displayed on the screen in the display area.

(If you click on “Default” button, it is reset to the default values.)

(3) Click "OK" button



## NIBP Start/Stop

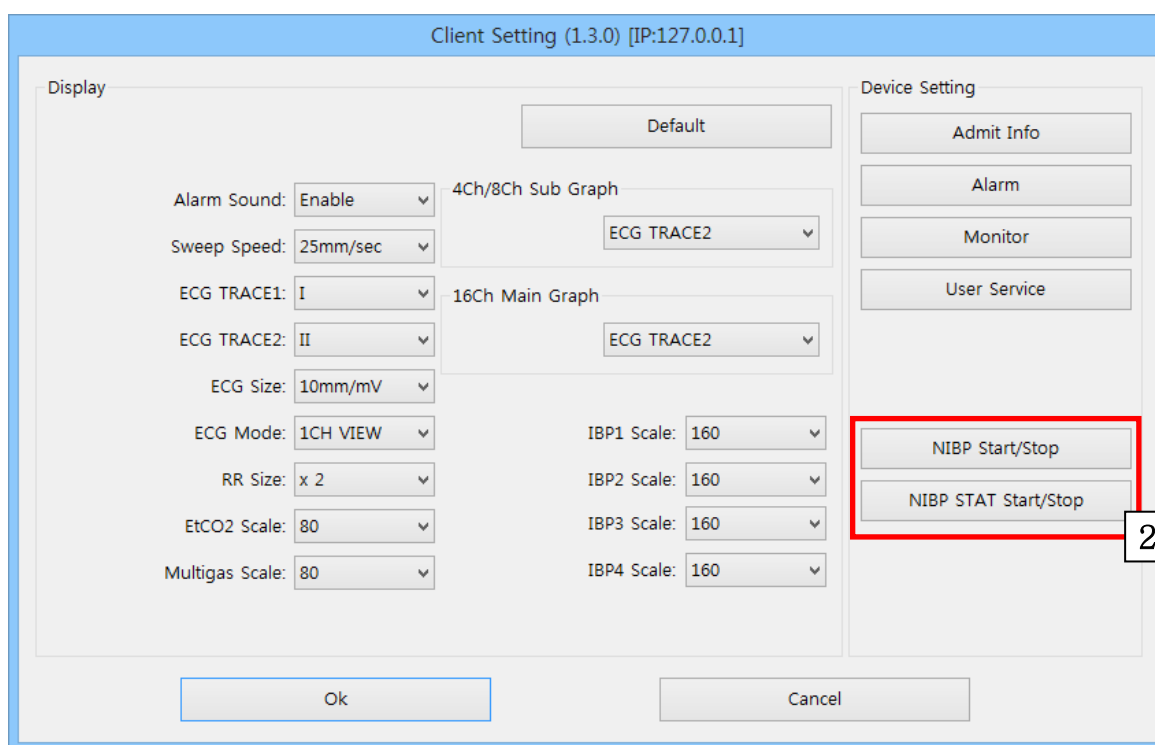
This is the function for starting and stopping the NIBP of the equipment remotely.

(It only supports Protocol version 1.2.0 and higher.)

(1) Click Client Setting Icon(  ) from “client window menu”.


(2) Click "NIBP GO/STOP" button.

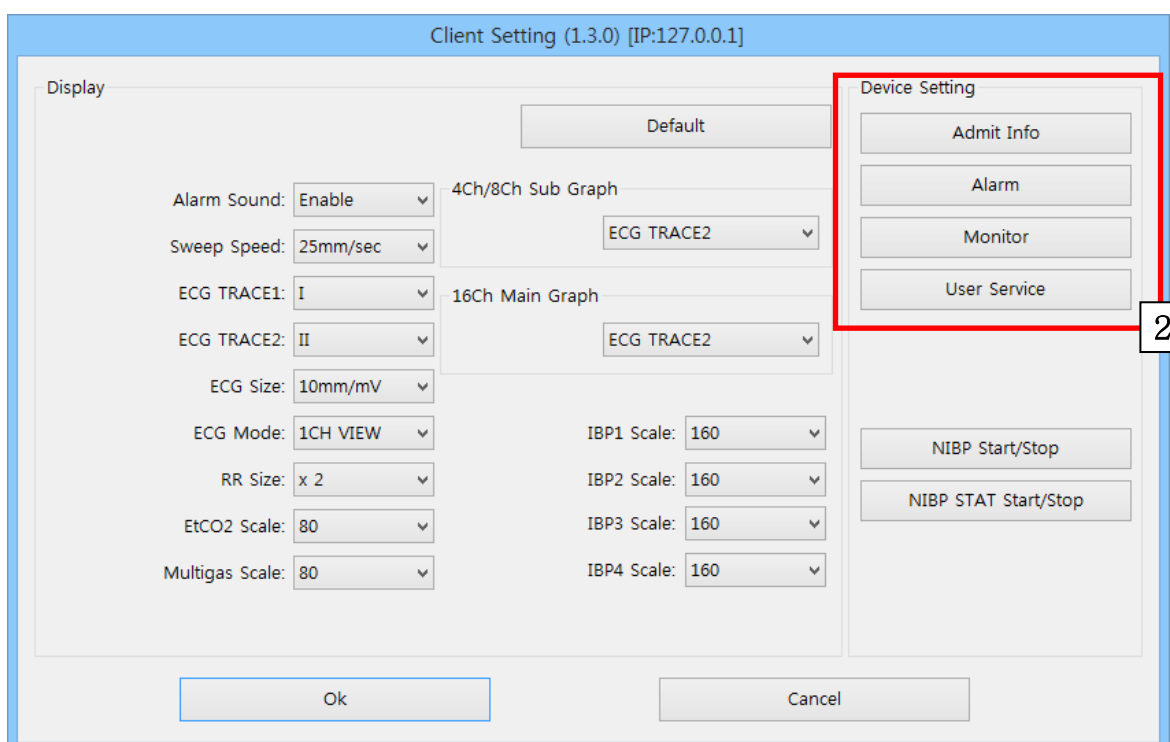
(The handling method is a toggle type which stops the NIBP function by pressing the button during running state and starts the NIBP function by pressing the button during stop state.)



## Synchronization of Equipment Settings

This function sets or checks the setting information of the equipment remotely.

- (1) Click Client Setting Icon() from “client window menu”.
- (2) Once the “Client Setting” dialog box is displayed, click on the button for the information you want to change.  
(Below is an example of changing the user service.)
- (3) After changing information, click on the “Send” button to complete the change.



The screenshot shows a 'User Service' dialog box with the following fields and values:

- Model Name: BM5
- Version: 0 (dropdown) and 00 (dropdown)
- Unit Name: ICU
- Bed Number: 001
- Ac Filter: 50 Hz
- Date: 2000 (dropdown), 1 (dropdown), 1 (dropdown)
- Time: 0 (dropdown) and 0 (dropdown)

At the bottom, there are two buttons: 'Send' and 'Close'. The 'Send' button is highlighted with a red rectangle, and a small white box with the number '3' is positioned below it.

The items that can be changed and checked for each button are as follows.  
 (Due to the characteristics of each equipment, some functions can be deactivated.)

- A. Admit Info
  - Patient ID, Name, Gender, Birthday, Age, Height, Weight
- B. Alarm
  - Alarm Level, Alarm Range
- C. Monitor
  - Parameter On/Off, Parameter Display Info.
- D. User Service
  - Device Type, Device Version, Date/Time, Unit name, Bed number, Filter

# BM Review

## **1. Execute / Close BM Review**

1.1 Execute BM Review

1.2 Close BM Review

## **2. BM Review Program structure**

2.1 BM Review Program structure

## **3. How to use BM Review Menu**

3.1 BM Review Menu

3.2 BM Review File Control

3.3 BM Review 5 Views

3.4 BM Review Print & Preview

3.5 BM Review Preferences

---

# 1. Execute and Close BM Review

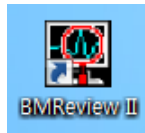
## 1.1. Execute BM Review

### Use of BM Review

BM Review is the program for the review and analysis of patient's data measured through BM Central. BM Review provides methods for analyzing the data stored in BM Central in various ways for a maximum of 10 days. Also, it provides the function of printing the analyzed data according to various options.

### Execute BM Review

BM Review can be executed in two ways. First is to double-click the image con on Desktop.

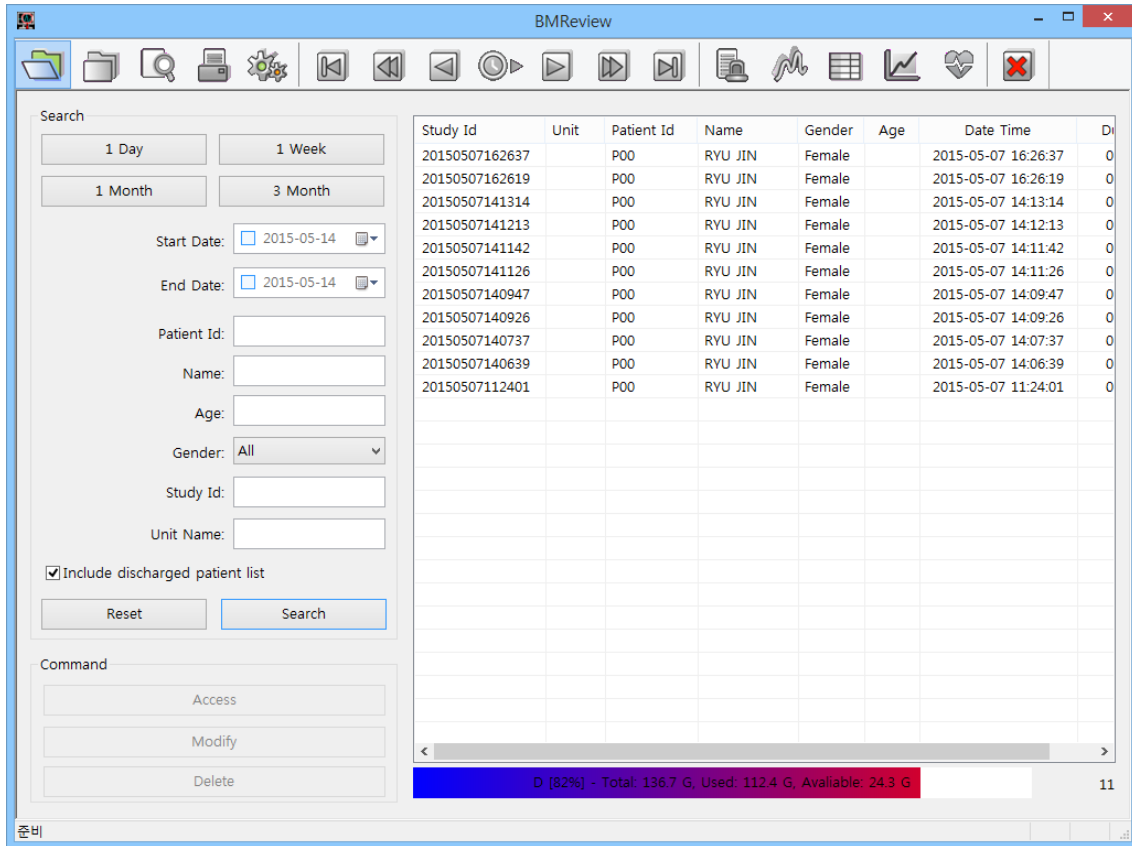


Second is to click "BM Review" Icon in Main Menu of BM Central. You can click the icon marked on the image below.





Once the program is executed, the window below appears.



## 1.2. Close BM Review

### Close BM Review

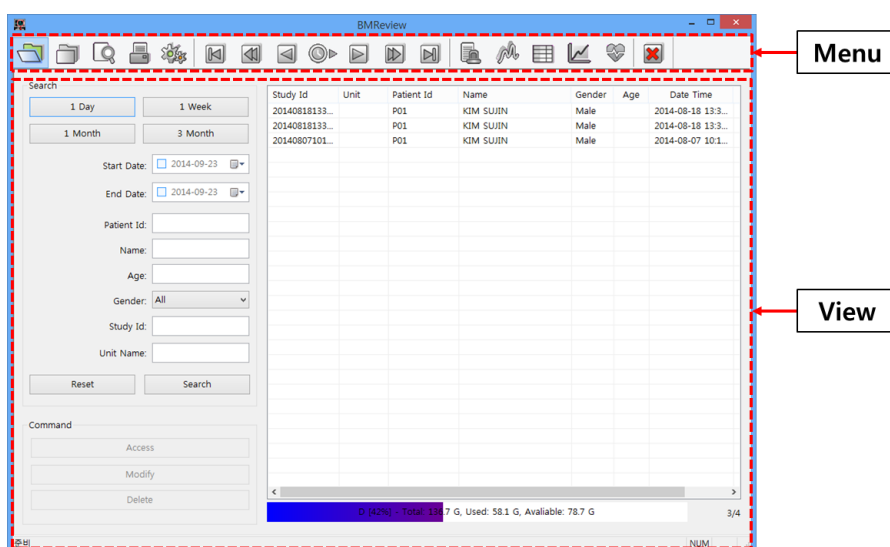
To close BM Review program, click “Exit” icon marked on the image below, and the program will be closed.



## 2. BM Review Program Structure

### 2.1. BM Review Program Structure BM Review Structure

BM Review consists of 2 main parts, as indicated in the image below.



#### Menu

Menu is a major menu in BM Review, and it provides various functions such as file open/close, print preview, print, navigator, select view, preference, and program closing.

#### View

The view area is composed of 6 types

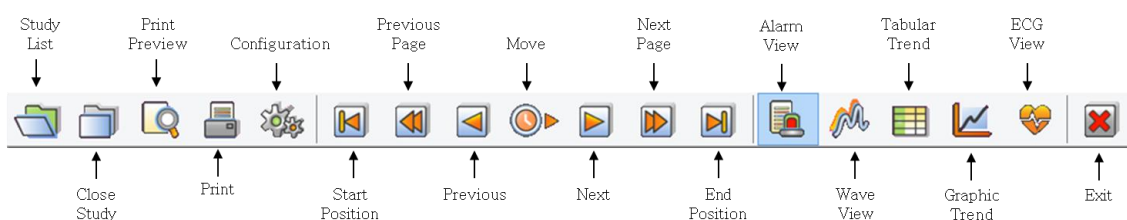
(Study Search, Alarm, Wave, Tabular Trend, Graphic Trend, and ECG View).

## 3. How to use BM Review Menu

### 3.1. BM Review Menu

#### BM Review Menu

Main Menu is a major menu in BM Review, and it provides various functions such as file open/close, print, print preview, navigator, select view, preference, and program closing.



#### Study List

To call up the save list from DB.

#### Close Study

To close the called-up-files.

#### Print Preview

To check out the layout before printing out.

#### Print

To print out the files.

#### Configuration

To set up the environment of Reviewer.

#### Start/End Position, Previous/Next Page, Previous/Next, Move

To shift the present record data to back and forth.

#### Alarm View

To track alarm, graphs , parameters when alarm sounds happens.

### **Wave View**

To track graphs, parameters.

### **Tabular Trend**

To track parameters and alarms on the tabular trend.

### **Graphic Trend**

To track the trend of parameters as graphs

### **ECG View**

To track ECG waveform, HR Trend.

### **Exit**

Quit reviewer.

### 3.2. BM Review File Control

#### File Open

This is the function for reading a file after searching for stored files.

(1) Click "Study List" button.

(2) Search the list.

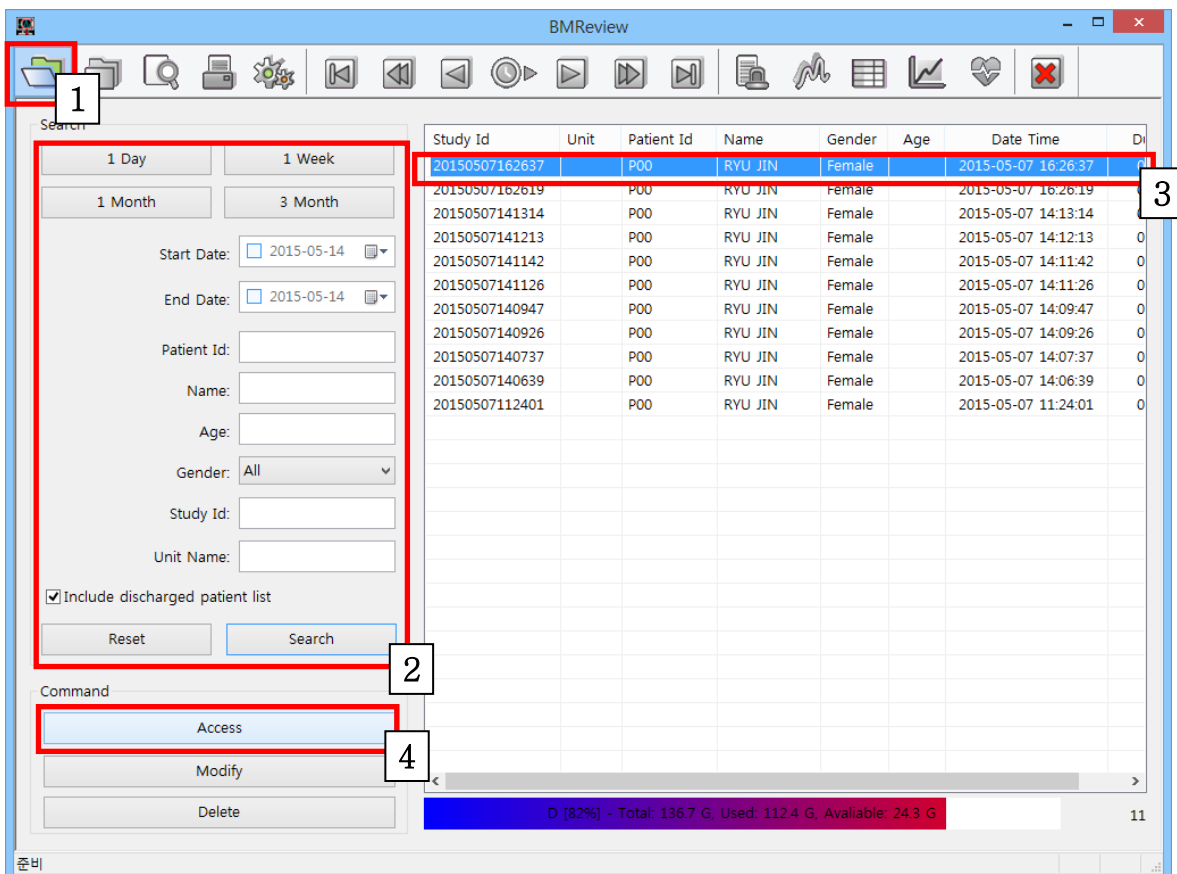
※ If you want to find a specific information, input a specific information and click and click "Search" button.

※ If you want to find all files, click "Reset" button and "Search" button as follows.

(3) Find a file among the list and select the file.

(4) Click "Access" button and open the file.

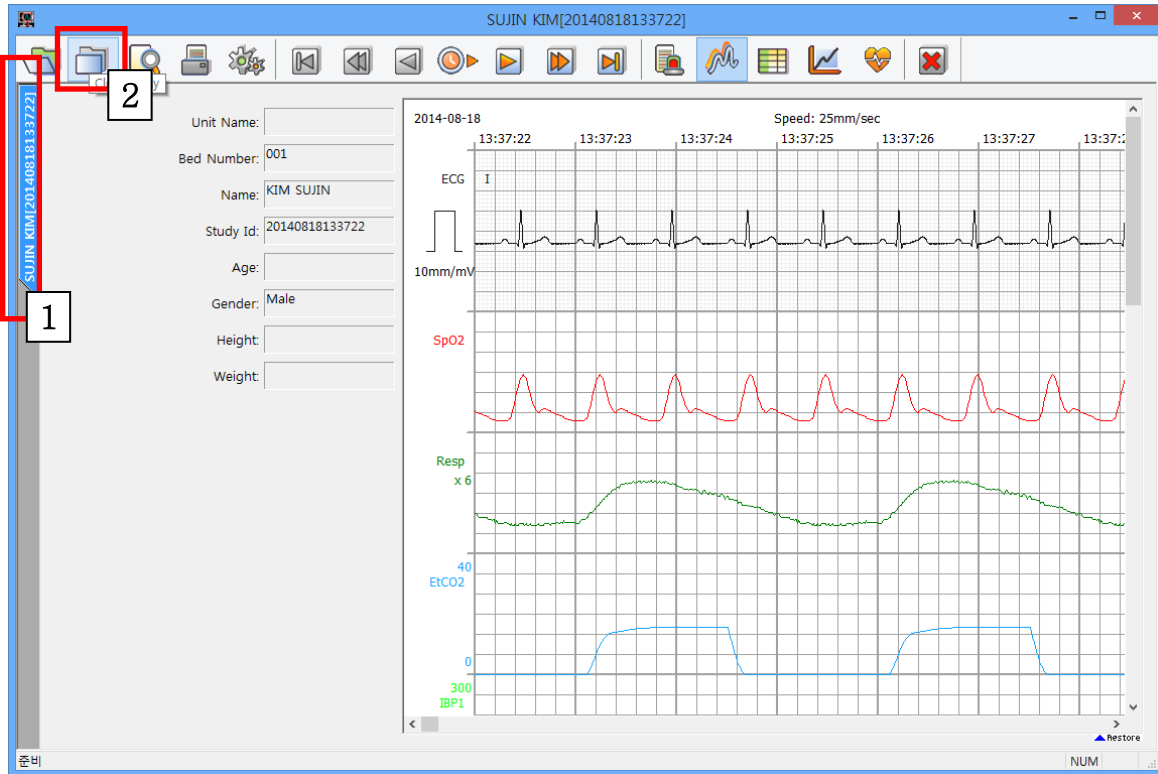
(If you also double-click the left button on Study data, the file will open.)



### File Close

This is the function for closing the open files.

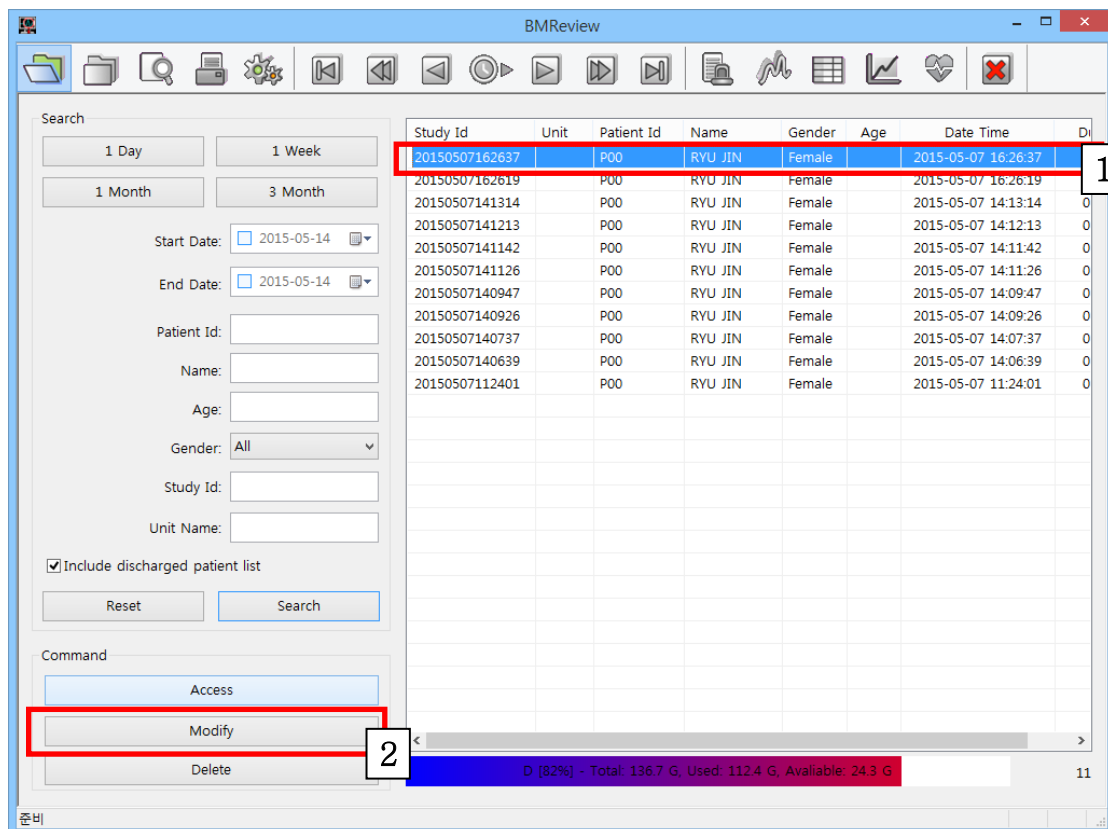
- (1) Select the file of which you want to close as below.
- (2) Click “Close Study” button.



## File Modify

This is the function for changing the information in a selected file (Patient's information).

- (1) Select the file of which you want to modify as below.
- (2) Click "Modify" button.



(3) “When the “Modify Study Information” dialog box is displayed, click on the “...” button.

Modify Study Information

Old

Patient Id: P01

Study Id: 20140912140654

Recording Time: 2014-09-12 14:06:54

New

Patient Id: ...

Last Name:

First Name:

Ok Cancel

(4) When the “Select Patient” dialog box is displayed, select the patient information you want to change after searching.

(5) Complete the patient selection by clicking on the “OK” button.

Select Patient

Search

Patient Id: P02

Last Name:

Search

Patient Id	Name	Gender	Age	Registration Date
P02	KIM SUJIN	Male	115	2014-09-15 11:21:19

Ok Cancel



(6) When the “Modify Study Information” dialog box is displayed, complete the change by clicking on the “OK” button.

Modify Study Information

Old

Patient Id: P01

Study Id: 20140912140654

Recording Time: 2014-09-12 14:06:54

New

Patient Id: P02

Last Name: KIM

First Name: SUJIN

Ok Cancel

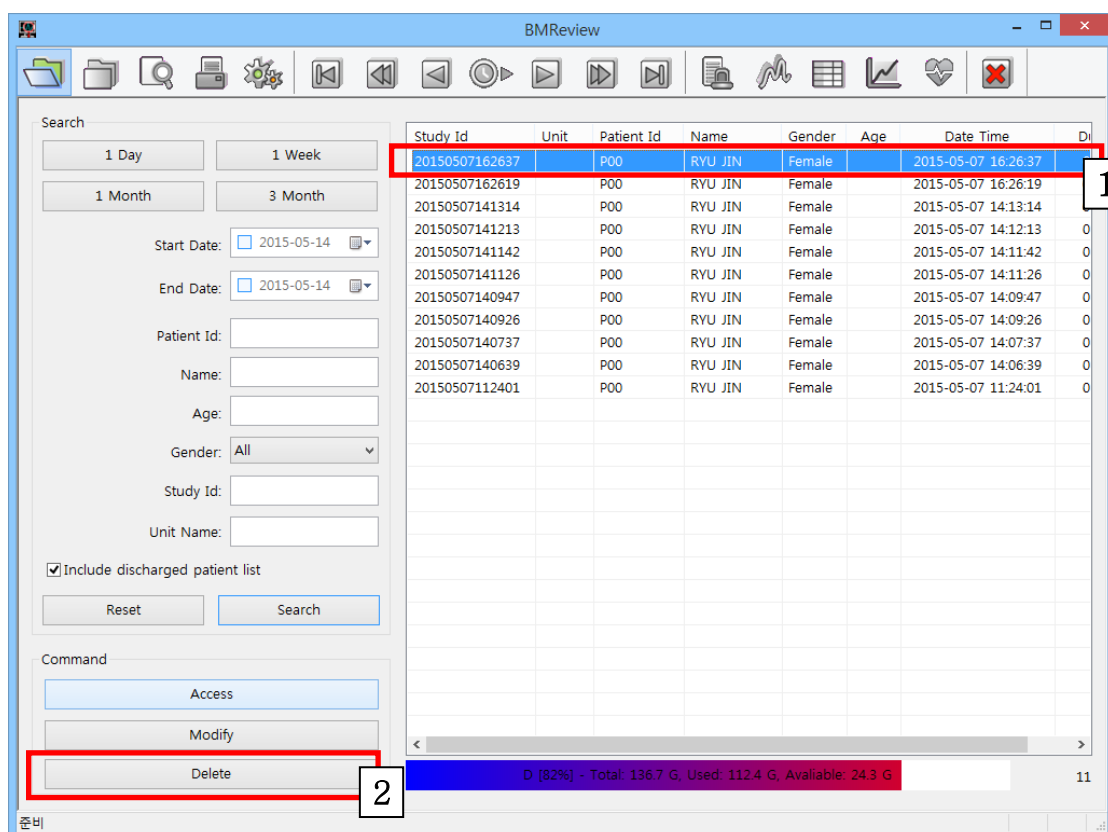
6

## File Delete

This is the function for deleting the selected file's information.

- (1) Select the file of which you want to delete as below.
- (2) Click "Delete" button.

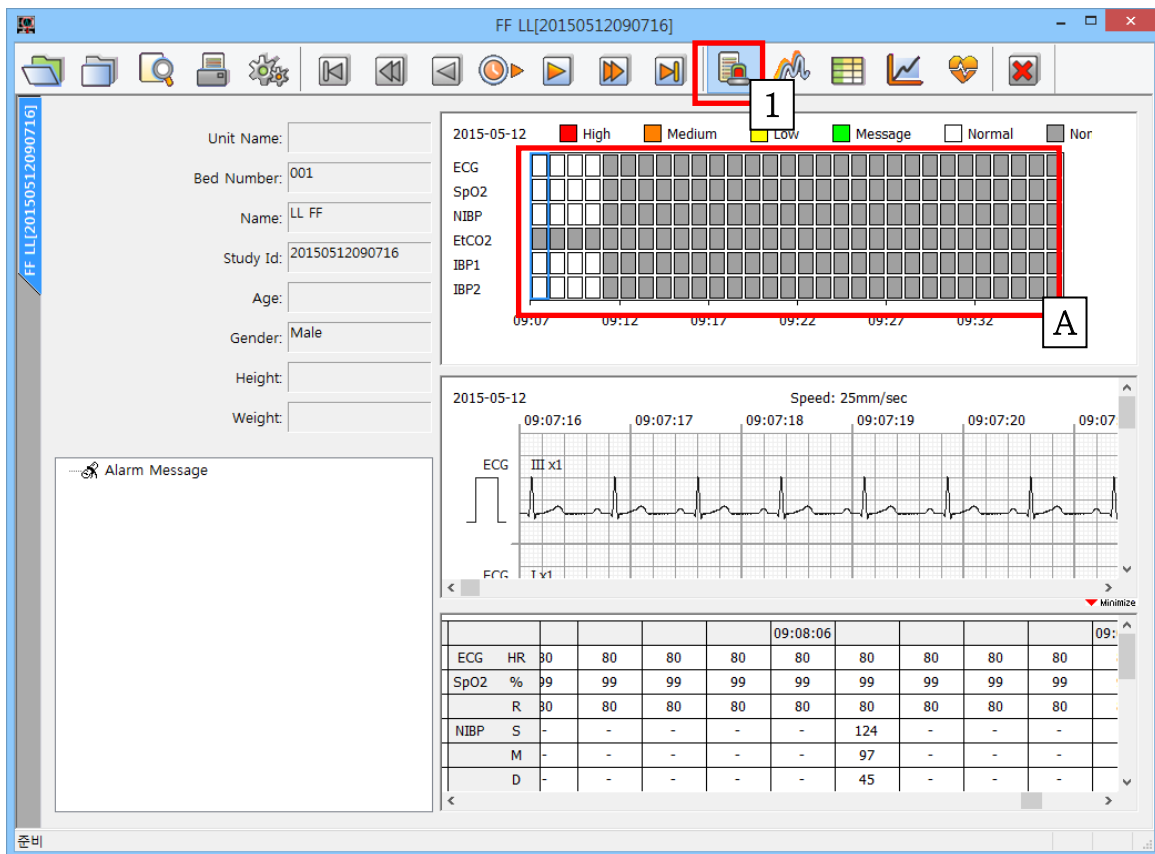
(Note: once you delete file, you can not open that file any more.)



### 3.3. BM Review 5 Views Alarm View

This is the view that is easily used when the stored data are mainly analyzed by alarm. The screen is composed of alarm, waveform, and parameter information.

(1) Click "Alarm view" button.



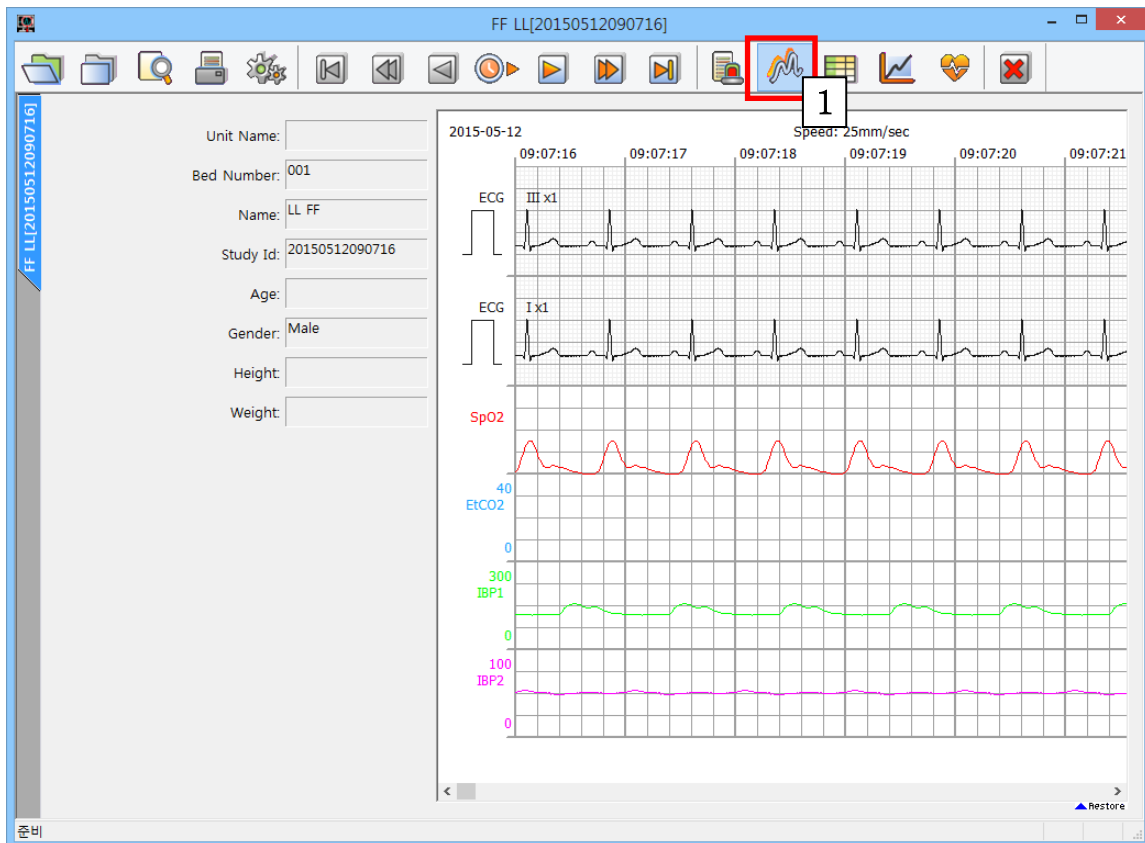
A. It can show alarm state of each parameters. Click "red square", then you can track and shift the alarm state every minute. (Please see above figure.)

## Wave View

This is the view that is easily used when the stored data are mainly analyzed by waveform.

The screen is composed of only waveform information.

- (1) Click "Wave view" button.

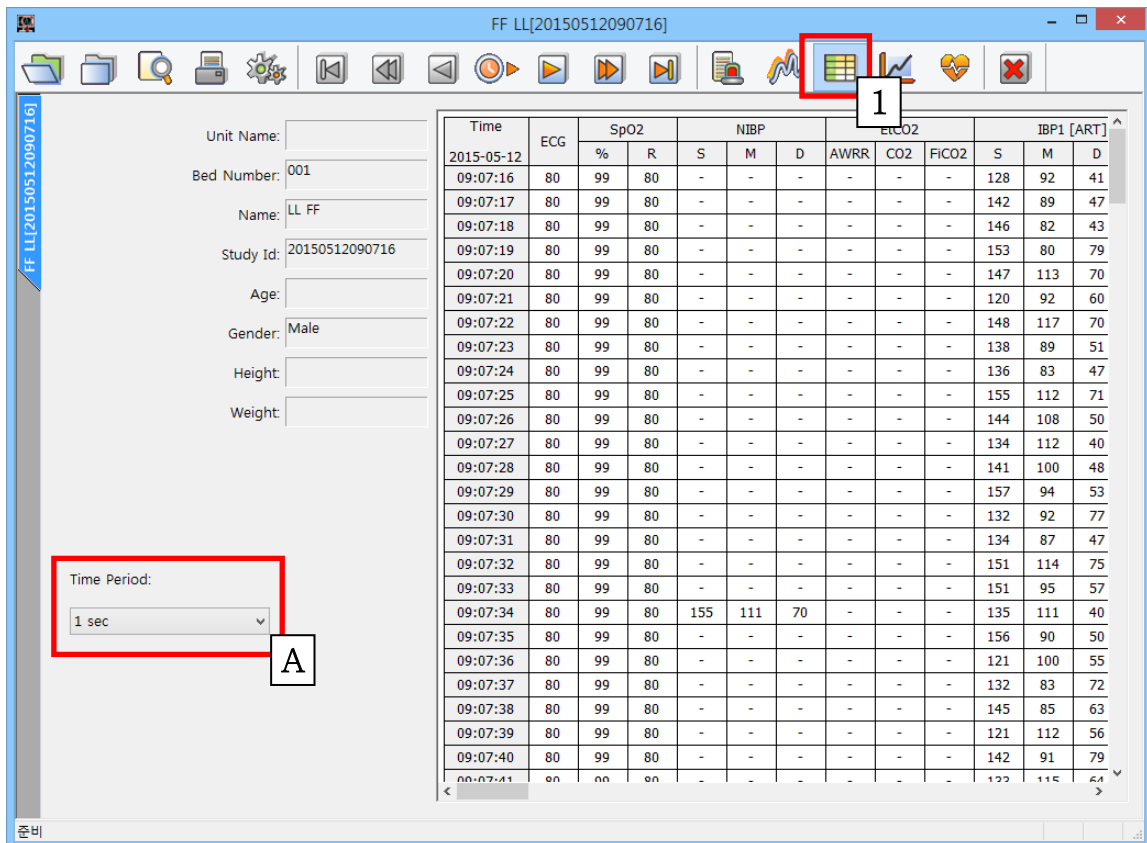


### Tabular Trend View

This is the view that is easily used when the stored data are mainly analyzed by parameter.

The screen is composed of parameter and alarm information in a table form.

(1) Click "Tabular Trend" button.



A. If you click "Time Period", you can change the time interval.

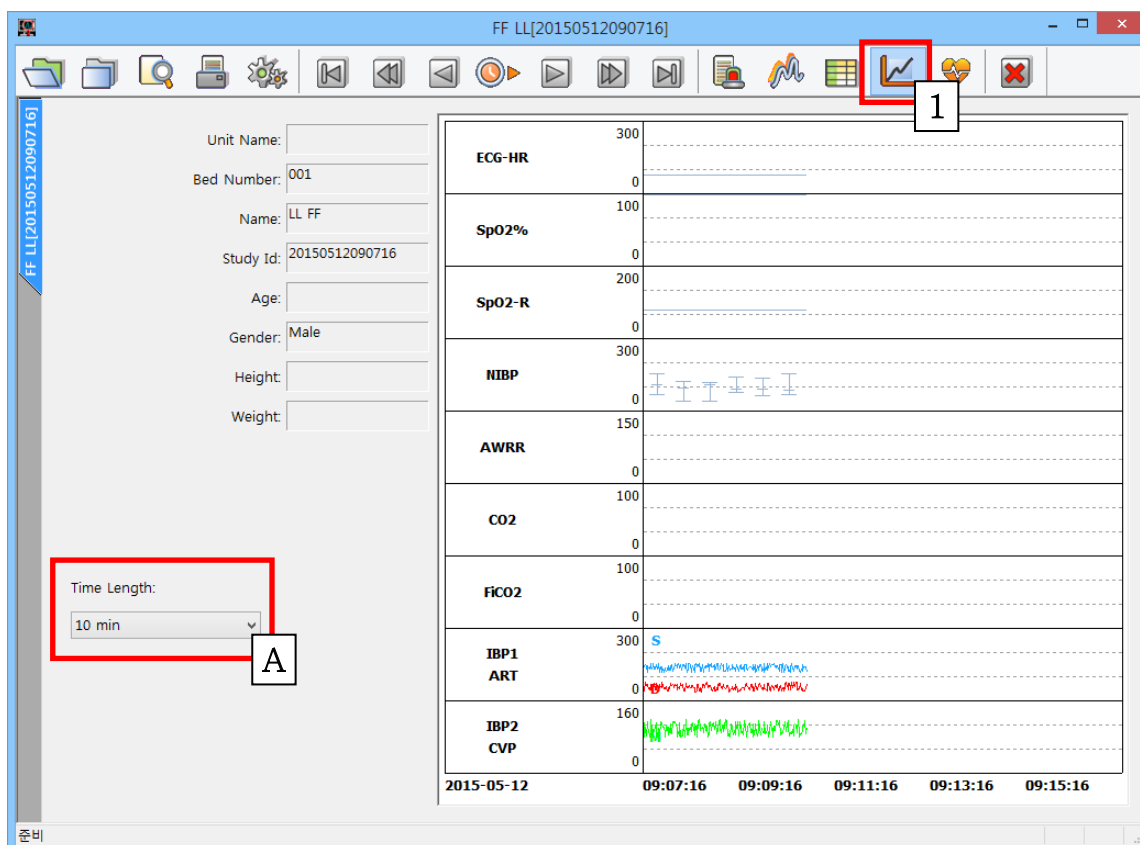
( 1 Sec, 10 Sec, 30 Sec, 1 Min, 5 Min, 10 Min )

## Graphic Trend View

This is the view that is easily used when the stored data are mainly analyzed by parameter.

The screen is composed of parameter information in a graph form.

(1) Click "Graphic Trend" button.



A. If you click "Time Length", you can change time interval.

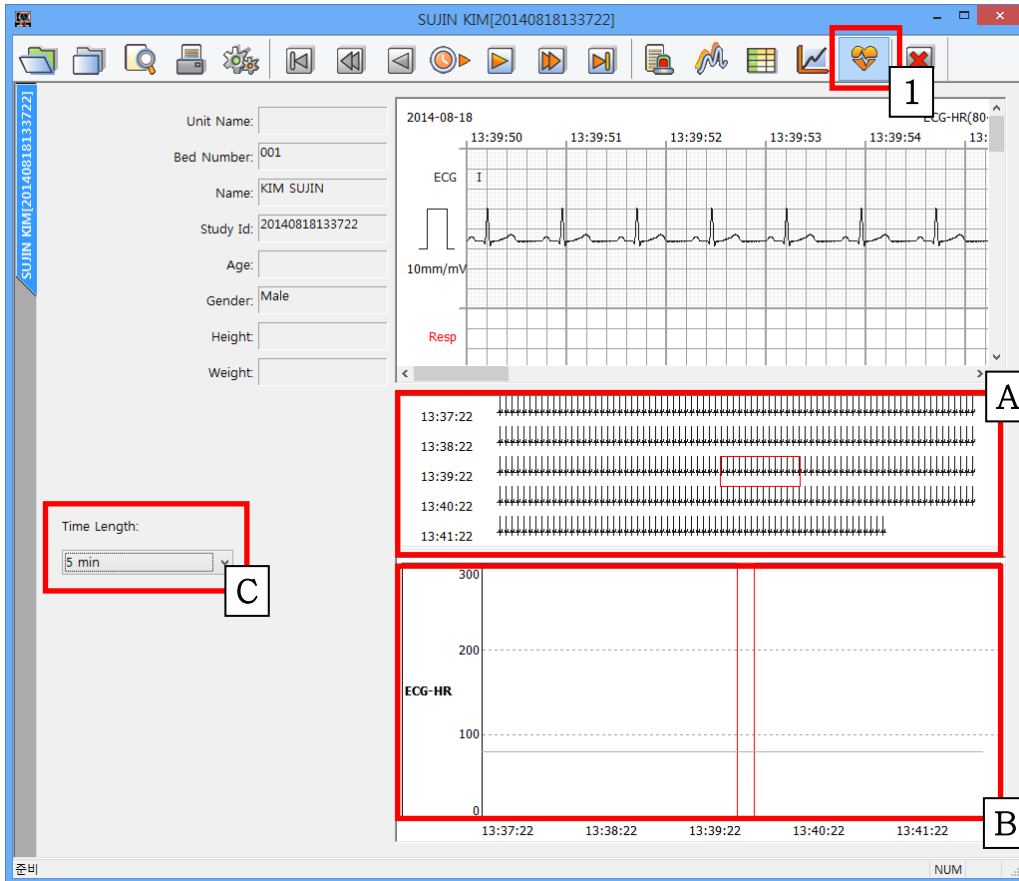
( 10 Min, 30 Min, 60 Min, 90 Min, 3 hour, 6 hour )

### ECG View

This is the view that is easily used when the stored data are mainly analyzed by ECG.

The screen is composed of waveform and HR Trend information.

(1) Click "ECG View" button.



A,B. You can see the waveform and HR information in the time zone you want by clicking on the ECG and HR Trend area.

※ If you want to print certain section, drag the area that you want to print with mouse in 'A' box then click print button.

C. If you click "Time Length", you can change time interval.

( 5 Min, 10 Min, 30 Min, 60 Min)

### 3.4. BM Review Print preview

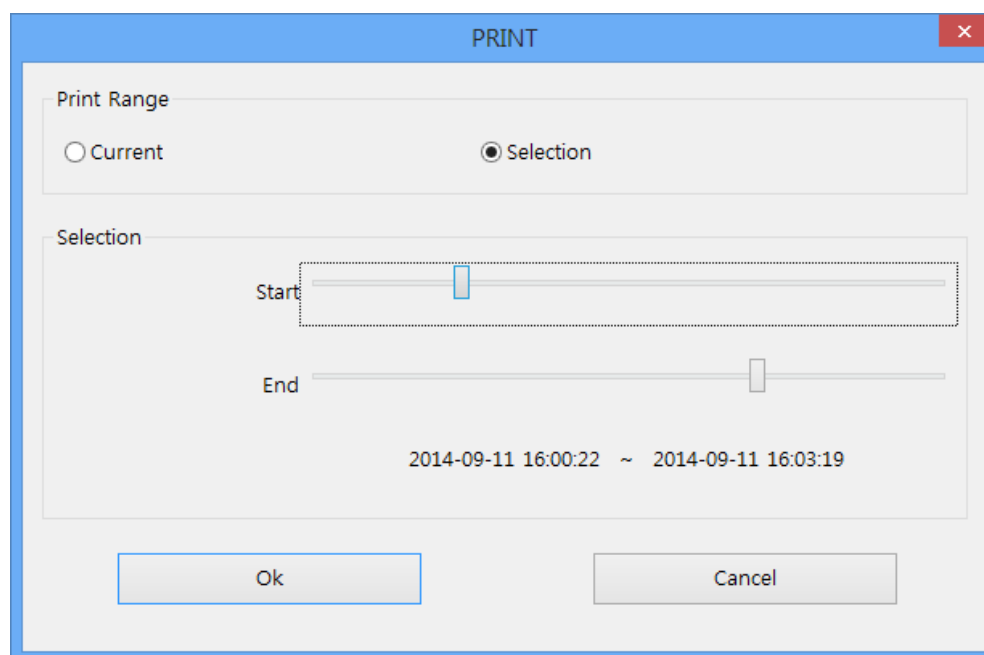
#### BM Review Preview settings

It provides a function for previewing measurement data of parameter and trend information on the current window, and patient information. If you click “Preview” button marked on the image below, dialogue will appear.



The image below is a dialogue for print preview. Each option can be used as followings.

(The bottom area of the selection dialog box is displayed only in “Wave View” and “Tabular Trend.”)



Option details of print dialog box

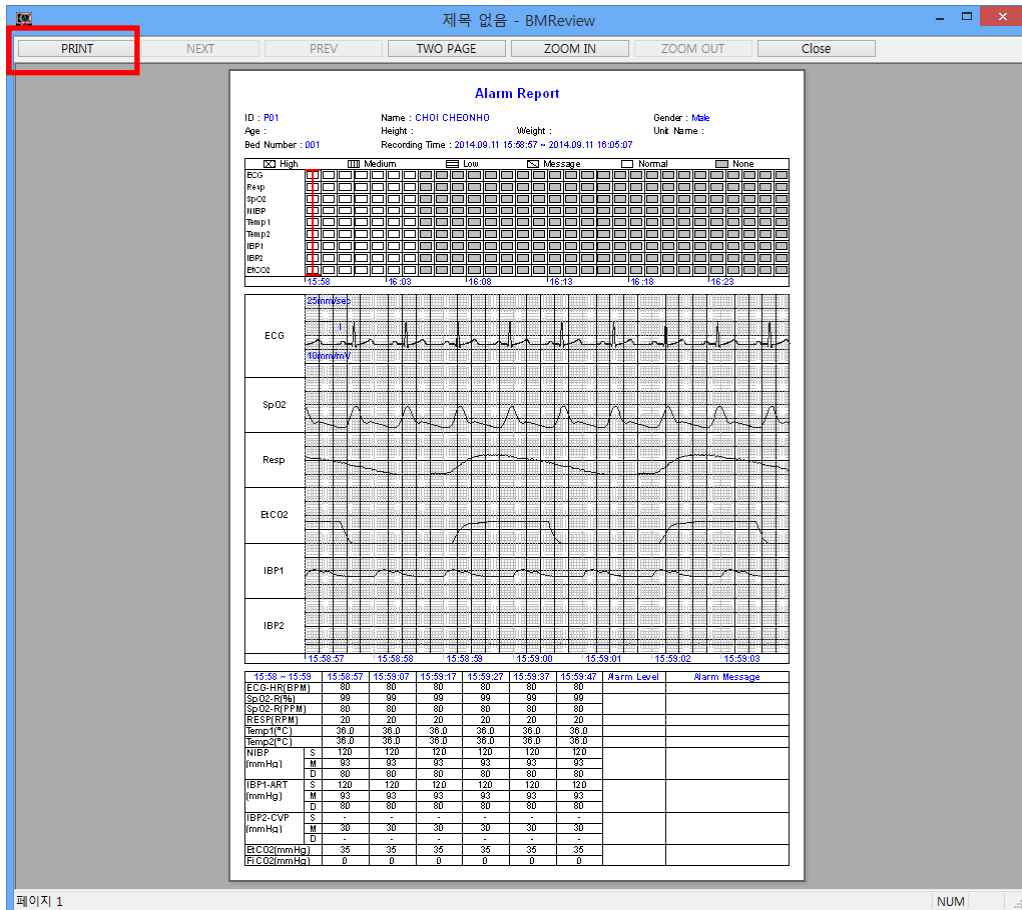
- Current: It shows the data area currently displayed on the screen.
- Selection: It provides the function of selecting the print range for the user. The print area can be selected by the second unit.



### BM Review Preview result

The below image is the preview screen of the “Alarm View.”

If you click on the “Print” button in the preview screen, you can print.



<Alarm View Preview>

### BM Review Print

This provides the function of previewing the printing of the alarm, parameter, waveform, and patient’s information on the current screen according to the selected option. If you click on the “Print” icon marked in the menu below, the dialog box is printed out. The setting area is the same as the preview screen.



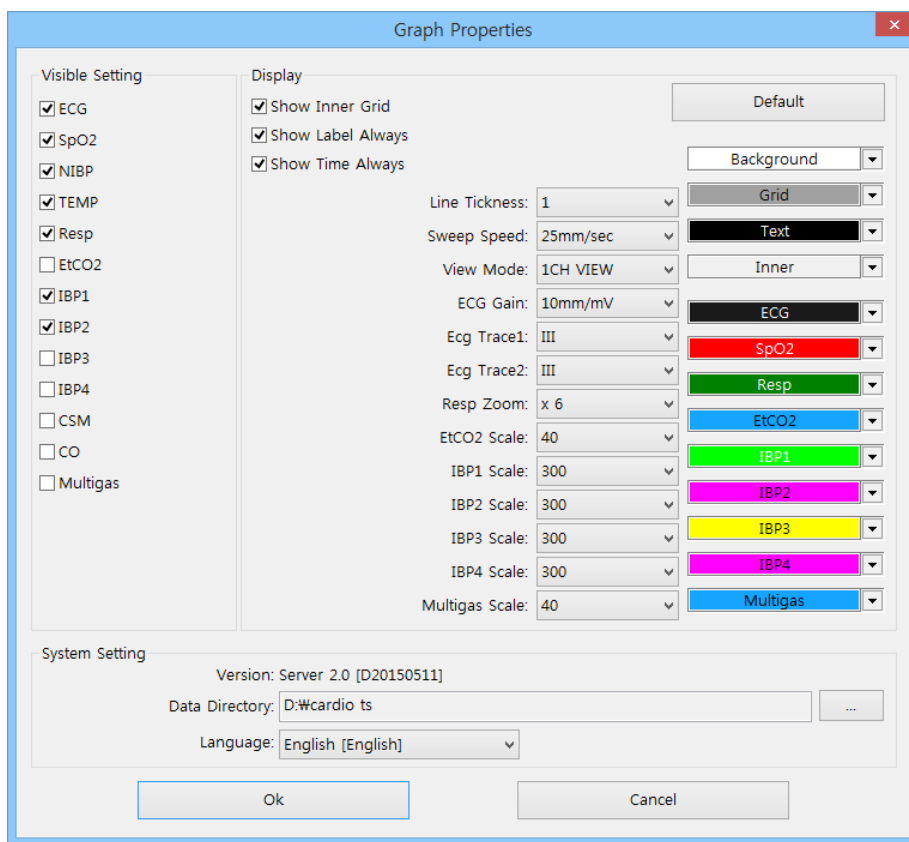
### 3.5. BM Review Preference

#### BM Review Preference

To load the dialogue for setting screen output, color and system of BM Review, click the icon marked in the image below.



The preference dialogue for BM Review is separated into “Display” and “System Setting”

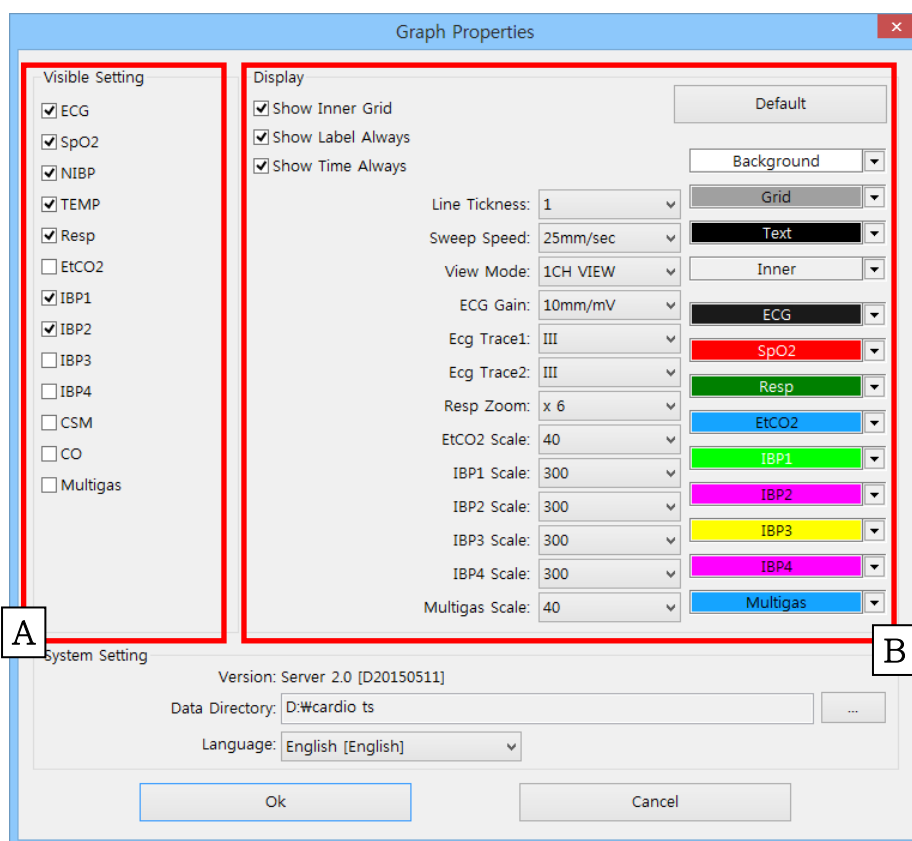


- Display : This is the area for setting screen composition information such as size and color.
- System : This is the area for setting system composition information such as language and data path.

## Display

This is the area for setting screen composition information such as size and color to show the data of BM Review on the screen. If you set the environment and click on the “OK” button, the setting is applied.

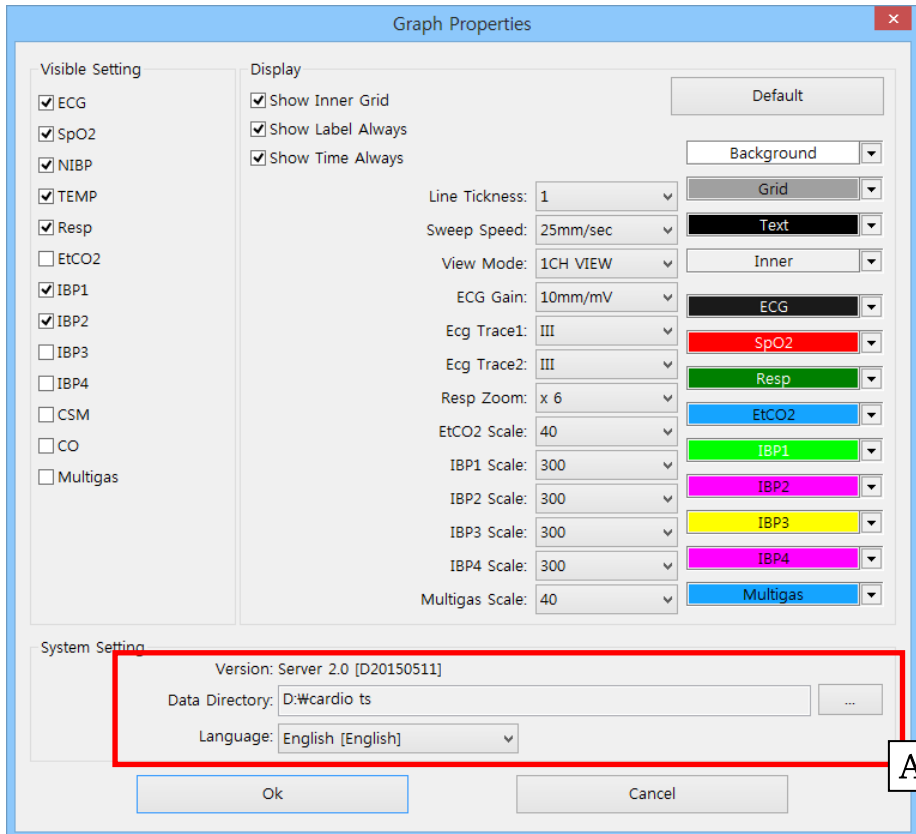
(If you click on the “Default” button, it is initialized as the default value.)



- A. It sets whether show parameter and waveform or not.
- B. It sets the inside line, label, and presence of time display , size, color, and line thickness of waveforms.

## System Setting

This is the area for setting system information such as displayed language and data path. If you change the environment information and then click on the “OK” button, the setting is applied. Language change is applied only when a restart proceeds after S/W shutdown. The language change is deactivated for language synchronization when BM Central S/W is operated.



A. It sets the data path and displayed language.

### Caution

In the “System” of “preference” in BM Central Program, please select the folder with a sufficient amount of remaining space. If the space is not sufficient, the data may be lost or the program may not be operated properly.

# Broker System(Optional product)

## **1. Broker System**

1.1 What is a Broker system?

1.2 Broker System Structure

## **2. How to use Broker System**

2.1 Installation / Uninstallation of BM Central Client

2.2 How to use BM Central Client

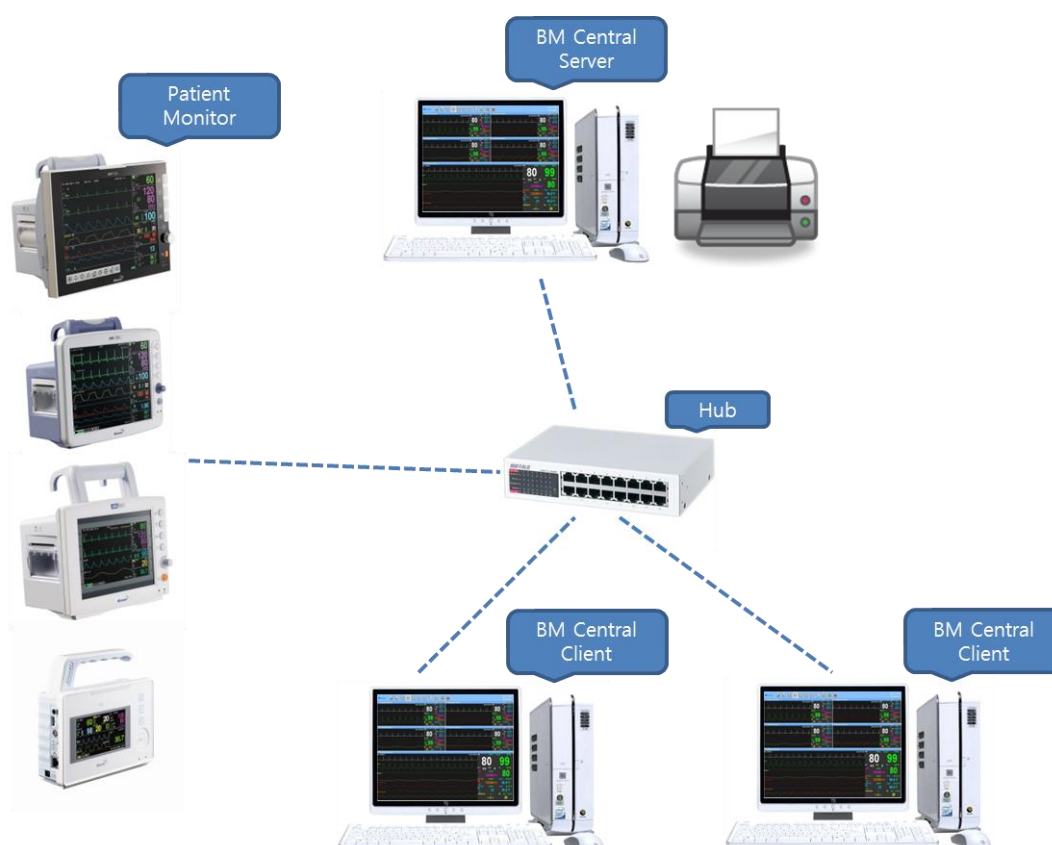
2.3 Difference between BM Central Server and BM Central Client

# 1. Broker System

## 1.1. What is a Broker system?

The real time measurement data of BM Central can be seen in the server system, and Broker System provides a function that allows you to see them in other wards or office. This means that BM Central Client program is possible to be installed and the real time measurement data can be seen, without coming into the server system in which BM Central is installed. This program is an optional product.

## 1.2. Broker System Structure



### **BM Central Server**

It is a package with server function among BM Central Programs, and it provides a real time and remote controlled monitoring function for parameter data up to 5 devices.

### **BM Central Client**

It is a package with client function among BM Central Programs, and it provides a real time monitoring after connecting BM Central Server with IP address. But, it only gives a receiving function from the server. Wave and Parameter is received and monitored.

## 2. How to use Broker System

### 2.1. Installation / Uninstallation of BM Central Client

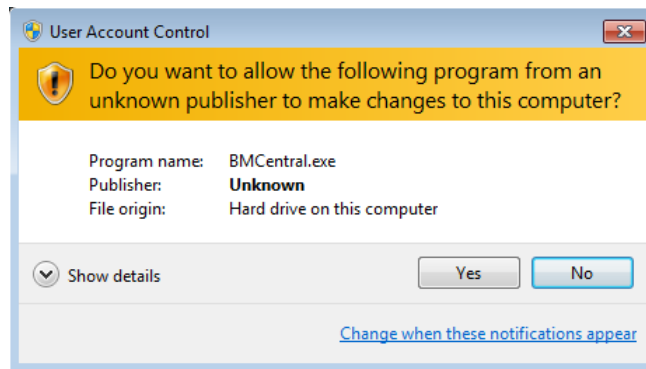
Installation and uninstallation of BM Central Client is the same as that of BM Central Program. Please refer to Installation and uninstallation of BM Central Program.

### 2.2. How to use BM Central Client

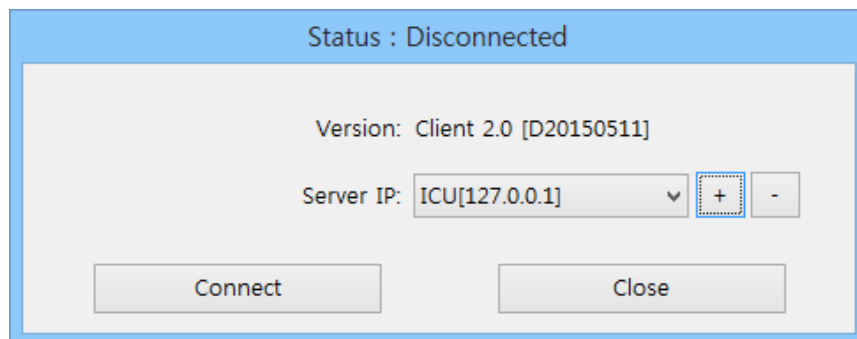
1) Double-click “BMCentral Client” icon on the desktop, which is indicated in the image below.



2) When the following message appears, click “Yes” and allow the program to execute.



3) Select IP address of the PC in which the server version is installed, and click “Connect” button. (You can add or delete Server Information using ‘+’, ‘-’ buttons)





4) Insert IP address of the PC in which the server version is installed, and click “Connect” button. If it is connected successfully, you can monitor the data in BM Central, as shown in the image below.



### 2.3. Difference between BM Central Server and BM Central Client

- 1) Functional difference in Main Menu: The image above is BM Central Client and the image below is BM Central Server. The number of icons is different.



< BM Central Server Menu >

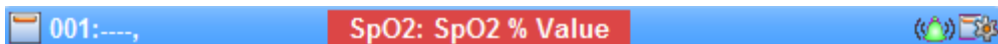


< BM Central Client Menu >

- A. Window change function: It supports the windows of previous, after, 2Ch, 4Ch, 8Ch, 16Ch, 32Ch for both windows.
  - B. Patient Manager: As indicated in the image above, it is only supported in BM Central Server. BM Central Client does not support this function.
  - C. BM Review Execute: As indicated in the image above, it is only supported in BM Central Server. BM Central Client does not support this function.
  - D. Configuration: As indicated in the image above, it is supported in both programs, but BM Central Client only supports on Client window.
- 2) The followings are the differences when the caption bar is magnified.



<BMCentral Server Icon>



<BMCentral Client Icon>

- A. Admit/Discharge setting: BM Central Client does not support this function.
- B. Alarm sound setting: supported in BM Central Client.
- C. Configuration: supported in BM Central Client without bidirectional communication.

**Note**

BM Central Client does not support bidirectional communication, Admit/Discharge, Data Recording, Execute BM Review.

# Appendix

## **1. BM Central Menu Tree**

1.1 BM Central Main Menu Tree

1.2 BM Central Client Window Menu Tree

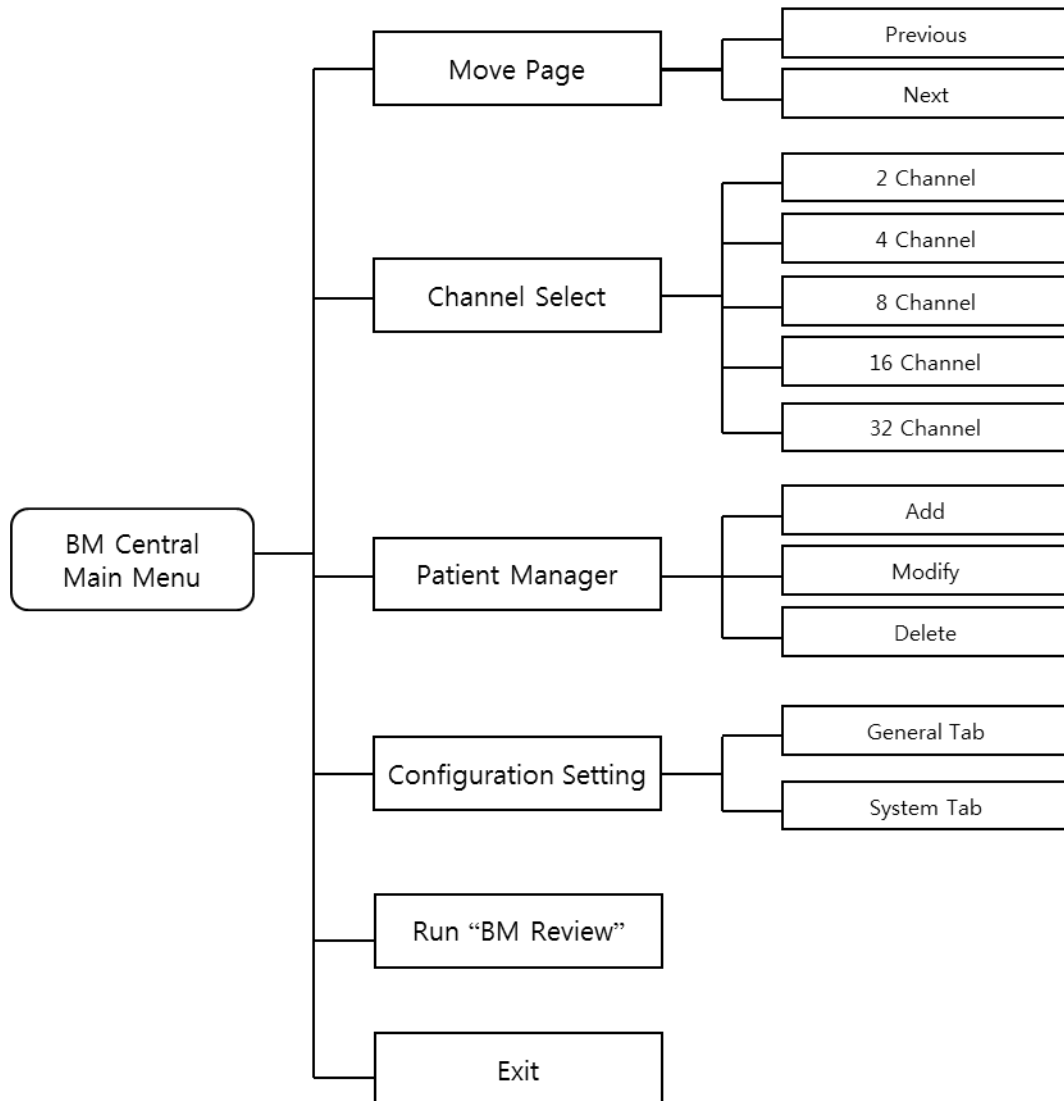
1.3 BM Review Menu Tree

## **2. Administrator authority settings in Windows 7 & 8**

## **3. Q & A**

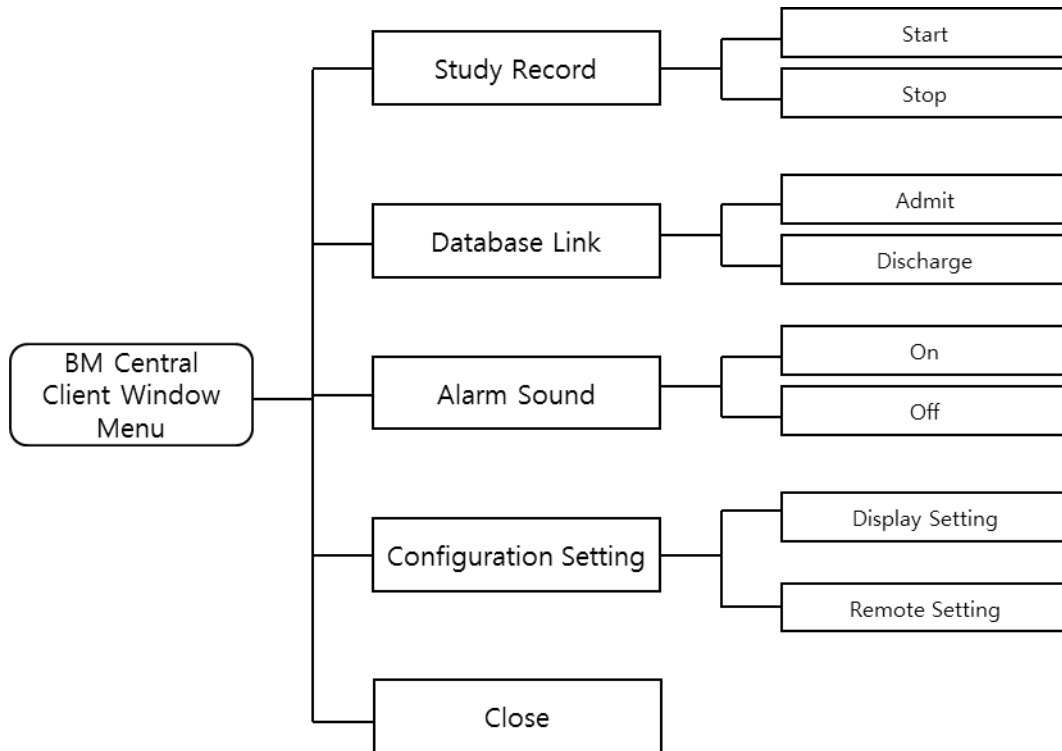
# 1. BM Central Menu Tree

## 1.1. BM Central Main Menu Tree



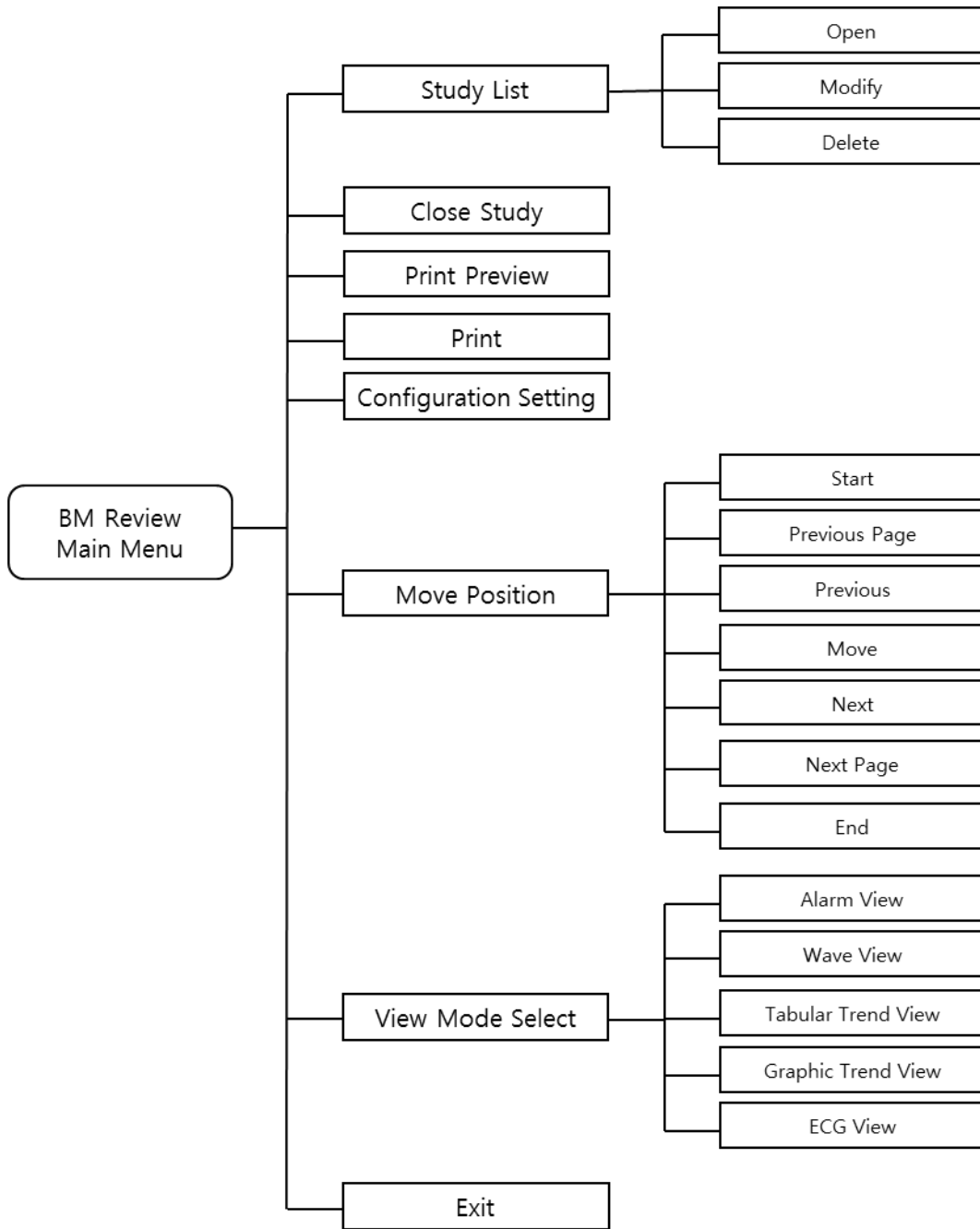
< BM Central Main Menu Tree >

## 1.2. BM Central Client Menu Tree



< BM Central Client Window Menu Tree >

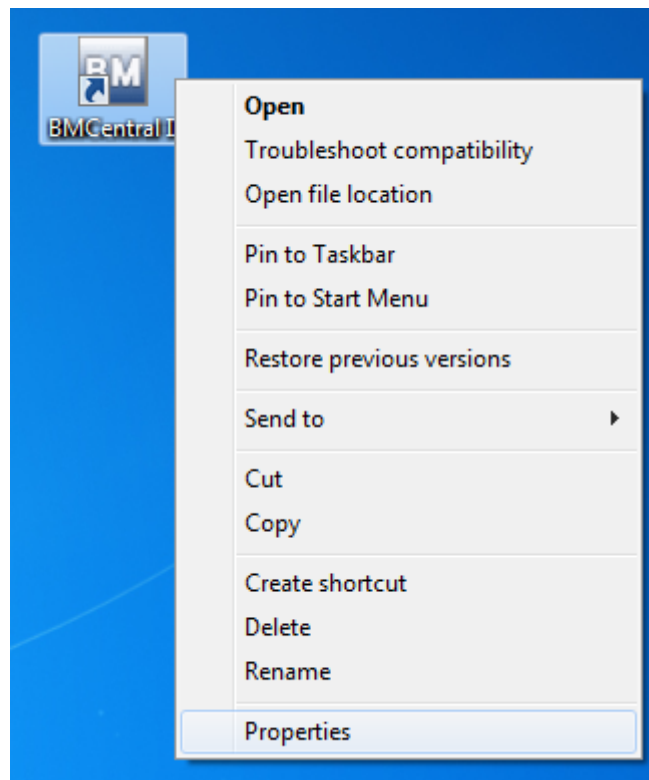
### 1.3. BM Review Menu Tree



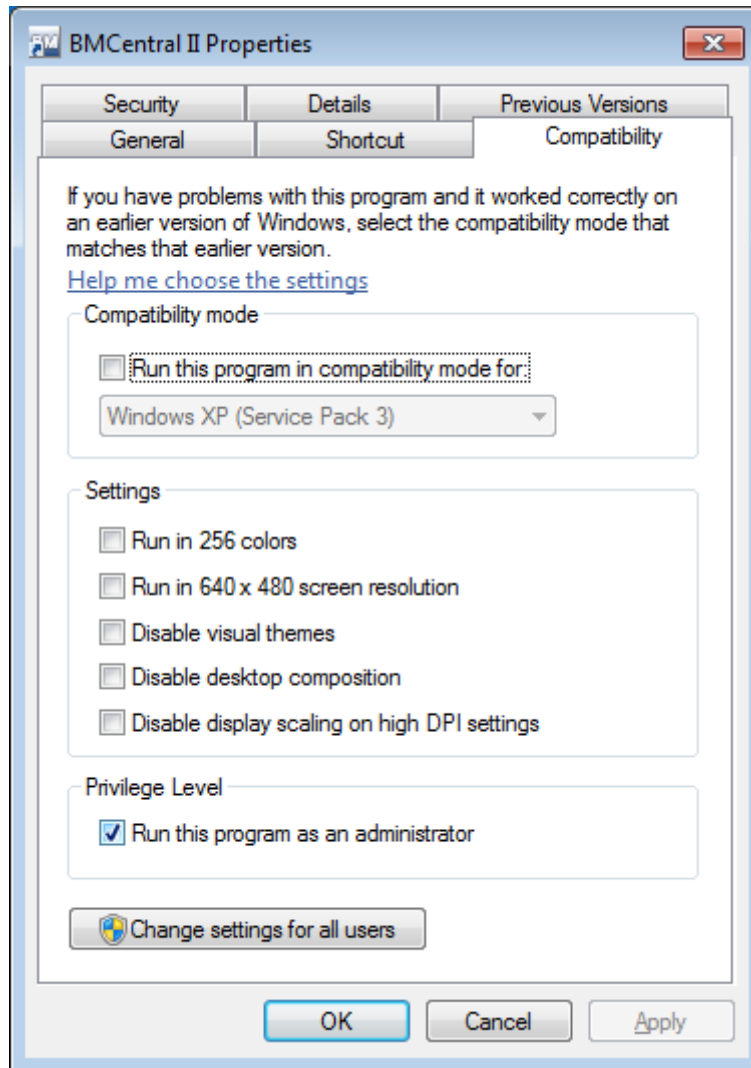
< BM Review Menu Tree >

## 2. Administrator authority settings in Windows 7 & 8

1) In the desktop, place the mouse pointer on the icon which you want to change authority, right-click the icon and the pop-up menu will appear. Click "Properties" and switch to setting window.



2) If you can see the setting window as follows, click “Compatibility” tab, check “Run this program as an administrator” in “Privilege Level”, and click “OK” button to apply changes. Then it will be executed with administrator authority when you click the icon.





## 3. Q & A

**1) In case that connection of BMCentral is unstable or, failed,**

- Check out the latest protocol of patient monitor is applied. (Check out software version)
- Check out IP address & central "On/Off" from patient monitor.
- Check out "Firewall or Anti-virus software"

**2) In case that error message about short memory space,**

- Date backup or, remove some files with "Reviewer" Or, set up the automatic data deletion.

**3) In case that recording button disappears,**

- Check out whether the present client is the state of "Admit" or not.



Product Name: BM Central

Bionet Co.,LTD.

