

AT-Report

User Guide





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Introduction

Overview of AT-Report SW (AT-Report PC S/W)

1. AT-Report S/W is a program that shows ECG rhythm waveforms and analyzes ECG Data by reading the data (ECG Data file) measured and stored from the device (AT-Patch) connected to a PC with a Microsoft® Windows-based OS.
2. AT-Report S/W carries out the following functions:
 - ▶ Opens ECG data files in its own format stored by AT-Patch and reads the data.
 - ▶ Displays the read ECG data with a visual graph.
 - ▶ Analyzes each ECG data using its own analysis algorithm.
 - ▶ Edits and saves the analyzed ECG data, and displays the data in a report.

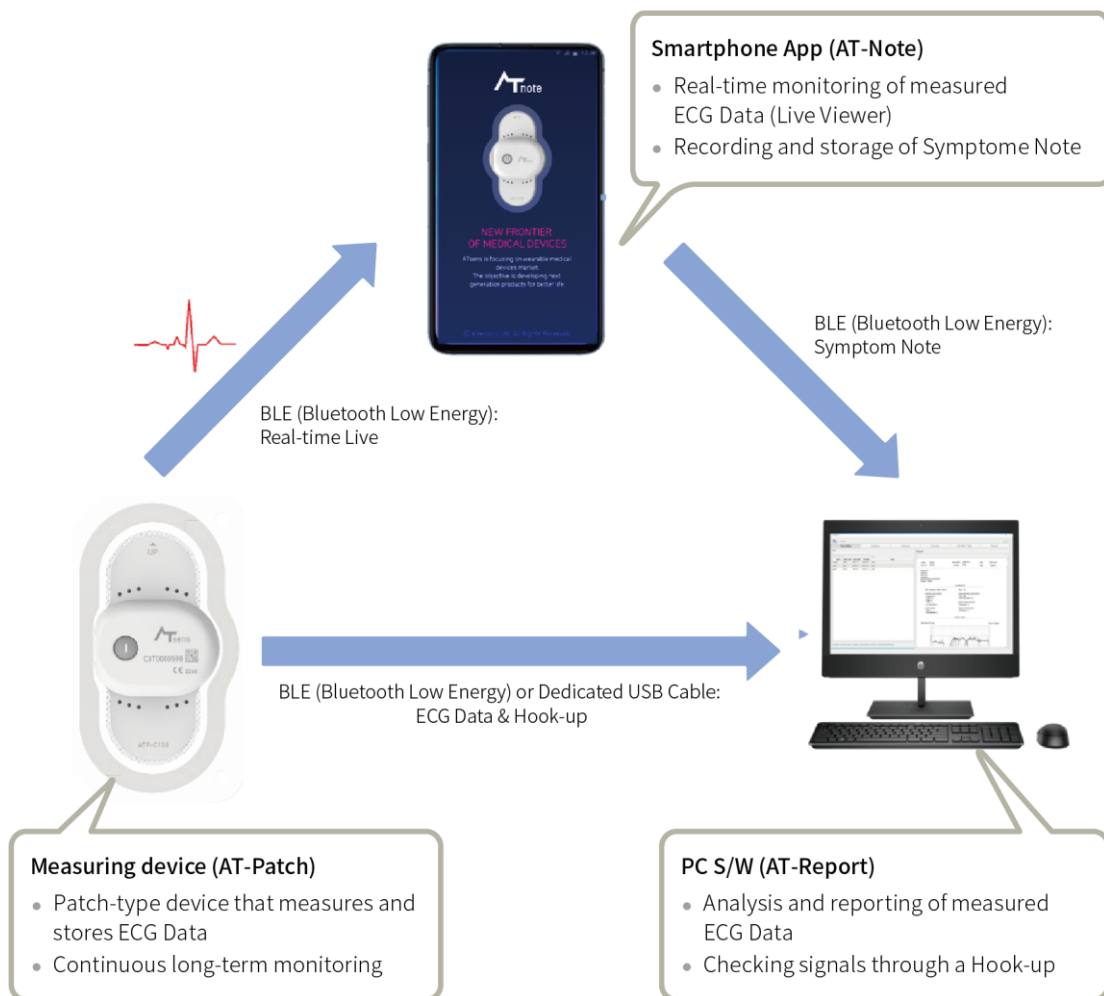


Figure 1 ECG Data Flow Chart

3. AT-Report S/W does not change or remove the ECG Data file status or modify any attributes of the file.
4. AT-Report S/W stores the results of any abnormalities found in the analyzed QRS signal or other data as a separate file. The imported ECG Data values are not changed, and the analyzed QRS signal analyzed based on the algorithm is stored after the location or type is changed or added by user command.

Recommended PC Specifications

1. The PC that executes AT-Report S/W should have specifications above the recommended system requirements. For system requirements, refer to [\[Table 1 AT-Report Recommended System Requirements and Specifications\]](#).
2. A USB Memory (16 GB or higher) and a cable dedicated for AT-Patch (certified product with national standards such as KC, CE, etc.) are provided
3. Recommended System Requirements and Specifications (PC)

Feature	Specification
Processor	Intel Core i7-9700K
RAM	16 gigabyte (GB)
Hard disk space	<ul style="list-style-type: none">• Main SSD: 512GB• Backup HDD: 1TB
Graphics card	DirectX 9 or later with WDDM 1.0 driver
Display	1920 x 1080/24 inch Full-HD Monitor
OS	Windows 10 (64bit)

Table 1 AT-Report Recommended System Requirements and Specifications

How to Install AT-Report PC S/W

How to Install AT-Report PC S/W

1. Connect the provided USB memory stick to a PC and execute the AT-Report S/W Setup file saved as shown in [\[Figure 2 Icon and File Name of the AT-Report S/W Installation File\]](#) (the file name may be subject to change).



Figure 2 Icon and File Name of the AT-Report S/W Installation File

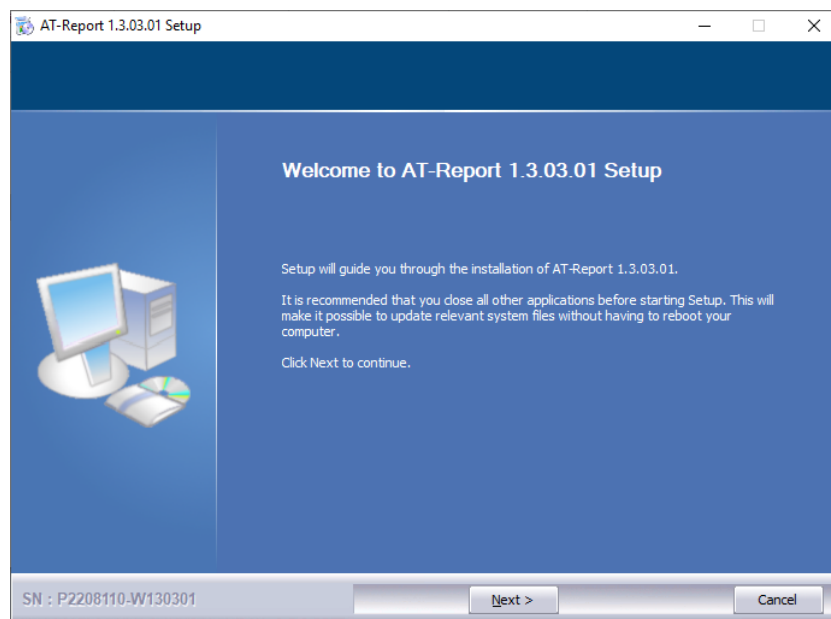


Figure 3 Initial Installation Screen of AT-Report S/W

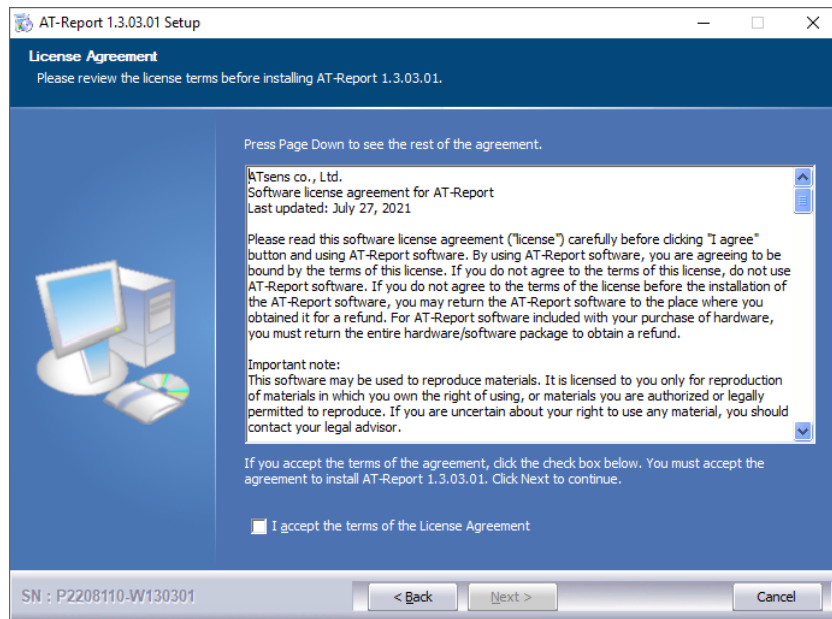


Figure 4 License Agreement Screen of AT-Report S/W

If you don't agree to the license agreement, AT-Report S/W is not available and you won't be able to install AT-Report S/W. When you agree to the license agreement, the **Next** button is activated and the installation can be continued.

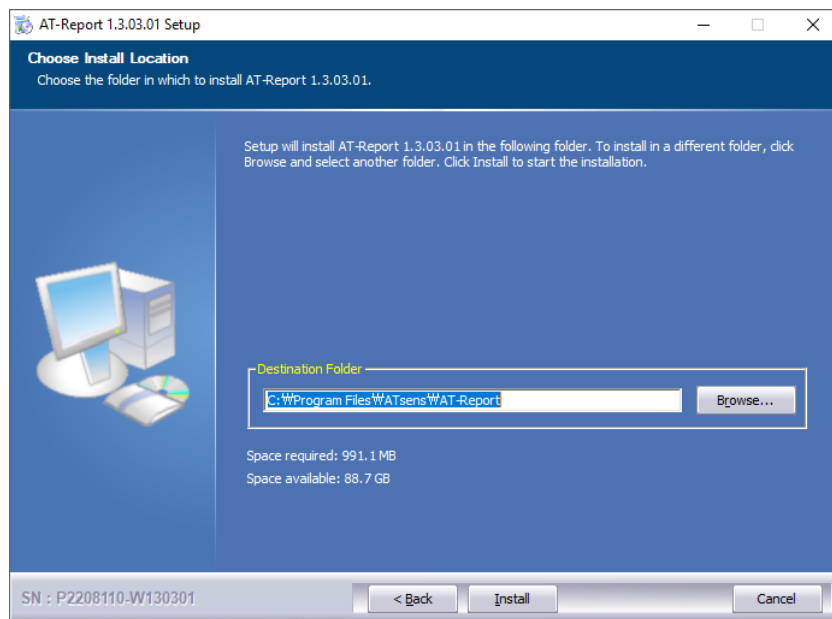


Figure 5 Installation Location Selection Screen of AT-Report S/W

After specifying the installation location, click **Next** to start the installation

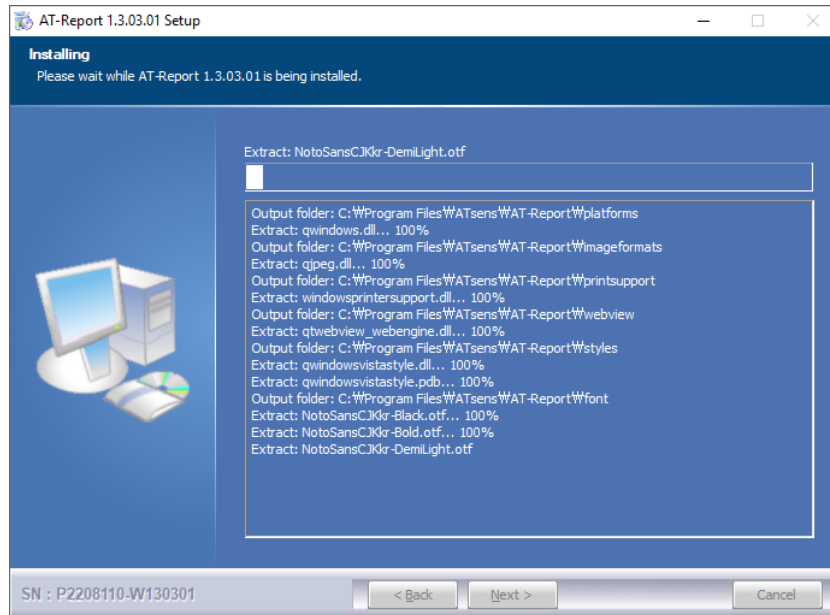


Figure 6 Screen during the Installation (copying of files) of AT-Report S/W

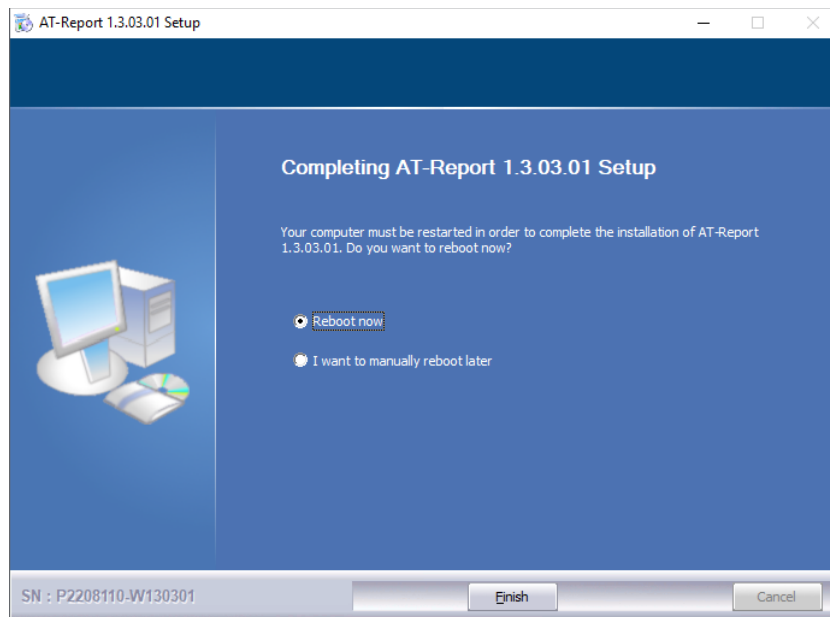


Figure 7 Completion of Installation of AT-Report S/W Installation File

- When the program is installed, the ATsens folder is created in the Start menu. **AT-Report**, **AT-Report Uninstall**, **ATsens Homepage** are created in the ATsens folder. An AT-Report icon is created on the Desktop.

How to Uninstall AT-Report PC S/W

How to Uninstall AT-Report PC S/W

1. To uninstall AT-Report S/W installed on a PC, click the **Start** → **ATsens** → **AT-Report Uninstall** Icon.

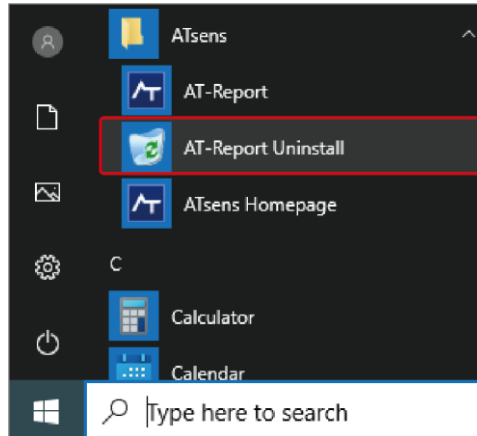


Figure 8 AT-Report Uninstall Icon of Start Menu

2. The uninstall dialog box is displayed. If you select **Uninstall (U)**, AT-Report PC S/W is uninstalled.

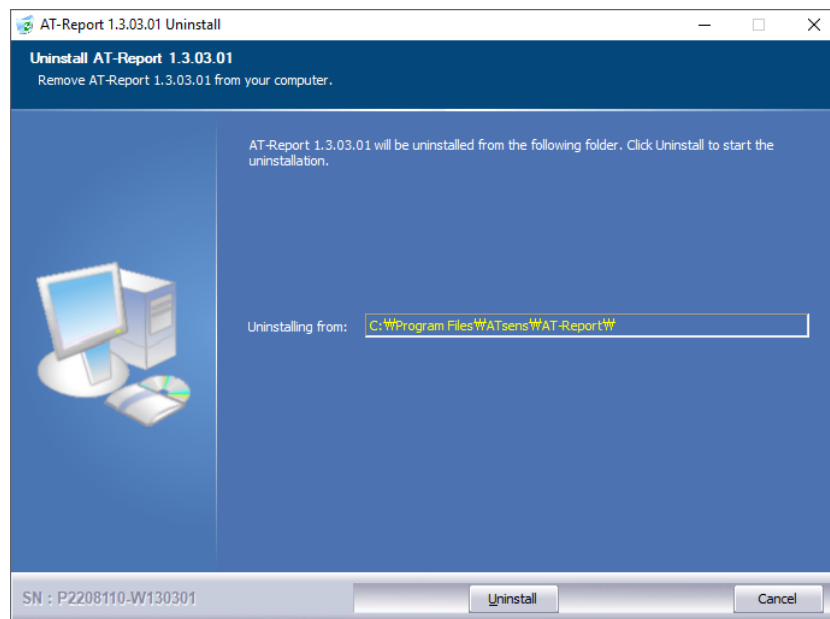


Figure 9 Uninstall the Program

Precautions for Uninstall S/W

1. Even if S/W is uninstalled, DB files, settings, and ECG Data files for AT-Report are not deleted.
2. You can manually delete all DB data, ECG data and settings. The default data path is “C:\AT-Report Data”.

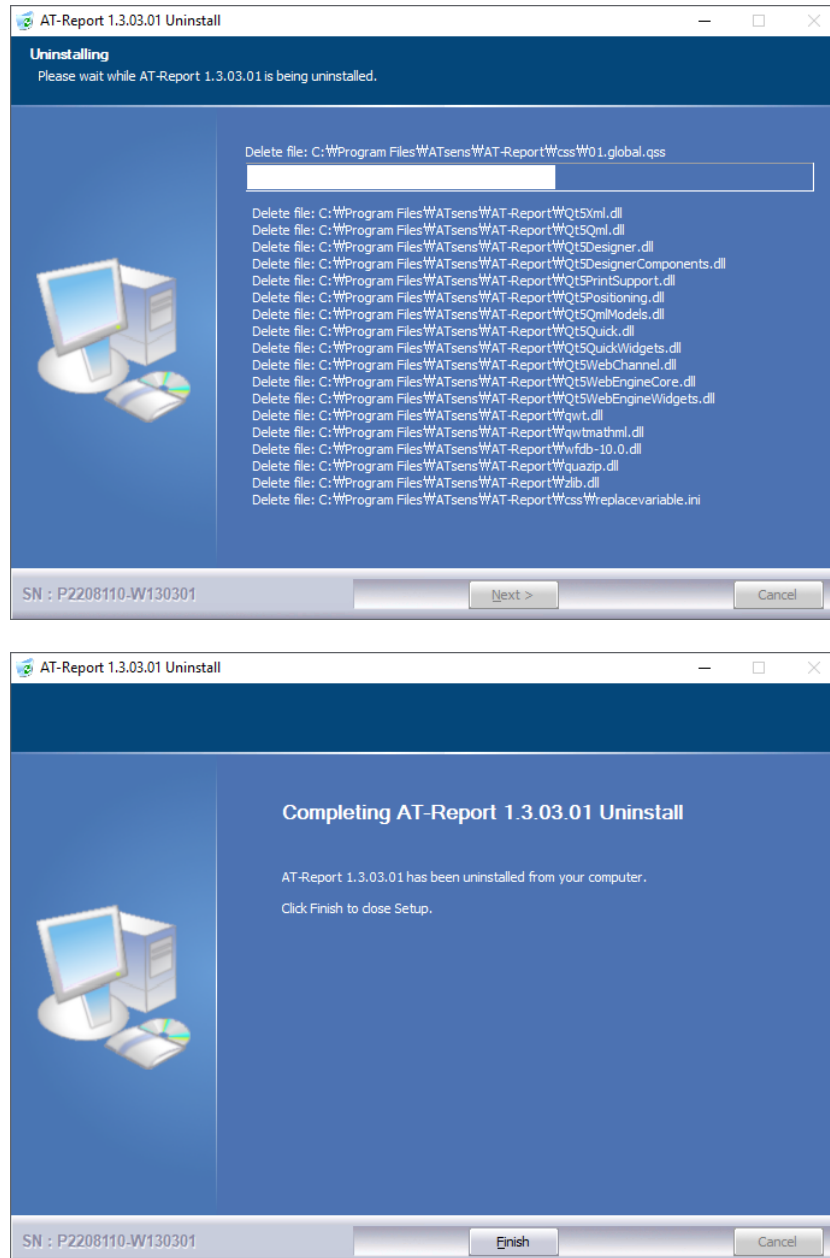


Figure 10 Uninstall S/W

How to Execute AT-Report PC S/W

Location and Execution of the AT-Report Icon

For the location of installed AT-Report, click **Start** → **ATsens** → **AT-Report** or double-click the **AT-Report** icon on the Desktop.

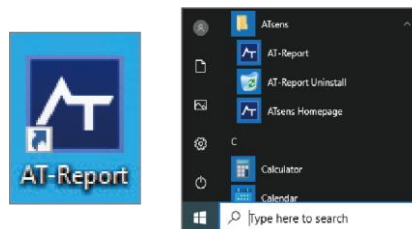


Figure 11 Location of AT-Report as Desktop Icon and in Start Menu

Login Screen

If you run AT-Report, you need to enter your user name and password on the Log-in screen. Executing AT-Report for the first time will display an authentication warning dialog box. When you press the **OK** button on the Authentication warning dialog box, the Password Reset screen appears. (For the password reset method, refer to [“How to Set up a Password during the Initial Access” on page 14](#). To change the ID/Password, refer to [“Change Password” on page 36](#))

Version 1.3.03.01

ATreport

Username

Password

Password should be at least 8 characters long, and it should consist of a combination of alphabet, numbers and special characters.

www.atsens.com | sales@atsens.com

ATsens is focusing on wearable medical devices market.
The objective is to develop next generation products for better life.

Login

Figure 12 Login Screen in AT-Report

How to Obtain S/W License

1. How to Set up a Password during the Initial Access

During the initial log-in, a dialog box as shown in [\[Figure 13 AT-Report S/W Authentication Warning Dialog Box\]](#) appears. You should reset the password to use another one.

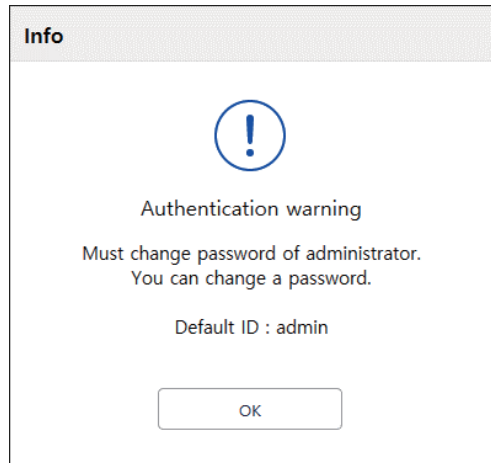


Figure 13 AT-Report S/W Authentication Warning Dialog Box

Clicking the **OK** button in the Authentication Warning Dialog Box will cause a new window to appear, requiring you to reset the initial password, as shown in [\[Figure 14 Initial Password Reset Screen of AT-Report S/W\]](#).

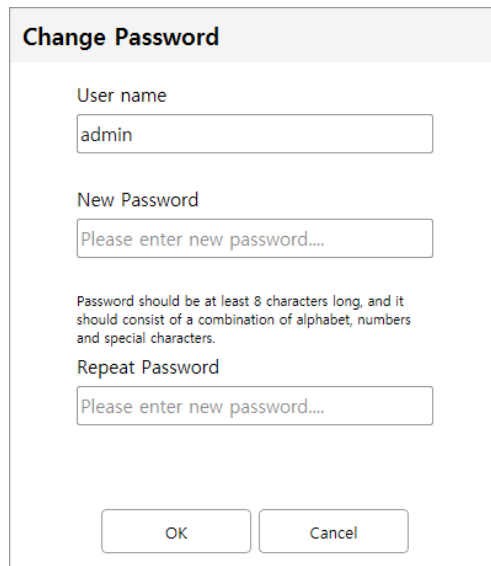


Figure 14 Initial Password Reset Screen of AT-Report S/W

In the new password box, enter the password to reset. The new password should be contain symbol characters and numbers, and should be at least eight characters in length.

2. How to Login

The first time AT-Report is run, the Authentication warning dialog box appears to perform a password reset, but after the password reset is completed, the login screen appears as shown in [\[Figure 15 AT-Report PC S/W ID/PW Input Dialog Box\]](#). After the ID and PW are entered, click the **Login** button to execute login. (To change the ID/Password, refer to [“Change Password” on page 36](#))

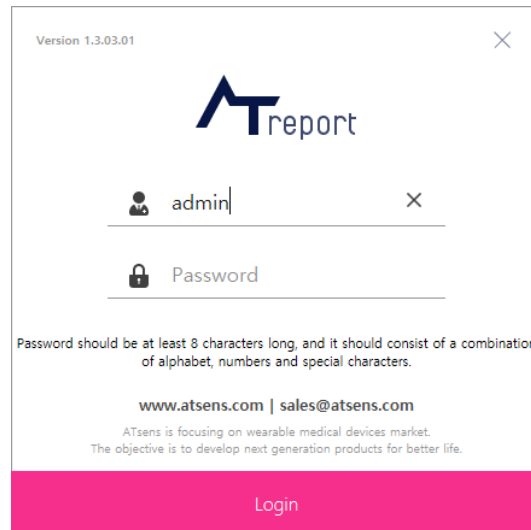


Figure 15 AT-Report PC S/W ID/PW Input Dialog Box

3. During the initial execution of the program, it will run in a demo version, and only the Recording and Region tabs will be displayed. Clicking the **Setup** icon in the upper right corner of the initial screen as shown in [\[Figure 16 AT-Report S/W Initial Screen\]](#) to appear.

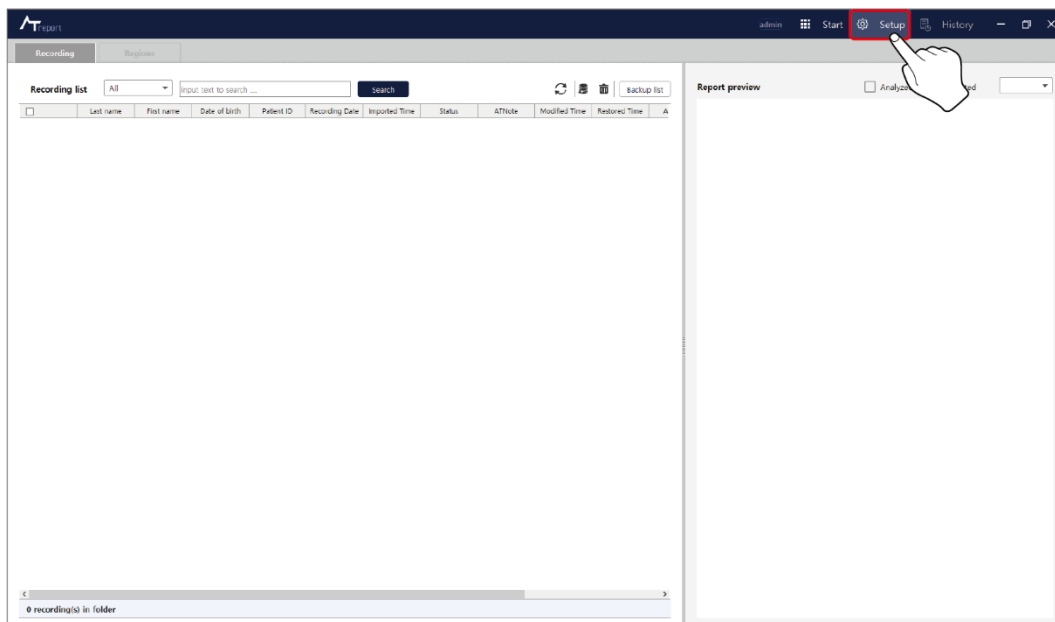


Figure 16 AT-Report S/W Initial Screen

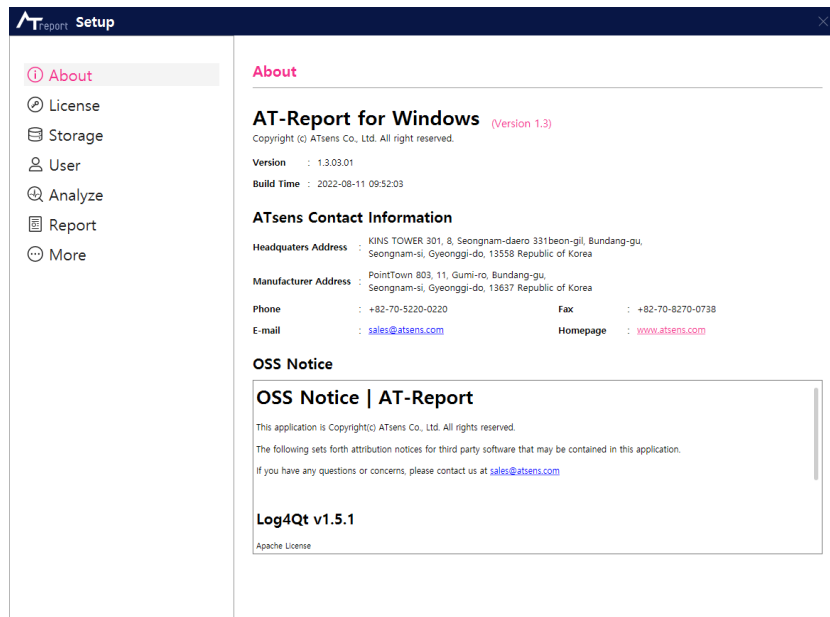


Figure 17 Setup Screen

- Copy the ID in the License item in the Setup screen and inform it to ATsens (sales@atsens.com), the software manufacturer. Click the **Clipboard** icon next to the ID as shown in [\[Figure 18 License Screen and Clipboard Icon\]](#) – ① to display the Register Form dialog box. After entering the required items, press the **Copy to Clipboard** button to copy the Register form including ID to the Clipboard. If you send the content of the clipboard by e-mail to the ATsens (sales@atsens.com), you can get a serial number for a license.

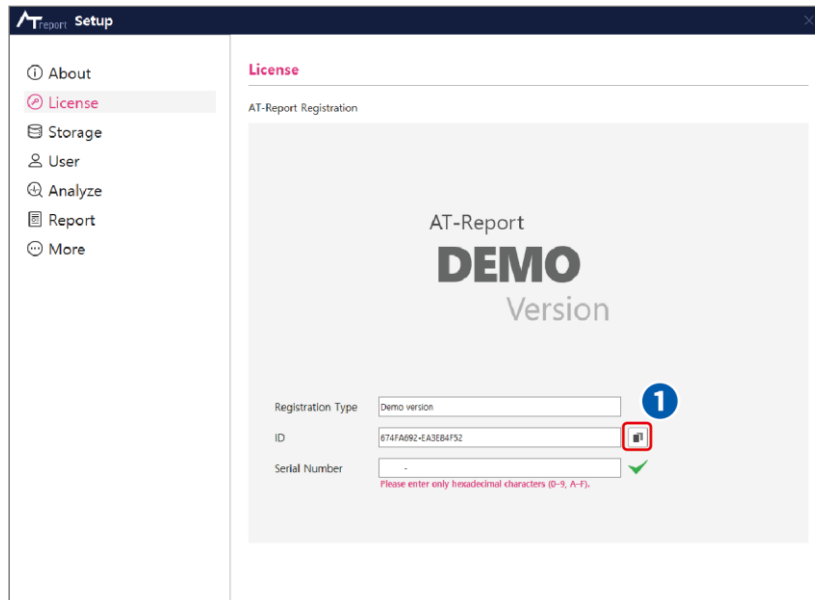


Figure 18 License Screen and Clipboard Icon

Registration Form

Please fill in the information and send it by e-mail

AT-Report registration

Date / Time : 木 8 11 15:17:50 2022
 Product : AT-Report v1.3.03.01
 Product-ID : 93956BAF-911EB5C02
 Product-Type : Demo version
 Requested License-Type : Evaluation version / Registered version (Please pick one)

User Information

Name :
 Phone number :
 E-Mail :
 Address :
 Memo :

Please send this information by e-mail to sales@atsens.com

Figure 19 Registration Form

5. As shown in [\[Figure 20 Screen Showing the Result of Entering a valid Serial Number of a Registration Version\]](#), when a serial number corresponding to an ID is obtained from ATsens (sales@atsens.com), enter the serial number into the serial number input window and click on the confirmation icon (✓). If a valid serial number is entered, an icon and message that will vary, depending on the serial number will be displayed.

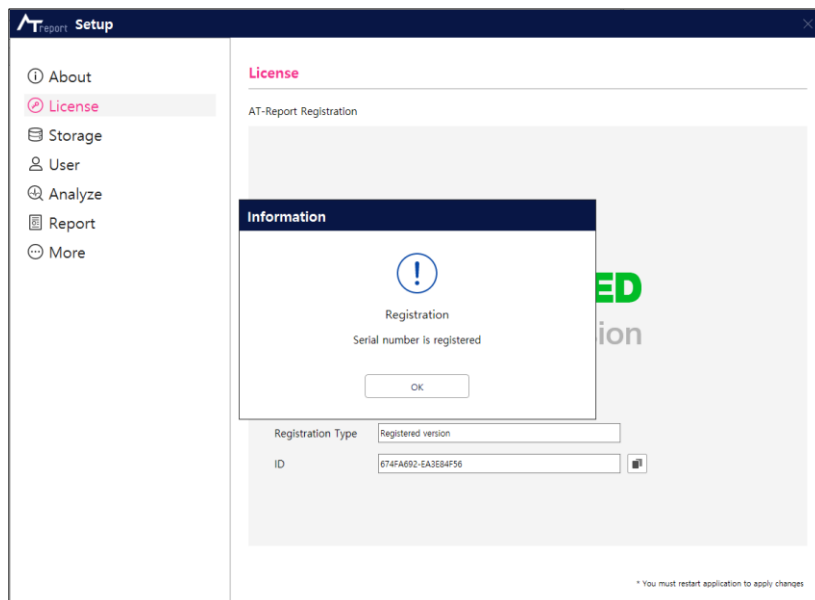


Figure 20 Screen Showing the Result of Entering a valid Serial Number of a Registration Version

6. In the case of a registered version, all tabs are displayed as shown in [\[Figure 21 Initial Screen of ATReport S/W in Case of a Registered Version\]](#).

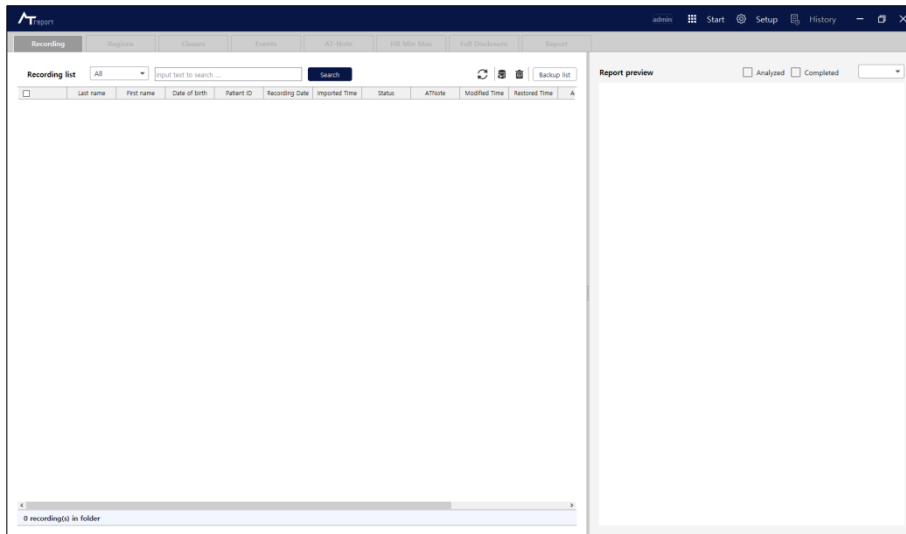


Figure 21 Initial Screen of ATReport S/W in Case of a Registered Version

7. Licensed versions include Demo, Evaluation, Registered, Illegal, and Clear versions.

Category	Details
Demo	Can be used to a limited extent.
Evaluation	<ul style="list-style-type: none"> Can be used for a specified period. The remaining period of use is displayed in License in Setup. After expiration of the period, only limited use is possible as per the demo version.
Registered	The user is registered as a licensed user and can use all functions without any restrictions.
Illegal	<ul style="list-style-type: none"> An illegal version with which unlawful activities are detected. Normal program operation is not possible.
Clear	<ul style="list-style-type: none"> If the evaluation period is expired or the license is in an illegal state, the license should be cleared before it can be changed to another license. If a clear license is applied, the license is changed to a demo state, which allows the license to be registered as an evaluation or registered license. If the license is cleared, the ID is changed. Therefore, it is not possible to have a clear license and other licenses with one ID. After the license is cleared, another license must be issued using the changed ID.

Table 2 License

8. A license should be obtained according to its serial number for each PC where AT-Report S/W is installed. If the program is transferred and installed on another PC, a new serial number should be issued.

Copy of previous versions of AT-Report data

1. If you have installed an earlier version of AT-Report, the first time you run AT-Report, you are prompted [\[Figure 22 A dialog box that asks you to copy Data\]](#) to automatically copy the data.

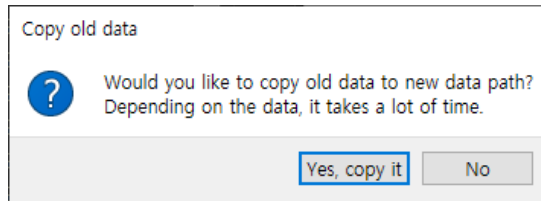


Figure 22 A dialog box that asks you to copy Data

2. Select the **Yes, copy it** button in the dialog box to copy patient data such as Database/Storage, Setting values, and License information from the previous version of AT-Report to the new Data folder.
3. Depending on the data size, it may take a considerable amount of time. Also, the operation is not performed when there is not enough free space on the same C drive. It is only performed after securing enough free space in advance.
4. Even if the copy is finished, the existing data is not removed. You can also manually remove existing data after confirming that it has been copied successfully.

Category	AT-Report data path
Previous version	C:\Users\ [windows login user id] \AppData\Local\ATsens <ul style="list-style-type: none"> • [windows login user id] differs, depending on the user's Windows environment.
Current version	C:\AT-Report_Data

Table 3 AT-Report data path

AT-Report PC S/W Title Bar

Title Bar

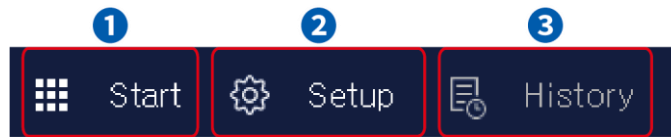


Figure 23 Title Bar Buttons

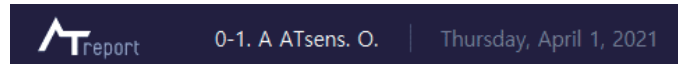


Figure 24 Title Bar Display Status If Patient Data Is Imported

1. Title Bar Display Status

As shown in [\[Figure 24 Title Bar Display Status If Patient Data Is Imported\]](#), patient's information is displayed in the title bar while you are loading the patient data. The order of displayed data is as shown in [\[Table 4 Title Bar Display Status\]](#).

Patient ID	First Name	Last Name	Gender		Date of birth
------------	------------	-----------	--------	--	---------------

Table 4 Title Bar Display Status

Start

1. New Patient Data

- ▶ This window is for registering a patient or changing their information. Click the **Start** button to display the New Patient Data screen as shown in [\[Figure 25 New Patient Data Screen\]](#).

Figure 25 New Patient Data Screen

- ▶ Among the items to enter, *Serial Number, the unique device number (product Serial Number) of the AT-Patch, is required information. If the Serial Number is empty or there is an entry error, a warning window appears when attempting import [“Edit Patient Data/Import” on page 24](#) or Hook-up [“Hook-up Function” on page 28](#). If you enter all required information for a patient and press the **Save** button, the information is stored in the Patient List (* means required information).

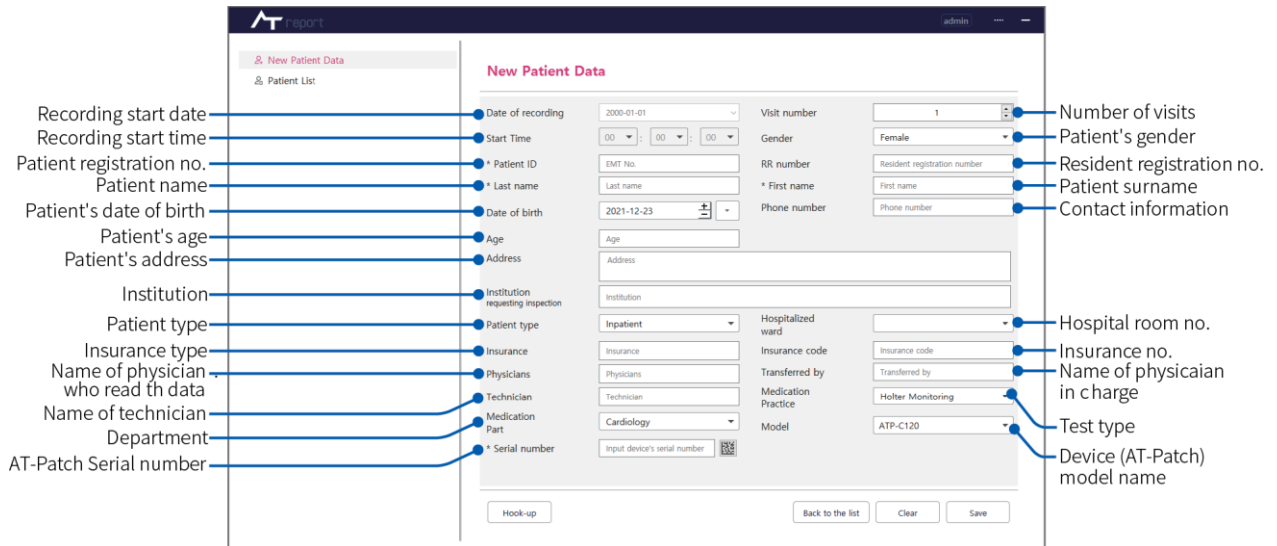


Figure 26 New Patient Data Screen and Items to Enter

- ▶ When registering a patient, the Patient ID (EMT No.) should not overlap with the existing Patient ID of the patient. If the right mouse button (🖱️) displays Popup menu when the Patient ID is not entered, the date-based non-overlapping serial number can be automatically entered.

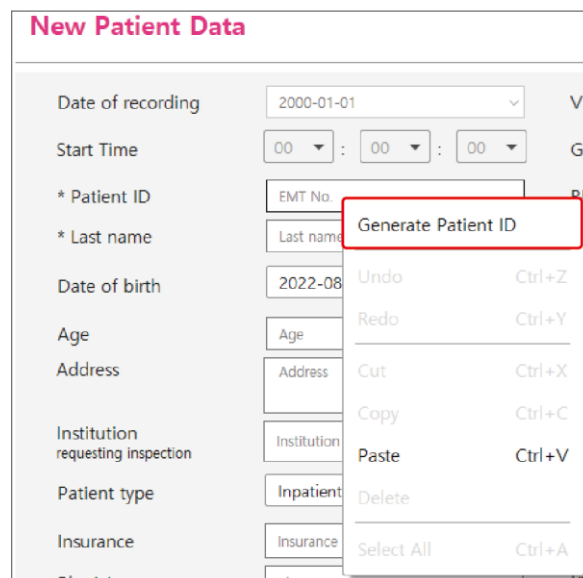


Figure 27 Generate Patient ID

▶ Error Message According to User Actions While Entering Patient Data

Error Message	Details
Input Patient ID (Chart No) Please input patient-ID	<ul style="list-style-type: none"> If the patient ID has not been entered. The patient ID should be entered as it is required information.
Input Patient name Please input name of patient	<ul style="list-style-type: none"> If the patient name has not been entered. The patient name should be entered as it is required information.
Patient ID (Chart no) is already exists. Please check and input new Patient ID (Chart no)	When you want to change to the Patient ID that already exists.
Please input correct serial number (Serial number can only be input alphabet and numeric.)	If the Serial Number is not a 10-digit number during Hookup. (An Serial Number should contain a combination of characters and numbers and should be at least 10 characters in length.)

Table 5 Error Message According to User Actions While Entering Patient Data

2. Patient List

- ▶ You can check the list of patients registered in the New Patient Data screen in the Patient List. If the newly registered patient's ECG Data from the AT-Patch or data from the AT-Note app is not imported, both the AT-Patch data and AT-Note data are displayed as "Empty."

Last name	First name	Date of birth	Patient ID	Recording Date	Recording Time	AT-Patch	AT-Note	Cre
ATSens	N	8/30/21	test	1/1/00	12:00 오전	Empty	Empty	8/30/21
이종복	예원내과	8/2/21	sample1	12/15/20	12:00 오후	Report	Empty	8/2/21 5
New	Patient	8/10/21	New Patient2	5/22/20	5:24 오후	Downloading	Empty	7/16/21
ATSens	G	7/12/21	200416868	6/30/21	8:14 오전	Modified	Empty	7/8/21 2
Sample	F	7/12/21	15	6/15/21	9:44 오전	Modified	Empty	7/5/21 1
ATSens	I	7/12/37	3	6/15/21	4:39 오후	Downloaded	Empty	6/29/21
ATSens	J	7/12/21	41	11/16/20	12:03 오후	Downloaded	Empty	6/23/21
ATSens	M	12/16/20	632	10/29/20	2:48 오후	Report	Empty	6/23/21
123333	12333	6/22/21	12333	10/29/20	2:48 오후	Modified	Empty	6/22/21
ATSens	N	8/30/21	test	1/1/00	10:25 오전	Modified	Empty	6/22/21
ATSens	H	7/12/56	27	1/1/00	9:05 오후	Modified	Empty	6/21/21
ATSens	K	7/16/21	5	5/28/21	10:34 오전	Downloaded	Empty	6/18/21
Arab	health	6/17/21	Sample Data	10/29/20	2:48 오후	Modified	Empty	6/17/21
ATSens	A	7/16/21	0-1	10/12/20	9:19 오전	Modified	Empty	4/1/21 1
sample 1	C	7/12/21	123	2/3/21	12:53 오후	Modified	Empty	2/24/21
sample2	E	7/12/21	1231	2/3/21	1:42 오후	Modified	Empty	2/24/21
ATSens	B	2/19/21	12	11/24/20	2:13 오후	Modified	Empty	2/19/21

Figure 28 Patient List Screen

- ▶ You can import patient data by double-clicking the patient name in the Patient List to import patient data, which will change the screen to the [Figure 30 Edit Patient Data Import Screen].
- ▶ You can select one of the below two functions by clicking the right mouse button (☺) in the Patient List.

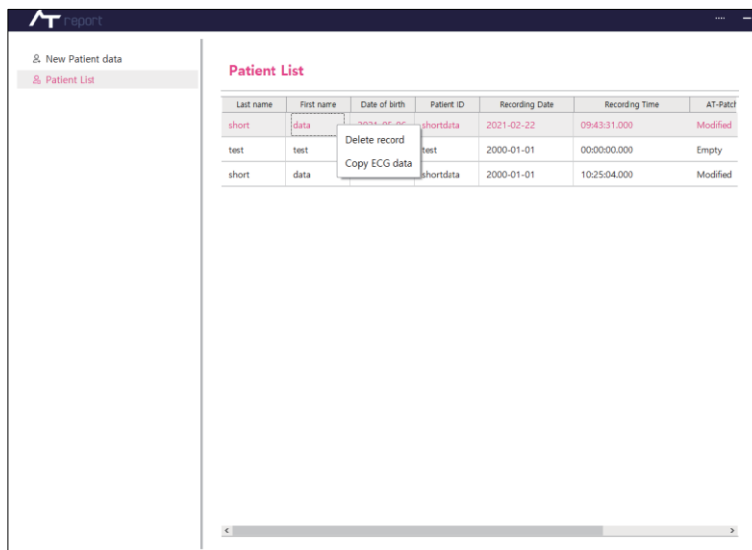


Figure 29 Patient List Function

- ▶ Delete record: To delete the selected Patient.
- ▶ Copy ECG Data: To copy ECG Data (raw data) File of the selected Patient to the selected folder by the user. It is possible to import the ECG Data (raw data) File refer to the [\[Figure 30 Edit Patient Data Import Screen\]](#) - ③.

3. Edit Patient Data/Import

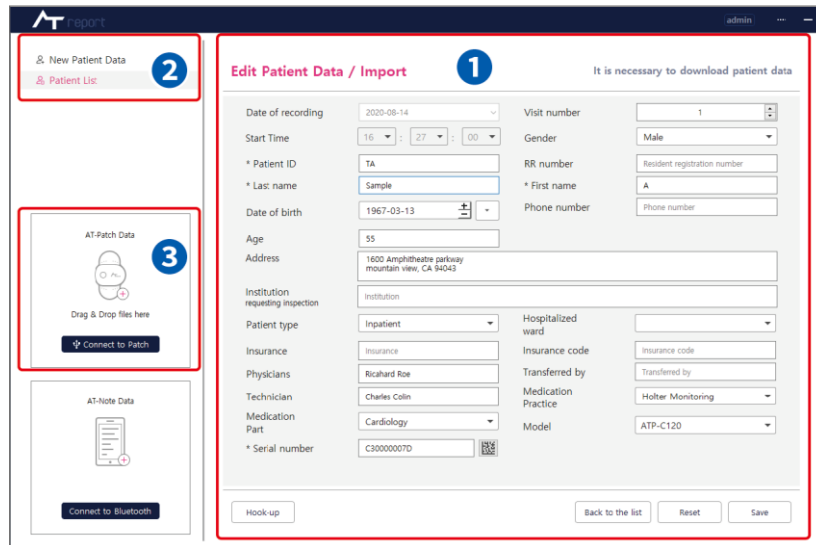


Figure 30 Edit Patient Data Import Screen

- ▶ You can change the information of already registered patients in the Edit Patient Data which opens after double-clicking the patient name in the Patient List. [Figure 30 Edit Patient Data Import Screen] - ①
- ▶ You can import the AT-Patch data and AT-Note data directly from the “Import,” [Figure 30 Edit Patient Data Import Screen] - ②
- ▶ There are two ways to import from the AT-Patch: You can import data by turning on the ATPatch and connecting it to the computer using a dedicated cable or importing data stored on a PC. To import data stored on the AT-patch, you can use the **Connect to Patch** button. To import ECG Data file stored on a PC, you can drag the file to **Drag & Drop files here**. [Figure 30 Edit Patient Data Import Screen] - ③
- ▶ AT-Note Import is a function that imports AT-Note Data(Symptom note) stored on a smartphone to AT-Report PC S/W via BLE (Bluetooth Low Energy) from the app.
- ▶ If the import takes a long time because of the data size, it can be run in the background. You can exit the Edit Patient Data/Import screen or click the **Patient List** or **New Patient Data** button and move to another window to execute another operation.
- ▶ When AT-Patch or AT-Note Data are imported, a balloon dialog box appears at the **Start** position of the AT-Report Title Bar as shown in [Figure 31 AT-Patch Import Process], indicating that the import is complete. When the import is completed, you can check both the ECG and note data in the Recording Tab.

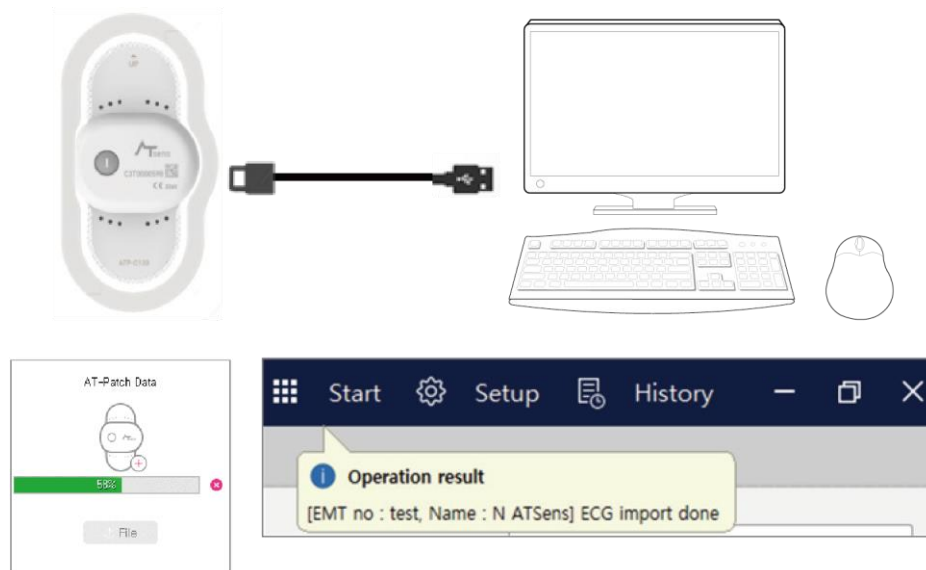


Figure 31 AT-Patch Import Process

► Error messages according to user actions when downloading and importing ECG Data

Error Message	Details
USB download error USB cable driver not installed. Please reinstall the program.	When the dedicated cable's driver is not installed
USB download error Failed open a FT4222 device. Please check USB cable connection.	If the connection with the dedicated cable is unstable while downloading data using a USB
USB download error Not found a FT4222 device. Please check whether USB cable is connected.	If the dedicated cable is not connected while downloading using a USB
USB download error A number of FTDI cables are detected. Please connect just one cable.	If you have more than one dedicated cable connected to the USB download
Memory read error in the AT-Patch. Please retry again.	If there is an error while reading the data when downloading USB. (You must reconnect the AT Patch, power it on, and try again.)
USB download error Communication error has occurred. Please retry again.	If communication failed for an unknown reason while downloading using a USB (reconnect AT-Patch, turn on the power and try again)
USB download error Serial number is empty or invalid format. Please enter serial number again.	If you clicked USB Download, but the serial number is empty or an invalid serial number was entered

Error Message	Details
USB download error This model does not support USB download.	If you clicked USB Download, but the device does not support USB download
USB download error File open error.	If there is not enough disk space for USB download
USB download error AT-Patch is powered off please turn on AT-Patch.	If the power to the AT-Patch is off during USB download
USB download error AT-Patch is not matched please check serial number of AT-Patch.	If the SN (Serial Number) of the AT-Patch is different from the SN entered for USB download
USB download error AT-Patch USB download is failed please reconnect the patch and retry again.	If it failed to import all the data saved on the AT-Patch during the USB download
USB download error The connection is disconnected during the download. Please reconnect the patch and retry again.	The connection between the AT-Patch and the dedicated cable was disconnected during the USB download.
USB download error Data is empty in the AT-Patch	When AT-Patch Data is empty and not recorded at all
USB download error USB cable connection is failed. Please check the following: <ul style="list-style-type: none"> • Is the USB cable connected? • If that doesn't work, try connecting to another USB port. 	<ul style="list-style-type: none"> • When it is not connected to AT-Patch • USB cable does not recognize AT-Patch
ECG Import error Can't open ATsens ECG (binary) file	When the Imported AT-Patch Data File can't be opened from AT-Patch
ECG Import error ATsens ECG (binary) file size is too small	The AT-Patch Data File Imported from the AT-Patch is smaller than the minimum file size
ECG Import error Serial Number is different from 'Serial Number' to 'Serial Number'	The Serial number of the Improved AT-Patch Data File and the Serial number inputted by user each other does not accord
ECG Import error This file is not supported. (Header information mismatch)	When the misguided header information is recorded in the AT-Patch Data File which is Imported from AT Patch
ECG Import error File end is mismatched	When the last of the AT-Patch Data File Imported from AT-Patch does not match

Error Message	Details
ECG Import error	If the ECG Data can't be imported for some unknown reason. (Reconnect the AT-Patch, turn on the power, and try again)
Drag error The file with these file extensions can't be processed	If you drag and import a file with the wrong extension
Could not open note file	When the Imported AT-Note Data File from the AT Note app can't be opened
Could not parse the symptom note file: legacy symptom note format	<ul style="list-style-type: none"> • When the Imported AT-Note Data File from the AT Note app can't be opened • When AT-Note Data is an old format
Could not parse the symptom note file: Note signature is diff from (signature) to (signature) (reading value)	When the incorrect Header information is recorded in the AT-Note Data File that was Imported from the AT Note app
Could not parse the symptom note file: Note serial number is diff from (serial number) to (serial number) (reading value)	The Serial number of the Imported AT-Note Data File of the Serial number inputted by user and AT-Note app each other does not accord

Table 6 Error messages, depending on user actions while downloading and importing ECG Data using a USB

4. Hook-up Function

- ▶ (New/Edit) The Hook-up Function on the Patient Data screen is used to check if the ECG signal from the device attached to the patient's body is recorded normally. The device (AT-Patch) serial number should be input on the (New/Edit) Patient Data screen. In order to receive a signal from a device (AT-Patch) attached to the patient's body, the BLE Dongle must be mounted on a PC with ATReport SW.

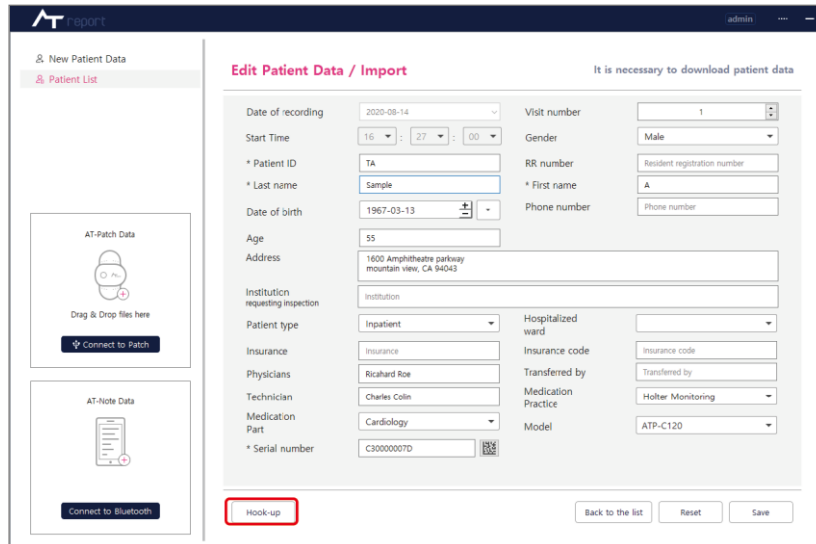


Figure 32 Location of Hook-up

- ▶ On the Hookup screen, you can access the AT-Patch and BLE (Bluetooth Low Energy) corresponding to the entered SN and see the current ECG signal in real time. If the AT-Patch is already connected with the app via BLE, it can't be connected to a PC via BLE. If the signal strength is poor or there are abnormal readings, you can take measures, such as removing the attached device and placing a new device on the correct location, depending on the strength of the signal or whether there is an abnormality.

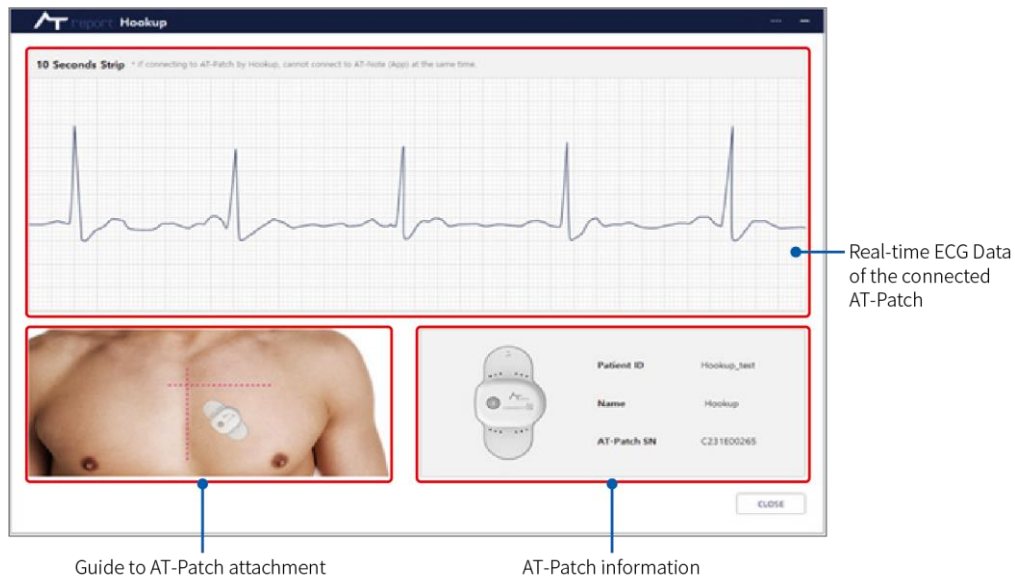


Figure 33 Hookup Execution Screen

- ▶ Error Message in Hookup based on user actions

Error Message	Details
Hookup connection error not found serial port. Please check BLE dongle connection.	If the BLE dongle can't be connected during Hookup
Hookup connection error can't open serial port. Please eject BLE dongle and re-insert	If there is a problem in the BLE dongle settings during Hookup, you should remove and re-insert the BLE dongle.
Hookup connection error connecting AT-Patch is fail. Please retry after a few seconds.	If an unknown problem with the BLE connection occurs during Hookup, you should try again after a certain time.
Hookup connection error AT-Patch serial number not found. Please check the PSN of the AT-Patch again.	If the serial number of the AT-Patch does not match the SN entered during Hookup
Hookup connection error disconnected from AT-Patch. Please turn on AT-Patch again.	If the ECG signal is not received or is disconnected during the Hookup due to the AT-Patch powering off or other reasons

Table 7 Error Message in Hookup based on user actions

5. ECG Data Downloading

If the License is Demo Version (refer to the [“Table 2 License” on page 18](#)), the ECG Data Downloading function is available. This function is to convert ECG Data (raw data) form to File format, and the converted ECG Data (raw data) File can be imported (refer to the [“Edit Patient Data/Import” on page 24](#)).

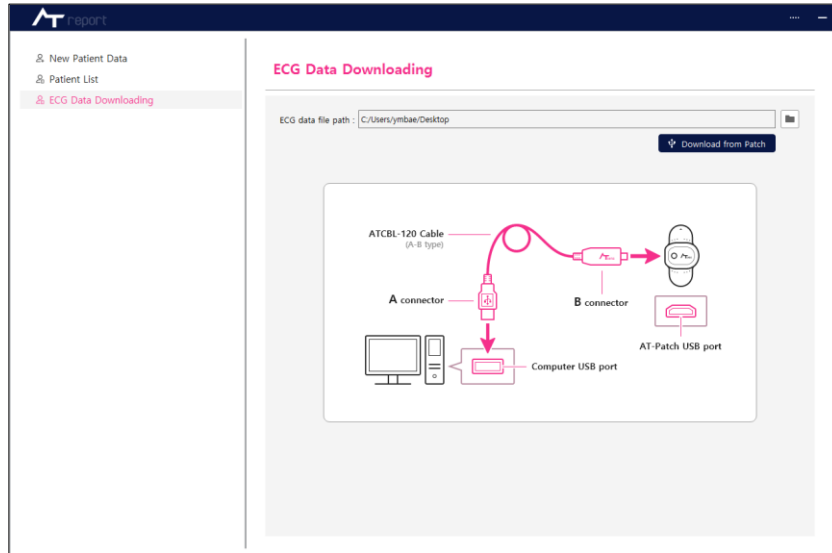


Figure 34 ECG Data Downloading

6. About screen

A screen to check S/W information (SW version, contact information of the manufacturer)

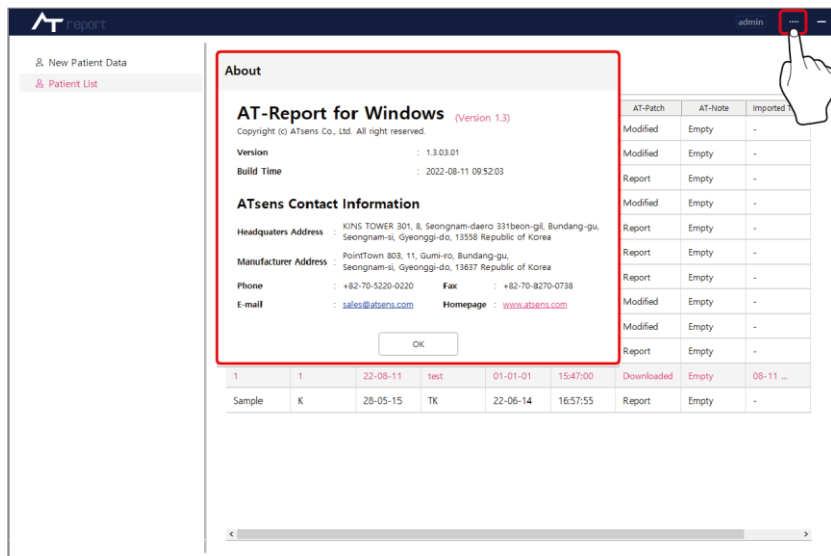


Figure 35 About screen

Setup

1. Description of Setup Screen

Category	Main function	Details
About	Information check	SW version, contact information of the manufacturer, etc.
License	License settings	To check license, copy ID, etc.
Storage	Storage settings	Storage location, type, capacity, etc.
User	User settings	To add a user, delete a user, change the password, etc.
Analyze	Analysis settings	To set analysis parameters, etc.
Report	Report settings	To select to include a report, etc.
More	Other settings	Other things to manage, such as save/password

Table 8 Description of Setup Screen

2. About Screen

A screen to check S/W information. You can press the Setup button to move to the screen. In the About screen, you can check the S/W version, company information and copyrights.

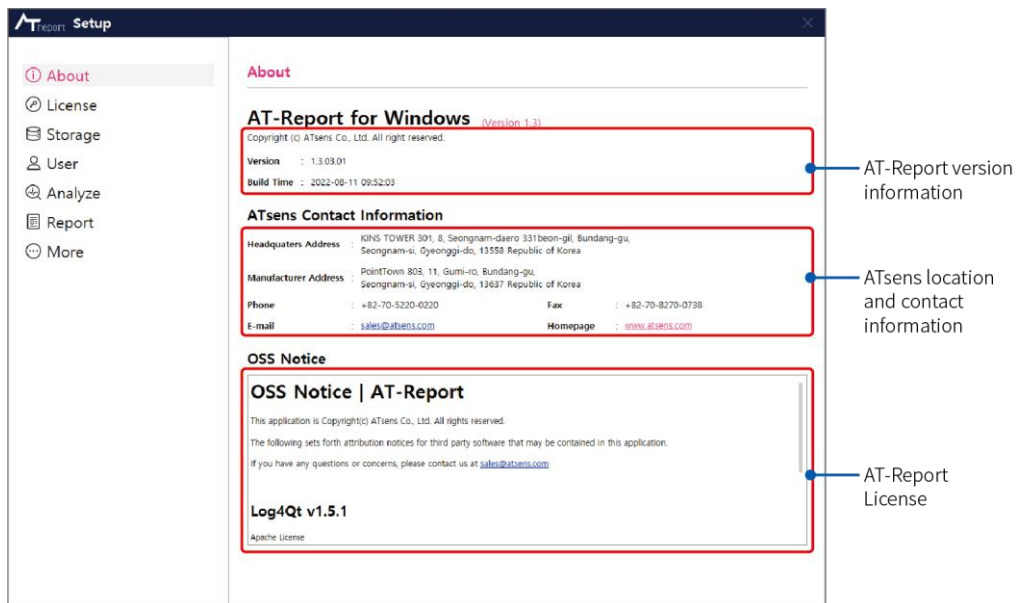


Figure 36 About Screen

3. License Screen

On the License screen, you can check the license type and S/W ID. There is a section to enter the serial number provided by ATsens (sales@atsens.com), based on the license type. For details on how to obtain a license and register the software, refer to [“How to Obtain S/W License” on page 13.](#)

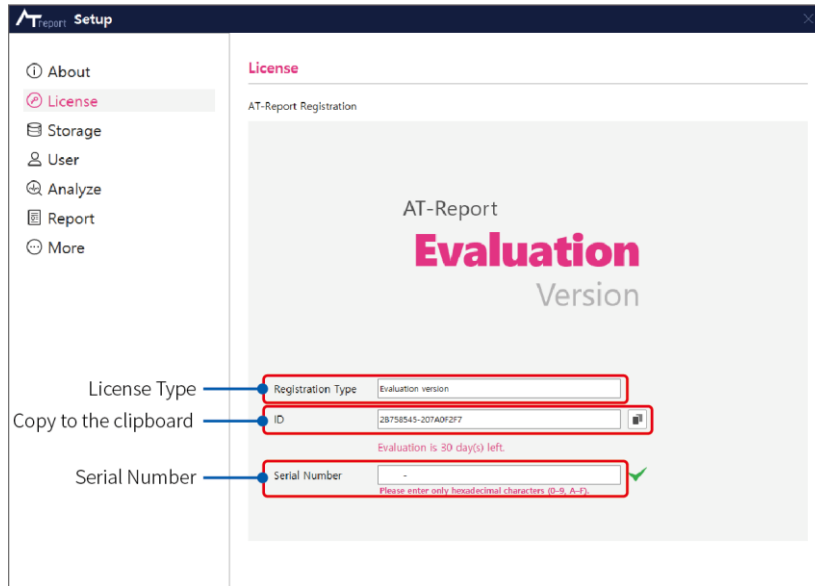


Figure 37 License Screen

When you click **Copy to the clipboard**, the window which can type the information including the ID is displayed. You can type the information including the License type and copy it to the clipboard. If you email the copy to ATsens (sales@atsens.com), you can get the corresponding Serial Number.

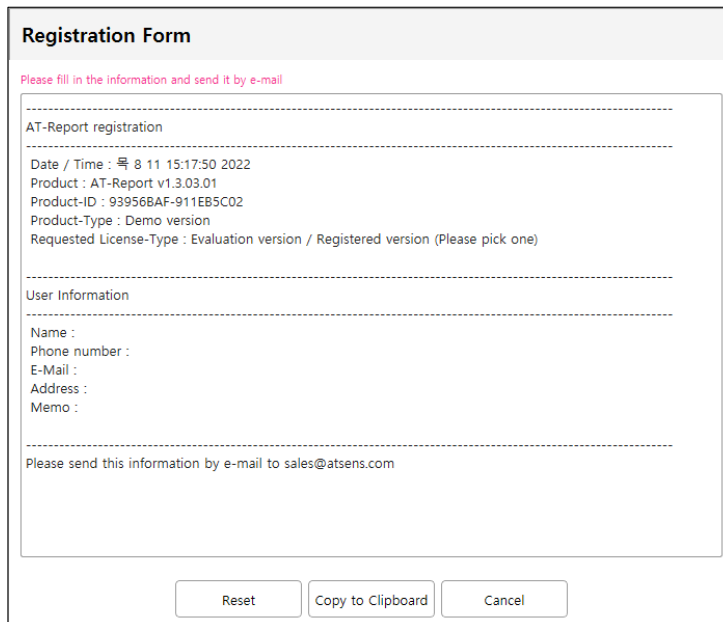


Figure 38 Registration Form

4. Storage Screen

- ▶ On the Storage screen, you can check and change the location of where the data is stored and check the folder storage capacity.

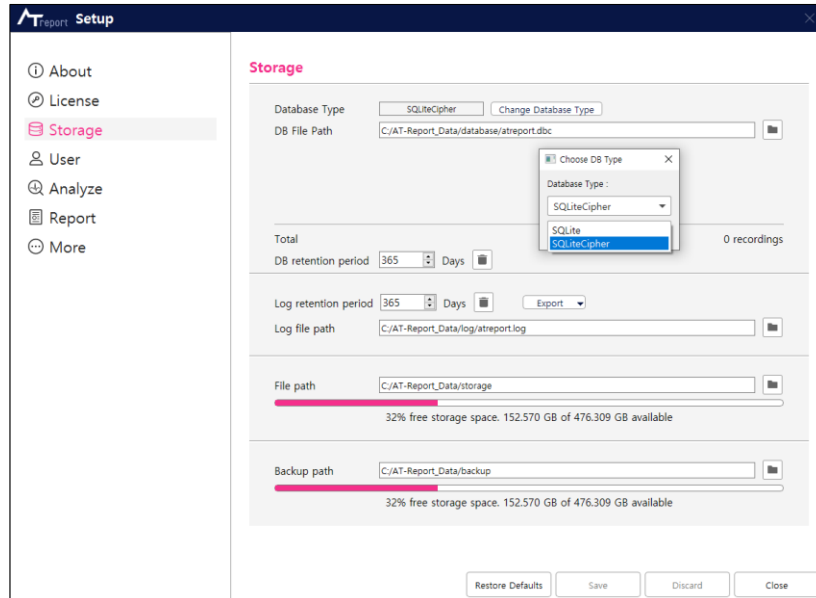


Figure 39 Storage Screen

- ▶ In the field Database Type, there is a dropdown menu where you can select options including SQLite/SQLiteCipher. In the field DB File Path, you can view the path where the database files are stored.
- ▶ In the field DB Retention Period, you can specify the retention period of the logs stored in the DB and delete the logs before the retention period.
- ▶ In the field Log Retention Period, you can specify the retention period of log files, delete log files before the retention period and see the path where the log files are stored. If any issue occurs, you can copy the issue LOG to dedicated folder by the **Export** button and send it to ATsents (sales@atsens.com), the developer of this SW.

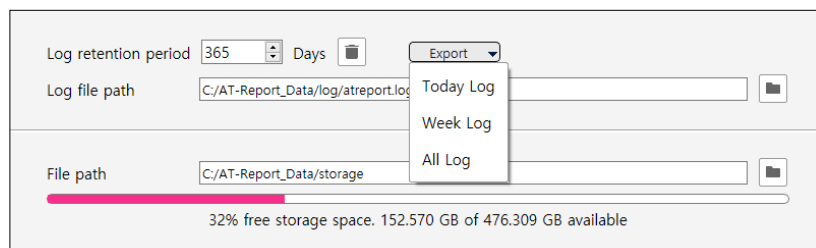


Figure 40 Log Export

- ▶ In the field File Path, you can see the location where the analysis files of imported ECG Data are stored and see the available space in the drive where the folder is located.
- ▶ In the field Backup Path, you can see the location where the backup files are stored and see the available space in the drive where the folder is located.

5. User Screen

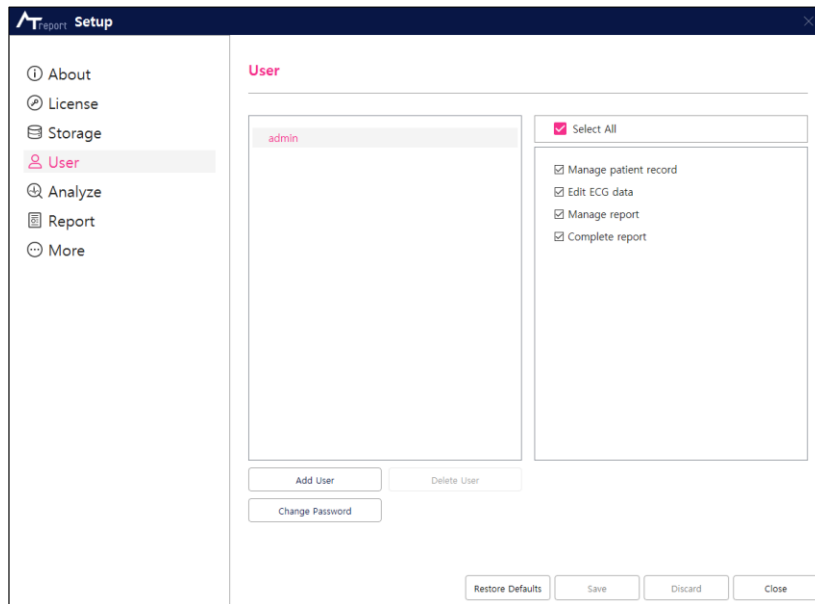


Figure 41 User Screen

► Add User

This button is for adding a user account to AT-Report. As shown in [\[Figure 42 Add New User Screen\]](#), you can add a user by setting a User Name/Password.

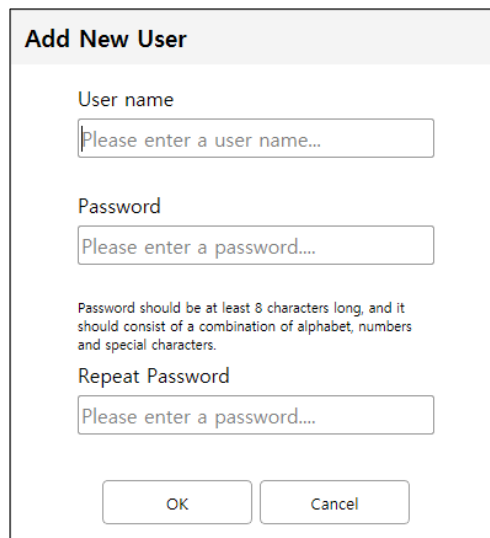


Figure 42 Add New User Screen

A new user account can only be added by an Admin account. If an added user logs in to AT-Report SW again, only the added user account is shown without the Admin account in Setup-User as in [\[Figure 43 AT-Report SW User Screen When Logging in Using the Account of an Added User\]](#). The **Add User** and **Delete User** buttons can only be used by the Admin account, and thus it is not displayed in a non-admin user account.

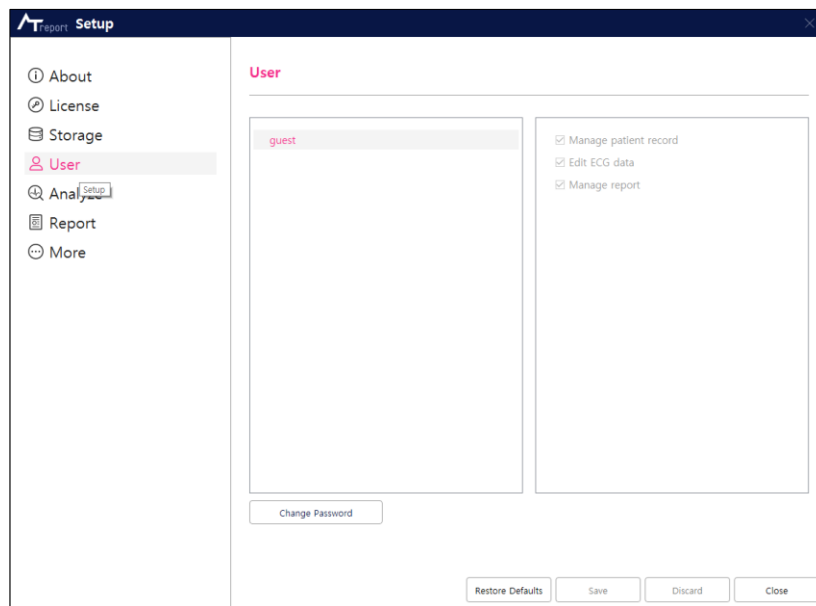


Figure 43 AT-Report SW User Screen When Logging in Using the Account of an Added User

► Delete User

This function is for deleting the selected user account in the User screen. A selected user account can only be deleted by an Admin account.

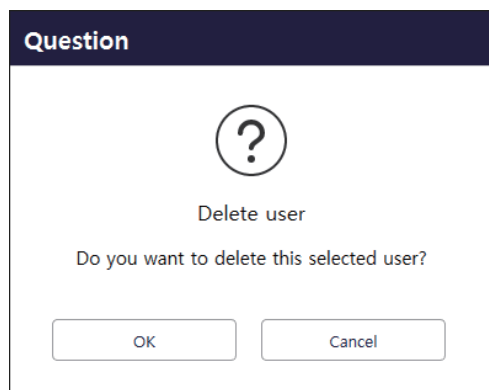


Figure 44 Delete User Screen

► Change Password

It is a function that changes the login password of the selected user account in the User screen. The user should take caution when entering a password because the changed password can't be restored due to its encryption when stored. Passwords of other accounts can be changed in the Admin account, but you can only change your own password if you're using a non-admin user account.

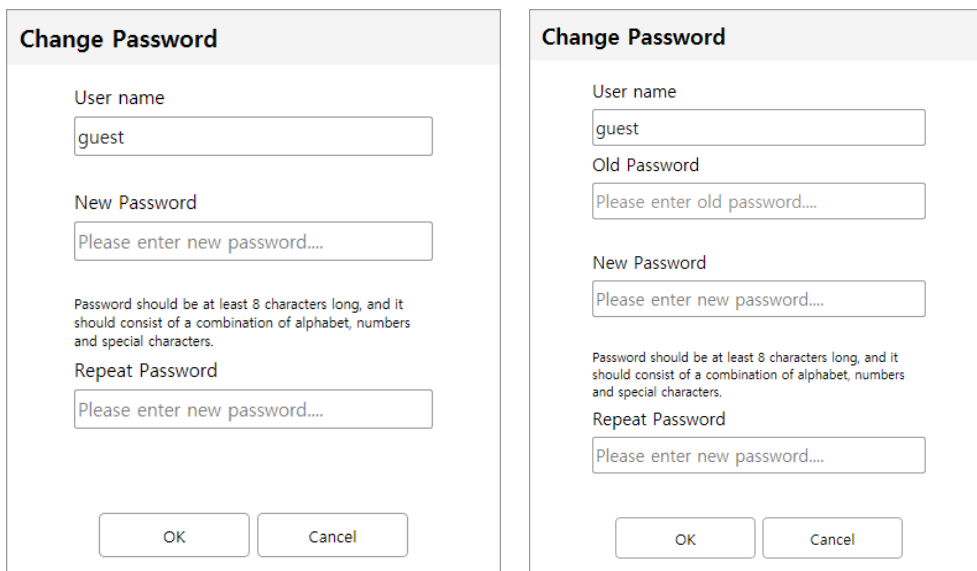


Figure 45 Change Password Screen (Admin/Other User)

► User Authority Option

- Manage patient record: If the “Manage Patient Record” option is selected when creating a user account, the created account will have the authority to create/modify the patient record.
- Edit ECG Data: When the “Edit ECG Data” option selected when creating a user account, the created account will have the authority to create/modify the ECG Data.
- Manage report: When the “Manage Report” option is selected when creating a user account, the created account will have authority over the Report tab.
- Complete report: If you select the “Complete report” option authority when creating a user account, the generated account has the right to change the “Completed” status in the Recording Tab and the Report Tab.
- All authority options can only be modified by an Admin account.

6. Analyze Screen

Parameters for each event used in the AT-Report Events tab can be set up in the Analyze Screen as shown in [\[Figure 46 Analyze Screen\]](#).

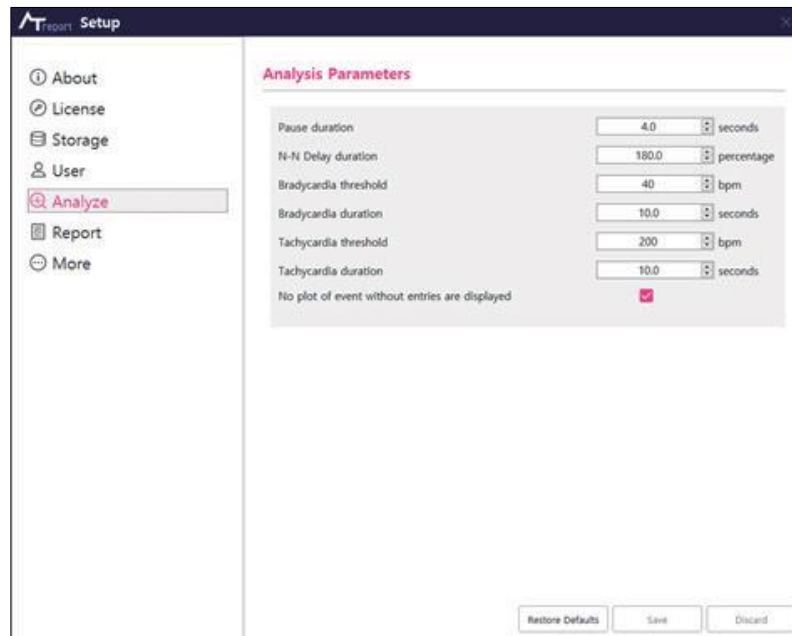


Figure 46 Analyze Screen

- ▶ Pause duration: The user setting of the “Pause duration” in the Events tab.
- ▶ N-N Delay duration: The user setting of the “N-N Delay duration” in the Events tab.
- ▶ Bradycardia threshold/Bradycardia duration: The user settings of the threshold and duration of “Bradycardia” in the Events tab.
- ▶ Tachycardia threshold/Tachycardia duration: The user settings of the threshold and duration of “Tachycardia” in the Events tab.
- ▶ No plot of event without entries are displayed: If this check box is selected, items not detected as events are not shown in the Events tab.

When the patient data is loaded, the Analyze Parameter of the patient data can also be viewed.

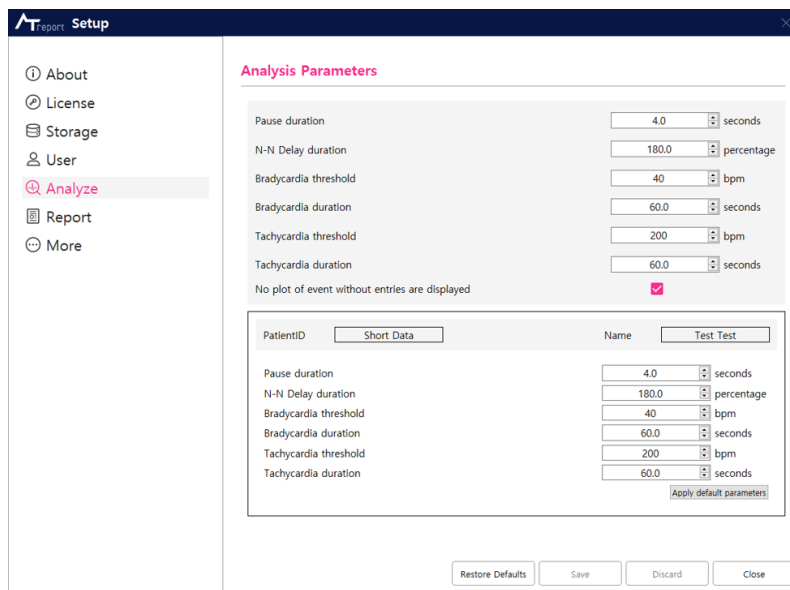


Figure 47 Analyze Parameter at the time of loading patient data

- ▶ Patient information: Displays the Patient ID and name of the currently loaded patient.
- ▶ Analyze Parameter of Patient Data: The Analyze item of patient data is displayed.
- ▶ Apply default parameter: Apply the Analyze Parameter value above to the Analyze Parameter of the patient data. The Analyze Parameter of patient data is stored together at the time of storage. Events are found under the same conditions in AT-Report, which has different Analyze item values through tasks (Recording Manage Function – [\[Figure 65 Recording Tab Screen\]](#) – ②) such as Backup/Restore.

7. Report Screen

Events ticked are automatically included in the report and events not ticked are, in principle, not included in the report. (You can change whether each event will be included in the report or not.)

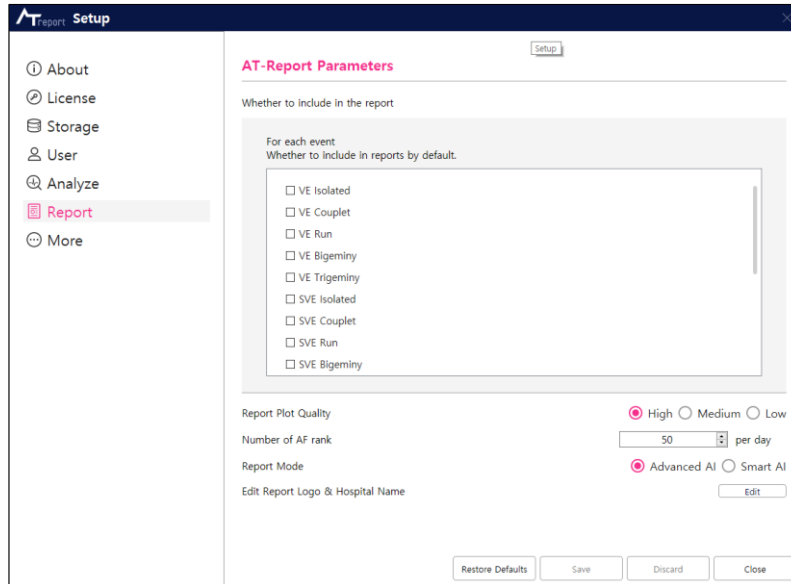


Figure 48 Report Screen

- ▶ **Report Plot Quality:** A function that selects the quality of the graph (plot) output in the Report tab of AT-Report. If you select “High,” the graph output in the Report is shown in high resolution. If “Medium,” the graph is shown in medium resolution. If “Low,” the graph is shown in low resolution.

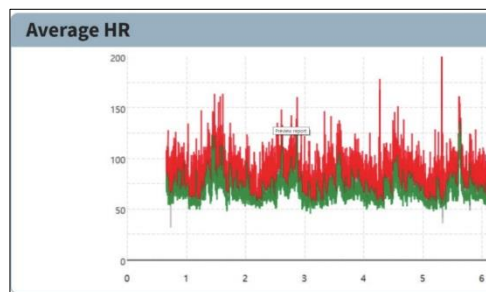


Figure 49 High Quality Plot

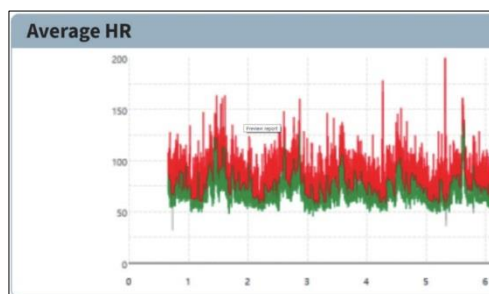


Figure 50 Low Quality Plot

- ▶ Number of AF rank: This function allows you to set the number of AF ECG stripes that are automatically detected according to AF ranking in Smart AI Mode. The initial setting value is 50 per day, and this can be changed by the user.
- ▶ Report Mode: It is a function to change the report mode. The description of Smart AI Mode is presented in [“Smart AI Mode Setup” on page 122.](#)
- ▶ Edit Report Logo & Hospital Name: It is a function that allows you to put logo images and hospital names in the report. When you click the **Edit** button, a dialog appears that can be modified, such as [\[Figure 51 Logo image and hospital name modification screen\]](#), and you can insert the logo image and hospital name into the report.

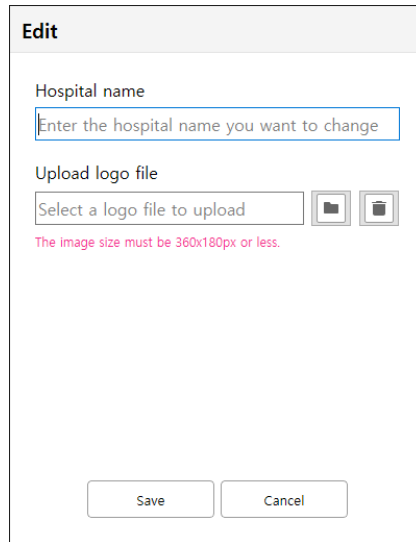


Figure 51 Logo image and hospital name modification screen

8. More Screen

In the “More” screen, you can set up non-category function used in AT-Report.

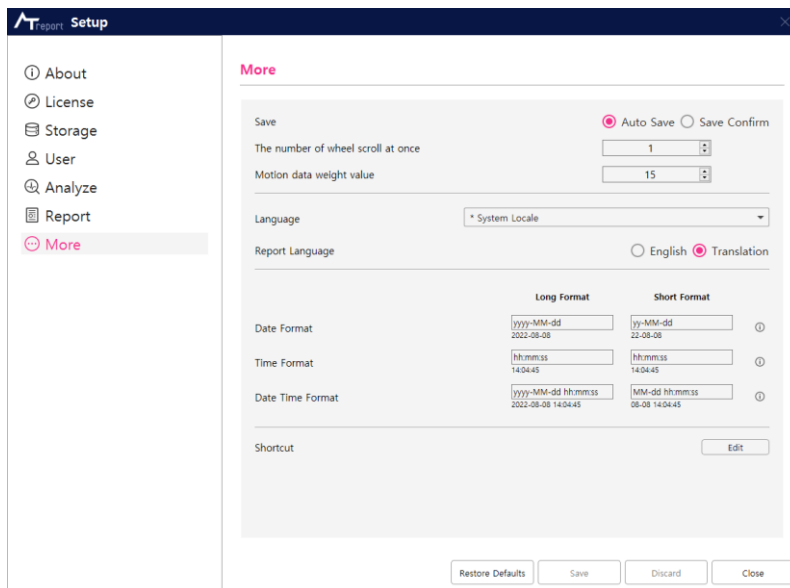


Figure 52 More Options Screen

- ▶ **Save:** The “Save” option is a function that allows you to choose how to save various changes while using AT-Report.
 - **Auto Save:** Changes that you make are automatically saved without confirming them.
 - **Save Confirm:** If data is modified by a user, a save dialog box shows. To save, click the **OK** button.

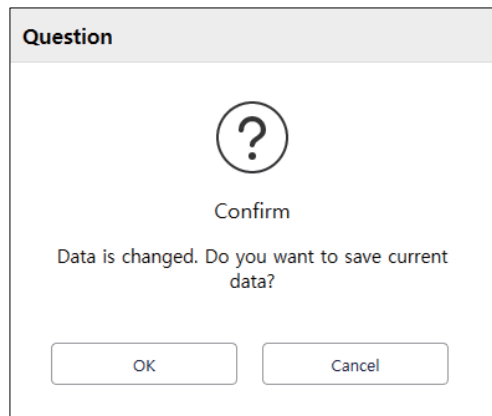


Figure 53 Dialog Box Asking Whether to Save the Changes

- ▶ **The number of wheel scrolls performed in one motion:** A function of controlling the sensitivity of the scroll using the mouse wheel in the Seconds Strip Plot.
- ▶ **Motion data weigh value:** This is a function to designate the size of the motion graph of the X, Y, and Z axes. As the value increases, the size of the motion graph increases.
- ▶ **Language:** The display language of AT-Report SW is varied. The language changed must be re-executed to the AT-Report SW. Selecting “System Locale” will change appropriately according to the current Windows’s area and language settings. In areas that don’t support it, this is indicated in English (United States).
- ▶ **Report Language:** Select to use the language of the report to the selected Language above or to always display it in English (English, United States).
- ▶ **Date Format/Time Format/Date Time Format:** You can change the format of the date/time/date and time used by AT-Report SW. The Format term used can be seen by clicking on the ⓘ icon next to each Format. According to the Format inputted, the notation of the date/time/date/date actually applied can be seen.

You can set the **Long Format** and **Short Format** respectively.

In certain dates/times, there may be cases where the format defined in Setup is not followed.

	Long Format	Short Format	
Date Format	yyyy-MM-dd 2022-08-08	yy-MM-dd 22-08-08	ⓘ
Time Format	hh:mm:ss 14:04:45	hh:mm:ss 14:04:45	ⓘ
Date Time Format	yyyy-MM-dd hh:mm:ss 2022-08-08 14:04:45	MM-dd hh:mm:ss 08-08 14:04:45	ⓘ

Figure 54 Date Time Format

- ▶ Shortcut: You can change the Hotkey used by AT-Report by pressing the **Edit** button. ([“AT-Report Hotkey” on page 139](#))

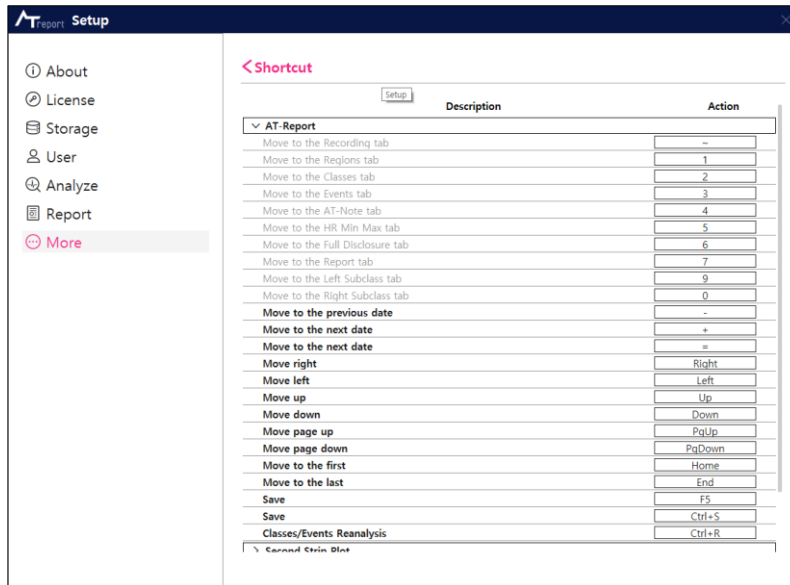


Figure 55 Shortcut Screen



- ▶ Shortcut in which the Description is grayed out is a shortcut that can't be changed.
- ▶ To change Shortcut, click the action of the corresponding Shortcut and press the Hotkey you want to change on the keyboard .
- ▶ For Hotkeys that are already being used by another Shortcut, a warning message is displayed. Shortcuts with a warning message can be changed by clicking Action again and pressing the Hotkey to change on the keyboard .



Figure 56 If you enter a Hotkey that is already in use

- ▶ Shortcut with an unaltered warning message is not changed from the previous Hotkey.
- ▶ Next to the Shortcut title, you can press the **<** button to go back, and then press the **Save** button to save the changed Shortcut.

History

1. History Screen

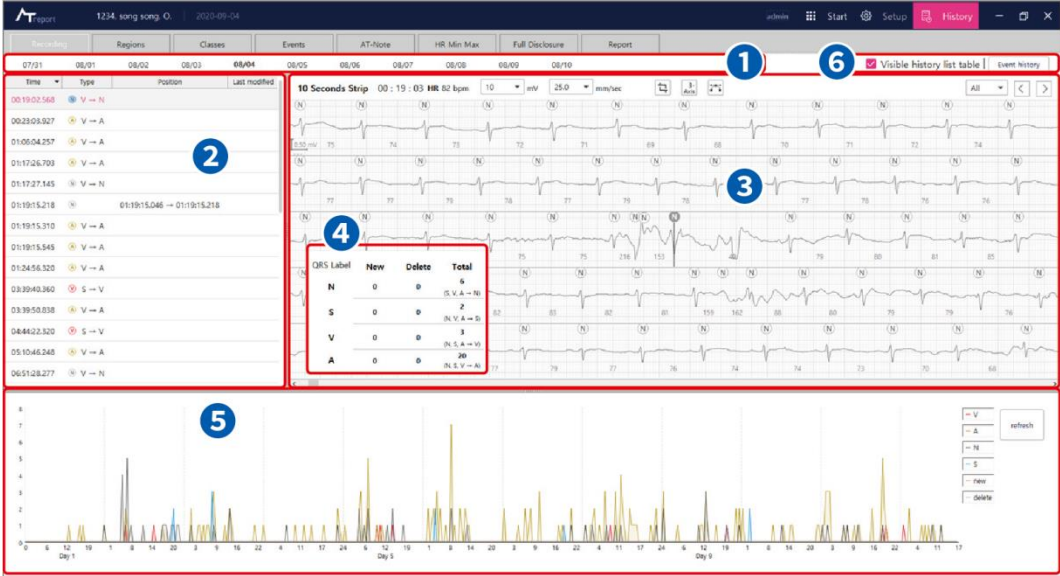


Figure 57 QRS Label History Screen

2. Date Tab – [Figure 57 QRS Label History Screen] – 1

In the History menu, the Date tab shows the date that user is currently working on in the History menu. To change the date, you can click the left mouse button (⌨) or use a hotkey on the keyboard to change the date information.

Keyboard hotkey: key - Previous day, key - Next day

05/08 05/09 05/10

The selected date will be underlined with a red line.

3. History List – [\[Figure 57 QRS Label History Screen\]](#) – ②

The history list displays a list of the QRS labels that have been modified by the user in the Data tab from the user’s current working date.

Information on the time of QRS label that the user changed

Details of changes the user changed to any QRS label

Time	Type	Position	Last modified
13:42:30.815	A → V	13:42:30.818 → 13:42:30.815	6/3/21 2:35 PM
13:42:42.591	A → V		6/3/21 2:32 PM
13:43:55.035	N → S		6/3/21 2:32 PM
13:45:06.917	N → S		6/3/21 2:32 PM
13:46:00.954	N → S		6/3/21 2:32 PM
13:46:13.515	N → S		6/3/21 2:32 PM
13:46:31.109	N → S		6/3/21 2:32 PM
13:47:02.680	N → S		6/3/21 2:32 PM
13:47:03.459	N → S		6/3/21 2:32 PM
13:47:37.022	N → S		6/3/21 2:32 PM
13:47:38.614	N → S		6/3/21 2:32 PM
13:47:39.406	N → S		6/3/21 2:32 PM
13:47:40.248		13:47:40.191 → 13:47:40.248	6/3/21 2:35 PM
13:47:40.927		13:47:40.967 → 13:47:40.927	6/3/21 2:35 PM
13:50:53.277	N → S		6/3/21 2:32 PM
13:50:55.320	A → V		6/3/21 2:32 PM
13:50:57.089	A → V		6/3/21 2:32 PM

Information on the time the user changed any QRS label

Displays the time change of QRS label that the user moved

Figure 58 History List

- ▶ Information on the time of QRS label that the user changed: An area that displays the information on the time of QRS label that the user changed.
- ▶ Details of changes by the user to any QRS label: An area that displays details of the changes, such as adding a QRS label or deletion, modification, and movement of a QRS label.
- ▶ Displays the time change of QRS label that the user moved: An area that displays the time change of QRS label that the user moved.
- ▶ Information on the time the user changed any QRS label: An area that displays the information on the time the user changed any QRS label.

4. Seconds Strip Plot – [\[Figure 57 QRS Label History Screen\]](#) – ③

Refer to the content of [“Seconds Strip Plot 2/3 – \[Figure 84 Regions Tab Screen\] – ④”](#) on page 68.

5. History List Table – [Figure 57 QRS Label History Screen] – 4

QRS Label	New	Delete	Total
N	0	0	39 (S, V, A → N)
S	0	0	314 (N, V, A → S)
V	0	0	110 (N, S, A → V)
A	0	0	0 (N, S, V → A)

Figure 59 History List Table

- ▶ QRS Label: Displays four types of QRS labels: N, S, V, A.
- ▶ New: Displays the number of QRS labels newly created on the day that the user specified in the Date tab.
- ▶ Delete: Displays the number of QRS labels deleted on the day that the user specified in the Date tab.
- ▶ Total: Displays the total number of QRS labels changed on the day that the user specified in the Date tab.

6. History Graph Plot – [Figure 57 QRS Label History Screen] – 5

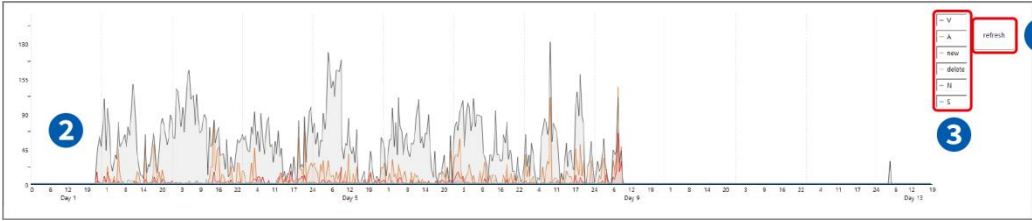


Figure 60 History Graph Plot

- ① Refresh: A button to refresh the details of the History Graph Plot.
- ② History Graph: The history graph shows the details of changes to QRS labels made by the user sorted by date.
- ③ Select History: An option button to select the history details from current History Graph Plot. If you select each item using a mouse, the change history graph of QRS labels for the item will be displayed. If you click one more time, the selection is canceled, and the graph is no longer displayed. The selection can be toggled On/Off by using the left mouse button (Ⓛ).

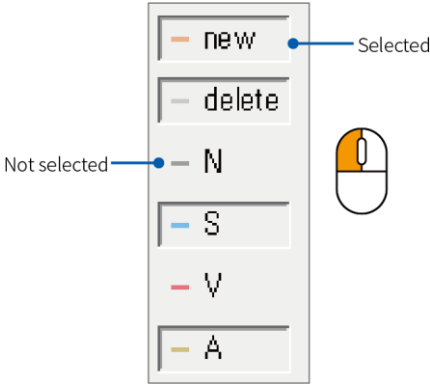


Figure 61 Select History

7. Other – [Figure 57 QRS Label History Screen] – 5



Figure 62 [Figure 57 QRS Label History Screen] – 6

- ① Visible history list table: You can show or hide [History List Table – [Figure 57 QRS Label History Screen] – 4].
- ② Event history button: Switch to the Event History screen.

8. Event History screen

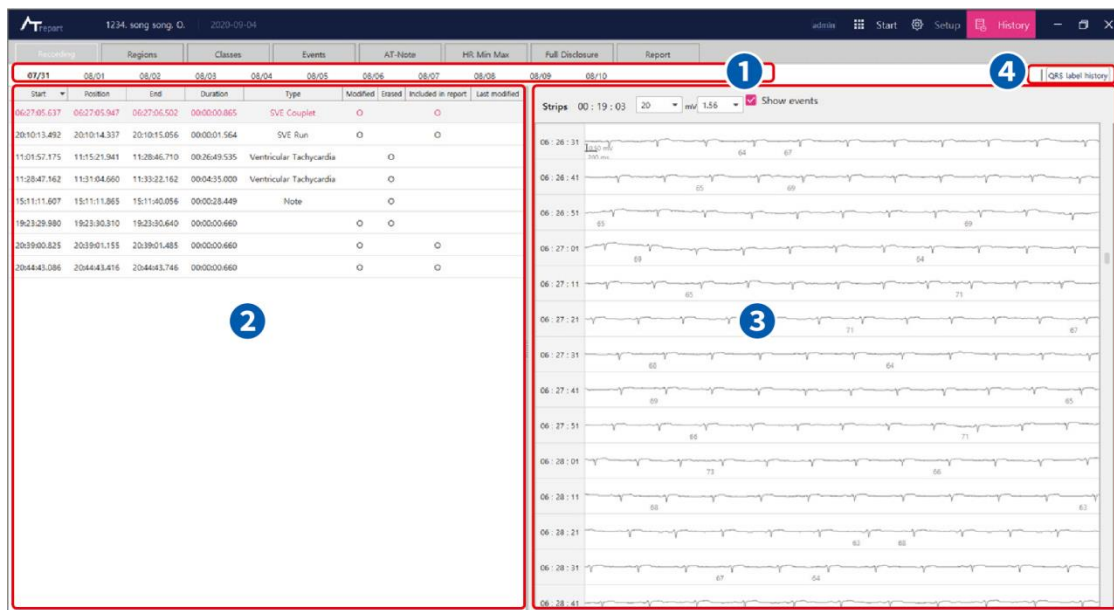


Figure 63 Event History

9. Date Tab – [Figure 63 Event History] – 1

In History Menu, Date Tab represents the date on which the History Menu is currently working. To change the date, you can click the left mouse button (🖱️) or use the keyboard Hotkey.



The selected date has a red line below the date as shown in the figure above.

10. Event History List – [Figure 63 Event History] – 2

The Event History List displays a list of events added or modified by the user in the Date Tab of the date you are currently working on.

Start	Position	End	Duration	Type	Modified	Erased	Included in report	Last modified
10:38:37.842	10:38:38.017	10:38:38.191	00:00:00.350	SVE Couplet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	03-04 08:57:32
09:41:58.719	09:41:58.719	09:41:58.719	00:00:00.000	SVE Isolated	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	03-04 08:57:40
09:37:05.795	09:37:06.294	09:37:06.795	00:00:01.000	Note	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	03-08 08:22:29

Figure 64 Event History List

- ▶ Location of Event: This part indicates the start/position/end and duration of the event changed by the user.
- ▶ Types of Events: This part represents the type of event that the user changed
- ▶ Properties of an Event: This part represents the changed attribute of the event changed by the user.
- ▶ About the time the Event was changed: This part indicates when the user changed the event and the time when the user changed it.

11. Full Disclosure Plot – [Figure 63 Event History] – 3

Refer to [“Full Disclosure Tab Screen” on page 103](#).

12. Etc. – [Figure 63 Event History] – 4

QRS label history button: Switch to the QRS label history screen.

AT-Report TAB

Recording Tab

1. Recording Tab Screen

When the import of AT-patch data or AT-Note data is completed in **Start** → **Patient List**, patient information, and data information is displayed in the Recording List in the Recording tab screen as shown in [\[Figure 65 Recording Tab Screen\]](#).

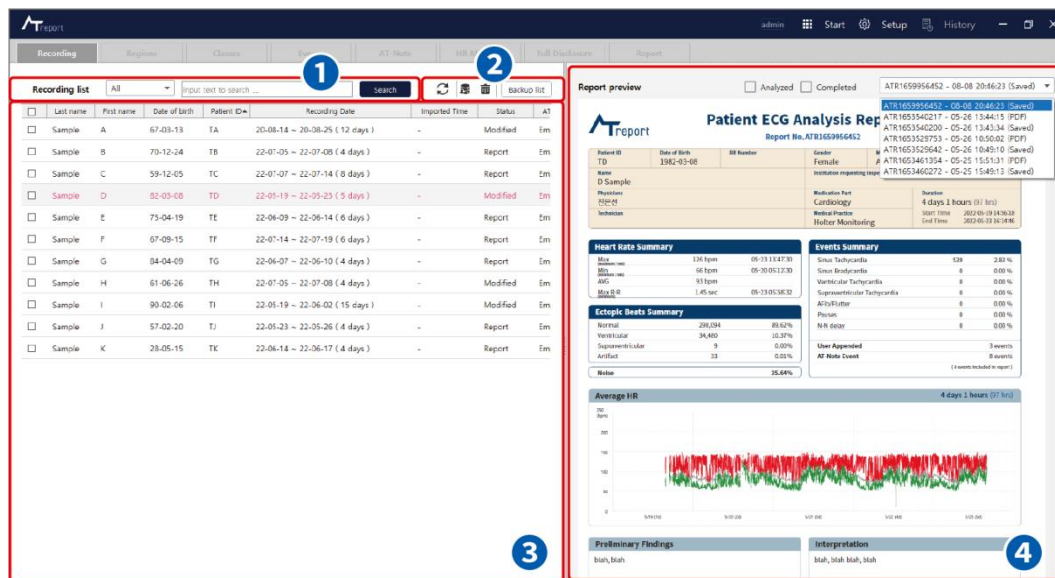


Figure 65 Recording Tab Screen

2. Load patient data

Double-clicking on the patient information that is Imported in Recording Tab's Recording list shows the data analyzed through the program activated like [\[Figure 65 Recording Tab Screen\]](#).

3. List Search – [\[Figure 65 Recording Tab Screen\]](#) – ①

List Search is a function that enables you to search data for the desired item and select it in the Recording List. If you enter the item to search in the field "Input text to search" and press the Search button, the details entered are searched and displayed in the Recording List. Items that can be searched are divided into "All/Patient ID/Name/Physicians" as shown in [\[Figure 66 List Search\]](#).

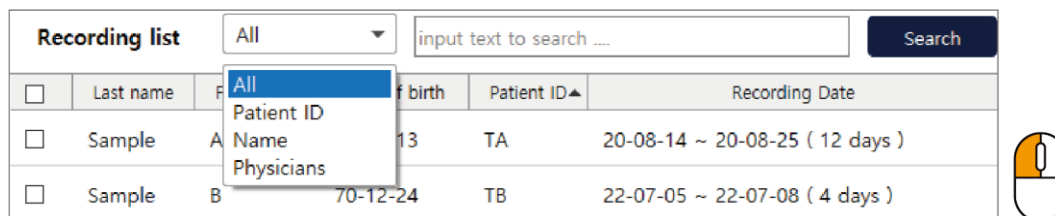



Figure 66 List Search

4. Recording Manage Function – [\[Figure 65 Recording Tab Screen\]](#) – ②

Recording Manage is a function used to Backup or delete the content in the Recording List.



Figure 67 Recording Manage Function

- ① Refresh Recording List: It is a function to refresh the recording list.
- ② Backup Record: A function that backs up patient data in the Recording List. Select the check box () of the patient data to Backup in the Recording List. When the check box is changed to , press the **Backup Record** button () to Backup the selected patient record. If the Backup is executed without marking the patient data check box (), a warning window as shown in [\[Figure 68 Warning Window Displayed If Backup Is Executed without Selecting Patient Data\]](#) will appear.

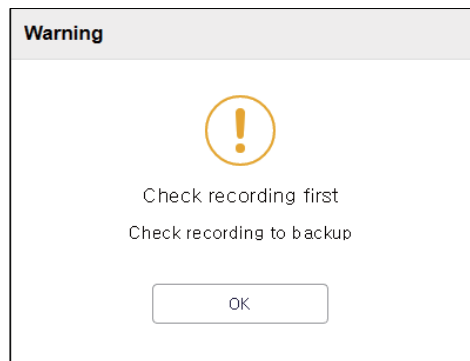



Figure 68 Warning Window Displayed If Backup Is Executed without Selecting Patient Data

If you select the patient data and click the **Backup Record** button () , [\[Figure 69 Window Displayed If Backup Is Executed after Selecting Patient Data\]](#) will appear. If you select **OK** in the window, the backup will be executed.

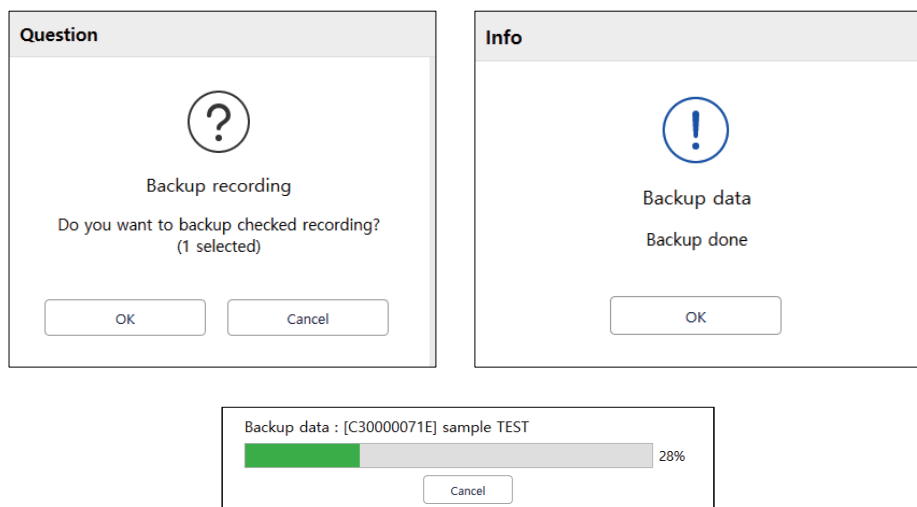


Figure 69 Window Displayed If Backup Is Executed after Selecting Patient Data

- ③ **Delete Record:** A function that deletes patient data in the Recording List. Select the check box (☐) of the patient data to delete in the Recording List. When the check box is changed to ☑, press the **Delete Recording** button (🗑️) to delete the selected patient data.

⚠️ The deleted patient data can't be reversed

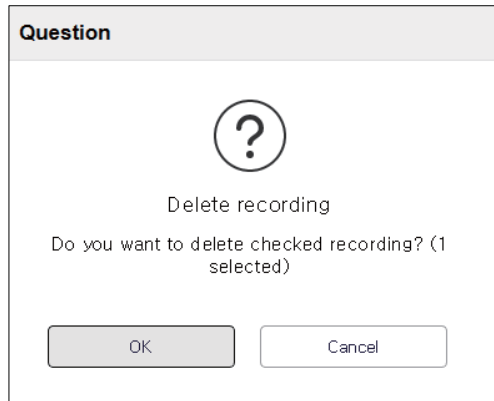


Figure 70 Delete Recording Dialog Box



- ④ **Go to Backup List:** A function that manages the patient data backed up in the Recording List.

Backup list		All	input text to search ...			Search
☐	▼	Last name	First name	Date of birth	Patient ID	Recording Date
☐		Sample	A	67-03-13	TA	20-08-14 ~ 20-08-25 (12 days)
☐		Sample	B	70-12-24	TB	22-07-05 ~ 22-07-08 (4 days)

Figure 71 Backup List



Figure 72 Backup List Function

- ⑤ **Restore Backup:** A function that restores the list in the Backup List to the Recording List. Left-click  the **Restore Backup** button () , and then press the **OK** button in the dialog box displayed as shown in [\[Figure 73 Restore Backup\]](#) to run the Execution window and complete the restoration.

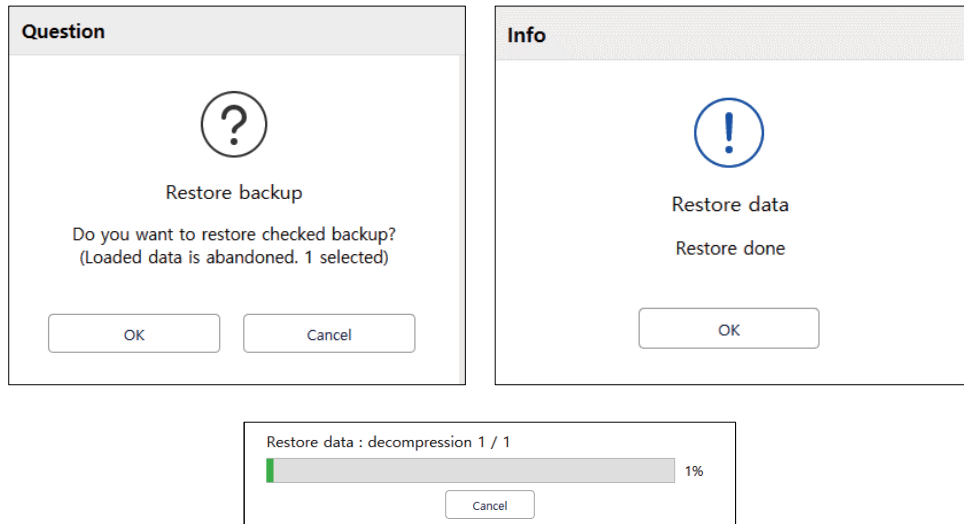



Figure 73 Restore Backup

- ⑥ **Delete Backup:** A function that deletes patient data in the Backup List. If you select the check box () in the Backup List, the check box is changed to . Then if you press **Delete Backup** () , a dialog box will appear. If you select **OK** in the dialog box, deletion is completed.

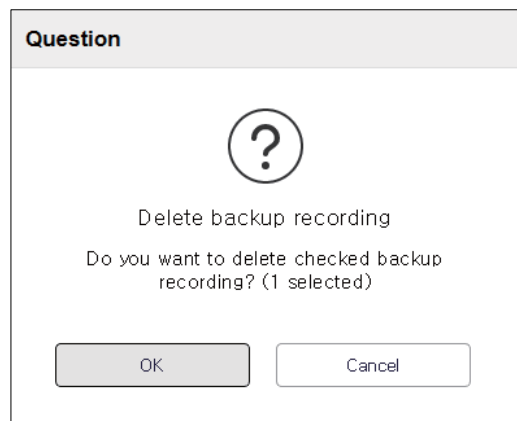


Figure 74 Delete Backup

- ⑦ **Import Backup:** A function that imports backed up AT-Report data from an external storage device to the Backup List. If you click the **Import Backup** button (↓), a dialog box as shown in [\[Figure 75 Import Backup\]](#) appears, and you can search the desired folder to import backed up ATreport data.

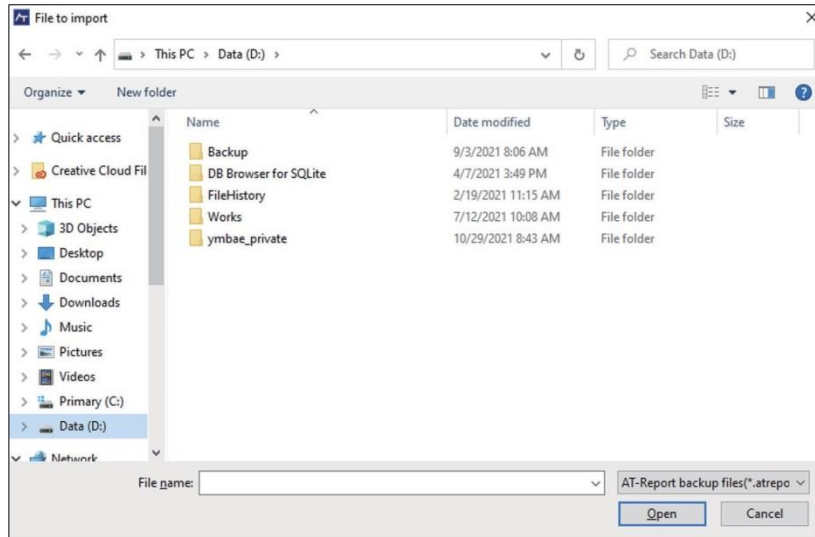


Figure 75 Import Backup

- ⑧ **Export Backup:** A function that exports backed up patient data from the Backup List to an external storage device. You can select the data to move from the Backup List and press the **Export Backup** button (↑) to export to an external storage device.

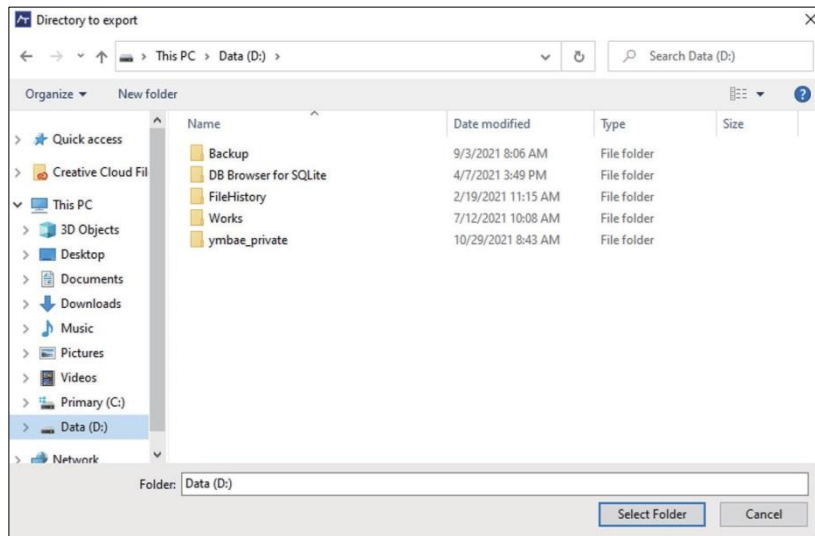


Figure 76 Export Backup

- ⑨ **Go to Recording List:** You can use the **Recording List** button to move from the current Backup List screen to the Recording List screen.

5. Recording List – [Figure 65 Recording Tab Screen] – ③

If you select an item in the Recording List, the selected item is changed to red as shown in [Figure 77 Recording List].

<input type="checkbox"/>	Last name	First name	Date of birth	Patient ID#	Recording Date	Imported Time	Status	ATNote	Modified Time	Restored Time	Assigned	Analyzed	Completed
<input type="checkbox"/>	Sample	A	67-03-13	TA	20-08-14 ~ 20-08-25 (12 days)	-	Modified	Empty	08-08 18:34:46	08-08 18:14:36		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Sample	B	70-12-24	TB	22-07-05 ~ 22-07-08 (4 days)	-	Report	Empty	08-08 18:34:58	08-08 18:15:39		<input type="checkbox"/>	<input type="checkbox"/>

Figure 77 Recording List

- ① Patient Information: The data prepared based on the patient information entered in **Start** → **New Patient Data**. Patient ID/First Name/Last Name/Date of birth information is displayed in the Recording List.
- ② Recording Date: Date information for the period that ECG data was recorded after AT-patch attachment.
- ③ Data Imported: Information about the date and time ECG data was imported from AT-patch to ATReport.
- ④ Status: Displays the status of imported patient data. Imported patient data can be marked as three statuses: “Downloaded,” “Modified,” and “Report,” “Downloaded” is the status of initially imported data and the status in which the user has not yet modified the data. “Modified” refers to the state of data that users have modified and saved at least once, as shown in [Figure 77 Recording List]. “Report” is the state of the data that appears when the user prints/PDF/save. After the report is created, the data is modified and saved to enter the Modified state again.
- ⑤ AT-Note: If downloading of “AT-Note Data” is complete in **Start** → **Patient Data**, it is marked as “Downloaded.” If “AT-Note Data” has not been downloaded, it is marked as “Empty.”
- ⑥ Modified Time: The last time it was modified (Saved) is the date information.
- ⑦ Restored Time: If the backed-up data is restored, the restored time information is displayed.
- ⑧ Assigned: If there is an assigned person in charge, the user name (ID at login) of the person in charge is displayed.
- ⑨ Analyzed: For patients who have completed the analysis and are ready to review the report, the status is displayed as .
To change the status, see [Analyzed/Completed – [Figure 65 Recording Tab Screen] – ④].
- ⑩ Completed: For patients who have completed the review of the report, the status is displayed as .
To change the status, see [Analyzed/Completed – [Figure 65 Recording Tab Screen] – ④].

⑪ Recording List Function

- **Resize column width to content:** This is a function that sorts the content in the initial Recording List to fit the width of each column. Place the mouse cursor over the header of the Recording List, right-click (🖱️) the mouse and then a pop-up menu will appear as shown in [Figure 78 Before Resize Column Width to Contents Action]. Select the pop-up menu to display the Recording List which will have been automatically content fitted to the width of each column.

<input type="checkbox"/>	Last name	First name	Date of birth	Patient ID	Recording Date	Imported Time	Status	ATNote	Modified Time	Restored Time	Assigned	Analyzed	Completed
<input type="checkbox"/>	Sam...	A	67-03-13	TA	20-08-14 ~ 20-08-...					08 ...		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Sam...	B	70-12-24	TB	22-07-05 ~ 22-07-0...		Report	Empty	08-08 ...	08 ...		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Sam...	C	59-12-05	TC	22-07-07 ~ 22-07-1...		Report	Empty	08-08 ...	08-08 ...		<input type="checkbox"/>	<input type="checkbox"/>

Figure 78 Before Resize Column Width to Contents Action

<input type="checkbox"/>	Last name	First name	Date of birth	Patient ID	Recording Date	Imported Time	Status	ATNote	Modified Time	Restored Time	Assigned	Analyzed	Completed
<input type="checkbox"/>	Sample	A	67-03-13	TA	20-08-14 ~ 20-08-25 (12 days)		Modified	Empty	08-08 18:34:46	08-08 18:14:36		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Sample	B	70-12-24	TB	22-07-05 ~ 22-07-08 (4 days)		Report	Empty	08-08 18:34:58	08-08 18:15:39		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Sample	C	59-12-05	TC	22-07-07 ~ 22-07-14 (8 days)		Report	Empty	08-08 18:35:13	08-08 18:15:48		<input type="checkbox"/>	<input type="checkbox"/>

Figure 79 After Resize Column Width to Contents Action

- **Order and sort of column:** You can change the order of the header to the mouse drag & drop. Each time you press Header, it is sorted to the ascending/descending for the header you clicked.
- **Edit patient data & Reanalyze & Copy ECG data:** This is a function that modifies patient information and patient data. If the user places the mouse cursor over the Recording List and right-clicks (🖱️) the mouse, a pop-up box with several functions will appear as shown in [Figure 80 Recording List Right-click Pop-up].

<input type="checkbox"/>	Last name	First name	Date of birth	Patient ID	Recording Date	Imported Time	Status	ATNote	Modified Time	Restored Time	Assigned	Analyzed	Completed
<input type="checkbox"/>	Sample	A	67-03-13	TA	20-08-14 ~ 20-08-25 (12 days)		Modified	Empty	08-08 18:34:46	08-08 18:14:36		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Sample	B	70-12-24	TB	22-07-05 ~ 22-07-08 (4 days)		Report	Empty	08-08 18:34:58	08-08 18:15:39		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Sample	C	59-12-05	TC	22-07-07 ~ 22-07-14 (8 days)		Report	Empty	08-08 18:35:13	08-08 18:15:48		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Sample	D	82-03-08	TD	22-05-19 ~ 22-05-...			Empty	08-08 20:46:37	08-08 18:14:59		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Sample	E	75-04-19	TE	22-06-09 ~ 22-06-...			Empty	08-08 18:35:43	08-08 18:13:43		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Sample	F	67-09-15	TF	22-07-14 ~ 22-07-19 (6 days)		Report	Empty	08-08 18:35:53	08-08 18:14:49		<input type="checkbox"/>	<input type="checkbox"/>

Figure 80 Recording List Right-click Pop-up

- Edit patient data: A function used to modify patient data in the Recording List. If you select Edit Patient Data using a mouse, the Edit Patient Data screen is displayed allowing the user to modify/change information.

Figure 81 Edit Patient Data

- Assign patient to me: It is a function that assigns a user currently logged in to a patient’s data as a person in charge. Whenever a user other than the assigned person tries to retrieve or modify patient data, a warning message is displayed and can’t be modified. Patient data assigned to the user currently logged in to the patient is displayed in blue color in the Recording list.

<input type="checkbox"/>	Sample	C	59-12-05	TC	22-07-07 ~ 22-07-14 (8 days)	-	Report	Empty	08-08 18:35:13	08-08 18:15:48	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	Sample	D	82-03-08	TD	22-05-19 ~ 22-05-23 (5 days)	-	Modified	Empty	08-08 20:46:37	08-08 18:14:59	admin	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Sample	E	75-04-19	TE	22-06-09 ~ 22-06-14 (6 days)	-	Report	Empty	08-08 18:35:43	08-08 18:13:43		<input type="checkbox"/>	<input type="checkbox"/>

Figure 82 Patient data assigned to the currently logged in user

- For patients currently assigned to the logged-in user, the “Cancel an assignment” function is displayed instead of “Assign patient to me”, and the assignment is canceled when selected. Patients whose staff assignment is canceled can be reassigned by another user. For patients assigned to other users, this feature is not displayed.
- Reanalyze: A function that restores data to the initially imported data state before the user modified the data in the Recording List. If you select Reanalyze, a dialog box asking whether to proceed will appear. If you select the **OK** button, the Reanalyze function will be executed.



All QRS Labels that have been changed and events that have been added or modified will be initialized.

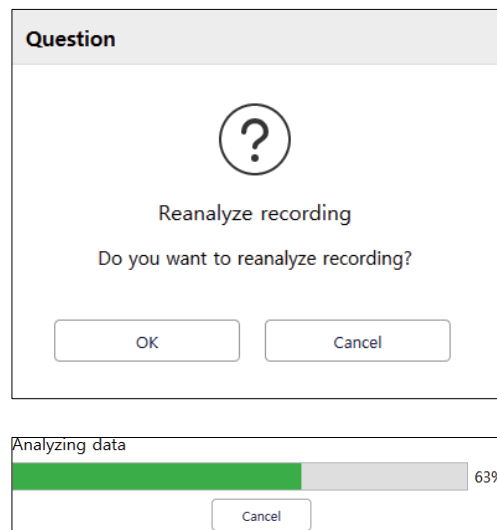


Figure 83 Reanalyze Function

- Copy ECG data: To copy ECG Data (raw data) of the selected Patient to the selected folder by the user. You can import the ECG Data (raw data) File. Refer to ③ of [“Edit Patient Data/Import” on page 24](#).
- List Number Information: At the bottom of [\[Figure 65 Recording Tab Screen\]](#) – ③, the total number of patient data currently shown in the Recording List is displayed.

3 recording(s) in folder

6. Report Preview – [Figure 65 Recording Tab Screen] – 4

Report Preview is a function that shows the stored report as a preview if modification/analysis of patient data is selected from the Recording List and “Export to PDF/Print/Save” is finished in the Report tab.

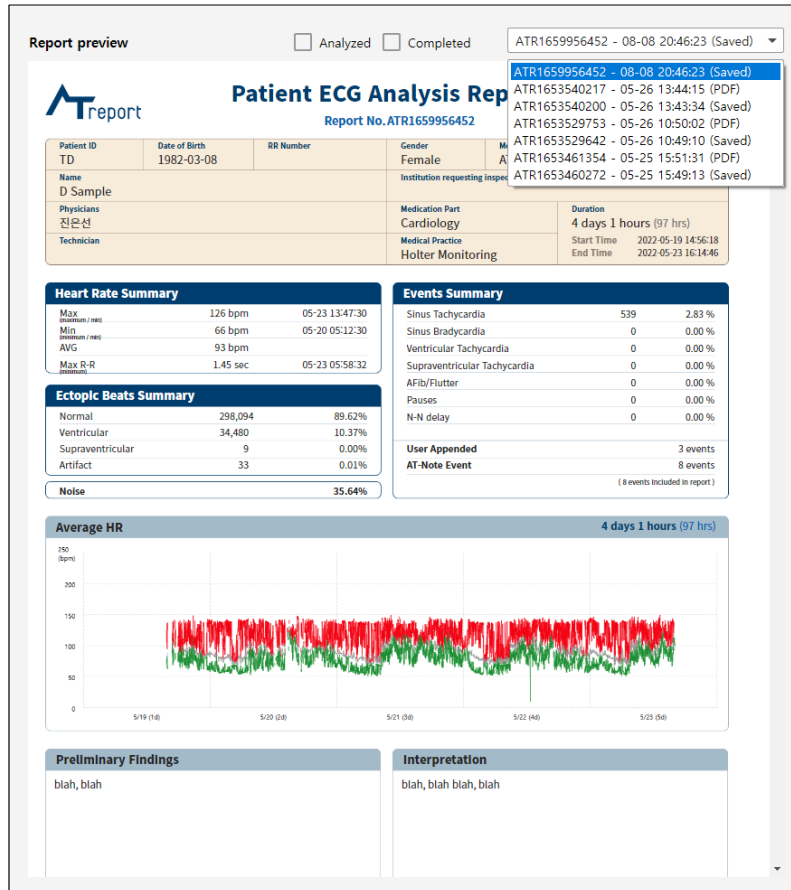


Figure 84 Report Preview

7. Analyzed/Completed – [Figure 65 Recording Tab Screen] – 4

- ▶ **Analyzed:** If you have finished analyzing all currently selected patients and are ready to review the report, you can change the status by marking the check box. The “Analyzed” status can be changed by a user with [Edit ECG Data](#) privileges.
- ▶ **Completed:** If the report has been reviewed for the currently selected patient, you can change the status by marking the check box. The “Completed” status can be changed by a user with [Complete report](#) privileges.

8. Error Message in the Recording Tab According to User Actions

Error Message	Details
Loading error Can't load ECG file	If an imported ECG file of a patient can't be loaded for some unknown reason
Saving error Can't save ECG Data\	If a changed QRS label, class, event information, etc. can't be saved for some unknown reason or imported ECG data of a patient can't be loaded for some unknown reason
Loading error Can't load ECG Data	If the imported ECG data of a patient can't be loaded for unknown reason
Data is empty Data is not Imported, empty. first Import Data or select other work from List.	If the user tried to load ECG data that has not been imported
Remake analysis error Can't load & remake analysis from ECG file	If the imported ECG data of a patient can't be loaded for some unknown reason while reanalyzing
Can't reanalyze ECG Data	If there is already a work in progress
Select patient first	If a wrong Recording List was selected
Can't load ECG Data Can't load Imported ECG Data.	If the imported ECG data of a patient can't be loaded for some unknown reason
Backup error Can't Backup Data	If the imported data of a patient can't be backed up for some unknown reason
Check recording first Check recording to Backup	If nothing was checked in the Recording List when clicking the Backup icon
Check recording first Check recording to delete	If nothing was checked in the Recording List when clicking the delete icon
Can't Export Backup	If the backup data can't be imported for some unknown reason
Select recording first Select recording to Export	If nothing was checked in the Backup List when clicking the import restored data icon
Restore error Can't restore Data	If the backup data can't be restored for some unknown reason
Check recording first Check recording to restore	If nothing was checked in the Backup List when clicking the restore icon
Check Backup recording first Check Backup recording to delete	If nothing was checked in the Backup List when clicking the delete Backup icon

Table 9 Error Message in the Recording Tab According to User Actions

Regions Tab

1. Regions Tab Screen

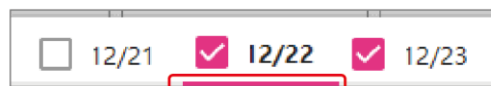
When there is no patient data, the initial Regions tab is inactivated. If the user double-clicks the patient information imported from the Recording List in the Recording tab, the data analyzed via the program is activated and displayed as shown in [\[Figure 85 Regions Tab Screen\]](#).



Figure 85 Regions Tab Screen

2. Date Tab – [\[Figure 85 Regions Tab Screen\]](#) – ①

In the Regions tab, the Date tab shows the date that the user is currently working on in the Regions tab. To change the date, you can click the left mouse button (L) or use a hotkey on the keyboard to change the date information.



The selected date will be underlined with a red line.

If you have a date you want to exclude from the analysis, you can unmark the check box before the date to . The state of the check box is stored in data save, and only the analysis information corresponding to the selected date is displayed in the report, and you can include the ECG strip in the final report through "Included in report" for dates not selected.

3. Average HR Plot – [\[Figure 85 Regions Tab Screen\]](#) – ②

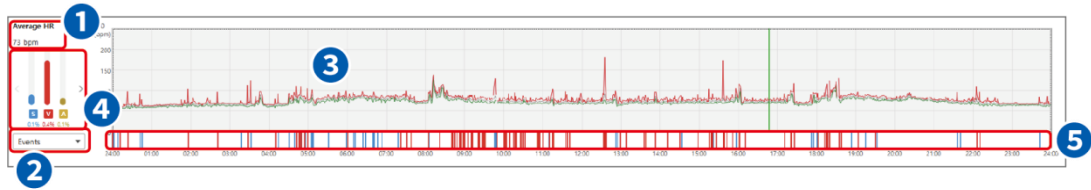


Figure 86 Average HR Plot

- ① Average HR: The Average HR (Heart Rate: HR for one minute) in the area where the indicator line is located on the Average HR Plot.
- ② Select QRS Label: A drop-down menu to select the type of QRS label displayed in the QRS label bar of the Average HR Plot. If you click the Down arrow (▼) of the “Select QRS Label” dropdown menu and specifies the desired QRS label, only the events of the specified QRS label are displayed.

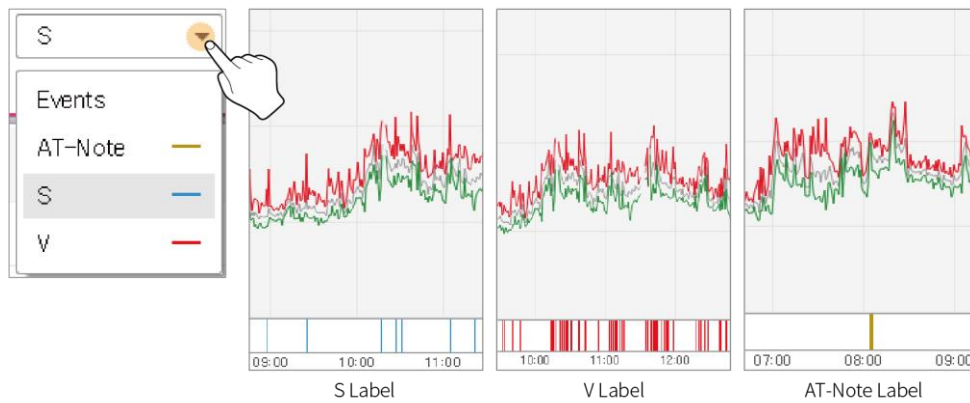


Figure 87 Select QRS Label

- ③ HR Plot: The HR Plot shows the HR (Heart Rate) graph for the entire date selected in the Regions Tab. You can obtain information about Maximum HR Plot/Average HR Plot/Minimum HR Plot, and also about Noise Events on the HR Plot. For other functions of HR Plot, refer to [“Average HR Plot of Regions Tab” on page 134.](#)

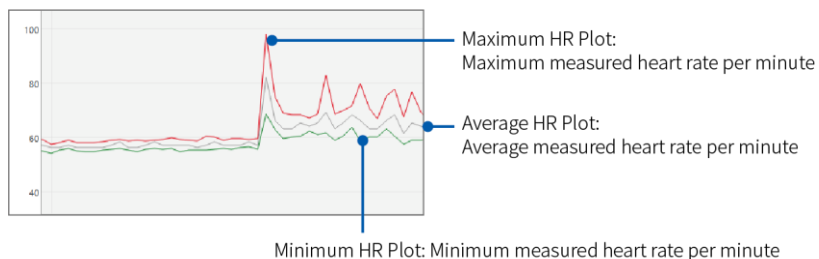


Figure 88 HR Plot in the Regions Tab

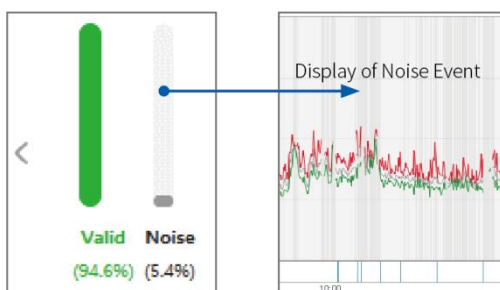


Figure 89 How Noise Events in the HR Plot Are Displayed in the Regions Tab

- ④ QRS Label Rate: the distribution rate of the QRS label on a specified date in the Regions tab, including the rate of S (Supraventricular)/V (Ventricular)/A (Artifact). If you use the left mouse button (🖱️) and clicks > or <, the rate of the Valid area and Noise area can be checked. The rate of each QRS label is calculated by using the following equation:

QRS Label Rate = Number of each QRS label (S/V/A)/Number of total QRS labels

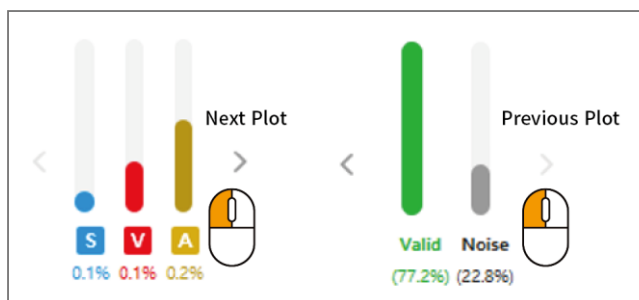


Figure 90 QRS Label Rate

- ⑤ QRS Label Bar: The location of each event by time zone can be found in the QRS Label Bar.

4. Strips Plot – [\[Figure 85 Regions Tab Screen\]](#) – ③

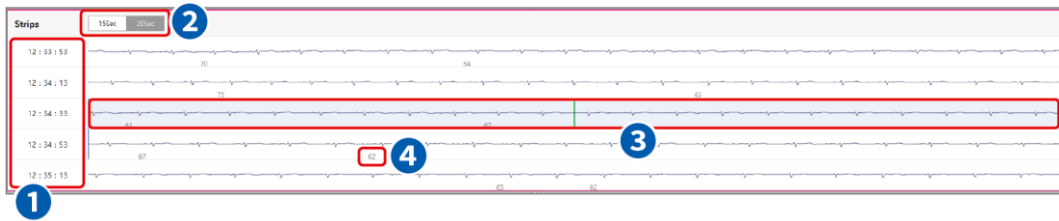


Figure 91 Strips Plot

- ① Time Range: Displays the initial start time of ECG displayed on the Strips plot.
- ② Time Selection Button: A button to select the time range of the ECG displayed on the Strips plot. If 15 sec is selected, the ECG displayed on the Strips plot is in 15 sec range. If 20 sec is selected, the ECG displayed on the Strips plot is in the 20 sec range.
- ③ Time Range Box: The time range box displayed on the Strips plot is linked to the value of the time range selection on the Seconds Strip plot. In other words, if the time range selection value in the Seconds Strip plot is 12.5mm/sec, 20 sec is displayed in the time range box. If the value is 25.0mm/sec, a 10 sec range is displayed in the box. If the value is 50.0mm/sec, a 5 sec range is displayed in the box.



Figure 92 Time Range Box

- ④ HR Number: The number displayed on the Strips plot means the HR. HR/max min HR is the HR value that can be displayed, and you can select the desired value.

5. Seconds Strip Plot 1/3 – [\[Figure 85 Regions Tab Screen\]](#) – 4

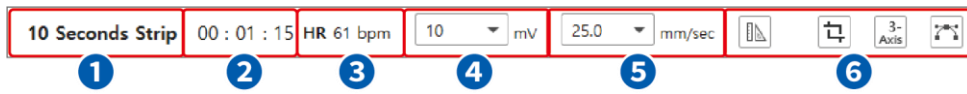


Figure 93 Seconds Strip Plot 1/3

- ① Displays the time strip information: [\[Figure 94 Time Information Display on the Seconds Strip Plot\]](#), if the user selected “25.0 mm/sec” in the range drop box, time information is displayed based on the selected time, such as “10 seconds Strip.”

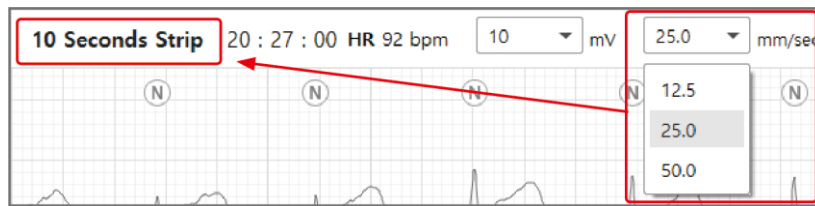



Figure 94 Time Information Display on the Seconds Strip Plot

- ② Indicator Line for Time Information: A QRS label is displayed on every QRS peak and the currently selected time is displayed at the center. This time information means the information at the point where the indicator line is located on the Seconds Strip plot. If no indicator line is shown on the Seconds Strip plot, press the **Space bar** on the keyboard () to make the indicator line appear again.

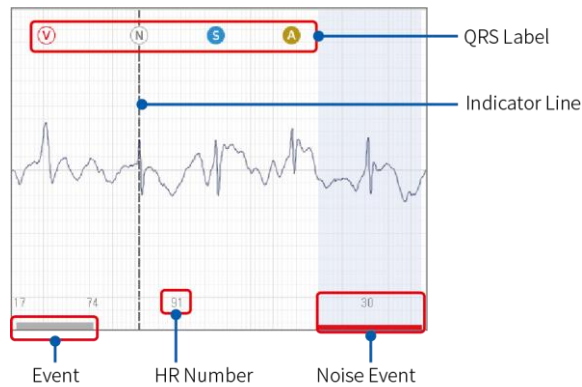


Figure 95 Seconds Strip Plot

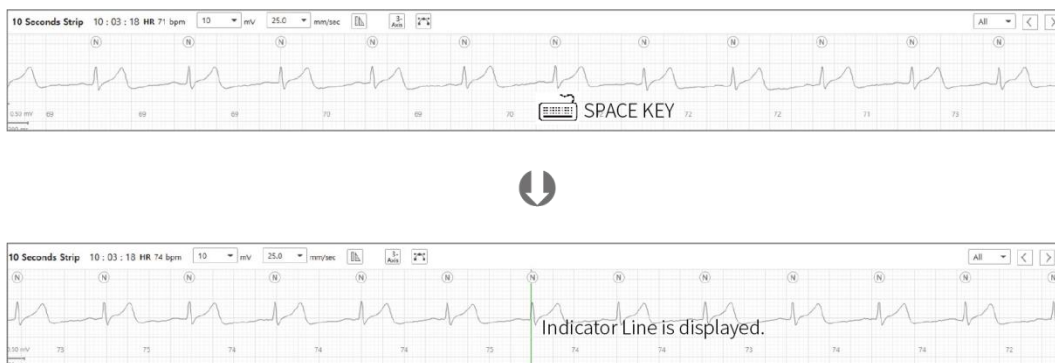


Figure 96 Center Position Action of the Indicator Line

- ③ Average HR: It displays the average HR (Heart Rate) of 1 minute with the indicator line at the center in numbers.

The heart rate is measured by the RR interval. The RR interval is measured as the time between heartbeats, and its normal range is 0.6 to 1.0 seconds. The normal range of a heart rate is 60 to 100 bpm.

The RR interval is the time between QRSs, and instantaneous heart rate can be calculated based on the time between QRSs. The calculation method is as follows:

[Distance (mm/beat) × Time (sec/square) = RR interval (sec/beat)]

To calculate the heart rate, the beats per second value should be calculated first, and then be converted to beats/min using the RR value and the 1/RR value as conversion factors.

[1 beat/sec x 60 sec/min = 60 beats/min.]

- ④ Amplitude Selection Drop Box: A function that allows selection of the size of the ECG (voltage) displayed on the Seconds Strip plot. The initial amplitude setting is “20 mV,” but you can select the desired value among the values presented in the drop box.

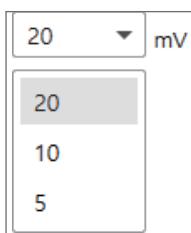


Figure 97 Amplitude Selection Drop Box

- ⑤ Time Range Selection Drop Box: A function that allows selection of the range of the ECG time displayed on the Seconds Strip plot. As shown in [\[Figure 98 Time Range Selection Drop Box\]](#), the available options for time range are 12.5 mm/sec, 25 mm/sec, and 50 mm/sec.

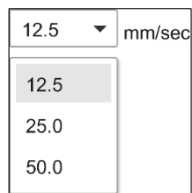


Figure 98 Time Range Selection Drop Box

- ⑥ Caliper Button

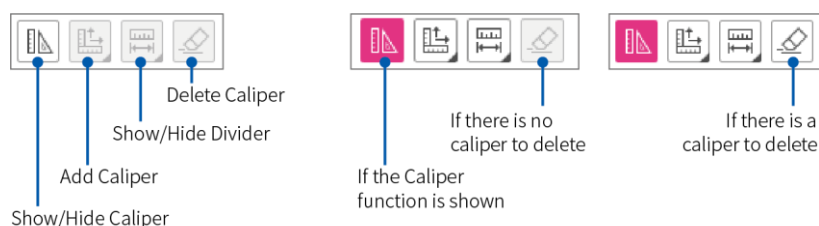


Figure 99 Caliper Button

- Show/Hide Caliper: The **Show/Hide Caliper** button is a button that shows/hides the Caliper. If you press the button and use the caliper function as shown above, the button changes to pink, and caliper-related buttons are created. The Seconds Strip Plot at the bottom shows caliper that is already added; pressing the button again hides the caliper-related buttons and caliper features.
- Add Caliper: When you press the **Add Caliper** button, the Add Horizontal Caliper/Add Vertical Caliper/Add Horizontal/Vertical Caliper drop-down menu is displayed.

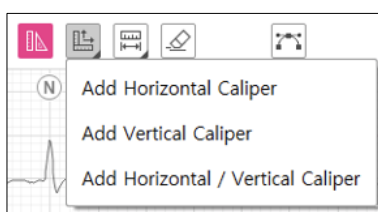



Figure 100 Add Caliper



Figure 101 Operated Status of Add Caliper

If you click the **Add Caliper** button to add Caliper, Caliper appears based on the adjacent QRS interval in the center of the current Seconds Strip Plot. Calipers are generated as many times as the **Add Caliper** button is pressed. If you press the **Add Caliper** button repeatedly without moving the caliper, calipers are displayed overlapping existing caliper. The selected caliper can be copied into a  Ctrl+V shortcut; the copied caliper now appears in turn on the right side of the caliper.

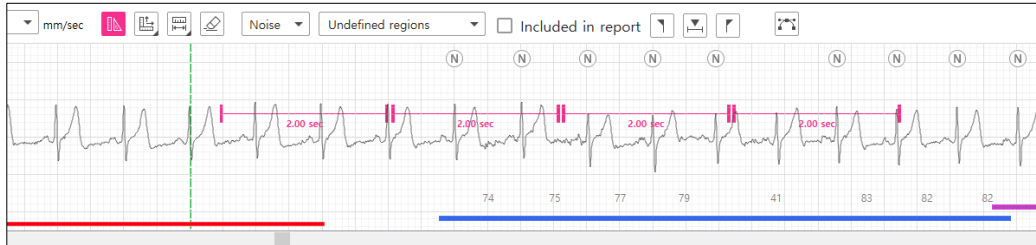


Figure 102 Copied caliper

- **Show/Hide Divider:** If you click the **Show/Hide Divider** button using a mouse, a Show Right Divider/Show Left Divider drop-down menu is displayed.

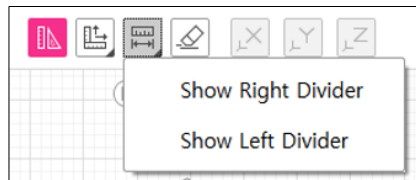


Figure 103 Show/Hide Divider

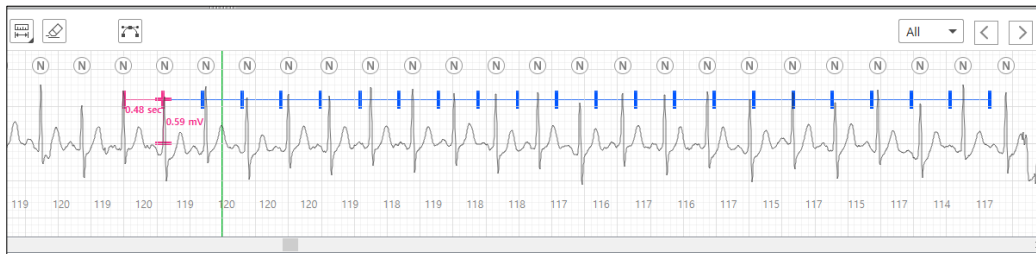


Figure 104 Show Right Divider

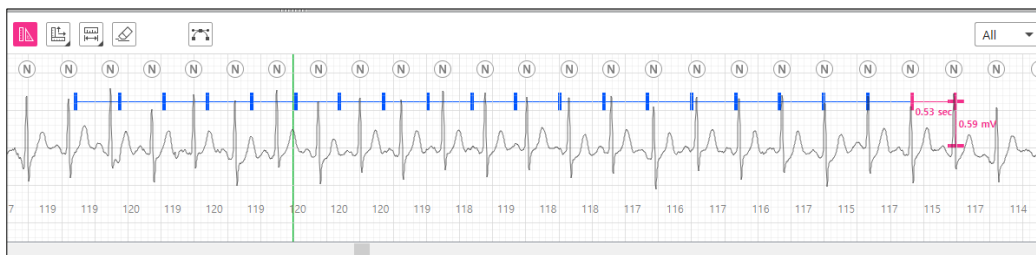


Figure 105 Show Left Divider

As shown in [Figure 104 Show Right Divider] and [Figure 105 Show Left Divider], if you use the Show Divider function, a dotted line extends to the specified calipers on the left and right, respectively, of the ECG data displayed on the Seconds Strip plot. The currently displayed line extending to the specified caliper units on the Seconds Strip plot is shown with a uniform caliper time domain interval on the left and right.

- **Delete Caliper:** The function of the **Delete Caliper** button is to delete a caliper displayed on the Seconds Strip. You can select a caliper to delete using the left mouse button (☞). This action highlights the caliper and displays it in a darker color. Once selected in this way, you can press the **Delete Caliper** button to delete the selected caliper.

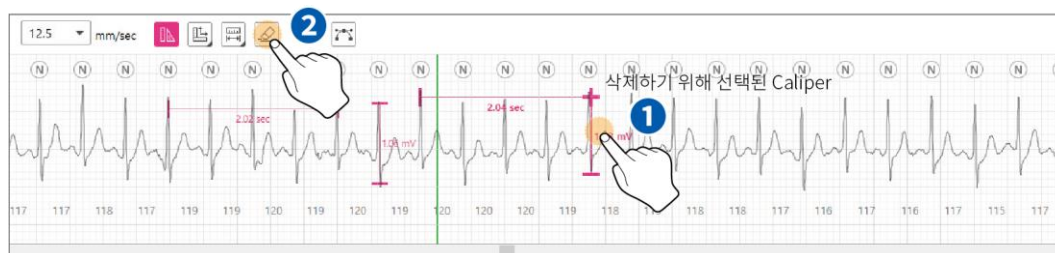


Figure 106 Delete Caliper

- **Edit Caliper Function:** If you click and moves a caliper displayed on the Seconds Strip plot using the left mouse button, you can modify the caliper. You can extend or reduce the range of a selected caliper up and down, left and right. You can move a caliper line by left-clicking (☞) and dragging it.



Figure 107 Edit Caliper Function

6. Seconds Strip Plot 2/3 – [Figure 85 Regions Tab Screen] – 4



Figure 108 Seconds Strip Plot 2/3

- ① Event Name: Events that have been assigned or to be assigned to Second Strip area are displayed in the events drop box. Events displayed in this area are the ones included on the Events Graph plot in the Events tab.
- ② Symptom Memo Box

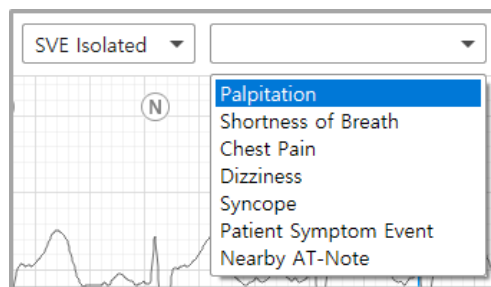


Figure 109 Symptom List

Events	Description
User Input	You can directly enter events or phrases.
Palpitation	A symptom that the patient feels as pounding or discomfort because of irregular or fast heartbeats.
Shortness of Breath	A condition that makes it difficult to breathe or feel pain when breathing. In most cases, the patient’s breathing becomes rapid or deep.
Chest Pain	Also called pectoralgia. It usually manifests as pain in the chest or shortness of breath.
Dizziness	Often described as vertigo (a sensation of feeling off- balance), the term collectively refers to all symptoms in which the patient feels as if they or surrounding objects are moving, even though both the patient and the objects are actually stationary.
Syncope	A term describing a temporary loss of consciousness due to a reduction in cerebral blood flow. Most of its causes are related to bradycardia (slower than normal heart rate).
Patient Symptom Event	An event recorded by the user whilst the AT-patch is attached. The recording occurs when you press the power key of AT-patch after a symptom occurs.
Nearby AT-Note	A nearby event saved as Symptom Event

Table 10 Symptom List

- ③ Include in Report Check Box: Send Report Box is a function that allows you to include a desired event from the ECG graph on the Seconds Strip Plot to the report. As shown in [\[Figure 110 Include in Report Check Box\]](#), if you select the check box on the left of “Included in Report,” the selected event ECG is included in the final report.



Figure 110 Include in Report Check Box

- ④ Event Navigation Button: The button moving to the start location/home location/end location of the selected event.
- ⑤ Capture Button: It is a function that makes the area currently displayed in Seconds Strip Plot a User attached event and adds it to the report. If you press the button, a dialog box is displayed for entering Symptom memo, and a User appended event is added immediately after entering Symptom.

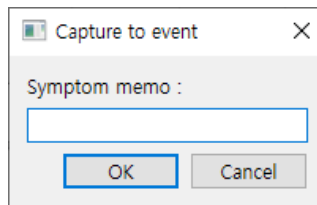


Figure 111 Capture symptom input

- ⑥ Motion Display Button: Motion Display is a function that displays motion data according to the movement of the patient with the AT-Patch attached. The movement of a patient is reflected on the graph. [Figure 112 Motion Display Button] “X” means the x-axis data among the motion data, “Y” means the y-axis data among the motion data, and “Z” means the z-axis data from among the motion data.

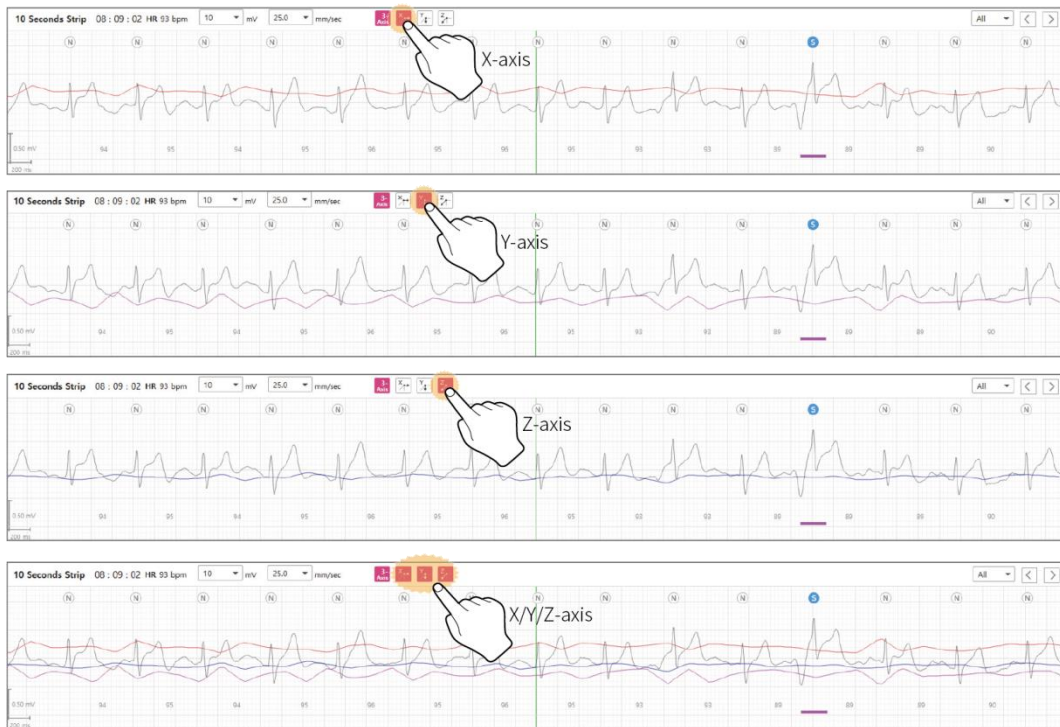


Figure 112 Motion Display Button

- ⑦ Smoothing Filter Button: According to the ECG Data signal, in case of the baseline shaking or the noise mixing and difficulty to compartmentalize the waveform, the baseline can be easily understood by using the Smoothing Filter. [Figure 113 Smoothing Filter Button]



- After using Smoothing Filter



Figure 113 Smoothing Filter Button

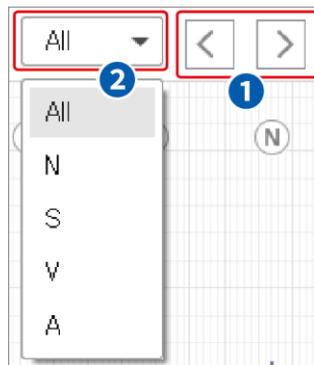
7. Seconds Strip Plot 2/3 – [\[Figure 85 Regions Tab Screen\]](#) – 4

Figure 114 Seconds Strip Plot 3/3

- ① **QRS Label Move Button:** The **QRS Label Move** button is the function that allows you to change the location of a QRS label on the Seconds Strip plot. Based on the QRS label selected in the QRS label selection drop box, you can press the **PREV Label/NEXT Label** button to move to the left and right.

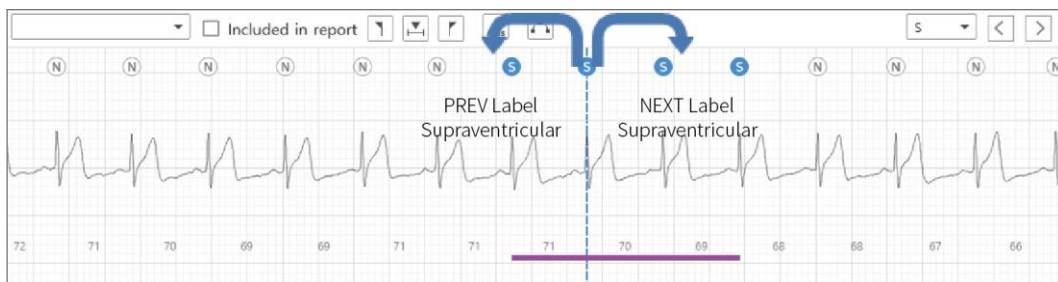


Figure 115 QRS Label Move button

- ② **QRS Label Selection Drop Box:** If the user-selected desired QRS labels in the QRS label selection drop box, only the selected labels are applied to the **QRS Label Move** button of the Seconds Strip plot.
- All: All QRS labels classified as N/S/V/A are shown. You can click the **QRS Label Move** button to move one to the left or right.
 - N: You can click the **QRS Label Move** button to move one to the left or right among the labels corresponding to N.
 - S: You can click the **QRS Label Move** button to move one to the left or right among the labels corresponding to S.
 - V: You can click the **QRS Label Move** button to move one to the left or right among the labels corresponding to V.
 - A: You can click the **QRS Label Move** button to move one to the left or right among the labels corresponding to A (QRS Label may not be visible by [“Show Artifact” on page 72](#)).

8. Add-on to Seconds Strip Plot

- ▶ HR Number Change Function on the Seconds Strip plot: You can right-click (🖱️) and change the HR (Heart Rate) displayed between each QRS label on the Seconds Strip plot to the desired type (R-R Interval/HR/Average HR/max min HR).

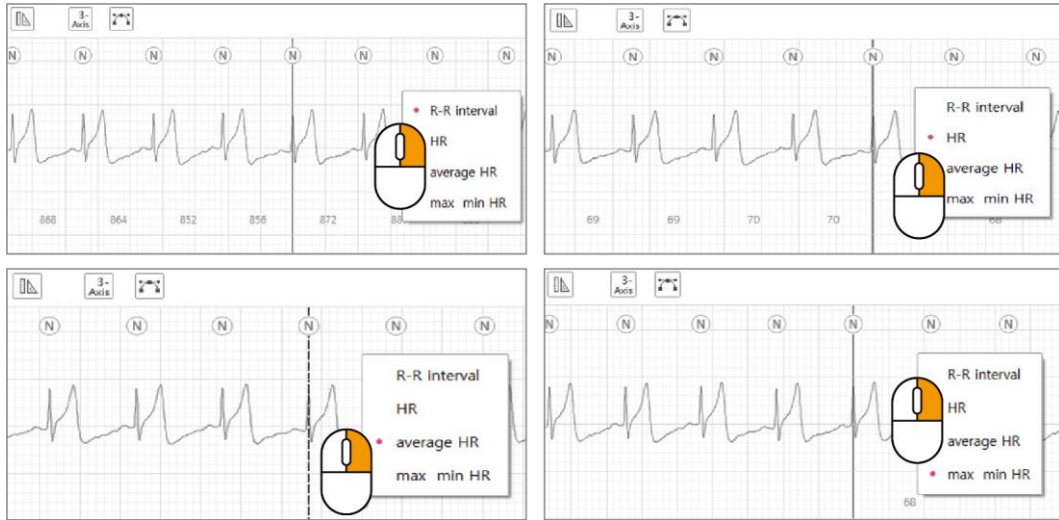


Figure 116 HR/R-R Interval/Average HR/Max Min HR Display

- ▶ Show Artifact: Right-clicking on the label position of N, S, V, and A opens the pop-up window. When Show Artifact is marked or unmarked, the Artifact Label appears or disappears.



Figure 117 Show Artifact Enabled



Figure 118 Disable Show Artifact

- ▶ **Event Line:** All detected events can be found in the Events Tab, but also through the Event Line of the Seconds Strip Plot. Events such as Isolated, Couplet, Runs, Bigeminy, Trigeminy, Tachycardia, Bradycardia, N-N delay, Pause, User appended are divided into dark pink, AF Event into blue, and Noise into red.

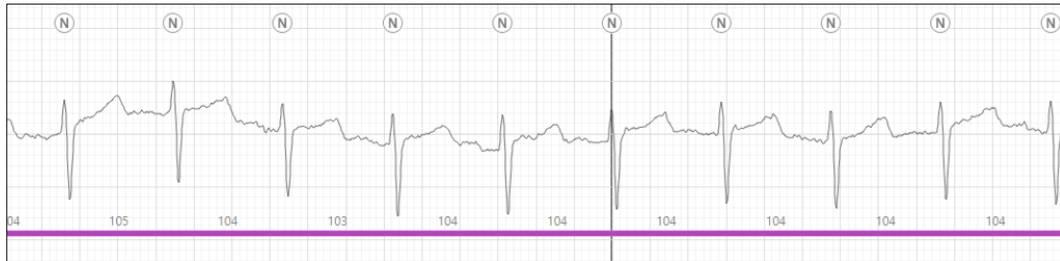


Figure 119 Tachycardia Event Line



Figure 120 AF Events Line



Figure 121 Noise Events Line



Figure 122 AT-Note (Symptom) Events Line

Class Tab

1. Class Tab Screen



Figure 123 Class Tab Screen

2. Group Class Label Tab – [Figure 123 Class Tab Screen] – ①

The Group Class Label tab is the tab where imported patient ECG data are classified by group pattern (N/S/V/A) and displayed. In this tab, the number next to each QRS label means the total number of labels classified into the group class.

- **Save Button:** If there is a changed label in the group class event card, the **Save** button is activated. If you press the **Save** button, changes are saved. Depending on the option, the change can be saved as soon as you exit the Class tab (Auto Save).

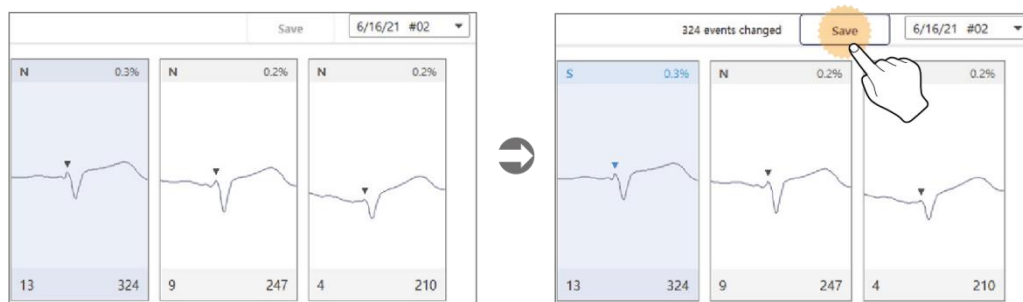


Figure 124 Save Function in the Class Tab

3. Date Drop Box – [\[Figure 123 Class Tab Screen\]](#) – ②

- ▶ **Date Drop Box:** The date information about the day the user is currently working on is displayed in the data drop box in the Class tab. You can select and change the date by clicking the Down arrow (▼) of the data drop box. The hotkey to change the date is as follows:



Even though a random Group Class Label tab was selected when changing the date, the Normal Class Label tab is always selected and displayed after a change is made.

4. Group Class Label Card – [\[Figure 123 Class Tab Screen\]](#) – ③

A card where the QRS label of each group is displayed. It is sorted in the order of the group class with the most labels. At the top of each group class label card, the type of QRS labels and the percentage of each group class in the type (%; the rate of the number of heart beats from each group compared to the total number of heart beats in one day) are displayed. At the bottom, the serial number of the group class label card and the number of QRS labels belonging to this class label are displayed.



Figure 125 Group Class Label Card

- ① **QRS Label Type:** Shows to which the group class label card (N/S/V/A) the QRS label belongs.
- ② **Index:** The order of group class label cards shown when similar QRS patterns are grouped in the Class tab.
- ③ **QRS Label Number:** The number of ECG patterns in a group class label card where similar QRS patterns are grouped.
- ④ **Label Rate:** The rate (%) of the number of QRS labels of each N/S/V/A group to the number of total QRS labels in a day.
- ⑤ **QRS Peak:** Shows the QRS peak's location of the ECG pattern that you're currently looking at.

- ▶ **Sorting Order of Group Class Label Cards:** The sorting of class cards first starts with classifying and grouping QRS labels based on the ECG patterns. Group class label cards are divided according to similar patterns, the order of the index is specified, and all class cards are sorted by the highest label card number and event rate, and are displayed in the Classes tab.
- ▶ **Group Class Label Card Change function:** If you right-click the mouse (🖱️) over the group class label card, a pop-up window appears. If you select the label type shown in the pop-up window, the type of all QRS labels in the class is changed.

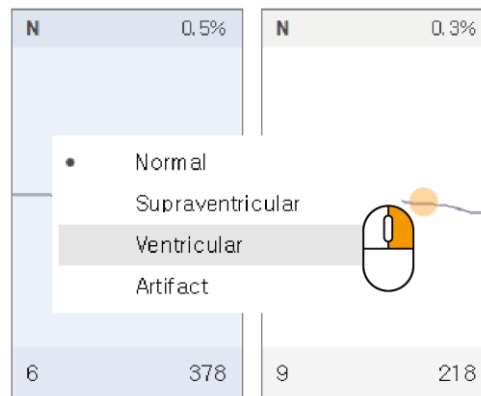
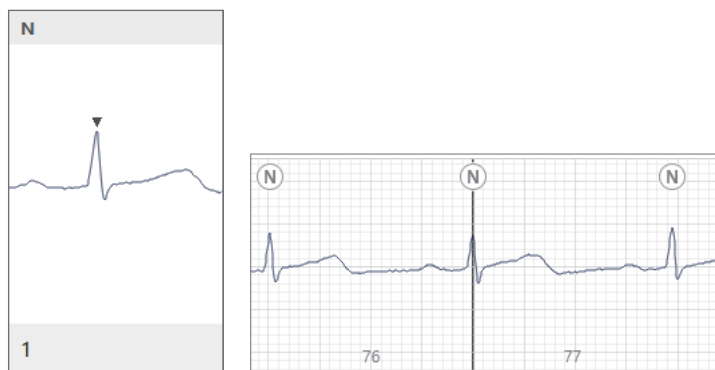


Figure 126 Group Class Label Card Change Function

- ▶ **Actions When Selecting a Group Class Label Card:** If you select an item in the group class label card, the first label of the QRS labels corresponding to the selected group class card is selected. On the Seconds Strip plot, the time information of the point where the selected QRS label is located is displayed, and the corresponding QRS label is displayed at the center together with the indicator line as shown in [\[Figure 123 Class Tab Screen\]](#) - 4.
- ▶ **QRS Label Type**
 - **Normal Group:** Based on a QRS wave of ECG, ECG data within the normal range is defined as a normal QRS label. Normal Group is the group of label cards with a normal QRS wave pattern.



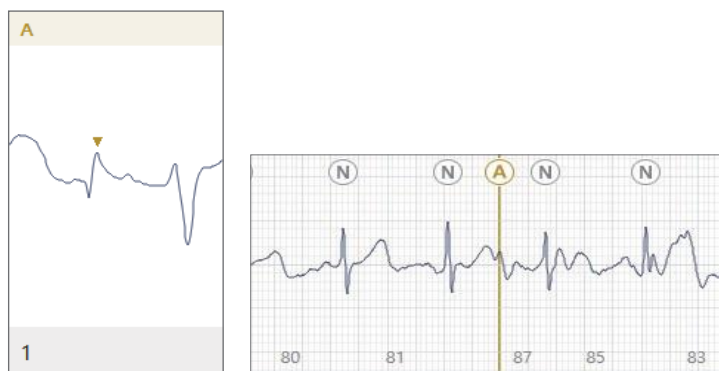
- Supraventricular Group: The group of label cards with a faster than normal QRS wave pattern based on the QRS wave of ECG.



- Ventricular Group: The group of label cards with a QRS wave pattern that is not normal based on the QRS wave of ECG.



- Artifact Group: An abnormal wave pattern that can't be classified into an N/S/V group.



- ▶ Open the Sub-class: Double-click the selected Group Class Label Card to the left button of the mouse to move to Sub-class Tab where you can see QRS Labels corresponding to Group Class Label Card. Refer to [“Creation of Sub-class QRS Label Tabs” on page 82.](#)



Figure 127 Open the Sub-class

- ▶ A Mark of Group Class Label Card Opened: Cards that have opened the Sub-class at least once will have a mark

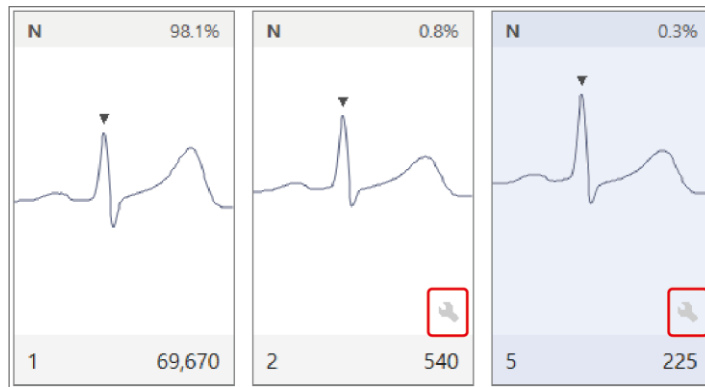


Figure 128 A Mark of Group Class Label Card Opened

5. Seconds Strip Plot – [\[Figure 123 Class Tab Screen\]](#) – 4

Please refer to [“Seconds Strip Plot 1/3 – \[Figure 85 Regions Tab Screen\] – 4” on page 63.](#)

Sub-class Tab

1. Sub-class Tab Screen



Figure 129 Sub-class Tab Screen

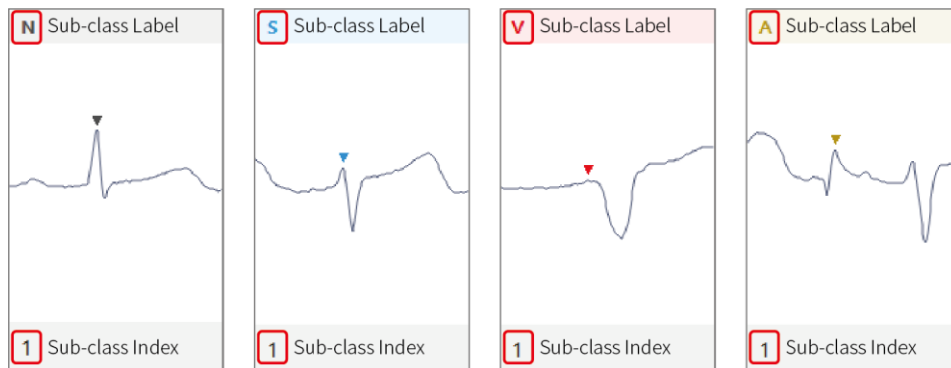


Figure 130 Sub-class QRS Label Card

In [\[Figure 130 Sub-class QRS Label Card\]](#), the sub-class QRS label shows the QRS label type of each sub-class. The sub-class index is the number that indicates its order in the QRS label cards in the corresponding sub-class group.

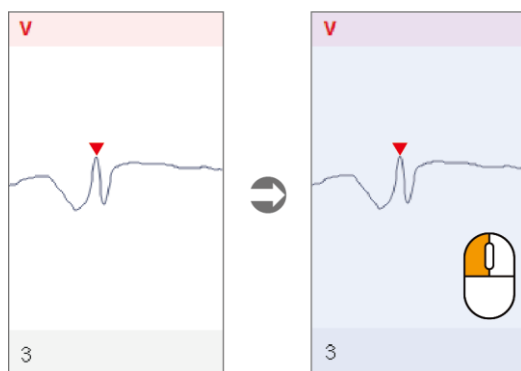


Figure 131 Selection Sub-class QRS Label Card

[[Figure 131 Selection Sub-class QRS Label Card](#)] shows how to select a sub-class QRS label card. If you select a sub-class QRS label card using the left mouse button (☞), the selected sub-class QRS label card is changed to gray.

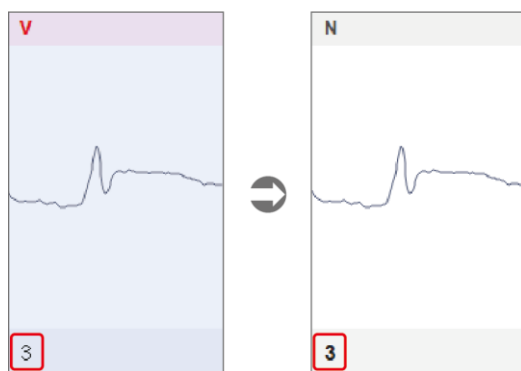


Figure 132 Change in the Index When the Sub-class QRS Label Is Changed (Bold)

If you change QRS Label in Sub-class, Sub-class QRS Label Card changes like [[Figure 132 Change in the Index When the Sub-class QRS Label Is Changed \(Bold\)](#)]. How to change QRS Label is available to select from the pop-up menu that appears as the right-click mouse (☞) in Sub-class QRS Label Card or edit QRS Label as in "[QRS Label Edit Function in the Indicator Line](#)" on page 129.

2. Multi-Selection Sub-class QRS Label Card

- ▶ 1st Selection Guide: As shown in [\[Figure 133 Multi-Selection Sub-class QRS Label Card – 1st\]](#), you can click and drag to the lower left or upper right using the left mouse button to select multiple sub-class QRS label cards.

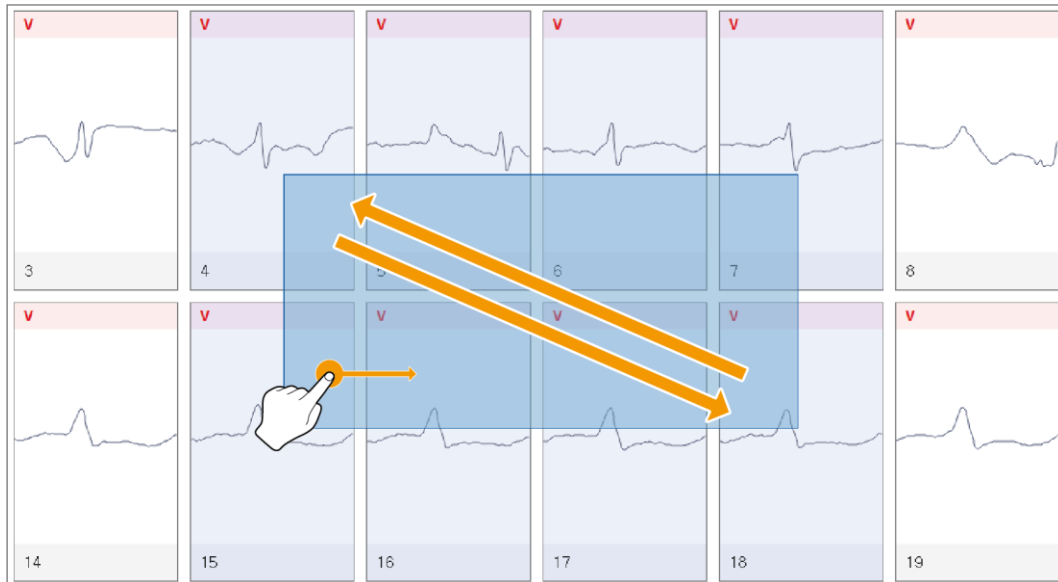





Figure 133 Multi-Selection Sub-class QRS Label Card – 1st

- ▶ 2nd Selection Guide: [\[Figure 134 Multi-Selection Sub-class Event Card – 2nd\]](#), you can select the sub-class event card that the user wishes to select by using  the **Ctrl** () key and the left mouse button () together (1 → 2 → 3 → 4). If you click on a selected sub-class event card using the same method described above, the selected state is canceled.

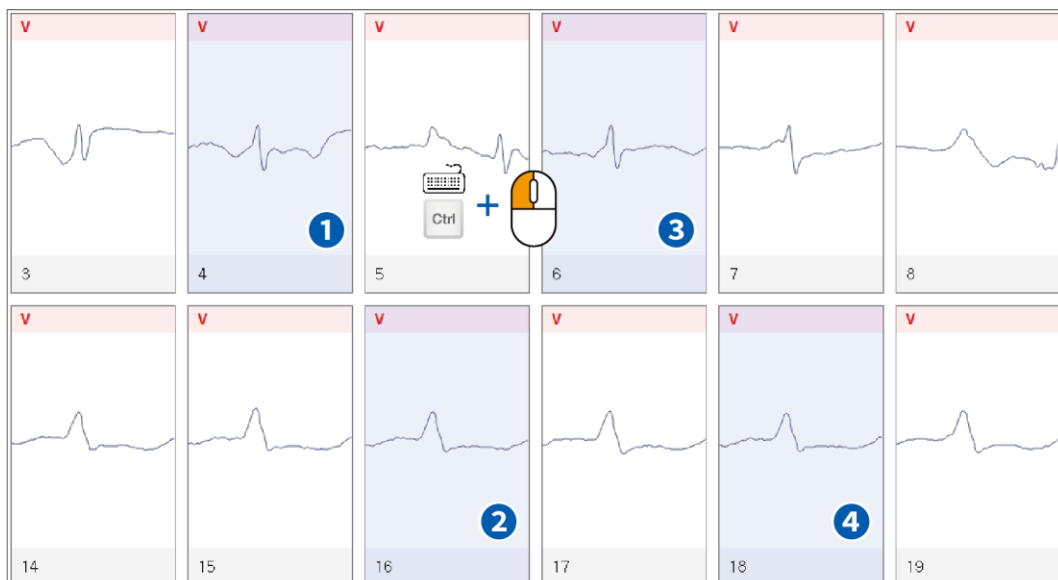





Figure 134 Multi-Selection Sub-class Event Card – 2nd

- ▶ 3rd Selection Guide: As shown in [\[Figure 135 Multi-Selection Sub-class Event Card – 3rd\]](#), if the user makes a selection (1 → 2) using the keyboard's  **Shift** () key and the left mouse button () , all from the first clicked sub-class QRS label card to the second clicked sub-class QRS label card are selected.

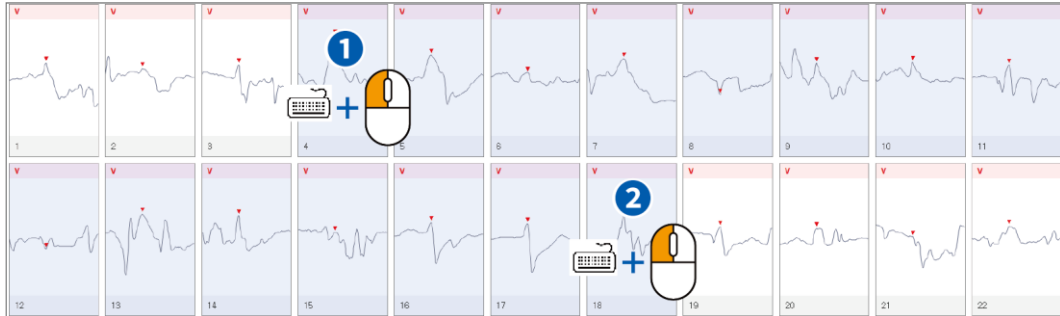




Figure 135 Multi-Selection Sub-class Event Card – 3rd

- ▶ Sub-class All select: As shown in [\[Figure 136 Sub-class All select\]](#), press  **Ctrl** +  to select all the cards in Sub-class.

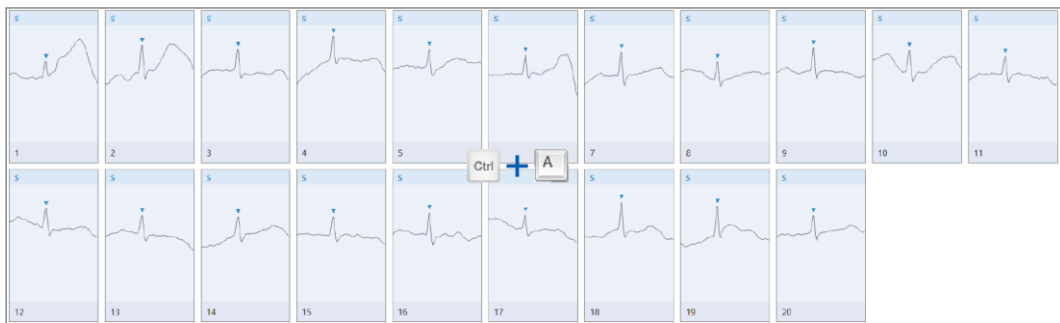


Figure 136 Sub-class All select

3. Creation of Sub-class QRS Label Tabs

[\[Figure 137 Creation of Sub-class QRS Label Tabs\]](#) shows the screen where a Sub-class QRS Label tab is created. Sub-class tabs are only created up to the most recent three, and they are shown as Subclass tabs from the most recently selected one in the Class tab.

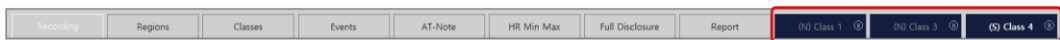


Figure 137 Creation of Sub-class QRS Label Tabs

4. How to Move among Sub-class QRS Label Tabs

[[Figure 138 How to Move among Sub-class QRS Label Cards](#)] shows how to move among cards in subclass QRS label cards. You can move to the desired card in sub-class QRS label cards using the up and down left and right arrow keys (↑↓←→).



Figure 138 How to Move among Sub-class QRS Label Cards

5. Change Label List – [[Figure 129 Sub-class Tab Screen](#)] – ①

- ▶ Class Number: “Total sub-class number” means the number of all labels that exist in the created Sub-class QRS Label tabs. If the user has never changed the label in the sub-class QRS label tab, such as the initial patient data, all numbers corresponding to “sub-class number list to be changed” are displayed as “0,” and if the user changed a sub-class QRS label card, the number of changes is cumulatively recorded continuously.

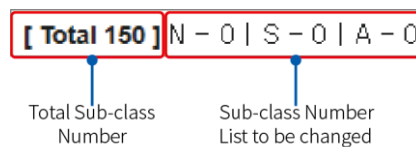


Figure 139 Change Label List

6. Sub-class QRS Label Card Item – [Figure 129 Sub-class Tab Screen] – ①

- ① Amplitude Selection Drop Box: It is a function that may select the voltage of the ECG displayed on the sub-class QRS Label Card.
- ② Time Range Selection Drop Box: It is a function to select a range of ECG time displayed on the sub-class QRS Label Card.
- ③ Sort Drop Box: It is a function that can sort the sub-class QRS Label Card.



Figure 140 Sub-class QRS Label Card Item

- ▶ **Classes Reanalysis:** If the Sub Class number list appears (XX/YY) as shown in [Figure 141 Before Classes Reanalysis], you can press **Ctrl + R** to perform Reanalysis. After pressing **Ctrl + R**, a popup window appears asking if Reanalysis is present, and when the **OK** button is clicked, Reanalysis of the corresponding class is performed and changed as shown in [Figure 142 After Classes Reanalysis]. If multiple QRS Labels are changed, the class is reclassified whenever the QRS Label is changed. If there is an error in the classification of the Class, Classes Reanalysis will be implemented from the beginning again to classify all current-date QRS Labels.



Figure 141 Before Classes Reanalysis

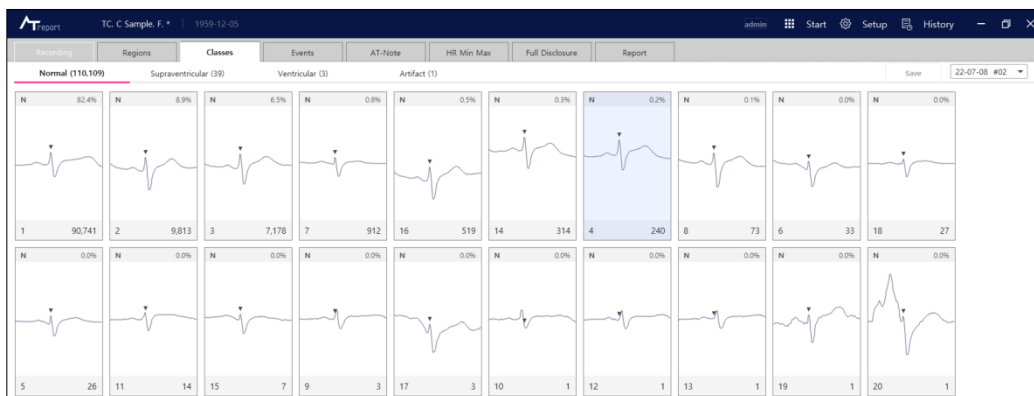


Figure 142 After Classes Reanalysis

7. Save/Date Function – [Figure 129 Sub-class Tab Screen] – ②



Figure 143 Save/Date Function

- ① Save Button: If there is a QRS label in a sub-class QRS label card, the **Save** button in the upper right section is activated, and you can press the **Save** button to save the QRS label. Depending on the option, the change can be saved as soon as the user exits the Class tab

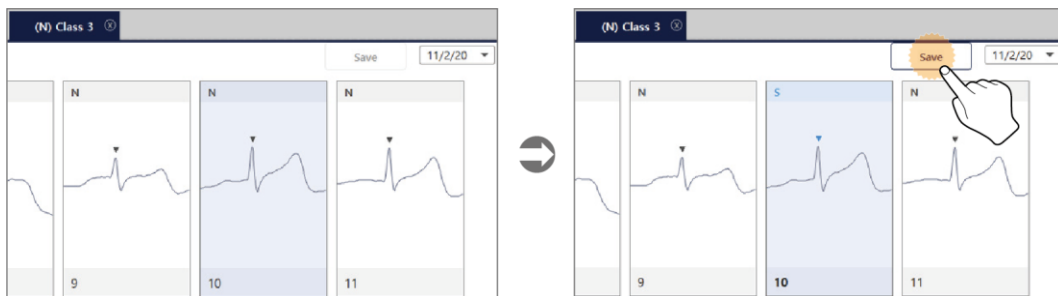


Figure 144 "Save" Button in a Sub-class QRS Label Card

- ② Date Drop Box: The date drop box in the Sub-class QRS Label tab displays the date you are currently working on in the Sub-class QRS Label tab.

8. Sub-class Event Card – [Figure 129 Sub-class Tab Screen] – ③

In this area, all sub-class QRS label cards currently in the Sub-class QRS Label tab are shown, and you can modify and save sub-class QRS labels. For the method to modify sub-class QRS labels, refer to ["Modify Function of Seconds Strip Plot" on page 128](#).



9. Seconds Strip Plot – [Figure 129 Sub-class Tab Screen] – ④

Please refer to ["Seconds Strip Plot 1/3 – \[Figure 85 Regions Tab Screen\] – ④" on page 63](#).

Events Tab

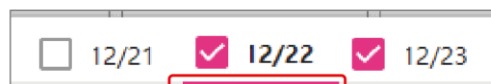
1. Events Tab Screen



Figure 145 Events Tab Screen

2. Date Tab – [\[Figure 145 Events Tab Screen\]](#) – ①

The Date tab in the Events tab shows the current working date in the Events Tab. To change the date, you can click the left mouse button (🖱️) or use a hotkey on the keyboard to change the date information.



The selected date will be underlined with a red line.

3. Average HR Plot – [\[Figure 145 Events Tab Screen\]](#) – ②

The AFib recal button in the Events Tab is a function that recalculates the AF (Atrial fibrillation) of the current date.

4. Average HR Plot – [\[Figure 145 Events Tab Screen\]](#) – ③



Figure 146 Average HR Plot

- ① Average HR: Average HR displays the heart rate per minute of the area where the indicator line is located.
- ② Average HR Plot: An Average HR graph for one day is selected from the Date tab. Maximum HR Graph, Average HR Graph and Minimum HR Graph are displayed together on the Average HR plot

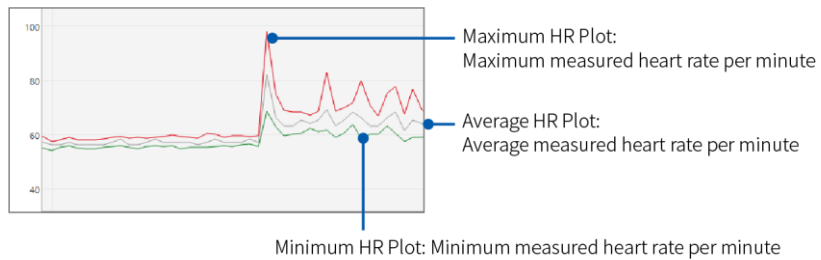


Figure 147 Description of the Average HR Plot

5. Events Graph Plot – [\[Figure 145 Events Tab Screen\]](#) – 4

► Events Description

Events	Description
VE Isolated	When a single ventricular ectopic heart beat occurs in the ECG.
VE Couplet	When two of consecutive ventricular ectopic heart beats occur in the ECG.
VE Run	When more than three ventricular ectopic beats occur in the ECG.
VE Bigeminy	When ventricular ectopic heart beats appear in pairs in the ECG. When a normal heart beat and ventricular ectopic heart beats appear in turn.
VE Tachycardia	When the speed per minute of more than three ventricular ectopic heart beats that occur consecutively in the ECG is recorded at 100 bpm or higher.
SVE Isolated	When a single supraventricular ectopic heart beat occurs in the ECG.
SVE Couplet	When two of consecutive supraventricular ectopic heart beats occur in the ECG.
SVE Run	When more than three supraventricular ectopic heart beats occur in the ECG.
SVE Bigeminy	When supraventricular ectopic heart beats appear in pairs in the ECG. When a normal heart beat and supraventricular ectopic heart beats appear in turn.
SVE Trigeminy	When supraventricular ectopic heart beats appear by three beats in a group in the ECG. When a group of two normal heart beats and one supraventricular ectopic heart beat appears.
Sinus Bradycardia	A case in which the heart rate per minute is slower than normal. For healthy adults, normal heart rate per minute is 60 to 100.
Sinus Tachycardia	A case in which the heart rate per minute is more than 100, which is faster than normal.
Ventricular Tachycardia	This is the case where the heart rate of the VE Run is faster than the normal range by more than 100 times.
Supraventricular Tachycardia	This is the case where the heart rate of the SVE Run is faster than the normal range by more than 100 times and 10 seconds.
R-R Pause	A case in which the RR interval of the QRS wave is longer than the specified time (default four seconds) in the ECG.
N-N Pause	A case in which the interval of two QRS labels classified as normal is longer than the specified time (default four seconds) in the ECG.
N-N Delay	This is calculated as the ratio of intervals among three QRS labels classified as normal in the ECG. A case in which the beginning and end of the RR interval is not higher than the specified ratio (default 110%), but the RR interval in the middle is higher than the specified ratio (default 180%).

Events	Description
Atrial Fibrillation	An irregular (and often rapid) heart beat that occurs when a significant portion of the atrial muscle contracts without control. Both atrial and ventricular contraction are irregular and can cause hypotension, palpitations, syncope, dizziness, cerebral, and/or systemic embolism.
Note	A record made by the user wearing the AT-patch and saved to the device when a symptom occurs. When a symptom occurs, you press the power key of the AT-patch, and the symptom is stored as a symptom event. The saved data can be imported to AT-Report via AT-patch and ATNote app.
Noise	Refers to noise generated from various sources, such as muscle movement, motion, breathing, and direct contact with the AT-patch.
User Appended	Refers to the event area specified by the user on the Seconds Strip plot. You can enter the desired phrase using the symptom memo box.
Include Report	Refers to the event of "include Report" (" Seconds Strip Plot 2/3 – [Figure 85 Regions Tab Screen] – 4 " on page 68)

Table 11 AT-Report Event

- Move Function on the Event Graph plot: On the Event Graph plot, you can check all events included in the data selected from the Date tab.

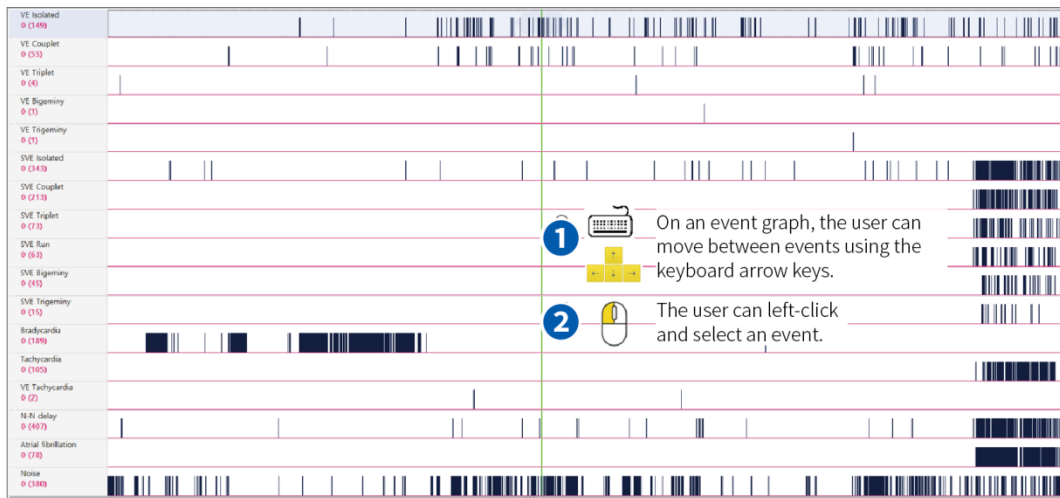









Figure 148 Events Graph Plot

Button	Description
	A hotkey to move to the event above the event graph
	A hotkey to move to the event below the event graph
	A hotkey to move to the leftmost event in event graph
	A hotkey to move to the rightmost event in event graph
	A hotkey to move to the event on the right of the event graph
	A hotkey to move to the event on the left of the event graph
	Move to right/left from the current event by clicking the pentagon area

- ▶ Add Report/Remove Report Function on the Event Graph Plot: A function that allows you to select an event to add or delete from the report on the Event Graph plot.

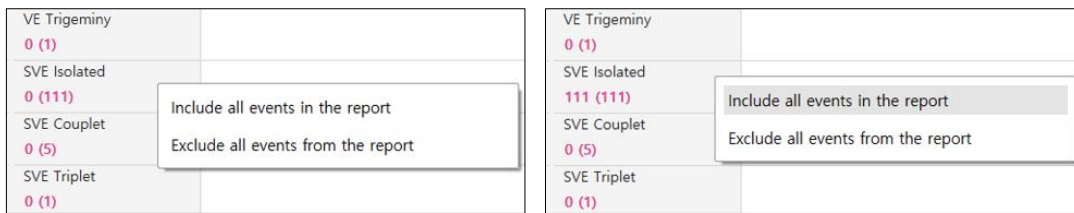


Figure 149 Add Report/Remove Report Function

In [\[Figure 149 Add Report/Remove Report Function\]](#), **XX** in the front part of **XX(YY)** marked below each event means the number of event ECGs included in the final report and **(YY)** means the total number of events detected in current Event Graph plot.






- Include all events in the report: If you select this function, all events included on the Event Graph plot are included in the report.
- Exclude all events from the report: If you select this function, all events included on the Event Graph plot are deleted in the report.
- Remove events without included in the report: If you select this function, all ECG events other than the ones included in the final report are deleted from the Event Graph plot. Only events added by you can use this function

For the selected event, the order among all events is indicated by a number.



Figure 150 Display order of selected event

- ▶ **Sorting of the Duration Event:** Events with important duration such as R-R Pause/N-N Delay/N-N Pause can be viewed in the order of duration by pressing the ◀ button of Event Graph Plot. The function of the shortcut key is changed as below in the order of duration.

Button	Description
	Hotkey to move to the longest duration of Event Graph
	Hotkey to move to the shortest duration of Event Graph
	Hotkey to move from Event Graph to longer duration of Event
	Hotkey to move from Event Graph to shorter duration of Event
	When clicking on the diamond area, it moves from the current event to an event of longer/shorter duration.

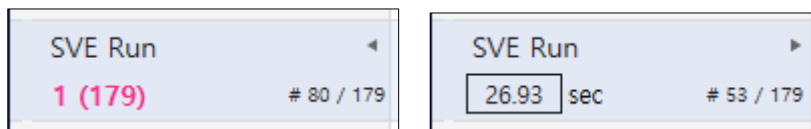



Figure 151 Sorting of the Duration Event

- ▶ **Recalculate Event:** Press  **Ctrl + R** on the Event tab to recalculate the automatically detected events from AT-Report corresponding to the current date.

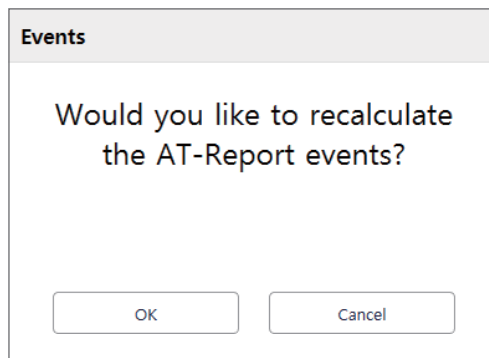


Figure 152 Recalculate Event

- ▶ Label change from S to N in batch in AF section: Right-click (📌) on the Events Plot detected as AF to display the Pop-up window. If you click **Change all S to N the all AFib**, the S Label for all AF sections is changed to N.

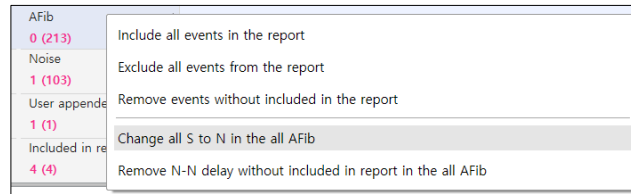


Figure 153 Change all S to N in the all AFib

- ▶ N-N Delay Removal/Restore Function in AF section: Right-click (📌) on the Events Plot detected as AF to display the Pop-up window. If you click **Remove N-N delay without included in report in the all AFib** or **Restore N-N delay without included in report in the all AFib**, removes/ restores all N-N Delay within the AF interval except the N-N Delay contained in the final report from the Event Graph plot.

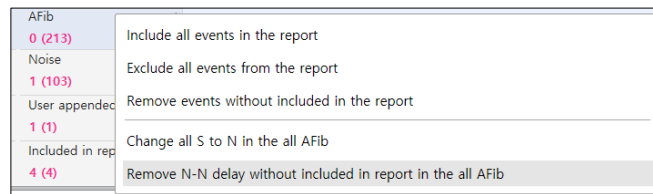


Figure 154 Remove N-N delay without included in report in the all AFib

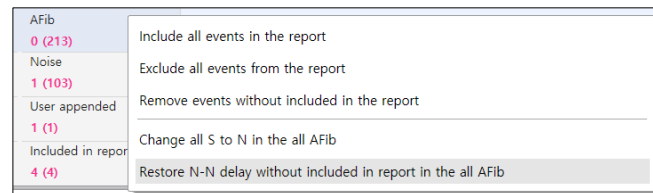


Figure 155 Restore N-N delay without included in report in the all AFib

6. Seconds Strip Plot – [Figure 145 Events Tab Screen] – 4

Please refer to [“Seconds Strip Plot 1/3 – \[Figure 85 Regions Tab Screen\] – 4”](#) on page 63.

AT-Note Tab

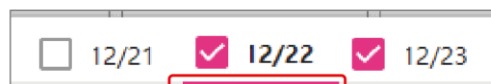
1. AT-Note Tab Screen



Figure 156 AT-Note Tab Screen

2. Date Tab – [Figure 156 AT-Note Tab Screen] – ①

The Date tab in the AT-Note tab shows the current working date in the AT-Note Tab. To change the date, you can click the left mouse button or use a hotkey on the keyboard to change the date information.



The selected date will be underlined with a red line.

3. AT-Note Edit Button – [Figure 156 AT-Note Tab Screen] – ②

A function that creates or deletes the content in the Symptom Note list in the AT-Note Tab.

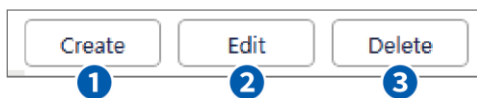


Figure 157 AT-Note Edit Button

- ① **Create Button:** You can add a Symptom Note to the AT-Note list of the current AT-Note tab using the **Create** function. When you press the Create button, a window as shown in [Figure 158 AT-Note Screen] appears, and you can enter the Start/End time, select Symptoms and Activity, and press the **Save** button to save the symptom note. In addition, you can directly enter other symptoms or activities not included in the items in the Comment section. To include an entered symptom note to the report, you can select the “Add to event” check box.

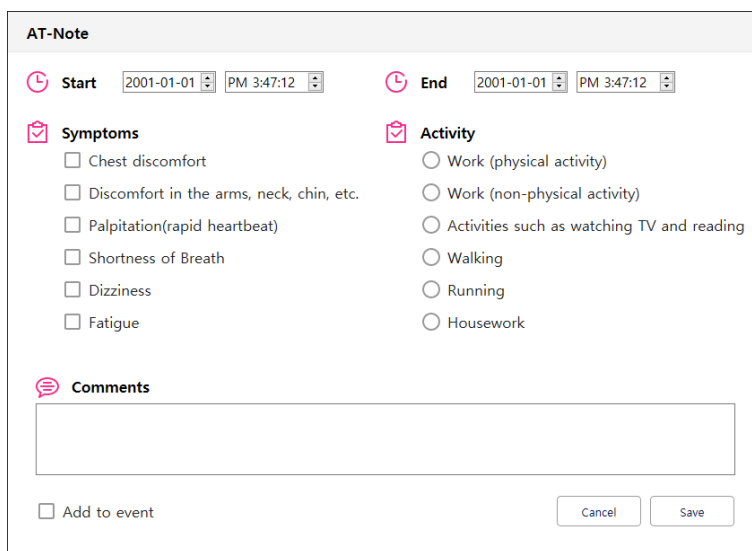


Figure 158 AT-Note Screen

- ② **Edit Button:** A function that modifies already recorded symptom notes. If you select a symptom note record to modify and clicks the **Edit** button, [Figure 158 AT-Note Screen] appears, and you can modify the content as desired and press the **Save** button to store the new content.
- ③ **Delete Button:** You can delete symptoms stored in the AT-Note list using the Delete function. If you mark the **Select check box** from the list and click the **Delete** button, the selected symptom note is deleted from the AT-Note list.

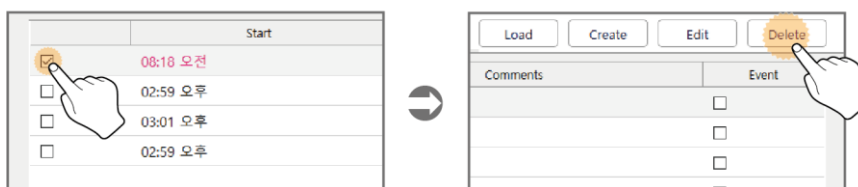


Figure 159 AT-Note Delete Button

4. AT-Note List – [Figure 156 AT-Note Tab Screen] – ③

In the AT-Note list, symptom notes received from the AT-patch and symptom notes downloaded from the smartphone are displayed. A function allowing patients wearing the AT-patch to check the content of symptom notes.

	Start	End	Duration	Average HR	Symptoms	Activity	Comments	Event
<input type="checkbox"/>	08:53 오전	08:55 오전	00:02	82 bpm	Fatigue	Housework		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	12:00 오후	12:00 오후	00:00	70 bpm	Chest discomfort	Walking		<input type="checkbox"/>
<input type="checkbox"/>	04:54 오후	04:56 오후	00:02	74 bpm	Discomfort in the arms, neck, chin, etc.	Work (non-physical activity)		<input type="checkbox"/>

Figure 160 AT-Note List

- ① **Select Box:** A function used to select data to modify/delete in the AT-Note list. If you select the check box () , it is changed to and the data is selected.
- ② **Time Information:** Displays the time information of the AT-Note. Start means the time when entering a symptom note has started and End means the time when entering the symptom note has been completed.
- ③ **Average HR:** The Average HR during the symptom note entry period.
- ④ **Symptoms:** Symptoms that occurred while wearing the AT-patch can be entered using the smartphone app and the Create function of AT-Report. The symptoms can be selected from among the following six items:
 - Chest discomfort
 - Discomfort in the arms, neck, chin, etc.
 - Palpitation(rapid heartbeat)
 - Shortness of Breath
 - Dizziness
 - Fatigue
- ⑤ **Activity:** The activities the user was doing when the symptom occurred while wearing the AT-patch user can also be entered using the smartphone app and the Create function of AT-Report. The activities can be selected from among the following six items:
 - Work (physical activity)
 - Work (non-physical activity)
 - Activities such as watching TV and reading
 - Walking
 - Running
 - Housework
- ⑥ **Comments:** An item where AT-Report users or AT-patch wearers can record comments or notes without restriction.
- ⑦ **Send Event Check Box:** If the user wishes to include symptoms currently in the AT-Note list to the Event tab, you can select this check box ().

5. Actions in the Seconds Strip When Selecting an Item in the AT-Note

If you select the desired data in the AT-Note list using the left mouse button (Ⓚ) as shown in [\[Figure 163 Actions in the Seconds Strip When Selecting an Item in the AT-Note\]](#), the selected data turns red, and the indicator line of the Seconds Strip plot is located at the center according to the selected symptom note data.



Figure 161 Actions in the Seconds Strip When Selecting an Item in the AT-Note

6. Full Disclosure Plot – [\[Figure 156 AT-Note Tab Screen\]](#) – ④

Please refer to [“Full Disclosure Tab” on page 101](#)

7. Seconds Strip Plot – [\[Figure 156 AT-Note Tab Screen\]](#) – ⑤

Please refer to [“Seconds Strip Plot 1/3 – \[Figure 85 Regions Tab Screen\] – ④” on page 63.](#)

8. Error message in the AT-Note Tab According to User Actions

Error Message	Details
Select notes first Select notes to delete	If you click the Delete Note button without selecting data
Time is not valid Please enter the start time	If the user entered an invalid start time when adding a note
Time is not valid Please enter the end time13	If the user entered an invalid end time when adding a note
Error occurred The note can't be added Please try again	If a note can't be added for some unknown reason

Table 12 Error message in the AT-Note Tab According to User Actions

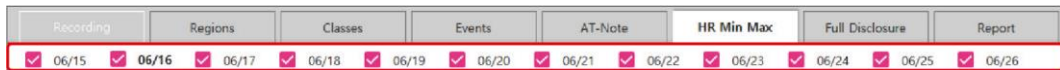
HR Min Max Tab

1. HR Min Max Tab Screen

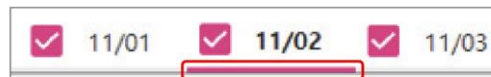


Figure 162 HR Min Max Tab Screen

2. Date Tab – [\[Figure 164 HR Min Max Tab Screen\]](#) – ①



In the HR Min Max tab, the Date tab shows the current working date in the HR Min Max tab. To change the date, you can click the left mouse button or use a hotkey on the keyboard to change the date information.



The selected date will be underlined with a red line.

3. Average HR Plot – [Figure 164 HR Min Max Tab Screen] – ②



Figure 163 Average HR Plot of the HR Min Max Tab

- ① Average HR: Average HR means the heart rate per minute for the area where the indicator line is located.
- ② Average HR Plot: Describes the Average HR graph for a selected day from the Date tab, and includes a Maximum HR Graph, Average HR Graph, and Minimum HR Graph.

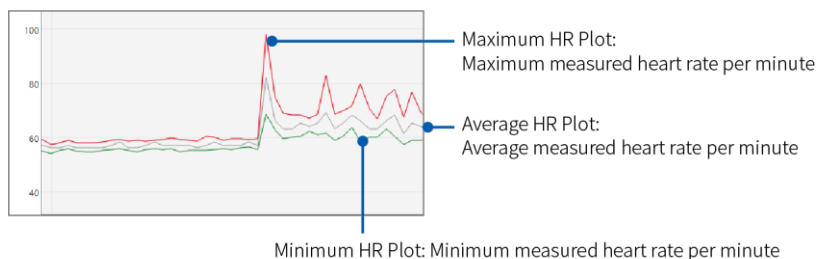


Figure 164 HR Min Max Graph



Figure 165 Selection of HR Min Max Value

- ③ Maximum/Min: A function that finds the highest heart rate per minute displayed on the Average HR plot. The point that has the highest heart rate in the signal analyzed by AT-Report becomes Index 1, and the index decreases as the heart rate increases sequentially.
- ④ Minimum/Min: A function that finds the lowest heart rate per minute displayed on the Average HR plot. The point that has the lowest heart rate in the signal analyzed by AT-Report becomes Index 1, and the index increases as the heart rate increases sequentially.
- ⑤ Maximum/Short: A function that finds the point with the shortest interval between instantaneous QRS peaks displayed on the Average HR plot. Can be considered as a function that finds the point with the shortest R-R interval. The point that has the shortest interval between QRS peaks in the signal analyzed by AT-Report becomes Index 1, and the index increases as the QRS peak interval increases sequentially.
- ⑥ Minimum/Short: A function that finds the point with the longest interval between instantaneous QRS peaks displayed on the Average HR plot. The point that has the longest interval between QRS peaks in the signal analyzed by AT-Report becomes Index 1, and the index increases as the QRS peak interval decreases sequentially.

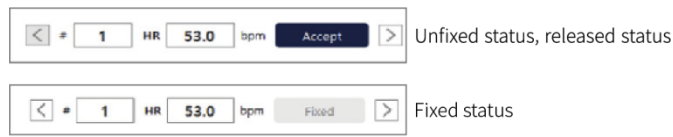


Figure 166 Accept/Fix Function of HR Min Max

- ⑦ **Accept button:** In the HR Min Max tab, you can apply to Report by selecting any of the following four parameters of heart rate, including “Maximum/min,” “Minimum/min,” ‘Maximum’, ‘Minimum’ Using the left and right arrow keys, you can check the location of the point where the heart rate is at its highest (or lowest) value for the current selection. Time information and Average HR will be displayed for the ECG on the Seconds Strip plot whenever the user changes the location. If you press the **Accept** button at the location where an accurate value seems reflected, the location is stored as a Min/Max value. For items that have already been “fixed,” the **Accept** button becomes inactivated, and an indicator line is displayed on the graph.



Figure 167 Indicator Line in the HR Min Max Tab

To change an already fixed item, you can click the left or right arrow and click the **OK** button when a dialog box appears as shown in [\[Figure 170 Release Confirmation Warning Message\]](#).



Figure 168 Release Confirmation Warning Message

A warning message is displayed when the HR value of an already fixed item is different from the HR value at the time it was fixed due to changes such as addition/deletion/movement of the QRS label.

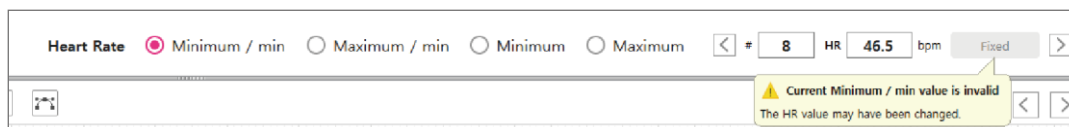


Figure 169 Warning message on HR Min Max TAB screen when HR value is changed

In the Report tab, if it is different from the HR value at the time it was fixed, a warning message is displayed.

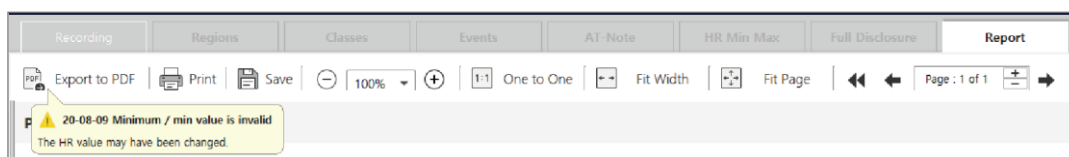


Figure 170 Warning message on REPORT TAB screen when HR value is changed

4. Seconds Strip Plot – [\[Figure 164 HR Min Max Tab Screen\]](#) – 3

Please refer to [“Seconds Strip Plot 1/3 – \[Figure 85 Regions Tab Screen\] – 4”](#) on page 63.

Full Disclosure Tab

1. Full Disclosure Tab Screen

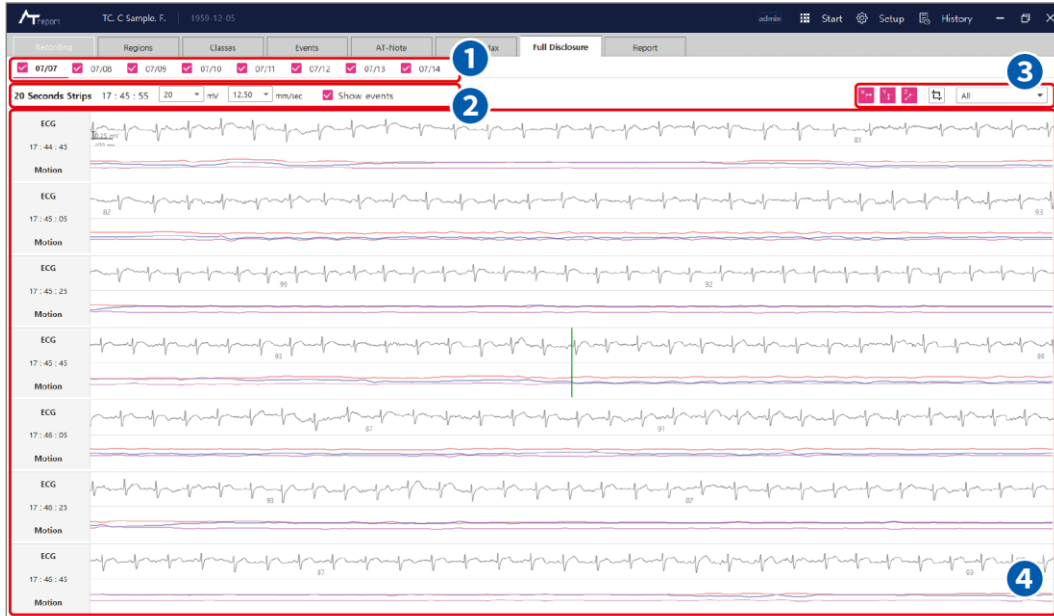
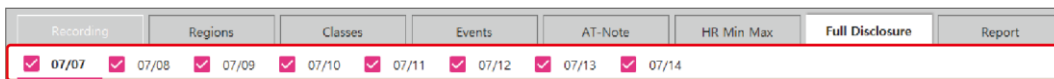
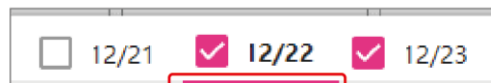


Figure 171 Full Disclosure Tab Screen

2. Date Tab – [\[Figure 173 Full Disclosure Tab Screen\]](#) – 1



In the Full Disclosure tab, the Date tab shows the current working date in the History menu. To change the date, you can click the left mouse button (🖱️) or use a hotkey on the keyboard to change the date information.



The selected date will be underlined with a red line.

3. Strip Item – [Figure 173 Full Disclosure Tab Screen] – ②

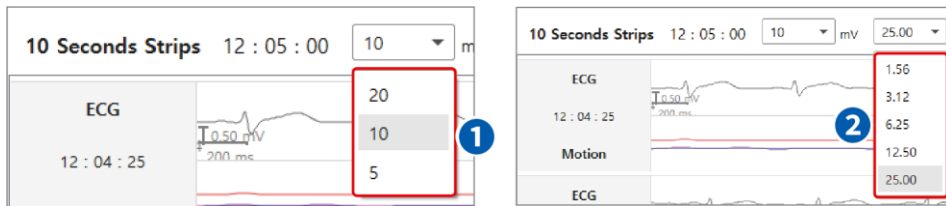


Figure 172 Selection Option Box of the Full Disclosure Tab

- ① Amplitude Selection Box: A drop box that controls the amplitude of the Signal Plot of the Full Disclosure. You can select a value between “5~20 mV” and control the amplitude.

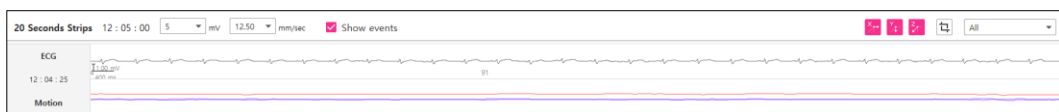


Figure 173 Signal Plot When Amplitude is 5 mV

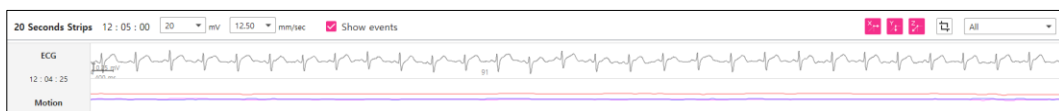


Figure 174 Signal Plot When Amplitude is 20 mV

- ② Time Range Selection Box: A drop box that controls the time range of the Signal Plot of the Full Disclosure. You can adjust the time to the value between “1.56 mm/sec~25 mm/sec.”

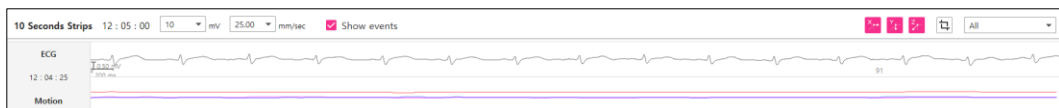


Figure 175 Signal Plot When Time Range is 25 mm/sec

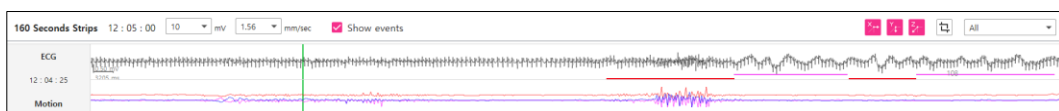


Figure 176 Signal Plot When Time Range is 1.56 mm/sec

4. Signal Display Option – [\[Figure 173 Full Disclosure Tab Screen\]](#) – ③

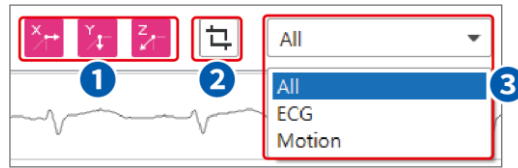


Figure 177 Signal Display Option

- ① Motion Display Option: A button to select the **X-axis** data, **Y-axis** data and **Z-axis** data of the Motion Plot data shown in the Signal Plot. If you select one of the three axes, the selected axis data is shown on the Signal Plot.
- ② Capture Button: A function to make the currently displayed area in Full Disclosure as a user appended event and add it to the report. If you press the button, a dialog box for entering Symptom memo is displayed. If you enter Symptom, a User appended event is added immediately.

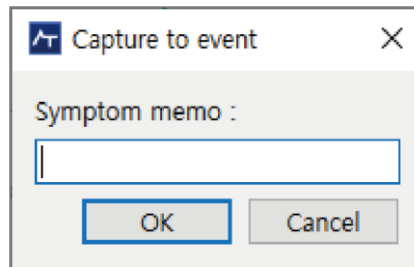


Figure 178 Capture symptom input

- ③ **Signal Selection Box:** A button that selects the signal type displayed on the Signal plot. There are three options to choose from All/ECG/Motion.
- All: Shows both ECG and motion signals.
 - ECG: Shows only an ECG signal on the Signal plot.
 - Motion: Shows only a motion signal on the Signal plot.

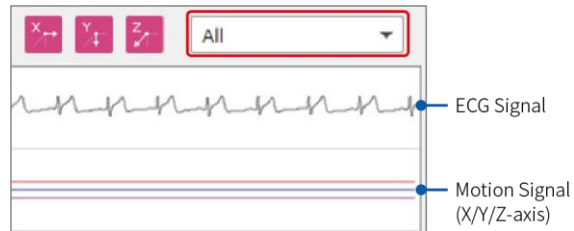


Figure 179 If “All” Is Selected in the Signal Selection Box



Figure 180 If “ECG” Is Selected in the Signal Selection Box

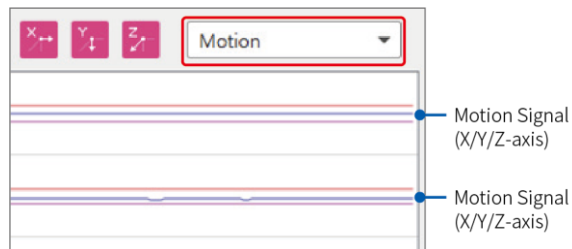


Figure 181 If “Motion” Is Selected in the Signal Selection Box

5. Signal Plot – [\[Figure 173 Full Disclosure Tab Screen\]](#) – ④

The Signal plot is the area that displays the signal selected by the user in the Full Disclosure tab. This area can be useful to see the overall flow of the signals, as it allows you to check the ECG data with a wider and longer overall screen than the existing signal time range.

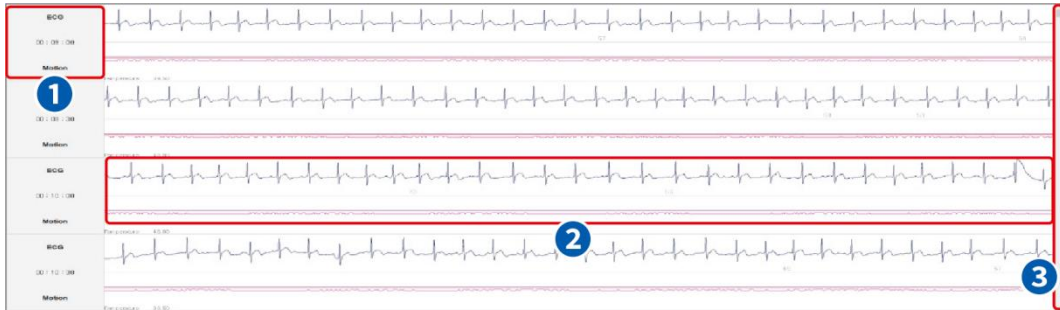


Figure 182 Signal Plot

- ① Display Item: This area displays type and time information from the Signal Display area. ECG, Motion, and time information is included.

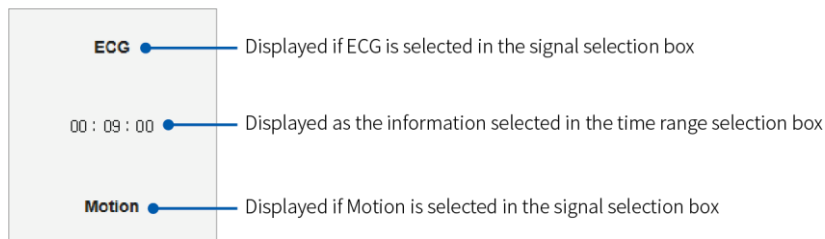


Figure 183 Description of Display Items

- ② Signal Display: As shown in [\[Figure 186 Description of the Signal Display\]](#), The number that means HR (Heart Rate) is displayed among the graph of each signal. You can use the scroll bar to move up and down in the signal display.

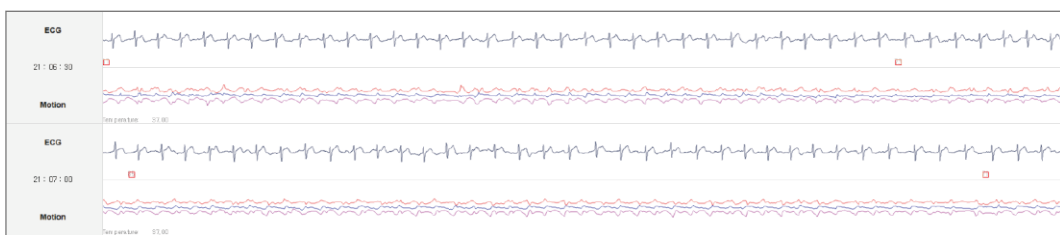
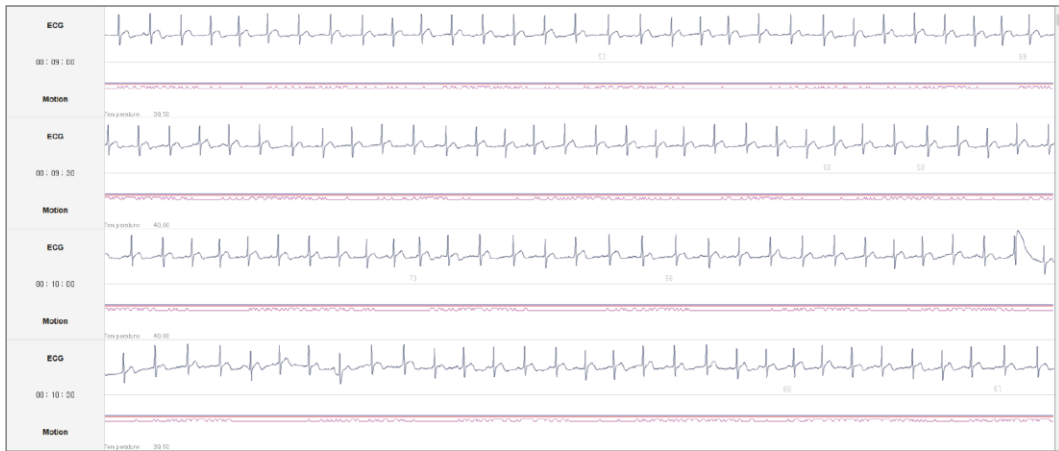


Figure 184 Description of the Signal Display

6. How to Move Time Range Using a Mouse in the Signal Display Area



Time information moves forward



Time information moves backward

Figure 185 Description of Move Time Range Using a Mouse in the Signal Display Area

If you move the mouse wheel up/down, the time information moves forward or backward.

7. How to Add/Remove Event in the Signal Display Area

In the Full Disclosure tab, you can specify the area to add/remove an event in the signal plot as [“Add/Remove Event symptom on the Seconds Strip Plot” on page 132.](#)

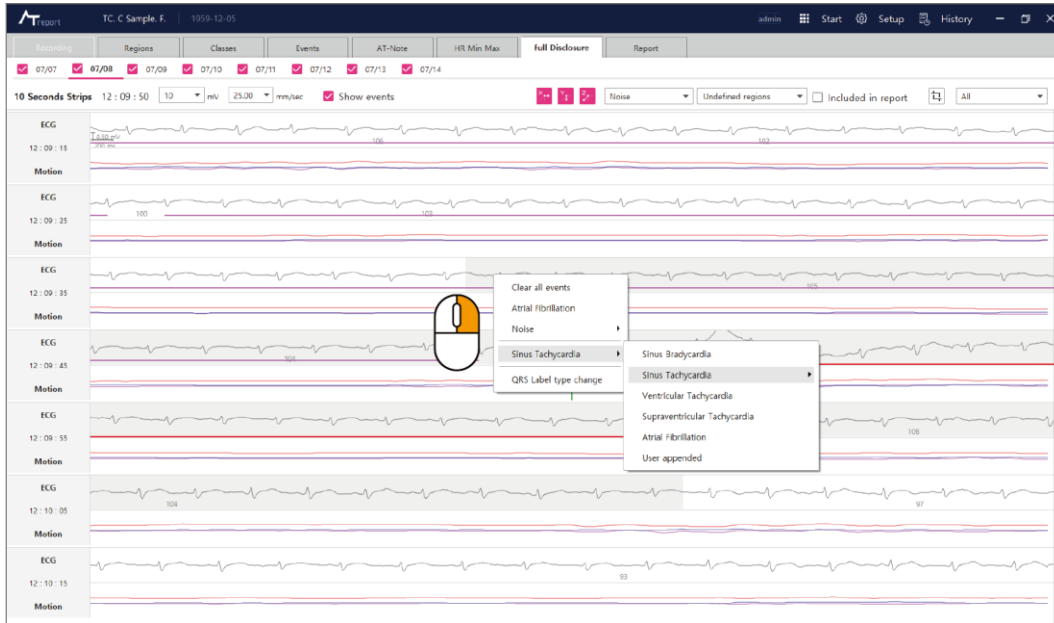




Figure 186 Add/Remove event

As shown in the top most illustration in [\[Figure 188 Add/Remove event\]](#), if you click and drags the left mouse button to select the desired region in the signal display area, a pop-up box appears as shown in the bottom left illustration in [\[Figure 188 Add/Remove event\]](#).

The Pop-up menu has an event item that allows you to add/remove, and when you **Append the Event**, the actual line corresponding to the event appears at the bottom of the selection area as shown in the figure at the bottom left of the [\[Figure 188 Add/Remove event\]](#) and is set as the event area.

To deselect the selected event region, you can right-click  the selected event region and click **Remove Event** or select **Clear all events**.

When you press the  **Ctrl** + **A** key, all valid areas (all times ECG is recorded) of the current Date are selected.

8. Batch change of QRS Label in selected area

There is a function to batch change all QRS Labels within the selected area. First, use the left mouse button (L) to designate the time range of a certain area, and then select the QRS Label type change function through the right mouse button (R) pop-up menu to display the QRS Label type change dialog box. If you select the desired QRS Label and the QRS Label to be changed, all the desired QRS Labels in the selected area are changed to that QRS Label.

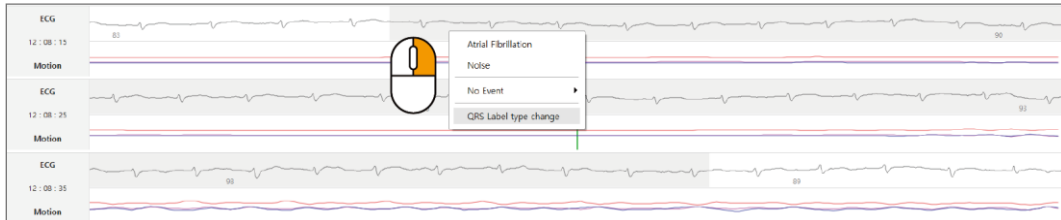


Figure 187 QRS Label type change in Full Disclosure

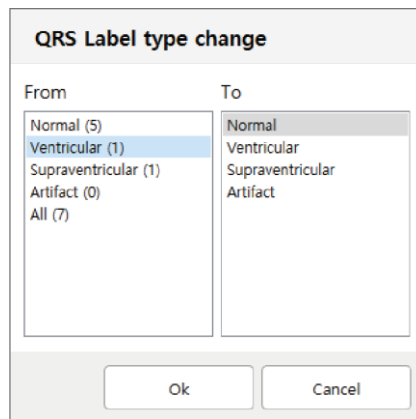


Figure 188 Dialog of QRS Label type change

Report Tab

1. Report Tab Screen

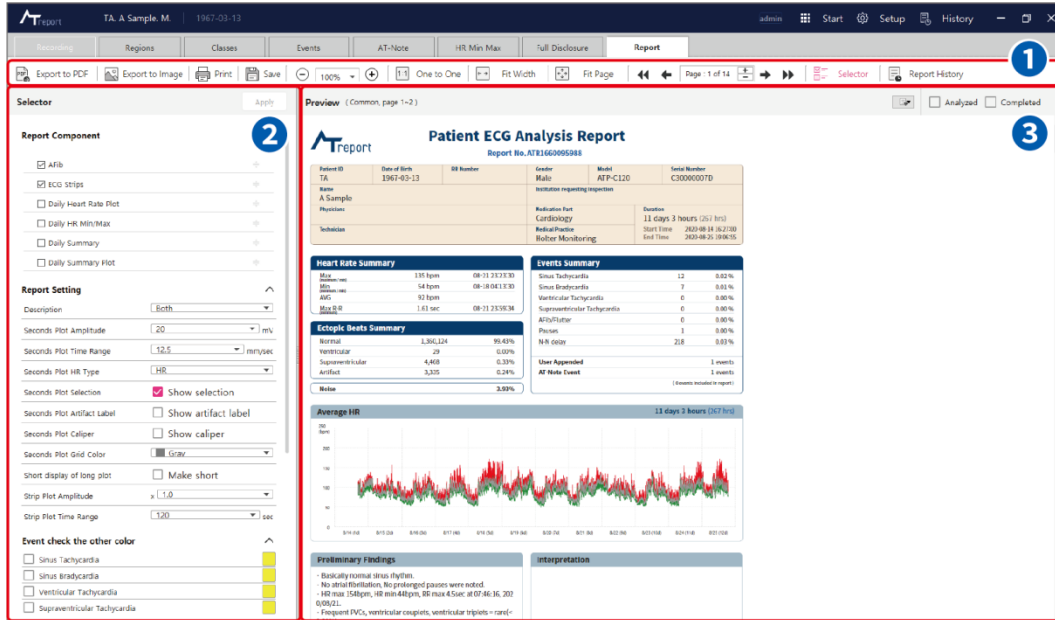


Figure 189 Report Tab Screen

2. Control button Box – [Figure 191 Report Tab Screen] – ①



Figure 190 Report Selection Button

- ① **Export to PDF:** A button that converts the final report to a PDF format and saves it. If you press the button, enters a storage location and file name, and clicks save, a report PDF file is created in the specified storage location.
- ② **Export to Image:** A button that converts the final report to an image, compresses it, and saves it. After pressing the button, enter the storage location and file name, select image quality, and image format, and save. A compressed Report Image file is created in the designated storage location.
- ③ **Print:** A button used to print a final report using a printing device.
- ④ **Save:** A button used to save a final report in AT-Report.
- ⑤ **Zoom In/Out:** A button used to zoom in/out when checking a final report.
- ⑥ **Page Width Control:** With the 1:1 (one to one) function, if the zoom value is 100%, the report output is displayed in its actual size on screen. Fit Width is a function that controls the report size to fit to the width of the page that you're currently looking at. Fit Page is a function that controls the report size to fit one page to the screen that you're currently looking at.

- ⑦ Page Number Control: Displays the total number of pages of the final report and allows you to move to the desired page.
 You can use
 “Go to previous section” to move to the previous section of the final report,
 “Go to previous page” to move to one page before the current page,
 “Go to next page” to move to one page after the current page, and
 “Go to next section” to move to the next section of the report

- ⑧ Report Selector – [\[Figure 191 Report Tab Screen\]](#) – ②
 A function that allows you to select the items to generate in the final report. The changes are applied by pressing the **Apply** button and re-create the report.

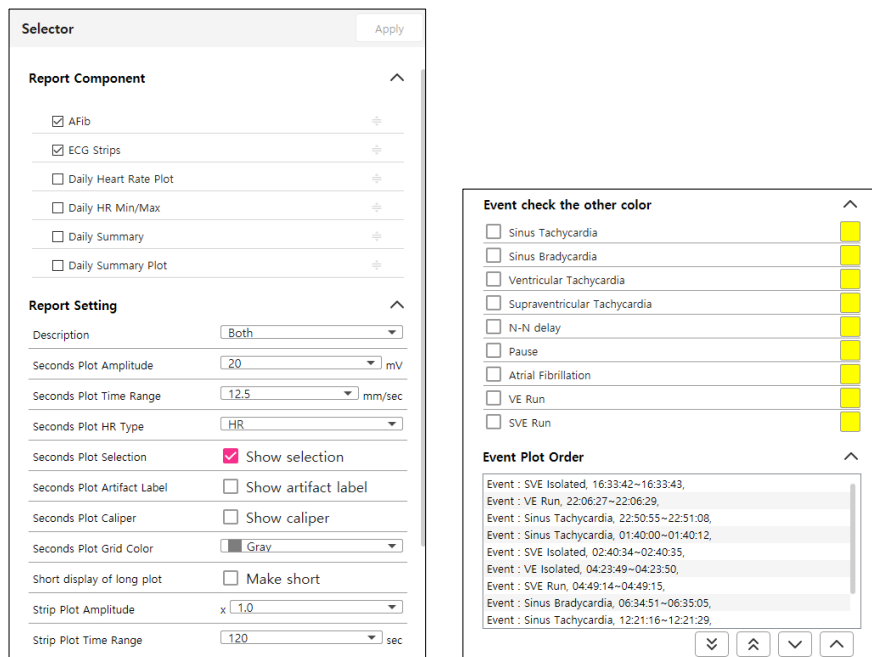


Figure 191 Report Selector

Report Component

- AFib: Burden, Duration, and AF ECG stripes are included at one time to output the part selected by the user as Included in report. (Smart AI Mode automatically displays major intervals according to AF Rank. Please refer to [“Report Tab” on page 111](#).)
- ECG Strips: Output the part selected by the user as Included in report.
- Daily Heart Rate Plot: Content that includes the Daily HR Plot and the times when the corresponding six events (Tachycardia/Bradycardia /User Appended/ Note/R-R Pause/Atrial Fibrillation) occurred. If you click the check box, the content is included when the report is generated.
- Daily HR Min Max: Daily Heart rate variability, minimum heart rate, and maximum heart rate are included and displayed.
- Daily summary & Plot: Daily Summary shows a total of 11 items including Sinus Rhythm/Sinus Tachycardia/Sinus Bradycardia/Ventricular Events/Ventricular Tachycardia/Supraventricular Events/Supraventricular Tachycardia/Atrial Fibrillation, Flutter/Pause/N-N Delay/User Events, and Daily Summary Plot shows N/S/V/A/Noise burden and AF/Tachy/Brady/N-N delay/pause plot.
- Check: Only checked items are displayed in the report. Unchecked Items are excluded from the report.
- Order: You can change items by dragging and dropping them. They are displayed in the report in the order they were changed.

Report Setting




- Description: A drop box that select a description to be added to the final report. Description includes “Both,” “Preliminary Findings,” and “Interpretation.”
- Second Plot Amplitude: A drop box that allows you to select the amplitude of the Second Plot added to the final report.
- Second Plot Time Range: A drop box that allows you to select the time range of the Second Plot added to the final report.
- Seconds Plot HR Type: A drop box that selects the HR type of the Second plot added to the final report.
- Seconds Plot Selection: Checkbox to select whether to display the event area on Second Plot added to Report Final Report
- Seconds Plot Artifact Label: Checkbox to select whether to display Artifact QRS label in Second Plot added to Report Final Report.
- Seconds Plot Grid Color: A drop box that selects the color of the background grid for the Second plot added to the final report. The colors are gray and red.
- Short display of long plot: For long events greater than six lines, the function is to print only the first, middle, and end line.
- Strip Plot Amplitude: A drop box that allows you to select the amplitude of the Strip Plot added to the final report.
- Strip Plot Time Range: a drop box that allows you to select the time range of the Strip Plot added to the final report.

Event check the other color

- Event check the other color: It is used when emphasizing the corresponding event in the report. Pressing the **color** to emphasize can change it to another color. Checking the event to emphasize changes the background color of the corresponding event of the report to the selected color.

Event	Highlighted part																															
<p>Sinus Tachycardia</p> <p><input checked="" type="checkbox"/> Sinus Tachycardia </p>	<div style="border: 1px solid #ccc; padding: 5px;"> <p>Events Summary</p> <table border="1"> <tr><td>Sinus Tachycardia</td><td>347</td><td>1.49 %</td></tr> <tr><td>Sinus Bradycardia</td><td>109</td><td>0.25 %</td></tr> <tr><td>Ventricular Tachycardia</td><td>0</td><td>0.00 %</td></tr> <tr><td>Supraventricular Tachycardia</td><td>0</td><td>0.00 %</td></tr> <tr><td>AFib/Flutter</td><td>4,562</td><td>38.27 %</td></tr> <tr><td>Pauses</td><td>1</td><td>0.00 %</td></tr> <tr><td>N-N delay</td><td>305</td><td>0.07 %</td></tr> </table> <p>User Appended 1 events AT-Note Event 12 events <small>(0 events included in report)</small></p> </div> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 5px;"> <p>Sinus Tachycardia > 130 bpm, 30 sec</p> <table border="1"> <tr><td>Total Events</td><td>347 events</td></tr> <tr><td>Maximum Heart Rate</td><td>163 bpm at 05-13 09:48:36</td></tr> <tr><td>Longest duration</td><td>0d 00h 02m 53s</td></tr> <tr><td>Total Time (duration)</td><td>0d 02h 29m 21s</td></tr> <tr><td>Percent(%)</td><td>1.49 %</td></tr> </table> </div>	Sinus Tachycardia	347	1.49 %	Sinus Bradycardia	109	0.25 %	Ventricular Tachycardia	0	0.00 %	Supraventricular Tachycardia	0	0.00 %	AFib/Flutter	4,562	38.27 %	Pauses	1	0.00 %	N-N delay	305	0.07 %	Total Events	347 events	Maximum Heart Rate	163 bpm at 05-13 09:48:36	Longest duration	0d 00h 02m 53s	Total Time (duration)	0d 02h 29m 21s	Percent(%)	1.49 %
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<p>Supraventricular Tachycardia</p> <p><input checked="" type="checkbox"/> Supraventricular Tachycardia</p>	<div data-bbox="863 902 1390 1238"> <p>Events Summary</p> <table border="1"> <tr><td>Sinus Tachycardia</td><td>347</td><td>1.49 %</td></tr> <tr><td>Sinus Bradycardia</td><td>109</td><td>0.25 %</td></tr> <tr><td>Ventricular Tachycardia</td><td>0</td><td>0.00 %</td></tr> <tr><td>Supraventricular Tachycardia</td><td>0</td><td>0.00 %</td></tr> <tr><td>AFib/Flutter</td><td>4,562</td><td>38.27 %</td></tr> <tr><td>Pauses</td><td>1</td><td>0.00 %</td></tr> <tr><td>N-N delay</td><td>305</td><td>0.07 %</td></tr> </table> <p>User Appended 1 events AT-Note Event 12 events (0 events included in report)</p> </div> <div data-bbox="863 1254 1390 1422"> <p>Supraventricular Tachycardia ≥ 3 beats, > 100 bpm, > 10 sec</p> <table border="1"> <tr><td>Total Events</td><td>0 events</td></tr> <tr><td>Maximum Heart Rate</td><td>-</td></tr> <tr><td>Longest duration</td><td>-</td></tr> <tr><td>Total Time (duration)</td><td>-</td></tr> <tr><td>Percent(%)</td><td>0.00 %</td></tr> </table> </div>	Sinus Tachycardia	347	1.49 %	Sinus Bradycardia	109	0.25 %	Ventricular Tachycardia	0	0.00 %	Supraventricular Tachycardia	0	0.00 %	AFib/Flutter	4,562	38.27 %	Pauses	1	0.00 %	N-N delay	305	0.07 %	Total Events	0 events	Maximum Heart Rate	-	Longest duration	-	Total Time (duration)	-	Percent(%)	0.00 %
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<p>Atrial Fibrillation</p> <p><input checked="" type="checkbox"/> Atrial Fibrillation</p> 	<div data-bbox="863 875 1390 1211"> <p>Events Summary</p> <table border="1"> <tr><td>Sinus Tachycardia</td><td>347</td><td>1.49 %</td></tr> <tr><td>Sinus Bradycardia</td><td>109</td><td>0.25 %</td></tr> <tr><td>Ventricular Tachycardia</td><td>0</td><td>0.00 %</td></tr> <tr><td>Supraventricular Tachycardia</td><td>0</td><td>0.00 %</td></tr> <tr><td>AFib/Flutter</td><td>4,562</td><td>38.27 %</td></tr> <tr><td>Pauses</td><td>1</td><td>0.00 %</td></tr> <tr><td>N-N delay</td><td>305</td><td>0.07 %</td></tr> </table> <p>User Appended 1 events AT-Note Event 12 events <small>(0 events included in report)</small></p> </div> <div data-bbox="863 1227 1390 1451"> <p>Atrial Fibrillation / Flutter</p> <table border="1"> <tr><td>Total Events</td><td>4,562 events</td></tr> <tr><td>Longest duration</td><td>0d 00h 17m 03s</td></tr> <tr><td>Maximum Heart Rate</td><td>203 bpm at 05-11 09:22:20</td></tr> <tr><td>Average Heart Rate</td><td>88 bpm</td></tr> <tr><td>Minimum Heart Rate</td><td>27 bpm at 05-15 17:05:03</td></tr> <tr><td>Total Time (duration)</td><td>2d 16h 08m 28s</td></tr> <tr><td>Percent(%)</td><td>38.27 %</td></tr> </table> </div>	Sinus Tachycardia	347	1.49 %	Sinus Bradycardia	109	0.25 %	Ventricular Tachycardia	0	0.00 %	Supraventricular Tachycardia	0	0.00 %	AFib/Flutter	4,562	38.27 %	Pauses	1	0.00 %	N-N delay	305	0.07 %	Total Events	4,562 events	Longest duration	0d 00h 17m 03s	Maximum Heart Rate	203 bpm at 05-11 09:22:20	Average Heart Rate	88 bpm	Minimum Heart Rate	27 bpm at 05-15 17:05:03	Total Time (duration)	2d 16h 08m 28s	Percent(%)	38.27 %
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Longest duration	0d 00h 00m 01s																																			

Event	Highlighted part																										
<p>SVE Run</p> <p><input checked="" type="checkbox"/> SVE Run ■</p>	<div style="border: 1px solid gray; padding: 5px;"> <p>Supraventricular Events (2,416 beats in AFib)</p> <table border="0"> <tr> <td>Total Supraventricular Events</td> <td>5,119 events</td> </tr> <tr> <td>Isolated</td> <td>4,815 beats</td> </tr> <tr> <td>Max SVE / min</td> <td>16 beats at 05-15 05:10:00</td> </tr> <tr> <td>Max SVE / hour</td> <td>295 beats at 05-13 00:00:00</td> </tr> <tr> <td>Percent(%)</td> <td>0.12 %</td> </tr> <tr> <td>Supraventricular Trigeminy</td> <td>46 events</td> </tr> <tr> <td>Longest</td> <td>3 cycles at 05-17 04:29:14</td> </tr> <tr> <td>Supraventricular Bigeminy</td> <td>195 events</td> </tr> <tr> <td>Longest</td> <td>7 cycles at 05-12 00:25:35</td> </tr> <tr> <td>Supraventricular Couplet</td> <td>43 events</td> </tr> <tr> <td>Supraventricular Runs</td> <td>20 events (≥3 beats)</td> </tr> <tr> <td>Maximum Heart Rate</td> <td>176 bpm at 05-14 20:31:10</td> </tr> <tr> <td>Longest duration</td> <td>0d 00h 00m 01s</td> </tr> </table> </div>	Total Supraventricular Events	5,119 events	Isolated	4,815 beats	Max SVE / min	16 beats at 05-15 05:10:00	Max SVE / hour	295 beats at 05-13 00:00:00	Percent(%)	0.12 %	Supraventricular Trigeminy	46 events	Longest	3 cycles at 05-17 04:29:14	Supraventricular Bigeminy	195 events	Longest	7 cycles at 05-12 00:25:35	Supraventricular Couplet	43 events	Supraventricular Runs	20 events (≥3 beats)	Maximum Heart Rate	176 bpm at 05-14 20:31:10	Longest duration	0d 00h 00m 01s
Total Supraventricular Events	5,119 events																										
Isolated	4,815 beats																										
Max SVE / min	16 beats at 05-15 05:10:00																										
Max SVE / hour	295 beats at 05-13 00:00:00																										
Percent(%)	0.12 %																										
Supraventricular Trigeminy	46 events																										
Longest	3 cycles at 05-17 04:29:14																										
Supraventricular Bigeminy	195 events																										
Longest	7 cycles at 05-12 00:25:35																										
Supraventricular Couplet	43 events																										
Supraventricular Runs	20 events (≥3 beats)																										
Maximum Heart Rate	176 bpm at 05-14 20:31:10																										
Longest duration	0d 00h 00m 01s																										

Table 13 Event check the other color

Event Plot Order

- List all plots visible on ECG Strips
- For the selected Plot, you can change the display order of the Plots with ① Bottom/② Top/③ Down/④ Up.

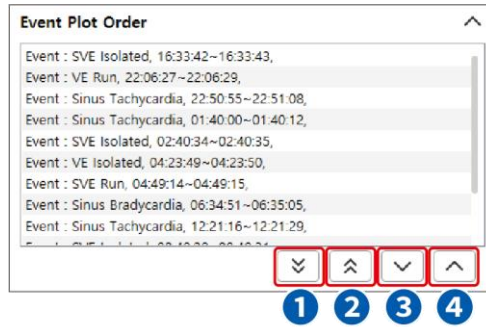


Figure 192 Event Plot Order

All items support expand/collapse function

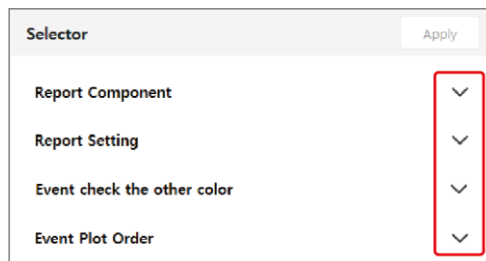


Figure 193 All items are folded

- ⑨ Report History: Report History is the function that stores the status history of report publication stages in the report tab.

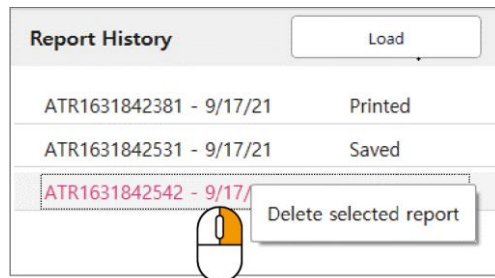


Figure 194 Report History

The Report History in [Figure 196 Report History] shows history items corresponding to “Saved,” “PDF,” “Image,” and “Printed.” The first item corresponding to “Save” is the history of when the final report was saved. The second item corresponding to “PDF” is the history of when the final report was saved as a PDF file. The third item corresponding to “Printed” is the history of when the final report was printed. In addition, the Report History list selected by the user turns red as shown in [Figure 196 Report History]. You can use the right mouse button (Ⓜ) to delete the list saved in the Report History. If you select an item to delete and clicks the right mouse button, a “Delete selected report” pop-up box appears. If you click the box, the selected Report History list is deleted.

3. Report Preview – [Figure 191 Report Tab Screen Screen] – 3

▶ Export 1-2 Page, Analyzed, Completed

- Export 1-2 Page: This function saves 1-2 pages of the final report as Print, PDF, or Image.
- Analyzed: If you have finished analyzing all currently selected patients and are ready to review the report, you can change the status by marking the check box. The status of "Analyzed" can be changed by a user with [Edit ECG Data](#) privileges.
- Completed: If the report has been reviewed for the currently selected patient, you can change the status by marking the check box. The status of "Completed" can be changed by a user with [Complete report](#) privileges.

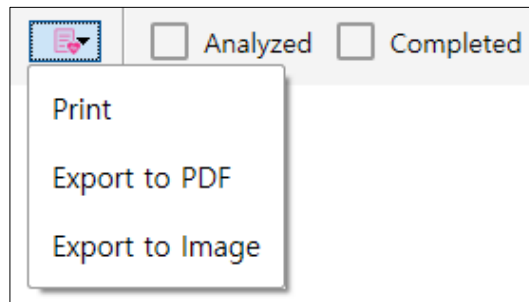


Figure 195 Export 1-2 Page, Analyzed, Completed

- ▶ Preliminary Findings & Interpretation: Clicking the Preliminary Findings or the Interpretation entry in the report will create a yellow border around you that you have chosen: You can write or modify your comments directly with the keyboard. For a long sentence to be recorded in each item, a warning message is displayed for about 10 seconds and disappears.

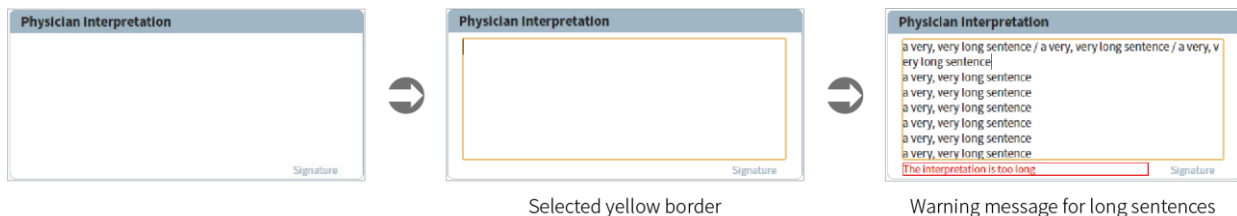


Figure 196 Preliminary Findings & Interpretation

- ▶ Go to Event: You can move to Events tabs corresponding to the recorded date time using the button pop-up menu when mousing over the item where the time of the report is recorded.



Figure 197 Go to Event

- ▶ ECG Strips plot popup: You can use the Event Plot Order, Report Setting, and go to event functions by using the pop-up menu with the right mouse button on the ECG Strips plot of the Report.
 - Event Plot Order: Refer to [Event Plot Order](#)
 - Report Setting: You can set [Report Setting](#) only for the selected ECG Strip.
 - go to event: Refer to [Go to Event](#).

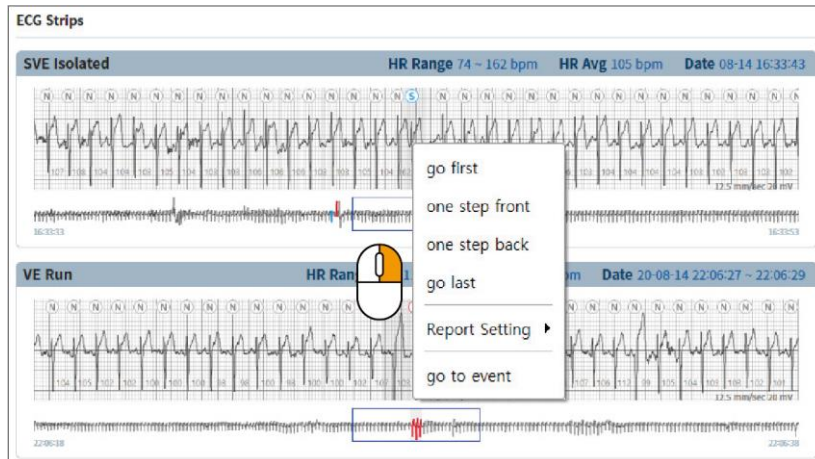


Figure 198 ECG Strips plot popup

4. Error message in the Report Tab According to User Actions

Error Message	Details
Failed to save report	If a report can't be saved for some unknown reason
Failed to Export PDF	If a report can't be saved as PDF for some unknown reason
Loading report error Can't load saved report	If a saved report can't be imported for some unknown reason

Table 14 Error message in the Report Tab According to User Actions

Smart AI Mode

Smart AI Mode Setup

1. This mode focuses on AF (Atrial fibrillation) and automatically includes AF automatically detected by the algorithm in the final report. To change the mode, you can select **Smart AI** in the Report Mode on **Setup** → **Report** screen.

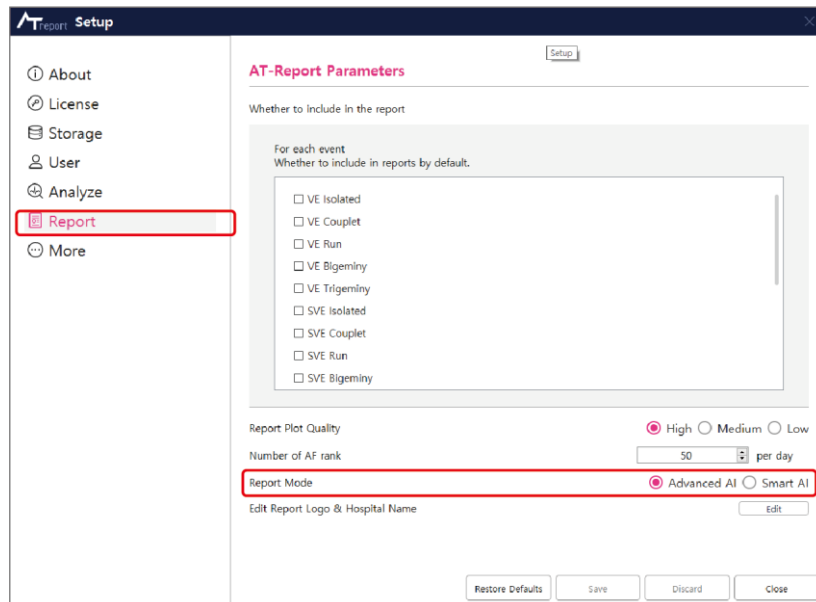


Figure 199 Smart AI Mode Setup

2. The user should restart the program to change the mode. If you select the Smart AI Mode and presses the **Save** button, a pop-up as shown in [Figure 202 Smart AI Mode Save] appears. If you click the **OK** button, the program will shut down automatically. If you restart the program that was shut down automatically, you can see that the changed mode has been applied.

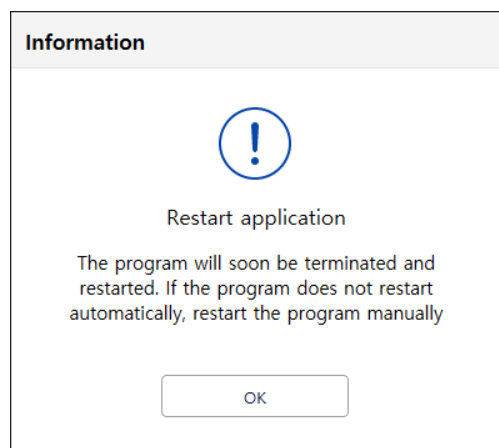


Figure 200 Smart AI Mode Save

Smart AI Mode Tab Screen

There is a total of three tabs at the top of the window. Only Recording, Event, and Report tabs can be used, unlike in the Advanced AI Mode.

1. Recording Tab

When the import of AT-patch data or AT-Note data is completed in **Start** → **Patient List**, patient information, and ECG data information are displayed in the Recording List as shown in [\[Figure 203 Recording Tab\]](#). Registration of patient information and import of ECG data can be carried out the same way as in the Advanced AI Mode, as described in [“Start” on page 20](#). In addition, all functions in the Recording tab are also the same as those in the Advanced AI Mode. Details are described in Section [“Recording Tab” on page 48](#).

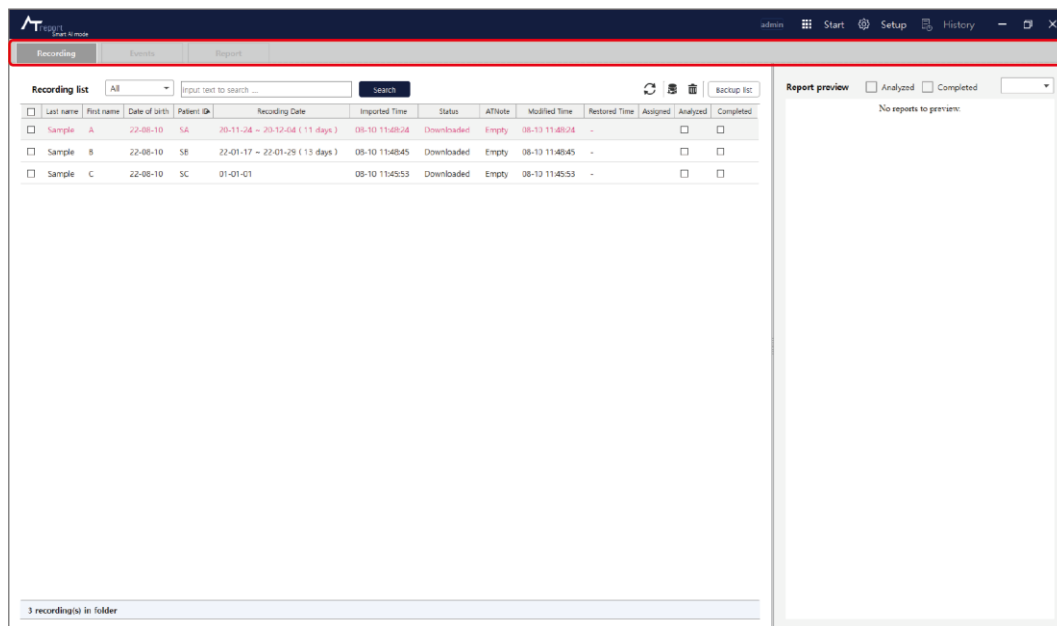


Figure 201 Recording Tab

2. Events Tab

You can check the average HR of the patient's ECG data, the presence of AF, etc.

The Modify and Edit functions on the Events tab can be used the same as in the Advanced AI Mode, but events only show AF and Noise. In addition, the Seconds Strip appears in three lines, making it easy to check the overall ECG section and AF. Details related to the Events tab are described in Section [“Events Tab” on page 86](#).

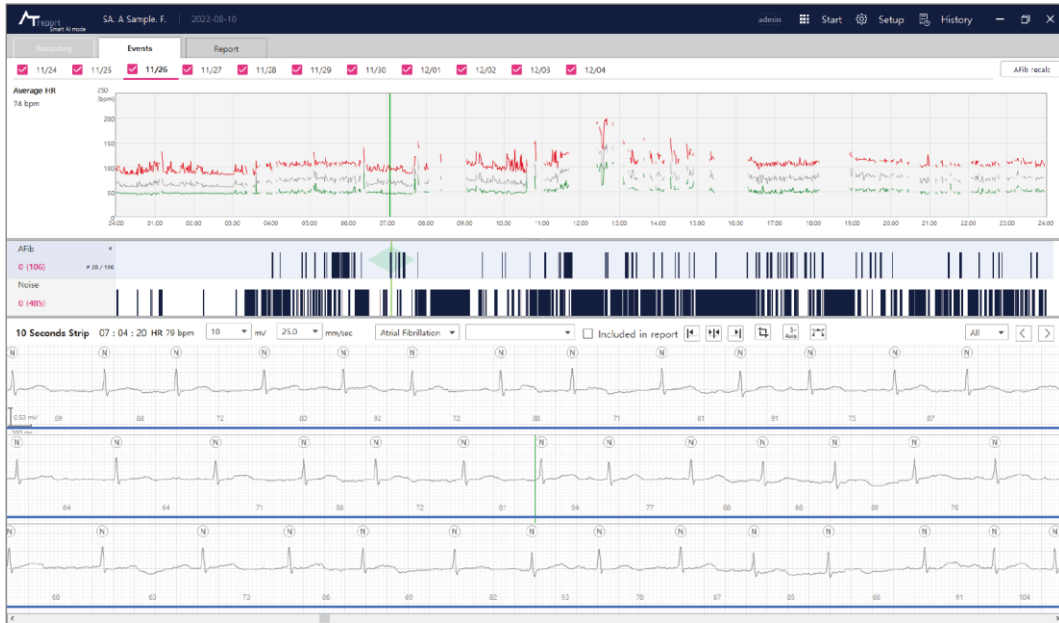


Figure 202 Events Tab

3. Report Tab

You can check results such as automatically detected events and whether there is any AF on the Report tab. All functions in the Report tab are the same as those in the Advanced AI Mode. Details are described in Section [“Report Tab” on page 111](#).

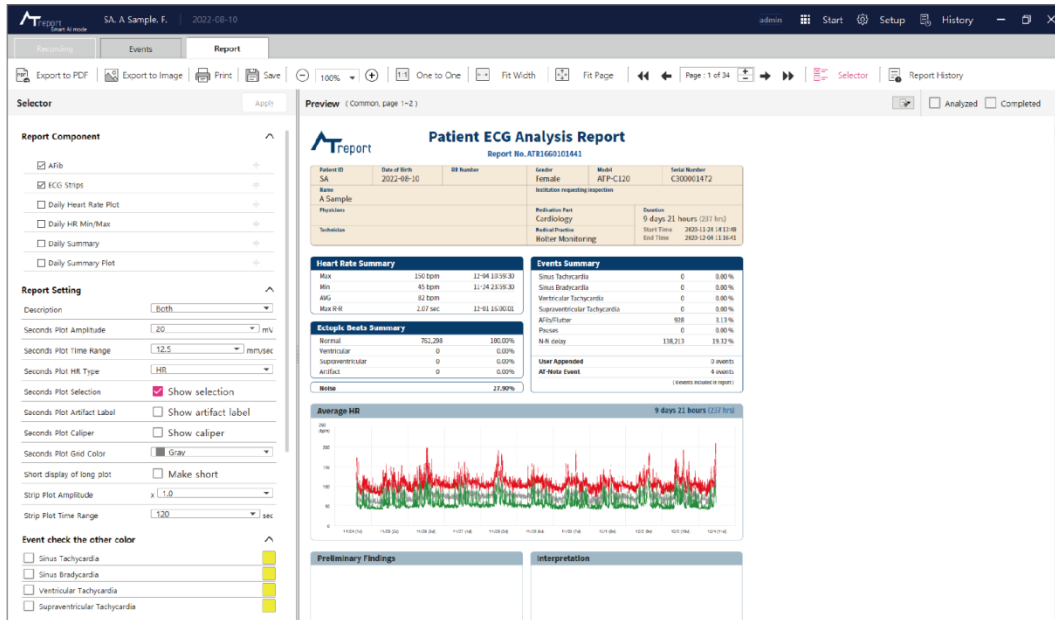


Figure 203 Report Tab

- ▶ You can check automatically detected AF data and ECG strips when the AF component is selected on the Selector. The AF data is detected automatically by the AF ranking system.

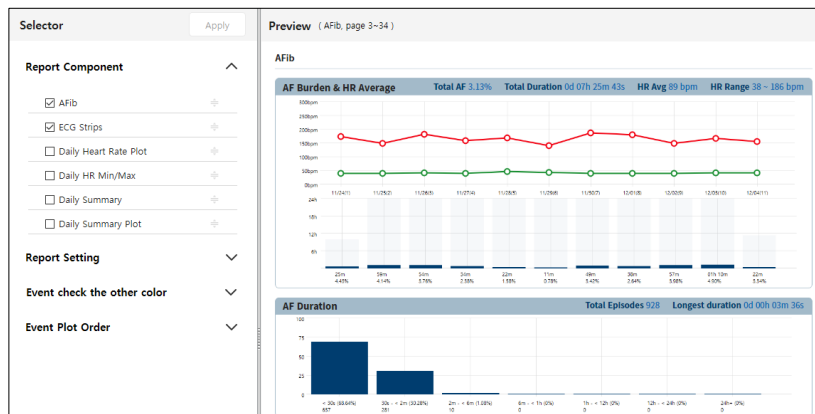


Figure 204 Smart AI Mode Report Selector and AF Report Data

- ▶ Since you don't accept and specify the minimum/maximum values of HR, the Minimum/short and Maximum/short values in the Daily HR Min Max part will not be shown in the report.



Figure 205 Daily HR Min Max

Description of Various Actions in AT-Report

AT-Report Area Selection Function

To select an area in AT-Report, you can click the left mouse button as the figure below.

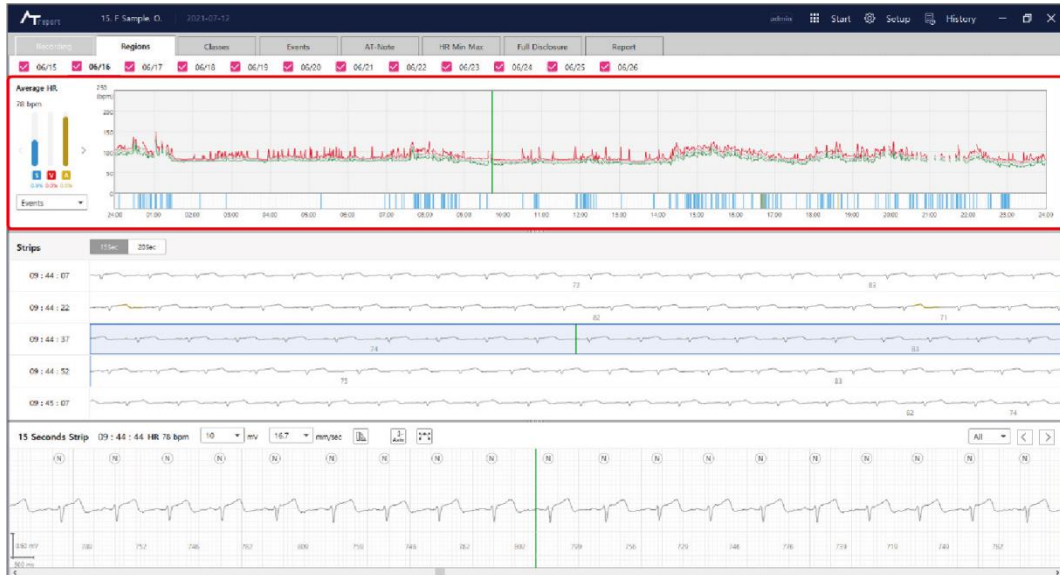


Figure 206 AT-Report Area Selection Function

Modify Function of Seconds Strip Plot

1. Time Change Function on the Seconds Strip Plot

If you click the left mouse button (L) on the Seconds Strip plot, an indicator line is generated in the clicked area and the time is changed. The color of the indicator varies, depending on whether a QRS label is selected.

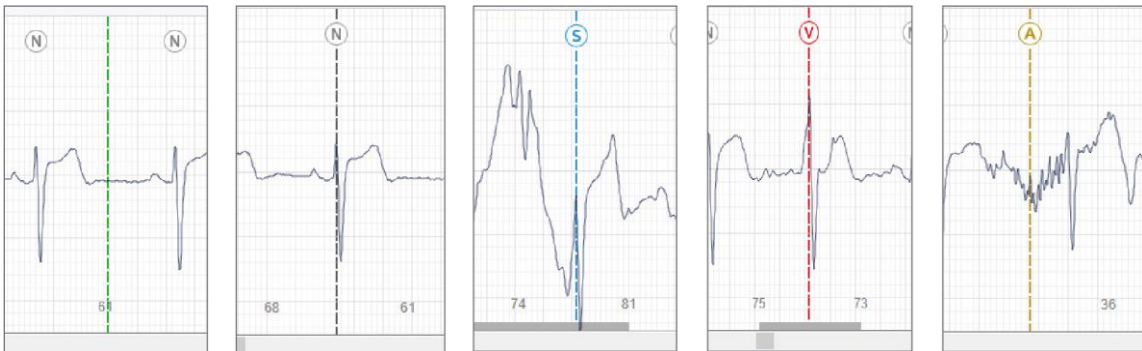


Figure 207 Color of the Indicator according to None/Normal/Supraventricular/Ventricular/Artifact

2. Function to Center the Indicator Line

If you adjust the current time in another plot or the selected time is changed to the current time by pressing the **Space** (Space) key, the place where the Indicator line is moved to the center and it is changed into a solid line.

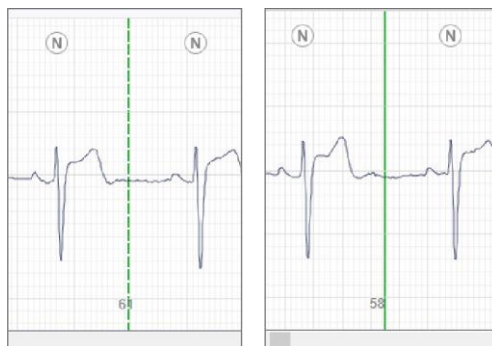


Figure 208 The Color of an Indicator Depending on Whether the Selected Time Matches the Current Time

3. QRS Label Edit Function in the Indicator Line

- ▶ **Change QRS Label:** If a QRS label is already selected at the selected time, you can change the QRS label using a hotkey, such as **N/S/A/V**. It can be also changed in the pop-up menu which appears by clicking the right mouse button (🖱️).

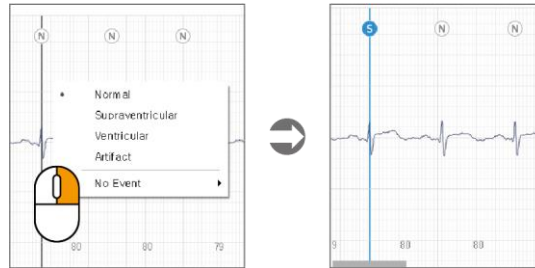


Figure 209 Right Mouse Button Pop-up Menu

- ▶ **Use of **N/S/A/V** Hotkeys in the Class Tab/Sub-class Tab:** The QRS label of the Group Class QRS Label Card is changed.
- ▶ **Add QRS Label:** To add a QRS label on the Seconds Strip plot, you should click the left mouse button (🖱️) and select a desired area. After a desired area is selected and an indicator line is generated, you should click the right mouse (🖱️) button. If you select the QRS label in the pop-up menu (after clicking the right mouse button (🖱️)), you can add a QRS label to a desired area.

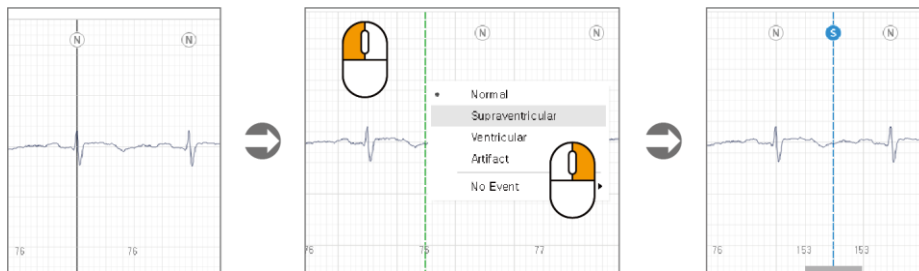







Figure 210 Add QRS Label Function

- Addition and modification of QRS Label in multiple lines:

In the Seconds Strip Plot, you can select multiple random areas by pressing the  **Shift** key () + left-clicking the mouse (). Several selected areas are displayed with a pink indicator line, and multiple QRS Labels can be added and modified through the  **NS/A/V** shortcut key or the right mouse button () pop-up menu. Where QRS Label is already located, correction is made, and where QRS Label does not exist, addition is made. Areas that are not currently displayed in the Seconds Strip Plot are not added or changed.






Multiple selected areas can be deleted by pressing the **Shift** key () + right-clicking ().



Figure 211 Addition and modification of QRS Label in multiple lines

- Move Indicator Line

Move Indicator Line: If a QRS label is already selected at the selected time, you can adjust the location using the  **Shift** key () +  mouse wheel.

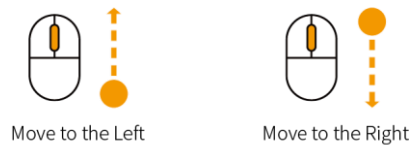


Figure 212 Move Indicator Line

- If a QRS label is changed, the icon indicating the type of QRS label is filled with a background color.



Figure 213 Changed QRS Label

- ▶ **Batch change of QRS Label in selected area:** There is a function to collectively change all QRS labels within the selected area in the ECG graph of the Seconds Strip Plot. First, use the left mouse button (☞) to designate the time range of a certain area, and then select the QRS Label type change function through the right mouse button (☞) pop-up menu to display the QRS Label type change dialog box. If you select the desired QRS Label and the QRS Label to be changed, then all the desired QRS Labels in the selected area are changed to that QRS Label.

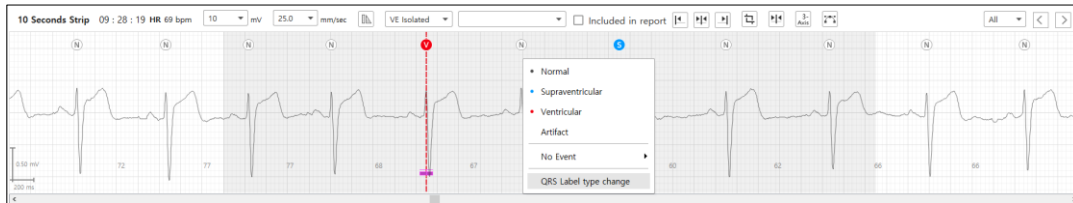


Figure 214 QRS Label type change in Seconds Strip Plot

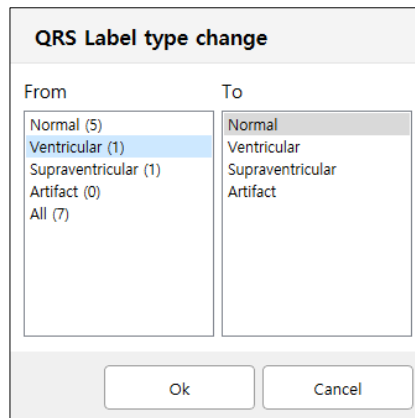


Figure 215 Dialog of QRS Label type change

- ▶ If the selected time is within an event area, the name of the event is displayed, and you can enter comments or decide whether to add it to the report or not. To add an event to the report, you can tick (☑) the check box ☐ of (☐) Included in Report.

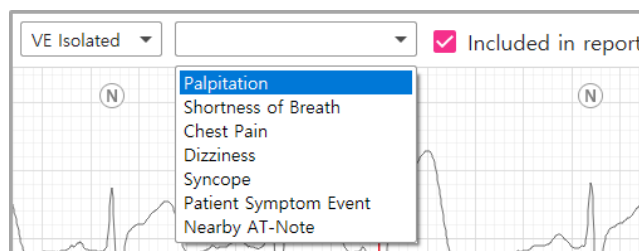


Figure 216 Comment Entry for an Event/Whether to Add a Report to an Event

- ▶ Add/Remove Event symptom on the Seconds Strip Plot: As shown in [\[Figure 219 Add Event\]](#), if you want to add an event symptom to the ECG graph of a Seconds Strip plot, you can click and drag using the left mouse button. If you use the left mouse button (🖱️) to select a time range of a certain area and click the right mouse button (🖱️), a box to select the event symptom appears. If you select a desired event from the box, the event symptom is added.

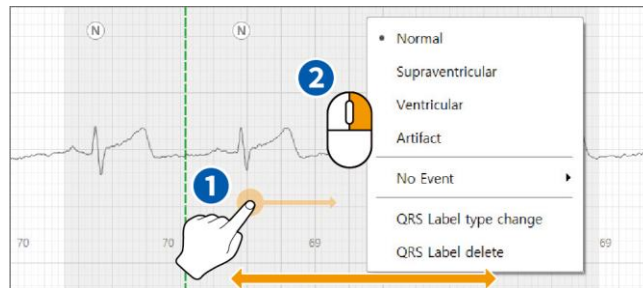


Figure 217 Add Event

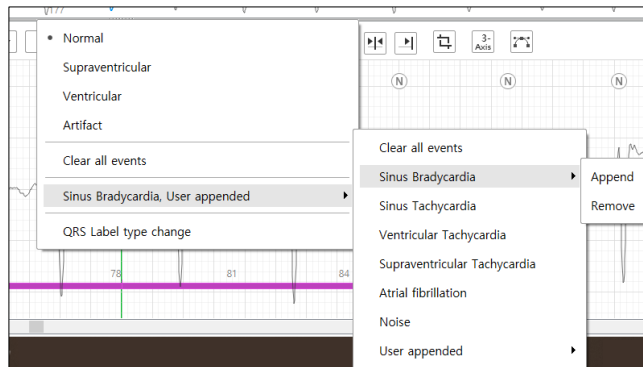
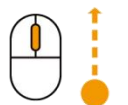
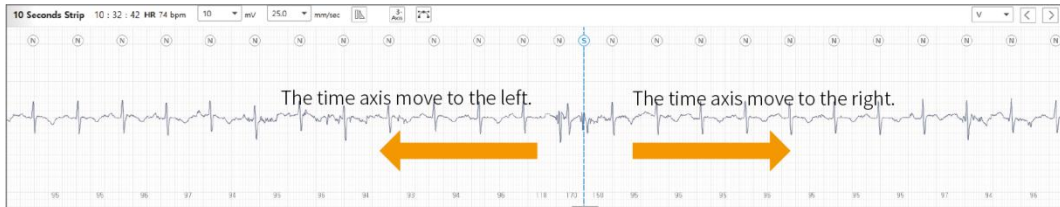


Figure 218 Event List

Hotkey on Move Seconds Strip Plot

To move the ECG graph on the Seconds Strip plot to the left and right on the time domain, the following two methods can be used.



Move to the Left



Move to the Right

How to move to the left and right using a mouse wheel



Move to the Left



Move to the Right

How to move to the left and right using a keyboard

Figure 219 How to Move the Time Axis in the Seconds Strip Plot

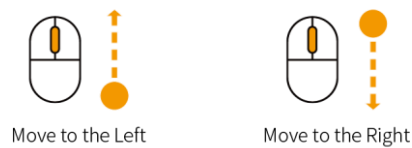
Average HR Plot of Regions Tab

1. Indicator Line Move Function



Figure 220 Indicator Line Move Function




In [\[Figure 222 Indicator Line Move Function\]](#), if you move the mouse wheel up and down on the Average HR plot, the indicator line moves left and right.



2. Zoom In/Out Function



Figure 221 Zoom In/Out Function on an Average HR Plot

- ▶ If you use the **Ctrl** +  left mouse button and clicks and drags in the diagonal direction, an extended rectangle is created and the screen is zoomed in within the shape.
- ▶ If you use the **Ctrl** +  right mouse button and clicks in the zoomed in order, the screen is zoomed out according to the clicking order.
- ▶ If you click the **Ctrl** +  mouse wheel, Zoom Fit is executed.

3. Add/Remove Event

[[Figure 224 Add Event](#)] As in HR Plot's ECG graph, you can use the Click & Drag of the mouse left button to add events. After specifying a time range of a certain area using the left button of the mouse, clicking the right button (Ⓜ) will show a box where you can choose an event. Selecting the desired event in the box adds the event. Selecting a specific event among the already existing events included in the area to remove only the specific event or selecting the Clear all events to remove all events.

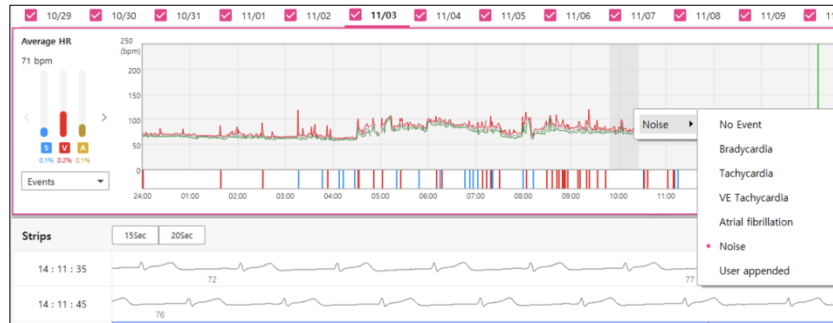


Figure 222 Add Event

4. Trim

The ECG signal is not recorded, and the area that can't be analyzed because a lot of noise can be excluded from electrocardiogram analysis with the Trim function. [[Figure 225 Trim](#)] As shown, a box that can select Trim by clicking the right button (Ⓜ) on the indicator line indicating the current time of HR Plot appears.

- ▶ Trim from begin to here: It is excluded from the beginning of the day to the place where the current indicator line is
- ▶ Trim from here to end: It is excluded from the place where the current indicator line is to the end of the day

The area where Trim is performed will make the relevant QRS label/event disappear. After Trim is performed, it is impossible to revert it, so be careful about using this feature.

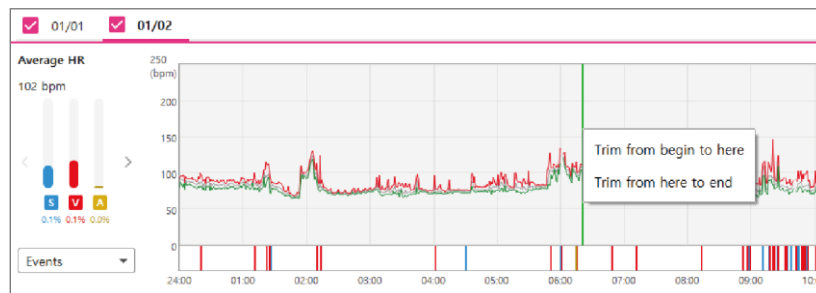


Figure 223 Trim

Modify function in the Sub-class QRS Label Card

1. How to Change a Sub-class QRS Label Card

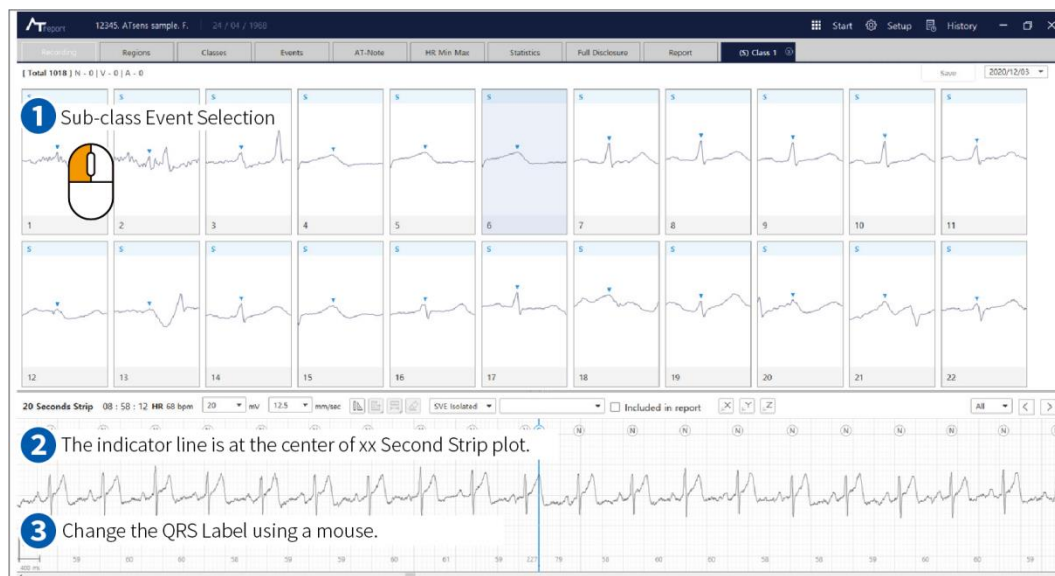


Figure 224 How to Change a Sub-class QRS Label Card

To change a sub-class QRS label card when an indicator line is located at the center as shown in ② of [Figure 226 How to Change a Sub-class QRS Label Card], you can refer to “QRS Label Edit Function in the Indicator Line” on page 129. After the sub-class QRS label changed, it automatically moves to the next index (index 1 → index 2 → index 3). This action can be done continuously and repeated. If you finally modify the last sub-class QRS label using a keyboard or by clicking the right mouse button (Ⓜ), you can press the **Enter** (↵) key of the keyboard to move to the next sub-class tab.

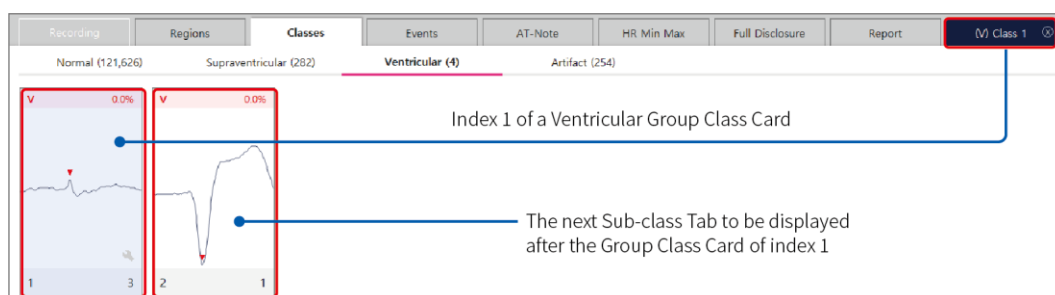


Figure 225 Index Generated in the Sub-class Tab in the Group Class QRS Label

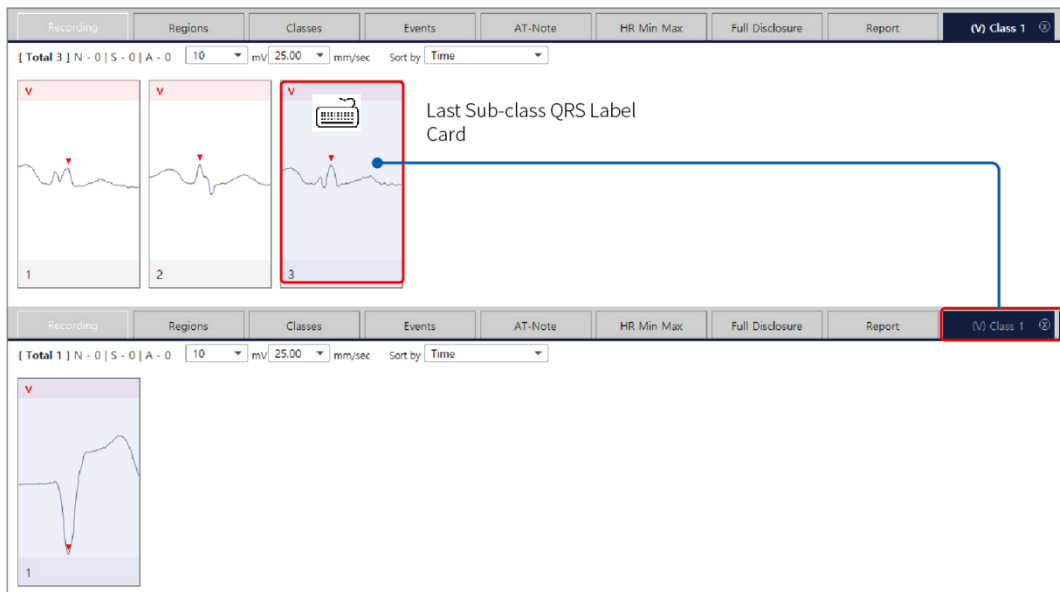


Figure 226 How to Additionally Generate New Sub-class Tab

Time Sync Function of the Indicator Line

In AT-Report, if you select the desired area (plot/class or sub-class card/list data) of the indicator line for plots used in each tab, time information of other areas alongside the selected area is displayed together and placed at the center.








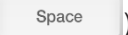











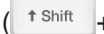

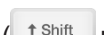

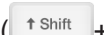







Figure 227 Time Sync Function of an Indicator Line

If you click the left mouse button (🖱️) and generates an indicator line as shown in ① in the Average HR plot of [Figure 229 Time Sync Function of an Indicator Line], the indicator line is located at the center of the total time range of the Strips plot and the Seconds Strip plot.


























If you move the indicator line by clicking the left mouse button in the Strips plot as in ②, the indicator line in the Strips plot can be moved as you like. The indicator line on the Average HR plot moves to the specified time, and the indicator line on the Seconds Strips plot moves to the center.

AT-Report Hotkey

Category	Action	Description
AT-Report whole area)	~ key (~)	Move to the Recording Tab
	1 key (1)	Move to the Regions tab
	2 key (2)	Move to the Classes tab
	3 key (3)	Move to the Events tab
	4 key (4)	Move to the AT-Note tab
	5 key (5)	Move to the HR Min Max tab
	6 key (6)	Move to the Full Disclosure tab
	7 key (7)	Move to the Report tab
	9 key (9)	Move to the left subclass
	0 key (0)	Move to the right subclass






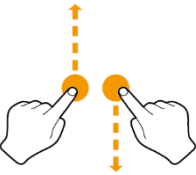
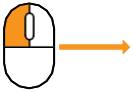

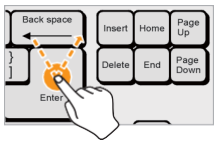

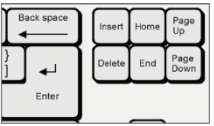


Category	Action	Description
Second Strip Plot	N/S/V/A key (   )	Modify a QRS label (except for Classes and Sub class tabs: Modified by right-clicking the mouse)
	Delete key ()	<ul style="list-style-type: none"> Above the QRS label: Delete a QRS label (except for the Sub-class tab: Selected sub-class card is deleted) Above the Event: Delete Event
	Space key ()	Align the graph so that the selected time line is at the center
	[key ()	Move to the previous QRS label
] key ()	Move to the next QRS label
	, key ()	Move to the left in the graph
	. key ()	Move the graph to the right
	H key ()	Display HR
	R key ()	Display R-R interval
	F key ()	Add AF event
	E key ()	Add noise event
	CTRL + G key ( + )	Move to a specific time
	Wheel ()	Move the graph according to the movement of the mouse wheel
	SHIFT + , key ( + )	Move to the left of the selected QRS label or indicator line
	SHIFT + . key ( + )	Move to the right of the selected QRS label or indicator line
	SHIFT + Wheel ( + )	Move the selected QRS label or indicator line according to the movement of wheel
CTRL + Left drag&drop ( + )	1-step zoom-in	
CTRL + Right Click ( + )	1-step zoom-out	
CTRL + Wheel click ( + )	Zoom-fit	

Category	Action	Description
Regions Tab	key	Move to the previous date
	key	Move to the next date
Classes Tab	N/S/V/A key ()	Modify all QRS labels of the selected class card
	key	Move within the class card
	Home/End key ()	Move to the first/last class card
	Page Up/Page Down Key ()	Same as action
	key	Move to the previous date
	key	Move to the next date
	F5/CTRL + S key (+)	Save
CTRL + R key (+)	Class Reanalysis	
Subclass Tab	N/S/V/A key ()	Modify QRS labels of the selected sub-class card
	key	Move within the sub-class card
	Home/End key ()	Move to the first/last class card
	Page Up/Page Down Key ()	Same as action
	Enter key ()	If it is the last sub-class card, move to the next sub-class
	F5/CTRL + S key (+)	Save
	Delete key	Delete QRS labels in the selected sub-class card

Category	Action	Description
Events Tab	↑/↓ key	Move up or down to an existing event
	←/→ key	Move to previous or next event
	Home/End key ( / )	Move to first or last event
	 key	Move to the previous date
	 /  key	Move to the next date
	Back space key ()	AF section remove from AF Event Plot
	CTRL + R key ( + )	Events Reanalysis
HR Min Max Tab	 key	Move to the previous date
	 /  key	Move to the next date
Full Disclosure Tab	F key ()	Add AF event
	E key ()	Add noise event
	Page Up () Key	Move up
	Page Down () Key	Move down
	 key	Move to the previous date
	 /  key	Move to the next date
	CTRL + A key ( + )	All valid region selection
CTRL + G key ( + )	Move to a specific time	
Average HR Plot	CTRL + Left drag&drop ( + )	1-step Zoom-in
	CTRL + Right Click ( + )	1-step Zoom-out
	CTRL + Wheel click ( + )	Zoom-Fit

Description of Mouse Movement in the AT-Report Program

The actions of the mouse and the keyboard in the AT-Report program are described in detail in the table below.

Interaction	Mouse Action	Symbol	Description	Use cases
Left Click			Briefly pressing and releasing the button/screen (Executed immediately when pressed)	<ul style="list-style-type: none"> Executing the button Selecting a menu or list Entering with a keypad
Right Click			Briefly pressing and releasing the button/screen (Executed immediately when pressed)	<ul style="list-style-type: none"> Executing the button Selecting a menu or list Entering with a keypad
Scroll			Move on the screen by scrolling	Scroll Bar
Click & Drag			Move the location value by clicking and dragging	Drag and Drop
Press			Briefly pressing and releasing the keyboard (Executed immediately when pressed)	Keyboard entry 
Scroll Click			Clicking of the mouse scroll button	Clicking of the scroll button

Error Messages Displayed in AT-Report PC S/W

In AT-Report PC S/W, the following error messages can be displayed depending on the action of users:

During the Execution of a Program

Error Message	Details
<p>Hashcode does not match. Exits the program. Please contact us.</p> <ul style="list-style-type: none"> • Phone: +82-70-5220-0220 • E-mail: sales@atsens.com 	<p>If the program integrity test fails</p>

During Login

Error Message	Details
<p>You can't run the program unless you change the password to a valid password.</p>	<p>If the user closes the Password Reset window at the time of initial access</p>
<p>It's been too long since you haven't changed your password. Please change your password.</p>	<p>If it has been a long time since the user changed the password. The user should reset the password after 30 days.</p>
<p>You can't run the program unless you change the password.</p>	<p>If it has been a long time since the user changed the password, and the user closes the Password Reset window that popped up after the dialog box</p>

In Relation to the License

Error Message	Details	Function
<p>AT-Report has no license to use caliper. Please change the AT-Report to a registered version</p>	<p>If the user tries to use Caliper without a license</p>	<p>Detail Plot</p>
<p>AT-Report has no license to manage the report. Please change the AT-Report to a registered version</p>	<p>If the user tries to modify a report without a license</p>	<p>Report Tab</p>

If the User Is Unauthorized

Error Message	Details	Function
You can only add users with authority. Please log in as authority and try again	Adding a user	Setup
Cannot change user's password or authentication You can only change YOUR account or with authority.	Changing a user's password	Setup
You can only delete users with authority. Please log in as authority and try again	Deleting a user	Setup
You can only save patient Data with authority. Please log in as authority and try again	Authority to save patient data	Importer
You can only Import ECG Data with authority. Please log in as authority and try again	Authority to import ECG data	Importer
You can only Import note Data with authority. Please log in as authority and try again	Authority to import note data	Importer
You can only delete patient Data with authority.	Authority to delete a patient	Importer
You can only manage patients with authority. Please log in as authority and try again	Authority to manage patients	Recording Tab
You can only manage Backup Data with authority. Please log in as authority and try again	Authority to manage Backup data	Recording Tab
You can only Backup Data with authority. Please log in as authority and try again	Authority to Backup data	Recording Tab
You can only change class operation with authority. Please log in as authority and try again	Authority to change the class	Class Tab
You can only change type operation with authority. Please log in as authority and try again	Authority to change the event type	Sub Class Tab
You can only open report history with authority. Please log in as authority and try again	Authority to open report history	Report tab

Error Message	Details	Function
You can only save report with authority. Please log in as authority and try again	Authority to save a report	Report tab
You can only print report with authority. Please log in as authority and try again	Authority to print a report	Report tab
You can only Export PDF with authority. Please log in as authority and try again	Authority to save a report as PDF	Report tab

Term of part

Recording Tab

The screenshot shows the 'Recording' tab in the AT-Report software. The interface includes a title bar with the AT-Report logo and user information. Below the title bar is a main tab area with 'Recording' selected. A search bar labeled 'List Search' is positioned above a table of recording lists. A 'Recording Manage' button is located to the right of the search bar. The table lists various samples (A through K) with columns for List name, First name, Date of birth, Patient ID, Recording Date, Imported Time, Status, and AT. To the right of the table is a 'Report preview' section for a specific patient, showing a 'Patient ECG Analysis Report' with patient details, heart rate summary, and an average HR plot.

Callouts in the image point to the following elements:

- Title Bar
- Main Tab
- List Search
- Recording Manage

Labels below the screenshot identify the 'Recording List' table and the 'Report Preview' section.

Regions Tab

The screenshot shows the 'Regions' tab in the AT-Report software. The interface includes a title bar with the AT-Report logo and patient information (TC, C Sample, F, 1990-12-05). Below the title bar is a main tab area with 'Regions' selected. A date tab is visible above the main plot area. The main plot area contains an 'Average HR Plot' showing heart rate over time. Below the plot are 'Strips' and a '10 Seconds Strip' plot. Callouts point to specific features: 'Select QRS Label' (a vertical line on the plot), 'QRS Label Bar' (a horizontal bar above the plot), 'Time Range Box' (a blue box on the plot), 'Strips Plot' (the individual ECG strips), and 'Seconds Strips Plot' (the 10-second strip plot).

Callouts in the image point to the following elements:

- QRS Label
- Main Tab
- Date Tab
- Average HR Plot

Labels below the screenshot identify the 'Select QRS Label', 'QRS Label Bar', 'Time Range Box', 'Strips Plot', and 'Seconds Strips Plot' features.

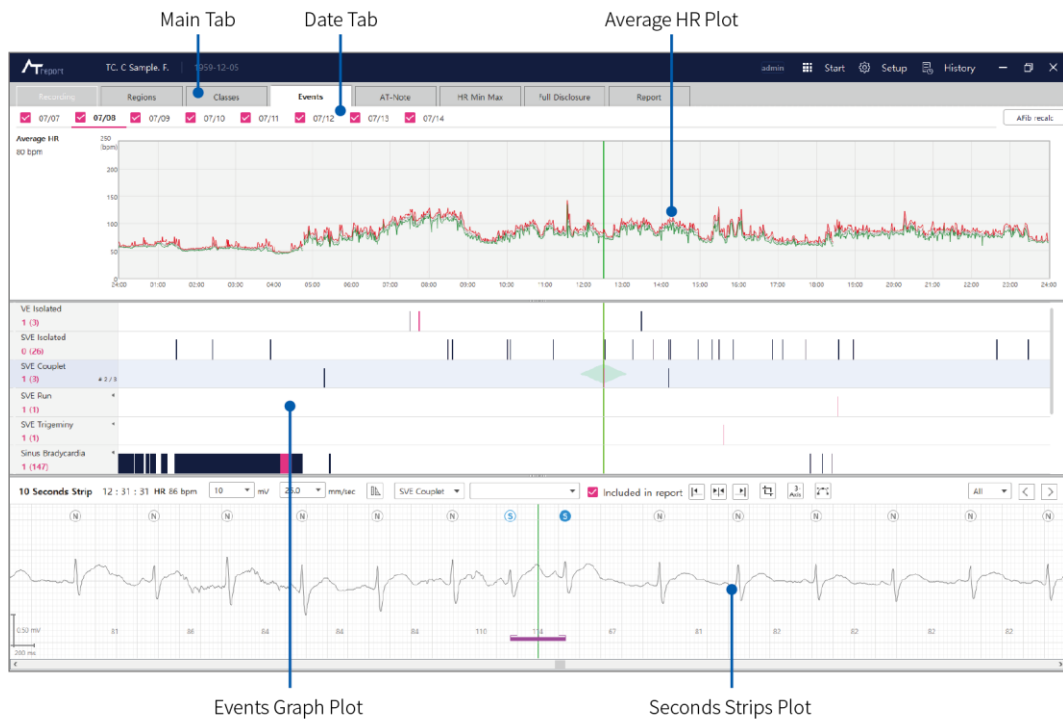
Classes Tab



Sub-Class Tab



Events Tab



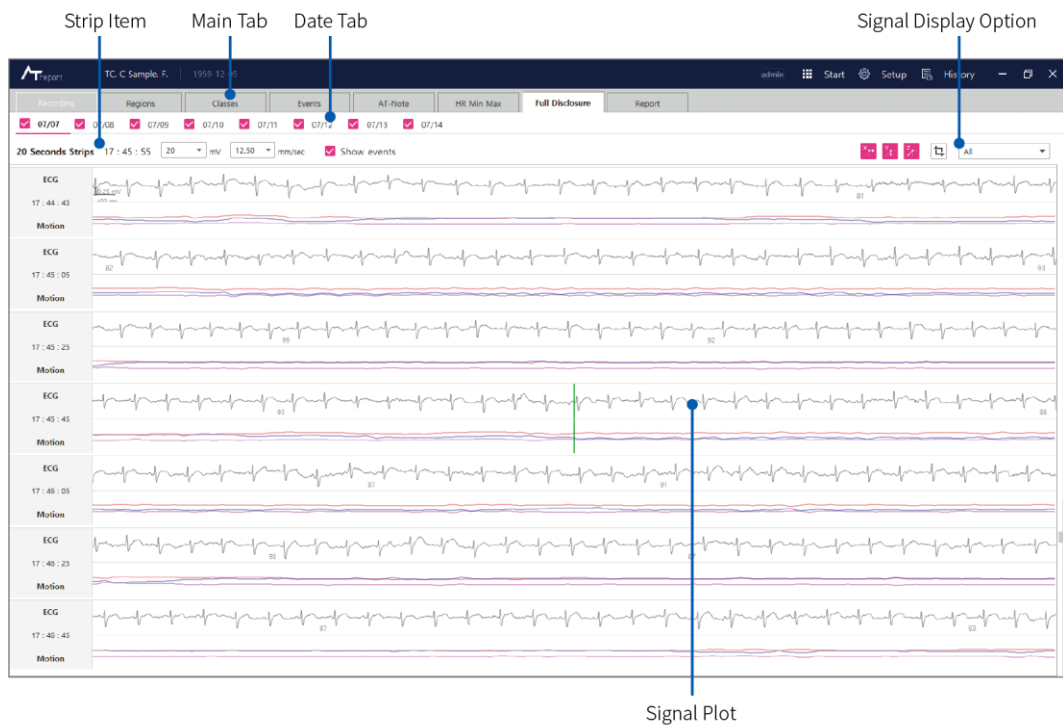
AT-Note Tab



HR Min Max Tab



Full Disclosure Tab



Report Tab

Control Button Box

The screenshot displays the AT-Report software interface. At the top, there is a menu bar with options: Recording, Regions, Classes, Events, AT-None, HR Min Max, Full Disclosure, and Report. Below the menu bar is a toolbar with icons for 'Export to PDF', 'Export to Image', 'Print', 'Save', a zoom slider set to 100%, 'One to One', 'Fit Width', 'Fit Page', and navigation arrows. The main content area is titled 'Patient ECG Analysis Report' for Report No. AT131660113829. It contains several summary tables and a graph.

Heart Rate Summary	Events Summary
Mean: 75 bpm 08-21 17:23:38	Sinus Tachycardia: 22 (0.02 %)
Min: 54 bpm 08-20 04:13:38	Sinus Bradycardia: 7 (0.02 %)
Max: 92 bpm	Atrial Tachycardia: 0 (0.00 %)
Max Δ: 3.65 sec 08-21 17:09:38	Supraventricular Tachycardia: 0 (0.00 %)
	Af/Flutter: 0 (0.00 %)
	Paroxysm: 1 (0.00 %)
	VN delay: 238 (0.01 %)
	Unr. Aperiodic: 1 (events)
	AT-None Event: 1 (events)
	(0 events included in report)

Average HR 11 days 3 hours (247 hrs)

Preliminary Findings

- Basically normal sinus rhythm.
- No atrial fibrillation. No prolonged pauses were noted.
- HR max 92bpm, HR min 54bpm, HRmax & Slow at 07:46:15, 202 07:09:21.
- Encountered PVCs, ventricular couplets, ventricular triplets = none (0.00%)

Interpretation

Report Preview



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