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User responsibility

This product is designed to perform in conformity with the description thereof contained in this manual and accompanying labels and inserts, when assembled, operated, maintained and repaired in accordance with the instructions provided. A defective product should not be used. Parts that are broken, plainly worn, missing or incomplete, distorted or contaminated should be replaced immediately. Should any repair or replacement become necessary, we recommend that service be performed at the nearest approved service center. The user of the product shall have the sole responsibility for any malfunction, which results from improper use, faulty maintenance, improper repair, damage or alteration by anyone other than Welch Allyn or their authorized service personnel.

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**Caution**

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Warranty, Service, and Spare Parts

Warranty

All repairs on products under warranty must be performed or approved by Welch Allyn. Unauthorized repairs will void the warranty. In addition, whether or not covered under warranty, any product repair shall exclusively be performed by Welch Allyn certified service personnel.

Assistance and Parts

If the product fails to function properly or if assistance, service, or spare parts are required, contact the nearest Welch Allyn Technical Support Center.

USA	1-800-535-6663	Canada	1-800-561-8797
Latin America	(+1) 305-669-9003	South Africa	(+27) 11-777-7555
European Call Center	(+353) 46-90-67790	Australia	(+61) 2-9638-3000
United Kingdom	(+44) 207-365-6780	Singapore	(+65) 6419-8100
France	(+33) 1-55-69-58-49	Japan	(+81) 42-703-6084
Germany	(+49) 695-098-5132	China	(+86) 21-6327-9631
Netherlands	(+31) 202-061-360	Sweden	(+46) 85-853-65-51

Before contacting Welch Allyn, it is helpful to attempt to duplicate the problem and to check all accessories to ensure that they are not the cause of the problem.

When calling, please be prepared to provide:

- Product name and model number and complete description of the problem
- The serial number of your product (if applicable)
- The complete name, address and phone number of your facility
- For out-of-warranty repairs or spare parts orders, a purchase order (or credit card) number
- For parts order, the required spare or replacement part number(s)

Repairs

If your product requires warranty, extended warranty, or non-warranty repair service, please call first the nearest Welch Allyn Technical Support Center. A representative will assist you in troubleshooting the problem and will make every effort to solve it over the phone, avoiding potential unnecessary return.

In case the return cannot be avoided, the representative will record all necessary information and will provide a Return Material Authorization (RMA) number, as well as the appropriate return address. A Return Material Authorization (RMA) number must be obtained prior to any return.

Note

Welch Allyn does not accept returned products without an RMA.

Packing Instructions

If you have to return goods for service, follow these recommended packing instructions:

- Remove all hoses, cables, sensors, power cords, and ancillary products (as appropriate) before packing, unless you suspect they are associated with the problem.
- Wherever possible use the original shipping carton and packing materials.
- Include a packing list and the Welch Allyn Return Material Authorization (RMA) number.

It is recommended that all returned goods be insured. Claims for loss or damage to the product must be initiated by the sender.

Limited Warranty Statement

Welch Allyn, Inc. warrants that the Welch Allyn CardioPerfect Workstation computer based product you have purchased meets the labeled specifications of the Product and will be free from defects in materials and workmanship that occur within 1 year after the date of purchase. Accessories used with the Product are warranted for 90 days after the date of purchase.

The date of purchase is: 1) the date specified in our records, if you purchased the Product directly from us, 2) the date specified in the warranty registration card that we ask you to send to us, or 3) if you don't return the warranty registration card, 120 days after the date on which the Product was sold to the dealer from whom you bought the Product, as documented in our records.

This warranty does not cover damage caused by: 1) handling during shipping, 2) use or maintenance contrary to labeled instructions, 3) alteration or repair by anyone not authorized by Welch Allyn, and 4) accidents.

If a Product or accessory covered by this warranty is determined to be defective because of defective materials, components, or workmanship, and the warranty claim is made within the warranty period described above, Welch Allyn will, at its discretion, repair or replace the defective Product or accessory free of charge.

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Table of contents

1.	Getting started	9
1.1	Start Welch Allyn CardioPerfect Workstation	9
1.2	Log in to Welch Allyn CardioPerfect Workstation	9
1.3	Close Welch Allyn CardioPerfect Workstation.....	9
1.4	The Welch Allyn CardioPerfect Workstation workspace	10
2.	Working with patients	12
2.1	Patient administration	12
2.2	The patient card.....	12
2.3	Create a new patient.....	12
2.4	Find a patient.....	14
2.5	Edit a patient card.....	14
2.6	Delete a patient.....	15
3.	Working with tests.....	16
3.1	Test modules	16
3.2	Create a new test.....	16
3.3	Find a test.....	17
3.4	View a test	17
3.5	Delete a test	17
3.6	Place a test on a disk.....	18
3.7	Open a test from another location	19
3.8	Use a test in other MS Windows applications.....	19
3.9	Shortcut menus.....	20
3.10	Function keys.....	20
4.	Search Patterns	22
4.1	What is a search pattern?	22
4.2	Define a patient search pattern	22
4.3	Define a test search pattern	23
5.	Printing tests.....	25
5.1	Print a test	25
5.2	View before printing	25
6.	Change your password.....	27
6.1	When do you need to enter a password?	27
6.2	When do you need to change your password?	27
6.3	Change your password	27
7.	Customizing	28
7.1	Customize Welch Allyn CardioPerfect Workstation	28
7.2	Customizing File Link.....	29
7.3	Customizing .txt files	31
8.	Telemedicine option	33

8.1 Introduction 33

8.2 Using Telemedicine 33

8.3 Troubleshooting 35

Welcome

Welcome to Welch Allyn CardioPerfect Workstation.

Welch Allyn CardioPerfect Workstation controls the different diagnostic modules and handles all non-module specific issues, such as patient management and security. You can also use it to search for patients or tests, print tests and import or export tests.

This manual is intended as an introduction to Welch Allyn CardioPerfect Workstation and its most important concepts, patients, tests, search patterns and printing procedures. For module-specific information, please refer to the particular module manual.

For information on installation and configuration, please refer to the Welch Allyn CardioPerfect Workstation Installation manual, for details on servicing and advanced installation please refer to the Welch Allyn CardioPerfect Workstation Service and Advanced Installation manual.

Note

For a description of intended use, indications and contraindications please refer to the appropriate module manual, as these are module specific.

Notations used in the Workstation manuals

The following notations are used:

Dialog boxes

- The names of dialog boxes, windows and tabs are displayed in **bold**.
- When referring to check boxes in dialogs, the term “selected” means that a check is displayed in the check box, and therefore that the option is active.
- When referring to a certain button, setting or menu option the text in this control is displayed in **bold**.

Keyboard

- All key names are shown in capital letters. For example, the Control key is shown as CTRL.
- Keyboard combinations are indicated by a plus sign (+) placed between key names. For example, *press ALT+X* means that you must press and hold down the ALT key and at the same time press the X key.

Mouse

- The left mouse button is the primary mouse button (unless you have configured it otherwise.)
- *Point* means to position the mouse pointer until the tip of the pointer rests on the item you want to point to on the screen.
- *Click* means to press and then immediately release the mouse button. This action is always performed using the left mouse button unless specified otherwise.
- *Double click* means point to an item, and then quickly press and release the mouse button twice.
- *Drag* means to point, press and then hold down the mouse button as you move the mouse.

1. Getting started

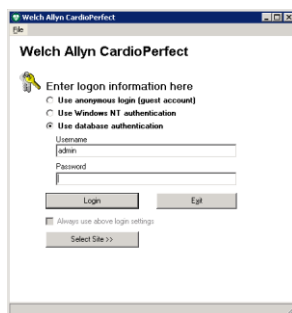
1.1 Start Welch Allyn CardioPerfect Workstation

To start Welch Allyn CardioPerfect Workstation:

1. In the Windows toolbar, click on the **Start** button and point to **All Programs**.
2. Point to the **Welch Allyn** folder and click on **Welch Allyn CardioPerfect**.

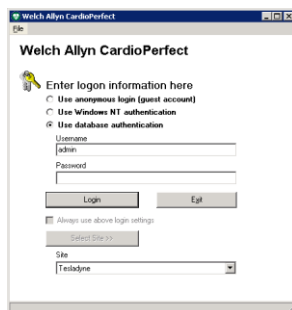
1.2 Log in to Welch Allyn CardioPerfect Workstation

Note: You only need to follow these steps if you see a window that asks you to provide Logon information.



1. In the **Welch Allyn CardioPerfect Workstation** window, enter your user name. This is the name that you received from your system administrator.
2. Enter your password.
3. Click **Login**. The Welch Allyn CardioPerfect Workstation workspace is displayed.

Note: When using NT authentication, no user name and password have to be provided. If your system was configured to use sites, please select your site.



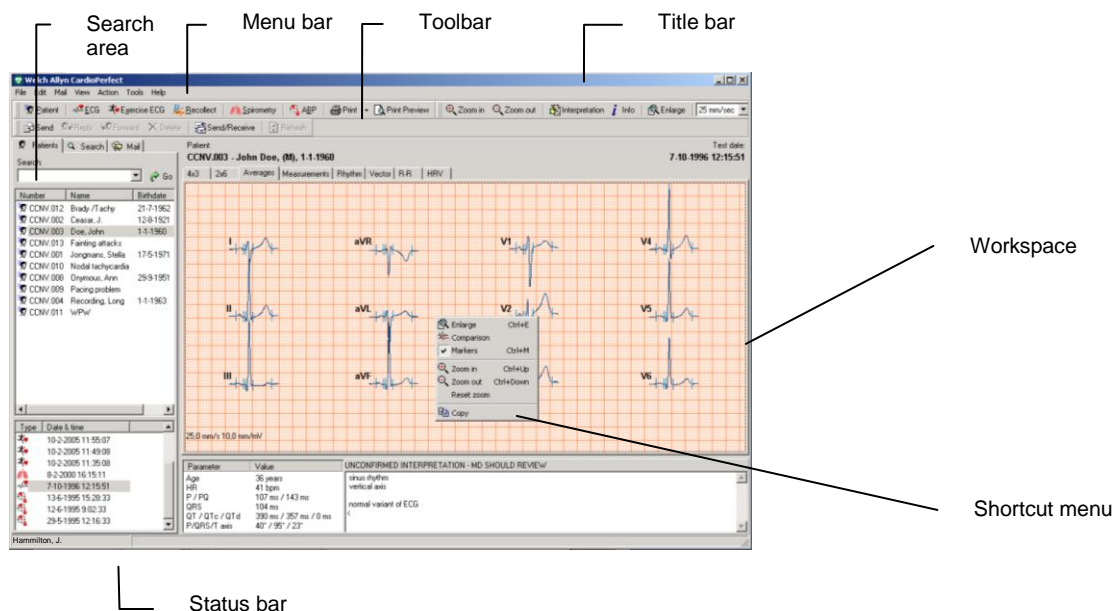
1.3 Close Welch Allyn CardioPerfect Workstation

To close Welch Allyn CardioPerfect Workstation:

- In the **File** menu, click **Exit**.

1.4 The Welch Allyn CardioPerfect Workstation workspace

This section will guide you around the various parts of Welch Allyn CardioPerfect Workstation. The structure of the workspace is similar to Microsoft Office applications.



- Title bar** The title bar displays the name of the program. The title bar contains three buttons that you can use to maximize, minimize and close the Welch Allyn CardioPerfect Workstation window.
- Menu bar** Each menu in the menu bar contains a number of tasks that you can perform with the Workstation. Sometimes, menus are gray. This means that you cannot access that functionality at that particular point, either because it is not available, or because you are not authorized to use it. Each diagnostic module has its own menu bar.
- Tool bar** The tool bar contains buttons that give you easy access to the most common tasks in Welch Allyn CardioPerfect Workstation as well as buttons for all modules that are available. The look of the tool bar depends on which diagnostic module is active: the ECG tool bar, for example, differs from the Spirometry tool bar.
- Search area** The search area contains search and display functionality that lets you easily find patients and tests. In the search area, you can find a patient, see which tests were recorded for that patient and see the kind of tests that were recorded. You can also create search patterns, an easy way of finding information that you need frequently.
- Workspace** The workspace displays tests and test related data, such as interpretations, measurements and comments. This is where you will do the actual recording, viewing and interpretation of tests.
- Shortcut menu** In the workspace, you can use these menus to access the most common tasks. You can access these tasks by clicking on the workspace with your right mouse button. Shortcut menus are context sensitive. This means that they only contain those tasks that can be performed in one specific test or part of that test. As a result, shortcut menus look different in different tests.

Status bar The status bar shows important information about the patient and test that are currently selected. For example: In the Spiro module the height and the weight of the patient are displayed. Additionally, the status bar displays the name of the user that is currently logged on to the Workstation.

2. Working with patients

2.1 Patient administration

With Welch Allyn CardioPerfect Workstation you can easily keep track of your patient administration. You can store various kinds of patient information, such as patient name and number, address information and medical data that is important for tests.

You can also keep a patient history. For each patient visit, you can enter details that you want to be available for future reference.

2.2 The patient card

The patient card is the key concept in working with patients. Just like a traditional paper patient record, it contains various types of patient information, such as name, insurance number, address and medical information.

Each patient needs to have a patient card. If a patient does not have a patient card, you cannot record a test for that patient.

A patient card can be linked to more than one test. This means that you do not have to create a new patient card for each test. So, if a patient needs to have both an ECG and a Spirometry test, you can use the same patient card for both tests.

Patient card - John Doe

General | Address | History

Enter name, number and medical related data about this patient here

Number: CCNV.003

Last: Doe Middle: First: John

Insurance number: Alternate number:

Gender: Male Birth date: (M/d/yyyy) 3/27/1967 Age: 40 years

Race: Caucasian Weight: 137 lbs Height: 69 inches

OK Cancel Help

2.3 Create a new patient

Before you can record a test for a patient, you first need to make a record of the patient's information. You do this by creating a new patient card.

To create a new patient:

1. In the **File** menu, point to **New** and select **Patient**. An empty patient card is displayed.
2. In the **General** tab of the patient card, enter the patient's number, name, insurance number, gender, birth date, race, weight and height. The patient number is mandatory.

Patient card - John Doe

General | Address | History

Enter name, number and medical related data about this patient here

Number:
CCNV.003

Last: Doe Middle: John First: John

Insurance number: Alternate number:

Gender: Male Birth date (M/d/yyyy): 3/27/1967 Age: 40 years

Race: Caucasian Weight: 137 lbs Height: 69 inches

OK Cancel Help

3. In the **Address** tab, enter the patient's address and contact information.

Patient card - John Doe

General | Address | History

Enter address-related information about this patient here

Street:
255 East street

City: New York Zip code: 543299 Country: United States

Phone number: 555-3809 E-mail:

Fax number:

OK Cancel Help

4. In the **History** tab, you can enter information on the patient's history, for instance the amount of exercise the patient gets. You can start typing under the previous comment. You can also check if the patient smokes or has asthma. Welch Allyn CardioPerfect Workstation will assign a date and time to your comment.

Patient card - John Doe

General | Address | History

Enter history information about this patient here

History

- 2/8/2000 4:15:11 PM
- 12/16/2002 10:38:4

☐ Patient smokes
☐ Patient has asthma

OK Cancel Help

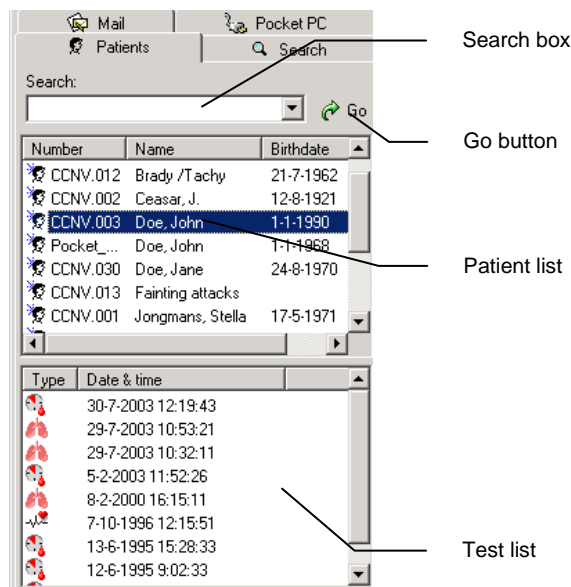
5. Click on the **OK** button or press ENTER to save the patient information.

Tips for creating a new patient:

- Gender, birth date, race, weight and height are not mandatory. However, we strongly recommend that you fill in these values, because they are necessary for test interpretation and predication equations.

2.4 Find a patient

When a patient has already visited the hospital or your practice, he or she will probably already have a Patient card. To check this, you need to search for that patient in the computer system. You search for a patient in the **Search** area. This is the left-hand side of the Welch Allyn CardioPerfect Workstation workspace.



To find a patient:

1. In the **Search** area, click on the **Patient** tab.
2. In the **Search** field, type the patient name, the patient number or part of the patient name.
3. Click on the **Go** button. The patient list automatically displays the patients that match your search.
4. Click on a patient name to select that patient. The test list automatically displays the tests that have been recorded for that patient.

2.5 Edit a patient card

Sometimes, patient information changes, for example when the patients address has changed. When this is the case, you need to change the information in the patient card too. This way, the computer system will always have the most up to date information available.

To change information in the patient card:

1. In the patient list, click on the patient that you want to change.
2. In the **Edit** menu, select **Patient card...** or press [ALT]+[P]. The patient card of the selected patient is displayed.
3. Edit the patient information.
4. Click on **OK** to save the changes.

2.6 *Delete a patient*

You cannot delete a patient in Welch Allyn CardioPerfect Workstation. If you want to delete a patient, for example because you made a mistake in creating a new patient, contact your system administrator.

3. Working with tests

3.1 Test modules

Once you have created a patient card or selected an existing one, you are ready to run a test on the patient. Welch Allyn CardioPerfect Workstation offers these diagnostical tests:

- Resting ECG testing
- Exercise ECG testing
- Spirometric testing
- Ambulatory blood pressure testing (ABP)
- Mini Holter event ECG recordings (Recollect)

In the Welch Allyn CardioPerfect Workstation software, each test has its own module with test specific functionality. Not all modules have to be present in one system; your system may, for example, contain the Rest and Exercise module, but no Spirometric or ABP module.






Welch Allyn CardioPerfect Workstation contains functionality that is common to all tests, such as patient and test administration and printing. The instructions that are given in this chapter apply to all tests. For test specific information, please refer to the manuals that come with the various diagnostic modules.

3.2 Create a new test

Before you can record a test, you first need to enter some information about that test, like the patient and the kind of test.

To create a new test:

1. Select the patient for whom you want to record the test.
2. In the **File** menu, point to **New** and select the test that you want to run. You can choose between:

Rest ECG	
Exercise ECG	
Spirometry test	
Ambulatory blood pressure test	
Mini Holter event ECG test	
3. A **New test** window is displayed. The look of this window depends on the kind of test that you selected.
4. In the **New test** window, enter the necessary information.
5. Click the **OK** button.

Tips for creating new tests:

To create a new test, you can also:

- Click on the appropriate button in the toolbar.
- Press a shortcut combination on the keyboard

To start

Press

An ECG	[SHFT]+[CTRL]+[E]
An exercise ECG	[SHFT]+[CTRL]+[X]
A spirometry test	[SHFT]+[CTRL]+[S]
An ABP test	[SHFT]+[CTRL]+[B]
A Mini Holter event ECG test	[SHFT]+[CTRL]+[R]

3.3 Find a test

Once a test has been recorded, it is stored in the database.

To find a test once it is stored:

1. In the **Search** box on the **Patient** tab, select the patient that you want to find the test for.
2. The tests that were recorded for that patient are automatically displayed in the **Test** list.






Tip for finding tests:

- You can use search patterns when you want to make your search more detailed. With a search pattern, you can search for unconfirmed tests or tests that were recorded by a specific person, on a specific location or on a specific date. See page 22 for more information.

3.4 View a test

Once a test has been recorded and stored in the database you can view this test at any time.

To view a test:

1. Select the patient from the patient list.
2. Click on the test you want to view in the test list. The tests are displayed by recording date and time. The icon in front of the date and time indicates the type of test:
 -  Indicates a Rest-ECG recording
 -  Indicates an Exercise ECG recording
 -  Indicates a Spirometry recording
 -  Indicates an ABP recording
 -  Indicates a Mini Holter event ECG recording
3. The appropriate module is opened automatically and the test is displayed in the workspace area.

3.5 Delete a test

When a test is no longer needed, you can delete it. When you delete a test, you do not delete the patient that is linked to that test. The patient card of that patient remains in the database.

Important: Once you have deleted a test, you cannot get it back. It is completely removed from the database. So always make sure that you have selected the correct test, and that

you really want to delete it.

To delete a test:

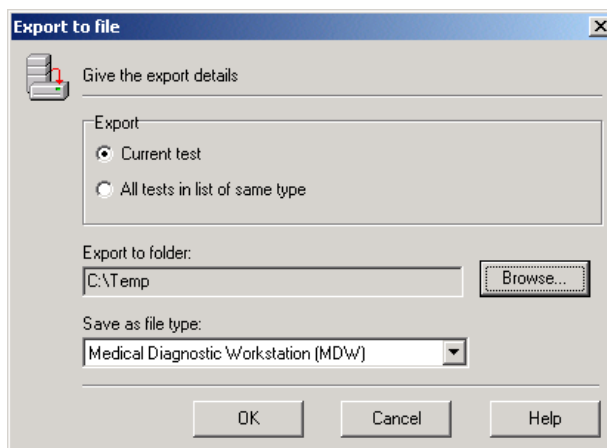
1. Select the test that you want to delete.
2. In the **Edit** menu, select **Delete**, or press [CTRL]+[DEL]. A message is displayed that asks you if you really want to delete the selected test.
3. Click the **OK** button. The test is deleted.

3.6 Place a test on a disk

You can put a test on a disk, so that you can take it with you and open it on another Welch Allyn CardioPerfect Workstation, for example, to show the test to a colleague that is not connected to the same database as you. Placing a test on a disk, or on another location on your computer, is called exporting a test.

To place a test on a disk:

1. Insert a removable disk if desired.
2. Select the test that you want to place on the disk.
3. From the **File** menu, select **Export**. The **Export to file** dialog box is displayed.



4. Select whether you want to export the current test or all tests in the list that are of the same type.

If you select...

Current test

Then the following is exported...

Only the test that you selected

All tests in list of same type

All tests for the patient that you selected that are of the same type as the test that you selected.

Example: if you selected an ECG for Mrs. Thompson, then all ECGs for Mrs. Thompson are exported.

5. Select the location you want to export the files to. In this case, you want to put the test on a disk, so use the **Browse** button to browse to the disk location (A:\).
6. Select the format in which the tests must be exported.
7. Click the **OK** button. A message is displayed when the export process has finished.

Tips for exporting tests:

You do not necessarily have to export a test to a floppy or external disk; you can also export it to another location on your computer.

Test names

Each test has a unique name, so that tests are always retrievable and cannot be duplicated. The structure of a test name is:

- Test type (ECG/SPIRO/XECG/ABP/Recollect)
- Recording date (YYYYMMDD)
- Recording time (HHMMSS)
- Name of the patient

Example of a test name

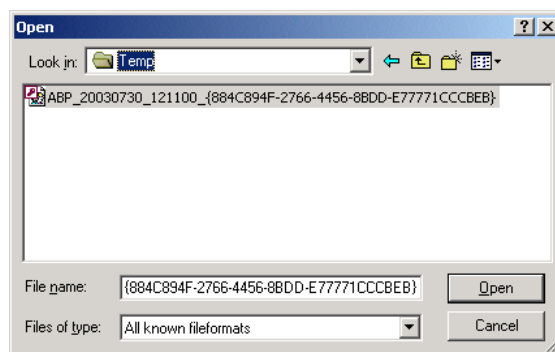
ECG_20000501_100519_Thompson.mdw is an ECG test recorded on May 1, 2000 at 10:05:19 for patient Thompson.

3.7 Open a test from another location

You can open tests from other locations on your computer, for example, from a disk. This is called importing a test.

To import a test:

1. Insert the removable disk if desired.
2. In the **File** menu, select **Import**. The **Open** dialog box is displayed.



3. In the **Open** dialog box, select the file type that you want to import.
4. Browse with the **Look in:** field to the location where the file, that you want to import, resides.
5. Select the file that you want to import.
6. Click the **Open** button to import the selected test. A message is displayed when the import process has finished.

3.8 Use a test in other MS Windows applications

You can use a test in other MS Windows applications. For example, you can paste an image of the test into MS Word.

To use a test in other MS Windows applications:

1. Select the test view that you want to copy.
2. Right click on the test view and select **Copy** from the shortcut menu. You can now paste the test into another MS Windows application.

3.9 Shortcut menus

The Workstation uses shortcut menus. These menus are context sensitive, which means that the contents of the menu are different for different (parts of the) screens.

Activating a shortcut menu

By clicking with the right mouse button on the appropriate (part of) the workspace the shortcut menu will appear. From this menu you can select options or functions that apply to (part of) the screen you clicked on. If an option is active it is displayed with a check in front of the option. Once you make a selection from a pop-up menu, the menu disappears.

3.10 Function keys

Welch Allyn CardioPerfect Workstation is, just like all Windows applications, designed for working with the mouse. However, there might be situations in which working with the keyboard can be quicker. Therefore, a number of functions within Welch Allyn CardioPerfect Workstation can also be selected directly using the keyboard. Below you will find a list of all general available keyboard shortcuts, for a more module specific function key description please refer to the corresponding module manual:

General functions	
Key	Function
F1	Activates the Welch Allyn CardioPerfect Workstation Help function. Currently not available.
F2	Starts a new recording, or opens an empty patient card if no module is loaded.
[ALT]+[C]	Closes the active module.
[ALT]+[X]	Exits the program.
[ALT]+[T]	Opens the Tools menu.
[ALT]+[H]	Opens the Help menu.
[ALT]+[A]	Opens the Action menu.
[ALT]+[V]	Opens the View menu.
[ALT]+[M]	Opens the Mail menu.
[CTRL]+[DEL]	Deletes the current selected test.
[CTRL]+[P]	Prints the current selected test.
[CTRL]+[ALT]+[P]	Prints selected formats

Patient card	
Key	Function
[ALT]+[P]	Opens the patient card of the selected patient and allows you to edit the data of the patient.
[SHIFT]+[CTRL]+[P]	Opens an empty patient card and allows you to create a new patient.

Text editing	
Key	Function
[CTRL]+[X]	Cut selected text
[CTRL]+[C]	Copy selected text
[CTRL]+[V]	Past text

Mail	
Key	Function
F5	Send and Receive
[SHIFT]+F6	Refresh

Start test	
Key	Function
SHIFT+[CTRL]+[E]	Start new resting ECG
SHIFT+[CTRL]+[X]	Start new exercise ECG
SHIFT+[CTRL]+[A]	Start new Ambulatory Blood Pressure test
SHIFT+[CTRL]+[S]	Start new Spirometry test
SHIFT+[CTRL]+[R]	Start new Mini Holter event ECG

4. Search Patterns

4.1 What is a search pattern?

A search pattern is an easy way of finding information that you need frequently. You can create a search pattern with the search pattern wizard.

There are several types of search patterns:

- Patient** A search pattern to find a specific patient or a specific group of patients.
- Test** A search pattern to find a specific test or a specific group of tests.

Examples of information you can find with a search pattern:

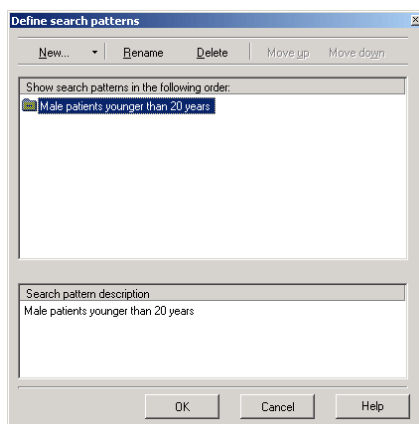
- At the end of the day, you want to know which ECG tests are still unconfirmed.
- For a statistical report, you want to know how many male patients of over 50 have had an ECG in the last six months.
- Out of 2000 people called Jones, you want to find Ms Jones with insurance number 395281-01.
- For a financial overview, you want to know how many exercise ECGs were recorded at each recording site.

4.2 Define a patient search pattern

When you want to define a patient search pattern, all you need to do is to start the **Patient Search Pattern Wizard**. This wizard will guide you through the definition process step by step.

To define a patient search pattern:

1. In the **Edit** menu, select **Search patterns**. The **Define search patterns** window is displayed.



2. In the **Define search patterns** window, click on **New**, and select **Patient search**. The **Patient Search Pattern Wizard** is started.
3. In the first step of the wizard, select the patient properties you want to search for and click **Next**.
4. In the following steps, specify the values for each property and click **Next**.

For the...	You should specify...
Name	The first or last name. If you enter only a last name, the search will return patients with that last name. If you enter both a first and a last name, the search will return only patients with that exact name.
Alternate number	The alternate number of the patient you want to find.
Birth date/ Age	A date range or an age.
Gender	The gender of the patient you want to find.

5. In the final step of the wizard, enter a name for your search pattern. The wizard already displays a logical name, but you can change this to your own preference.
6. Click **Finish**. Your search pattern is now listed in the **Search** tab at the left hand side of the Workstation window. You can use it by clicking on it.

Tips for entering an exact birth date or exact age:

- To set an exact birth date, set both the **between** and the **and** field to the same date.
- To search for a patient of an exact age, select a year in the **between** and the **and** fields.

4.3 Define a test search pattern

Just like creating a patient search pattern, creating a test search pattern is just a matter of starting the wizard.

To define a test search pattern:

1. In the **Edit** menu, select **Search patterns**. The **Define search patterns** window is displayed.
2. In the **Define search patterns** window, click on **New**, and select **Test search**. The **Test Search Pattern Wizard** is started.
3. In the first step of the wizard, select the type of test you want to apply the search to or select all tests and click **Next**.
4. In the second step of the wizard, select the properties you want to search for and click **Next**. You do not need to select each property. You can also select only one or two.

If you select...	Then the Search pattern will look for tests...
Recording date	Recorded on a particular date.
Recorded by	Recorded by a specific person.
Unconfirmed/Confirmed by	Confirmed by a specific person.
Referring Specialism/Physician	Recorded for a specific Specialism , or physician.

Ordering Specialism/Physician	Recorded by order of a specific Specialism , or physician. (Resting ECG and Exercise ECG only)
Attending Specialism/Physician	Recorded by a specific attending Specialism , or physician. (Resting ECG and Exercise ECG only)
Recording Location	Recorded on a specific location.

- Specify the values for each property and click **Next**.

For the property...	You should specify...
Recording date	A relative or absolute date range.
Recorded by	The name of the person that recorded the tests you want to find.
Unconfirmed/Confirmed by	Whether you want to search for unconfirmed tests or confirmed tests. If you want to search for confirmed tests, you can enter the name of the person that confirmed the tests.
Referring Specialism/Physician	The Specialism or name of the referring physician who is linked to the test.
Ordering Specialism/Physician	The Specialism or name of the ordering physician who is linked to the test. (Resting ECG and Exercise ECG only)
Attending Specialism/Physician	The Specialism or name of the attending physician who is linked to the test. (Resting ECG and Exercise ECG only)
Recording Location	The name of the location where the tests were recorded.

- In the final step of the wizard, enter a name for your search pattern and click on the **OK** button. The wizard already displays a logical name, but you can change this to your own preference.
- Click **Finish**. Your search pattern is now listed in the **Search** tab at the left hand side of the Workstation window. You can use it by clicking on it.

Tips for setting the date range in the Test search pattern wizard:

- A relative date range does not have a fixed start date. For example: today, this week, this month, and this year.
- An absolute date range does have a fixed start and end date. For example: January 1st through February 18th. You need to use the calendar to enter these dates.

5. Printing tests

With Welch Allyn CardioPerfect Workstation, you can print on plain paper with a regular inkjet or laser printer. You can choose from a number of formats in which you want to print the information. Each print format has a header that contains additional information. You can choose to print one view or multiple views with one mouse click. The multiple views printing option is a handy feature if you frequently print the same set of views. To use the **Print selected formats** function, you have to configure this option in the settings. Usually this has been done when the program was installed, by the system administrator.

5.1 *Print a test*

To print:

1. Select the patient.
2. Select the test you want to print from the list of tests.

To print one view:

1. Select the view you want to print and if desired adjust the view.
2. Click on the **Print** button in the toolbar or select **Print** from the **File** menu.
3. In the **Print** dialog box, the current view is automatically selected. Click on the **OK** button.

To print selected formats:

1. Select **Print selected formats** from the **File** menu. Welch Allyn CardioPerfect prints the formats that are selected in the **Print** tab of the appropriate module settings.

Print header

Each printed test contains a header with additional information about the test. The header contains:

Patient data	name, patient number, gender, birth date, age, height and weight.
General data	recording date and time, name of the person that recorded the test, name of the referring physician, name of the ordering physician (Resting ECG and Exercise ECG only), the name of the attending physician (Resting ECG and Exercise ECG only) the recording location and comments.

5.2 *View before printing*

The **Print preview** function shows how the test will look on paper. From the Print preview window, you can view the test at full size or at page width, browse through the pages of the test, change the printer setup and print the ECG.

To view the test before printing:

1. In the toolbar, click the **Print preview** button. The Print dialog box is displayed.
2. Click on the view that you want to see.
3. Click the OK button. The Print preview is displayed.

To view...

The entire page
The test at page width
The test at actual size

Click...

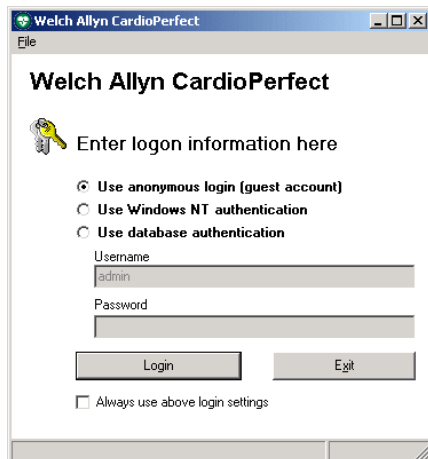
The Page button
The Width button
The 100% button

4. Click the **Print** button to print the test or click the Close button to return to the main window.

6. Change your password

6.1 *When do you need to enter a password?*

You only need to enter a password if you see a login window when you start Welch Allyn CardioPerfect Workstation. The login window looks like this:



6.2 *When do you need to change your password?*

How often you change your password is usually left up to you. However, there is one situation in which it is recommended that you change it. That is when the system administrator has just created your Welch Allyn CardioPerfect Workstation user account. Usually, at this time your password is identical to your user name, and therefore easy to guess. At this point, it is advisable to change your password.

6.3 *Change your password*

To change your password:

1. In the **File** menu, click on **Change password....**
2. Enter your old password.
3. Enter your new password.
4. Re-enter your new password for verification.
5. Click **OK**. Your new password is immediately activated.

7. Customizing

7.1 *Customize Welch Allyn CardioPerfect Workstation*

Your system administrator configures most settings in Welch Allyn CardioPerfect Workstation. However, there are some things that you can change yourself.

The settings that can be freely adjusted are located in the **Settings-General** window under the **General** tab.

To open the General Settings menu:

1. In the **File** menu, click **Settings**. The **Settings** dialog box is displayed.
2. Click **General**.

Settings General window - General tab

Use the General tab to customize Welch Allyn CardioPerfect Workstation Framework. In this tab, you can set the recording location, the default module that Welch Allyn CardioPerfect Workstation should start with and the language of the software. You can also adjust the way that patient names are displayed and automatically generate patient numbers.

Location	Name of the recording location. When you select a location name from the list, that name is printed on every test that is recorded. You can also leave the recording location empty.
Default module	The module that Welch Allyn CardioPerfect Workstation starts when you log in to the system. When you select a module from the list, Welch Allyn CardioPerfect Workstation automatically starts that module when you log in. When you leave the default module empty, Welch Allyn CardioPerfect Workstation starts with Welch Allyn CardioPerfect Workstation Framework.
Language	The language that is used by Welch Allyn CardioPerfect Workstation. Welch Allyn CardioPerfect Workstation comes with many different languages. You can change the language while you work, without restarting the software.
Name display	The order in which the patient's first and last name are displayed.
Title	The order in which the patient's title and name are displayed. If you select <i>Do not show</i> , no titles are displayed.
Automatically generate patient numbers	If selected a new patient number is automatically generated when a new patient card has been created.

Settings General window - Print tab

Title on printouts Here you can enter the title which should appear on the printouts.

Settings General window - Mail tab

Server Specifies the Server settings. For information see

Mail server	your system administrator Specifies the name of the computer that runs the CPWS mail server program. In a standalone situation this will be the name of your computer.
TCP/IP Port mail server	Specifies the TCP/IP port of the Mail server program.
TCP/IP Port notifications	Specifies the TCP/IP port used for notification from the Mail server program.
Change settings for all users	If checked the changed settings will be applied to all users using this computer.
Auto Signature	You can use a signature to automatically add text to the messages you send. For example, you can create a signature that includes your name, job title, and phone number.
Use Auto Signature	If selected the Signature will be added to your message.
Signature	In the Signature text box, type the text you want to include in the signature. You can also paste text to the Signature text box from another document.
Play sound when new mail arrives	If selected a sound is played when new messages arrive.

Settings General window - Mail tab – Advanced settings

These options are used when you have installed the workstation on a Citrix server or other multi user environment on a single server, for example by using the remote desktop. These options are only useful when the workstation has been configured as a direct connection host.

Disable TCP/IP communication	With this option, you can disable the communication between the workstation and the telemedicine host application. When this option is turned on, the mail folders will not be refreshed when new mail arrives and the send and receive button will be disabled. You can refresh the mail folders by using the refresh button in the workstation, or enable the periodic refresh option.
Periodically refresh the mail folders	With this option, you enabled/disable a periodic refresh of the mail folders. When the TCP/IP communication has been disabled, the mail folders will not refresh automatically. With this option, you can configure the workstation to refresh the mail folders at a specified interval.
Refresh every	Here you can specify the interval at which the workstation will refresh the mail folders. The interval has to be specified in seconds. You can change the value by clicking on the upward arrow for an increase of the value and clicking on the downward arrow for a decrease of the value.

7.2 Customizing File Link

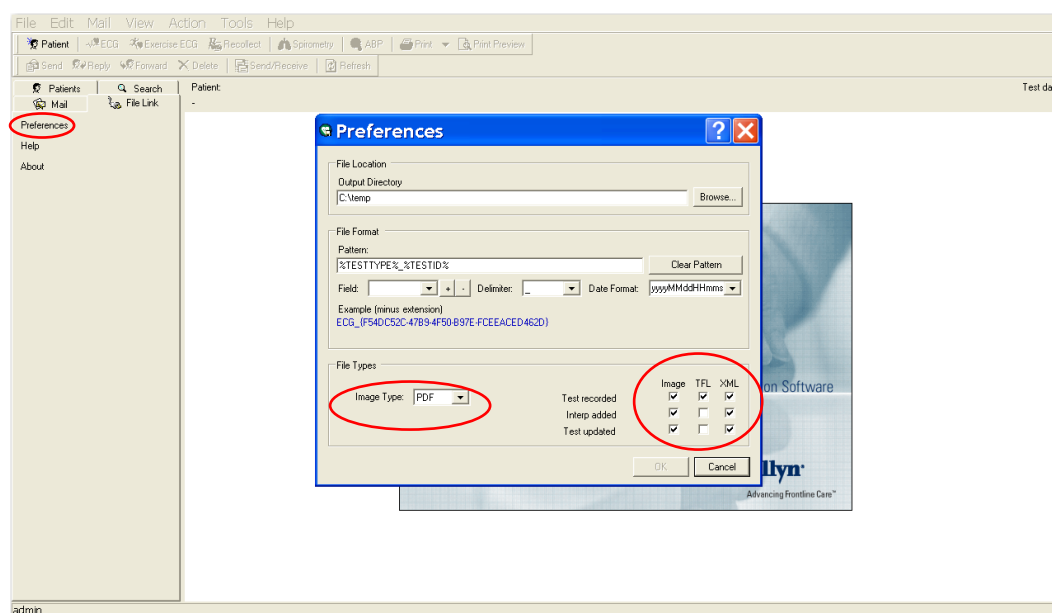
The CardioPerfect File Link program is a CardioPerfect Workstation plug-in. Click **File Link**

> **Help** for further information.

The File Link Preferences window provides the ability to configure Preferences. Click the **Preferences** menu item on the File Link tab to set preferences. Select the File Type and Image Type. The path and file naming scheme can be set as desired.

Note that your medical records system may need these to be configured in a specific way. Please consult your EMR vendor before making changes.

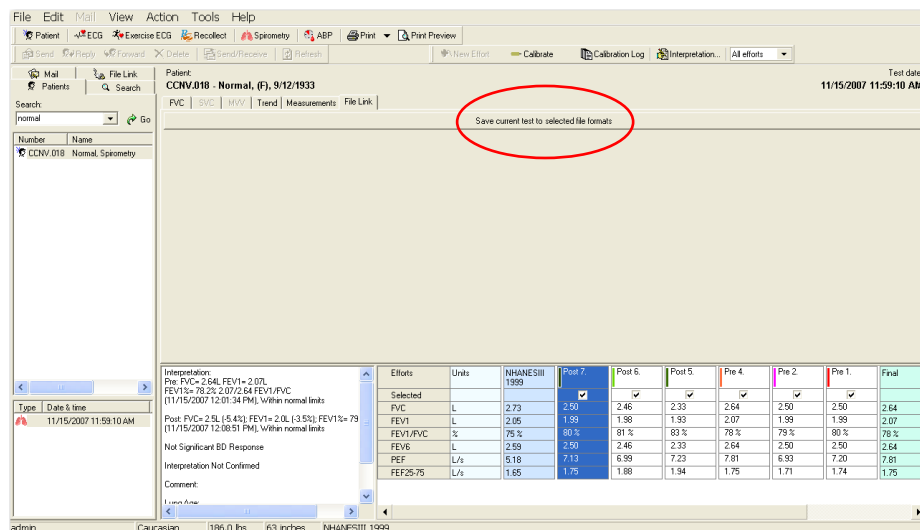
The checkboxes at the bottom right of the Preferences screen control when output files are automatically generated, and the type of output.



File Types include:

- | | |
|--------------------|---|
| Image (TIF or PDF) | Image files have either an extension of TIF or PDF. They can be viewed with any image viewer that is compatible with the image file type. |
| XML | Files with an extension of XML contain patient information and test results which can be imported into an EMR. |
| TFL | Files with an extension of TFL can be double-clicked to launch the appropriate test in CardioPerfect Workstation. |

Once you have selected a file type, click the **Save current test to selected file formats** button on the File Link tab to create the default file type of the active test.



7.3 Customizing .txt files

You can customize the statements that are used in the Interpretation editor (and Comment editor, Spirometry only) according to your own preferences.

To customize the statements:

1. As a default, this file is located in `<install. dir> \modules\resources\<language code>*.txt`. Use Notepad to open the file.

Note: If your system was configured to use sites, then the system administrator may have selected a different location for these files.

Module:



Rest ECG



Exercise ECG



Spirometry test



Ambulatory blood pressure test



Mini Holter event ECG test

File name:

ecg.txt

xecg.txt

spiro.txt

abp.txt

recollect.txt

2. Edit, add and delete the statements according to your own preferences.

To open a file in Notepad:

1. Open the Windows Explorer.
2. Browse to the location of the file.
3. Right click on the file.
4. In the shortcut menu, click **Open with**. The **Open with** dialog box is displayed.
5. From the program list, select **Notepad**.
6. Click **OK**. The file is opened in Notepad.

The *.txt files consist of statements that are grouped in categories. The statements are listed under the category name they belong to. Statements indent one position.

To create a new category:

1. Type the name of the new category on the first position of a new line.
2. Enter the statements you want to add to this category on new lines, make sure that each statement indents one character.

8. Telemedicine option

8.1 Introduction

Telemedicine is an optional extension to the Welch Allyn CardioPerfect Workstation. Without the correct release code, the Telemedicine functionality will not be activated.

With Telemedicine, it is possible to send and receive tests and interpretations to and from predefined contacts. This typically allows expertise sharing and second opinion consults, but might also be used for administrative purposes in situations where replication cannot be used.

Telemedicine offers a choice of two types of communication. Mail messages can be sent and received through email facilities, or through direct communication using TCP/IP sockets. In both cases, the Internet or any other TCP/IP network must be available as transportation infrastructure. It is possible to use a mix of both email and direct socket connection.

Telemedicine, like Welch Allyn CardioPerfect Workstation, is built using a client / server architecture. This means Telemedicine scales from use on a single standalone computer with a modem, to a configuration of multiple client computers, a MSSQL database server and a telemedicine mail server working together in a LAN network.

For installation and configuration, please refer to the CPWS Service and Advanced Installation manual.

8.2 Using Telemedicine

Using Telemedicine with e-mail.

If you use Telemedicine with e-mail, tests will be sent as an e-mail attachment to a pre-defined e-mail address.

The tests that are sent will be placed in the recipients mailbox at his ISP (Internet Service Provider) waiting to be picked up by the Welch Allyn CardioPerfect workstation of the recipient.

Using Telemedicine with e-mail is as simple as sending an e-mail from any e-mail program.

Take the following steps to send one or more tests:

- Select the first test you want to send and click on the **send** button,
- The workstation will now ask you to select the contact you want to send it to, select the correct one and click **OK**, the test will now be placed in the outbox of the Workstation.
- Do the same for other tests you want to send.
- After placing all the tests in the Outbox, click on the **send/receive** button, this will send all the tests in the outbox to the selected contacts and at the same time pick up tests that have been send to you.
The person on the receiving end will receive these tests at the moment **send/receive** is executed on the receiving computer.

After sending and receiving tests, a message will appear to let you know how many tests were successfully sent and received, or if, for some reason, it was not successful. In that case an error code is generated, see the table on error-codes on page 35.

Take the following steps to receive and process received tests:

- Click on the **Send/receive** button to receive tests that have been sent to you
- If the patient of the received test already has a patient card in the database of the recipient, the program will recognize this and place the test directly in the "Inbox", if the patient is not recognized, the test will be placed in "Unresolved items".
- Double-click on a test in the "Unresolved items", the Resolved Patient dialogue (see figure) appears, select **Create New** to create a new patient card for this patient or search for a possible match (like you would normally search for a patient in the patient list), select the patient you want to add the test to and click assign to.
- Now that the test has been assigned to an existing patient or a new patient card has been created, the test will be placed in the "Inbox" (at the moment a test is placed in the "Inbox", it is also entered in to the database of this workstation)
- Open the test in the "Inbox", review or add your interpretation and/or comments as is described in the module-specific manual and click **Reply**, the test will now be placed in the "outbox" (a contact does not have to be specified, the program will automatically use the e-mail address of the original sender).
- Alternatively the test can be forwarded to a third (predefined) contact, to do so, click **Forward** and select a contact, the test will be placed in the "Outbox".
- Click **Send/receive** to actually send the tests that are placed in the "Outbox".

Birthdate	Gender	Last	First	Mi...	Number
21-7-1962		Brady /Ta...			CCNV.012
1-1-1990	Female	Doe	John		CCNV.003
		Fainting att...			CCNV.013
17-5-1971	Female	Jongmans	Stella		CCNV.001
		Nodal tach...			CCNV.010
29-9-1951	Female	Ornymous	Ann		CCNV.008
		Pacing pro...			CCNV.009
1-1-1963	Male	Recording	Long		CCNV.004
		WPW			CCNV.011

Using Telemedicine with Direct socket connection.

Using a direct socket connection means that tests are not sent as an e-mail attachment (an e-mail address is not required), instead they are sent directly from the sender (client) to a recipient (host), a requirement is that the receiving computer (host) is running and ready to receive tests at the moment these tests are transmitted.

- The procedure to send a test with direct connection is similar to sending it by e-mail with the exception that the test will not be sent to the ISP of the recipient, but will be placed directly in his "Inbox" or "Unresolved items".
- After processing the tests, the host must click on **Reply** to place tests in his "Outbox", the host does not have to click on **Send/receive**.
- It is now for the client to pick up his tests directly from the "Outbox" of the host; at the moment the client clicks **send/receive**, the program will check the host for new tests or replies that have been placed in the "Outbox" for that client (the program will automatically determine which tests are intended for that client)

8.3 Troubleshooting

The following errors or error-messages may come up:

No Mailserver is active:

Start the Mail server, see the Telemedicine Chapter in the Installation and Configuration manual.

Unable to start Welch Allyn CardioPerfect Mail Server:

There can be only one instance of Mail server running at a time. If the Mail server is already running, trying to run the executable CcMailServer will report the above mentioned error. Check Windows Task Manager to verify that no instance of Mail server is running. If no other instance of Mail server is running yet the server will not start, it is possible that the default TCP/IP ports used by Mail server are already used by another application or process. Try changing the TCP/IP ports in both Welch Allyn CardioPerfect Workstation and CC Mailserver Configuration tool. After changing port settings, restart both Welch Allyn CardioPerfect Workstation and the Mail server. When choosing different TCP/IP ports, view the file "Services" found in the Windows\System32\drivers\etc folder (Windows XP) or in the Winnt\System32\drivers\etc folder (Windows 2000).

Workstation does not close properly:

Workstation is probably waiting for a time-out trying to contact the Mail server to deregister. Check to make sure the Mail server is running.

Incorrect database version:

Run setup on the computer running the MSDE or MSSQL database server. This will upgrade the database to the required version.

Winsock Errors or time-outs on a LAN:

Make sure Microsoft WinSock Proxy Client is installed and enabled if the LAN is using a proxy server.

For other error messages, please refer to the next table

Error codes:	Description
100	Unknown error Action: Try again, if problem persists, contact Support.
101	A time-out has occurred trying to connect to the SMTP server. Action: Try again later, the SMTP server might be down. If the problem persists, check the spelling of the SMTP server name using CC Mailserver Configuration Tool. Also, verify that the network is functioning correctly.
102	A time-out has occurred trying to send email. Action: Try again later. If the problem persists, contact the Internet Service Provider (ISP). If you are trying to send an exercise ECG, the email attachment might be too large. Ask the ISP about any size restrictions.
103	Unspecified SMTP error. Action: Check the error description in the mail event log, it will give the error text sent by the SMTP server.
104	A time-out has occurred trying to connect to the POP server. Action: Try again later; the POP server might be down. If the problem persists, check the spelling of the POP server name using CC Mailserver Configuration Tool. Also, verify that the network is functioning correctly.

Error codes:	Description
105	A time-out has occurred trying to receive email. Action: Try again later. If the problem persists, contact the ISP.
106	Unspecified POP error. Action: Check the error description in the mail event log, it will give the error text sent by the POP server.
107	A mail message has been received that is sent by an unknown contact. A rejection message has been sent back to the sender. Action: if desired. Add contact using Administrator tool
108	The mail message that has been received is invalid. It is corrupted or cannot be read. A rejection message has been sent back to the sender. Action: Try again, if problem persists contact Support.
109	An interpretation has been received, but the corresponding test is missing. A rejection message has been sent back to the sender. Action: if the test has been accidentally deleted. Ask the sender to send the test first.
110	A mail message has been received that is sent by a known contact, but the password is incorrect. A rejection message has been sent back to the sender. Action: change contact password or let the sender change the password entry
111	A time-out has occurred trying to connect to a host. Action: Try again later; the host may be down. If the problem persists, check the contact address of the host using Administrator Tool. Also, verify that the network is functioning correctly.
112	Contact/Host failed to receive mail message or time-out waiting for reply from host. Action: Check if local user account has writing privileges in the temporary directory specified in the CC MailServer Configuration Tool. Check if there is enough disk space to temporarily store mail messages, check if the database server has enough disk space to grow.
113	Contact/Host failed to receive mail message or time-out waiting for reply from host. Action: See error 112.
114	Direct socket received unknown command or error. Future use: possibly host and client are using different software versions. Also: connection disconnected by host, the host is going down during a connection Action: handle like error 111.

Index

Absolute date range	24	Start	16
Alternate number	23	Open a test from another location	19
Ambulatory blood pressure	16	Password	27
Browse button	18	Patient	
Change		Create new	12
password	27	Delete	15
patient information	14	Find	14
Clipboard		Search	14
Copy test to-	20	Patient card	12
Comment	13	Edit	14
Create		Patient information	12
A new patient	12	Change	14
A new test	16	Patient number	12
Patient search pattern	22	Patient search pattern	22
Current test		Define	22
Export-	18	Physician	23
Customize the Workstation	28	Predication equations	13
Date range		Print a test	25
Absolute	24	Print header	25
Relative	24	Print one view	25
Default module	28, 29	Print preview	25
Define patient search pattern	22	Print selected formats	25
Define test search pattern	23	Recorded by	23
Delete a patient	15	Recording date	19, 23
Delete a test	18	Recording time	19
Direct socket connection	32	Referring physician	23
Edit menu	14	Referring specialism	23
Edit patient card	14	Relative date range	24
E-mail	31	Resolved Patient dialogue	32
Error-messages	33	Resting ECG	16
Exercise ECG	16	Search	
Export		patient	14
All tests	18	test	17
Current test	18	Search area	10, 14
Test	18	Search pattern	22
Export test	18	Patient	22
Find a patient	14	Test	22, 23
Find a test	17	Search pattern wizard	22
Gender	23	Send and receive	31
Go button	14	Settings General window	
History tab	13	General tab	28, 29
Import		Shortcut keys	20
a test	19	Shortcut menu	10
Insurance number	12	Spirometry	16
Interpretation	13	Start new test	16
Location	28, 29	Start the Workstation	9
Open a test from another -	19	Status bar	11
Log in	9	Stop the Workstation	9
Menu bar	10	Telemedicine	31
Mini holter event ECG	16	Test	
Name	23	Copy	20
Name display	28	Create new	16
Naming convention	19	Delete	18
New patient		Export	18
Create	12	Find	17
New test		Import	19
Create	16	Open- from another location	19

View	17	Unconfirmed/ Confirmed by	23
Test interpretation.....	13	View a test.....	17
Test modules	16	Workspace	10
Test names.....	19	Workstation	
Test search pattern.....	23	Log in	9
Test type.....	19	Start	9
Title bar.....	10	Stop.....	9
Tool bar	10	Window	10