



## **Body Composition Analysis Software Instructions For Use**

**For US Distribution**



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Body Composition Analysis Software Instructions For Use should be used  
in conjunction with the Imp DF50 Instructions For Use.

*For patent(s) and/or patent application(s) see:*  
[www.impedimed.com.au/products/patents](http://www.impedimed.com.au/products/patents)

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# Overview

ImpediMed's DF50 Body Composition Analysis (BCA) Software is an application designed for tracking and analysing bioimpedance measurements. It is designed for use with the ImpediMed DF50 bioimpedance device, and has the capability to acquire measurements directly from this device via an infrared link or the user has the ability to manually enter in these values.

The DF50 application software has an extensive database for tracking Users (Practitioners) and Clients (Patients) and is an excellent tool for use in case studies and research.

The DF50 application software has a very powerful reporting and analytical engine built into the application allowing the user to select a report or graph on any set of user selectable measurements for a given patient.

The DF50 application software has a very powerful selection tool that allows a researcher to select a group of patients for a specific study and export the associated data for use in other applications.

Additional features are included in this software and will be explained in greater detail throughout the manual.

## How to Use This Manual

This manual is designed to teach you how to use the DF50 application software on a section by section basis. Each menu will be explained in detail along with examples, if necessary, to demonstrate the specific function.

There are many illustrations throughout this manual. Note the image in [Figure 1: Help Example](#) with the green circled item. The images will help illustrate the examples being discussed by highlighting, using a green circle, the individual item being explained.



**Figure 1: Help Example**

The manual will use the '->' symbol to indicate menus and sub menus.  
Example: If the manual states Help->About, this means press the Help tab followed by the About icon. The About icon will appear once you press on the Help Tab. See [Figure 2: Example of Help->About](#).



**Figure 2: Example of Help->About**

### **Labelling Clarifications**

Throughout this manual there are two terms that are used interchangeably and may cause confusion. They are: User and Practitioner, Client and Patient. The DF50 application software is written to be customised on a user by user basis. A User is a person using the product and Practitioner is a term that describes the User. The DF50 application software ships initially using the word 'Practitioner' as the default term for a User. Therefore all the images are displayed using the term 'Practitioner'. The same holds true for Client and Patient terms.

## System Requirements

The DF50 application software takes advantage of many advanced technologies, including Microsoft's .Net Framework. Below is the minimum System Requirements needed to run this application.

System	Minimum	Recommended
Processor	400 MHz	1.5 GHz or higher
Ram	256 M	512 M or higher
Hard Drive Space*	350 M	500 M or higher
Windows OS	2000	
Display Resolution	1024 X 768	
*Note: If .Net Framework version 2.0 is already installed on your system, the amount of hard drive space needed is only 25 M.		

Note: The DF50 BCA software is not directly compatible with MAC operating systems.

# Installation and Setup

In Version 3.0.2.0 and above, the location for the DF50 application is HOMEDRIVE\program files\ Impedimed (HOMEDRIVE is defined by the MS-DOS Set command, typically C:). The installation program will need to have administrative level privileges in order to perform the installation. The application, dll's and installation program are now digitally signed.

The DF50 installation program is aware of the previous version and will automatically remove the old application files. It will leave the original DF50.mdb database file intact, at its current location. The installation program also makes every attempt to upgrade the user by reading the previous installation and user information from the registry and creating a file called: Impedimed.set. (Note: This file is only created if the user is upgrading from version 3.0.0.0)

Note: The Impedimed.set file is used to assist the DF50 application upgrade process and is only used the first time the DF50 application is executed.

The Impedimed.set file contains:

1. The original location for the data file DF\_50.mdb
2. License Key. (Previously stored in the registry)
3. The User ID and Name for last login user.

The DF50 software looks to see if there is a configuration file (Config.ini) and if one does not exist, then one is created from this information stored in Impedimed.set.

Note: There are two versions of USB Drivers and IrDA support files, 32 and 64 bit. Neither have been digitally signed at this time. However, they have been tested and are known to be reliable. All versions of 32 bit Windows will accept the 32 bit drivers as not being digitally signed, however, versions of Windows running x64 requires signed drivers and therefore, these drivers will not work until they are digitally signed or the user operates Windows in "Safe Mode". In either case, the user should accept the request to install these drivers.

Support for PDF-Creator has been added to the installation program. The installation program will prompt the user if it detects that the PDF-Creator software is not installed. If the user selects 'Yes', the installation program for the PDF-Creator will be launched and the user needs to follow all on screen prompts to install this software. If the user selects 'No' and decides later to install the PDF-Creator software, the installation program for the PDF-Creator is located at:

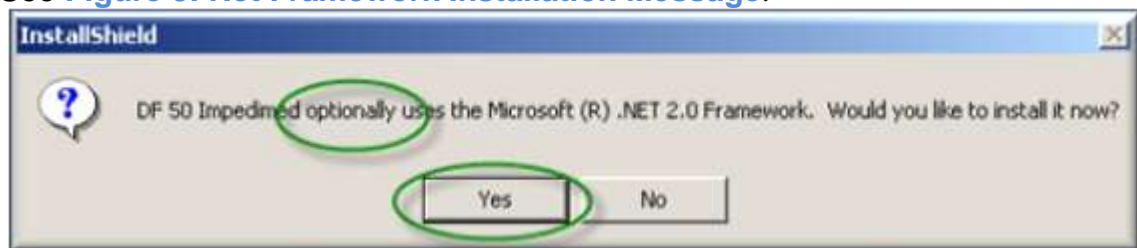
HOMEDRIVE\Program files\Impedimed\tools\PDFCreator\_Setup.exe.

The above is also true for Adobe Acrobat. The Adobe Acrobat software is located at: HOMEDRIVE\Program files\Impedimed\tools\AdbeRdr910\_en\_US.exe or on the Web at [www.adobe.com](http://www.adobe.com).

To install the DF50 Body Composition Analysis software, insert the CD in to the CD ROM drive. If you have the auto start setting turned on, the setup program will automatically run. If not, navigate to your CD ROM drive and execute the file called Df\_50\_Setup.exe; this is the setup application.

The DF50 Body Composition Analysis software was written to take advantage of latest in advanced technologies from Microsoft called ".Net Framework". All new computers shipped today include the .Net Framework. When the setup program is first launched, the setup program will test to see if you are running the latest version of the .Net Framework, with all the language extension support by this application. If your system needs to have the .Net Framework installed or updated, you'll receive a message asking you to install the .Net Framework.

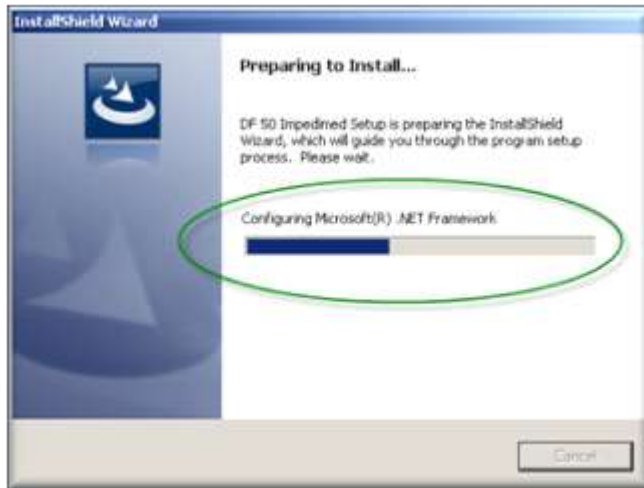
See [Figure 3: Net Framework Installation Message](#).



**Figure 3: Net Framework Installation Message**

Note: If the word optionally appears in your message, this means that you have the .Net Framework installed, however, you are missing some of the application extensions needed to support the foreign languages supported by this application. It is recommended that you select 'Yes' to allow the installation program to include the missing files.

Once you press the 'Yes' button, this screen appears indicating the status of the .Net Framework installation. See [Figure 4: Net Framework Status Screen](#).



**Figure 4: Net Framework Status Screen.**

Once the .Net Framework installation and configuration is complete, the setup program will display the welcome screen.

The welcome screen indicates the beginning of the DF50 installation process. Press the 'Next' button to continue with the installation process. See [Figure 5: Installation Welcome Screen](#).

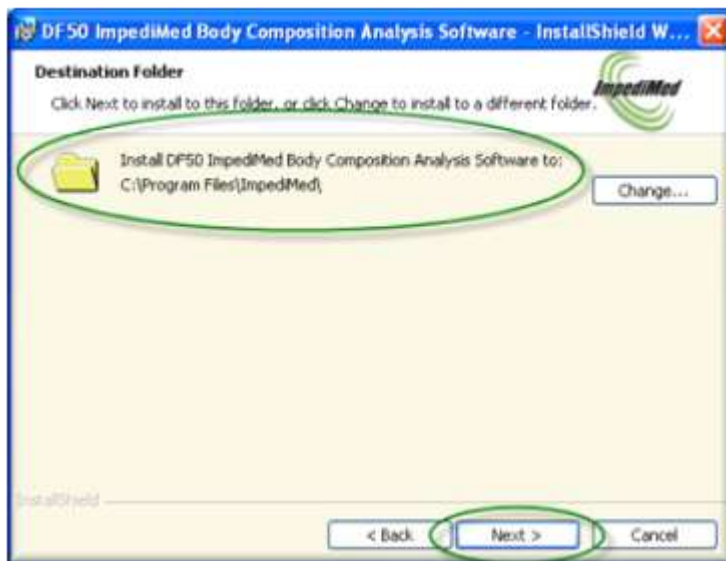


**Figure 5: Installation Welcome Screen.**

The next screen to appear is the destination location option. By default, the application is setup to be installed on the boot drive, in most cases this is your 'C' drive, in the Program Files\ImpediMed directory. You have the option to change the default location. If you would like to select another location, press

the 'Change' button and navigate to the new location. See [Figure 6: Setup Installation Location](#).

Note: It is recommended that you keep the default location.

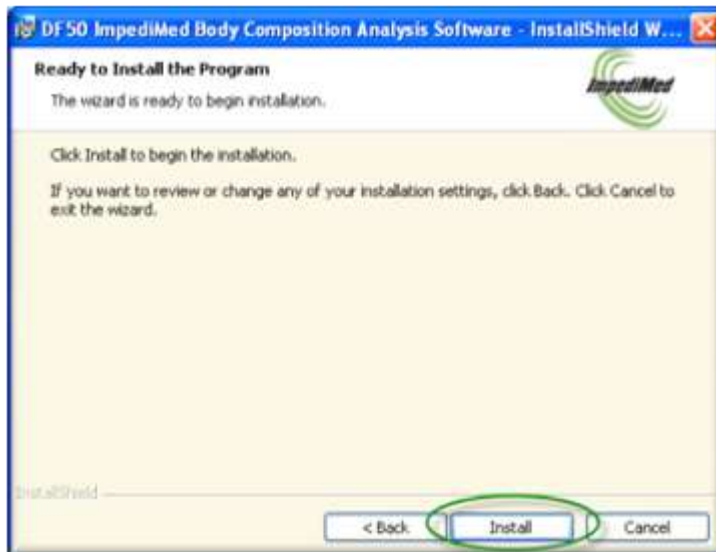


**Figure 6: Setup Installation Location.**

Press the 'Next' button to continue with the installation program.



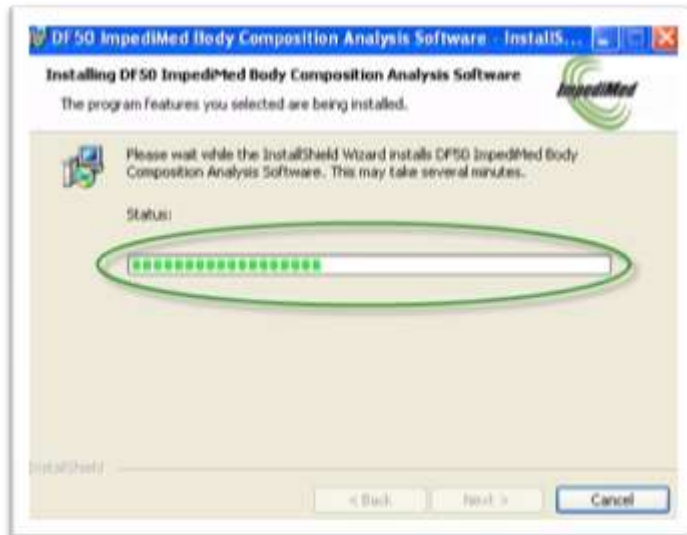
The next screen indicates that you have successfully navigated through the installation questionnaire and that you are ready to start the installation process. See [Figure 7: Installation Ready Screen](#).



**Figure 7: Installation Ready Screen.**

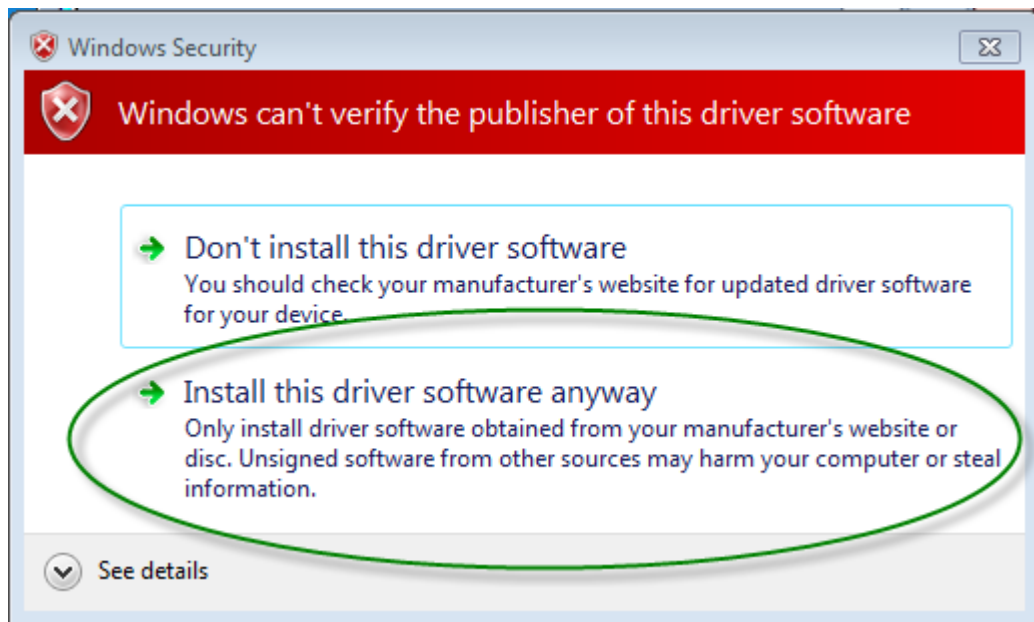
Press the 'Install' button to begin the installation process.

The installation process could take several minutes depending on your computer. While you are waiting for the application to install, a status indicator will appear indicating the status of the setup process. See [Figure 8: Installation Status](#).



**Figure 8: Installation Status.**

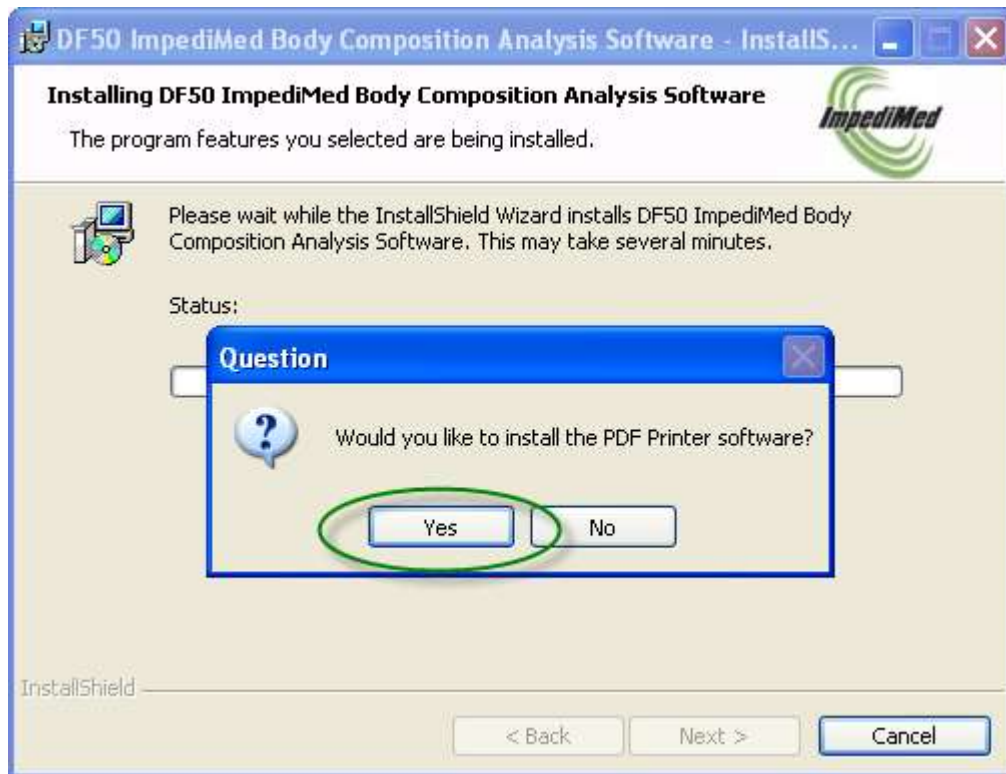
Once the setup program has completed installing the application files, you will be prompted to install the USB IrDA support software. Depending upon your version of windows, a dialog box might appear requesting your approval to install these drivers. Select "Install this driver software anyway". See **Figure 9: Driver Installation Warning!** The reason this message appears is that these drivers are not digitally signed. Note: These drivers are ImpediMed authored drivers and are known to be reliable.



**Figure 9: Driver Installation Warning!**

Included in DF50 BCA Software version 3.0.2.0 and above are two utility applications: PDF Creator and Adobe Acrobat Reader. PDF Creator allows the user to print a report to a PDF file and Adobe Acrobat Reader allows the user to view and print the PDF files. The installation program will determine if either has been previously installed and if not, the user will be prompted to install. These options are only necessary if you want to save reports, preview or print them at a later time. Note: These applications can always be installed at a later time.

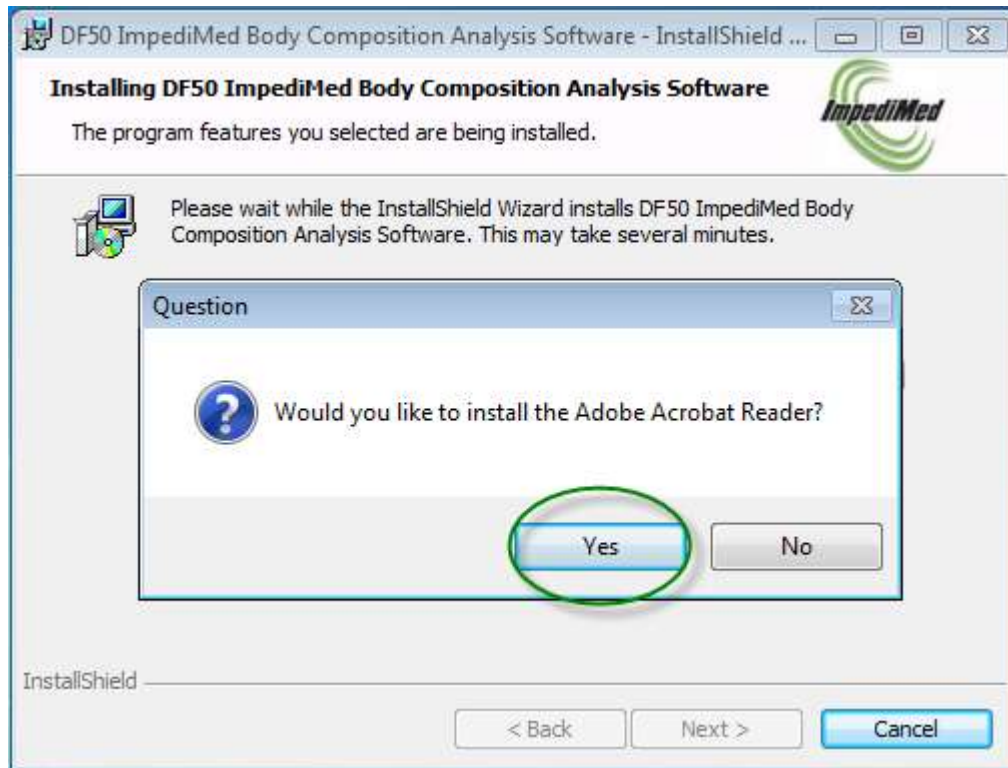
If prompted and you want to install the PDF Creator software select “Yes”. Within a few moments, the installation program for PDF Creator will appear. To install, follow all on screen prompts. See [Figure 10: Installing PDF Creator](#).



**Figure 10: Installing PDF Creator.**

Once the installation process for the PDF Creator is complete, you will return back to the DF50 installation program. If Adobe Acrobat Reader is not installed, you will be prompted to install. It is highly recommended that you install Adobe Acrobat Reader, as the documentation for the DF50 application is stored on your computer as PDF documents.

If prompted and you want to install the Adobe Acrobat Reader software select “Yes”. Within a few moments, the installation program for Adobe Acrobat Reader will appear. See [Figure 11: Installing Adobe Acrobat Reader](#). To install, follow all on screen prompts.



**Figure 11: Installing Adobe Acrobat Reader.**

Once the installation process is complete, the following screen appears. See [Figure 12: Launch Application from Setup](#).



**Figure 12: Launch Application from Setup**

This signifies the completion of the installation process for the DF50 application.

## Starting the Software

When the DF50 application software is run for the first time, the program will report an error message indicating that your licenses will expire in 30 days. Out-of-the-box, the DF50 application software is setup to run as a Trial version. See [Figure 13: License Key Notice](#)

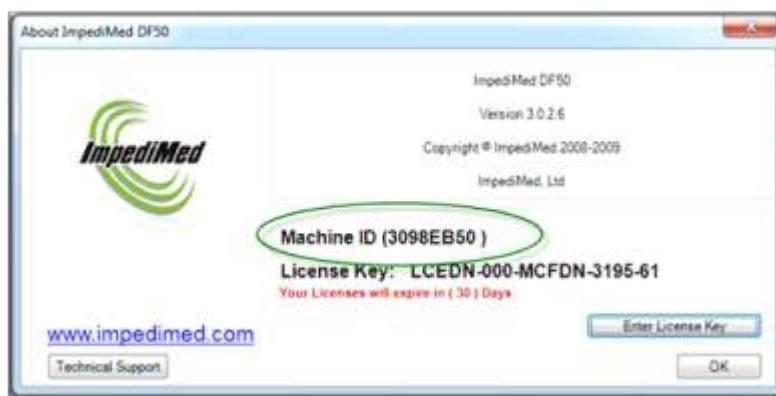


**Figure 13: License Key Notice**

# Software Registration

Follow the instructions on the registration card to register this software via the Web. The web address is <http://www.impedimed.com/customer-support/register-your-product/>. Before you go to the website, you'll need to get the Machine ID. This information is located on the Help->About screen.

See [Figure 14: Location of Your Machine ID](#).



**Figure 14: Location of Your Machine ID**

Note: The Machine ID and License Key are case sensitive and are always upper case.

Once you have obtained your License key, go the Help->About screen and press the 'Enter License Key' button located near the bottom right corner of the window. A message box will appear, paste or type in your License Key in the text box, then press 'OK'.

See [Figure 15: Enter License Key Here](#).



**Figure 15: Enter License Key Here**



Depending on the features identified within your License Key, the application may need to be restarted. A warning message will appear, if it is necessary. Once you have entered in the License key, the key will appear in the About and Sign-on screens. This key is tied to this specific machine and this software can only be used on that machine. If you plan on using this application on additional computers, please contact technical support for additional License Keys.

See **Figure 16: License Key Location**.



**Figure 16: License Key Location**

This key maybe needed in order to obtain technical support. Note: Each licensed key contains an expiration date. Once you are within 30 days of the Licence Key's expiration date, each time you run the application a warning message will appear telling the user the number of days remaining on this license. Once your license has expired, you will no longer have access to the DF50 Software. Please contact technical support for an updated License Key.

## Menus and Navigations

The DF50 application software takes advantage of the new style ribbon menus introduced by Microsoft's latest office suite. The advantage of this style of navigation system is that each section is compartmentalized and that common functions are grouped together making navigation and functionality easier to use.



The Patient menu is grouped in sections, as noted by the red outlined boxes, Data Entry and Viewing, Analysis, Special Options and Reports. Each section will be explained later in this manual. The important concept is that the menus are grouped in common sections and each section is labelled to better illustrate the functionality that users should expect. The green highlighted area indicates the active tab. Notice the difference in tab colour between the Patient and the Practitioner. The active tab has a light grey background.

Depending upon the size of the screen or the size of the DF50 application, some of the icons will not appear correctly. The icons will appear as X's, see the green circle in [Figure 17: Icons Not Appearing Properly](#)

This is because there is not enough room to display the complete icon and the ribbon replaces the icon with a smaller version to indicate the lack of screen space.

See [Figure 17: Icons Not Appearing Properly](#)



**Figure 17: Icons Not Appearing Properly**

In [Figure 18: Not All Buttons Are Accessible](#), there are two icons displayed, 'Select Patient' and 'Patient Information'. The 'Select Patient' has colour, while the 'Patient Information' is greyed out. This indicates that the 'Select Patient' feature is currently available for use by the user, while the 'Patient Information' is not. In all situations where this occurs, the user is not able to access areas of

the DF50 application software until another event occurs. In this case, the user needs to select a Patient before the Patient's Information can be accessed.



**Figure 18: Not All Buttons Are Accessible**

To change from tab to tab, or in this case from 'Patient' to 'Practitioner' click on the word 'Practitioner'. Now, the 'Practitioner' tab is active.



Figure 19: Patient Tab is Selected



Figure 20: Practitioner Tab is Selected

See [Figure 19: Patient Tab is Selected](#) and [Figure 20: Practitioner Tab is Selected](#).

Located in the far top, left-hand corner, there is an icon. This icon controls a dropdown menu, similar to the old style application menus. Clicking on the icon will reveal this menu. This menu contains the New Database, Select Database, Login, Logout and Exit functions.

See [Figure 21: Exit Menu](#).

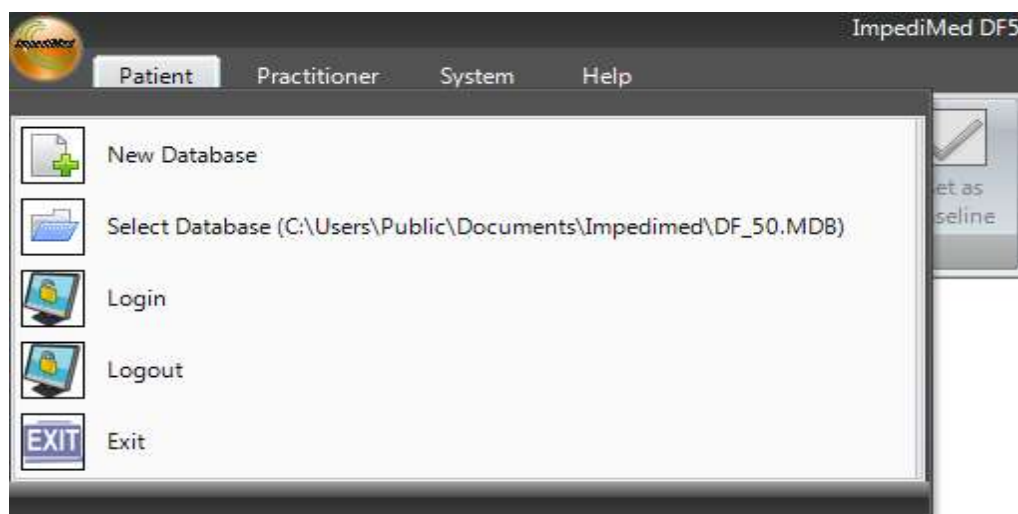
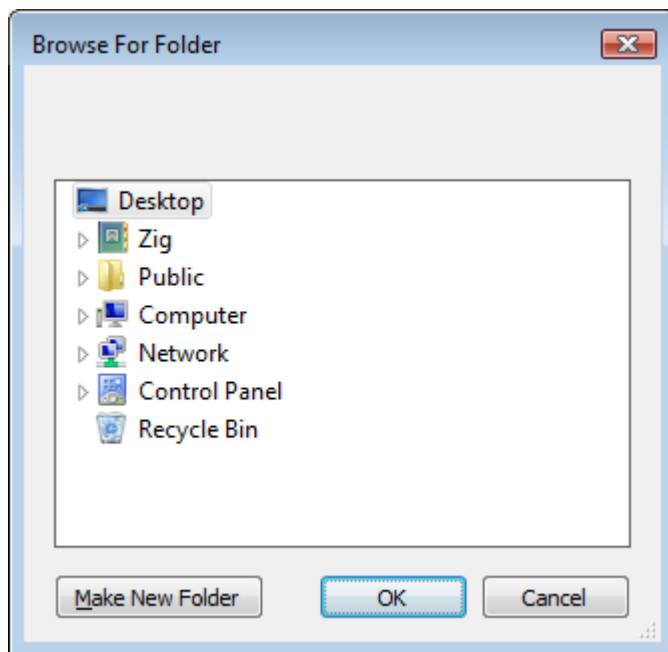


Figure 21: Exit Menu

## New Database

On setup, the DF50 software will establish an initial default database. The New Database function allows the user to establish additional databases. Clicking the “New Database” option will open up a window prompting the user to specify the area on their PC where the new database will be created. Note: The user must have full read/write/modify level privileges for the directory being selected. Otherwise an error message will appear and the user will need to select another directory. Please contact your administrator to grant you read/write/modify privileges when accessing a network drive or if you are a restricted user on this machine.

See [Figure 22: Selecting a folder in which to save new database.](#)



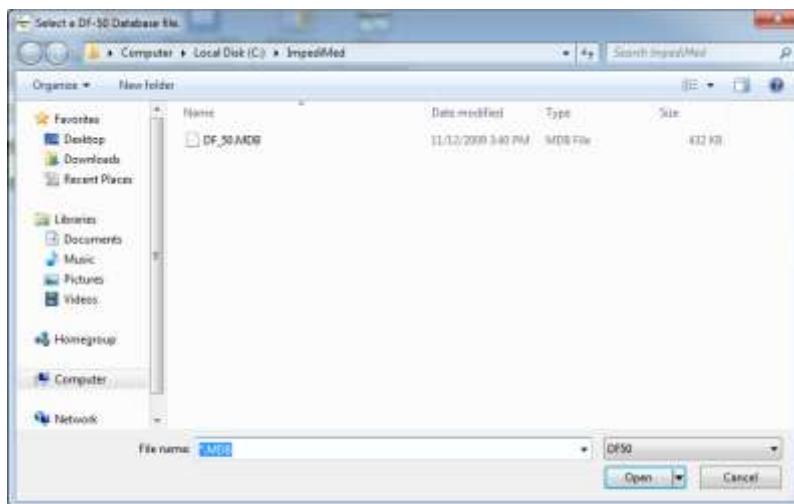
**Figure 22: Selecting a folder in which to save new database**

Press OK once the location for the new database has been selected and the software will create a new database in that location. The software will automatically use this new database.

## Select Database

The Select Database function allows the user to browse to different databases stored on their computer and select a particular database for use. This option is useful if operating numerous databases or when a database stored on a shared/network drive that is accessible by numerous computers. Note: The user must have full read/write/modify level privileges for the directory being selected. Clicking the Select Database option will open a browse window that allows the user to browse to the location of the desired database. Clicking OPEN will open the selected database.

See [Figure 23: Selecting a database](#).

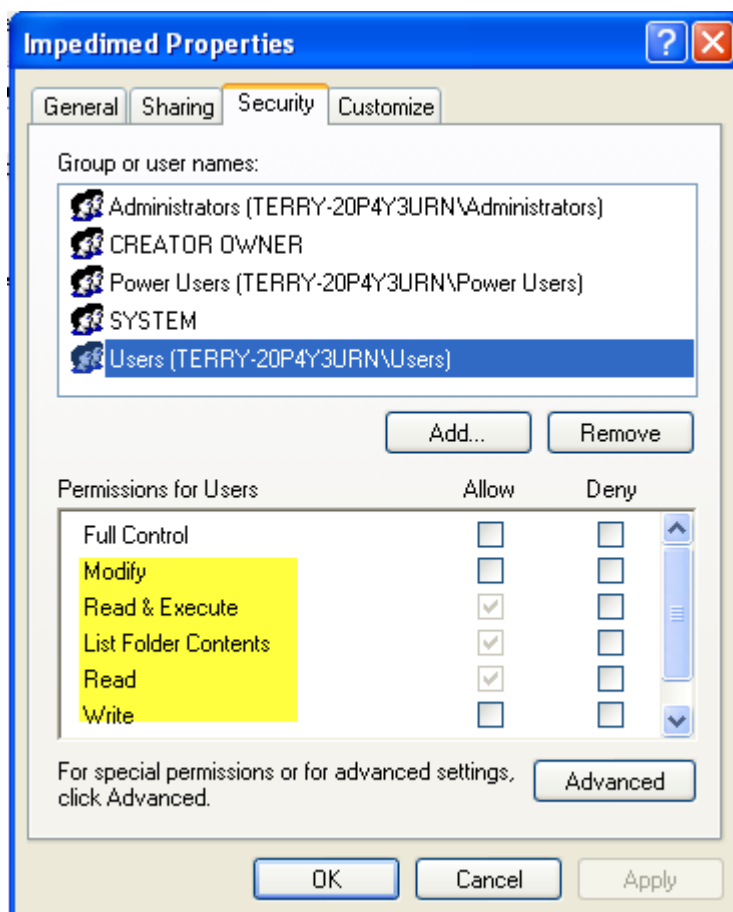


**Figure 23: Selecting a database**

## Remote Database

The only requirement when accessing a DF50 database file across a network is the directory where the data is stored must have Read/Modify/Write/List Folder Contents/Read & Execute privileges for all users. The typical windows default settings is Read/List Folder Contents/Read & Execute.

See [Figure 24: Windows XP Example](#) and [Figure 25: Windows Vista and Windows 7 Example](#).



**Figure 24: Windows XP Example**

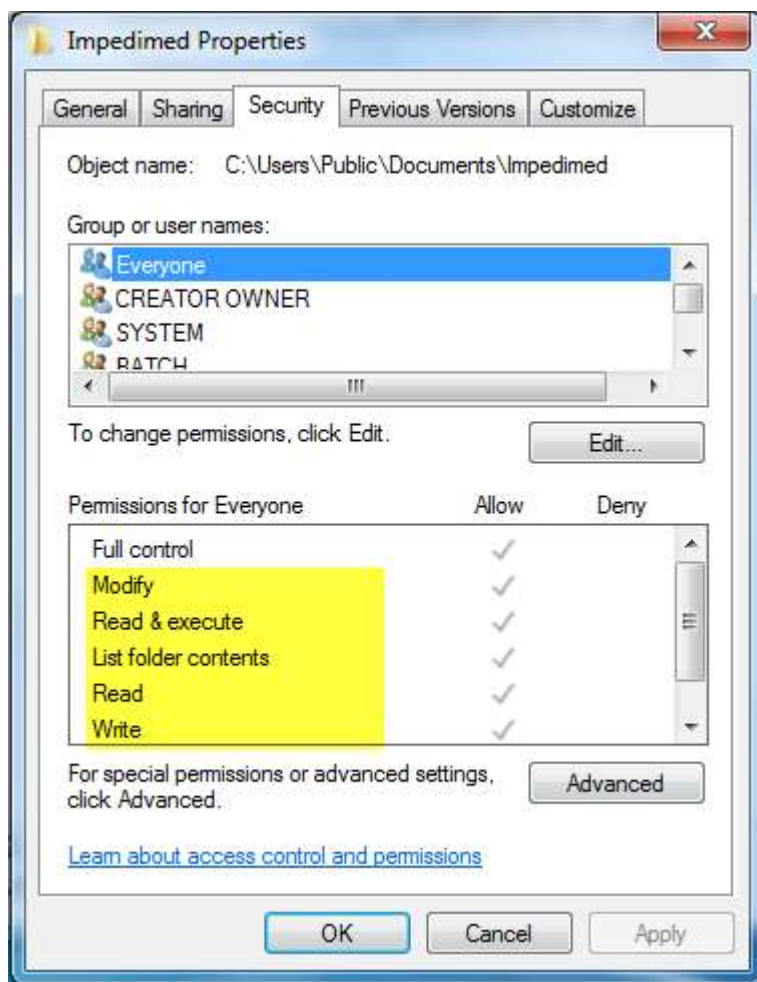


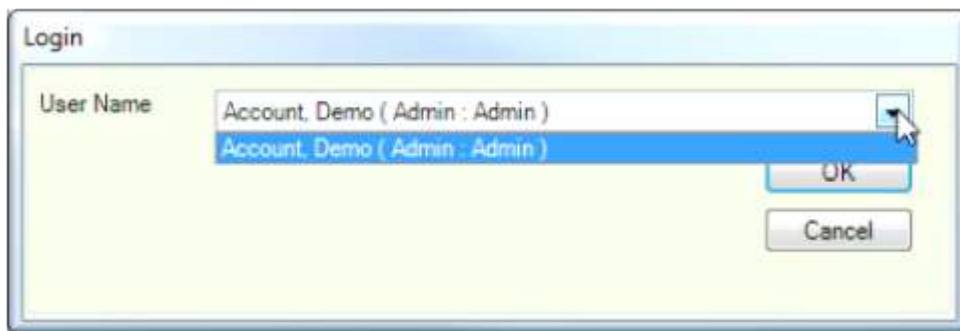
Figure 25: Windows Vista and Windows 7 Example



## Logging In and Out

Logging In and Out is the way the DF50 application tracks users. When the DF50 application is launched, the first screen that appears is the user Login screen. From this screen, the user can select from the dropdown list or start typing the first few letters of their login and their user login will appear in the dropdown list. Once their login appears, press 'OK' to continue to the DF50 application itself.

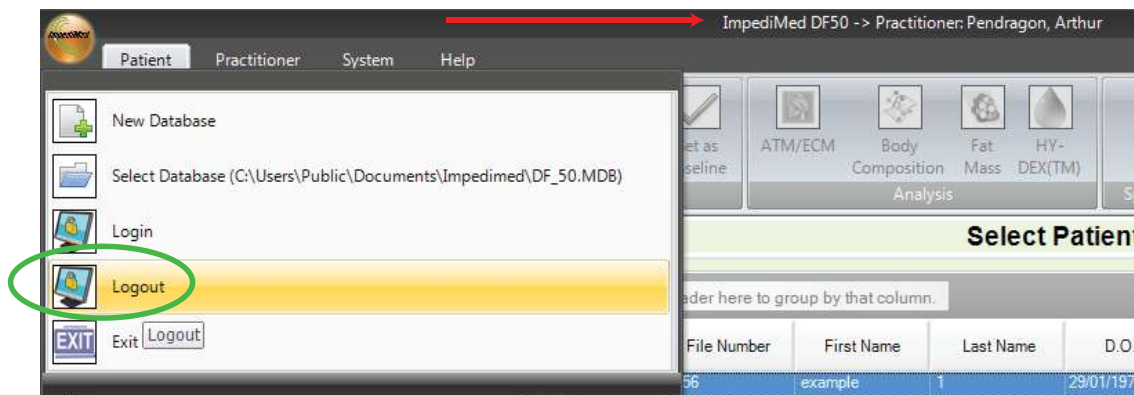
See [Figure 26: Selecting a User](#).



**Figure 26: Selecting a User**

When the user is logged in the title bar will reflect the name of the current user.

See [Figure 27: Currently Logged In User](#) and note the red arrow.



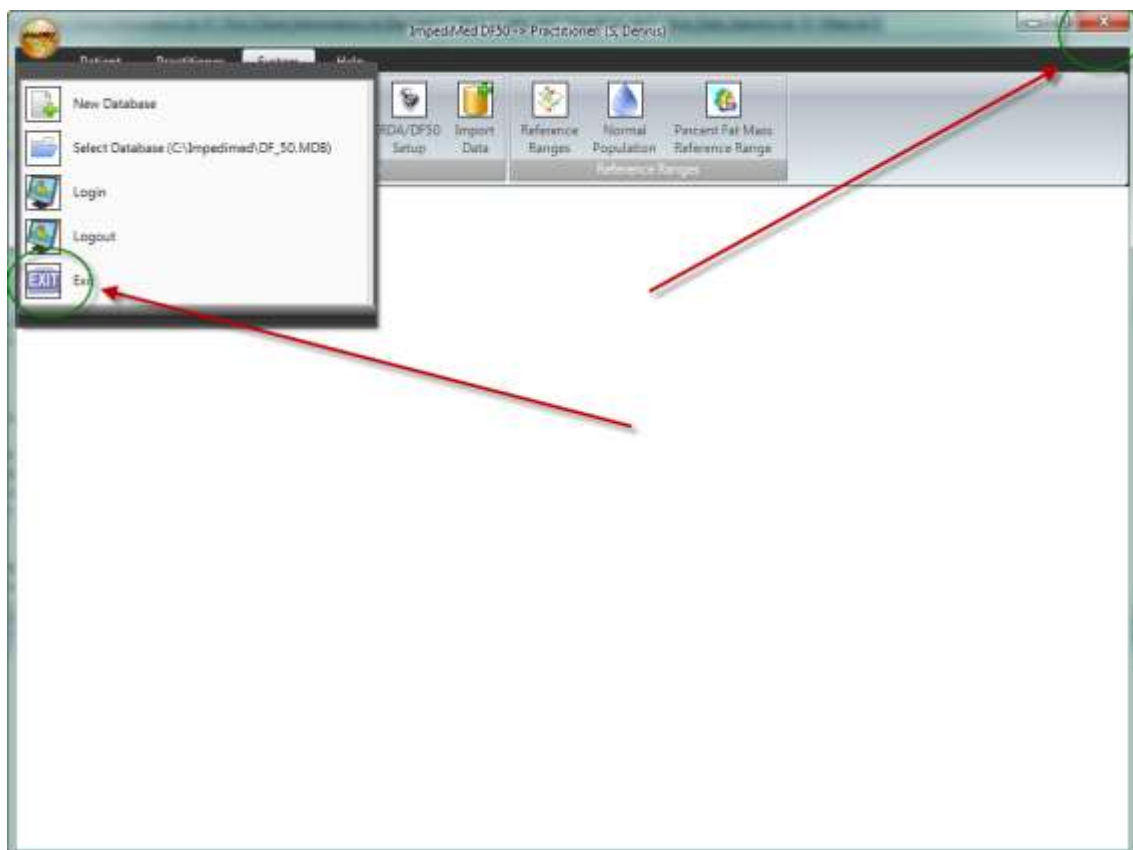
**Figure 27: Currently Logged In User**

To change users, the current user does not need to be logged out. Simply select the 'Login' option and select the new the user. The DF50 application software will automatically logout the current user and login the new user. The purpose of logging out a user is to prevent access to the application. When there are no users logged in to the DF50 Software, all system functions are disabled.

**NOTE: The DF50 BCA Software does not currently support password protection for logging in a user.**

## Exiting the Application

There are two ways of exiting the application. One is by pressing the 'x' button located in the upper right-hand corner of the application. The other is to press the ImpediMed Icon to access the Login menu and select Exit. See [Figure 28: Exiting Application](#).



**Figure 28: Exiting Application**

# Help

The help menu is broken down into three sections: Manuals, References, and System. The Manual section includes 'Open Software User Manual' (this document), 'Electrode Placement Chart' and 'Open Imp DF50 User Manual'. The DF50 application software is written to support multiple languages and these documents are language aware. Example: If you have set the DF50 application to be in Spanish, selecting the Electrode Placement Chart button will open the Electrode Placement Chart in its Spanish version. Note: All documents accessed from this menu are written with Adobe Acrobat and Adobe Acrobat Reader is needed in order to view these documents. (Adobe Acrobat Reader is free and can be found at [www.adobe.com](http://www.adobe.com) or HOMEDRIVE\Program files\Impedimed\tools\ AdbeRdr910\_en\_US.exe on the computer where the DF50 application is installed)

See **Figure 29: Help Menu**.



**Figure 29: Help Menu**

## **Open Software User Manual**

Clicking this button launches Adobe Acrobat Reader and the User Manual PDF file for the DF50 Application. Note: The DF50 application software looks to see the default language set for the DF50 application software and it will open up the version of the User Manual for that specific language.

## **Electrode Placement Chart**

Clicking this button launches Adobe Acrobat Reader and the Measurement Guide for Body Composition Analysis. Note: The Measurement Guide is only available in English at this time.

## **Open Imp DF50 User Manual**

Clicking this button launches Adobe Acrobat Reader and the DF50 User Manual for the DF50 Application. Note: The DF50 application software looks to

see the default language set for the DF50 application software and it will open up the version of the DF50 User Manual for that specific language.

## **References**

Clicking this button launches Adobe Acrobat Reader and the References used to create the specific algorithms used by the DF50 Software.

## **About**

The About screen can be accessed by clicking on the Help->About button. The About screen provides the user with important information regarding the DF50 software.

### **Version Number**

The version number is located in the top right-side of the About screen. See [Figure 30: About Screen](#) The reason for version number is to aid with technical support. If you should encounter an error, the version number will be important in helping to determine if the problem you are experiencing has been corrected in a newer release.



**Figure 30: About Screen**

## **Machine ID**

The Machine ID is needed in order to generate a License Key. Each installation of the DF50 application software is licensed to a particular machine. See Software Registration for more information.

# **System Menu**

The System Settings is a group of settings that allow the user to customize this application for a particular user and/or set of requirements. The System Settings are broken down in to three groups: Maintenance, System and References Ranges. See [Figure 31: System Menu](#).



**Figure 31: System Menu**

## **System Menu - Maintenance**

The Maintenance Settings is a set of global settings. Global settings are settings all users will have access to and those settings will appear throughout the application. Currently there are only two: Ethnic List and Group List.

### **Ethnic List**

Ethnic List is a list of names used by the Ethnic dropdown list. This allows the DF50 application software to categorize patients by Ethnicity.

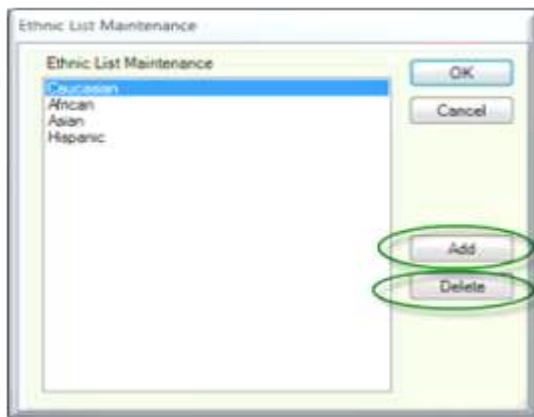
Click the System->Ethnic List Maintenance button to open up the Ethnic List Maintenance screen. The DF50 application software automatically populates the list with a short list of Ethnic Groups. The User has the ability to manage the list of names from this screen.

### **Ethnic List - Add New**

To 'Add' a new ethnicity, press the Add button and a dialog text box will appear. Type in the information and press 'OK' to accept the information. See [Figure 32: Ethnic List Maintenance](#).

### **Ethnic List - Delete**

To 'Delete' an ethnicity from the list, select the item from the list box by highlighting it. To highlight an item, click on the item in the list box. Press the 'Delete' button. A message box will appear confirming the delete action. Press 'Yes' to delete the item. Note: The DF50 application software will not allow an item to be deleted if the item is in use. See [Figure 32: Ethnic List Maintenance](#)



**Figure 32: Ethnic List Maintenance**

### **Group List**

Group list is a list that allows the user to categorize or group patients together. Groups can be anything. Example: High Blood Pressure, High Cholesterol, High Blood Sugar. This information will be explained later in the Patient Information Section. This section is for maintaining the Group List.

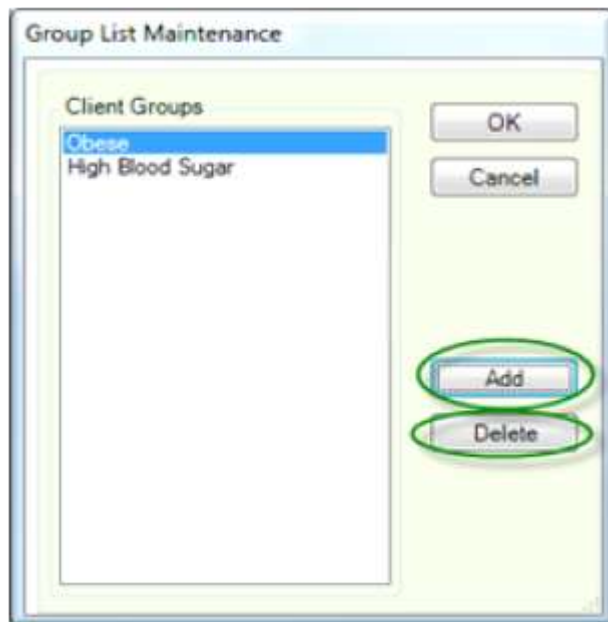
Click the System->Group List Maintenance button to open up the Group List Maintenance screen.

### **Group List - Add New**

To 'Add' a group, press the 'Add' button and a dialog text box will appear. Type in the information and press 'OK' to accept the information. See [Figure 33: Group List Maintenance](#).

**Group List - Delete**

To 'Delete' a group, select the group from list box by highlighting the item. To highlight an item, click on the group name in the list box. Press the 'Delete' button. A message box will appear confirming the delete action. Press 'Yes' to delete the group. Note: The DF50 application software will not allow a group to be deleted if it is in use. See [Figure 33: Group List Maintenance](#).



**Figure 33: Group List Maintenance**

# System Menu - General Settings

## General Settings

General Settings are user specific. This allows each user to customize the application to meet their specific needs. Example: User #1 wants all measurements to have a height displayed in 'cm' and all text displayed in 'Spanish'. User #2 wants all measurements to have a height displayed in 'in' and all text displayed in 'German'.

To customize the application for a specific user, you must be logged on as that user. Navigate your way to General Setting screen by selecting System->General Settings and adjust the settings as desired. To customize the application for the next user, log on and repeat the steps.

See [Figure 34: General System Screen](#) for a picture of the customizable options. Note: When creating a new user, the new user will be provided with a set of 'Factory' default values.

General Settings

General Settings | Printing/Reports

Units

Height ☒ cm ☐ in

Weight ☒ kg ☐ lb

Volume ☒ litre ☐ pint

Energy ☐ MJ ☒ Cal

Graph Settings

Line Color Blue

Reference Range Color Red

☐ Scale Y axis from Zero

☐ Scale X axis proportional to Time

☐ Show Labels on Data Points

☒ Bar Chart ☐ Line Chart

Labeling

User

Client

Colors

Primary 120, 182, 25

Secondary 97, 25, 182

Alternate 1 182, 25, 41

Alternate 2 25, 182, 166

Default Input Type ☒ R, Xc ☐ Z, Ph

IrDA ☐ Serial ☒ USB

Language English-ROW

BMR Equations Mifflin-St Jeor

OK Cancel Restore Default Colors

Figure 34: General System Screen



## **General Settings - Units**

Each unit base can be individual set. The options are:

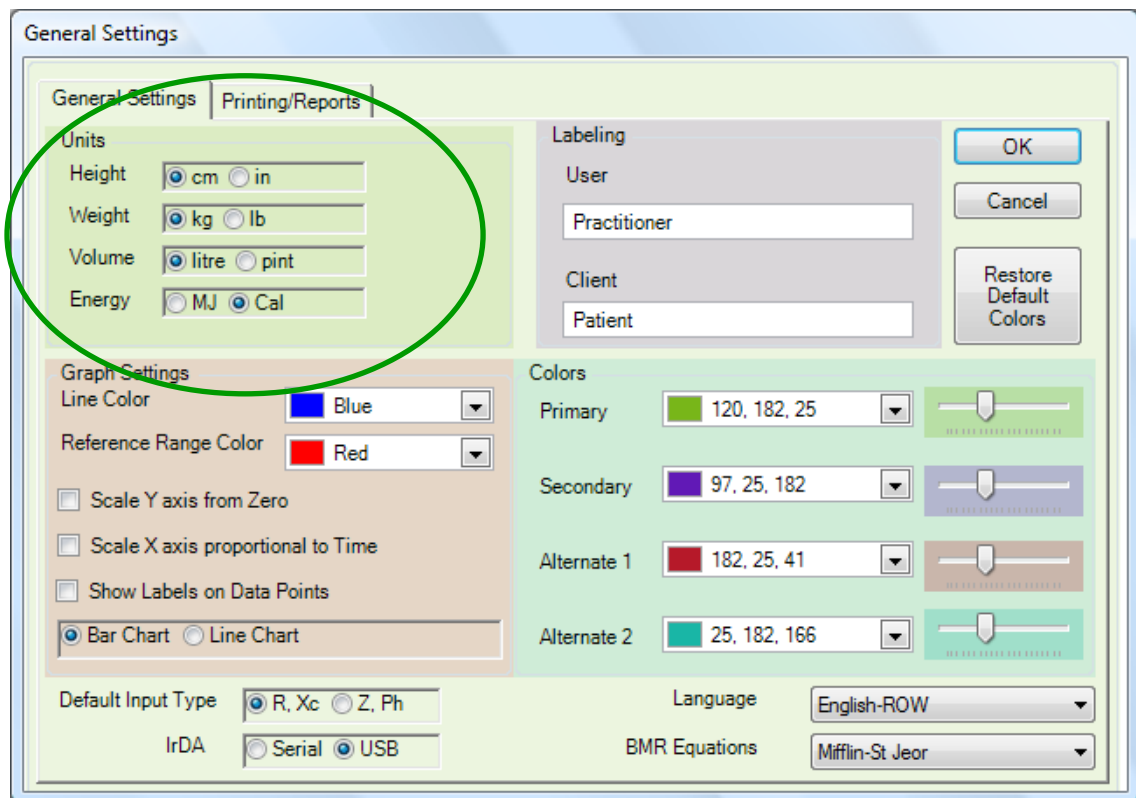
Height - 'cm' (centimetres) or 'in' (inches)

Weight - 'kg' (kilograms) or 'lb' (pounds)

Volume - 'Litre' or 'US Pint'

Energy - 'MJ' (megajoule) or 'Cal' (calorie)

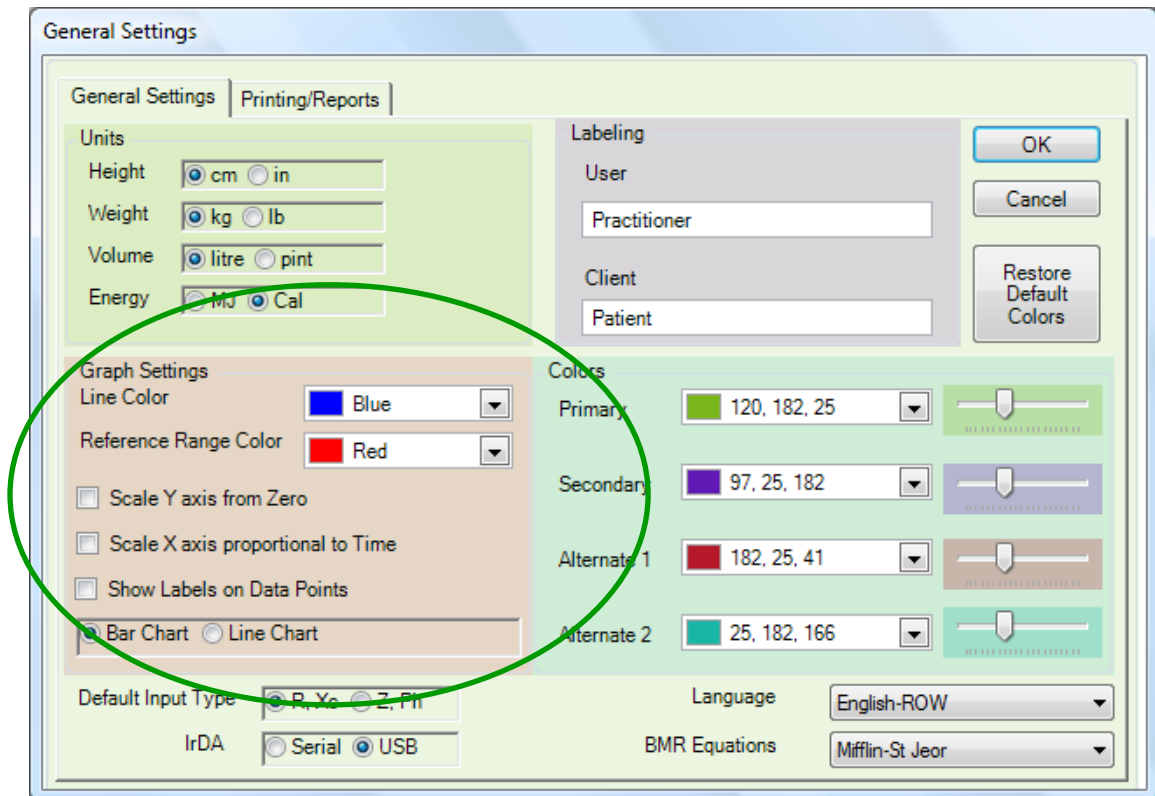
See [Figure 35: General Settings Units](#).



**Figure 35: General Settings Units**

## **General Settings - Graph Settings**

Graph Settings allows the user to customize the characteristics of the Graphs. See [Figure 36: General Settings Location](#).



**Figure 36: General Settings Location**

## **Line Colour**

When graphing data, the user has two choices: Bar and Line Charts. The Line Colour setting is used to set the colour of the bars in the Bar Chart and the line in the Line Chart. The user can select from any one of 16 million colours. Note: Test the colour selected on this page with your printer as the colour on the screen and printer may vary.

## **Reference Range Colour**

When displaying a graph, if the graph being displayed has reference ranges associated with it, the Reference Range Line will appear as a horizontal line. This setting allows the user to set the colour of that line.

### **Scale Y axis from Zero**

'Scale Y axis from Zero', when checked, alters the data to start a base value of 0. For Example: the data points range from 10 to 100. Checking the 'Scale Y axis from Zero' box will display the data as 0 to 100. See label 3 in [Figure 37: General Settings - Graphing Report Example](#).

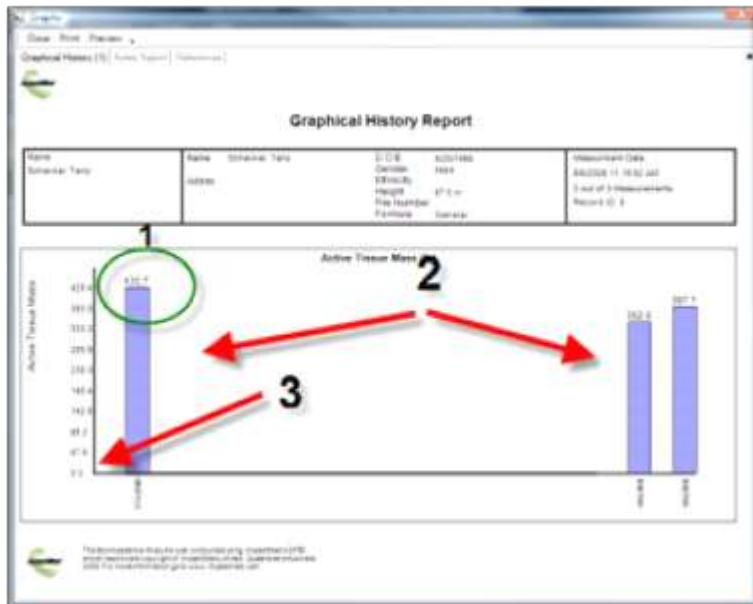


Figure 37: General Settings - Graphing Report Example

### **Scale X axis proportional to Time**

'Scale X axis proportional to Time' allows the user to look at data with respect to time. This allows the user to see measurements taken over time in order to see trends in the data. To enable this option, place a check in the 'Scale X axis proportional to Time' box. See label 2 in [Figure 37: General Settings - Graphing Report Example](#).

See label 1 in [Figure 38: Bar Graph Displaying Standard Data](#) for an example of a standard bar graph with data display not proportional to time.

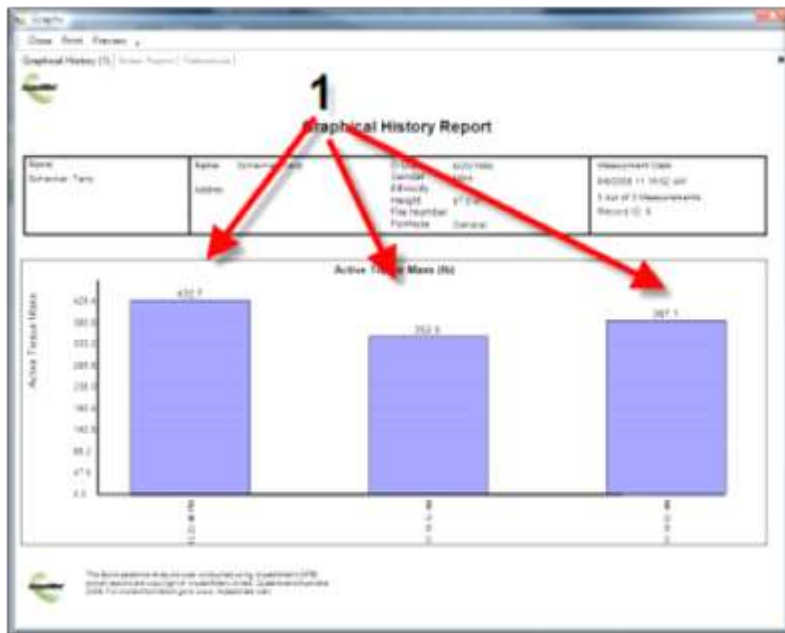


Figure 38: Bar Graph Displaying Standard Data

### Show Label of Data Points

'Show Label of Data Points' allows the user to display the data labels on the graph. When the user has selected a large amount of data, the number of labels on the graph can become overwhelming and the labels will blend together. This option allows the user to turn off the labels. To enable this option, display the labels and place a check in the 'Show Label of Data Points' box.

See label 1 in [Figure 37: General Settings - Graphing Report Example](#).

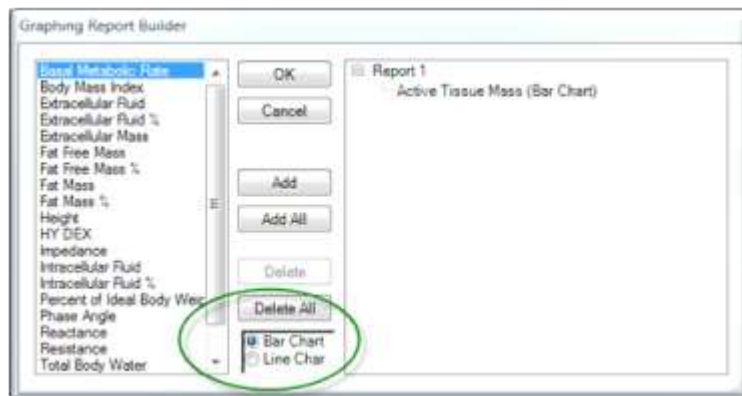
**Figure 37: General Settings - Graphing Report Example**

to see an example of displayed labels.

## **Bar Chart/Line Chart**

'Bar Chart/Line Chart' setting is used to set the default value of chart types on 'Graph Report Builder' screen.

See [Figure 39: Graph Report Builder](#) for the location where the Bar/Line Chart setting is used.



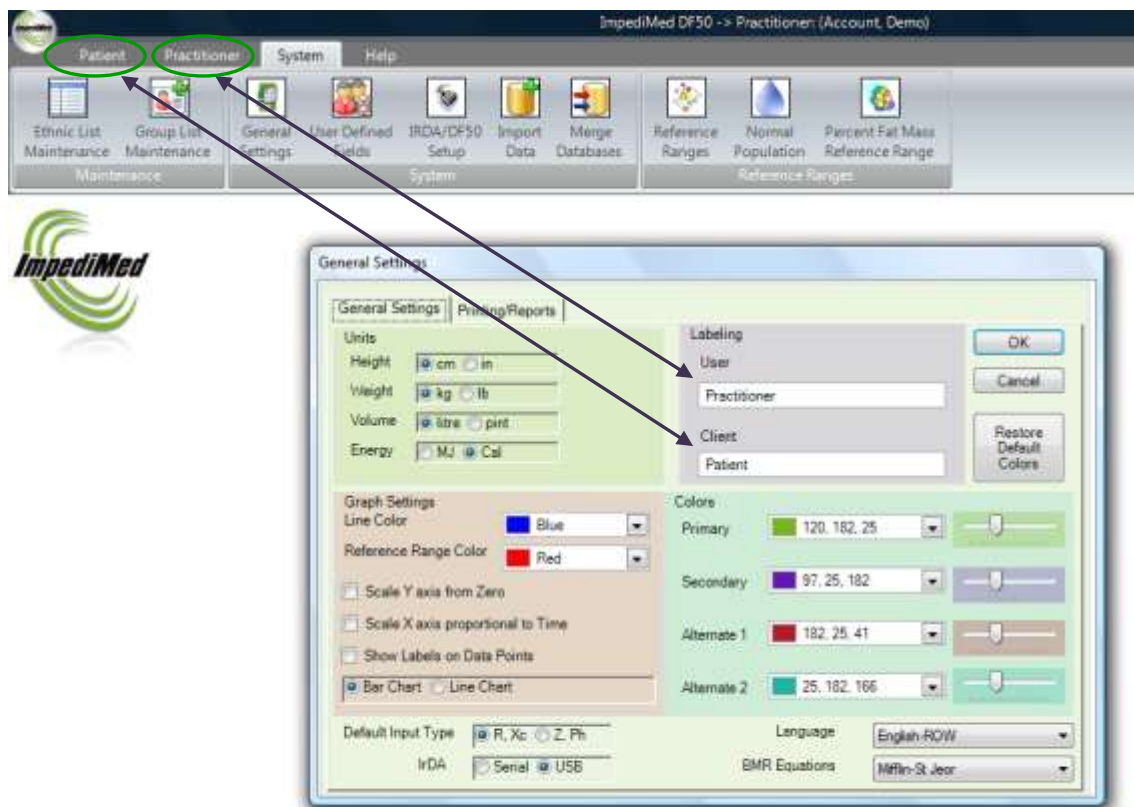
**Figure 39: Graph Report Builder**

## **General Settings - Labelling**

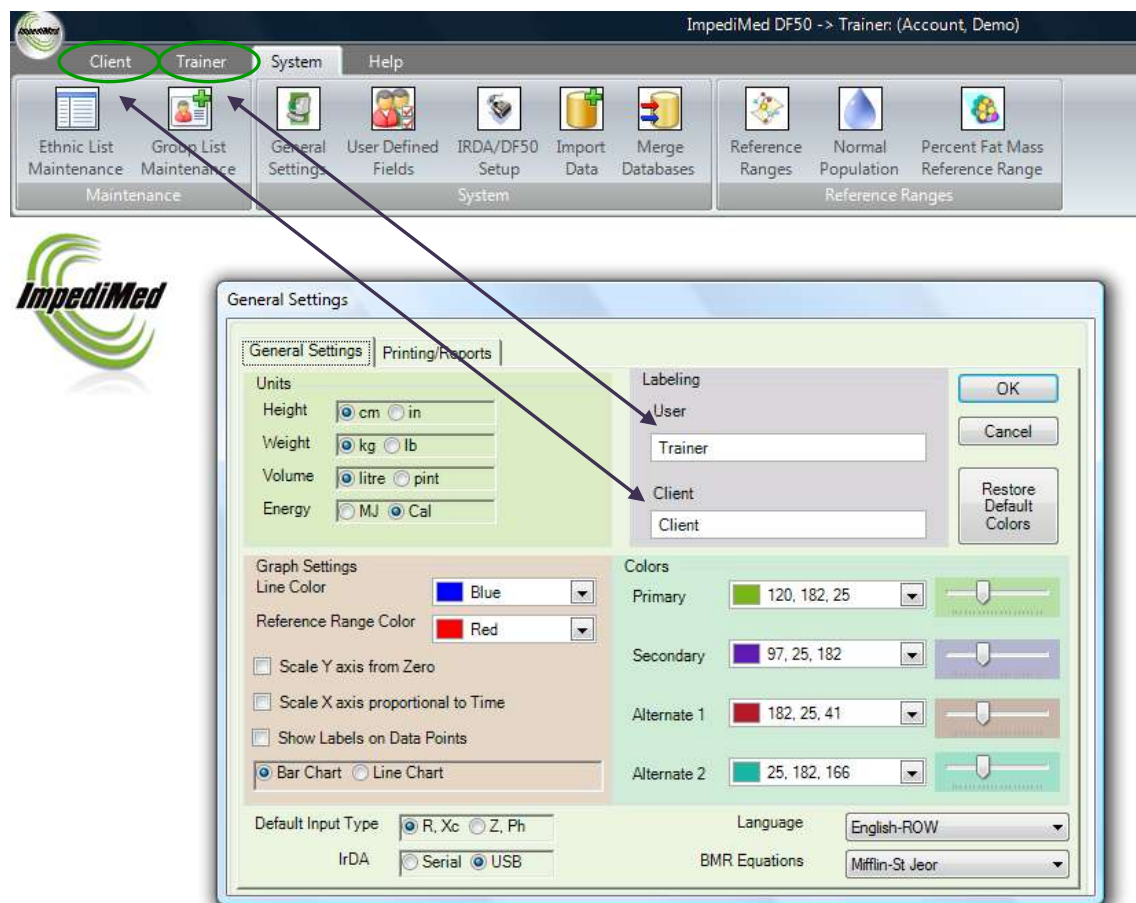
There are two classifications of data groups within the DF50 application software. Technically they are called 'Users' and 'Clients'. This manual commonly refers to them as either 'Practitioner' or 'Users' and 'Patient' or 'Clients'. Why? The DF50 application software is not limited to a specific use and this software can be applied to many different marketplaces.

The DF50 application software allows the application to be configured to support terminology that best describes these data groups. The default term for 'User' is 'Practitioner' and the default term for 'Client' is 'Patient'. If the term 'Trainer' better describes the 'User' then replace the term 'Practitioner' with the term 'Trainer'. The term 'Trainer' will now appear throughout the application where we would refer to a 'User'.

The same holds true for Client. Client refers to the person we are tracking. If the user was to have the program display 'Client' instead of 'Patient', change the Client term from 'Patient' to "Client". See [Figure 40: Before the User and Client Labels Were Changed](#) displays the before and [Figure 41: After the User and Client Labels Were Changed](#) displays the after affects of change the User and Client labels.



**Figure 40: Before the User and Client Labels Were Changed**

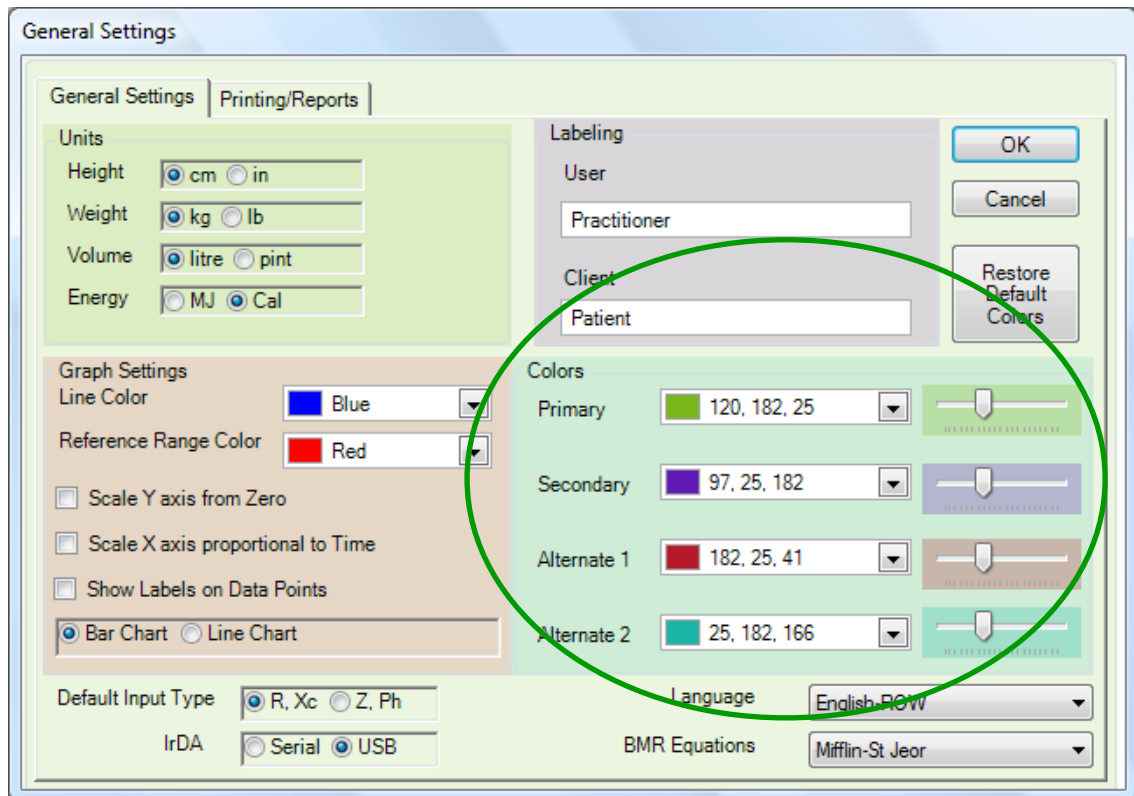


**Figure 41: After the User and Client Labels Were Changed**

Note: These labels are specific to a user. Each user can have their own set of labels. The data, however, remains the same. This is a cosmetic option that allows the user to better associate with terminology suited for their industry.

## **General Settings - Colours**

Within the DF50 Application software, each user has the ability to customize the application's colour pallet. There are four colour settings. Primary, Secondary, Alternate 1 and Alternate 2. See [Figure 42: Colour Setting Location](#)



**Figure 42: Colour Setting Location**

## **Primary Colour**

Primary Colour is used by all screens as the background colour with the exception of the reports. All reports use a white background.

## **Secondary, Alternate 1 and Alternate 2**

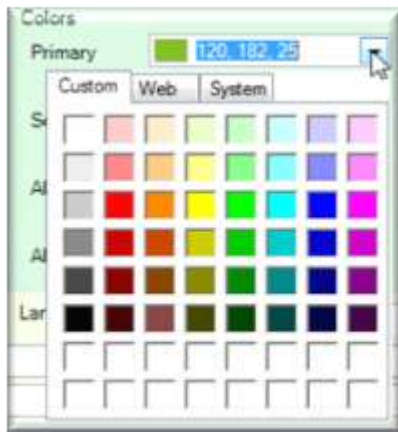
Secondary, Alternate 1 and Alternate 2 colours are used to highlight data on the 'Data Entry and Viewing' and 'Analysis' screens. These colours affect the charts, graphs and background colours of text boxes.

There are two aspects to setting the colours: Colour and Opacity.



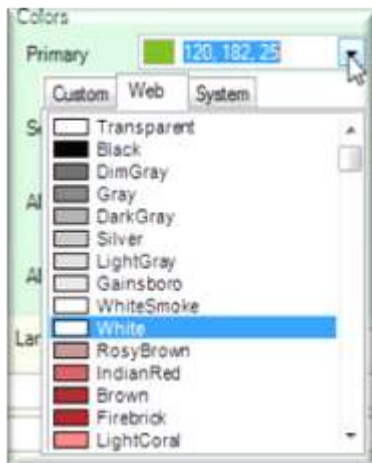
To change a colour, select the dropdown button to the right of the colour you wish to change. There are three types of dropdowns that can appear: Custom, Web and System.

Custom is a basic set of the most popular colours. See [Figure 43: Custom Colours](#).



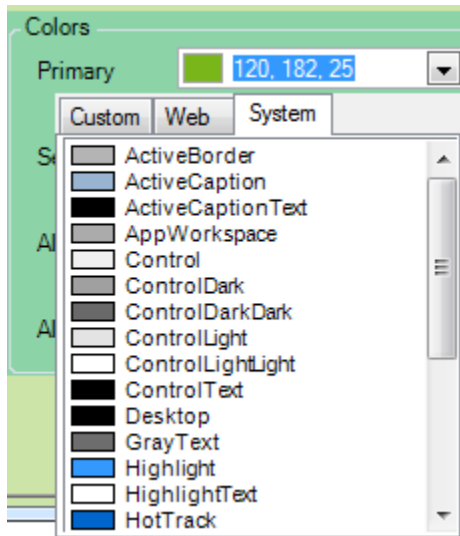
**Figure 43: Custom Colours**

Web Colours is a list of compatible colours used by Web browsers. See [Figure 44: Web Colours](#).



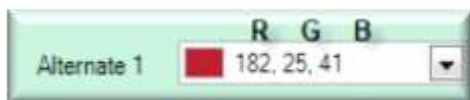
**Figure 44: Web Colours**

System Colours represent the colours used by Windows itself. This colour pallet is supplied and controlled by the Windows control panel. See [Figure 45: System Colours](#).



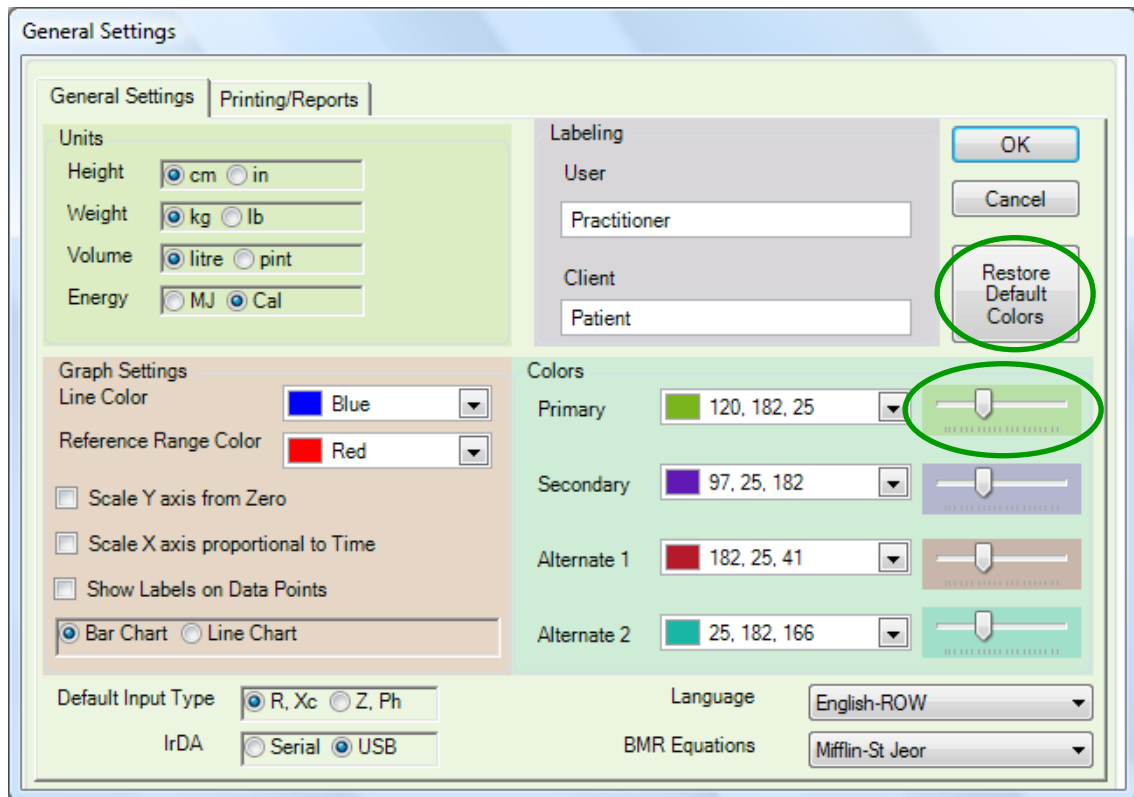
**Figure 45: System Colours**

If the colour you are looking for is still not available, the user can type in the R (Red), G (Green), B (Blue) colour numbers. These number range from 0 to 255 per channel. See [Figure 46: Position of RGB Values](#).



**Figure 46: Position of RGB Values**

To allow additional customization, the DF50 Application software allows the user to adjust the opacity in the intensity of the colour. Located to the right of the colour selection dropdown control is the Opacity Slider Control. Sliding the control bar to the far left will decrease the opacity level. Sliding the control bar to the right increases the opacity. See [Figure 47: Colour Opacity Slider](#).



**Figure 47: Colour Opacity Slider**

The General Settings screen is laid out in four colour sections. Each section is assigned to a different user adjustable colour. Units -> Primary Colour. Labelling -> Secondary. Graph Setting -> Alternate 1. Colours -> Alternate 2. See [Figure 48: Colour Test Regions](#).

**Figure 48: Colour Test Regions**

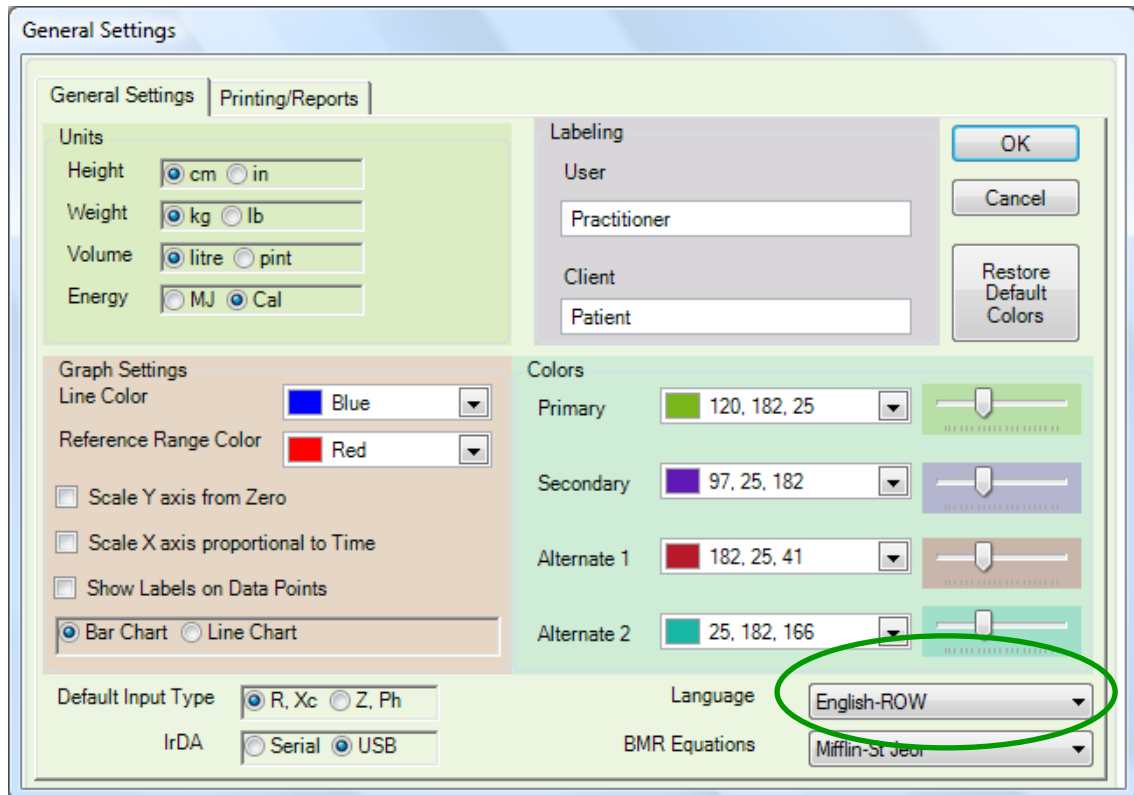
Note: Assigning a colour and opacity to a colour section will not always be displayed as demonstrated on the General Settings screen. This is because the DF50 application software, depending on the screen, may apply additional opacity settings in order to highlight different areas.

The reason for all the colour customization is that people like to personalize application and interfaces to suit their particular tastes. This application allows the user to do just that. We have also added a 'Restore Default Colours' button to system. This button allows the user a quick way to reset the colours back to the factory default values. See label 1 on the [Figure 48: Colour Test Regions](#). All new users will be assigned the factory default colour pallet.

*Important note: When changing languages, the user should change the language and exit the General Settings Form. Exiting the General Settings form activates all changes. The user should go back into the General Settings form again to verify the colours. This application does not track every possible colour combination or label for translations and therefore it is the responsibility of the user to verify the colours.*

## **General Settings - Language and Date, Time, Numeric Formats**

This current version of the DF50 application software supports five Languages. They are: English, French, Spanish, German and Italian. To change languages, select the language from the dropdown list. See [Figure 49: Language Dropdown Box](#) for the location Language dropdown box.



**Figure 49: Language Dropdown Box**

The date, time and numeric formats are automatically taken from the Windows Regional Setting for that specific language. See Windows Regional settings for specific settings.

## **General Settings – BMR Equations**

The DF50 software gives the user the choice between the Mifflin-St Jeor or the Harris-Benedict equations for calculating basal metabolic rate (BMR). The default equation used by the software can be selected from the BMR equations drop down box. See [Figure 50: BMR Dropdown Box](#).

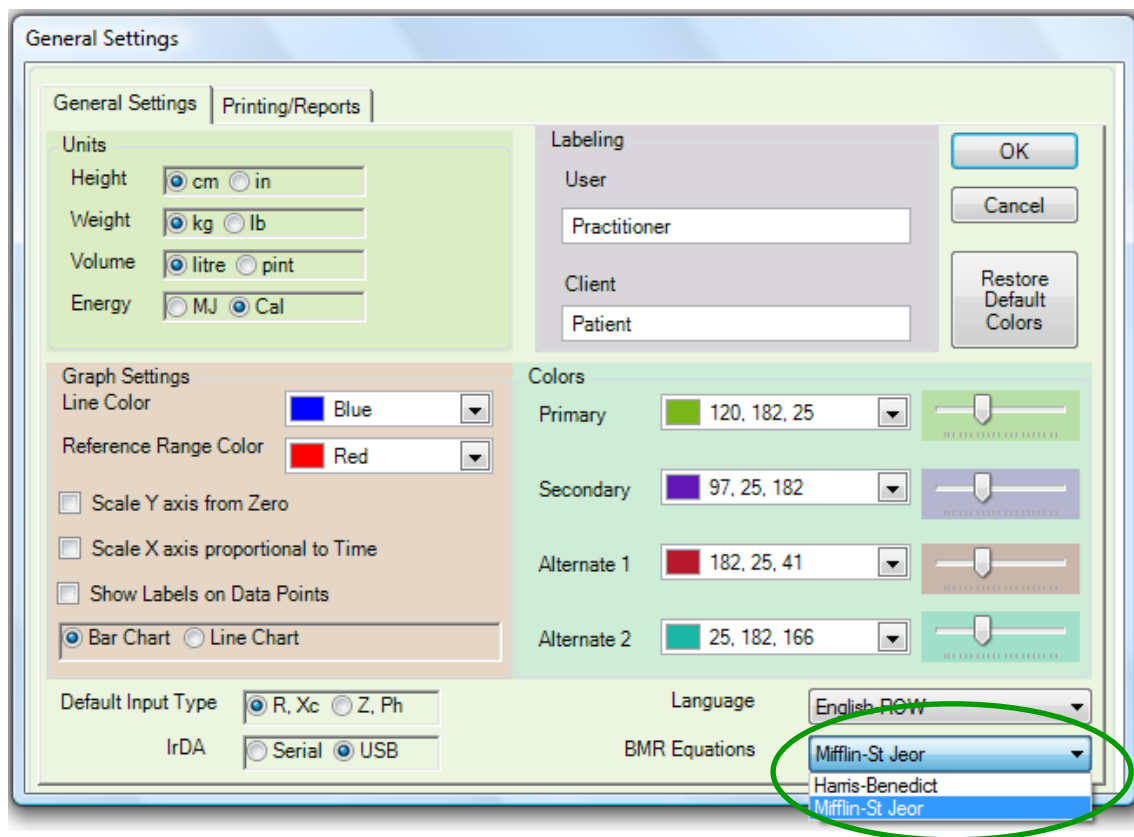
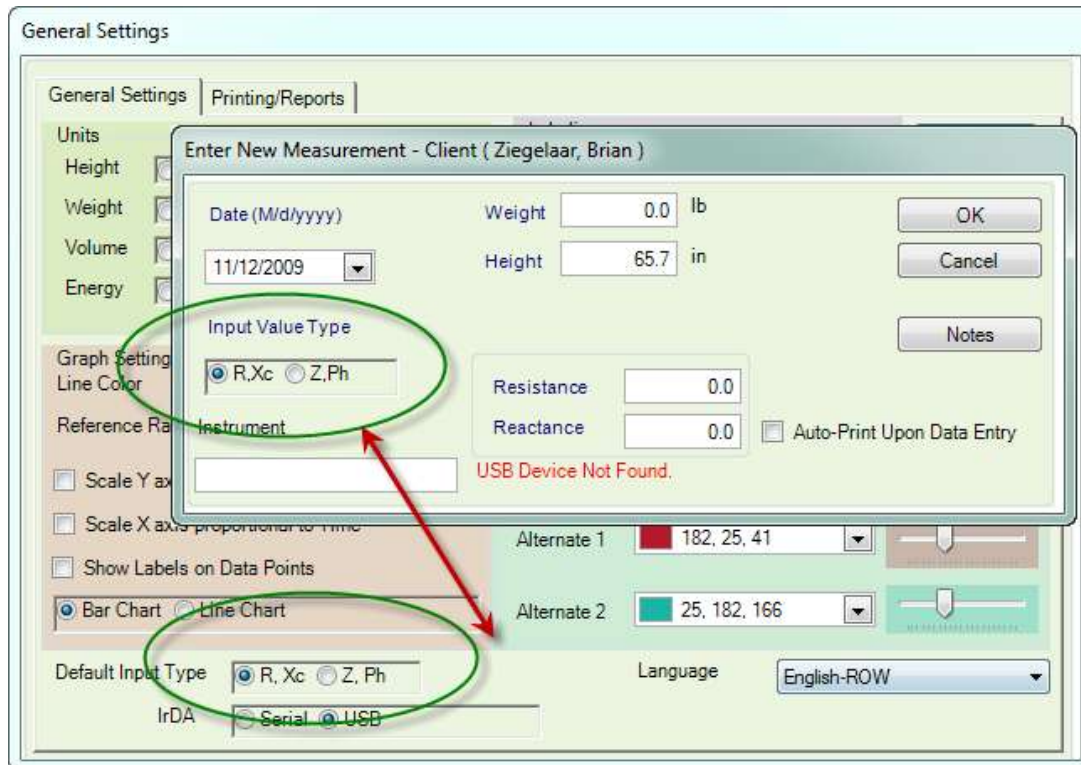


Figure 50 BMR Dropdown Box

### **General Settings - Default Input Type**

There are two different methods for manually entering in data. R, Xc (Resistance and Reactance) and Z, Ph (Impedance and Phase Angle) and typically the user will select one or the other method.

The 'Default Input Type' setting is used to preset the 'Enter/Edit Measurement' input screen. This feature will default the input method to value set in the 'Default Input Type' section. See [Figure 51: Default Input Type](#).



**Figure 51: Default Input Type**

## General Settings - IrDA

There are two different options for automatically entering in data into the DF50 software if using an IrDA adapter. These should be selected based on whether your IrDA adapter is connected to your PC by a serial (com) port or if the IrDA adapter connects to the computer via USB. [See Figure 52: Default Input](#)

The screenshot shows the 'General Settings' dialog box with the 'General Settings' tab selected. The 'Default Input Type' section at the bottom left has two radio buttons: 'R, Xc' (selected) and 'Z, Ph'. Below this, the 'IrDA' section has two radio buttons: 'Serial' and 'USB' (selected and circled in green). Other sections include 'Units' (Height: cm, Weight: kg, Volume: litre, Energy: MJ), 'Graph Settings' (Line Color: Blue, Reference Range Color: Red, Scale Y axis from Zero, Scale X axis proportional to Time, Show Labels on Data Points, Bar Chart selected), 'Colors' (Primary: 120, 182, 25; Secondary: 97, 25, 182; Alternate 1: 182, 25, 41; Alternate 2: 25, 182, 166), 'Labeling' (User: Practitioner, Client: Patient), 'Language' (English-ROW), and 'BMR Equations' (Mifflin-St Jeor). Buttons for 'OK', 'Cancel', and 'Restore Default Colors' are on the right.

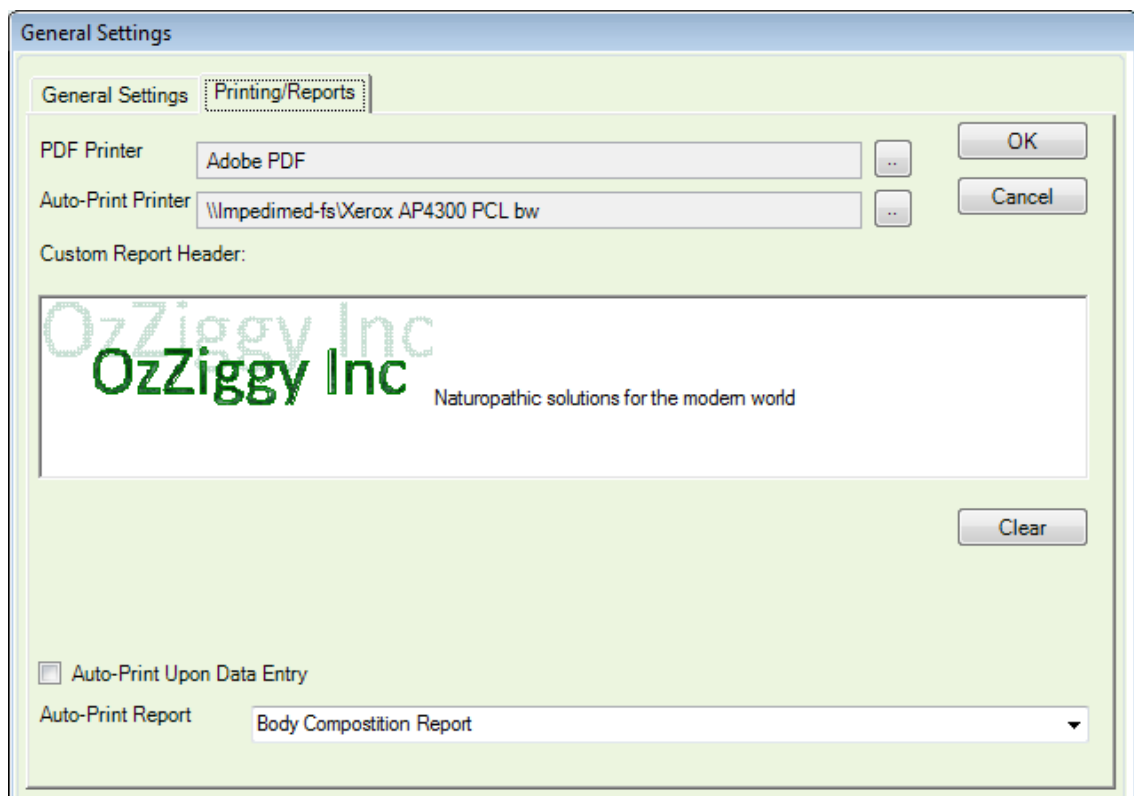
Figure 52 Default Input



# System Menu – Printing/Reports

## General Settings - Customize Reporting Graphics

Reports have the ability to add independent logos for the Header. See [Figure 53: General Settings – Report Header](#).



**Figure 53: General Settings - Report Header**

Images of the desired report header can be copied into the Custom report header space. Text can also be typed into this field. The example above shows an image “OzZiggy Inc” combined with text “Naturopathic solutions for a modern world” as an example. The logo's dimensions are: Width of 160 pixels and a Height of 96. If your image is larger than the maximum size indicated above, the DF50 application software will crop the image on your report. If your image fits within the General Settings window, it will appear properly on your reports. See Figure 54: Report Location for Header Graphics.

Checking the ‘Auto-Print upon Data Entry’ check box will enable the printing of reports automatically following data entry to the printer selected in the Auto-Print Printer field as shown above. Auto-printing to a PDF is allowable.

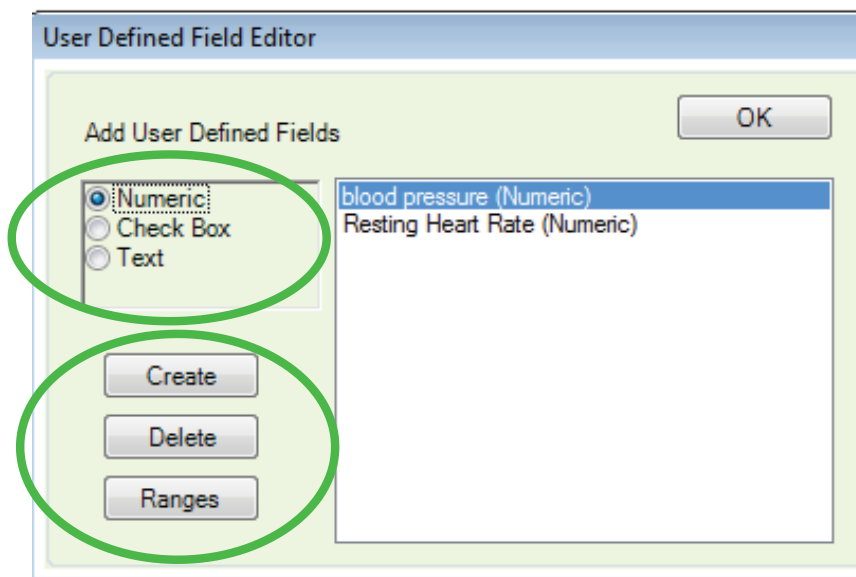


Figure 54: Report Location for Header Graphics

## User Defined Fields

The DF50 application software comes standard with all the data fields needed to track and support Patients, Practitioners and Measurements. Users may want to track additional information that is not necessarily part of this application, but which is important for the research or study that is being performed. The DF50 application software allows the User to add global, meaning available to all users, 'User Defined Fields'. There are three types of 'User Defined Fields': Numeric, Check Box and Text. Note: Only the Numeric fields are available for graphing reports.

**Figure 55: User Defined Fields Screen** shows a 'User Defined Field Editor'. This screen allows the user to create and delete 'User Defined Fields'.



**Figure 55: User Defined Fields Screen**

**User Defined Fields - Numeric**

Numeric fields are for storing numbers. The data format for this field is floating point values.

**User Defined Fields - Check Box**

Check Box fields are for storing Yes or No responses. You would typically use a Check Box for Questions: Example: Takes Medication. Answer 'Yes' (checked) or 'No' (unchecked).

**User Defined Fields - Text**

Text fields are used for freeform information and they are limited to 255 characters. Example: 'Spouse's name is Mary', or 'Drinks 5 cups a coffee a day'. Many times there is no relationship between this information from 'Patient' to 'Patient'.

**User Defined Fields - Create**

To create a 'User Defined Field', select one of the three options: Numeric, Check Box or Text. See [Figure 55: User Defined Fields Screen](#) top green circle. Click the 'Create' button. A dialog box will appear. Enter a short description of the field name. There are several words and characters that are not allowed. Spaces are ok. If you enter in a field name that is not valid, the DF50 application software will let you know and you will be given the opportunity to make corrections.

**User Defined Fields - Delete**

To 'Delete' a 'User Defined Field', click on the field name in the list box. Then, click the 'Delete' button. A message will appear requesting you to confirm the deletion. If the field that you are attempting to delete has data stored in it, a second message box will appear to make sure that you are aware there is data in the system and deleting this field will cause the data to be deleted as well.

### **User Defined Fields - Ranges**

To add a particular range set to a selected user defined field click the 'Ranges' button. See [Figure 56: Add Reference Range Screen](#). Clicking the 'Add Reference Range' Button will allow a user to enter desired reference ranges for the user defined field detailing age related minimum and maximums for both male and female genders. Note that ranges are only able to be applied to "Numeric" user defined fields and not the "Text" or "Check Box" user defined fields.

Age Min	Age Max	Male	Female
✱			

OK Cancel

Add... Add Reference Range

**Figure 56: Add Reference Range Screen**

# IrDA / DF50 Setup

## Serial Port Driven IrDA Adaptor Setup

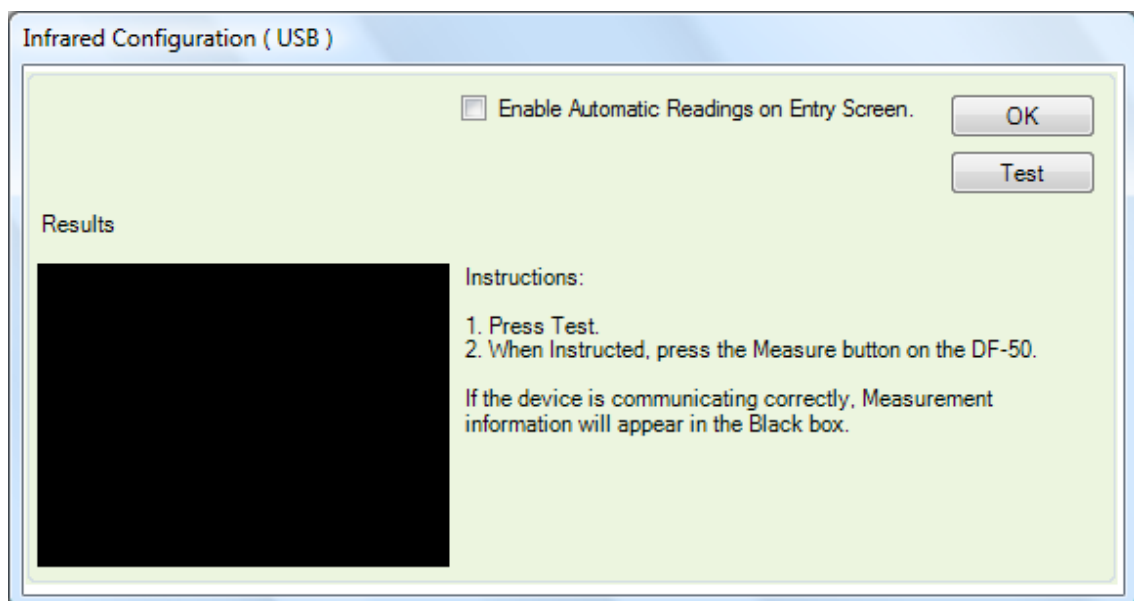
For automated data transfer from the computer to the DF50 bioimpedance measuring device, you need to setup the communication between the computer and the DF50 device. There is an additional device needed to be connected to the computer called an IrDA or IR adapter. This is an accessory and is not included in the DF50 kit and can be ordered from ImpediMed if required. Follow the software installation instructions included with the IR device.

Next, you'll need to configure the DF50 application software to the IrDA Adapter. To open the 'IRDA/DF50 Setup' screen, click the System->IRDA/DF50 Setup button.

Currently, there are only two supported IrDA Adapters. The Actisys and the Parallax. Others may work, but they have not been tested. The device from ImpediMed for the serial interface is model number 292-IRAD.

When setting up the IrDA Adapter, you were given a COM port number where the IrDA Adapter is located. Using the COM dropdown menu, select that COM port number. Next, select the IR Adapter you have installed, and follow the on-screen instructions to test that the connection is working properly.

See [Figure 57: IrDA/DF50 Configuration \(Serial\) Screen](#).



**Figure 57: IrDA/DF50 Configuration (Serial) Screen**

Once you have tested the IrDA Adapter and everything is working properly, there is one final option available to the user, 'Enable Automatic Readings on Entry Screen'. 'Enable Automatic Readings on Entry Screen' features allows for the automatic collection of a measurement. The way this works is as follows:

1. Checked the 'Enable Automatic Readings on Entry Screen' check box.
2. Select a Patient.
3. Open up the 'Enter New Measurement Screen' or 'Edit Measurement screen'.
4. Fill in the Weight.
5. Take a measurement on the device.

Upon the completion of the Measurement being taken on the DF50 device, the DF50 device will transmit the readings over to the computer. The user will know that this transaction was successful when the 'Enter New Measurement Screen' or 'Edit Measurement screen' automatically closes. There is one exception to that rule, if the user forgets to enter in weight, the measurement will still be taken. However, a message box will appear letting the user know that a weight is required.

### **USB Port Driven IrDA Adaptor Setup**

The USB IrDA adaptor works much the same way as the older Serial adaptor, but less configuration is necessary. Currently, the DF50 software supports USB-to-IrDA adaptors using the Sigmatel chipset. Others may work but have not been tested. The device from ImpediMed for the serial interface is model number 292-IRAD2.

When using the USB-to-IrDA adaptor, there is little for the user in terms of setup or configuration.

The DF50 installation program copies Sigmatel's windows drivers into a safe location at: HOMEDRIVE\program files\Impedimed\USB (the files are irstusb.inf and irstusb.pnf).

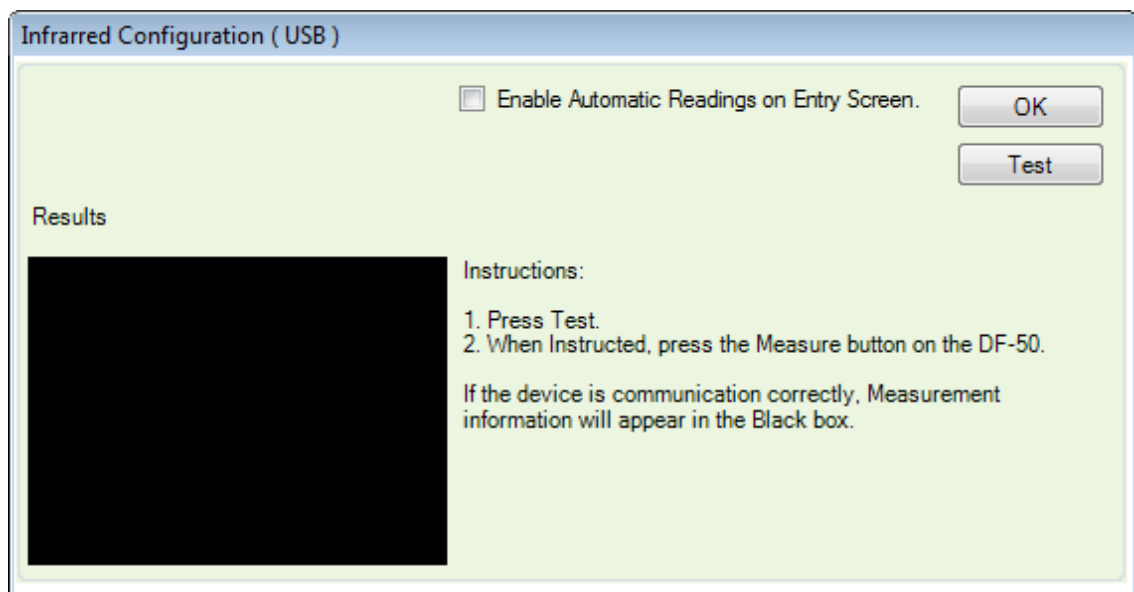
New drivers are installed in the appropriate windows locations. The DF50 setup program registers these drivers. When the user plugs in the device, windows searches the device driver list until it finds the DF50 files and uses them.

The DF50 application, in conjunction with the ImpediMed\_usb\_x86.dll, provides communication with the device. All the user needs to do to use this device is to tell the application, in General Settings, to select the USB device from the IrDA choices. There is no other configuration necessary.

**See Figure 58: IrDA/DF50 Configuration (USB) Screen.**

The IrDA device and the DF50 Measurement device need to be in line of sight. There is an IrDA test screen within the DF50 desktop application to allow the user to verify reliable connectivity.

Upon the completion of the measurement being taken on the DF50 device, the DF50 device will transmit the readings over to the computer. The user will know that this transaction was successful when the 'Enter New Measurement Screen' or 'Edit Measurement Screen' automatically closes. There is one exception to that rule, if the user forgets to enter in weight, the measurement will still be taken. However, a message box will appear letting the user know that a weight is required.



**Figure 58: IrDA/DF50 Configuration (USB) Screen**

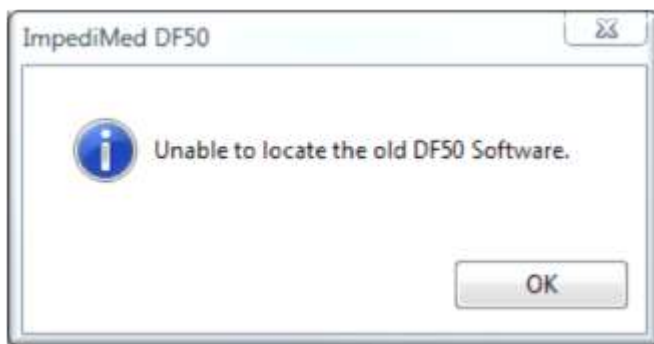


## Import Data

For those users who are upgrading their DF50 application software from the Borland version to the .Net version, there is a conversion utility that will import your existing data. This function only imports the raw data.

To import data from your old application press the System->Import Data button. If the DF50 application software is not able to locate your old software a message box will appear. See [Figure 59 Unable to Locate the Old DF50 Software](#).

Unable to Locate the Old DF50 Software. This message is typically seen if the original DF50 software was been removed from the computer on which the new DF50 software is being installed, or it was never installed on this machine.

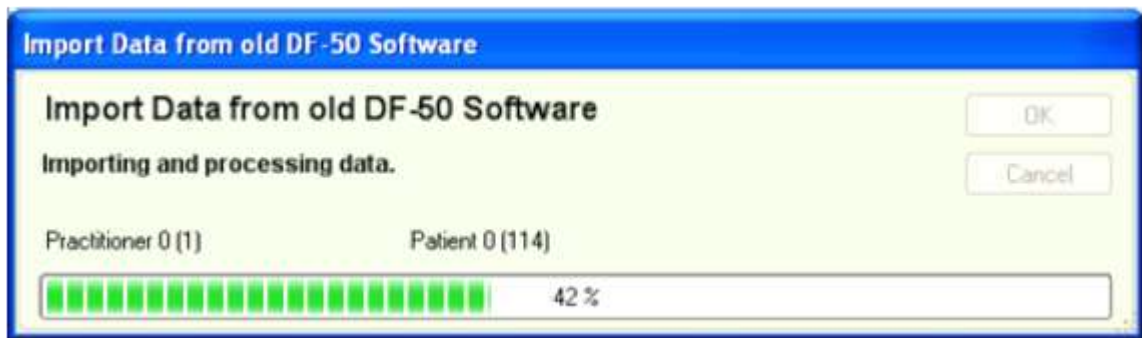


**Figure 59: Unable to Locate the Old DF50 Software**

If the original software was located, the 'Import Data from Old DF50 Software' screen will appear.

To Import the data from the old application press 'OK'. A status screen will appear providing the user with information as to the number of 'Practitioners' and 'Patients' being imported as well as the overall progress.

Looking at **Figure 60: Import Status Screen** the number outside the ( ) is the number of records actually imported. While the number in the ( ) is the number of records available. The reason for the two numbers is that the import program imports the data from the old application and while it is importing, it looks to see if the data is already in the system, thus preventing duplication.

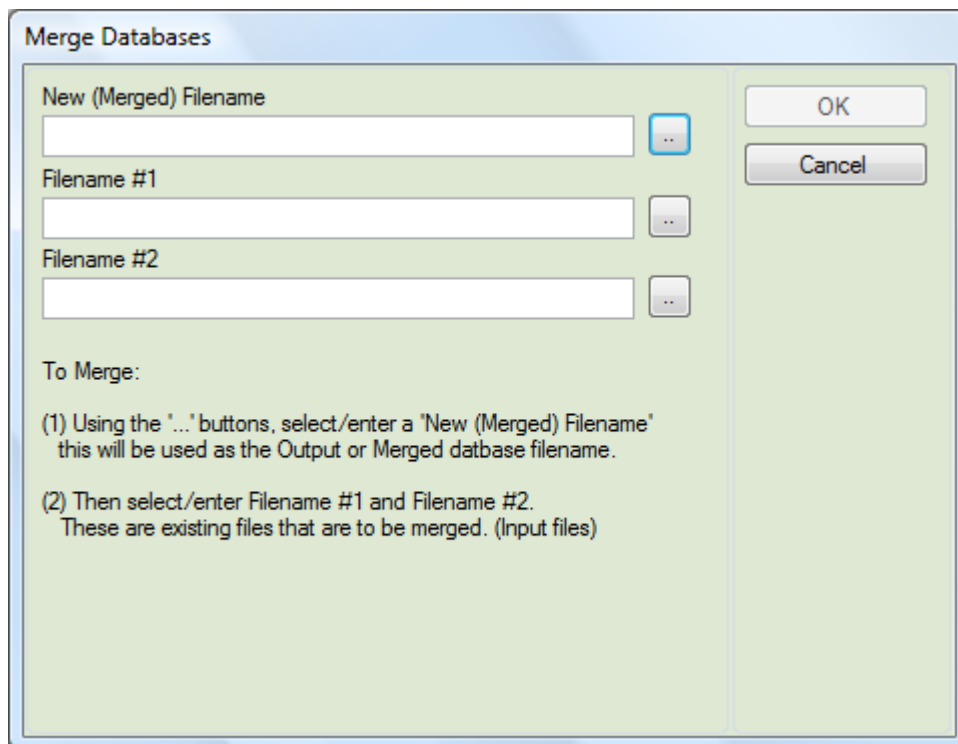


**Figure 60: Import Status Screen**

Once the import is finished, the 'Import Data from old DF50 application software' screen will automatically close.

## Merge Databases

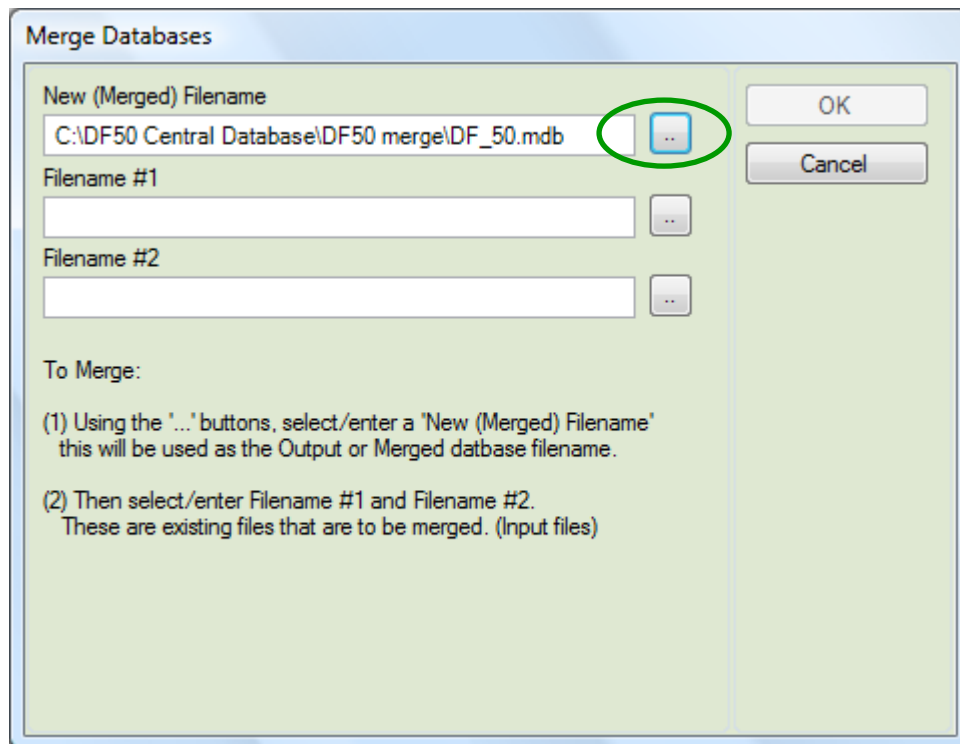
The Merge Databases option can be used to combine two separate DF50 databases into one single database. See [Figure 61: Merge Databases Screen](#).



The image shows a dialog box titled "Merge Databases". It contains three input fields for filenames, each with a browse button ("..."). The first field is labeled "New (Merged) Filename", the second "Filename #1", and the third "Filename #2". To the right of these fields are "OK" and "Cancel" buttons. Below the input fields, there is a section titled "To Merge:" followed by two numbered instructions: (1) Using the '...' buttons, select/enter a 'New (Merged) Filename' this will be used as the Output or Merged database filename. (2) Then select/enter Filename #1 and Filename #2. These are existing files that are to be merged. (Input files)

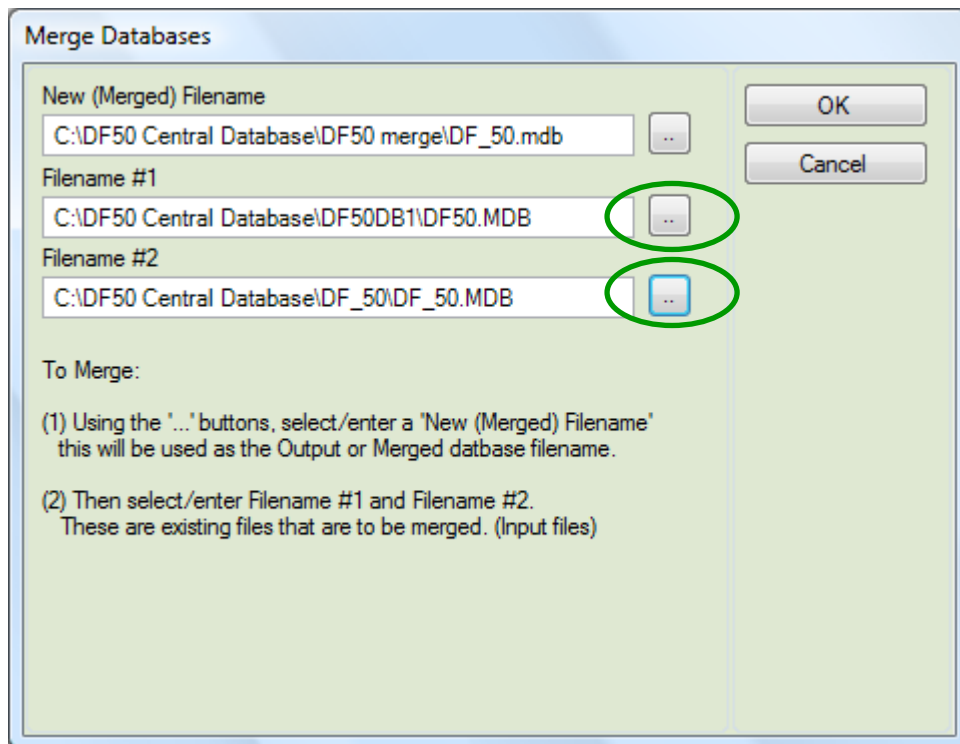
**Figure 61: Merge Databases Screen**

Step 1: select the database that will become the merged file using the browse button. See [Figure 62: Merge Databases Screen](#).



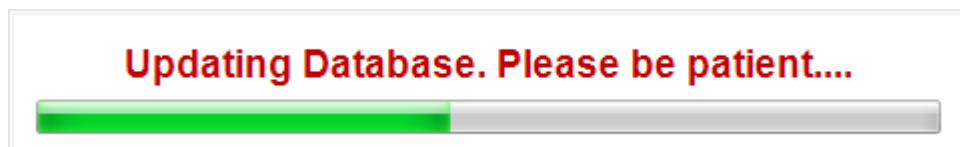
**Figure 62: Merge Databases Screen**

Step 2: select the two databases that you want to merge using the browse button and click ok See [Figure 63: Merge Databases Screen](#).



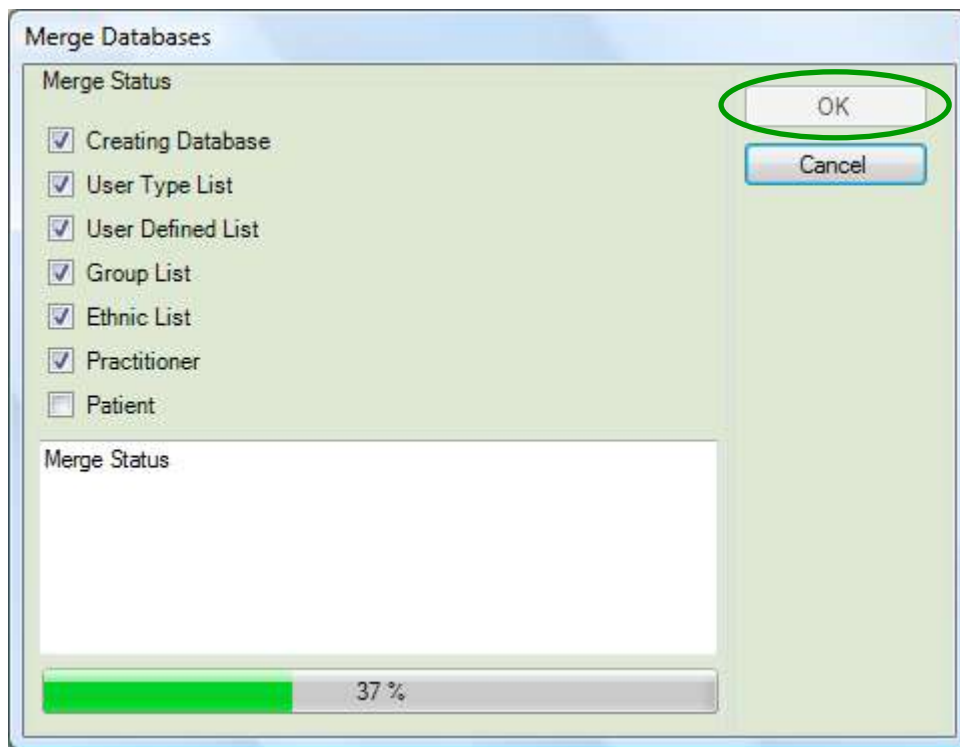
**Figure 63: Merge Databases Screen**

The two selected databases will now be prepared for merging and progress is shown by a progress bar [Figure 64: Merge Databases Progress Bar](#).



**Figure 64: Merge Databases Progress Bar**

Step 3: Once the databases are prepared click the OK button and the merge process will begin with progress shown by a progress bar [Figure 65: Merge Databases Progress](#).



**Figure 65: Merge Databases Progress**

Completion of the merge is denoted by the software showing the Merge Complete dialogue box.



## References Ranges

There are two types of references ranges defined within the DF50 application software. One type is used in formulas while the other type is used for setting the 'User Defined Ranges' on the Fat Mass and Body Composition Screens. Each of the reference ranges screens operates the same way. To alter the data, select a cell and enter in the new values. Pressing 'OK' will automatically save the information. Pressing 'Cancel' will discard the data.

There are also four other buttons on these screens: 'Restore Defaults', 'Export', 'Save User Defined' and 'Load User Defined'. Since the user has the ability to change any data element, the 'Restore Default' button provides a mechanism for the user to return to the values from the original installation.

'Export' allows the user to export the data. All exporting functionality is passed through the same export function. See Export Data for details.

'Save User Defined' and 'Load User defined' options are available for the user to make changes, save and reload the changes. The user has the ability to exchange these settings with another user. Note: The ability to save and reload these user defined values is limited to just one file record.

See: [Figure 66: Body Composition Reference Ranges](#) for the locations of the 'Save User Defined' and 'Load User Defined' buttons.

### **Reference Range - References Ranges (Body Composition Reference Ranges)**

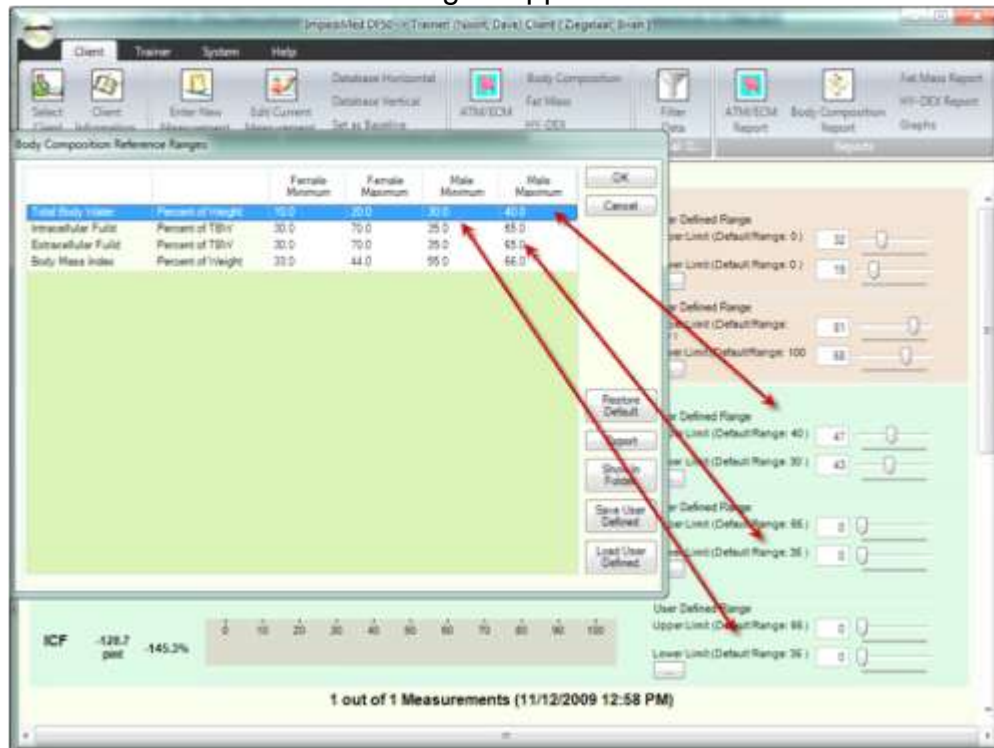
The Body Composition Reference Ranges is used to pre-define the 'User Defined Ranges' on the Body Composition Screen, located in the 'Patient' menu systems. By default all values on this screen are set to 0. The reason for this is that there is not a definitive reference source that outlines the recommended values to use. Therefore, it is the responsibility of the user to pre-determine the values that will best suit the use of the DF50 application software.

		Female Minimum	Female Maximum	Male Minimum	Male Maximum
Total Body Water	Percent of Weight	0.0	0.0	0.0	0.0
Intracellular Fluid	Percent of TBW	0.0	0.0	0.0	0.0
Extracellular Fluid	Percent of TBW	0.0	0.0	0.0	0.0
Body Mass Index	Percent of Weight	33.0	44.0	55.0	66.0

**Figure 66: Body Composition Reference Ranges**



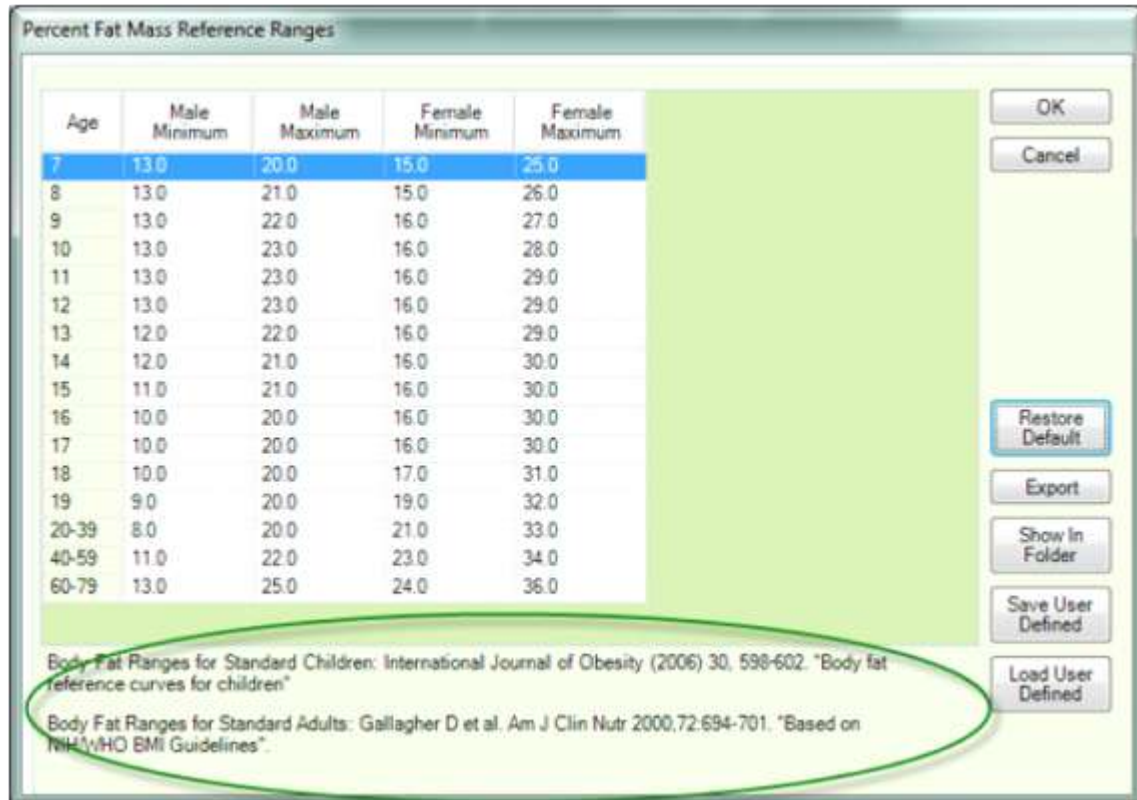
See **Figure 67: Location of Body Composition User Defined Ranges** shows where these 'User Defined Ranges' appear in the DF50 Software.



**Figure 67: Location of Body Composition User Defined Ranges**

**Reference Range - Percent Fat Mass Reference Range**

'Percent Fat Mass Reference Range' is used as the 'User Defined Ranges' on the Body Composition Screen under the FM (Fat Mass) 'User Defined Ranges'. Note: These values are published values and the reference information is located at the bottom of the 'Percent Fat Mass Reference Range' screen as well as under the Help->References. See [Figure 68: Percent Fat Mass Reference Range](#).



**Figure 68: Percent Fat Mass Reference Range**

In **Figure 69: Location Where the FM Values are Used** the FM value is extracted from the 'Percent Fat Mass Reference Range' screen. However, the FFM (Fat Free Mass) is computed from the FM value.

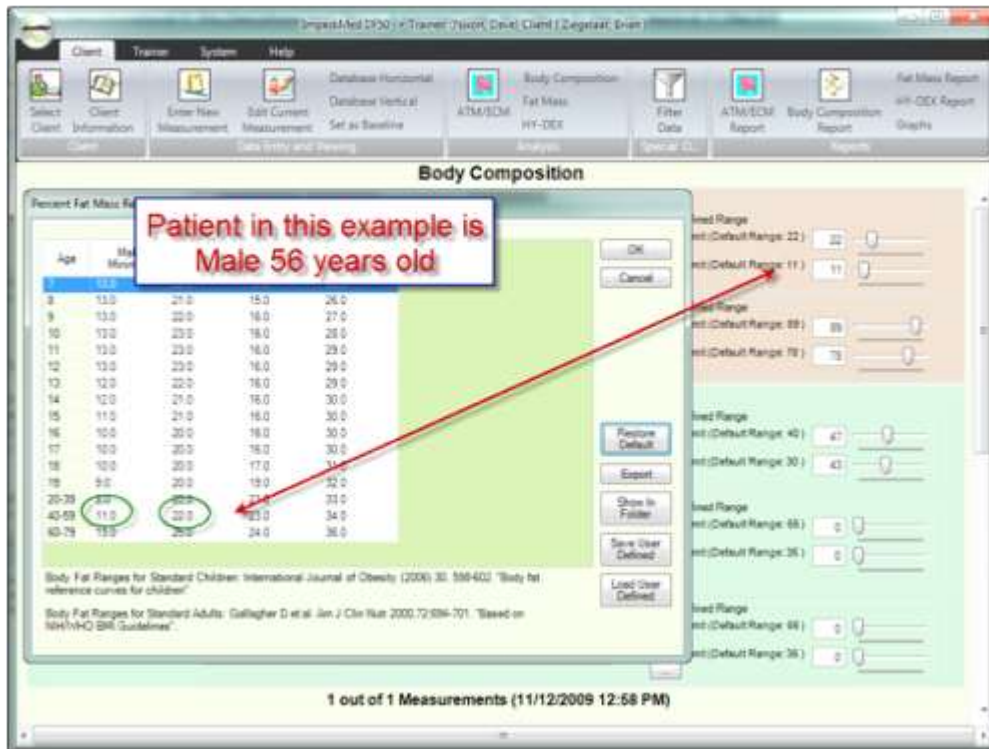


Figure 69: Location Where the FM Values Are Used

## Users (Practitioner)

Users are the individuals using the application, while 'Practitioner' is a label. The User has the ability to apply terminology that best suits their industry. By default, the DF50 application software has used the term 'User' as 'Practitioner'. For consistency, this document uses 'Practitioner'. For more information, see section **General Settings – Labelling**

The Practitioner Menu allows you to maintain information about the user. There are three options available: 'Practitioner Maintenance', 'Practitioner Type List Maintenance' and 'Custom Display Editor'

See **Figure 70: User (Practitioner Menu)**.

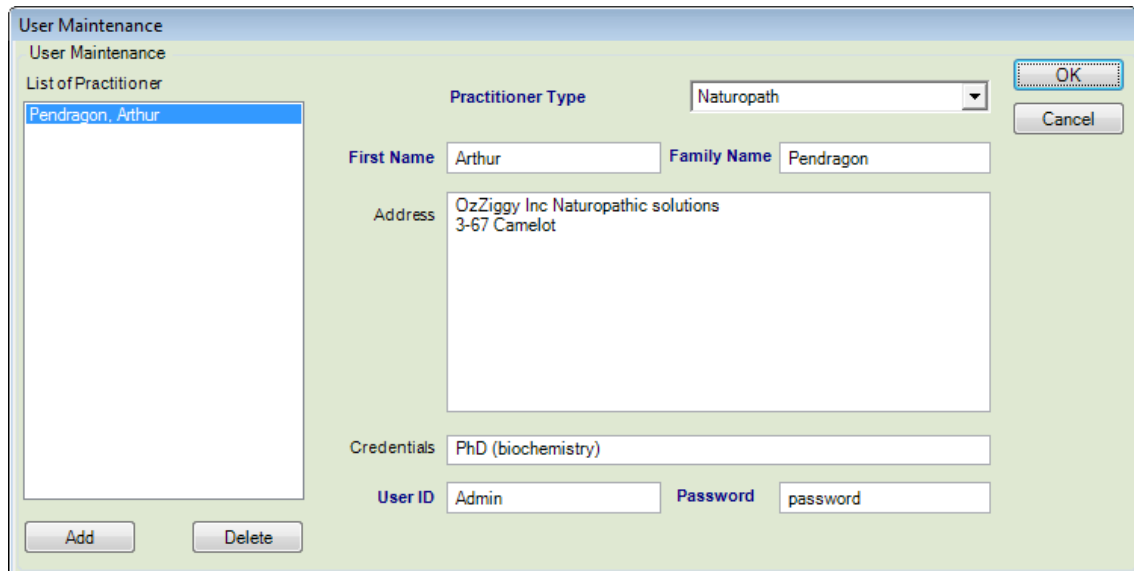


**Figure 70: User (Practitioner Menu)**

Before you enter in the User Maintenance screen, you should set up 'Practitioner Type'. 'Practitioner Type' is a way of categorizing the individual user. Example: Practitioner Types might be: Doctor, Nurse, Trainer or Research Assistant. This will help later when looking at measurements.

## **User - Practitioner Maintenance**

By default, there is only one user in the system when the DF50 application software is first installed. To change or add users, navigate to the Practitioner Maintenance screen by selecting Practitioner->Practitioner Maintenance. Note: The software must always have one user. If you want to delete the Account Demo user, you must first add a new user. This would give you two users. Then you can delete the Account Demo. Another option is to just rename the Account Demo user to the name of your first user. See [Figure 71: User Maintenance Screen](#).



**Figure 71: User Maintenance Screen**

On the left side of the screen is a list box. The list box is used to select and activate the user name. Once the name is clicked, the information on the right side of the screen will be filled in.

There are four required fields, First Name, Last Name, User ID and Password. 'Practitioner Type' is not required, but is recommended. 'Credentials' is similarly not a required field.

User ID and Password are in the system but are not currently used. These two fields were added to support a future version of the DF50 application software. Once the user makes a change, the 'OK' button will change to the word 'Save' and the list box on the left-hand side will become inactive until the 'User' commits the change by pressing the 'Save' button. Committing this change saves the information locally and until the 'User' presses the 'OK' button, all changes can be reversed. Example: The 'User' has made several changes and determined that they had made the changes to the wrong 'Users'. Instead of search and correcting several errors, the 'User' can press the 'Cancel' button to undo all the changes at one time.

### **User - Practitioner Type List Maintenance**

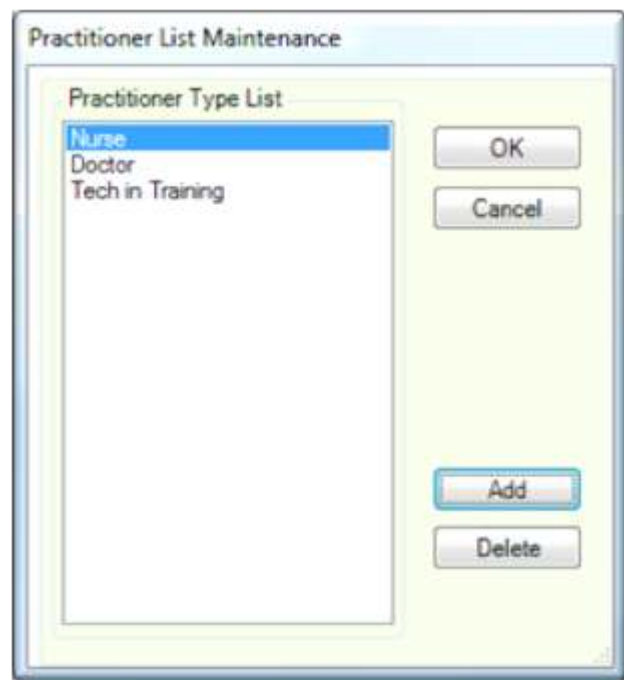
The 'User - Practitioner Type List Maintenance' is used to add and remove 'User' types from the DF50 application software.

#### **User - Add New**

To add a name, press the Add button and a dialog text box will appear. Type in the information and press 'OK' to accept the information.

#### **User - Delete**

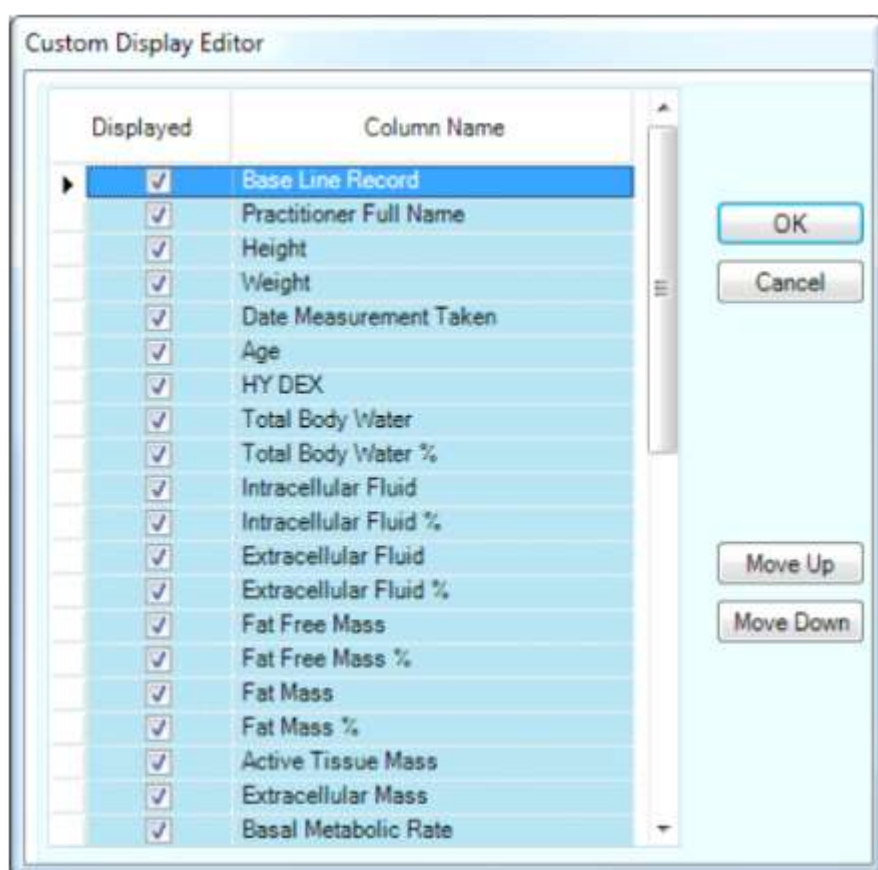
To 'Delete' a title, select the name from the list box by highlighting the item. To highlight an item, click on the title in the list box. Press the 'Delete' button. A message box will appear confirming the delete action. Press 'Yes' to delete the name. The DF50 application software will not allow a title to be deleted if the title is in use. See [Figure 72: User List Maintenance](#).



**Figure 72: User List Maintenance**

### **User - Custom Display Editor**

In the DF50 application software, there are two ways to view measurements: 'Database Horizontal' and 'Database Vertical'. The 'Custom Display Editor' allows the User to setup the fields they want to see, and it allows the user to set the order in which they will appear. To view a field in a Database view, make sure the 'Displayed' column has a check in the box. To change the order in which a field is displayed, highlight the field name and use the 'Move Up' or 'Move Down' buttons to position the field. Note: Display views are assigned to a User. Therefore, each User can have their own customized database view. See [Figure 73: User Custom Display Editor](#).



**Figure 73: User Custom Display Editor**

# Clients (Patients)

Clients are the individuals tracked in the DF50 Software, while 'Patients' is a label. For consistency, this document uses 'Patients'. For more information, see section **General Settings - Labelling**

## **Patient Menus**

The Patient menus are broken down in to five groups: Client ('Patient'), 'Data Entry and Viewing', 'Analysis', 'Special Options' and 'Reports'.

See **Figure 74: Patient Menu**.

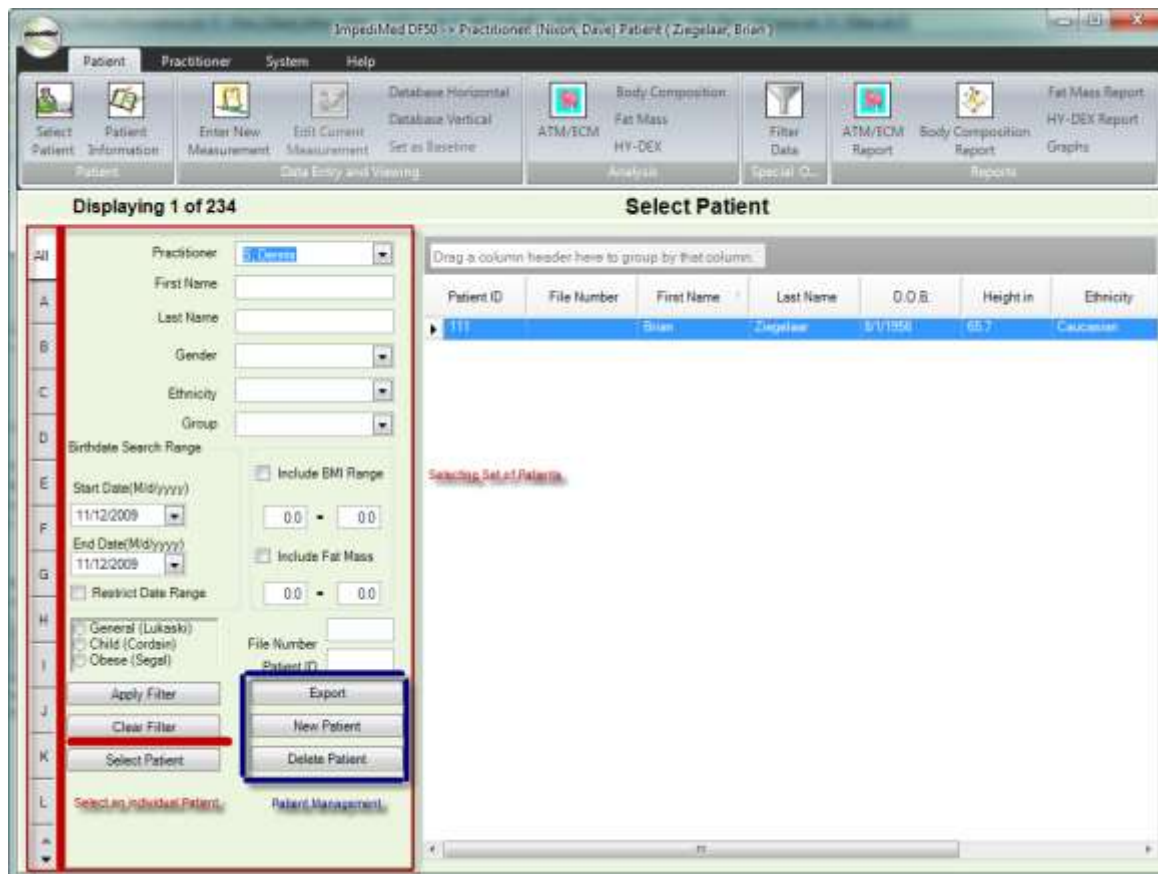


**Figure 74: Patient Menu**

Once a 'User' has logged on the DF50 application software and before the 'User' can start working with a 'Client' a 'Client' must be selected. To select a 'Client' press the press Patient->Select Patient button. This will display the 'Select Patient' screen. The 'Select Patient' has a number of features available. These features can be broken down in to three categories. 'Selecting a set of Patients', 'Patient Management' and 'Selecting an individual Patient'.



See **Figure 75: Select Patient Screen.**



**Figure 75: Select Patient Screen**

## **Selecting a Set of Patients**

'Selecting a Set of Patients' is a very useful tool as it allows you to fill in basic set of criteria to filter a large data set of 'Patients' down in to a smaller one. As an example: Since the DF50 application software tracks 'Patients' by 'User', when a 'User' logs on to the system, the system automatically places the Users name into the 'Practitioner' combo box at the top of the 'Select Patient' screen. When the 'User' opens up the 'Select Patient' screen the 'Patients' for this 'User' are already applied to the data set. Applying criteria to a data set is called 'Filtering' or 'Filter'.

The 'User' has the ability to filter data on a variety of fields: 'Practitioner', 'Gender', 'Ethnicity', 'Group', 'Birth Date', 'Fat Mass Range', 'BMI Range', and 'Formula'. One, or any combination, of these fields can be used to build a filter. Once you have selected the criteria that you want to use, press the 'Apply Filter' button. This tells the DF50 application software to lookup those patients based

on the criteria you have entered. The results, if any, will appear in the data grid to the right of the selection area.

There are two fields that were not listed above: 'File Number' and 'Patient ID'. These two fields are unique to a single 'Patient' and at most would return a single record. Use these fields if you already know this information and you want to select this 'Patient'. To search for a 'Patient' when you know the 'File Number' or 'Patient ID', enter in the value in the text box, press 'Apply Filter'. This will search the system for the individual record and display the results in the Grid. Press the 'Select Patient' button to select this patient.

The user also has the ability to “quick sort” patients by alphabet using the “alphabet tabs located on the far left hand side of the select patient screen.

There is one more feature associated with 'Selecting a set of Patients' and that is the ability to export the data that is displayed in the grid. See Export Data for details.

## **Patient Management**

'Patient Management' is used to add and delete 'Clients'.

### **Patient - Add a New Patient**

To add a new 'Patient', press the 'New Patient' button. See Patient information for more details.

### **Patient - Delete a Patient**

To 'Delete' a Patient, highlight a 'Patient' by clicking anywhere on the row that contains information about the 'Patient'. Press the 'Delete Patient' button. Pressing the 'Delete Patient' button will display a message box asking you to confirm this action. Press 'Yes' to complete the deleting process.

***Warning: There is no undo. Once you have deleted the record the information is permanently destroyed.***

### **Selecting an Individual Patient**

For 'Selecting an Individual Patient', highlight a 'Patient' by clicking anywhere on the row that contains information about the 'Patient'. Press the Select Patient' button.

Note: Not all buttons will become active. If this is a new 'Patient' only the 'Patient Information' and 'Enter New Measurement' buttons will become active. This is because the 'Patient' database does not contain any measurements.

## Display Grid

The display grid provides an extensive set of features that enhances the selection filter. Once you have a data set that you are looking to work with, the display grid will allow you to further refine the information.

The display grid shows the User the data in an Excel type format. See [Figure 76: Display Grid](#). The display grid has the ability to sort data. Example: If you click on one of the column headers, the column will sort A-Z. Click a second time and the column will sort Z-A.



Patient ID	File Number	First Name	Last Name	D.O.B.	Height in	Ethnicity
1	1111	Terry	Schewker	6/27/1956	2.4	Mal
2		XCA example	XCA example	8/14/1950	66.5	Fer
3		DF50 example	DF50 example	10/24/1954	68.5	Mal
4		test	test	6/4/1945	63	Fer
5		P01	P01	6/13/1971	76	Fer
6		5	bittarello	6/2/1932	68.9	Mal
7		help	help some more	10/26/1971	65	Fer
8		trend	ekern	10/26/1962	63.8	Fer
9		switz	zurich	11/17/1971	70.1	Fer
10		xca test	t	2/7/1971	70.9	Fer
11		13y	cattelan	5/27/1940	68.1	Mal
12		hy-dex2	2	2/15/1944	63	Fer
13		hy-dex3	3	2/15/1951	63	Mal
14		hydex4	4	2/15/1944	71.3	Mal
15		RG	RG	3/29/1982	64.6	Fer
16		Nancy	effect of educati...	1/1/1944	65.6	Fer
17		case study 2	metal implants	7/3/1942	62.6	Fer
18		Case study 3	advantage of pre...	9/1/1955	64.2	Fer
19		Case study 4	long term	10/1/1939	61	Fer
20		case study 5	effect of MLD	7/1/1952	65.4	Fer
21		hydex 5	test	3/10/1987	66	Fer
22		hydex 5	5	3/10/1929	70.5	Mal
23		Hy-Dex 6	6	3/10/1938	70.9	Mal
24		hy-dex8	8	3/10/1933	63	Mal
25		hydex10	test	4/10/1951	63	Mal

Figure 76: Display Grid

The user also has the ability to alter the display order of the columns. To change the order, click on the column header text and drag it to the new location. Example: Click the text 'First Name', holding the mouse button down, drag the column header to the left. See [Figure 77: Display Grid Moving Columns](#). Note: Changing the order of the columns is not retained.

Drag a column header here to group by that column:

Patient	First Name	File Number	First Name	D O B	Height in	Ethnicity
1	John Doe	1111	Terry	6/22/1958	2.4	Male
2	XCA example		XCA example	6/14/1950	66.5	Female
3	DF50 example		DF50 example	10/24/1954	68.5	Male
4	test		test	6/4/1945	63	Female
5	P01		P01	6/13/1971	76	Female
6	Intarelli	6	6	6/2/1932	68.9	Male
7	help some more		help	10/26/1971	65	Female
8	skern		skern	10/26/1962	63.8	Female
9	zuzich		zuzich	11/17/1971	70.1	Female
10	1		xca test	2/7/1971	70.9	Female
11	catelan	13y	13y	5/27/1942	68.1	Male
12	2		hy-dex2	2/15/1944	63	Female
13	3		hy-dex3	2/15/1951	63	Male
14	4		hy-dex4	2/15/1944	71.3	Male
15	RG		RG	3/23/1932	64.6	Female
16	effect of educat		Nancy	1/1/1944	65.6	Female
17	mental implants		case study 2	7/3/1942	62.6	Female
18	advantage of pre		Case study 3	9/1/1955	64.2	Female
19	long term		Case study 4	10/1/1939	61	Female
20	effect of MLD		case study 5	7/1/1962	65.4	Female
21	test		hydex 5	3/10/1967	66	Female
22	5		hydex 5	3/10/1929	70.5	Male
23	6		Hy-Dex 6	3/10/1938	70.9	Male
24	8		hy-dex8	3/10/1933	63	Male
25	test		hydex10	4/20/1951	63	Male

Figure 77: Display Grid Moving Columns

Another feature is the ability to group or combine data together. Example: The user wants to see all the males and females grouped together and then grouped by height. See [Figure 78: Display Grid with Grouped Data](#).

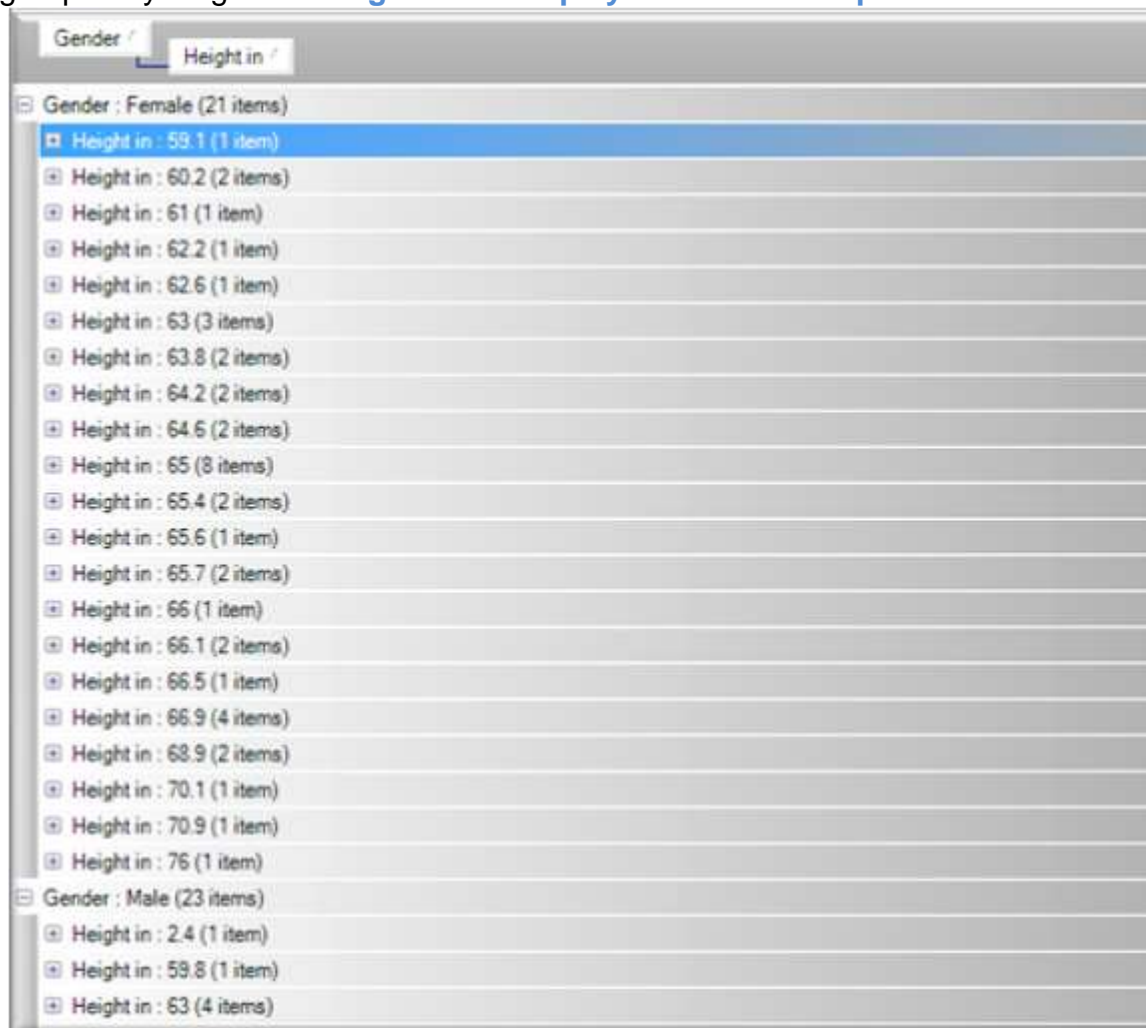


Figure 78: Display Grid with Grouped Data

Click in the 'Gender' column header and drag it to the top area called 'Drag a column header here to group by that column'. See [Figure 78: Display Grid with Grouped Data](#). Now drag the 'Height' column header to the same area. See [Figure 78: Display Grid with Grouped Data](#). The data is now grouped by gender and then by heights.

## Patient Information

The 'Patient Information' screen is where the 'User' enters and tracks information regarding the 'Patient'. The fields in Blue are the required fields and they are: 'First Name', 'Family Name', 'Formula', 'D.O.B.', 'Gender' and 'Height'.

See **Figure 79: Display Grid with Grouped Data.**

The screenshot shows a 'Patient Information' window with the following fields and controls:

- First Name:** Ziegelaar
- Family Name:** Brian
- Address:** ImpediMed Limited
- Phone:** +61 7 3860 3700
- Email:** bziegelaar@impedimed.com
- Gender:** Male (dropdown)
- D.O.B:** 17/11/1971 (calendar)
- Formula:** General (Lukas) (radio button selected), Child (Cordain), Obese (Segal)
- Height:** 187.0 cm
- File Number:** 007IMOM
- Ethnicity:** Caucasian (dropdown)
- Buttons:** OK, Cancel, Add, Delete
- Grids:** Two empty rectangular boxes at the bottom for displaying grouped data.

**Figure 79: Display Grid with Grouped Data**

All the fields are standard windows input fields with the exception of the D.O.B., which is a calendar and the 'Ethnicity' and 'Gender' controls which are dropdown lists. Pressing D.O.B. down arrow on the calendar control will expose a calendar, which the user can use to navigate to the desired data. The 'Ethnicity' dropdown list is filled by the data that the 'User' entered in the System->Ethnic List Maintenance screen.

The File Number is an open field that is available to the 'User' and it was added to support external documents or folders references numbers.

At the bottom of the screen is the group collection and assignment area. The list box on the left is populated from the data entered in the System->Group List Maintenance screen. In the right side list box is a list of groups that a 'Patient' is assigned to. A 'Patient' can be assigned to more than one group.

Note: The 'Patient Information' screen will not close if the 'User' has not entered in all the required data. At the bottom of the 'Patient Information' screen, just above the group, a message will appear indicating the reason why the screen is unable to close.



## Enter New/Edit Measurement

The 'Enter New Measurement' and the 'Edit Measurement' is where the measurement information from the DF50 is recorded. When the 'User' exits this screen all the calculations are performed on the data entered and the complete measurement data is then recorded in the system.

All the elements on this screen are required with the exception of the 'Instrument Name' and 'Auto-Print Upon Data Entry'.

The 'Instrument Name' field will be updated if the 'User' has turned on the 'Enable Automatic Readings on Entry Screen' check box. See **IrDA/DF 50 Setup** for more information. Otherwise the 'User' can use this field as an extra text field (limit is 255 characters).

When checked 'Auto-Print Upon Data Entry' will initiate printing of a Body Composition Report as soon as the measurement data is entered and the OK button is pressed.

The 'Enter New Measurement' and the 'Edit Measurement' are identical in functionality. The only difference is that the Enter New Measurement will be displayed with the Resistance/Reactance or Impedance/Phase angle set to 0, requiring the 'User' to enter in data.

This screen validates all entries to make sure they are in valid ranges. When the 'User' enters a field such as Resistance, the area just below the input box will display a help message indicating valid input ranges.

See **Figure 80: Enter/Edit Measurement**.

The screenshot shows a software window titled "Enter New Measurement - Patient ( Brian, Ziegelaar )". The window has a light green background. On the left, there is a "Date(dd/MM/yyyy)" label with a dropdown menu showing "28/10/2009". Below this is an "Input Value Type" section with two radio buttons: "R,Xc" (selected) and "Z,Ph". At the bottom left is an "Instrument" label with an empty text box. In the center, there are two rows of input fields: "Weight" with a value of "0.0" and unit "kg", and "Height" with a value of "187.0" and unit "cm". Below these are "Resistance" and "Reactance" fields, both with a value of "0.0". To the right of these fields is a checkbox labeled "Auto-Print Upon Data Entry". On the far right, there are three buttons: "OK", "Cancel", and "Notes".

**Figure 80: Enter/Edit Measurement**



Note: In the System->General Settings, the default 'Input Value Type' is set. See **General Settings** for more information.

In order to use 'Edit Current Measurement', the 'User' needs to select the record. To select a record the 'User' needs to be in either the 'Database Horizontal' or 'Database Vertical' views. Selected any field will enable the 'Edit Current Measurement' button.

## Database Views

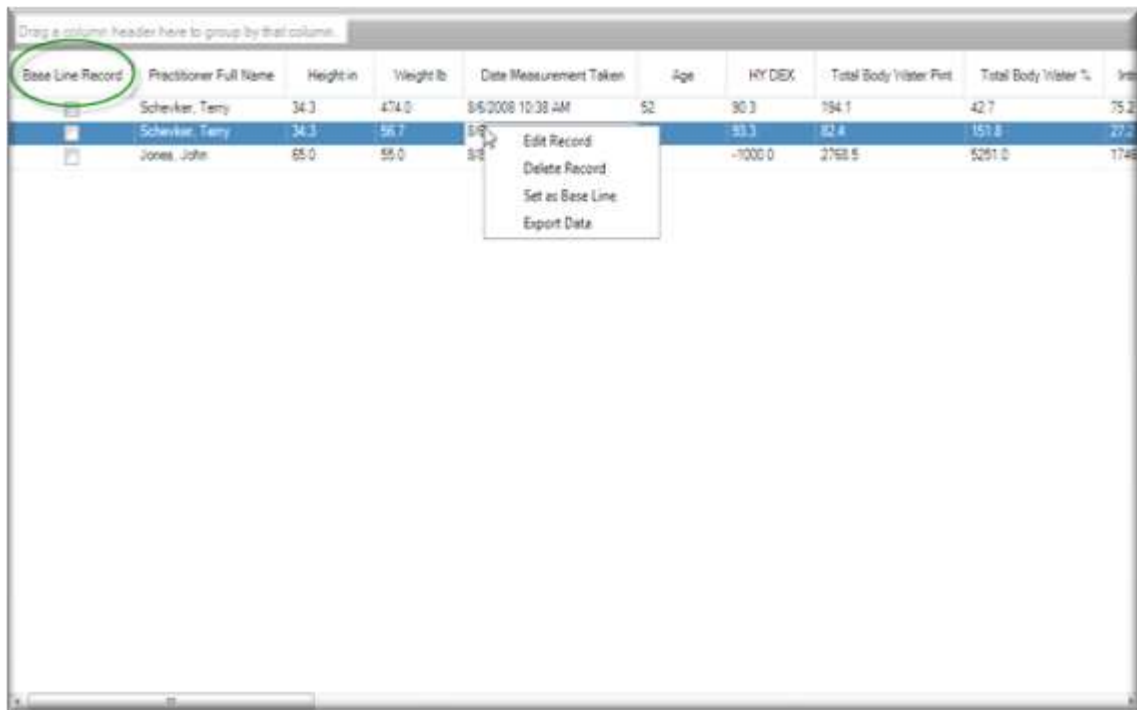
There are two ways to view measurements, displayed in a horizontal or displayed in a vertical format.

### **Database Horizontal - View**

The 'Database Horizontal' view allows the 'User' to see the data in a grid like fashion. This view supports grouping of the data. See [Figure 81: Database Horizontal Options](#).

The order of the fields and the type of fields is customizable and is controlled using the Practitioner->Custom Display Editor.

There are several tasks that can be performed from this screen: 'Edit Current Measurement', 'Delete Record', 'Set as Baseline Record' and 'Export Data'. See [Figure 81: Database Horizontal Options](#).



**Figure 81: Database Horizontal Options**

As noted in [Figure 81: Database Horizontal Options](#) there is a pop-up menu. In order to obtain the pop-up menu, the user must right-mouse click anywhere on the grid. Only the highlighted line will be affected. To highlight a row, click anywhere on the row. The only fields that the 'User' can directly edit here are the 'User Defined Fields'. All other fields are controlled by the 'Edit Current Measurement' screen.

### **Edit Current Measurement**

To 'Edit Current Measurement', highlight a row by clicking anywhere on the line. The row will turn dark blue indicating that this is the selected line. You can either right-mouse click and select 'Edit Record' or you can select 'Edit Current Measurement' from the menu bar.

### **Delete Measurement Record**

To delete a measurement, highlight a row by clicking anywhere on the line. The row will turn dark blue indicating that this is the selected line. You can only right-mouse click to select the delete option. The system will then prompt you to

with a message outlining the record you are about to delete. This message box will show you the 'Date the Measurement Taken' field information. Validate that this is the record that you want to delete. Press 'Yes' to complete the deletion.

***Warning: There is no undo. Once the record is deleted, it has been permanently removed from the DF50 application software.***

### **Set as Baseline Record**

Baseline Record is a record against which other data measurements are going to be compared. You can change which record is the baseline record at any time.

To set a record as a baseline record, highlight a row by clicking anywhere on the line. The row will turn dark blue indicating that this is the selected line. You can either right-mouse click and select 'Set as Baseline' or you can select 'Set as Baseline' from the menu bar. Note: There are many places throughout the application where the baseline record can be changed. They will be pointed out as those areas that are documented.

Once a record is set as a Baseline Record, the check box in the Baseline Record column will be checked and the row will appear in black. Note: Only one record can be tagged as the baseline record.

### **Export Data**

This feature is only available by using the right-mouse menu. The data that will be exported is the data that is displayed on this screen and only from this view. See Export Data for details.

### **Database Vertical - Views**

The 'Database Vertical' view allows the 'User' to see the data in a report type fashion. The order of the fields and the type of fields is customizable and is control using the Practitioner->Custom Display Editor.

There are several tasks that can be performed from this screen: 'Edit Current Measurement', 'Delete Record', 'Set as Baseline Record' and 'Export Data'. See **Figure 82: Database Vertical Options**.



	8/6/2008 10:38:37 AM	8/6/2008 10:59:26 AM	8/8/2008 2:04:20 PM
Base Line Record			YES
Practitioner Full Name	Schevker, Terry	Schevker, Terry	Jones, John
Height in	34.3	34.3	35.0
Weight lb	474.0	56.7	55.0
Age	52	52	
HY DEX	90.3	93.3	
Total Body Water Pint	194.1	92.4	
Total Body Water %	42.7	161.8	
Intracellular Fluid Pint	75.2	27.2	1746.6
Intracellular Fluid %	38.8	33.0	63.1
Extracellular Fluid Pint	118.8	55.2	1021.5
Extracellular Fluid %	61.2	67.0	36.9
Fat Free Mass lb	280.8	119.3	4005.7
Fat Free Mass %	59.2	210.5	7283.0
Fat Mass lb	193.2	-62.6	-3960.7
Fat Mass %	40.8	-110.5	-7183.0
Active Tissue Mass lb	151.6	56.5	2922.7
Extracellular Mass lb	129.2	62.8	1082.9
Basal Metabolic Rate Cal	3353.7	1174.0	1163.3
Basal Metabolic Rate	156.6	34.8	6.9

**Figure 82: Database Vertical Options**

As noted in **Figure 82: Database Vertical Options** there is a pop-up menu. In order to obtain the pop-up menu, right-mouse click anywhere on the grid. Only the highlighted column will be affected. To highlight a column, click any of the cells within that column. The only fields that the 'User' can directly edit here are the 'User Defined Fields'. All other fields are controlled by the 'Edit Current Measurement' screen.

### **Edit Current Measurement**

To 'Edit Current Measurement', highlight a column by clicking on each of the cells in that column. The column will turn black indicating that this is the selected column. You can either right-mouse click and select 'Edit Record' or you can select 'Edit Current Measurement' from the menu bar.

### **Delete Record**

To delete a measurement, highlight a column by clicking on any cell within that column. The column will turn black indicating that this is the selected column. You can only right-mouse click to select the delete option. The system will then

prompt you with a message outlining the record you are about to delete. This message box will show you the 'Date the Measurement Taken' field information. Validate that this is the record that you want to delete. Press 'Yes' to complete the deletion.

***Warning: There is no undo. Once the record is deleted, has been permanently removed from the DF50 application software.***

### **Set as Baseline Record**

A Baseline Record is a record against which other data measurements are going to be compared. You can change which record is the baseline record at any time.

To set a record as a baseline record, highlight a column by clicking on any cell within that column. The column will turn black indicating that this is the selected column. You can either right-mouse click and select 'Set as Baseline' or you can select 'Set as Baseline' from the menu bar. Note: There are many places throughout the application where the Baseline record can be changed. They will be pointed out as those areas are documented.

Once a record is set as a Baseline Record, the check box in the Baseline Record column will be checked and the row will appear in black. Note: Only one record can be tagged as the Baseline Record.

### **Export Data**

This feature is only available by using the right-mouse menu. The data that will be exported is the data that is displayed on this screen and only from this view. See Exporting Data for details.

# Body Composition Analysis

The DF50 is a single-frequency (50kHz) electrical bioimpedance analyser. The device accurately measures current, voltage and phase angle, and calculates impedance, resistance and reactance. These measurements and calculations are used to estimate body composition using regression equation analysis. The DF50 has three regression equations for body composition analysis of the obese, normal and child populations. Typically, body composition determined in this way is represented as Fat-Free Mass (FFM), Fat Mass (FM), Total Body Water (TBW), Intracellular Fluid (ICF) and Extracellular Fluid (ECF). For more details on body composition analysis using the DF50 equations consult the following references:

## **General**

Theory and validation of tetrapolar bioelectrical impedance method to assess human body composition. Lukaski H.C. & Bolonchuk W.W. in Ellis K.J., Jasumura S. et al., editors, "In-vivo body composition studies" London: Institute of Physical Sciences in Medicine: 1987, 410-4.

## **Child**

Body composition determination in children using bioelectrical impedance. Cordain L., Whicker R. & Johnson J. Growth Development & Aging 52:1988, 37-40.

## **Obese**

Lean body mass estimation by bioelectrical impedance methods; a four-sit cross validation study. Segal K.R., van Loan M., Fitzgerald P.I., Hodgdon J.A. & van Itallie T.B. American Journal of Clinical Nutrition 47:1988, 7-14.

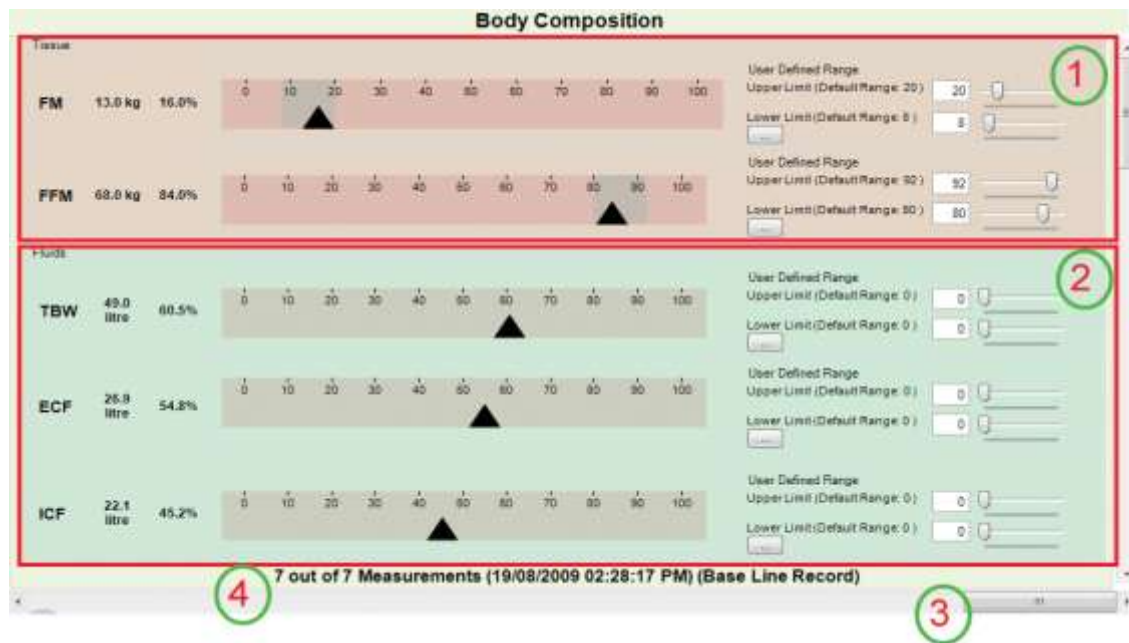


Figure 83: Body Composition Screen Layout

The Body Composition screen is broken down into 4 sections. Please refer to [Figure 83: Body Composition Screen Layout](#).

Section #1 displays the Tissue (Fat Mass and Fat Free Mass).

Section #2 displays the Fluids; TBW (Total Body Water), ECF (Extracellular Fluid) and ICF (Intracellular Fluid).

Section #3 is pointing to a scroll bar. The picture displayed is indicating that there are 3 measurements. The scroll bar is positioned to the far right indicating the last record. Using the scroll bar, the user can scan through the data, one record at a time.

Section #4 indicates the current record position. Example: Example: 7 out of 7 measurements (19/08/2009 02:28:17 pm).

As the user is viewing the data on this screen, the baseline record will be noted. The user has the ability to set the baseline record by pressing on the Patient->Set as Baseline button. This will change the system and make the current record the new baseline record.

To see a specific set of measurements, use the **Filter Data** function to the desired record set. See [Filter Data](#) for more details.

For a better understanding of a Gauge see [Anatomy of a Gauge](#).

# Fat Mass

## **%Fat Mass (FM)**

The FM determined from the regression equations can be expressed as a percentage of total body weight. This is a commonly used clinical method for assessing and tracking the FM of a patient. ImpediMed has supplied a set of normal “healthy” ranges to be used by the healthcare professional as a guide when assessing the FM levels of the patient. ImpediMed advises that these ranges are not supplied as a definitive diagnostic of overall health status. These normal ranges are sourced from public domain peer reviewed scientific publications.

## **%FM for male and female children**

HD McCarthy, TJ Cole, T Fry, SA Jebb and AM Prentice. Body fat reference curves for children. International Journal of Obesity (2006) 30, 598-602.

## **% FM for male and female adults**

D Gallagher, SB Heymsfield, M Heo, SA Jebb, PR Murgatroyd and Y Sakamoto. Healthy percentage body fat ranges: an approach for developing guidelines based on body mass index<sup>1-3</sup>. Am J Clin Nutr 2000; 72:694-702.



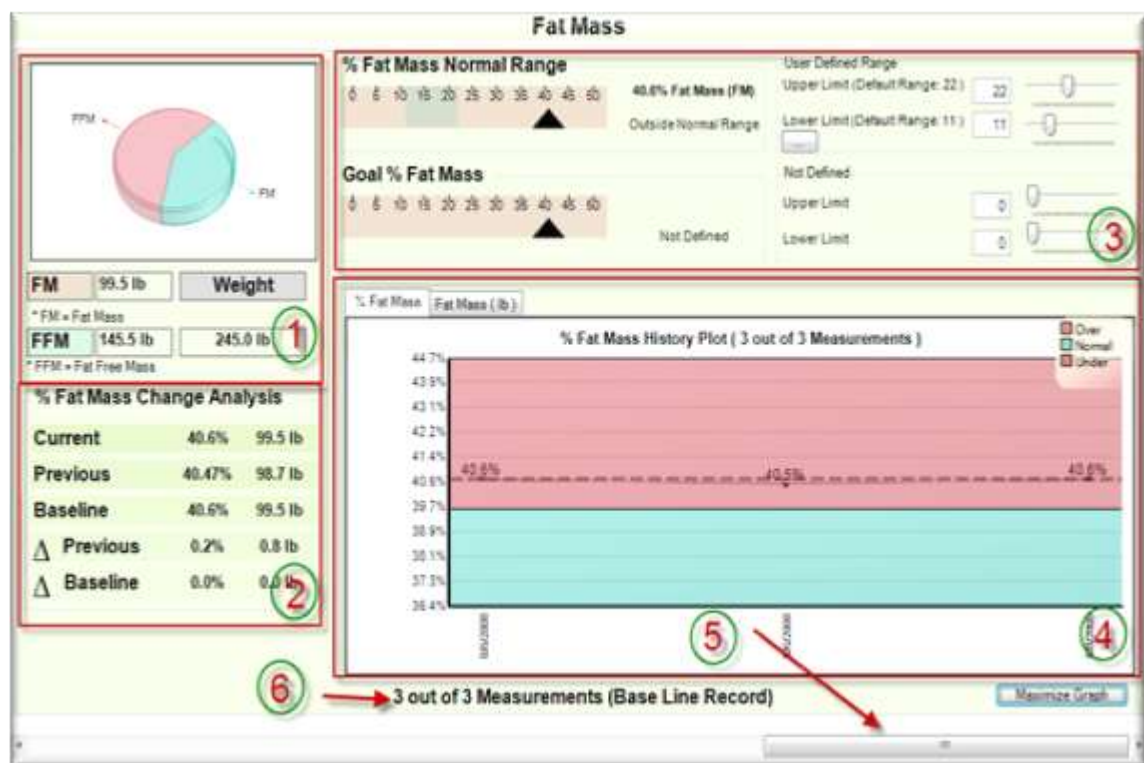


Figure 84: Fat Mass Screen Locations

Please refer to [Figure 84: Fat Mass Screen Locations](#).

Section #1 displays the Fat Mass and Fat Free Mass values. The graph displays a visual representation between the Fat Mass and Fat Free Mass values.

Section #2 displays the % Fat Mass Change Analysis. This section compares the previous and the base line values against the current value. This section will only perform the analysis if there is a previous record and/or base line record. If the previous or base line record is not available, this section will perform the analysis on the available data.

Section #3 displays two gauges. % Fat Mass Normal Range and Goal % Fat Mass. Note the 'User Defined Range' settings. These values are pulled from the References Range screens that were setup under the System->Percent Fat Mass Reference Range screen.

Note the ellipse button (...). Pressing the ellipse button will restore the default values. See the reference values displayed in the Upper and Lower limit section located in the parentheses.

Section #4 contains two types of graphs. %Fat Mass and Fat Mass by weight. The coloured areas of this graph are controlled by the values in the 'User Defined Ranges', located in the gauge area (section #3).

For a better understanding of a Gauge see **Anatomy of a Gauge.**

Note: The Fat Mass Weight graph only shows the values and not the %Fat Mass as there is no correlation between %Fat Mass and Weight.

Section #5 is pointing to a scroll bar. The picture displayed is indicating that there are 3 measurements. The scroll bar is positioned to the far right indicating the last record. Using the scroll bar, the user can scan through the data, one record at a time.

Section #6 indicates the current record position. Example: Record 3 of 3. As the user is viewing the data on this screen, the baseline record will be noted in section #5. The user has the ability to set the baseline record by pressing on the Patient->Set as Baseline button. This will change the system and make the current record the new baseline record.

To see a specific set of measurements, use the **Filter Data** function to the desired record set. See **Filter Data** for more details.

## Anatomy of a Gauge



**Figure 85: Anatomy of a Gauge**

Please refer to [Figure 85: Anatomy of a Gauge](#).

A gauge is a linear graph that contains three segments: Scale, Limits, and a Pointer. Each gauge in the application will contain a different scale. Most appear as 0 to 100. The gauge in [Figure 85: Anatomy of a Gauge](#) is from 0 to 100% and is pictured in pink.

The limit in [Figure 85: Anatomy of a Gauge](#) is displayed in grey and ranges from 11 to 22. See the lower limit, as represented by the 'User Defined Range' Lower Limit value pointed to by the Blue arrow, on the right side of the referenced section, contains the value 11 and the upper limit contains the value 22.

The Point in [Figure 85: Anatomy of a Gauge](#) is the black triangle. It is position at 40.6.

The way you would read this gauge is that the value is outside normal limits as the Pointer is not within the grey area.

## Filter Data

The purpose of Filtering Data is to limit the amount of data the user views at one time. Example: You are tracking a client once a week for a year. That would results in 52 readings. The 'User' looks over the data and notices that the data that's important occurs on first reading of the month. The User can create a filter only showing the First Day of a month.

To create a filter that only shows the First Day of a month for the past 12 months, the user would perform the following steps.

1. Navigate to the Filter Data screen by Patient->Filter Data.

2. Right mouse click on the screen and 'Select None'. This removes all records from the current data set.
3. Looking at the column headers, click in the 'Display Select' cell, and then right mouse click to bring up the menu. Press 'Select This Record'. The word 'Yes' will appear in the 'Display Selected' cell. All records that contain the word 'Yes' in the 'Display Selected' cell will be included in this data set.
4. This data set is now available to all Patient screens and reports.  
See [Figure 86: Filter Selection Screen](#).

ImpediMed DF50 -> Practitioner: Pandragon, Arthur Patient: Brian, Ziegelaar

Filter Data

FILTER SELECTOR --> Brian, Ziegelaar <- FILTER SELECTOR

	09/07/2009 12:51:56 PM	09/07/2009 12:52:26 PM	22/07/2009 10:14:53 AM	22/07/2009 10:45:22 AM	22/07/2009 10:48:39 AM	03/08/2009 5:20:46 PM	19/08/2009 2:28:17 PM
Selected	YES	YES	YES			YES	YES
Base Line Record	NO	NO	NO			NO	YES
Practitioner Full Name	Pandragon, Art	Pandragon, Art	Account, C			Pandragon, Art	Pandragon, Art
Height cm	187.00	187.00	187.00			187.00	187.00
Weight kg	90.00	90.00	81.90			81.50	81.00
Age	37.83	37.83	37.70			37.74	37.78
HY DEX(TM)	12.19	0.00	0.00			3.65	43.90
Total Body Water Litre	49.92	40.23	48.29	48.64	48.10	48.48	49.03
Total Body Water %	55.47	44.70	58.96	58.40	58.73	58.48	60.53
Intracellular Fluid Litre	28.18	21.71	30.07	30.12	29.60	29.85	22.14
Intracellular Fluid %	56.45	53.96	62.26	61.82	61.53	61.57	48.16
Extracellular Fluid Litre	21.74	18.52	18.23	18.53	18.51	18.63	26.89
Extracellular Fluid %	43.55	48.04	37.74	38.08	38.47	38.43	54.84
Fat Free Mass kg	69.24	55.80	66.98	67.47	66.72	67.24	68.00
Fat Free Mass %	76.94	62.00	81.78	82.38	81.46	82.50	83.96
Fat Mass kg	20.76	34.20	14.92	14.43	15.18	14.26	13.00
Fat Mass %	23.06	38.00	18.22	17.62	18.54	17.50	16.04
Active Tissue Mass kg	38.38	28.15	39.63	39.82	39.08	39.48	37.99
Expr1005	42.64	31.28	48.39	48.62	47.72	48.45	39.50

Figure 86: Filter Selection Screen

# Reporting

All the reports in the DF50 application software operate the same. See [Figure 87: Report Screen Locations](#).

Selecting a report for the Patient->Reports section will display a Reporting screen. The Reporting screen will, at a minimum, contain 5 windows. In this example: Body Composition Report, Report Cover, Notes Report, Report User Defined and References. See labels 1-5.



**Figure 87: Report Screen Locations**

If Reporting on Graphs, the number of reports will vary depending upon the number of parameters the user has selected to graph.

Label #6 shows a scroll bar. All reports are larger than most display screens. In order to view the entire report a scroll bar has been provided.

The Report Cover page, see [Figure 88: Report Cover](#) is generated automatically using the practitioner's name and address details from the user maintenance function. These details can be edited in the Report Cover screen, but edits will not be saved after the report is printed. The default title on the Report Cover is Body Composition Summary Report. This title can also be edited in the Report Cover screen. Title changes will be saved and will also default to the last title entered. See [Figure 88: Report Cover Page \(middle section not shown for ease of viewing\)](#).

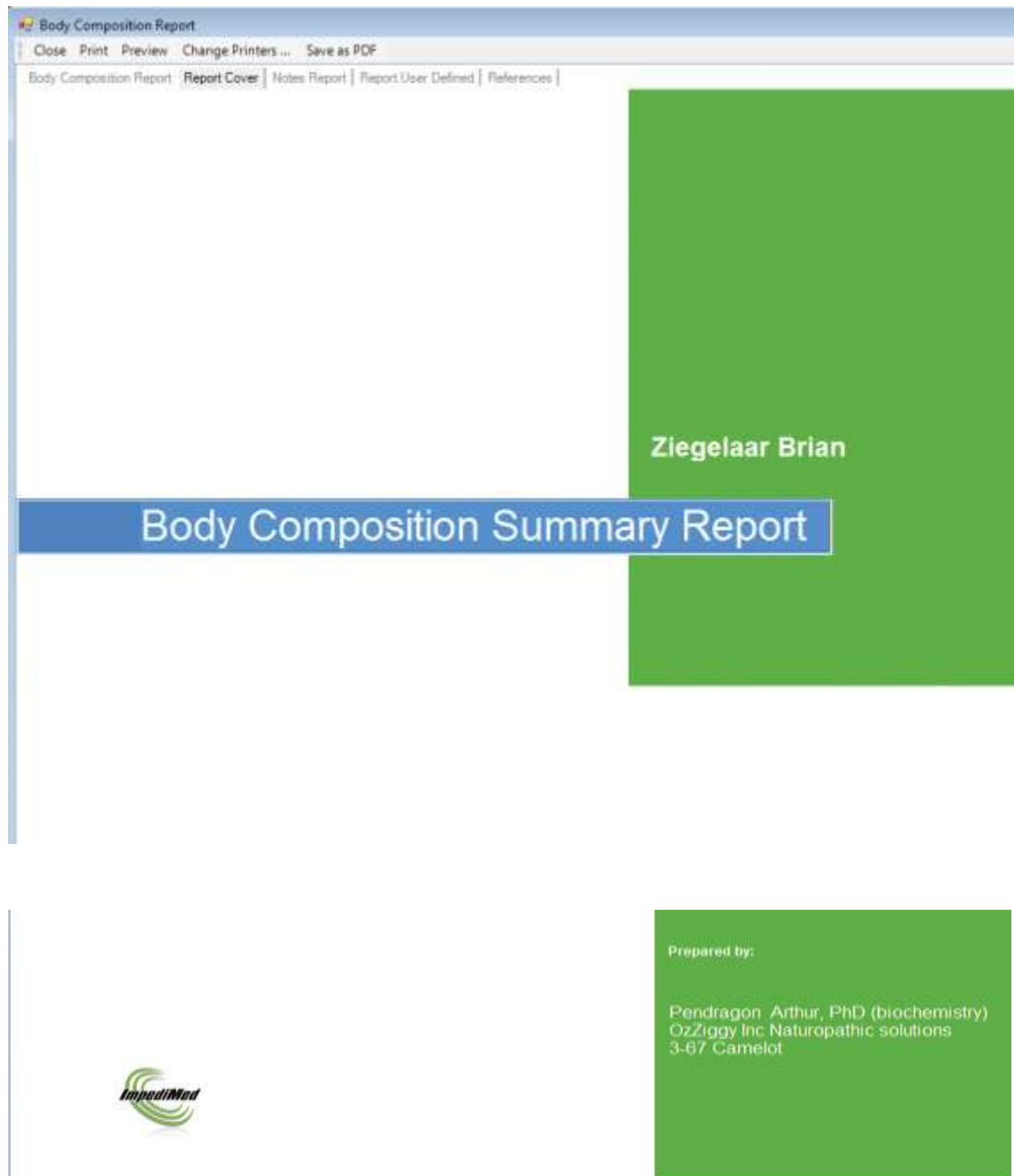
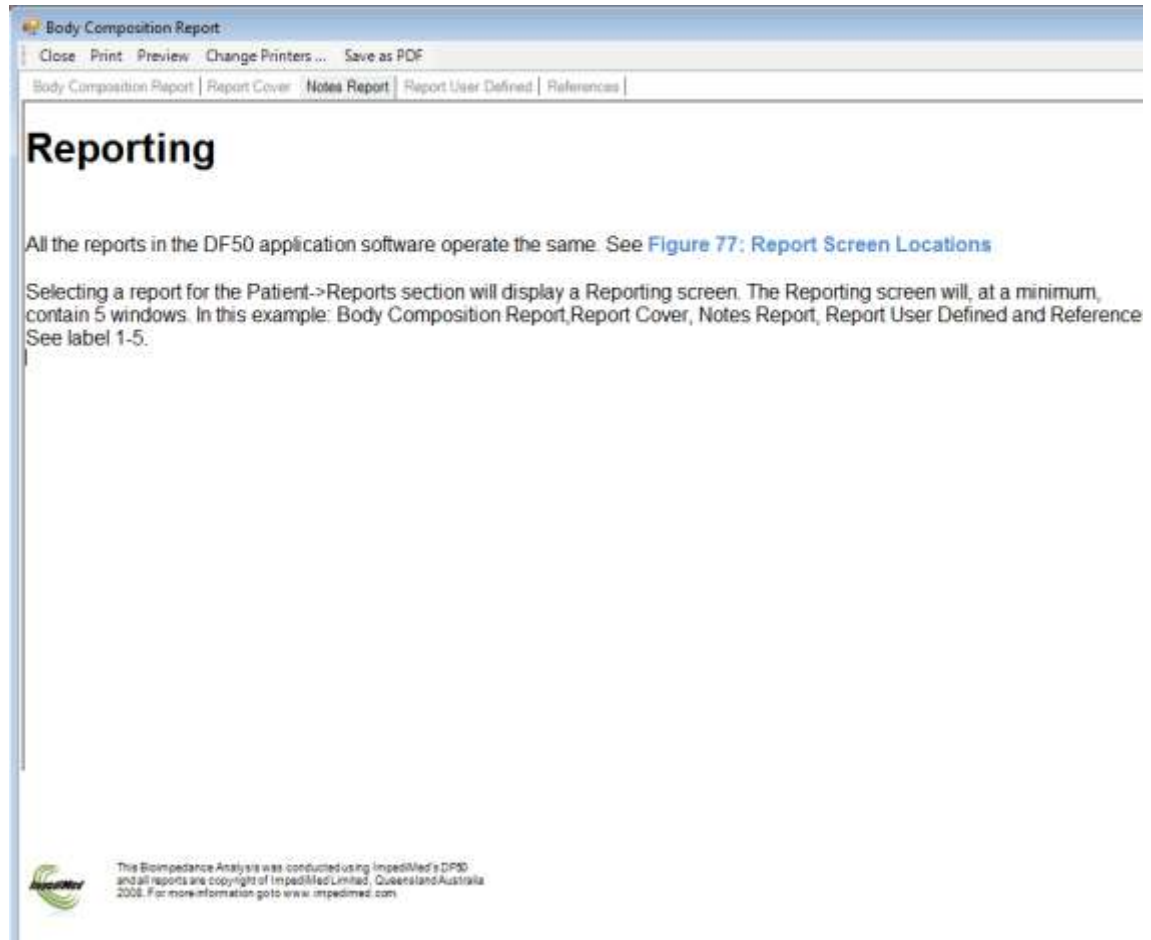


Figure 88: Report Cover Page (middle section not shown for ease of viewing)

The Notes Report page is a free form area in which the user may place comments. This area supports Copy and Paste from other applications such as Microsoft Word. The textbox support RTF (Rich Text Format). See [Figure 89: Notes Report Page Example](#).

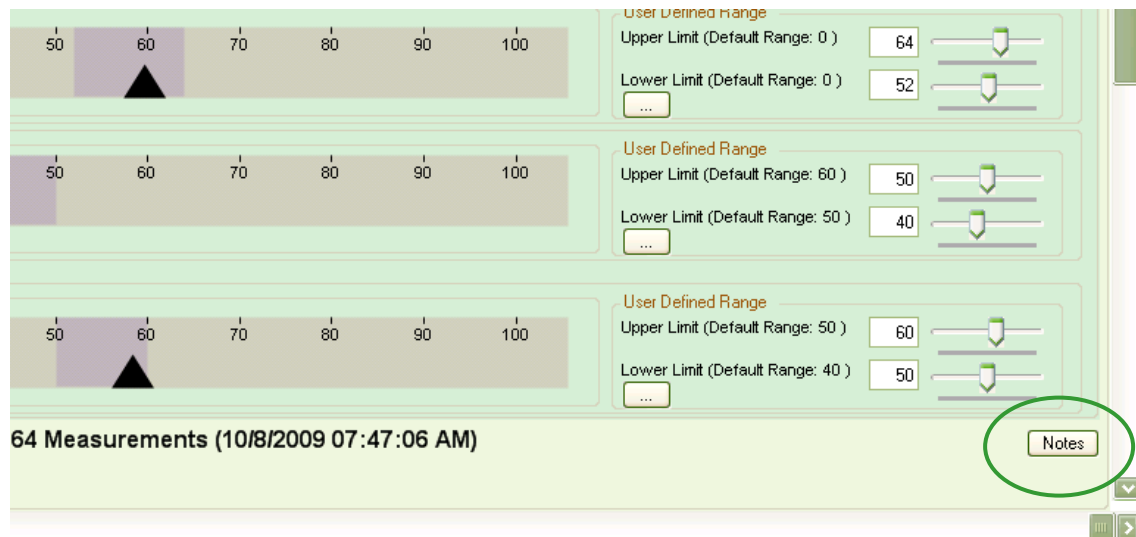


**Figure 89: Notes Report Page Example**

In this example: A section of this manual was copied to the report page and it captured the Fonts, Colours and Formatting. This allows the user to include pre-formatted documents into their reports by simply copying and pasting.



Any notes added to the Notes Report page of a report are saved against that particular measurement and a Notes button is added to each Analysis screen for that particular measurement. This allows the 'User' to save notes specific to a 'Client's' visit or measurement. See [Figure 90: Notes Button Example](#).



**Figure 90: Notes Button Example**



The Report User Defined page allows the user to print out user defined parameters that have been recorded for the patient and entered into the DF50 software. In this example the Blood Pressure and Resting Heart Rate are shown as example user defined fields. See [Figure 91: User Defined Report Example](#).

Body Composition Report

Close Print Preview Change Printers ... Save as PDF

Body Composition Report | Report Cover | Notes Report | **Report User Defined** | References

**Ozziggy Inc**  
Naturopathic solutions for the modern world

### Body Composition Report

**Practitioner**  
Pendragon Arthur, PhD  
(biochemistry)  
Ozziggy Inc Naturopathic solutions  
3-67 Camelot

**Patient**  
Brian, Ziegelaar  
help desk  
Phone: +61 7 3860 3700  
Email: bziegelaar@impedimed.com  
D.O.B.: 17/11/1971  
Gender: Male  
Ethnicity: Caucasian  
File Number: 007IMOM

**Measurement Date**  
7 out of 7 Measurements  
Record ID: 10  
19/08/2009 2:28:17 PM

**Base Line Record**

User Defined Parameters	Results	Target Ranges
blood pressure	180	
Resting Heart Rate	55	


 This Bioimpedance Analysis was conducted using ImpediMed's DF50 and all reports are copyright of ImpediMed Limited, Queensland Australia 2008. For more information goto [www.impedimed.com](http://www.impedimed.com)

Figure 91: User Defined Report Example

The Reference Report page is a pre-defined page and it is part of the DF50 application software. When the user prints or print previews the reports, the DF50 application software will ask the user if they wish to include the References page when printing. Selecting 'Yes' will include the references page. Note: This is also true of the Notes, User Defined and Cover Page elements of the report. **See [Figure 92: References Page](#).**

The screenshot shows a software window titled "ATM/ECM Report". The window has a menu bar with "Close", "Print", "Preview", and "Change Printers...". Below the menu bar is a tabbed interface with tabs for "ATM/ECM Report", "Cover Page", "Notes", "User Defined", and "References". The "References" tab is selected. The main content area is titled "ATM/ECM Report" and contains patient information, measurement details, and a list of references.

Practitioner	Patient	Measurement Date
Account Demo	Ziegelaar, Brian IPD LTD Australia	1 out of 4 Measurements
	D.O.B: 17/11/1971 Gender: Male Ethnicity: Caucasian File Number: 006007	Record ID: 79 22/07/2010 03:45:27 PM

**General**

"Theory and validation of tetrapolar bioelectrical impedance method to assess human body composition."  
Lukaski H.C. & Bolonchuk W.W. in Ellis K.J., Jasumura S. et al., editors, "In-vivo body composition studies"  
London: Institute of Physical Sciences in Medicine: 1987. pp410-4

**Child**

"Body composition determination in children using bioelectrical impedance."  
Cordain L., Whicker R. & Johnson J.  
Growth Development & Aging 52:1988 pp37-40

This Bioimpedance Analysis was conducted using ImpediMed's DF50 and all reports are copyright of ImpediMed Limited, Queensland Australia 2008. For more information goto www.impedimed.com

**Figure 92: References Page**

## Print Preview Window

If the user selects to preview the documents, The 'Select Option Reports' window will appear. This window prompts the user to select which of the report's additional elements to print with the main report page. See [Figure 93: Select Options Reports](#).

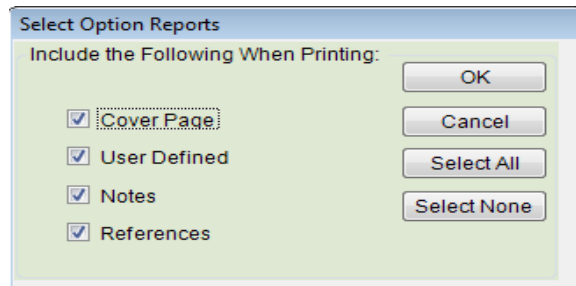


Figure 93: Select Options Reports

After selecting the desired options and pressing the OK button the print preview window will appear. The user will have the ability to view any of the pages as well as scroll and zoom on any page. See [Figure 94: Print Preview Screen](#).

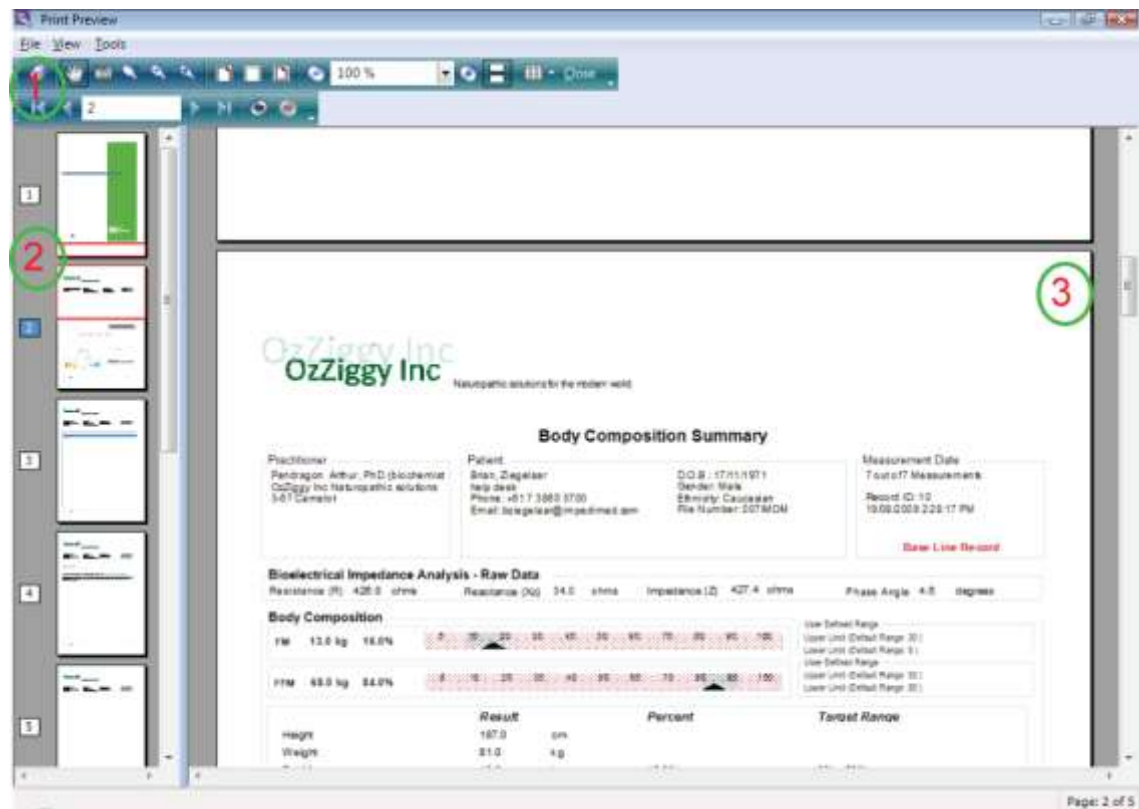
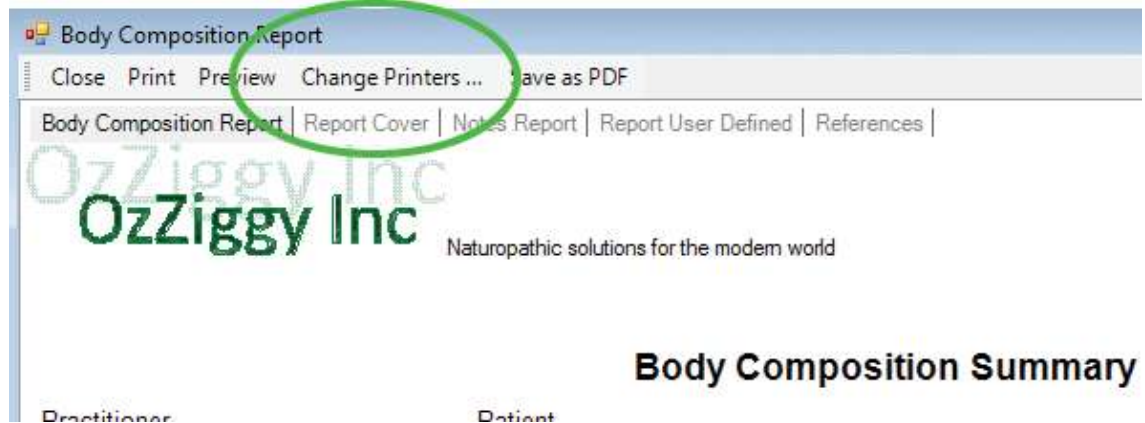
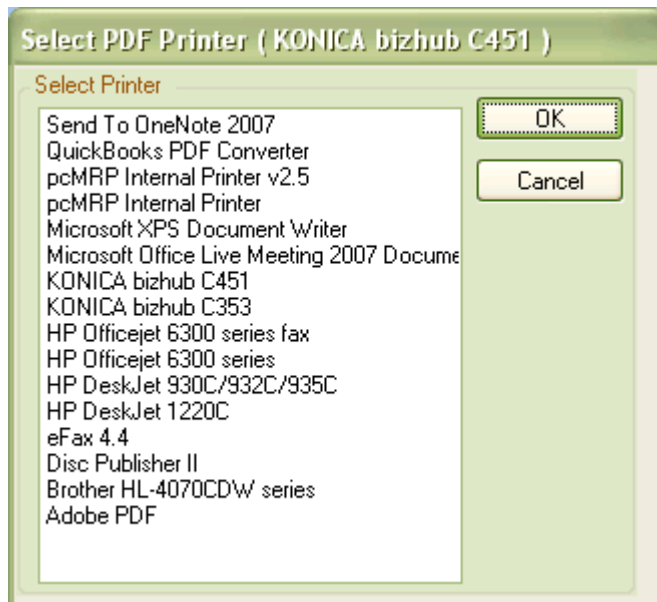


Figure 94: Print Preview Screen

In the menu bar at the top of the screen, there is an option called 'Change Printers'. See [Figure 95: Change Printer Location](#). This will bring up a Select Printer dialog box to allow the user to select an alternate printer. By default, the DF50 application software uses the windows default printer. Printer selection can also be made in the System -> General Settings -> Printing/Reports window. See [Figure 96: Select Printer Screen](#).



**Figure 95: Change Printer Location**



**Figure 96: Select Printer Screen**

### **Save as PDF**

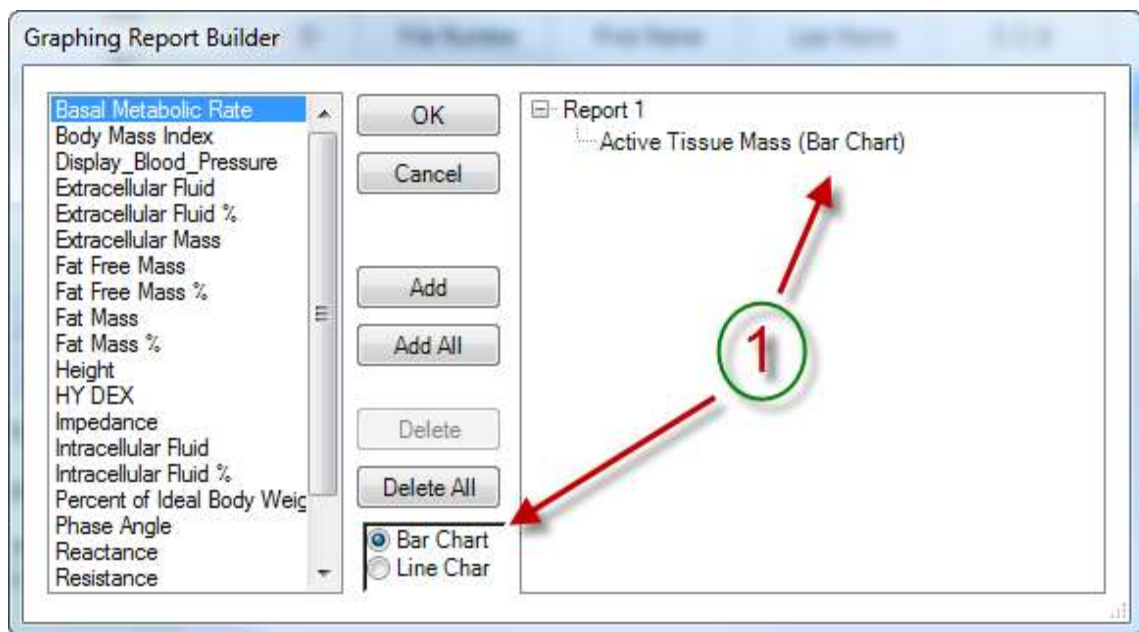
If the user has installed the supplied create PDF utility or already has a create PDF functionality on their PC, this button can be used to save the report as a PDF file instead of printing the report. Note that selecting this option will prompt the user to select the report elements to include prior to choosing a save location for the PDF report. See [Figure 96: Select Printer Screen](#).

## **Graphs / Custom Report Builder**

Within the DF50 application software is a Custom Report Builder. To create your own reports click Patient->Graphs.

This will display the Graphing Report Builder window. This management tool allows the user to create a report based on the list of available fields, including numeric 'User Defined Fields'

See [Figure 97: Graph/Custom Report Builder](#).



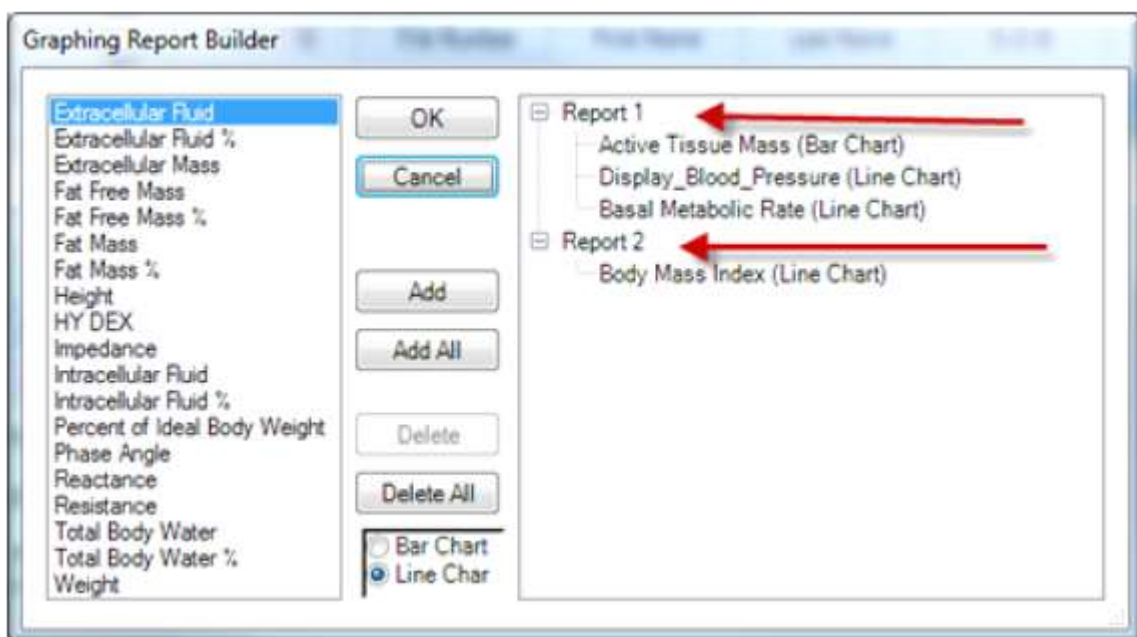
**Figure 97: Graph/Custom Report Builder**

To build a report, select the type of graph you want, Bar or Line chart. Then select the field on which you want to report. Click 'Add'. The report template allows the user to have three graphs on a page and they can be displayed in any order and they can contain different graphing types, either bar or line chart.

**See Figure 98: Custom Report Example.** In this example, the user has selected two reports. Report #1 contains a bar chart (Active Tissue Mass), which will be displayed first, and two line charts 'Displayed Blood Pressure' and 'Basal Metabolic Rate'.

Report #2, only contains one graph: a line chart, 'Body Mass Index'.

When the user presses 'Ok' the report screen will be displayed allowing the user to view and customize the Notes report.



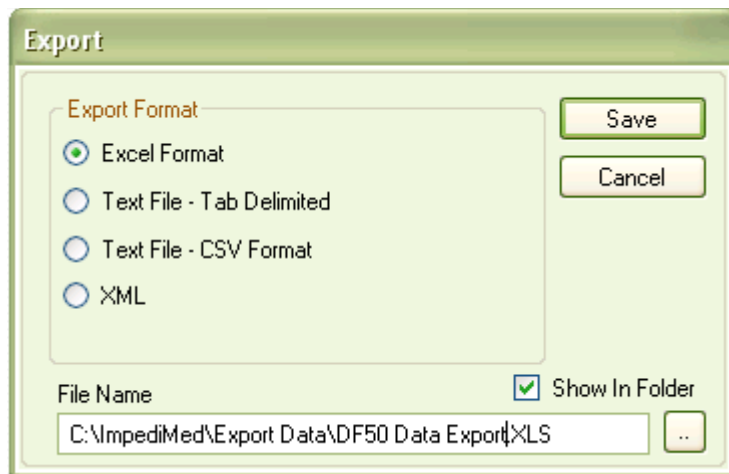
**Figure 98: Custom Report Example**

## Exporting Data

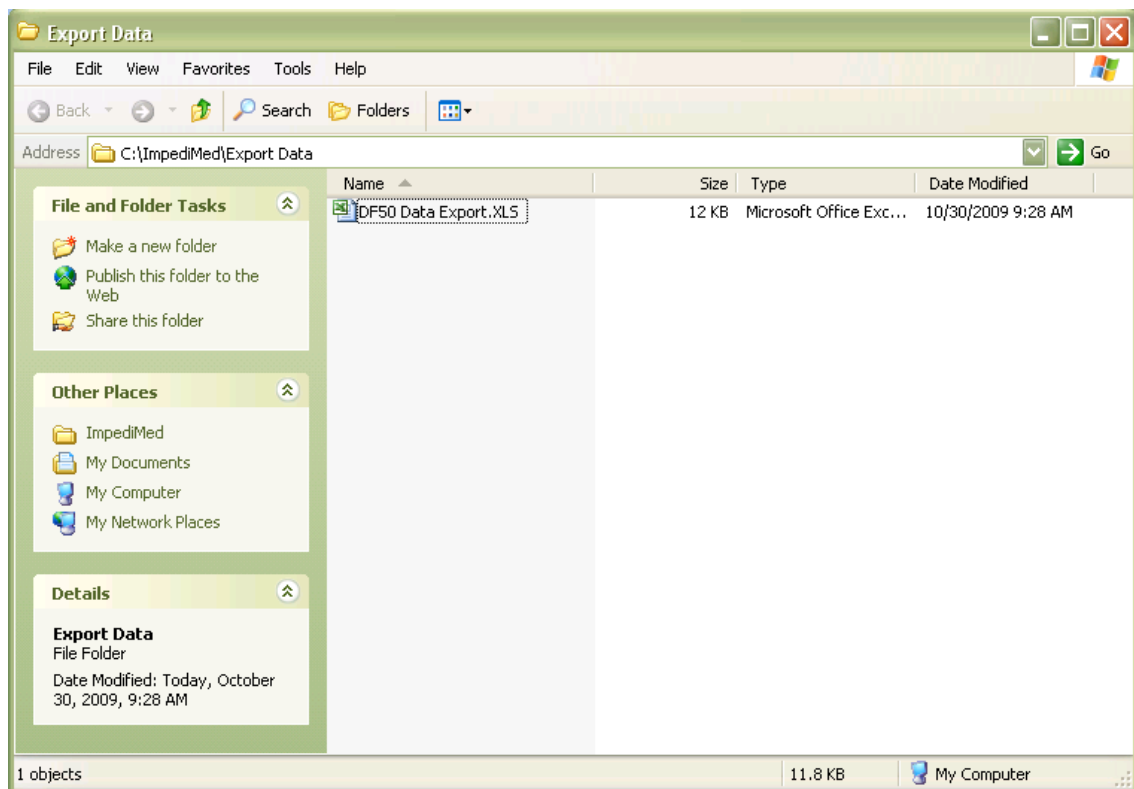
The DF50 application software has the ability to export any data set. Depending on the screen you are viewing, the data source for the export may vary.

Example: if you are on the 'Select Patient' screen, the data available for export is the data displayed in the grid on the right side of the window. If you are on the 'Database Horizontal' view, the data available will be the 'Database Horizontal' view. Clicking the Export Data button will display the Export Data screen. All the user needs to do to export port data is to select the export format, select a file location and file name. Press the 'Save' button and the data is exported. See [Figure 99: Export Data Screen](#).

In the box 'Show in Folder' is checked, a window will open after saving the export file showing where the file is located. See [Figure 100: Show in Folder Example](#).



**Figure 99: Export Data Screen**



**Figure 100: Show In Folder Example**



## DF50 System Files

Following is a breakdown of the files that the DF 50 application installs or creates.

1. Root Directory is (by default) HOMEDRIVE(typically C:)\program files\Impedimed directory.
  - a. All files needed to execute application.
2. Root\USB Folder
  - a. 32 Bit Drivers contains all the files needed to communication with IrDA and the Sigmatel device. (32 bit version of Windows)
  - b. 64 Bit Drivers contains all the files needed to communication with IrDA and the Sigmatel device. (64 bit version of Windows)
2. Root\Tools
  - a. DF\_50\_Exporter.exe is used to extract data from the original DF-50 application.
  - b. PDFCreator\_Setup.exe is the public domain PDF printer application.
  - c. AdbeRdr910\_en\_US.exe is Adobe Acrobat Reader.
3. Root\Manuals.
  - a. References.rtf is the references file load during a print operation into the References report.
  - b. DE contains all the non-US user manuals in German.
  - c. ES contains all the non-US user manuals in Spanish.
  - d. FR contains all the non-US user manuals in French.
  - e. IT contains all the non-US user manuals in Italian.
  - f. ROW contains all the non-US user manuals in English.
  - g. US contains all the United States user manuals in English.
4. Root\DE contains the German Translations DLL module.
5. Root\ES contains the Spanish Translations DLL module.
6. Root\FR contains the French Translations DLL module.
7. Root\IT contains the Italian Translations DLL module.

The following files are created by the application and are located in the directory list below.

Configuration Directory:

Windows XP ->

HOMEDRIVE\Documents and Settings\All Users\Documents\Impedimed

Windows Vista and Windows 7 ->

HOMEDRIVE\Users\Public\Documents\Impedimed

This directory contains the User Configuration files which are installed by the installation program.

- a. refdefaults.cfg – Reference Range File
- b. refuser.cfg – Reference Range File
- c. rxdefaults.cfg – Reference Range File
- d. rxuser.cfg – Reference Range File

The following files are create by the application and are not removed during the un-installation process.

- e. Config.ini – Application configuration file.
- f. In this directory, if generated, will contain the application error log file: DF\_50\_Error\_Log.Txt

# Uninstalling the DF50 Application Software

Windows XP -> From the Control Panel, Add and Remove programs.

Windows Vista -> From the Control Panel, Programs and Features.

Windows 7 -> From the Control Panel, Uninstall a Program.

Select the DF\_50 and click remove.

The uninstalling process deletes all files that were installed by the installation program with the exception of the list below.

Location:

Windows XP ->

HOMEDRIVE\Documents and Settings\All Users\Documents\Impedimed

Windows Vista and Windows 7 ->

HOMEDRIVE\Users\Public\Documents\Impedimed

Files:

1. Any files created by the user including data files and exports. Typically all data files start with DF\_50...MDB.
2. Config.ini – Application configuration file.
3. DF\_50\_Error\_Log.Txt

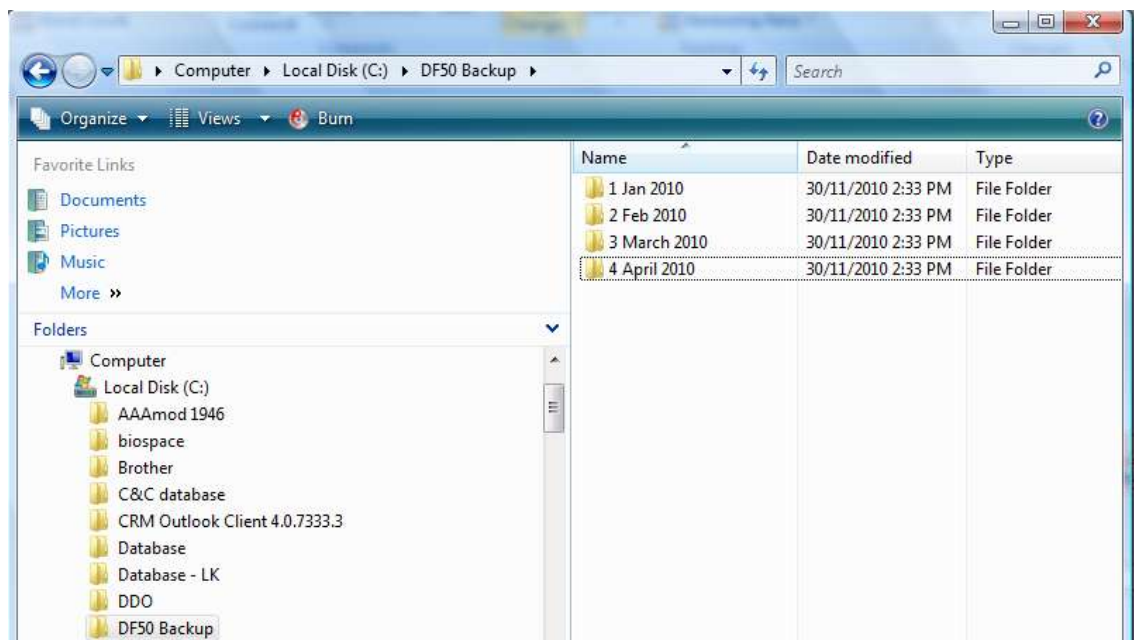
With Version 3.0.2.6 and higher, there are no entries made to the Registry.

# Backing Up Your Data

It is recommended that you back up your data often. To backup your data, exit the application. Below is a procedure that allows you to backup your DF50 database.

## Step 1: Creating a folder in which to store your backups.

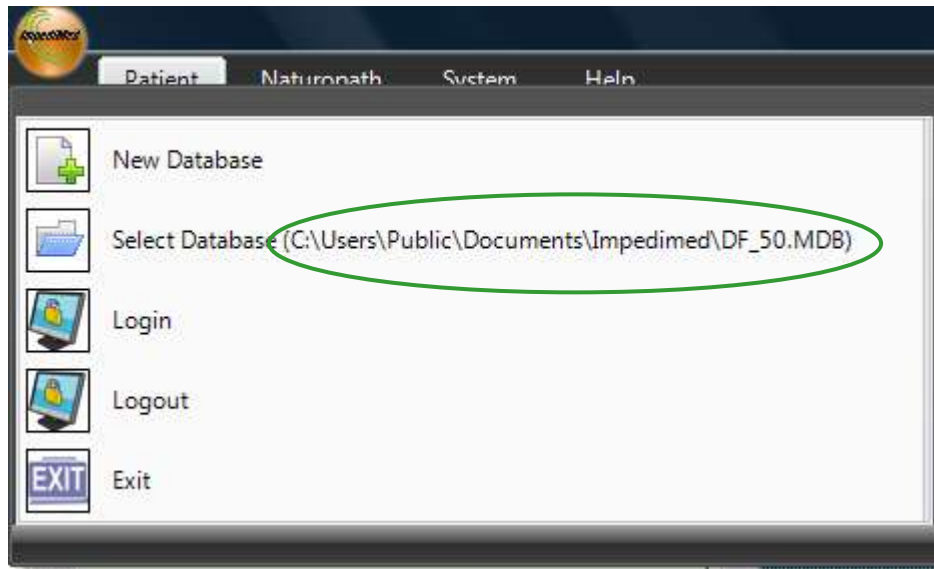
We recommend you backup regularly and a good filing system will help you keep control of your backups should you require them at a later date. For this reason we recommend setting up a folder on your computer called DF50 backups and organising this in a fashion that fits your back-up schedule. Note that the example below uses an archive system for the monthly backup of the database. It is up to the individual to decide how often a backup is made See [Figure 101: Backup Folder Creation](#).



**Figure 101: Backup Folder Creation**

## Step 2: Locate your current DF50 database

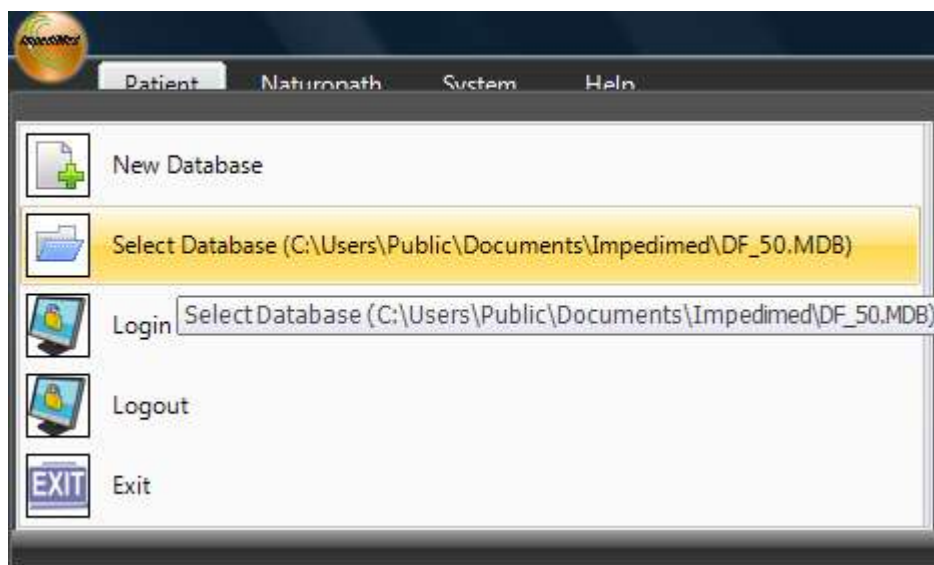
Locating your current database is easy. To do this, launch your DF50 software and after logging into the software, left click on the ImpediMed icon in the top left of the software screen. See [Figure 102: Locating the database.](#)



**Figure 102: Locating the database**

The location of your current database is displayed as a pathway in the Select Database option in the dropdown menu the example here has the pathway C:\Users\Public\documents\Impedimed\DF-50.MDB. See [Figure 103: Locating the database.](#)

Left clicking on the select database option will open a window displaying your database at that location. See [Figure 104: Locating the database.](#)



**Figure 103: Locating the database**

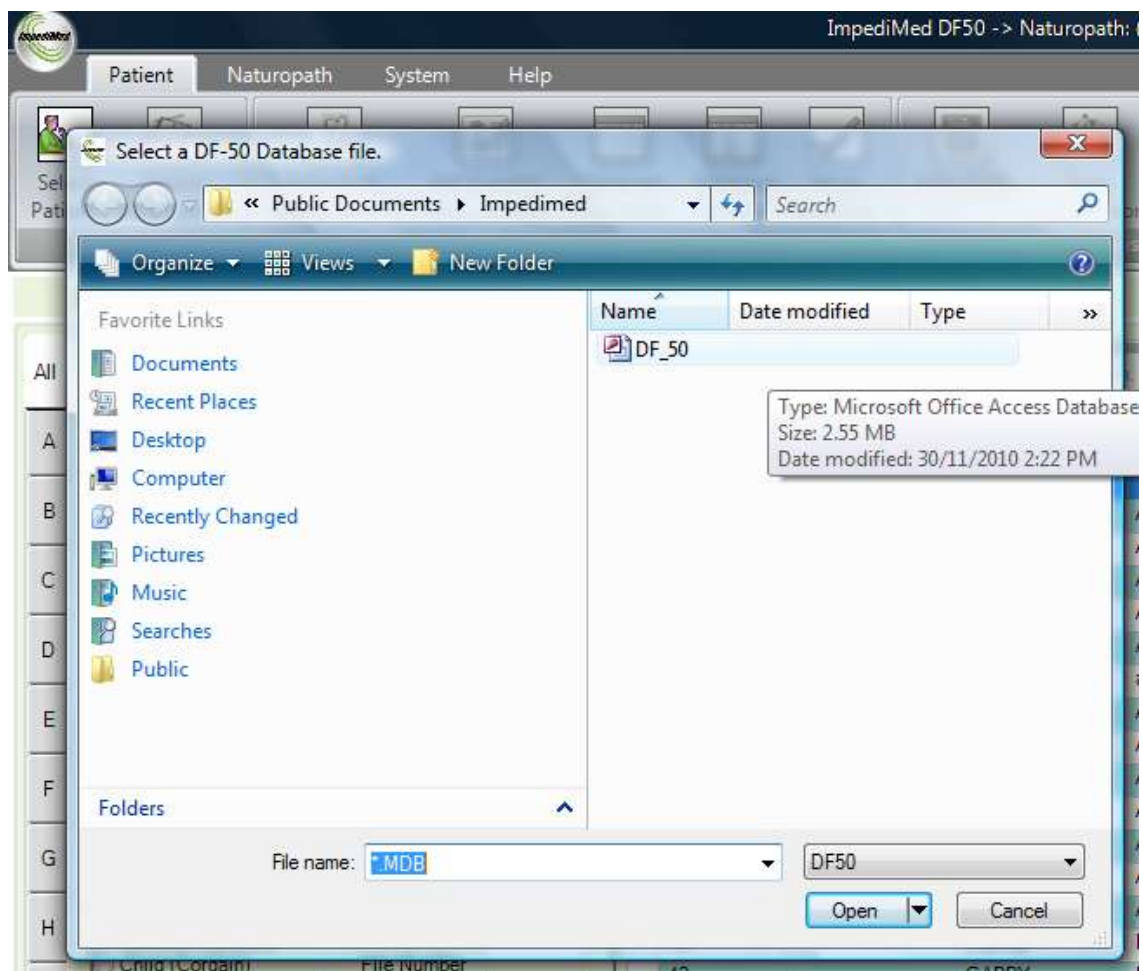
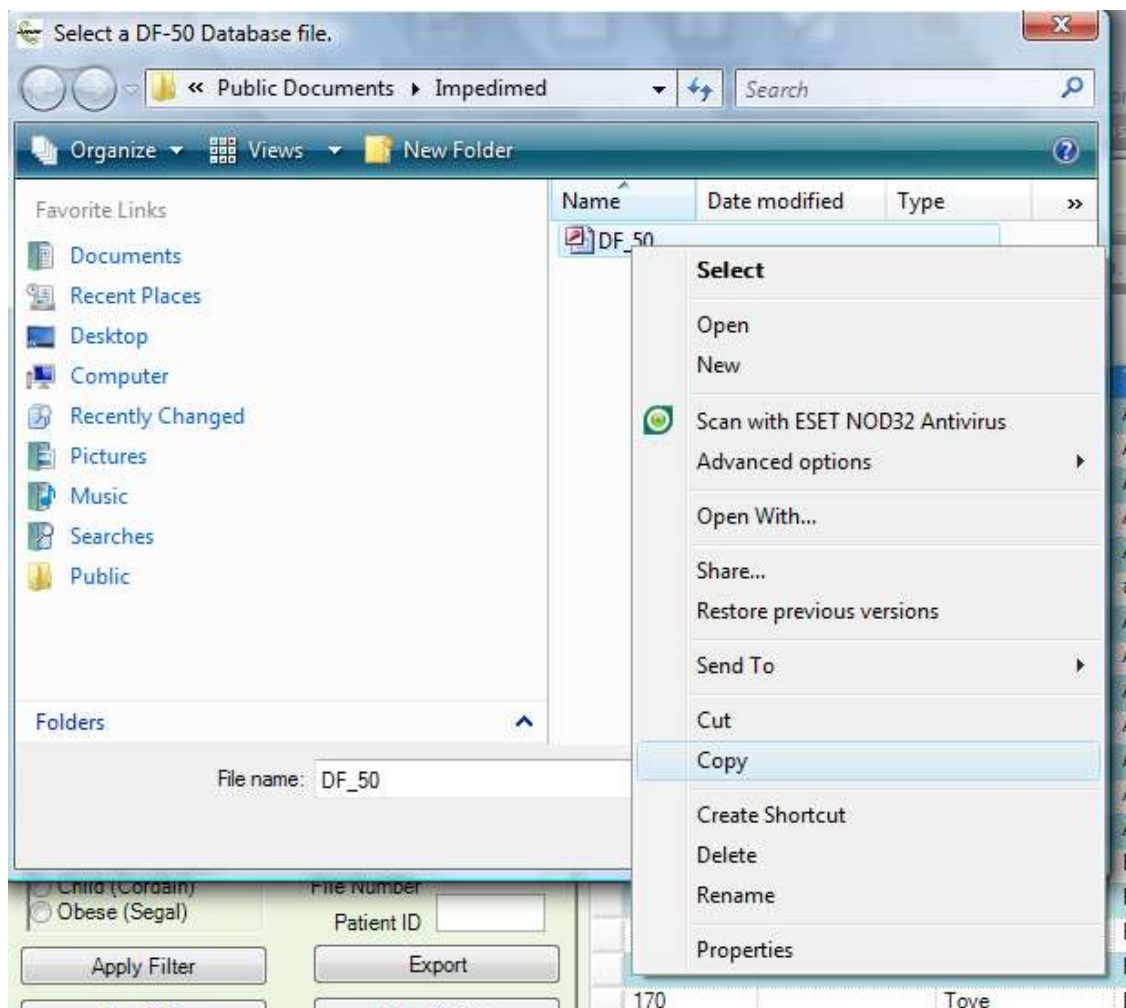


Figure 104: Locating the database

### Step 3: Copying your database

To save the database right click on the DF50 database icon and choose the “copy” option from the drop down menu. See [Figure 105: Copying your database](#).

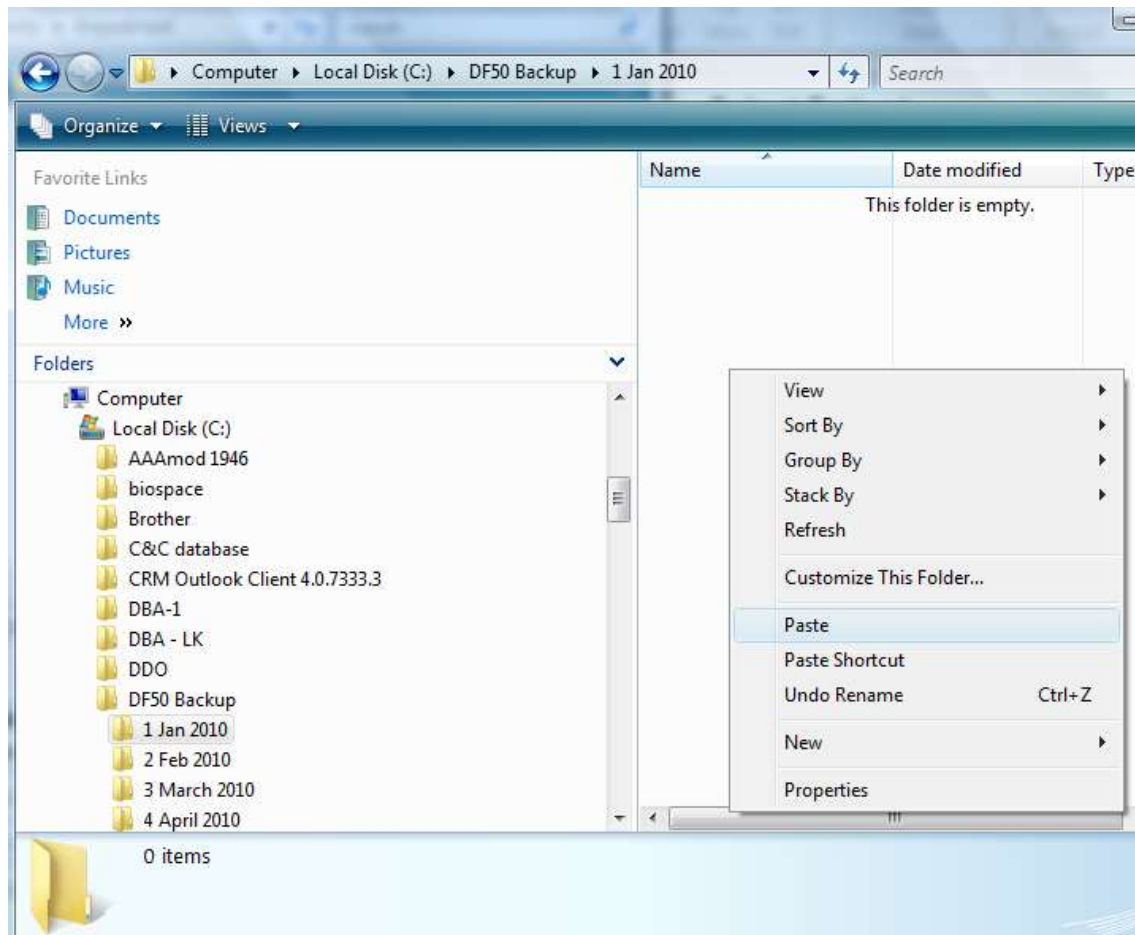


**Figure 105: Copying your database**

**Step 4: Saving the copy of your database to the backup folder**

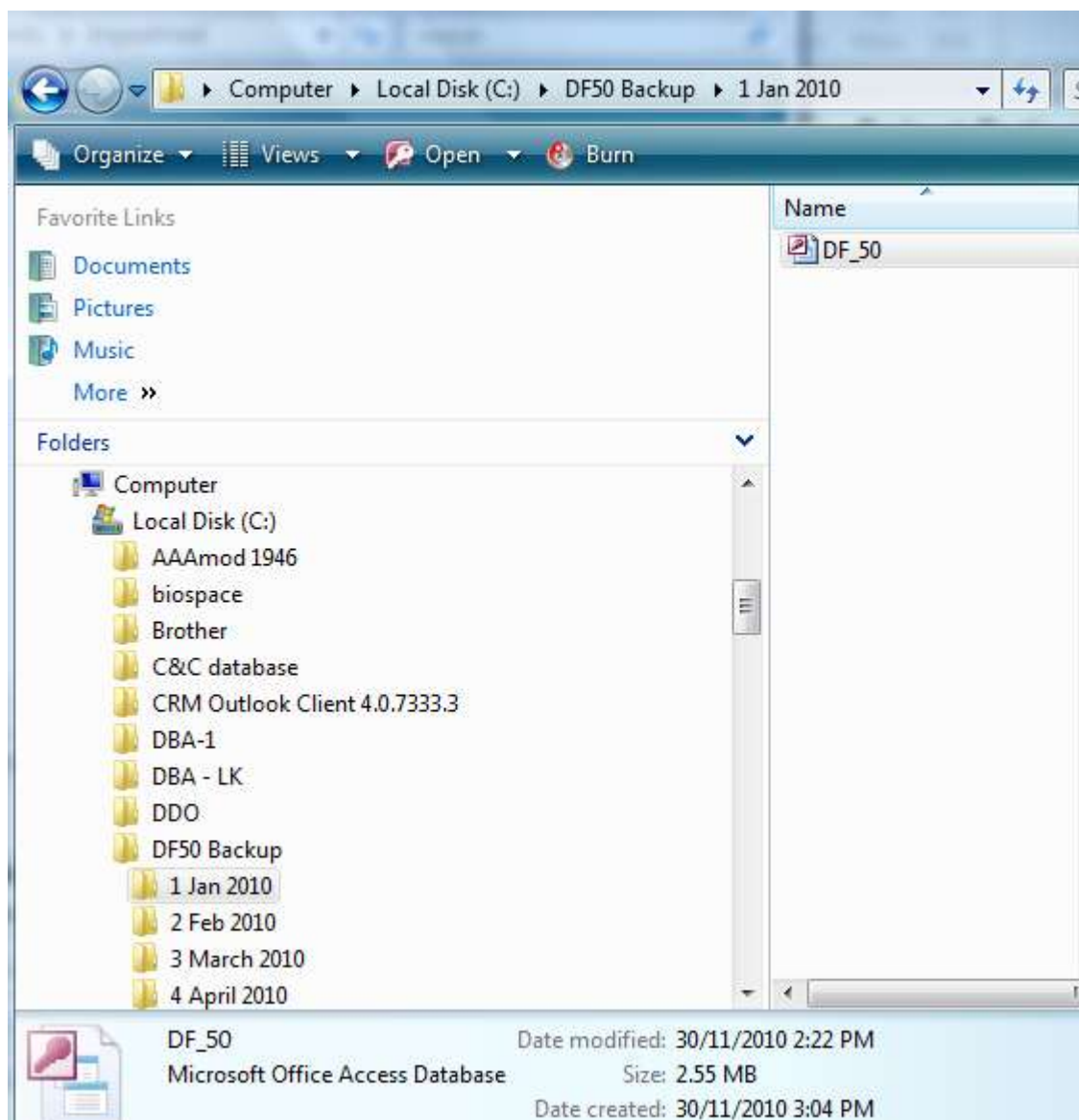
Browse to the backup folder set-up in Step 1 of this procedure and right click in the desired subfolder and choose “paste” from the dropdown options. A backup of the database is now complete. See [Figure 106: Pasting the database into the backup folders](#) and [Figure 107: Pasting the database into the backup folders](#).

Note: the example below shows a backup for the month of January



**Figure 106: Pasting the database into the backup folders**





**Figure 107: Pasting the database into the backup folders**

# Security

With local database tables, there is no provision for data security. It is therefore the responsibility of the user to ensure that access to the system is restricted to appropriate users.

## Error Messages Displayed in the Software

Message(s)	Occurs When:	What to do about it:
In order to view this document, Adobe® Acrobat® needs to be installed. Adobe Acrobat can be found on the Adobe website.	This error message appears when you attempt to open an Adobe Acrobat Formatted document and the DF50 Application is unable to locate the Adobe Acrobat Reader.	Download load Adobe Acrobat Reader from <a href="http://www.adobe.com">www.adobe.com</a>
Unable to locate the requested file (File Name will be displayed here)	This error message appears when you attempt to open one of the software or reference manuals and the DF50 Application is unable to locate the file.	If this occurs, using the add/remove programs feature of windows. Repair the DF50 Application software.
Unable to Create Database. Check to see if you have permission or that there is enough disk space.	This error indicates that you do not have enough hard drive space or you do not have permission to write to the hard drive.	Contact your systems administrator.
The Program has experienced an unexpected error from function (Name of the Function). This error has been recorded in the error log. If the problem persists, contact technical support and supply them with the error log.	This can occur when the DF50 Application encounters an error that it is not expecting. This is not a normal event. The application will capture all the information that caused the error and it will record this information in an error log.	Restart the DF50 application and if the issue persists, contact technical support.
You do not have permission to access the feature (Feature Name will appear here). Please contact your program administrator if you feel you need access to this feature.	This message will appear if you do not have permission to access a specific feature.	If this message appears, contact your DF50 Application administrator.

Message(s)	Occurs When:	What to do about it:
Unable to Import the Normal Population because I am unable to locate default file (File Name will appear here).	This message will appear if the Normal Population file is not found.	If this occurs, using the add/remove programs feature of windows. Repair the DF50 Application software.
Unable to Import the Normal Population because the data may not be in the correct format.	This message appears in the data stored in the Normal Population is corrupt.	The file is corrupt and cannot be used. Try replacing the file and import the data again.
Unable to Import the Reference Ranges because I am unable to locate default file (File Name will appear here).	This message appears when you are importing the References Range data the DF50 Application is unable to locate the file.	If this occurs, using the add/remove programs feature of windows. Repair the DF50 Application software.
Unable to Import the Reference Ranges because the data may not be in the correct format (File Name will appear here).	This message appears in the data stored in the Reference Ranges is corrupt.	The file is corrupt and cannot be used. Try replacing the file and import the data again.
Changes have been made to the information on this screen. Using the cancel button will cause the changes to be lost. Are you sure that you want to exit and not save the changes?	This message appears when you have made changes to the client information screen and you are exiting by press the cancel button.	This message appears to make you aware that you are about to lose the changes you have just made.
(File Name will appear here) already exists. Do you want to delete it?"	This message appears when exporting data using a file name that already exists.	Best practice is to select a unique file name.
Unable to Delete the File: (File Name appears here)	This message appears when you are exporting data the files in opened by another application.	If you want to replace the file, close the other application first and then re-export the data.
The Export Location is not valid.	This message appears when you are exporting data to a temporary location, like a USB Thumb drive, and in the process of saving the file the USB Thumb drive is removed.	When saving to an external devices, it always best practice to use the Remove Device Safely console from Windows.

Message(s)	Occurs When:	What to do about it:
User Defined fields can only contain Letters and numbers and cannot start with a number or be a 'Reserved' word ( Name that you entered will appear here)	This message appears when you are adding a User Defined Field and the name you select is reserved by the DF50 application.	Select a different Name or add additional characters or spaces to make the name a little different than the reserved word.
There is nothing to report.	This message will appear when you are generating a report that contains no measurements.	Make sure there are measurements in the DF50 Application for the Client you are running the report against.
Include Personal Information.	This message appears when you are exporting data from the Client Selection Screen.	Pressing 'Yes' will include the person information in the export file.
Include References when printing.	This message appears when you are printing or previewing reports.	Pressing 'Yes' will include the reference information when printing.
Failed to establish connection with old database.	This message appears when you are using the Import tool to collect data from the old DF50 Application.	This message indicates that the import program is unable to connect to the old database engine. Make sure the old DF50 Application is installed and running prior to importing.
Unable to locate DF50 Extraction Application.	This message appears when you are using the Import tool to collect data from the old DF50 Application and the extraction tool cannot be found.	If this occurs, using the add/remove programs feature of windows. Repair the DF50 Application software.
Invalid Date of Birth. Value ranges are (0 to 125 years).	This message appears while entering in Client information and it indicates that the date you are entering is not valid.	Valid ages ranges are from: born today to age 125 (as of today).

# Glossary

BIA	bioimpedance analysis
ECW	extracellular water
FFM	fat-free mass
FM	fat mass
ICW	intracellular water
Ph	phase
R	resistance
TBW	total body water
Xc	reactance
Z	impedance

# Notes

# Notes