



## Office Medic SDK – v 5.6.0 Documentation

**Contents**

- 1. Introduction ..... 3
- 2. Installation ..... 3
- 3. Using the SDK..... 3
  - 3.1 Setting the Registry..... 3
  - 3.2 Regional Settings..... 4
  - 3.3 Create Command File ..... 4
    - 3.3.1 Command.txt Entries ..... 4
    - 3.3.2 Session Command..... 5
    - 3.3.3 Parameters..... 10
  - 3.4 Office Medic Test Options ..... 14
  - 3.5 Launch the Office Medic Executable ..... 14
  - 3.6 Export Files..... 15
- 4. Appendix A: Office Medic Registry Entries ..... 16

## 1. Introduction

The Office Medic software developer kit (SDK) is a software development tool that allows for the creation of custom Windows applications utilizing the Office Medic software package. Office Medic is an easy-to-use software that is used to acquire, store and review diagnostic data from spirometry or electrocardiograph (ECG) tests. The Office Medic SDK provides an interface for software option configuration, test session, report review and print. Using a text file containing commands, triggered with the “-a” command line parameter, the Office Medic software can be controlled and integrated with custom applications. This document defines the commands and parameters of the SDK interface.

The basic functions are as follows:

- Initiate a test session.
- Review a test session.
- Print a test session to a printer.
- Export a test session to a PDF or JPEG or TIFF file.
- Set test and device configuration options.

The process of calling the Office Medic SDK is as follows:

1. Set the current working directory to the Office Medic directory.
2. Write Office Medic control registry keys and set local date settings.
3. Write the command.txt file to the working directory.
4. Launch the Office Medic executable with the "-a" command line option.
5. Read the produced export files.

## 2. Installation

No special installation steps are necessary. Installation of the full Office Medic package using QRS' installation disk will install the SDK.

## 3. Using the SDK

Office Medic reads and writes to many locations within the system defined “My Documents” folder. As the location has changed with versions of windows, in the context of this document, the identifier %DOCUMENTS% will refer to the following file locations:

Windows XP:

%USERPROFILE%\My Documents\

Windows Vista, 7, 8:

%USERPROFILE%\Documents\

### 3.1 Setting the Registry

Before launching Office Medic, the SDK user must create a registry setting so that export files are created after test sessions are complete. The following values should be created and set in either of the following locations:

For the current user only:

HKEY\_CURRENT\_USER\SOFTWARE\QRS\_Diagnostic\_OEM\Office\_Medic

For all users of the local machine:

HKEY\_LOCAL\_MACHINE\SOFTWARE\QRS\_Diagnostic\_OEM\Office\_Medic

The following two options are available to control export files:

For Spirometry:

ExportOptions REG\_DWORD

For ECG:

ECGExportOptions REG\_DWORD

If the registry value is set to “0” no data will be saved. If the registry value is set to “1” the export setting will be set to “Overwrite”, which will then create a new export file each time a diagnostic test is executed. If the registry value is set to “2” the export option will be set to “Append”. This will add data to the export file each time a diagnostic test is executed. The registry values are listed in Appendix A. Please refer to included code samples on how to write to the registry using C++.

## 3.2 Regional Settings

When reviewing a test in Office Medic, it is necessary to extract the test session date (SessionDate/Time) from one of the following files:

For Spirometry:

%DOCUMENTS%\Diagnostic Test Data\Spiro\Session.txt

For ECG:

%DOCUMENTS%\Diagnostic Test Data\ECG\ECGTest.txt

Office Medic will use the computer’s locale settings in formatting dates and time. The calling application must use the same settings when reading the dates in the Session.txt and ECGTest.txt files.

## 3.3 Create Command File

The calling application needs to create a file named **command.txt** before launching the Office Medic executable. Office Medic opens the **command.txt** file, executes according to the contents of the command file, writes any export files as specified by the caller and exits.

The command.txt file must be located in the following location:

%DOCUMENTS%\Diagnostic Test Data

### 3.3.1 Command.txt Entries

The command.txt file contains a collection of key-value pairs consisting of a single command and any relevant parameters. The key pairs can be placed in any order in the command.txt file. Each line is a key value pair of the form:

key:value^

Each key must be followed by a colon “:” followed by its assigned value and terminated by the carat “^” symbol. Each entry is also normally placed on a new line for readability. Keys are case sensitive.

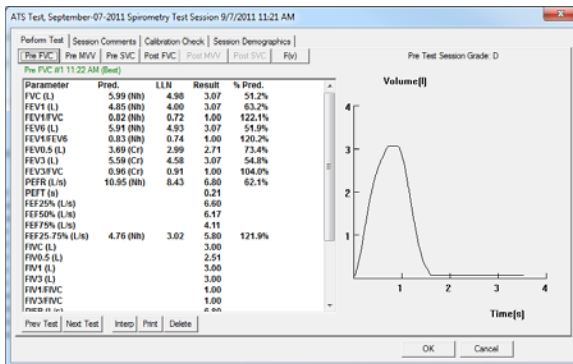
All dates in the command.txt file **must** be of the form “MM/DD/YYYY” with leading zeros on single digit months and days regardless of the localization settings of the computer.

In the Office Medic database, test sessions are keyed by the FirstName, LastName, AccountNumber, and Session Date/Time. In order to retrieve a past test, the calling application will need to store those details for future retrieval.

### 3.3.2 Session Command

#### SessionCommand:Review

Reviews an existing session specified by the patient details and session date and time.



Screenshot of Spirometry Session window



Screenshot of ECG Session window

#### Additional Required Parameters

- SessionType
- FirstName
- LastName
- AccountNumber
- Session Date/Time

#### Example

```
SessionCommand:Review^
SessionType:Spirometry^
FirstName:Bob^
LastName:Smith^
AccountNumber:12345^
```

Session Date/Time:11/08/2000 06:57:28^

## SessionCommand: ReviewFromFile

Review the test results from the import file supplied by the host application. This is only supported for ECG. The host application must place a previously exported ECG file named viewECG.scp into to the %DOCUMENTS%\Diagnostic Test Data\ECG\SCP folder.

This command will only function with SessionType:ECG



Screenshot of ECG Session window as will appear with SessionCommand:ReviewFromFile

### Additional Required Parameters

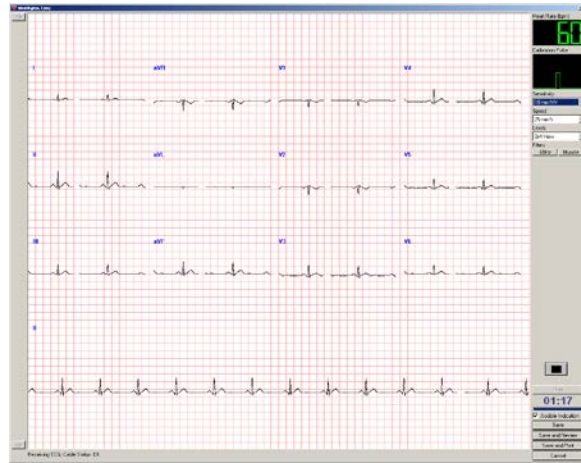
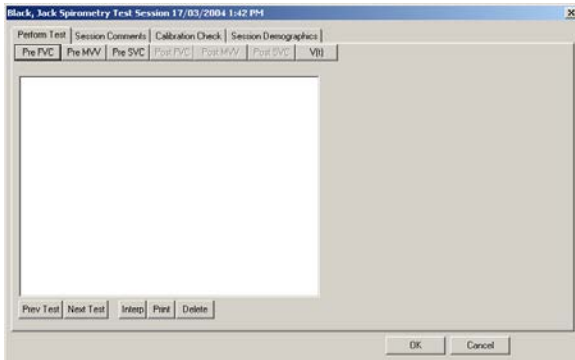
- SessionType:ECG

### Example

```
SessionCommand:ReviewFromFile^  
SessionType:ECG^
```

## SessionCommand:Test

Creates a new test session for the specified patient. All patient information must be passed, even if the patient has already taken a test before.



These interfaces will appear with SessionCommand:Test for Spirometry and ECG respectively

### Additional Required Parameters

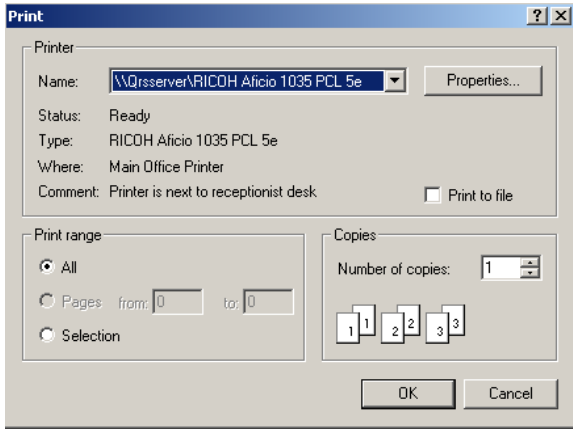
- SessionType
- FirstName
- LastName
- AccountNumber
- BirthDate
- Sex
- Race
- Height
- Weight

### Example

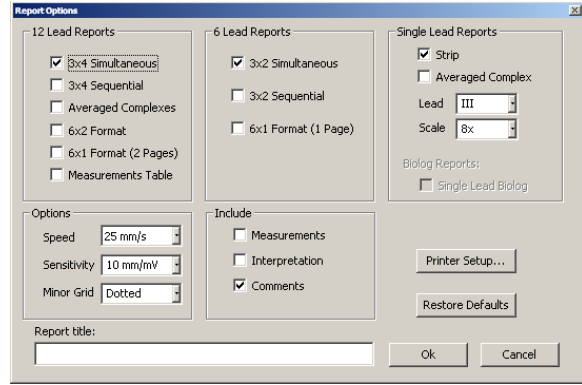
```
SessionType:Spirometry^  
SessionCommand:Test^  
AccountNumber:12345^  
FirstName:Bob^  
LastName:Smith^  
BirthDate:01/18/1963^  
Sex:M^  
Race:Caucasian^  
Height:180^  
Weight:190^
```

### SessionCommand:Print

Print report directly to a printer for the existing session.



The print window for spirometry.



The print window for ECG.

### Additional Required Parameters

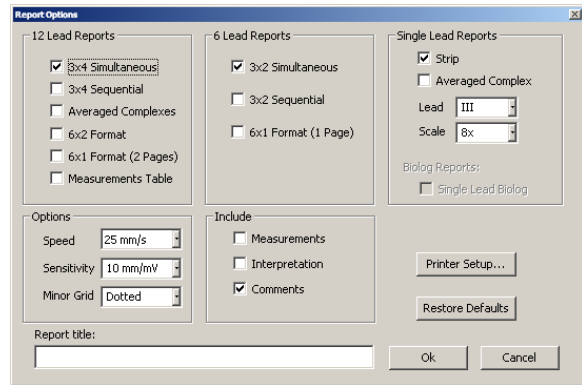
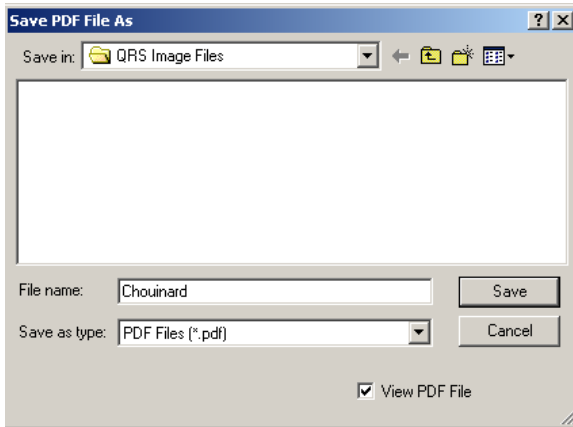
- SessionType
- FirstName
- LastName
- AccountNumber
- Session Date/Time

### Example

```
SessionCommand:Print^
SessionType:Spirometry^
FirstName:John^
LastName:Mcgabe^
AccountNumber:1337^
Session Date/Time:11/28/2011 06:57:28^
```

### SessionCommand:PrintToFile

Print report to a PDF or JPEG or TIFF file.





The above dialog will appear with "SessionCommand:PrintToFile" where no "[Type] Filename " parameter is included.

The above dialog appears when an ECG is printed- the user is prompted to specify the report formats to be printed.

### Additional Required Parameters

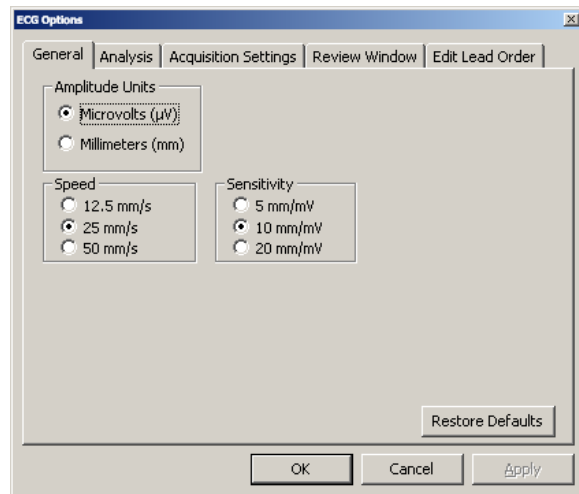
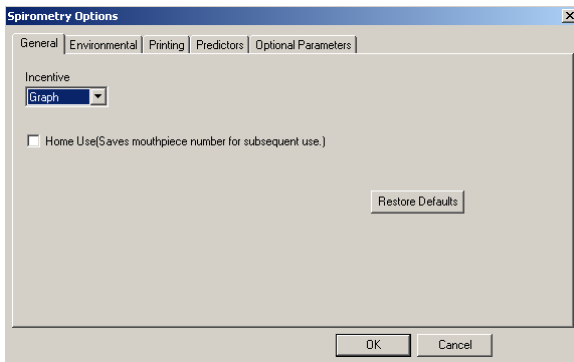
- [Type] Filename
- SessionType
- FirstName
- LastName
- AccountNumber
- Session Date/Time

### Example

```
SessionType:Spirometry^
SessionCommand:PrintToFile^
Session Date/Time:11/08/2000 06:57:28^
AccountNumber:12345^
FirstName:Bob^
LastName:Smith^
PDF Filename:c:\pdf\Bob_Smith.pdf^
```

### SessionCommand:Options

Display the options window for a particular SessionType



These dialogs will appear with SessionCommand:Options for Spirometry and ECG, respectively, allowing options to be changed for the applicable function.

## Additional Required Parameters

- SessionType

### Example

```
SessionCommand:Options^  
SessionType:ECG^
```

## 3.3.3 Parameters

### PDF Filename

### JPEG Filename

### TIFF Filename

#### Value

The name of the PDF, JPEG or TIFF file, or the full absolute path to the filename. If the PDF or JPEG filename is specified without a path, the default path from the registry is used. When a PDF or JPEG filename is specified, the file will not be opened after it is created. If no PDF or JPEG filename is specified, then a “Save As” dialog will appear so that a user can specify it manually. PDF filenames must end in “.pdf” or “.PDF”, JPEG files must end in “.jpg” or “.JPG”, TIFF files must end in “.tif” or “.TIF”.

#### Example

```
PDF Filename:c:\foo\bar\SpiroReport.pdf^
```

## SessionType

Specifies whether the SessionCommand function should perform Spirometry or ECG functions.

#### Value

Spirometry or ECG.

#### Example

```
SessionCommand:Options^  
SessionType:Spirometry^
```

## Session Date/Time

Specifies the Date and Time of the session for retrieval.

This parameter must be in the specified date format, regardless of the computer localization settings.

#### Value

MM/DD/YYYY HH:MM:SS:MS

Where MM is month, DD is day of month, YYYY is the year, HH is hour in 24 hour format, MM is the minute, and SS is the second. MS is an optional field that represents milliseconds. This entry is the key to finding the saved record in the Microsoft SQL Server database. Leading zeros are required for single digit months and days.

#### Note

This field is required for Session Commands Review, Print and PrintToFile

#### Example

```
Session Date/Time:11/29/2000 06:57:28^
```

### LastName

#### Value

This parameter can be maximum 20 characters

### FirstName

#### Value

This parameter can be maximum 20 characters

### AccountNumber

#### Value

This parameter can be maximum 20 characters

### BirthDate:MM/DD/YYYY

#### Value

Where MM is the month, DD is the day, YYYY is the year. Leading zeros are required for single digit months and days.

This parameter must be in the specified date format, regardless of the computer localization settings.

#### Note

This field is required for SessionCommand:Test

#### Example

```
BirthDate:01/18/1963^
```

## Sex

### Value

Where M = Male or F = Female (Note 1)

### Note

This field is required for SessionCommand:Test

### Example

Sex:M^

## Race

### Value

Value must be “Asian”, “Black”, “Caucasian” or “Other”

### Note

This field is required for SessionCommand:Test

### Example

Race:Caucasian^

## Height

### Value

Value is height is in centimeters

### Note

This field is required for SessionCommand:Test

### Example

Height:180^

## Weight

### Value

Where WWW is the weight in pounds or kg, depending on the value of HKEY\_CURRENT\_USER\Software\QRS\_Diagnostic\Office\_Medic\metric. Values are listed in Appendix A.

### Note

This field is required for SessionCommand:Test

### Example

Weight:190^

## SmokingYears

### Value

YY number of years smoking

### Note

This field is optional for SessionCommand:Test

### Example

SmokingYears:05^

## DatabaseLocation

### Value

1: This will point the server to the local database. Local database is the default if this entry is never used. If a network database location has been used previously, this entry must be made to revert to a local database.

0: Point to a networked database. The networked database will continue to be used until a value of 1 for DatabaseLocation is executed in the command.txt file.

## DatabaseServer

Sets the location of the server database. This field is only required if DatabaseLocation is set to 0 (Network).

### Value

The network hostname of the Database server, up to 84 characters in length. No slashes are required.

### Example

DatabaseLocation:0^  
DatabaseServer:deephought^

## DatabaseInstanceName

Sets the instance name of the server database. This field is optional, and only used if DatabaseLocation is set to 0 (Network). If this field is not present, the default instance will be connected to.

## Value

The instance name of the Database, up to 84 characters in length. Case is not sensitive.

## Example

```
DatabaseLocation:0^  
DatabaseServer:deephought^  
DatabaseInstanceName:0mInstance^
```

## DatabaseAuthenticationMode

Controls whether the SDK will use Windows or SQL authentication. Windows authentication is the default and recommended option.

## Value

1: This value will have Office Medic authenticate using Windows Authentication (Default)

0: This value will have Office Medic authenticate using SQL authentication.

## Example

```
DatabaseLocation:0^  
DatabaseServer:deephought^  
DatabaseAuthenticationMode:1^
```

## 3.4 Office Medic Test Options

Control of the test taking settings can be controlled through two methods:

1. By utilizing the SessionCommand:Options command and SessionType parameter, the relevant settings dialog will appear when the Office Medic executable is launched. When the user closes the dialog, the settings will be saved to the registry.
2. By directly manipulating the registry. See Appendix A for a list of the Office Medic registry entries. This is useful if the calling application wants to enforce a single set of options.

## 3.5 Launch the Office Medic Executable

The calling application launches the Office Medic executable using the “-a” parameter. When Office Medic command-line mode is launched, no other instance of the software can be executing (this includes the standard QRS Office Medic software). If the Office Medic command-line mode attempts to launch with another instance of software, the executing instance will report an error dialog advising the user that another instance of Office Medic cannot be launched.

When Office Medic launches, the software does not display the patient database tree since the patient information is being provided from the calling application and will instead open

the relevant user interface as specified in the command.txt file. In the case of testing or reviewing a test session, the software displays the Office Medic Test Session dialog. Printing a test session will display the Office Medic Print Session dialog. All test session data is stored in the Office Medic database.

### 3.6 Export Files

The export file contains session data in standard QRS software format. Refer to QRS on-line help for additional information.

Export of data is controlled by registry keys ExportOptions and ECGExportOptions. Refer to page 3 and Appendix A for their values.

#### Spirometry Export Files

See "Setting the Registry." If the registry key is set to export Spirometry files, a spirometry session will create two export files in %DOCUMENTS%\Diagnostic Test Data\Spiro. The file names are SpTest.txt, and Session.txt. The entries are tab delimited with a row of field descriptor headings followed by rows of tab delimited data entries for each test or session. The session file will contain Account number, Last Name, First Name and the spirometry session date and time. The date/time field will be in DATE\_SHORTDATE format as determined by the user's regional settings. These details will need to be saved in order to review the test at a later time.

#### ECG Export Files

The host application can retrieve export data from Office Medic after an ECG test has been performed. This is accomplished by retrieving the file viewECG.scp or file1.scp from %DOCUMENTS%\Diagnostic Test Data\ECG\SCP.

- The file file1.scp is created after a test is run, i.e. with the SessionCommand:Test command.
- The file viewECG.scp is created after a saved test has been reviewed, i.e. with the SessionCommand:Review command.

The .scp file will be overwritten each time an ECG test session is performed regardless of the value of the ECGExportOptions registry key. These files can also be used by the calling application for later review using the SessionCommand:ReviewFromFile. The host application can also parse data from the .scp file for viewing from within the host application.

ECG sessions will create an export file in %DOCUMENTS%\Diagnostic Test Data\ECG. The file name is ECGTest.txt. This file will contain Account number, Last Name, First Name and ECG Session date and time. The date/time field will be in DATE\_SHORTDATE format as determined by the user's regional settings. These details need to be saved to review the test at a later time.

## 4. Appendix A: Office Medic Registry Entries

Parameter	Description
AdultFVCFirstChoice	First Choice FVC Predictor Default = 1 = Crapo 0= None 1=Crapo 2=Cherniack 3=Knudson 4=Morris 5=Roberts 6=ECCS 7 = NHANES III
AdultFVCSecondChoice	First Choice FVC Predictor Default = 2 = Cherniack 0= None 1=Crapo 2=Cherniack 3=Knudson 4=Morris 5=Roberts 6=ECCS 7 = NHANES III
PediatricFVCFirstChoice	First Choice Pediatric FVC predictor Default = 4 = Warwick 0 = None 1 = Hsu 2 = Knudson 3 = Polgar 4 = Warwick 5 = NHANES III 6 = Zapletal
PediatricFVCSecondChoice	Second choice Pediatric FVC predictor Default = 0 = None 0 = None 1 = Hsu 2 = Knudson 3 = Polgar 4 = Warwick
AdultMVVPredictor	Adult MVV Predictor Default = 1 = Cherniack 0 = None 1 = Cherniack
PediatricMVVPredictor	Pediatric MVV Predictor Default = 1 = Polgar 0 = None 1 = Polgar 2 = Zapletal



Metric	Default = 0 = English 0 = English 1 = Metric
BarometricPressureUnits	INCHES_OF_MERCURY (0) MILLIBARS (1) MILLIMETERS_OF_MERCURY (2) Default = 0
EnvironmentalOptionChoice	ELEVATION_APP (0) ELEVATION_RELATIVE_BAROMETER (1) ABSOLUTE_BAROMETER (2) Default = 0
RoomTemperature	Current room temperature default = 72, Range 45-100 If Metric, default is 22, range = 7-38
RelativeBarometricPressure	Default Value = 10158 This value is 10 times hPA
AbsoluteBarometricPressure	Default Value = 10158 This value is 10 times hPA
Elevation	Default Value = 0 This is the elevation in centimeters. For example, if the elevation is 600m, this entry would be 60000
Incentive	0 = Default = Graph Incentive 0 = GRAPH_INCENTIVE, 1 = BALL_INCENTIVE, 2 = BALLOON_INCENTIVE, 3 = BEAR_INCENTIVE, 4 = CLOWN_INCENTIVE, 5 = PUMPKIN_INCENTIVE
ExportOptions	default = 0 = Off
ECGExportOptions	EXPORT_OFF (0) EXPORT_OVERWRITE (1) EXPORT_APPEND (2)
FlowVolumeExport	0 = Off 1 = On Default = 0 = Off
FullPageGraphs	For Printouts 0 = Off 1 = On Default = 0 = Off
ReportHeaderOnOff	For Printouts 0 = Off 1 = On Default = 0 = Off
FlowVolume	For Printouts 0 = Off 1 = On Default = 1 = On
VolumeTime	For Printouts 0 = Off 1 = On Default = 1 = On
GraphPredicteds	For Printouts 0 = Off 1 = On Default = 1 = On
UseBTPS	0 = Off 1 = On Default = 1 = On
HomeMonitoring	0 = Off 1 = On Default = 1 = On
FVC	Optional parameter 0 = Off 1 = On Default = 1 = On
FEV1	Optional parameter 0 = Off 1 = On Default = 1 = On
FEV1_FVC	Optional parameter 0 = Off 1 = On Default = 1 = On
MVV	Optional parameter 0 = Off 1 = On Default = 1 = On
SVC	Optional parameter 0 = Off 1 = On Default = 1 = On
FEV05	Optional parameter 0 = Off 1 = On Default = 1 = On
FEV3	Optional parameter 0 = Off 1 = On Default = 1 = On
FEV3_FVC	Optional parameter 0 = Off 1 = On Default = 1 = On
PEFR	Optional parameter 0 = Off 1 = On Default = 1 = On
FEF25	Optional parameter 0 = Off 1 = On Default = 1 = On
FEF50	Optional parameter 0 = Off 1 = On Default = 1 = On
FEF75	Optional parameter 0 = Off 1 = On Default = 1 = On
FEF25_75	Optional parameter 0 = Off 1 = On Default = 1 = On

FIVC	Optional parameter 0 = Off 1 = On Default = 1 = On
FIV05	Optional parameter 0 = Off 1 = On Default = 1 = On
FIV1	Optional parameter 0 = Off 1 = On Default = 1 = On
FIV3	Optional parameter 0 = Off 1 = On Default = 1 = On
FIV1_FIVC	Optional parameter 0 = Off 1 = On Default = 1 = On
FIV3_FIVC	Optional parameter 0 = Off 1 = On Default = 1 = On
PIFR	Optional parameter 0 = Off 1 = On Default = 1 = On
FIF50	Optional parameter 0 = Off 1 = On Default = 1 = On
FIF25_75	Optional parameter 0 = Off 1 = On Default = 1 = On
FEV6	Optional parameter 0 = Off 1 = On Default = 1 = On
FIF2_1_2	Optional parameter 0 = Off 1 = On Default = 1 = On
FVC_FIVC	Optional parameter 0 = Off 1 = On Default = 1 = On
EXTVOL	Optional parameter 0 = Off 1 = On Default = 1 = On
MTV	Optional parameter 0 = Off 1 = On Default = 1 = On
RR	Optional parameter 0 = Off 1 = On Default = 1 = On
EKGCardSerialNumber	6 character string representing EKG serial number
EKGCardProductID	8-10 characters representing the EKG product ID
CardioViewPath	String representing the path to the cardioview application This string is in "short path" format, and ends with cv3000.exe. The default is: C:\PROGRA~1\QRS DIA~1\OFFICE~1\cv3000.exe
LastMouthpiece	String contains the last mouthpiece used.
LastPatient	String contains the last patient for Spirometry
FlowVolumeGraphDisplay	This entry determines which graph shows on the screen. 0 = Volume/time 1 = Flow/Volume default = 1 = Flow/Volume