



User Manual

DCM ANONYMIZER 2.1.1

A DVTK based tool

Document version 1.1
May 12 ,2007

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1 Introduction

1.1 Revision History

Version	Date	Description
1.7.1	May 12 , 2007	First version of this document, describing the functionality of version 2.1.1.

1.2 General

DCM Anonymizer is a GUI based application used to anonymize the Clinical data. It is targeted toward creating a special purpose, de-identified version of an already-existing Data Set. It is not intended to replace the original SOP Instance from which the de-identified SOP Instance is created, nor is it intended to act as the primary representation of clinical Data Sets in image archives. The de-identified SOP Instances are useful, for example, in creating teaching or research files, where the identity of the patient should be protected, but still be accessible to authorized personnel.

An Application may claim conformance to the Basic Application Level Confidentiality Profile as a deidentifier if it protects *all* Attributes that might be used by unauthorized entities to identify the patient.

This application has the capability to:

- Anonymize the DCM File by a windows application.
- Anonymize the DCM Files in a mentioned directory a windows application
- Display the results of a anonymized files in a compare table , showing the changes.
- Display the overview of the anonymized files in a directory and provide links for the individual anonymized files.
- Anonymize DCM File and directory using a command line utility

1.3 System Requirements

1.3.1 Operating system

The following operating systems are supported:

- Windows NT 4 SP6a
- Windows 2000 Professional
- Windows XP Professional



1.3.2 Software requirements

The DCM Analyzer tool requires the installation of the software packages:

- Microsoft .NET framework 1.1

Both packages are included in the installer package of DCM Anonymizer.

See: <http://www.dvtk.org> for new versions and features.



2 Software installation

The software installation procedure of the DCM Anonymizer tool consists of the following steps:

- installation of the Microsoft .NET Framework R1.1
- installation of the DCM Anonymizer tool .
-

All the steps of the installation process will be controlled by the DCM Anonymizer installer package. During the installation process, the installer will check if the Microsoft .NET Framework R1.1 is already installed on the system. If present, this step of the installation process is be skipped.

Important: before starting with the DCM Anonymizer tool installation, remove any previous installed version of the DCM Anonymizer tool.

Use windows “Add or Remove Programs” to remove the program.

2.1 Installation of Microsoft .NET Framework R 1.1

Download or copy the file DCM Anonymizer.zip to a temp directory on the PC.

Double click (left mouse button) on the DCM Anonymizer.zip and extract the file DCM Anonymizer.exe to the temp directory.

Start the installation procedure by double clicking with the left mouse button on the file DCM Anonymizer.exe.

In the window “ Microsoft .NET Framework 1.1 setup” select “ I agree” to accept the license agreement. Press “install” to start the installation process. At the end of the installation procedure press “OK”

The Microsoft .NET Framework R1.1 software is installed.

2.2 Installation of the DCM Anonymizer software.

After the .NET Framework software is installed, the installer package continues with the installation of the DCM Anonymizer software.

Follow the instruction in the installer window and accept the license agreement.

After the button “install” is pressed, the installation will start. At the end, press the “Finish “ button. The DCM Anonymizer package is installed.

In windows “All programs” there is an entry created “DVTk”. When selecting DVTk, a submenu with all installed DVTk applications will be opened. From this submenu the DCM Anonymizer tool can be started.

3 Anonymization

3.1 Types of anonymization :

Basic Anonymization : Anonymizing a file or Directory by de-identifying basic attributes (as defined by testers or users)

Complete Anonymization: Anonymizing a file or Directory by de-identifying complete attributes as defined by Dicom Standard.

Anonymize the Various attributes, which are required to anonymize to maintain the Confidentiality.

3.2 Table of attributes to be anonymized :

The Table Below Mentions the Attributes which needs to be de-identified for basic Anonymization .

The following attributes are anonymized:

Attribute Name	Tag	DICO M VR	Default value
Accession Number	(0008,0050)	SH	Generate new
Institution Name	(0008,0080)	LO	Make Empty
Institution Address	(0008,0081)	ST	Make Empty
Referring Physician's Name	(0008,0090)	PN	Make Empty
Referring Physician's Address	(0008,0092)	ST	Make Empty
Referring Physician's Telephone Numbers	(0008,0094)	SH	Make Empty
Station Name	(0008,1010)	SH	Make Empty
Institutional Department Name	(0008,1040)	LO	Make Empty
Physician(s) of Record	(0008,1048)	PN	Make Empty
Performing Physicians' Name	(0008,1050)	PN	Make Empty
Name of Physician(s) Reading Study	(0008,1060)	PN	Make Empty
Operators Name	(0008,1070)	PN	Make Empty
Admitting Diagnoses Description	(0008,1080)	LO	Make Empty
Patient's Name	(0010,0010)	PN	Generate New
Patient ID	(0010,0020)	LO	Generate New
Patient's Birth Time	(0010,0032)	TM	Generate New

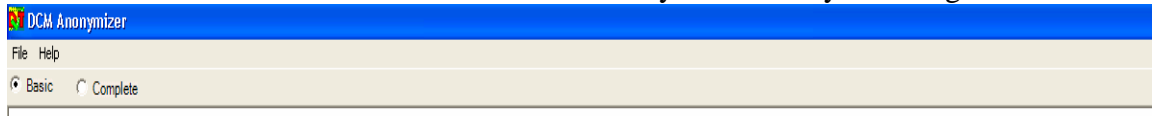
Patient's Sex	(0010,0040)	CS	Make Sex "Other" (O)
Other Patient Ids	(0010,1000)	LO	Make Empty
Other Patient Names	(0010,1001)	PN	Make Empty
Patient's Age	(0010,1010)	AS	Make Empty
Patient's Size	(0010,1020)	DS	Make Empty
Patient's Weight	(0010,1030)	DS	Make Empty
Medical Record Locator	(0010,1090)	LO	Make Empty
Ethnic Group	(0010,2160)	SH	Make Empty
Occupation	(0010,2180)	SH	Make Empty
Additional Patient's History	(0010,21B0)	LT	Make Empty
Patient Comments	(0010,4000)	LT	Make Empty
Device Serial Number	(0018,1000)	LO	Make Empty
Request Attributes Sequence	(0040,0275)	SQ	Make Empty
Storage Media File-set UID	(0088,0140)	UI	Make Empty

The additional attributes that are anonymized by doing complete anonymization as defined by DICOM.

Attribute Name	Tag	DICO M VR	MIP Default value
Instance Creator UID	(0008,0014)	UI	Make Empty
SOP Instance UID	(0008,0018)	UI	Generate new (Repair Job for the old references)
Study Description	(0008,1030)	LO	Make Empty
Series Description	(0008,103E)	LO	Make Empty
Referenced SOP Instance UID	(0008,1155)	UI	Repair with the newly generated SOPInstanceUID within the Scope of the Job.
Derivation Description	(0008,2111)	ST	Make Empty
Patient's Birth Date	(0010,0030)	DA	Generate New
Protocol Name	(0018,1030)	LO	Make Empty
Study Instance UID	(0020,000D)	UI	Generate
Series Instance UID	(0020,000E)	UI	Generate (Repair Job for the old references)
Study ID	(0020,0010)	SH	Make Empty
Frame of Reference UID	(0020,0052)	UI	Repair
Synchronization Frame of Reference UID	(0020,0200)	UI	Repair
Image Comments	(0020,4000)	LT	Make Empty
UID	(0040,A124)	UI	Ignore
Content Sequence	(0040,A730)	SQ	Ignore
Referenced Frame of Reference UID	(3006,0024)	UI	Ignore
Related Frame of Reference UID	(3006,00C2)	UI	Ignore

There is an option provided in the UI and Cmd versions to select whether basic or complete anonymization.

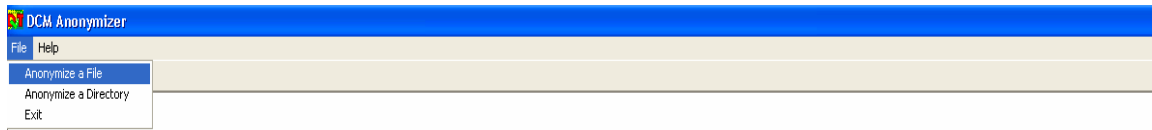
In the UI the user can choose to do one of the anonymizations by selecting a radio button.



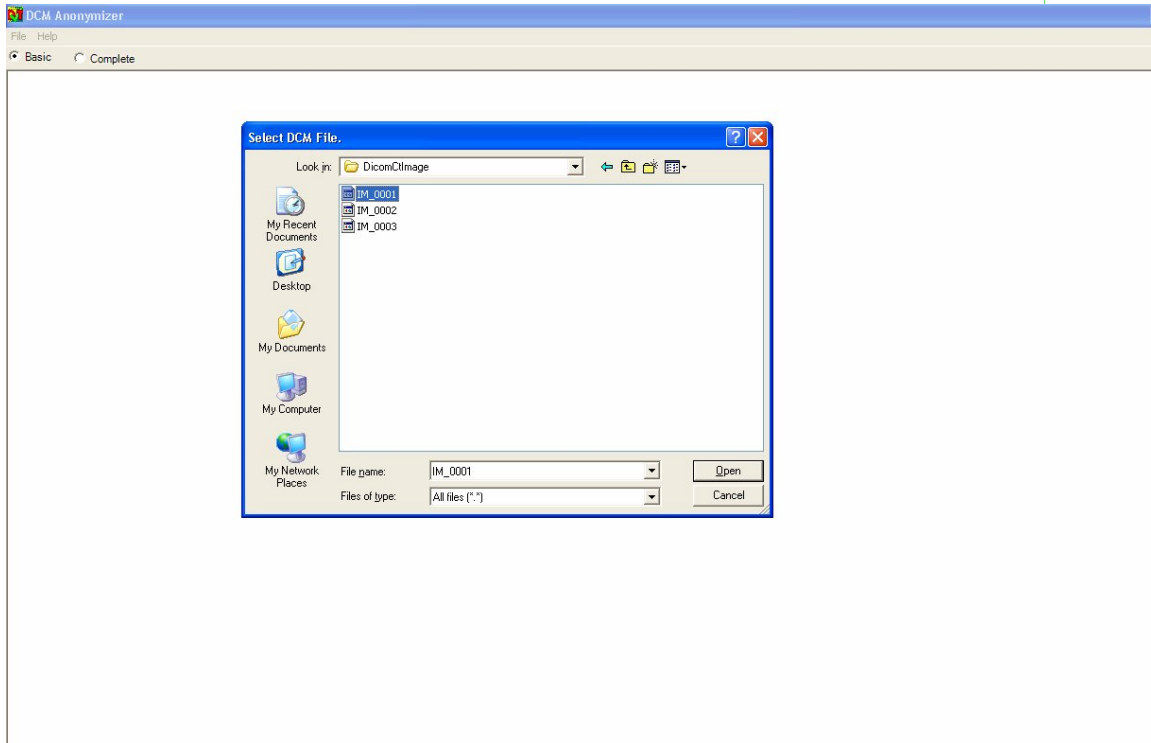
4 Anonymization by User Interface

4.1 Anonymize a File

The UI has a “menu” bar, with an option of File.
Inside File there is an option of “Anonymize a File”



Once the user clicks it , the File Dialog for the to be anonymized is Opened.



In a similar way a File Dialog for the save is opened.

One user provides both the information.

The results are shown in the form a table with the comparison between the anonymized File and the original File.

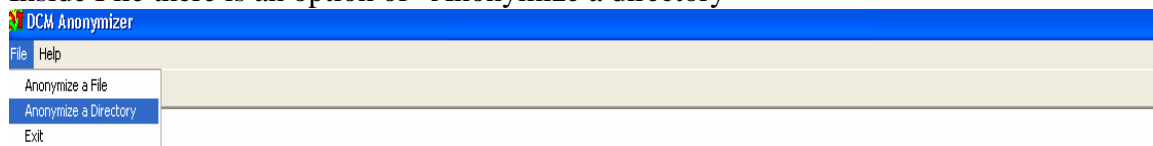
DataSet compare results						
Common info			Ref Dataset		Src Dataset	
Tag	Name	Pr VR	Values	Pr VR	Values	
(0008,0005)	"Specific Character Set"	+ CS	"ISO_IR 100"	+ CS	"ISO_IR 100"	
(0008,0008)	"Image Type"	+ CS	"ORIGINAL", "PRIMARY", "M_FFE", "M", "FFE"	+ CS	"ORIGINAL", "PRIMARY", "M_FFE", "M", "FFE"	
(0008,0012)	"Instance Creation Date"	+ DA	"20051222"	+ DA	"20051222"	
(0008,0013)	"Instance Creation Time"	+ TM	"133239"	+ TM	"133239"	
(0008,0014)	"Instance Creator UID"	+ UI	"1.3.46.670589.11.1.5"	+ UI	"1.3.46.670589.11.1.5"	
(0008,0016)	"SOP Class UID"	+ UI	"1.2.840.10008.5.1.4.1.1.4"	+ UI	"1.2.840.10008.5.1.4.1.1.4"	
(0008,0018)	"SOP Instance UID"	+ UI	"1.3.46.670589.11.0.0.11.4.2.0.1.5.2628.2005110911241100002"	+ UI	"1.3.46.670589.11.0.0.11.4.2.0.1.5.2628.2005110911241100002"	
(0008,0020)	"Study Date"	+ DA	"20051109"	+ DA	"20051109"	
(0008,0021)	"Series Date"	+ DA	"20050513"	+ DA	"20050513"	
(0008,0022)	"Acquisition Date"	+ DA	"20050513"	+ DA	"20050513"	
(0008,0023)	"Content Date"	+ DA	"20050513"	+ DA	"20050513"	
(0008,0030)	"Study Time"	+ TM	"112128"	+ TM	"112128"	
(0008,0031)	"Series Time"	+ TM	"111338.06"	+ TM	"111338.06"	
(0008,0032)	"Acquisition Time"	+ TM	"111338.06"	+ TM	"111338.06"	
(0008,0033)	"Content Time"	+ TM	"111338.06"	+ TM	"111338.06"	
(0008,0050)	"Accession Number"	+ SH	"A012ans"	+ SH	"A012ans"	
(0008,0060)	"Modality"	+ CS	"MR"	+ CS	"MR"	
(0008,0070)	"Manufacturer"	+ LO	"Philips Medical Systems"	+ LO	"Philips Medical Systems"	
(0008,0080)	"Institution Name"	+ LO	"OTM11A"	+ LO	"OTM11A"	
(0008,0081)	"Institution Address"	+ ST	"Veenplas 4-C"	+ ST	"Veenplas 4-C"	
(0008,0090)	"Referring Physician's Name"	+ PN	"Jde"	+ PN	"Jde"	
(0008,0092)	"Referring Physician's Address"	+ ST	"Dorpstraat 2"	+ ST	"Dorpstraat 2"	
(0008,0094)	"Referring Physician's Telephone Numbers"	+ SH	"0647696841"	+ SH	"0647696841"	
(0008,1010)	"Station Name"	+ SH	"MOTM11A"	+ SH	"MOTM11A"	
(0008,1030)	"Study Description"	+ LO	"ExÃcm name"	+ LO	"ExÃcm name"	
(0008,103E)	"Series Description"	+ LO	"Archiving RFOV 50%"	+ LO	"Archiving RFOV 50%"	
(0008,1040)	"Institutional Department Name"	+ LO	"MR-TS"	+ LO	"MR-TS"	
(0008,1048)	"Physician(s) of Record"	+ PN	"Jerome"	+ PN	"Jerome"	
(0008,1050)	"Performing Physician's Name"	+ PN	"Ecces"	+ PN	"Ecces"	
(0008,1060)	"Name of Physician(s) Reading Study"	+ PN	"Dr. Jerome"	+ PN	"Dr. Jerome"	

4.2 Anonymize a Directory

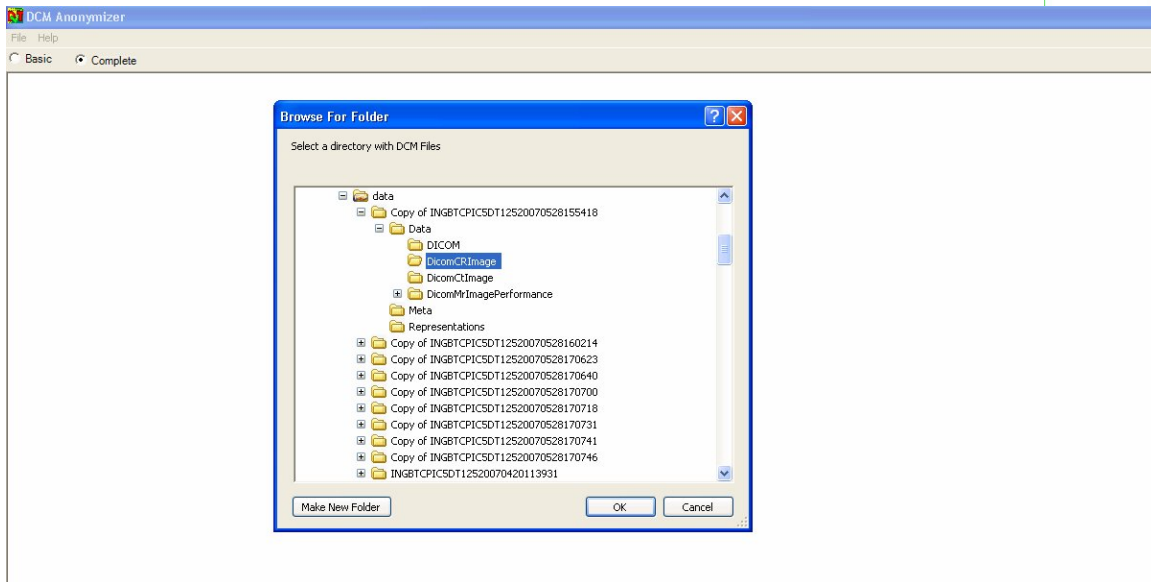
In this feature the user is asked to select a directory , and the result is all the Dcm files present in it are anonymized and saved in the same directory.

The UI has a “menu” bar, with an option of File.

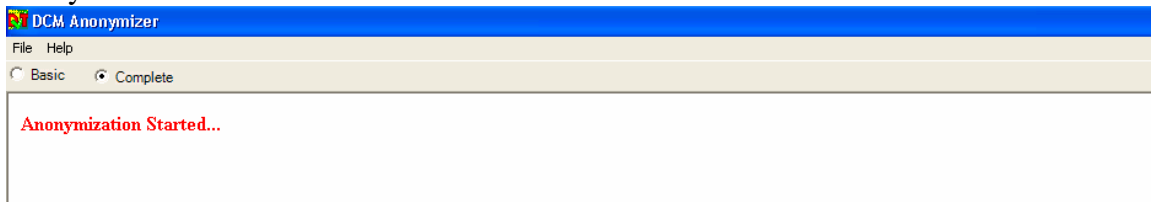
Inside File there is an option of “Anonymize a directory”



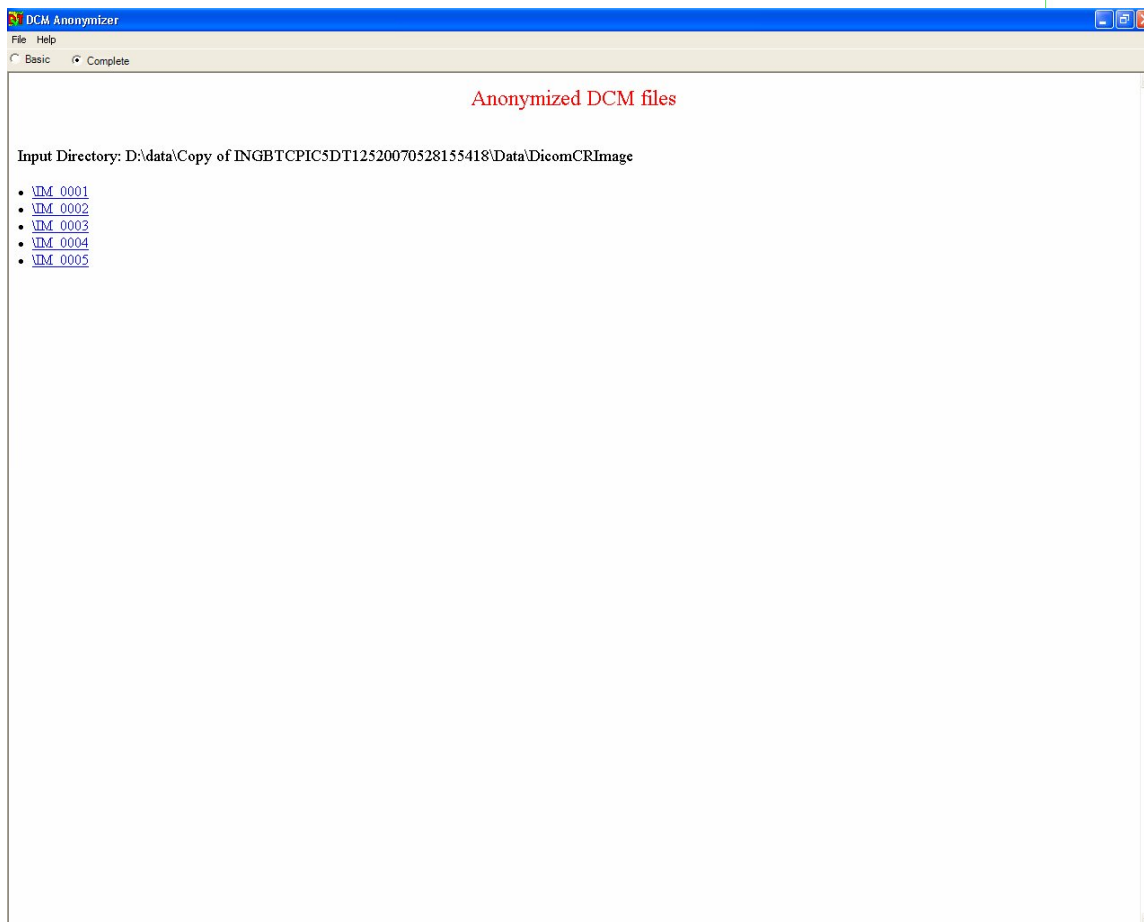
Once the user clicks it , the File Dialog for the to be anonymized is Opened.



Once the user selects the directory a screen is shown giving an indication that anonymization has started.



Once the Anonymization is completed the user can see an overview of the results.



For the details of the specific image user can click on the link of that particular image.

DCM Anonymizer

File Help

Basic Complete

[Home](#)

Common info		Ref Dataset		Src Dataset	
Tag	Name	Pr	VR	Pr	VR
(0008,0000)	"Group 0008 Length"	+	UL	+	UL
(0008,0005)	"Specific Character Set"	+	CS	+	CS
(0008,0008)	"Image Type"	+	CS	+	CS
(0008,0016)	"SOP Class UID"	+	UI	+	UI
(0008,0018)	"SOP Instance UID"	+	UI	+	UI
(0008,0020)	"Study Date"	+	DA	+	DA
(0008,0021)	"Series Date"	+	DA	+	DA
(0008,0022)	"Acquisition Date"	+	DA	+	DA
(0008,0023)	"Content Date"	+	DA	+	DA
(0008,0030)	"Study Time"	+	TM	+	TM
(0008,0031)	"Series Time"	+	TM	+	TM
(0008,0032)	"Acquisition Time"	+	TM	+	TM
(0008,0033)	"Content Time"	+	TM	+	TM
(0008,0050)	"Accession Number"	+	SH	+	SH
(0008,0060)	"Modality"	+	CS	+	CS
(0008,0070)	"Manufacturer"	+	LO	+	LO
(0008,0080)	"Institution Name"	+	LO	+	LO
(0008,0090)	"Referring Physician's Name"	+	PN	+	PN
(0008,1010)	"Station Name"	+	SH	+	SH
(0008,1030)	"Study Description"	+	LO	+	LO
(0008,1050)	"Performing Physician's Name"	+	PN	+	PN
(0008,1090)	"Manufacturer's Model Name"	+	LO	+	LO
(0008,1111)	"Referenced Study Component Sequence"	+	SQ	+	SQ
>BEGIN ITEM	Item 1	+		+	
>(0008,0000)	"Group 0008 Length"	+	UL	+	UL
>(0008,1150)	"Referenced SOP Class UID"	+	UI	+	UI
>(0008,1155)	"Referenced SOP Instance UID"	+	UI	+	UI
>END ITEM	Item 1	+		+	

On each Individual result File an option of [Home](#) is provided to return to the main page.

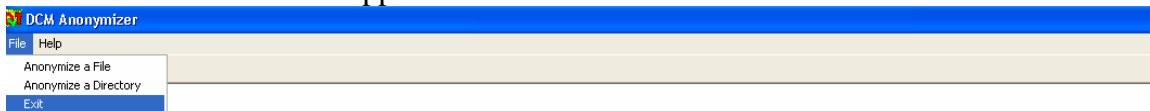
Other menu options are the :

About us : It tell about the version Number of the product.

User Guide : it is a link to the user manual.



Exit Button : It closes the application.



5 Anonymization by Command Line Version

Command Line version has the same features as UI , except the results are not displayed in the same way.

In this the Anonymized files are overwritten .

Usage:

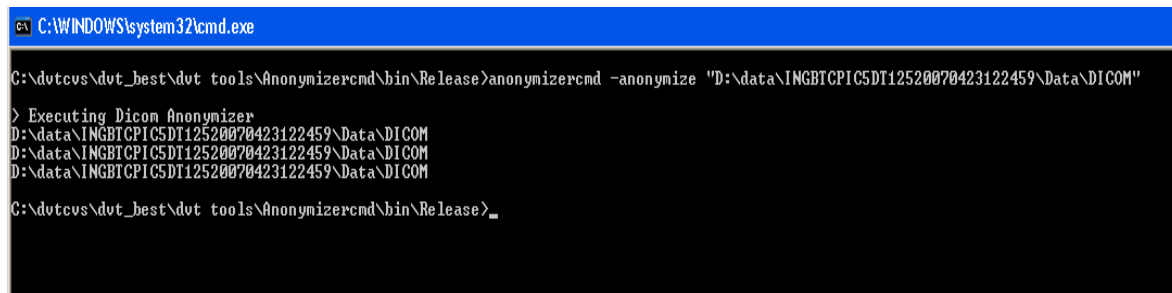
```

AnonymizerCmd -h
    Provides the Help File.
AnonymizerCmd -anonymize
    <InputFileName or Input Directory>
or
AnonymizerCmd -completeanonymize
    <InputFileName or Input Directory>;

```

5.1 Anonymize a file and directory via basic anonymization

To do a basic anonymization of a File or directory the user has to use the option of “anonymize”



```

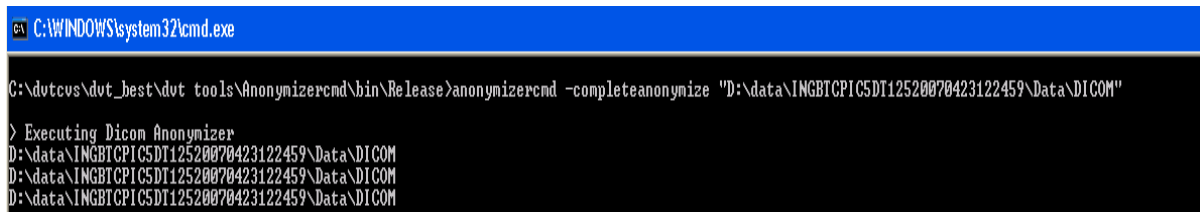
C:\WINDOWS\system32\cmd.exe

C:\dvtcvs\dvt_best\dvt tools\Anonymizercmd\bin\Release>anonymizercmd -anonymize "D:\data\INGBTCPI5DT12520070423122459\Data\DICOM"
> Executing Dicom Anonymizer
D:\data\INGBTCPI5DT12520070423122459\Data\DICOM
D:\data\INGBTCPI5DT12520070423122459\Data\DICOM
D:\data\INGBTCPI5DT12520070423122459\Data\DICOM
C:\dvtcvs\dvt_best\dvt tools\Anonymizercmd\bin\Release>_

```

5.2 Anonymize a file and directory via complete anonymization

To do a complete anonymization of a File or directory the user has to use the option of “completeanonymize”



```

C:\WINDOWS\system32\cmd.exe

C:\dvtcvs\dvt_best\dvt tools\Anonymizercmd\bin\Release>anonymizercmd -completeanonymize "D:\data\INGBTCPI5DT12520070423122459\Data\DICOM"
> Executing Dicom Anonymizer
D:\data\INGBTCPI5DT12520070423122459\Data\DICOM
D:\data\INGBTCPI5DT12520070423122459\Data\DICOM
D:\data\INGBTCPI5DT12520070423122459\Data\DICOM

```