

Dose data extractor

Please note that this tool requires patient identifiable information as an input to allow linking of all the exposures for a single individual. However, no patient identifiable information is stored and patient identifiable information is anonymised in the output using a one way salted SHA-256 algorithm.

There are several options available for using this tool:

Option 1

- 1) Download DICOM images from a mammography system
 - a. For tomographic data you should only download the synthetic 2D images (projection images do not contain the necessary information and the reconstructed slabs are too large to transfer in a practical time)
 - b. When purchasing a hard drive make sure it has fast write times as well as fast read times. Make sure it is connected to a USB 3.0 port.
- 2) Double click the tool to run
- 3) Drag and drop the folder containing the images you downloaded onto the tool window
 - a. There is no need to sort the images or move them from subfolders first.
- 4) Save the results

Option 2

- 1) Export mammographic data from a dose management system
- 2) Save the exported data in .csv format (the first row should give the column names)
- 3) Prepare the data
 - a. Add a column called "IMAGE INTENT TYPE"
 - b. Go through the data and label all the tomo acquisitions in the new column as "TOMO"; all the contrast enhanced images as LOW_ENERGY, HIGH_ENERGY, or RECOMBINED (as appropriate); all the 2D as 2D; all the synthetic 2D as GENERATED_2D; all the stereo as STEREO
 - c. If your dose management system gives the projections individually label them as TOMO_PROJ
 - d. Save the changes
- 4) Double click the tool to run
- 5) Drag and drop the .csv file onto the tool
- 6) Save the results

You can try running the tool without step 3 and it will try to guess exposure types from the protocol name and study description but you will need to check if this is successful.

Option 3

- 1) Conduct your audit in your normal fashion (e.g. manually)
- 2) Create a .csv file with your audit data
 - a. The first row should give the column names. Table 1 gives recommended column headers to use each field and indicates the minimum fields required (additional fields are welcomed and will greatly increase the scope for analysis)
- 3) Double click the tool to run
- 4) Drag and drop the .csv file onto the tool
- 5) Save the results

Field names for options 2 and 3

There are a wide range of dose management tools available and so the tool may struggle to identify some of the columns in the output from your system. If you have any problems please let us know (rsc-tr.NCCPM@nhs.net) so that we can add further search parameters. In the meantime, you can try renaming the affected columns in your .csv file before running the tool. Table 1 provides a list of common parameters and the recommend column names.

Table 1: Fields and column names for extraction (shaded fields are required)

Column content	Suggested column name
Patient ID	PATIENT ID
Patient age at exam (years)*	AGE (YEARS)
Patient date of birth*	D.O.B
Acquisition date*	ACQUISITION DATE
The view code e.g. RCC, LMLO etc	VIEW CODE
Anode material	ANODE MATERIAL
Filter material	FILTER MATERIAL
The peak tube voltage	KVP
mAs	EXPOSURE (MAS)
Compressed breast thickness (mm)	CBT (MM)
The name of the hospital or centre at which the exposure occurred	CENTRE
The manufacturer of the X-ray system	X-RAY MAKE
The model of the X-ray equipment	MODEL NAME
The protocol name	PROTOCOL NAME
The study description	STUDY DESCRIPTION
The series name	SERIES NAME
The X-ray tube current in mA	MA
Beam on time in ms	BEAM ON TIME MS
Average glandular dose (mGy) (As displayed by X-ray set)	AGD (MGY)
Entrance dose (mGy) (As displayed by X-ray set)	ESD (MGY)
Exposure control mode e.g. AEC or manual	CONTROL MODE
Compression force (N)	FORCE
Which grid was used	GRID
Laterality	LATERALITY
Accession number	ACCESSION NUMBER
Study time	STUDY TIME
Study date	STUDY DATE
Series date	SERIES DATE
Image date	IMAGE DATE
Half value layer (mmAl equivalent)	HVL
Software version	SOFTWARE VERSION
Exposure status (e.g. SUCCESS/ABORTED)	EXPOSURE STATUS
Detector dose indicator	DDI
Compression paddle description	PADDLE DESCRIPTION
Image intent type	IMAGE INTENT TYPE
Exposure control mode description (e.g. AEC settings/mode)	AEC DESC
Detector serial number	DETECTOR SERIAL
Station name	STATION NAME
Magnification	MAG

*Patient date of birth and acquisition date are only required if patient age is not provided