

SIMPLANT[®]

CBCT to SIMPLANT[®]

- Export protocol for Newtom 3G



This protocol gives a detailed description of the steps to be followed for exporting your NewTom 3G scan images, with NNT software V2.11 or above, in DICOM format and for importing these in SIMPLANT. This protocol aims at an optimal visualization of your images in SIMPLANT but does not guarantee easy segmentation.

Part 1: NNT software V2.11 or above

1. Scan the Patient (as provided by NewTom)

a. Select the FOV:

For implantology, 6" FOV (if there is no metal in the mouth, like implants and large amalgam fillings) or 9" FOV are recommended.

b. Positioning the patient:

Position the patient so that he/she is properly symmetrical and the volume of interest is centred in the Field of View. This is achieved by manually reposition the patient head and checking via scout flash images.

Note: When a scan prosthesis is applied during the scan make sure that the prosthesis is separated from the opposing arch by a radiologically-transparent bite-block.

c. Taking the scan and process the dataset

Taking the scan will result into a dataset of "Raw" images.

i. Primary reconstruction

Perform primary reconstruction of the "Raw" images dataset into a "Volumetric" dataset, by clicking the "Primary reconstruction" button. You can limit the total height to which reconstruction is performed. Select (via the Setup button):

- with 6" FOV, High Resolution, Large Field;
- with 9" FOV, High Resolution, Small Field (*).

This results into a slice thickness of the reconstructed volumetric dataset of 0.2 mm and 0.3 mm respectively.

(Note *: it is also possible to select High-High Resolution, for a theoretically slightly-improved final image resolution, but this would considerably slow down the process and increase file size. Such trade-off is not recommended).

ii. Creating a Study

Create a Study from the Volumetric dataset. By creating the study, you can crop unnecessary portions and limit to the volume of interest. In the process, the patient's head orientation can also be finely adjusted for symmetry and orthogonality. Select ISO (isometric voxel), or a slice thickness of 0.3 mm (6" FOV) or 0.4 mm (9" FOV), that should normally result into approximately 300 slices (depending upon the cropped volume height).

The Primary (=Volumetric) reconstruction and the Study reconstruction can also be combined in a single command with the button "Primary & Study reconstruction". In this case, however, it will not be possible to adjust (by software) the resulting head inclination in the Study.

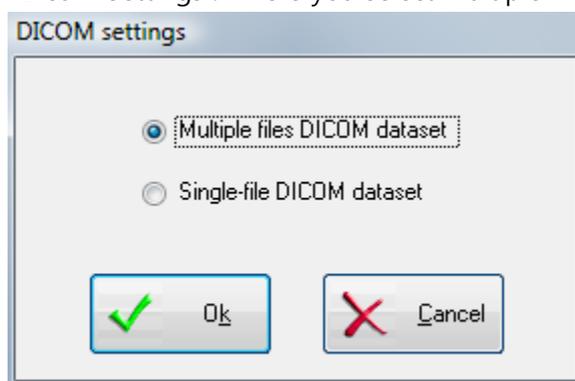
iii. Scanning the prosthesis

When the prosthesis has to be scanned separately, select the same FOV and settings as for the patient scan, and perform the scan by selecting the "denture" mode. Then proceed in the same way and the same settings as for a patient scan.

2. Exporting Dicom to a folder

a. Setting up "DICOM settings" in NNT

Setting your dicom settings can be achieved by selecting in the File menu - "Save in Dicom Format" - "Sequence of Axial images" - "Dicom Settings". Here you select multiple files.



This setting needs to be configured only once and will remain until you configure it differently.

b. Exporting Dicom

The data has to be exported as a "Sequence of Axial Images ...", and you can choose either "Free Matrix" or "512x512 Matrix", the latter is preferred but is not indispensable. You will be prompted to select the destination file path.

Exporting in DICOM format can be done by selecting in the FILE menu - "Save in Dicom Format" - "Sequence of Axial images" - and then choose the matrix you desire.

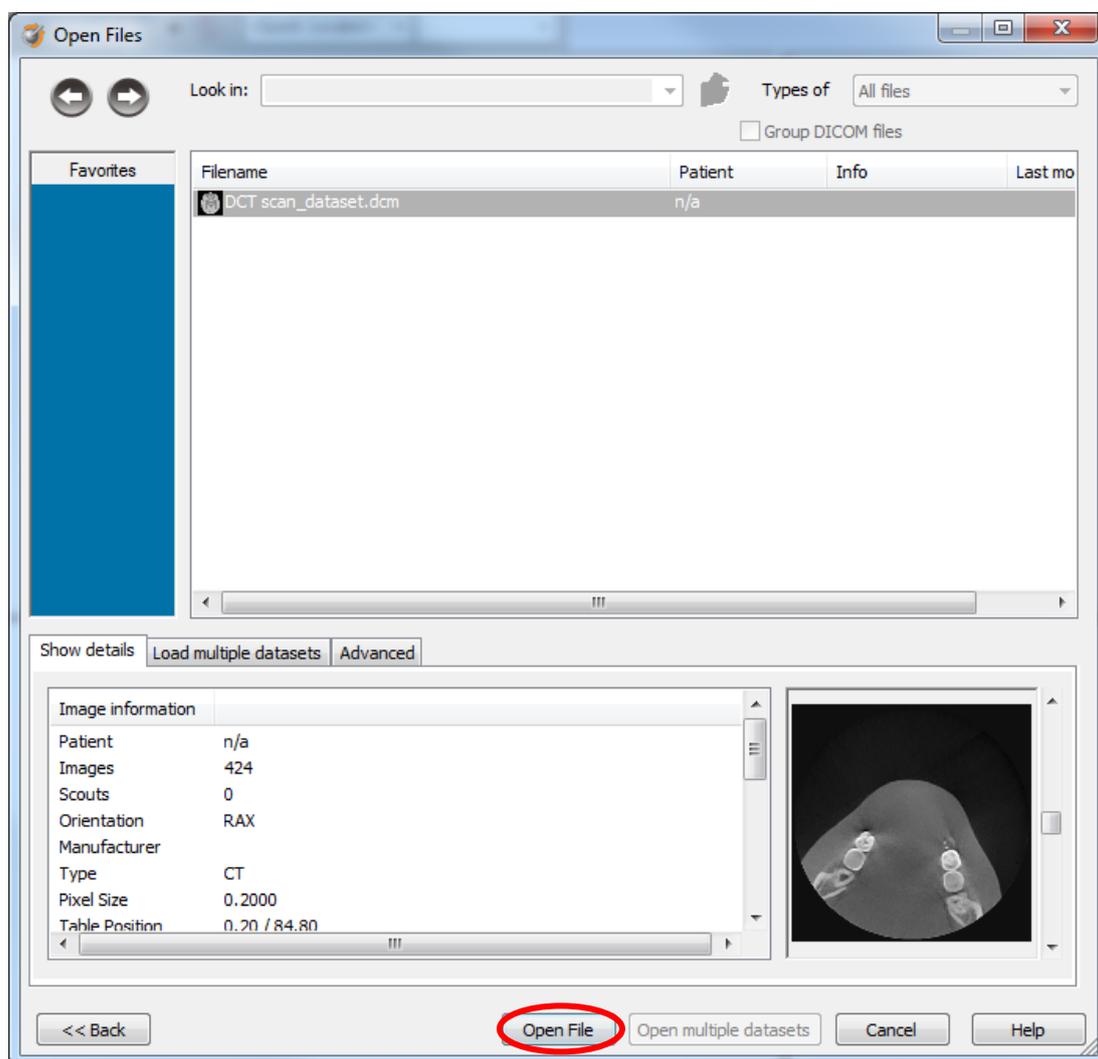
You will be prompted to selecting the destination folder.

Part 2: SIMPLANT[®] software

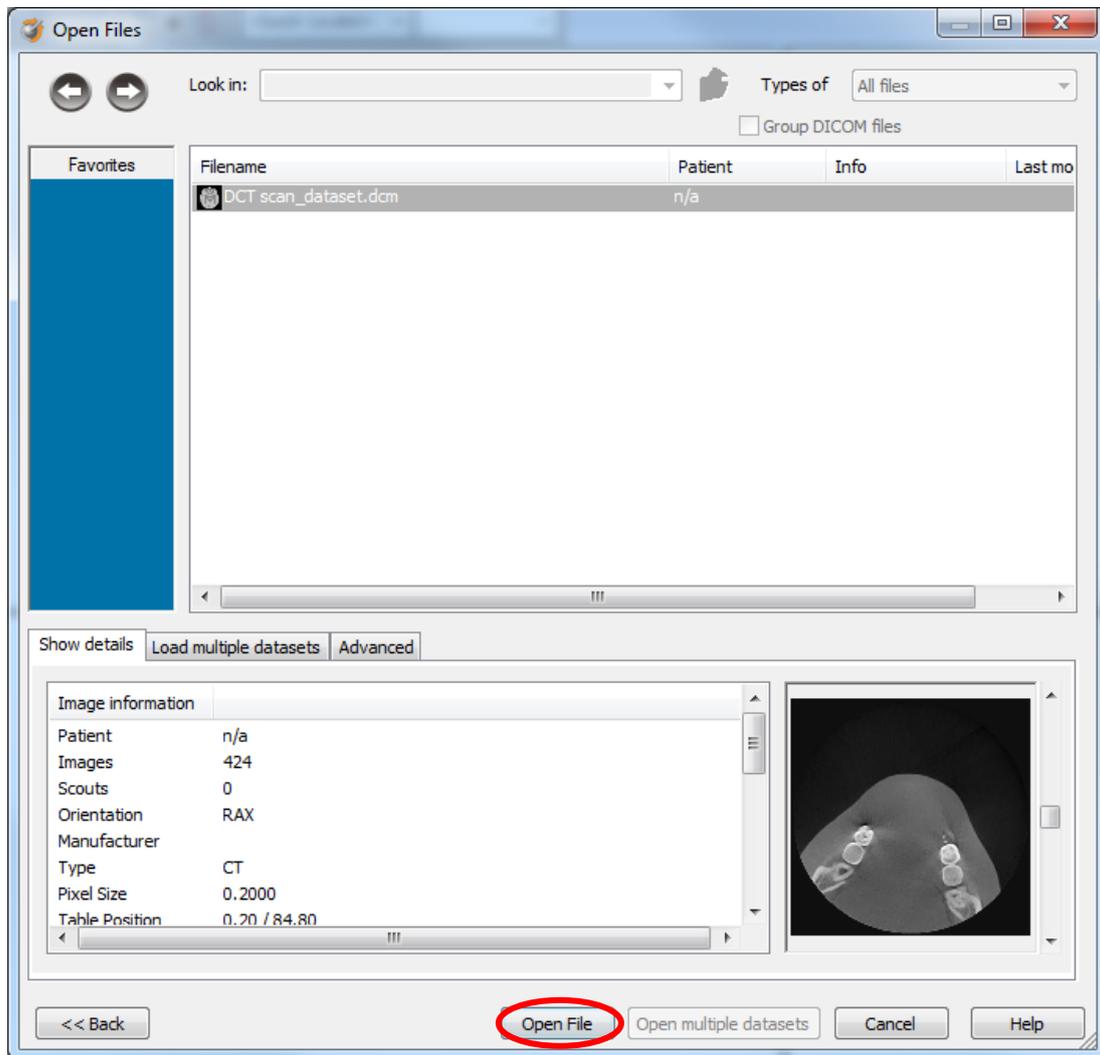
1. Open SIMPLANT Pro and click 'Open Files' in the Task Panel.



2. In the 'Open Files' dialog box browse to the folder where you saved the dicom images and click 'Next'.

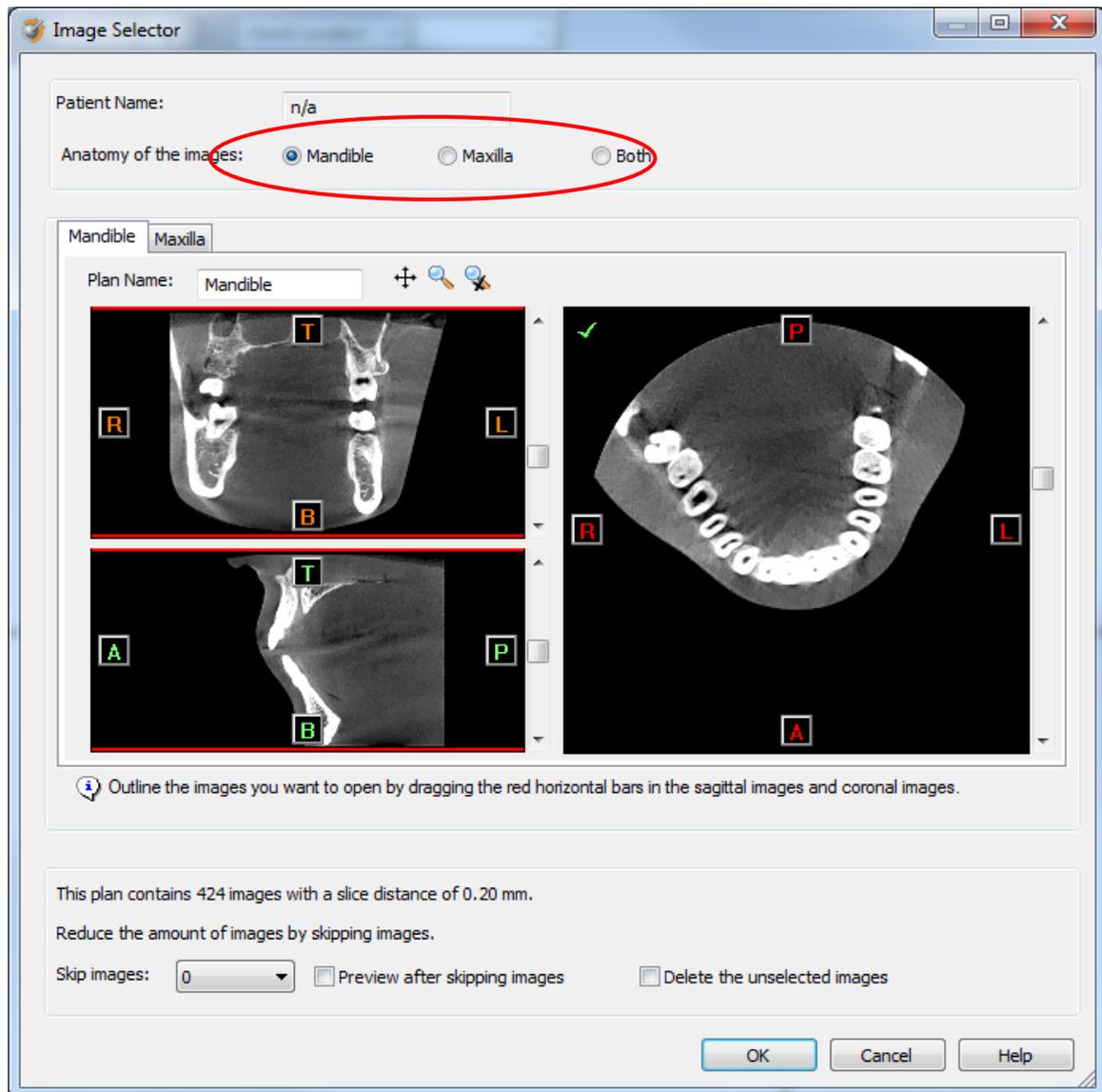


3. By clicking 'next', the data set becomes grouped. The image information and preview of the axial images can already be checked. Select the data set and click 'Open File'.

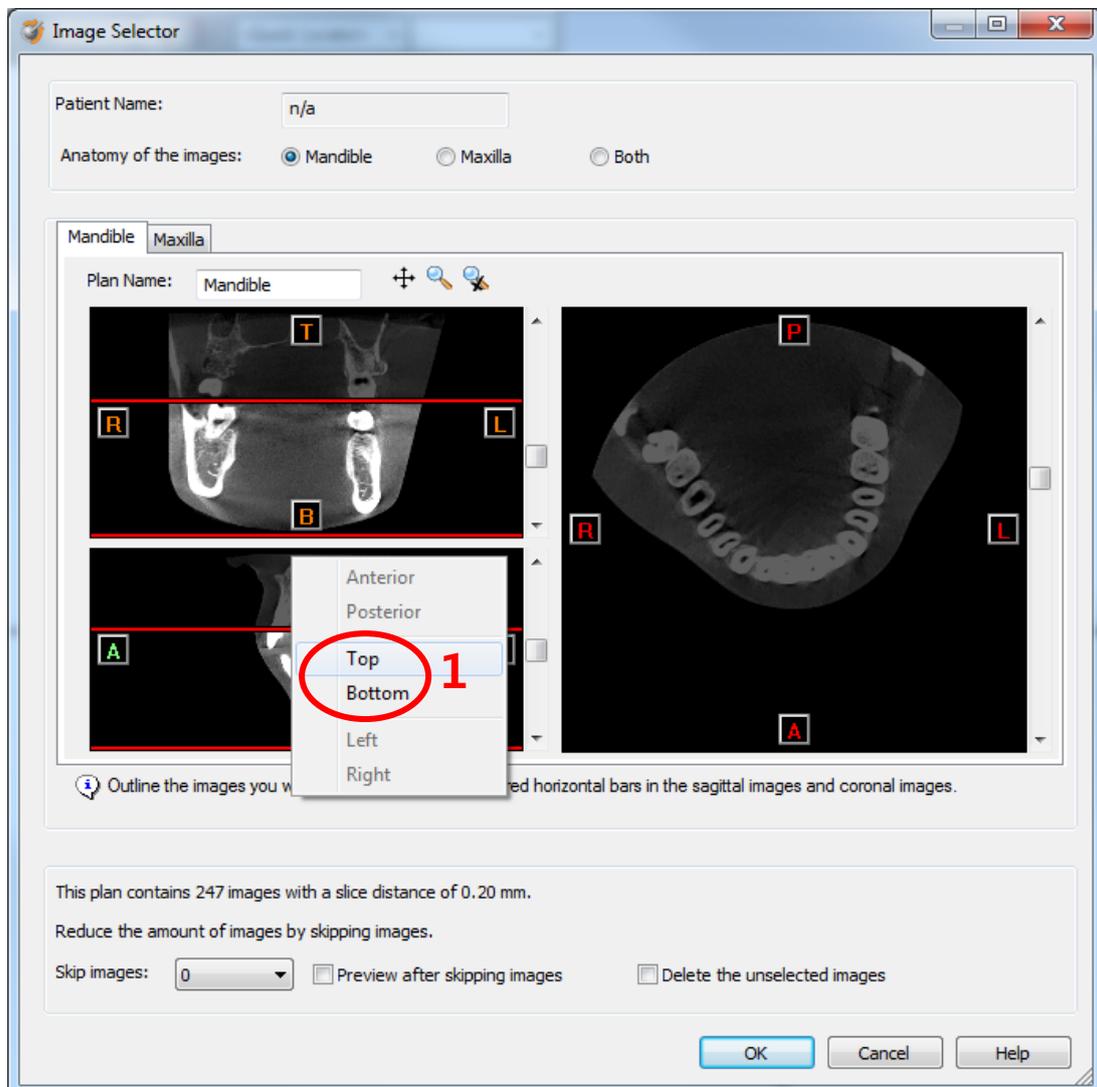


REMARK: Activating the checkbox 'Group dicom files' in the previous step (step 10) will in the future automatically group your dicom files and show you the preview.

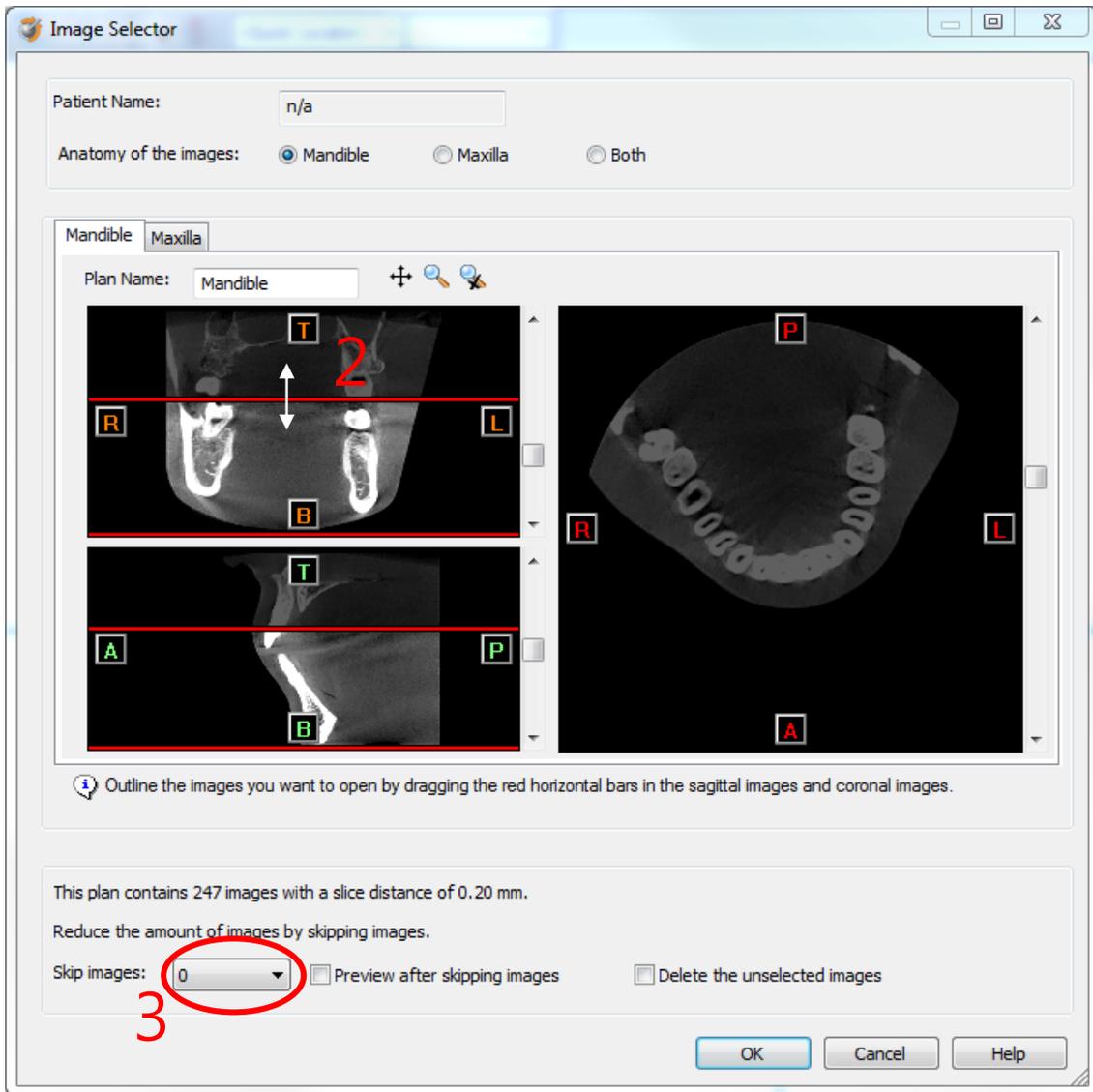
4. The Image Selector dialog is prompted to the user. In this dialog, the user selects the corresponding anatomy of the images, and selects the required images for importing.



If one or more orientation parameters were not exported, review if the orientation that was set is correct. The orientation can be adjusted by selecting the correct orientation parameter in the dropdown (1).



In order to reduce software load, you can REMOVE UNNECESSARY IMAGES from the start or the end of the frame set by dragging the red lines in the coronal and sagittal view.(2)



In order to further reduce software load, you can remove axial images by selecting the skipped image count different from 0 (for example: skip images = 1 selects every second image, skip images= 2 selects every 3rd image) (3).

When ready, press OK and the software imports the selected frame set to SIMPLANT.

5. You are now ready to start your planning.

Part 3: Exporting to DICOM and automatically import into SIMPLANT[®], versions prior to SIMPLANT[®] Crystal (version 13).

From SIMPLANT Crystal on this functionality is automatically installed and configured with the English version.

This feature can only be configured when SIMPLANT and NNT are installed on the same physical computer and will allow NNT to export the dicom in to the SIMPLANT import module. Therefore there is no need to specify a folder where the DICOM images need to be exported and there is no need to look for that folder in SIMPLANT to import them.

We advice that this feature is installed and configured by a technical person of DENTSPLY Implants or NewTom. The exact steps for configuring this functionality can be found in Appendix A.

1. "Send data to SIMPLANT"

Once this feature is installed and configured you can access it from the NNT software, in the File menu. The preparation of the scan remains the same so please follow steps in Part 1 step 1 as described in the prior chapter.

When you want to export DICOM images you now only need to select "Send data to" in the File menu of NNT and click on SIMPLANT.

SIMPLANT will start and will automatically import the DICOM data. The "image selector" screen as described in Part2 step 4 is shown and from here on you can follow the same procedure to finish the import.

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