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Using **NewTom 3G**, with **NNT software V2.11 or above**, and **Materialise Simplant** for implant planning.

Scanning the Patient

The prosthesis is applied onto the patient's dental arch to be treated, and must be further separated from the opposing arch by a radiologically-transparent bite-block.

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.

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.

Perform the scan. That results into a dataset of "Raw" images.

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).

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.

Export the Study in Dicom format. You must have set your "DICOM settings ..." in NNT to "Multiple files DICOM dataset". Export as "Sequence of Axial Images ...", and you can choose



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either “Free Matrix” or “512x512 Matrix”, the latter is preferred but is not indispensable. You will be prompted to select the destination filepath.

Scanning the prosthesis

Separate scanning of the prosthesis is recommended when the bone is highly spongy i.e. the cortical surfaces are poorly defined.

If the prosthesis has to be scanned also 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.



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Using **NewTom VGi**, with **NNT2.17** software or above, and **Materialise Simplant** for implant planning.

Scanning the Patient

The prosthesis is applied onto the patient's dental arch to be treated, and must be further separated from the opposing arch by a radiologically-transparent bite-block. Note that impression material (silicon-based) and rolls of gauze may not always offer enough radiolucency, and may thus show up in the images.

For implantology, select Zoom (recommended) or HiRes Zoom mode.

(Note: HiRes Zoom will result into datasets 4 times larger (file size) than regular Zoom, and correspondingly longer reconstruction, transmission, and processing times, and slightly more noisy images, but with a slightly better spatial resolution.)

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 finely adjusting the motorised chin support and checking via scout flash images.

Perform the scan. That ultimately results into a "Volumetric" dataset, with isometric voxels (0.24 mm from the Zoom scanning, 0.15 mm from HiRes Zoom scanning).

Create a Study from the Volumetric dataset. By creating the study, you can crop portions that you deem unnecessary and limit to the volume of interest. In the process, the patient's head orientation can also be finely re-adjusted for symmetry and orthogonality. Select ISO (isometric voxel) (this is the default). Normally this result into approximately 300 slices for Zoom scans and 500 slices for HiRes Zoom scans (depending upon the cropped volume height).

Export the Study in Dicom format. You must have set your "DICOM settings ..." in NNT to "Multiple files DICOM dataset". Export as "Sequence of Axial Images ..." and you can choose either "Free Matrix" or "512x512 Matrix"; "Free Matrix" is recommended if the scan was "HiRes Zoom". You will be prompted to select the destination filepath.

Scanning the prosthesis

Separate scanning of the prosthesis is recommended when the bone is highly spongy i.e. the cortical surfaces are poorly defined.

If the prosthesis has to be scanned also 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.

Note: Users of NewTom VG (not VGi), produced in 2007 and 2008, should contact the manufacturer's Technical Service for deviations from the procedure above.

NewTom