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Z Corporation and Contex Partner FAQ – Mimics Z

1. What is Mimics Z?

Mimics Z is a fully integrated, user-friendly 3D medical image processing and editing software that translates CT or MRI data into rapid prototyping data within minutes. Mimics Z has been developed exclusively for Z Corporation and Contex by Materialise, the creator of Mimics, the leading medical imaging software in the rapid prototyping industry.

2. What is the difference between Mimics and Mimics Z?

Mimics is a medical image processing editing software that is used world-wide to translate CT and MRI images into physical models, CAD, finite element and CFD files. Mimics Z offers a subset of the features in the full-fledged Mimics software and is created solely to easily turn MRI and CT scan images into physical models using Z Corp. and Contex 3D Printers.

3. How is the software obtained and then supported?

- Customer orders 3D Printer from Z Corp./Contex Partner.
- Z Corp./Contex Partner delivers printer as well as information on how to obtain license for Mimics Z directly from Materialise.

4. What is the price?

Please contact your local Z Corp./Contex Partner to obtain pricing information. You can do this by visiting www.zcorp.com or www.contex.com.

5. Can I buy a seat of Mimics Z without buying it with a 3D Printer?

A seat of Mimics Z is only available when bundled with a purchase of a new Z Corp./Contex 3D Printer.

6. What file formats can be imported into Mimics Z and what format is exported for use in Z Corp./Contex 3D Printers?

The file format required for input into Mimics Z is DICOM, the standard for CT and MRI equipment. DICOM stands for Digital Imaging and Communications in Medicine. The file format for export to the Z Corp./Contex printer is .ZPR. .ZPR is the industry standard file format for high definition color 3DP and is supported by the Z Corp./Contex line of 3D Printers and ZEdit.

7. How much training is needed to learn Mimics Z?

The actual training needed to learn the software is only nominal. The software itself contains wizards that guide the user through the entire process of 3D anatomical printing from import of MRI and CT scan files through printing on a Z Corp./Contex 3D Printer. The software serves up guidance at every step, supported by an extensive help function and templates.

8. What is the accuracy of Mimics Z and its physical models?

When talking about accuracy we need to differentiate four sources of inaccuracies:

1. The accuracy and quality of the scan will have an important effect on the quality of the end result. The scan is the source data and the better this source data is, the more accurate your model will be and the easier it will be to select the structures of interest in Mimics. The two parameters that have a big effect on the accuracy of the model are the pixel size and the slice thickness. It is also recommended to scan in the patient with a gantry tilt of 0 degrees.
2. Mimics Z software allows the user to select the structures of interest in the images. This selection process is called segmentation and is a manual process. This means that the accuracy of the segmentation is dependant on the operator of Mimics. The accuracy of the segmentation will be influenced by the level of expertise, the operator has.
3. The algorithms in Mimics Z have been fine-tuned over the last 15 years. They are very accurate and if we assume that the user has done a perfect segmentation, you can expect the 3D model created by Mimics Z to be about 5 times as accurate as the pixel size and slice thickness. So if your dataset has a pixel size of 0.5 mm and a slice thickness of 1 mm, the 3D model in Mimics Z will have an accuracy of approximately 0.1 mm in XY and 0.2 mm in Z.
4. Part accuracy from the ZCorp./Contex 3D Printer are in the range of +/- 1% depending on part geometry.

In general you can say that when an experienced user creates a physical model, the accuracy of the actual model will be better than the resolution of the scan.

9. Is Mimics Z compatible with my scanner, for perhaps reverse engineering?

Mimics Z is fully compatible with the DICOM standard. So every scanner that exports DICOM images can be used together with Mimics Z. The images have to be available on CD, DVD, external storage device, network drive or hard disc. Most reverse engineering scanner data is point cloud data, so Mimics Z would not be well suited for these cases. Also, Mimics Z has a built in set of menus and templates that are specifically designed for medical images. Processing of other data, like mechanical components, even if the scan data was 2D slices, would be cumbersome.

10. Can I create bone models from MRI images?

MRI images are typically not very useful for discerning hard tissues like bone. Since the structures are not visible clearly on the images, it's very difficult to create a nice 3D model of bone from MRI images.

11. Can Mimics Z do an automatic segmentation?

Even though there is no automatic segmentation in Mimics Z, the wizard and different templates in the software guide the user through the whole process.

12. Is there a limit on the resolution of the images that are used?

No, there is no limit on the resolution of the images that are used.

13. Can Mimics Z import datasets with variable slice thickness?

Yes, Mimics Z will import these images and create a project with variable slice thickness so the physical dimensions of the 3D object will be as accurate as with fixed slice thickness projects.

14. What are the minimal requirements for my PC?

Minimal Requirements:

- Intel Pentium II 300 MHz or equivalent
- 128 MB RAM
- Graphics card supporting 1024x768 and 16-bit color with 4 MB RAM
- Non-interlaced 15" color monitor

Recommended Requirements:

- Intel Pentium 4 3,0 GHz or equivalent
- 1 GB RAM
- ATI RADEON or NVIDIA GeForce card with 128 MB RAM
- Non-interlaced 19" color monitor or 17" flat panel monitor
- Resolution of 1280x1024 or higher
- Optical mouse with a scroll wheel

15. Do I need a special video card for Mimics Z?

There is no special video card is needed to run Mimics Z. Any recent gaming card from NVidia or Ati, will be more than fast enough to run Mimics Z. Specialized CAD cards like Nvidia Quadro or Ati FireGL are not recommended.

16. Do I need a separate workstation to use Mimics Z?

There is no need to install Mimics Z on a separate workstation. It can be installed on a general purpose Windows PC.

17. Can I run Mimics Z on my laptop?

Mimics Z can be used without any problem on any recent laptop. Please refer to the minimal and recommended system requirements.

18. Which operating systems are supported by Mimics Z?

Mimics Z only supports Windows XP and Windows 2000.

19. Can Mimics Z run on Windows Emulators?

Mimics Z cannot support any Windows Emulator officially.

A demo version of the software can be obtained by requesting a copy from Materialise. Contact information below:

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