

# LEICA BIOSYSTEMS

## FAQs

### DICOM FOR DIGITAL PATHOLOGY: HOW IT WORKS & WHAT IT MEANS FOR YOUR LAB

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#### What is DICOM file format?

DICOM (Digital Imaging and Communications in Medicine) is a standard for medical image interchange that includes support for transmission and storage of medical image data. A DICOM file is a portion of the DICOM standard which allows DICOM images to be written to a file while maintaining the patient, case, and specimen metadata and without changing the underlying image data.

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### **How is DICOM used?**

It can be used to transfer data from a Picture Archiving and Communication System (PACS) into some other system, produced by any number of vendors who choose to implement that standard, or used to provide access to clinical data without granting that person access to the entire PACS, or to share medical image data with a patient or colleague, or for long-term archival purposes.

### **Why is DICOM important?**

DICOM is an open, vendor-agnostic standard for medical image data. While many vendors participate in the creation of this standard, it is not controlled by any one vendor. As an open standard, it may be implemented by any vendor and enables interoperability between systems.

### **Is there a Universal DICOM file for Digital Pathology?**

The DICOM standard provides a definition for Whole Slide Microscopy Images, commonly referred to as a "Supplement 145 image" (after the DICOM Supplement which initially defined the image) or "Working Group 26 image" (after the DICOM Working Group which produced Supplement 145). As this standard is intended to be usable by manufacturers of both tiling and line scanning systems, as well as different modalities (e.g. oil, fluorescence, brightfield), it provides

vendors multiple ways to produce images that are conformant to the standard, but may not necessarily be compatible with a given vendor's PACS or viewing software.

### **What does the Aperio GT 450 DX product family output?**

The Aperio GT 450 DX outputs images as a series of Whole Slide Microscopy Image objects. As the Aperio GT 450 DX scanner is intended to operate as a networked device, it does so by outputting the images using standard DICOM network transfer protocols. The Aperio GT 450 DX scanner can transfer images directly into a customer PACS, which they can then export from their PACS to access the DICOM files.

### **Can I use Aperio GT 450 DX DICOM images?**

If you are using a PACS capable of receiving and storing Whole Slide Microscopy Images and a viewer capable of presenting the images, then yes. However, not all PACS vendors support Whole Slide Microscopy Images, and due to the size of these images, not all PACS systems that do will do so with acceptable performance.

Similarly, due to the size of the images not all DICOM viewers will be capable of presenting the images correctly or with good performance. And, as with Aperio SVS file format, the Whole Slide Microscopy Images generated by the Aperio GT 450 DX product family consist of thousands of smaller image "tiles,"

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and not all DICOM viewers are capable of handling this type of image.

### **Does Leica Biosystems have a DICOM conformance statement?**

Yes, Leica Biosystems Aperio DICOM Conformance Statement (MAN-0465) is intended to facilitate integration between the Aperio GT 450 DX product family scanners and other DICOM products. It includes detailed information about how the Aperio GT 450 DX produces DICOM files, DICOM

functionality, and how that functionality integrates with other devices that support DICOM features.

### **What are my steps to using DICOM?**

If you are interested in using DICOM images from the Aperio GT 450 DX product family, please contact your local Leica Biosystems sales representative. We will work with you to understand your organization's needs, and how Aperio GT 450 DX DICOM can integrate into your PACS workflow.

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