



Comparison Made Easier

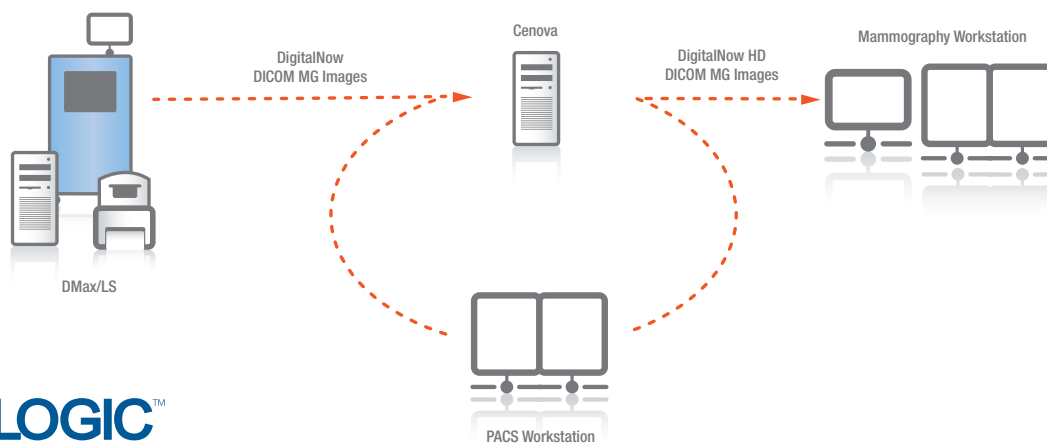
By collaborating with radiologists to understand the demands of reading digital mammograms, Hologic has created R2 DigitalNow HD. This software application enhances digitized prior film mammograms to look more like digital. DigitalNow HD software is used only for comparison purposes and must not be used for primary diagnosis.

DigitalNow HD adapts each image to a selected contrast and tissue intensity that models a digital mammography system. It also embeds a series of Look-Up tables in the image that allow IHE Mammography Image Profile conformant workstations to draw out less evident regions of density within the digitized films. The DigitalNow HD software is applied to digitized screen-film priors and used only for comparison purposes.

What are R2 DigitalNow HD's Advantages?

- **Makes digitized images more closely resemble digital mammograms**
 - Improves the digital mammography reading environment — images are easier to compare
 - Improves radiologist workflow — similar images can be compared more quickly
- **Supports flexible workflow solutions**
 - Automatically processes newly digitized mammograms from R2 DigitalNow systems
 - Automatically processes pre-existent R2 DigitalNow images sent from PACS
- **Flexible image appearance options**
 - User-selected image processing to more closely match a specific digital mammography system or preference for image contrast
 - Embedded Look-Up Tables enable the radiologist to dynamically fine tune the appearance of each digitized image at the workstation during reading
 - Configurable Window Width / Window Center options for different image processing selections on simple DICOM workstations
 - Flexible Image Output size enables the digitized images to be scaled to match FFDM image resolution when the workstation cannot do it automatically

DigitalNow HD Workflow



R2 DigitalNow HD 1.0 Product Specifications

Compatibility for R2 DigitalNow HD

Required Platform: R2 Cenova Server 1.3

Image Processing Options

Users can choose between three image-processing options:

- High contrast (fatty tissue suppressed)
- Normal contrast (fatty tissue not suppressed)
- Low contrast (gray fatty tissue)

Look-Up Tables

A value-of-interest Look-Up table (VOI LUT¹) maps each grayscale pixel value to a new value. DigitalNow HD can encode a set of four VOI LUTs into the DICOM header of each image. The VOI LUT help compensate for the film scanner used and variations in the film type, breast composition, and exposure, essentially fine-tuning the appearance of the images in a study.

The four VOI LUT selections are:

- **NORMAL Tissue** – The default VOI LUT used to visualize most normal tissue, assuming the original film was well exposed.
- **DENSE Tissue** – Stretches image contrast in dense areas of the breast. It is used much like a soft-tissue or bone window when viewing CT slices.
- **OVEREXPOSED Image** – Provides high contrast in darker regions of a film.
- **UNDEREXPOSED Image** – Provides high contrast in extremely bright regions of a film.

Brightness and Contrast

DigitalNow HD can apply a user-specified Window Width / Window Center (WW/WC) value pair to each DICOM header. Most workstations that cannot utilize (VOI LUTs) can apply WW/WC values at the initial presentation of the images. The overall appearance of the resulting images on such workstations will tend to show less contrast.

Image Size

DigitalNow HD can produce output images at any resolution from 50 to 200 microns. There are three possible applications for selecting different image sizes.

- Preserving as much spatial resolution as possible (i.e., a setting of 50 microns)
- Reducing storage requirements (e.g., a setting of 100 or 200 microns)
- Matching the resolution of a digital mammography detector, which may preserve uniform tissue scaling between current and prior mammograms on less sophisticated workstations (e.g., a setting of 50, 70, 85, or 94 microns).

¹ Use of VOI LUT during display requires a workstation that can apply them. Check with your workstation vendor to see if your workstation make, model, and version have this capability.

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