



Carestream PACS

Virtual reading desktop capability.

Make work flow with native 3-D functionality

A powerful new dimension in 3-D diagnostic workflow, productivity, and confidence

Dramatic growth in study volumes and the number of CT and MRI images place today's radiology departments under extreme pressure. 3-D imaging can help facilitate more efficient viewing and handling of huge data sets. But the need for specialized 3-D workstations often requires cumbersome procedures that interfere with reading routines, hinder workflow, and disrupt the radiologist's concentration.

The problem is solved by enabling radiologists to perform 3-D imaging through the virtual reading desktop capability of the CARESTREAM PACS. 3-D images can be created, modified, and viewed without leaving the source data.

Advanced 3-D processing tools embedded in the diagnostic viewing application leverage display protocols to pre-process studies and set up appropriate comparative environments with relevant priors. Current and prior studies can be displayed side-by-side, and 3-D tools can be applied to both.

Eliminating specialized 3-D workstations offers significant benefits in reduced reading time and streamlined workflow. It also eliminates data transmission and storage requirements associated with multiple workstation procedures. The result is an optimal working environment for radiologists—plus productivity gains and cost savings for the hospital or enterprise.



Any modality, any site—anywhere!

This 3-D imaging can be applied to studies from any CT or MRI modality regardless of the manufacturer. And with LAN/WAN transmission, it can be done anytime through virtual reading capabilities that streamline workflow, increase productivity, and provide diagnostic confidence throughout your facility, enterprise, or virtual healthcare community.

User profiles are persistent and follow the user. What is more, this software automatically senses the type of viewing equipment being used and adjusts resolution to maximize display quality. This enables your radiologists to work conveniently and productively at multiple locations—with all the right tools and patient information.

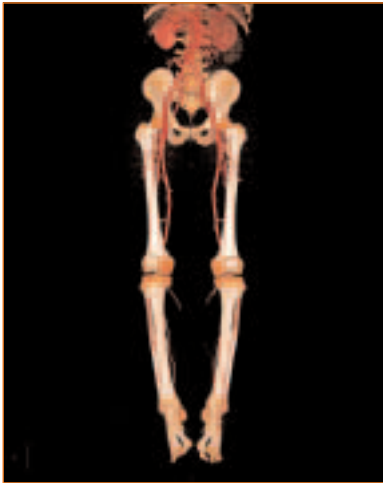
CARESTREAM PACS viewing applications are web-deployed to provide a true virtual reading environment. This lets you leverage existing infrastructure and provide upgrades without the cost, disruption, or downtime of on-site service calls.



Simultaneous 2-D and 3-D image display

The original study remains available at all times throughout 3-D reconstruction and viewing to simplify and expedite the reading process. Robust display protocols enable both 2-D and 3-D rendered images to be automatically displayed upon series loading—providing a summary view of the entire anatomy as well as cross-referencing images. The radiologist can apply an extensive array of predefined MIP, MPR, volume rendered, and other protocols as needed.

This ability to work simultaneously with both 2-D and 3-D images greatly simplifies comparative viewing. A cross-referencing line automatically tracks the 3-D rendering as images are scrolled in the 2-D view. When vessel tracking is performed, an intuitive wizard walks the user through the steps. Seed points can be placed on either 2-D or 3-D images, depending on which provides the best anatomical view.



Advanced bone removal and more

Other advanced functions, such as bone removal, can be either automatically applied or quickly activated with a pull-down menu or a simple mouse click. The sophisticated bone removal algorithm works in the background, allowing the user to continue review until the process is completed.

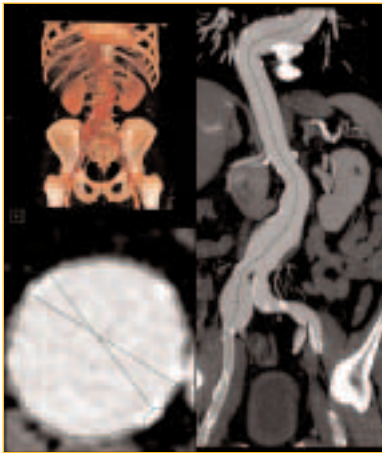
When necessary, partially rendered images can be placed on hold while the radiologist tends to a high-priority case. When reading is complete, rendered images can be immediately saved as part of the study.



Better service to your referral base

Key 2-D and 3-D images, as well as cardiac and vessel analysis reports, can be automatically integrated into the radiology e-reports, which are made available to referring physicians via Web access, e-mail, or CDs/DVDs. These valuable images and data can significantly improve and expedite the patient-physician conference by helping the physician convey complex information with clear, easy-to-understand images.

And because rendered images are significantly smaller than the originating series, they reduce demand on network bandwidth, and are easily mailed. They also require a minimum of processing power from the referring physician's computer.



Powerful tools to streamline interpretation

The virtual reading desktop capability of CARESTREAM PACS offers the advanced reading and analysis tools you need to streamline reading of large, complex imaging studies:

- ▶ **Multi-planar reconstruction (MPR)** allows for better visualization of organs, tissues, and the relationship between them by reconstructing data in straight or curved cross-sectional planes that are inclined to the original slices.
- ▶ **Maximum intensity projection (MIP)** enhances contrast for easier viewing of vascular structures and other high-density tissue. Tools include swivel, roll, clipping planes, slabs, and volume of interest.
- ▶ **Minimum intensity projection (MinIP)** enhances contrast for easier viewing of vascular structures, pulmonary tissue and airways, and other low-density tissue. Tools include swivel, roll, clipping planes, slabs, and volume of interest (this function allows viewing of airways, nasal sinuses, etc.).
- ▶ **Volume rendering** enables the user to define color and opacity values to anatomy, creating an image that can be easily viewed from any angle.
- ▶ **Tissue definition** defines 3-D tissues using CT or MR volumetric data for better visualization of specific anatomy. Tissues can be shown or hidden during angio MIP image viewing for better pathology visualization.
- ▶ **Vessel tracking** supports advanced vessel analysis with automatic 3-D curved-path tracking for cross-section slicing.
- ▶ **Automatic bone removal** automatically removes bone structures from images.
- ▶ **Multi-frame display** shows NM, US, and angiography (XA).
- ▶ **Cardiac review and analysis tools** provide cross-sectional views of the heart axis, four chamber views, as well as panoramic and cross-sectional views of blood/cardiac vessels such as the left main artery (LMA), right coronary artery (RCA), left circumflex artery (LCX), and posterior descending artery (PDA). The calcium scoring module analyzes calcified plaque in five main blood vessels of the heart, while the cage removal function removes anatomy areas around the heart not required for cardiac viewing.

Virtual reading options to meet your needs

Advanced diagnostic tools are available in three optional bundles. This helps you control costs by purchasing only the bundle that best meets your immediate needs:

- ▶ 3-D Analysis option includes maximum intensity projection (MIP), volume rendering, and tissue definition.
- ▶ Vessel Analysis option includes tracking for multiple vessels, vessel editing capabilities, and extended stenosis marking.
- ▶ Cardiac Analysis option includes calcium scoring and cardiac analysis tools such as heart axis detection, cage removal, and coronary analysis.



Other seamlessly integrated clinical applications available include:

- ▶ Orthopaedic templating
- ▶ Virtual colonoscopy
- ▶ Image Fusion

A comprehensive portfolio

These capabilities and more are part of the comprehensive CARESTREAM Solution that combines RIS, PACS, information management, and professional services to streamline workflow and enable intelligent storage and distribution of the patient's complete radiology record.

www.carestreamhealth.com

Carestream

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