# Table of Contents

## Before You Begin .............................................................................................................4

## General Tools ................................................................................................................4
- Cine .................................................................................................................................4
- PR Save as Overlays .........................................................................................................4
- Film Screen (2D Only) ....................................................................................................4
- Field of View Annotation ...............................................................................................4
- Ultrasound Measurements .............................................................................................4
- Copy Error Message ......................................................................................................4
- Multiple CD Burners ......................................................................................................4

## Image Review and Analysis Tools ..................................................................................5
- PET-CT Registration ......................................................................................................5

## Mammography ...............................................................................................................5
- Nipple/Vertical Alignment .............................................................................................5
- Study Replacement .........................................................................................................5
- Reference Lines & Relate ...............................................................................................5
- Viewbox Shortcuts .........................................................................................................5
- Stacked Images Support ...............................................................................................5
- Study Addition ................................................................................................................5
- Nipple Correction Enhancements ..................................................................................5
- Cross Viewbox Reference Lines .....................................................................................6
- Chest Wall Justification in the Film Previewer ...............................................................6

## Workflow Tools ............................................................................................................6
- Worklists ........................................................................................................................6
  - Worklist Highlighting ......................................................................................................6
  - Elapsed Time Virtual Column ......................................................................................6
  - Create Group-Level Folders ........................................................................................6
- Auto Load of Newly Acquired Images of the Current Study ..........................................6
- Display Protocols ..........................................................................................................6
  - Auto Load History When Switching DP .......................................................................6
  - Control Saved Parameters ..........................................................................................7
  - Save Presentation ..........................................................................................................7
  - Ultrasound Multi-frame DP .........................................................................................7
  - All Priors DP ................................................................................................................7
- Assign-To Mechanism .....................................................................................................7
- Mark Current Study ........................................................................................................7
- Configure Decimal Point for Angle Measurement .........................................................8
- Load Study in Vue Motion from AE ...............................................................................8
- Home/End Buttons in Power Viewer .............................................................................8

## Administrative Tools ...................................................................................................9
- “Login As” (Alternative Preferences) .............................................................................9
- Multi-Monitor Simulator .................................................................................................9
- Display Protocols ..........................................................................................................9
  - DP Usage Statistics ......................................................................................................9
  - A Synonym Management Tool ....................................................................................9
  - Sort Between Groups ....................................................................................................9
  - Exclude Series Number/UID from Sort Criteria ..........................................................9
- CARESTREAM Vue PACS Client Component Object Model (COM) Interface Extension ..........................................................................................................................10
- CARESTREAM APIs in URL Activation .........................................................................10
- Downtime/Backup Server Indication .............................................................................10
Preface

CARESTREAM Vue PACS Client

Important: Features of the CARESTREAM Vue PACS Client are described in this Addendum. Depending on your workstation licensing, some features may be unavailable. Contact your Sales Specialist for details about license upgrades.

Trademark and Copyright Information
CARESTREAM is a trademark of Carestream Health.
This document is copyrighted with all rights reserved.
Under the copyright laws, this document may not be copied, in whole or in part, without the written consent of Carestream Health, Inc. Under the law, copying includes translating into another language or format.
All names or identities used in this document are fictitious.

Caution: Federal law restricts this device to sale to, by, or on order of a physician.
The information contained herein is based on the experience and knowledge relating to the subject matter gained by Carestream Health, Inc. prior to publication. No patent license is granted by this information.
Carestream Health, Inc. reserves the right to change this information without notice and makes no warranty, express or implied, with respect to this information.
Carestream Health, Inc. shall not be liable for any loss or damage, including consequential or special damages, resulting from the use of this information, even if loss or damage is caused by Carestream Health, Inc.'s negligence or other fault.

FCC Compliance
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules.
These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.
Operation of this equipment in a residential area is likely to cause harmful interference in which case users will be required to correct the interference at their own expense.

Regulatory Information
AUTHORIZED REPRESENTATIVE (European Union)

Carestream Health France
1, rue Galilée
93192 NOISY-LE-GRAND CEDEX
FRANCE

---

CARESTREAM Vue PACS Client, Clinical Applications and General Usage Features Addendum

PART #: 6K5091 VERSION # 1.0
Before You Begin

IMPORTANT: This document may describe features that are optional and require a special license to run. If these are not available on your system, please contact Carestream for further details regarding license and feature upgrades.

General Tools

Cine
- Auto-play cine clips groups such as X-ray Angiography (XA) or Ultrasound (US) when loading and dragging from Patient Mini Archive (PMA).
- A new cine toolbar has been added and will be automatically displayed when a group is identified as a cine group.
- The new toolbar also introduces some buttons to centrally control cine loops and change playing speed.
- Not all US/XA groups are cine loops. Some are groups of screen capture images, which will not be played. The user can configure the selection of the group to play.
- Note that auto-cine is not applicable on groups with layouts different from 1x1 (e.g. tile).

Automatic cine is triggered upon load, dragging from the PMA, Display Protocol (DP) application and navigation between groups. Use the Cine ribbon to play, pause, stop, step forward and backwards, change direction, and change the playing rate of all groups.

PR Save as Overlays
An option to save images with graphics, instead of as presentations (PRs), is available to support third party systems that do not support PR capabilities. This requires configuration.

Film Screen (2D Only)
When using the 2D viewer, the user can “film” the entire content of the screen, including reference lines so it’s easier to cross-correlate between different views.

From the Film menu in the Export tab, select the Film Screen option.

Field of View Annotation
The new annotation represents the “field of view”, which is currently presented in the image window. The annotation can be combined with the mm per pixel annotation to match object sizes in different images.

This capability requires configuration.

Ultrasound Measurements
Various measurement tools have been extended to be region-aware and to support additional layers of information that exist in US images, including Doppler and M-Mode regions.

- For Doppler regions, the acceleration speed is supplied in addition to time and velocity intervals provided when measuring with the Line tool. The cursor provides the velocity and pressure gradient for a given time point.
- For M-Mode regions, the line measurement provides the time interval, the distance, and the slope. The cursor displays the location for a given time point.

These extended capabilities are provided when the normal measurement tools such as line, oval, and ROI on Ultrasound images are used.

Copy Error Message
An additional button can be configured to allow copying the text of error messages into the clipboard.

Multiple CD Burners
The CARESTREAM Vue PACS Client now supports multiple CD burners.
• A drop-down list has been added to the Burn button in the AE, displaying a list of all available CD burners.

• The default burner is automatically selected, but the user can select any other burner on the list.

In the AE, click Burn to send the study to the selected burner.

**Image Review and Analysis Tools**

**PET-CT Registration**

This feature is designed for cases in which the PET and CT groups are not from the same study (old modalities) or cases in which the patient moved during the scan and the PET.

From the Comparison tab, click Registration and then click the groups to be registered.

**Mammography**

**Nipple/Vertical Alignment**

Using either a nipple detection algorithm or information coming from a Computer Aided Detection (CAD) object, the system can automatically align related images vertically by locating both nipples over the same horizontal line.

On the Mammography tab, click Nipple Alignment.

**Study Replacement**

Study replacement provides a means of replacing an entire study with a different one either through study date annotation or by dragging a study from the patient mini-archive. The replacement process loads the new study and applies its views to replaced locations as designated by the DP.

To receive a list of available studies for replacement, drag a study from the PMA studies pane or right-click on the Date and Time annotation.

**Reference Lines & Relate**

Reference lines tools provide cross correlation of a given Region of Interest (ROI) between several mammograms based on the distance from the nipple.

Buttons are available in the Mammography tab.

**Viewbox Shortcuts**

The user can now assign keyboard shortcuts through the DP to a designated viewbox. Once clicked, the navigation system is triggered and brings up the designated viewbox.

This is done through the DP editor, per viewbox.

**Stacked Images Support**

Advanced mammography tools (same size, nipple alignment, and the quad-zoom) are now fully supported with stacked images. When these tools are applied over a stacked image group, they affect all images, whether they are visible or not.

**Study Addition**

Study addition provides the means to append an additional study to a stacked images viewbox. Study addition is invoked using the same manner as study replacement. However when a study is “replaced” in the context of a DP defined as stacked history, the study replacement operates as study addition, meaning the new study will be appended rather than replaced.

**Nipple Correction Enhancements**

Nipple correction is now applied in a global manner. When the nipple position is corrected on one image, the correction is applied over all image instances, regardless of the viewbox in which they are presented.

Buttons are available in the Mammography tab.
Cross Viewbox Reference Lines
When cross-reference lines are applied, the results are available in all viewboxes, so different presentations can be correlated more easily.
Buttons are available in the Mammography tab.

Chest Wall Justification in the Film Previewer
The Film Previewer (FP) ribbon now includes a Chest Wall Justification button, providing support for various mammography printing scenarios.

Workflow Tools

Worklists

Worklist Highlighting
It is now possible to highlight studies in the Archive Explorer (AE) with different colors based on various criteria.

Any study level DICOM tags that are presented by the AE can be used as a selection criterion for the highlighting process.

The mechanism supports the definition of multiple criteria as well as colors. For example, the user can highlight in red any study with high priority and in yellow all the “outpatient” studies.

To highlight studies, click the highlight button in the AE.

Elapsed Time Virtual Column
The elapsed time virtual column indicates the time passed since the study was acquired. Combined with worklist highlighting, it enables the user to easily locate and highlight studies that may have been forgotten in the worklist over a period of hours.

In Application Settings, go to Annotations Options and choose the relative_frame_time annotation.

Create Group-Level Folders

Save Filter as Folder can now create folders in group level.

To filter the studies in the AE, right-click on the filtered list and select Save Filter as Folder. In the Create Folder window, check the Group option.

Auto Load of Newly Acquired Images of the Current Study
A new Refresh button now appears in PMA that lets the user ask for new images to be automatically retrieved.

- This is meant for cases where the radiologist might ask for additional views to be acquired such as in some Mammography (MG) studies or US.
- It may also help in emergency cases in which the doctor might start viewing the images before the study has finished storing (e.g. MR studies).
- The newly acquired images will be automatically loaded and placed according to the DP.
- Any updated or newly added group in the PMA will be marked in a different color or by a dashed frame for B&W monitors.
- Once the user has clicked the Refresh button, auto-refresh is automatically activated until the study is closed so that there is no need to click Refresh more than once per study.

To trigger the Automatic Refresh process, click the Refresh button in the PMA toolbar or in the PMA strip.

Display Protocols

Auto Load History When Switching DP
Up until now, when applying a different DP or presentation to a study that is already loaded, the system used the same history studies that were loaded with the original DP. If the original DP loaded only one history, but the newly loaded presentation required three priors, users had to manually load the remaining two priors if they wanted to see them. The system now loads any additional prior needed by the presentation or DP.

**Control Saved Parameters**
An ability to control which parameters (zoom/pan/windowing) will be saved as part of a new DP is now possible when using **Save as DP**.

Use the checkboxes available in the **Save as DP** window.

**Save Presentation**
- **Performance Improvements** – Improvements have been made to the load presentation mechanism to reduce the time it takes to fill the screen with the initial presentation view when loading multi-slice data into the 2D viewer.
- **Registration** – Registration information is now saved as part of the presentation object. In addition, restoring links between current and prior studies as part of the presentation has been improved.

**Ultrasound Multi-frame DP**
A new "sample DP," which separates static and dynamic images based on sop class grouping rules has been implemented and is available for reference.

This is provided to the user automatically. It replaces the previously existing DP.

**All Priors DP**
A new System DP places the current study in one **Group Display Area (GDA)** and all loaded prior studies in another, single GDA, stacked together.

The prior groups are sorted by study time with the latest group displayed first.

**Assign-To Mechanism**
A new mechanism replaces the old assign-to option in **AE**, dramatically enhancing the assigning capabilities:
- An **Assign-To** dialog box is available which lets the user easily select users or groups to which to assign studies.
  - The dialog is available both from **AE** and from the **Confirm** button as a drop-down item (similar to the **make stat** option).
- The user can now assign a study to a single user/multiple users/reading groups.
- The user can create reading groups.
- The assign-to dialog shows only users from selected User Management (UM) groups so that the radiologist will not have to go through the whole list of referring physicians, administrators, etc.
- A user can filter all studies assigned to them, or any group of which they are part.
- Users can be configured so that in every session, all studies they ready are automatically assigned to a specific user or group. This is good for resident-attending situations.

To access the **Assign To** window, highlight a study in the **AE** and select **Assign To** from the **Edit** menu or from the right-click menu.

To define a Users list, click **Set User List** and select users from the **User List Setup** window. To create a **Reading Team**, click **Create Reading Team** and select teams from the **Reading Team Setup** window.

To assign studies to individual users and to reading teams, select a user and/or team in the **Assign Studies** dialog.

**Mark Current Study**
The current study is now better marked to enhance visibility on the screen.
A dashed frame makes the current study more prominent on monochrome monitors.

**Configure Decimal Point for Angle Measurement**
The number of decimal places for angle measurement is now configurable, affording display of whole numbers only.

**Load Study in Vue Motion from AE**
It is now possible to load a study in Vue Motion from the AE. The study is loaded in Vue Motion rather than in the CARESTREAM Vue PACS Client.

To load a study in Vue Motion from the CARESTREAM Vue PACS Client, highlight the study in the AE and right-click. Select the Quick Vue menu option.

- If there are multiple Vue Motion servers, the default node in configuration determines the server to be selected.
- The loading is secured. The User name and password are not visible in the URL.

**Home/End Buttons in Power Viewer**
Pressing the Home and End keys displays the top (first) and bottom (last) slices, respectively, in the Viewer. This capability is now supported in the Power Viewer as well. Clicking Home and End displays the volume beginning and end, respectively.
Administrative Tools

“Login As” (Alternative Preferences)
Login As allows service people to log in using another user’s preferences, allowing them to modify private behaviors and/or diagnose problems that are specifically related to the user’s configuration.

The availability of this tool is controlled by specific permissions and the authorization and access controls are controlled under the primary users’ credentials to avoid potential impersonation and access to unauthorized data.

The feature can be used both with the Application Settings tool as well as the DP Editor and is especially useful when implementing and testing private DPs.

Multi-Monitor Simulator
Using this tool, the user can log in to a system while simulating a different number of monitors than physically supported by the existing hardware (for example, the user can simulate a 4-monitor system over a 2-monitor system).

Combined with Login As, this tool can enable writing and testing display protocols that cater to specific users regardless of their physical setup.

Note: This feature is not intended for clinical use and should not be used by doctors. While working in this mode, parts of the user interface may not function properly or fail to adapt for the simulated hardware. This mode was designed and tested for the sole purpose of evaluating display protocols on various platforms.

Display Protocols

DP Usage Statistics
Starting from this version, the Client keeps track of the last time a DP was used. Every time a DP is chosen, either automatically by the system or manually by the user, the last used date will be updated.

- The last used date is now shown in the DP editor.
- In future versions, DPs that haven’t been used for a long time will be disabled. This will make the configuration smaller and help the Field Engineer (FE) and Applications Consultant (AC) to distinguish between important and unimportant DPs.

A Synonym Management Tool
The synonym management has been enhanced.

- All synonym tables have been unified to a single table under the configuration.
- A new tool has been introduced to allow the administrator to easily add synonyms to the system. These new synonyms will be used for:
  - DP selection
  - Selection of prior studies for a DP
  - Assignment of groups to be shown

Sort Between Groups
Using this enhancement, you can build display protocols, which arrange the groups on screen by a specific order without pre-identifying the groups using specific nominal groups.

The order by which the groups are sent to presentation can be defined by various DICOM tags such as series number, acquisition time, etc.

Exclude Series Number/UID from Sort Criteria
The ability to remove Series Number/SeriesInstanceUID from the default sort criteria is now available in the DP Editor as part of standard DP definitions.
CARESTREAM Vue PACS Client Component Object Model (COM) Interface Extension
The CARESTREAM Vue PACS Client COM interface provides the following:

- Number of open sessions
- Accession numbers of open studies in a specific session
- Patient IDs (and issuers) of open studies in a specific session
- Title of a specific session

A specific API supplies this information for the currently active session.

CARESTREAM APIs in URL Activation
New APIs have been introduced in the COM interface. The API methods are also available for URL activation.

Downtime/Backup Server Indication
The CARESTREAM Vue PACS Client displays a warning message to the user when connecting to a backup/downtime server.

- The backup/downtime server configuration includes a value indicating that it is a backup server.
- The message is displayed upon user login to the system.

CARESTREAM is a trademark of Carestream Health.

© Carestream Health, Inc.
150 Verona Street
Rochester, NY 14608
United States