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Fast**PACS**

Web-Based Radiology Image Review Software

User Guide for v 2.0

The following symbols are used throughout this document:

	IMPORTANT
	This symbol indicates a point of particular importance.

	USEFUL INFORMATION
	This symbol indicates helpful user information.

	USAGE INFORMATION
	These symbols indicate hints for desktop or tablet users.

Due to continual product development, specifications, methods and operations described in this publication are subject to change. Some features described may be platform-dependent or optional. While every effort has been made to ensure accuracy, no responsibility is taken for correctness and completeness of this document.

Screenshots in this document are from Microsoft Windows, Mac OS X and iOS systems.

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FastPACS is a product of Precision Diagnostic Systems, Inc., Maple Park, IL 60151 USA

Patient names displayed are fictitious. Any mention of third-party companies and products is for reference only and not to be construed as an endorsement.

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System Description

FastPACS

FastPACS is a system consisting of a DICOM 3.0 Compliant Archiver with integrated web distribution of patient studies. The system is capable of autorouting studies to other DICOM destinations such as third-party Workstations and other archives via configurable routing parameters such as AETitle, modality, time of day, etc. The FastPACS Archive is fully DICOM queriable.

Web Distribution of images is accomplished with the FastPACS Web module and images may be distributed over your local network or over wide area external connections via the *Internet*. Multiple users may simultaneously access patient studies and there is no limitation to the number of review locations users can establish. With multi-platform support, rapid image display, and no requirement to download applets or install applications, *FastPACS* is very easily deployed and maintained.

Currently the web interface of *FastPACS* is available in either English or Spanish localizations.

This document describes the use of the Web Distribution interface.

System Requirements and Features

Supported Operating Systems and Browsers

FastPACS essentially supports all Operating Systems and modern web browsers for viewing of studies.

> Check that Javascript is enabled in your Web Browser. This is normally the default setting.

Hardware

Although FastPACS adapts to your computer's display matrix, a display matrix of 1920x1080 or greater at millions of colors is generally recommended. There is no minimum RAM or CPU requirement.

Network

A wired or wireless network connection is required to retrieve images. This may be with a local-area network connection or broadband connection via the Internet. A dial-up Internet connection is not recommended.

Mobile Devices:

Apple iPad®, Android tablets and Microsoft Windows® tablets:
These devices are fully supported.

Apple iPad is the preferred mobile device.

Other mobile devices may produce acceptable results but have yet to be tested.

Go to http://www.precisiondiagnostic.com and click on Support for the latest info.

Security

Depending on your particular installation and environment, *FastPACS* may be set up to communicate using an encrypted connection. This helps keep your connection private and secure wherever you are. The encryption is normally provided using a "self-signed" certificate that you must accept prior to connecting.

> It is the responsibility of the Network Administrator at the installation site to design, maintain and enforce appropriate security measures.

Automatic Updating

Whenever updates are supplied to your *FastPACS Server*, users immediately take advantage of the update with no installation or download required.

Installation

There is no client installation or applet download required to view images via *FastPACS* web distribution. This makes it easy to view images on any computer at any time without having to install software. Virtually any computer with a supported web browser may be used.

> **FastPACS Web Distribution is designed for general image review. It is not to be used for final interpretation.**

Connecting to Your FastPACS Server

1. Launch a supported web browser and navigate to the network address as directed by your site administrator.

> Create a "Shortcut" or "Bookmark" to simplify connecting to your server in the future. iOS users can place a bookmark on their home screen for convenience.

2. If your *FastPACS* is set up for *Authentication*, you will be required to enter a Username and Password to connect. Contact your System Administrator if you are prompted for this information and do not know it. To **logout** from your viewing session, simply close the browser window.

> **Any authorized user who is granted access to your FastPACS will be permitted to view all patient studies.**

Query Screen

After connecting to *FastPACS*, you will be presented with a Patient Query screen. The Query Screen is divided into 3 sections: **Patient Information, Study Date and Modality**.

Precision FastPACS

Patient Information

ID: Matches
Name: Contains
and
Find by Patient's Info

Study Date

Month: Date: Year:
Today Yesterday Find by Study Date

Select Modality:
Enter Modalities:

Clear Find by combinations

v2.0.0 (71513.1) Support

Not for primary interpretation

Patient Information section consists of Patient ID and Patient Name entries.

Study Date section permits entry of date range restrictions of your query.

Modality section allows your query to encompass all modalities or restrict it to only certain modalities.

Query Tools

FastPACS has a wide range of ways to refine your patient search and constrain your queries to specific patient info, date ranges, or modalities.

The following sections may be used individually or in combination with each other.

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Patient Information

ID: Matches

Name: Contains

and

Find by Patient's Info

Study Date

Month: | Date: | Year:

Today | Yesterday | Find by Study Date

Select Modality:

Enter Modalities:

Clear | Find by combinations

v2.0.0 (71513.1) | Support

Not for primary interpretation

Query by Patient Name and/or Patient ID

Drop down selections for ID and Name allow filtering results on **"Matches", "Contains", "Starts With"** and **"Ends With"**. After entering query text in either field, **click "Find by Patient's Info" if performing a query based only on Patient ID or Name.**

Query by Date Range

You may freely query by date ranges by filling in a month, day & year (for a specific date); a month and a year (for a specific month); or simply the year to see a list of all studies done in a year. After filling in the appropriate fields, **click "Find by Study Date" if performing a query based only on Date Range.**

Click the "Today" or "Yesterday" button then "Find by Study Date" to see all studies done on these dates.

Modality Filter

The Modality Filter may be used in conjunction with either or both of the above query sections to further refine your search. You can select "CR", "CT" or "MR" with the drop down menu. You may also enter standard DICOM two-letter abbreviations for other modalities in the text entry area to filter for these modalities as well. **By default, the modality filter is not filled in, and all modalities are automatically included in your query.**

Clear

Click **"Clear"** to erase all entry areas to prepare for another query.

Support

Clicking **Support** downloads and displays the document you are now reading (requires Internet access).

Combining Your Query

Clicking **"Find by Combinations"** will perform a query based on all query parameters inserted in the Patient Name & ID area, the Study Date area, and the Modality Filter area.

Query Returns

The return of your query is displayed along the left side of the screen in the Study List.

Thumbnails of images give useful previews of the studies. *Note that thumbnails are suppressed when there is a large number of returns of your query:*

Study List   Viewer Area

All mouse clicks described for general user interaction, image review and manipulation on desktop computers are **Left** Mouse Clicks.

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Study List

Studies displayed in the Study List have clickable links that allow you to either expand the selected study or quickly display a patient's entire imaging history.

New Query

Opens the Patient Query screen to allow another search.

Previous List

Repeatedly page back to display results of previous queries.

Study Date Link

Clicking or tapping the Study Date link **will list all studies performed on that date**.

Patient ID Link

Clicking or tapping the Patient ID link displays the entire imaging history based on Patient ID, and **lists all studies associated with this Patient ID regardless of date or modality.**

Study Link

Clicking or tapping the Study link (or the **Thumbnail image** if present) will expand the chosen study for viewing.
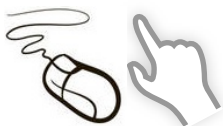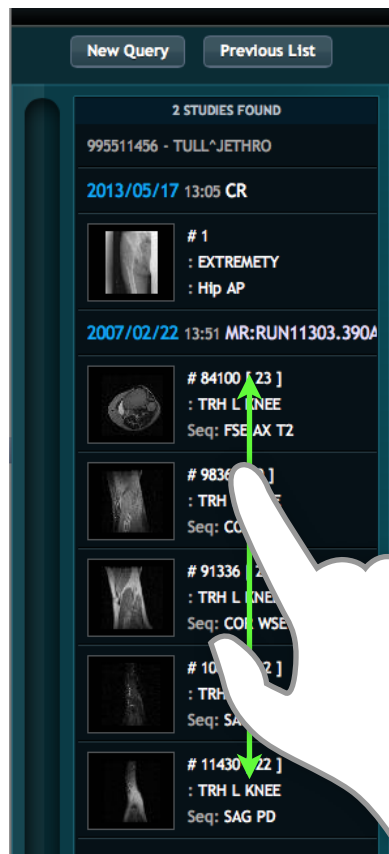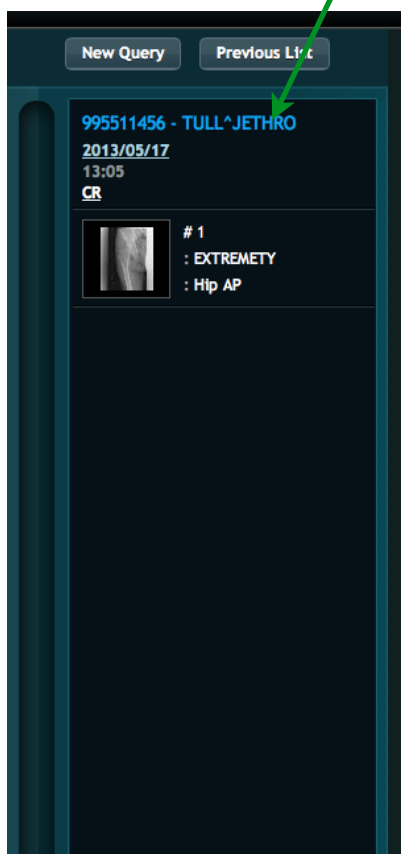
It is essential that your institution maintain consistent, repeatable Patient ID numbers for all patient exams sent to the PACS.

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Study List Navigation

Clicking or tapping the **Patient ID/Patient Name Link** will expand the Study List to display the entire imaging history on this patient that corresponds to their Patient ID, as shown on right.

The Study List can be navigated by scroll wheel on desktop computers or with finger gestures on iPad. Android tablet users can page forward and back through navigation controls displayed at the bottom of the study list when multiple pages are present.

Viewing a Study

After expanding a study, click or tap on an image preview to view images associated with that series. The tools available to you depend upon the modality that generated the study.

CR & DR Review Tools

The environment for CR and DR image review is shown below. Menu Bar selections will expand when a user's mouse hovers over them on desktop computers or when tapped when using tablets. Beneath the Menu Bar the Patient ID, Patient Name, Date/Time of Exam, Exam Type with identifier, and Series Number are displayed along with the **Info** link. Clicking the **Info** link will open a box at the bottom of the display screen with additional information regarding the currently displayed image.

CR and DR Expanded Menu

An explanation of the functions of the Menu Bar items for CR image review:

SCALE - Selectable magnification factor. **Fit** brings image to a suitable size to be displayed in your browser window.

VIEW - Image rotation controls. *Note the **VIEW** menu is only visible when using Microsoft Internet Explorer.*

RANGE - **Custom** allows manual insertion of Window Width/Level values; **Original** reverts image to original DICOM Tag values (if present). The numerical values allow narrowing or widening the overall greyscale range to compensate for images imported at varying bit-depths.

ACTION - **Zoom** will zoom image on mouse click then change to **Pan** function automatically; **W/L** invokes Window Width and Level action with mouse button held down while moving over image; **None** suppresses all actions. ***Zoom/Pan is the initial default action when opening CR & DR studies.***

OVERLAY - Selectable image overlay. **Number** displays only image number; **Detail** displays image number, Field of View and graticule; **None** suppresses text overlay. The currently selected action is displayed at the top of the Overlay menu.

Reload - Reloads the current image and removes any alterations to zoom or window width/window level settings.

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CR & DR Workspace

Study List showing expanded study - Single-click or tap an image to launch it in the viewer.

Info - Opens pop-up window at bottom of screen with additional information on currently displayed image.
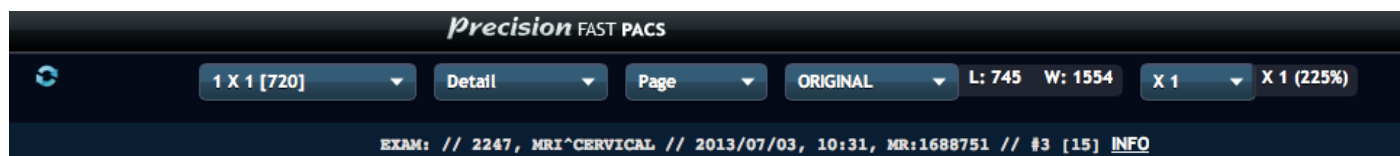
CR Review Workspace

Pop-up window displaying detail of image when **Info** link is clicked. A second click of the **Info** link will hide this window. Note that the information displayed is dependent upon the data that is sent from the modality.
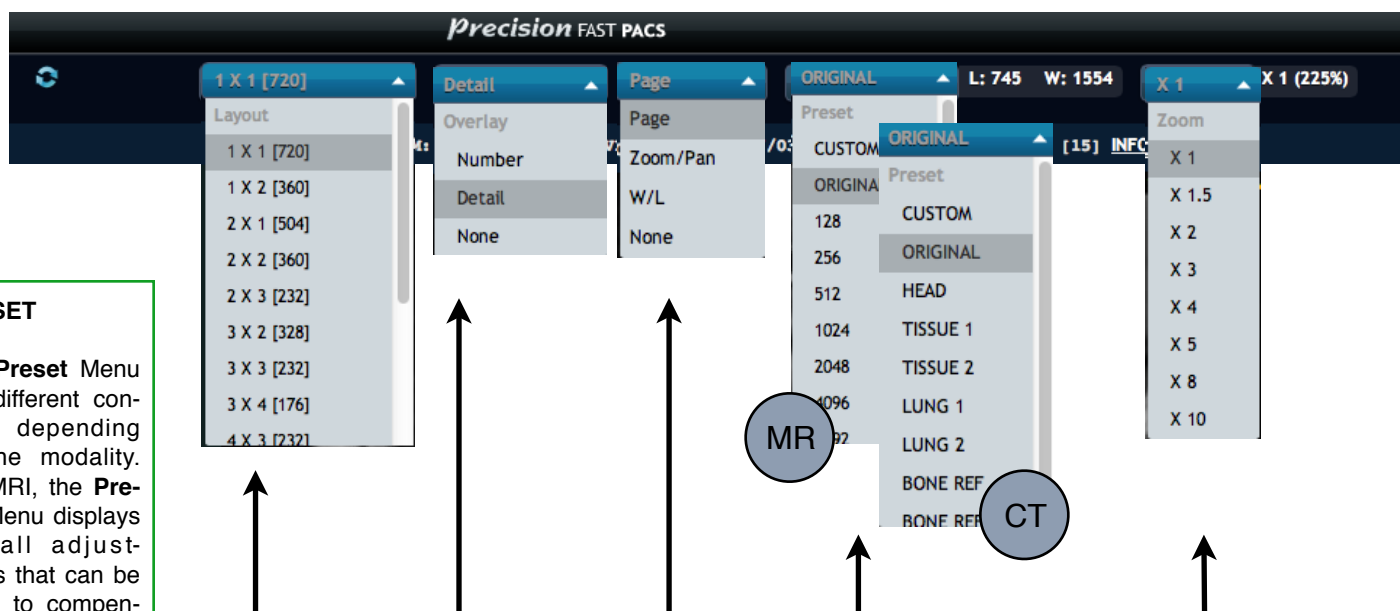
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CT & MRI Review Tools

The environment for CT and MR image review is shown below. The Menu Bar selections of **Layout, Overlay, Action, Preset, Zoom** and **Sort** will expand when a user's mouse hovers over them. **Beneath the Menu Bar, you will see the following displayed:** Patient ID, Patient Name, Date/Time of Exam, Exam Type with identifier, Series Number and number of images in the chosen sequence, along with the **Info** link. Clicking the **Info** link will open a box at the bottom of the display screen with technical data regarding the image.

Precision FAST PACS

1 X 1 [720] | Detail | Page | ORIGINAL | L: 745 W: 1554 | X 1 | X 1 (225%)

EXAM: // 2247, MRI^CERVICAL // 2013/07/03, 10:31, MR:1688751 // #3 [15] INFO

CT & MRI Expanded Menu

An explanation of the functions of the Menu Bar items for CT & MR image review:

PRESET

The **Preset** Menu has different contents depending on the modality. For MRI, the **Preset** Menu displays overall adjustments that can be made to compensate for studies with varying bit-depths. For CT, the **Preset** Menu allows quick selection of pre-programmed presets for different body parts. If desired, the CT Preset menu can be customized for your particular institution after system installation.

PRESET - (see left)

ZOOM - Images are magnified by the selected amount.

ACTION - Page allows sequential viewing of images by using scroll wheel or depressing left mouse button and moving mouse in a vertical motion; **W/L** invokes Window Width and Level action with mouse button held down while moving over image; **Zoom** will zoom image on mouse click then change to **Pan** function automatically; **None** suppresses all actions. *Page is the initial default action when opening CT, MR & US studies.*
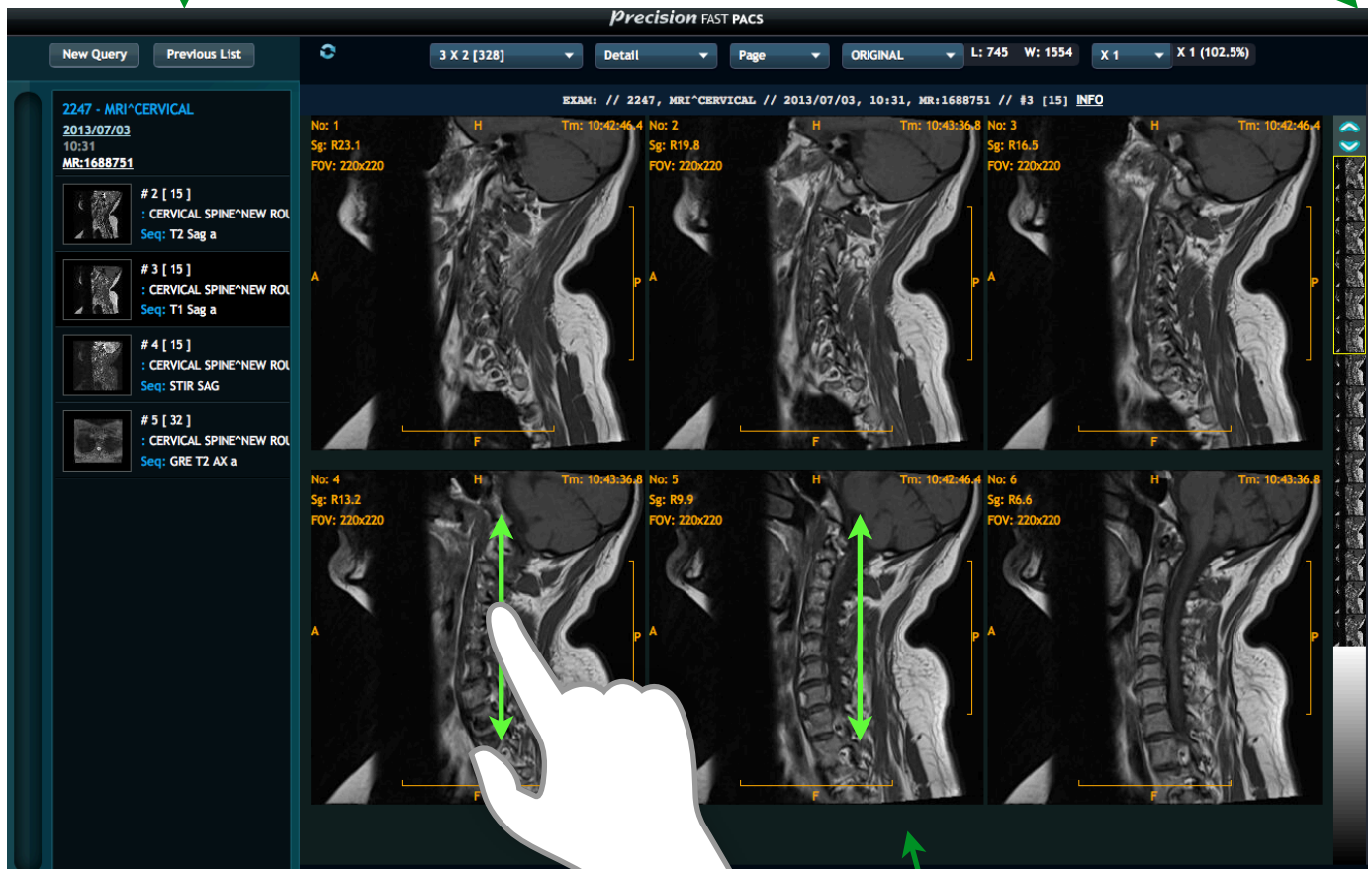
OVERLAY - Selectable image overlay. **Number** displays only image number; **Detail** displays image number, FOV, acquisition time, graticule; **None** suppresses text overlay

LAYOUT - Horizontal x Vertical selectable display matrix of image images. Double-clicking on an image when in a multi-frame matrix will automatically change the matrix to a 1x1 and display that image full screen. **Fit** is the default behavior and will fit the image(s) to your present browser window. Selecting **<Scale of 2>** will reduce the size of an image by a factor of 2. This is desirable to reduce pixelization, which may result if viewing an enlarged MR image in a 1x1 matrix on a large display.

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CT & MRI Workspace

Study List showing expanded study - Tapping or single-clicking a series launches it in the viewer.

Page Forward/Page Back - Use arrows on side to quickly page forward or back through a study. You may also click on an image preview to jump to that image. The yellow box provides a reference point to your location in an imageset.

MRI with 3x2 display matrix selected

Scroll - When **Page** Mode is selected in the **Action Menu**, you may scroll through a study using the following methods:

1) Using a mouse with a scroll wheel will advance the study by paging forward or back.

2) Pressing the left mouse button and moving your mouse in vertical motions will move forward or back one image at at time. Releasing the mouse button will allow the other displayed images to advance and fall in line in proper sequence with the image you adjusted.

3) With a tablet computer move your finger in vertical motions to move forward or back one image at at time. Lifting your finger will allow the other displayed images to advance and fall in line in proper sequence with the image you adjusted.

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