

User Release Notes

for eRAD RIS
Version 2
Build 42

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1. Purpose

This document describes some of the new features and changes implemented in eRAD RIS as of the end of Sprint 42 and subsequent server releases. This version of eRAD RIS is referred to as Build 2.42.

Only features which can be visually demonstrated to the user will be outlined in this document.

2. Intended Audience

This document is created by the RIS Development team for the RadNet RIS management team.

3. Installing/Accessing the Application

The installation guide for the eRAD RIS client have been posted to the RadNet Wiki page at <http://mdbal01rdtweb/Wiki/>

Under the RIS menu click on the rRIS page. The credentials to access the page are:

Username: rRIS

Password: Summerside

Please note that Build 2.42 is considered a new core release of the application and will require a reinstallation of eRAD RIS. This is accomplished by navigating to the eRAD RIS shared installation drive and running the CoreInstall.bat file (ex: I:\RISDeployment\CoreInstall.bat)

If you experience difficulties accessing the application please do not hesitate to contact Darcy Noye with the PEI RIS Development Team.

4. New Access Strings and Configuration Settings

Setting Placeholder	Setting	Default	Purpose / Controls Access to
Access string / User Group Permission tables	Clinical.PreviewPreliminaryReport	None	Controls access to preview, print and faxing of unsigned (preliminary) reports
Access string / User Group Permission tables	Clinical.ResolveRadProblem	Full	Controls access to the Resolve Problem window for Transcription users from the All Problem WL
Access string / User Group Permission tables	Clinical.UserPreferences.PACSServerOverride	Disabled	Controls access to the User Preference PACS Server on the Integration tab.
Access string / User Group Permission tables	Clinical.ShowRVUs	None	Controls Access to see the RVUs on the chair selector report
SystemConfig lookup	MRNPrefix		Value entered will be prefixed new MRN's created
SystemConfig lookup	MRNSuffix		Value entered will be appended to new MRN's created
SystemConfig lookup	AccessionPrefix		Value entered will be prefixed to new accession numbers
SystemConfig lookup	AccessionSuffix		Value entered will be appended to new accession numbers
SystemConfig lookup	PrivacyMessageText		Value entered will be displayed on a locked eRAD RIS login window
SystemConfig lookup	CPOELabTestCode	Pathology	Value of the Lab Test code that will be created when a procedure with the CPOE Pathology Flag = Y is signed

SystemConfig lookup	MUMedlinePlusConnectDebug	N	(value = Y/N) Adds prompt to UI for reviewing MedlinePlusConnect xml messages.
SystemConfig lookup	MUMedlinePlusConnectEnabled	N	(value = Y/N) Enable MedlinePlus Connect MU feature.
SystemConfig lookup	MUMedlinePlusConnectBaseUr1	http://apps.nlm.nih.gov/medlineplus/services/mpconnect_service.cfm	(value = string) MedlinePlus Connect Base URL.
SystemConfig lookup	MUMedlinePlusConnectDrugSearch	mainSearchCriteria.v.cs=2.16.840.1.113883.6.88	(value = string) MedlinePlus Connect Drug RXCUI search specification.
SystemConfig lookup	MUMedlinePlusConnectLabSearch	mainSearchCriteria.v.cs=2.16.840.1.113883.6.1	(value = string) MedlinePlus Connect Lab LOINC search specification.
SystemConfig lookup	MUMedlinePlusConnectProblemSearch	mainSearchCriteria.v.cs=2.16.840.1.113883.6.103	(value = string) MedlinePlus Connect Problem ICD-9-CM search specification.
Ris.exe.config Added in 41.1	MModalDataTransferValue	None	Override the user preference for M*Modal's Data Transfer. See feature Reporting – Ability to Configure MModal Transfer Task in this document for more details

5. New Features and Enhancements

Reporting – Laterality Check when Transcribing Reports

Previous to build 42 the laterality check was performed when signing and verifying reports. Now this option is available in the transcription workflow as well.

As with the radiologist role, the user preference of “Laterality Check” must be selected to enable the feature for transcription users.

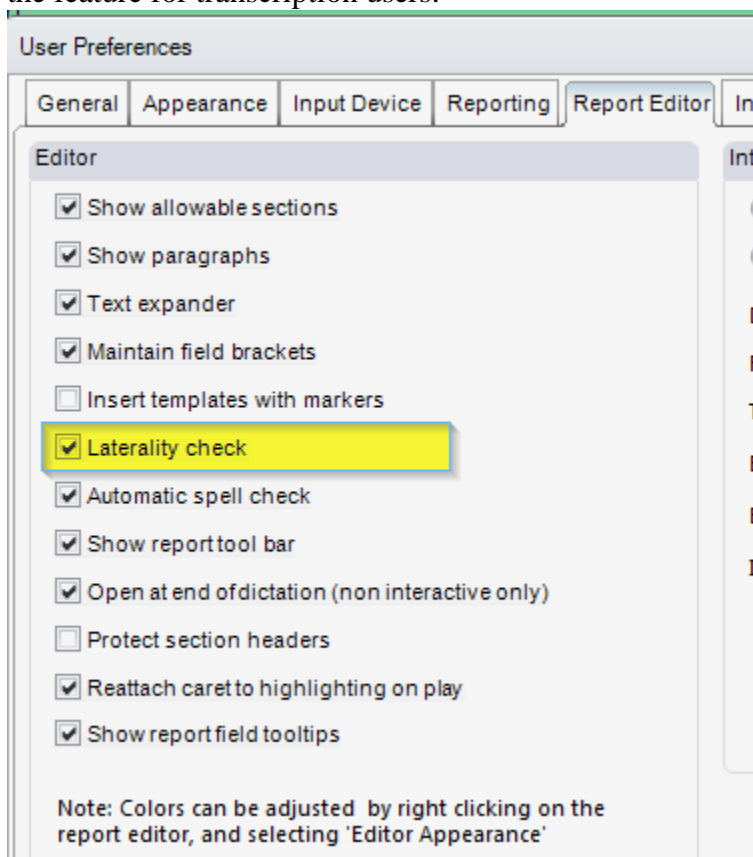


Figure 5.1 – Laterality check user preference for transcription now as well!

If the procedure being reported on has laterality and the report has conflicting left or right the transcriptionist will be presented with a pop up message and the literalities in the report will be highlighted.

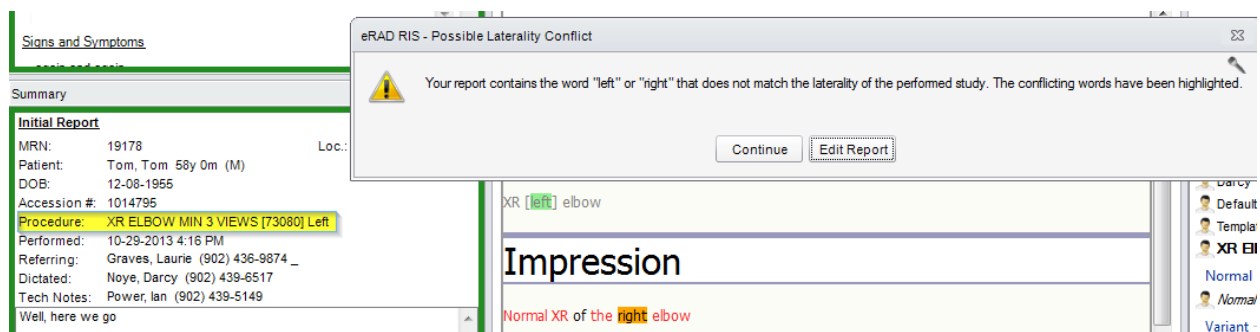


Figure 5.2 – Message presented when conflicting laterality is detected.

The user has the option to “Continue” if they believe the conflict is not valid, example the words left or right are detected in the report but are used in different context not related to the procedures laterality. The other option is “Edit Report”, selecting this button will return the user to the editor window allowing them to make needed corrections if the conflict is related to the procedure laterality.

Reporting – Laterality added to Patient Folder

The patient folder data pane that is available in the reporting windows now has the Laterality column added to its list of columns. In the screenshot below the procedure column may also have the laterality listed, but it was requested that a column specific to laterality also be added due to the fact that the entire procedure name may not be completely in view.

Anchor icon | Anchikowski, Kelly | 04-25-1969 (44y 7m) | Female | #12296 | XR Ankle 2 Views, Bilat | 12-13-2013 12:00 AM | @1015122PE

Patient Folder

trans ONLY | ALL | Bug 3628 | mod | MODALITY | My Test | not sched | Relevant

pared	Flags	Nuggets	Status	Procedures	Scheduled Date	Laterality	Accession #
			Exam Done...	US Breast Uni Or Bil [76645] - Breast	06-23-2009 10:53 AM		1014993
			Cancelled	US Breast Uni Or Bil [76645] - Breast - Bilateral	05-19-2014 7:45 AM	bilateral	1014947
			Scheduled	US Breast Uni Or Bil [76645] - Breast - Bilateral	05-19-2014 7:45 AM	bilateral	1014949
			Signed	US Breast Uni Or Bil [76645] - Breast - Bilateral	11-20-2013 1:00 PM	bilateral	1014946
			Signed	US Breast Uni Or Bil [76645] - Breast - Bilateral	11-20-2013 7:45 AM	bilateral	1014948
			Signed	US Breast Uni Or Bil [76645] - Breast - Bilateral	11-15-2013 1:20 PM	bilateral	1014931
			Exam Done	US Breast Uni Or Bil [76645] - Breast - Left	11-26-2013 11:30 AM	left	1014979
			Exam Done...	US zBREAST & MA DIGITAL MAMMO CB DIAG BI [...]	03-13-2012 9:54 AM	bilateral	1010534
			Exam Done	XR Ankle 2 Views, Bilat [RD37] - Ankle joint - Bilateral	12-13-2013 10:43 AM	bilateral	1015122PE
			Scheduled	XR ANKLE MIN 3 VIEWS [73610] - Ankle joint - Left	03-23-2012 10:16 AM	left	1010538
			External Re...	XR Elbow 2 Views [73070] - Elbow - Bilateral	11-26-2013 2:00 PM	bilateral	1014980
			Cancelled	XR Elbow 2 Views [73070] - Elbow - Bilateral	12-11-2012 5:30 PM	bilateral	1012414

Figure 5.3 – Laterality column added to the patient folder of the reporting windows.

It should be noted that it is the Laterality description text that is being used from the Laterality lookup table and not the Laterality Code.

Reporting – MT Edit Text Color

Previous to build 42, Interactive Dictation users had the option to set color preference for edits made from the All Signed Pending QA worklist by setting the QA Edit Text color option. If the job was submitted (not signed) to transcription, any edits performed could not be colored in the same way as when edited via QA workflow.

We have added another option to the Editor Appearance window for possible edits made in transcription.

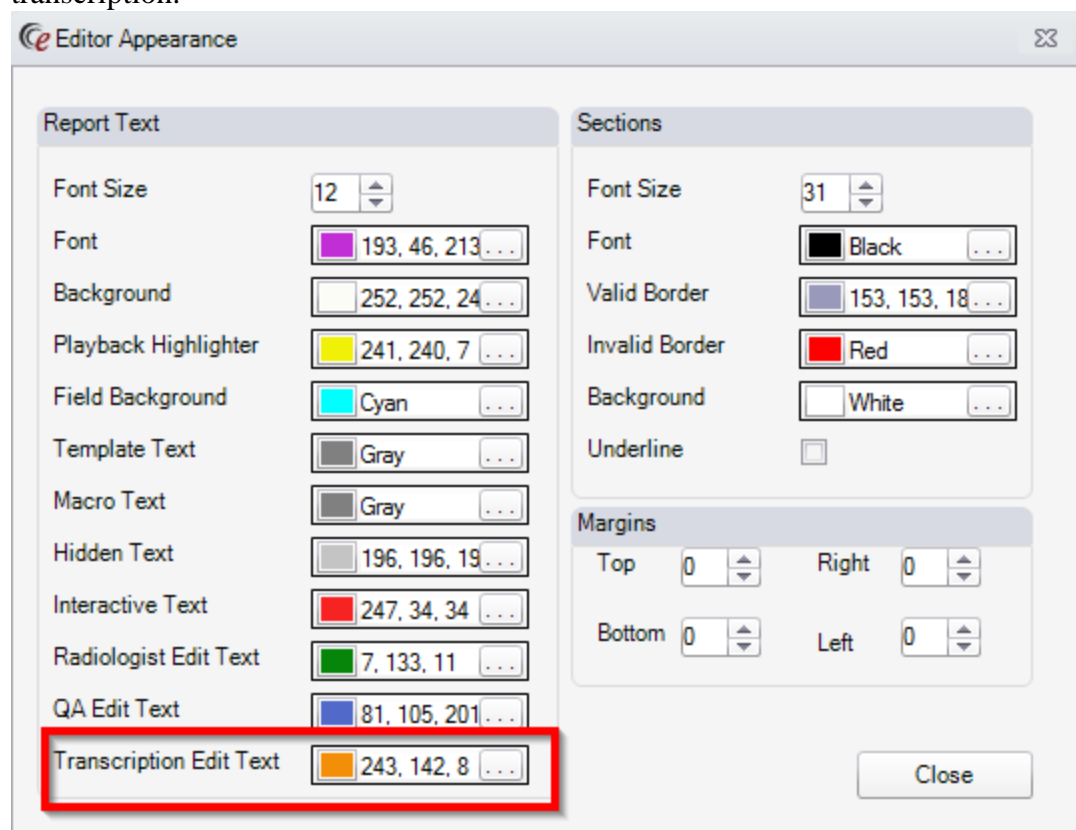


Figure 5.4 – Transcription Edit Text color option in Editor Appearance window.

This text color option is titled Transcription Edit Text and has a default value of black.

Reporting – Available Speechmike Buttons for Mapped Commands and Input Device Redesigned and New Button Options

The Speechmike now has additional buttons that can be mapped to use commands within the reporting windows. The buttons for “Play, Record, and INS/OVR” have been added. In addition the layout of the Input Device tab has been changed to be more intuitive with the layout of the Speechmike.

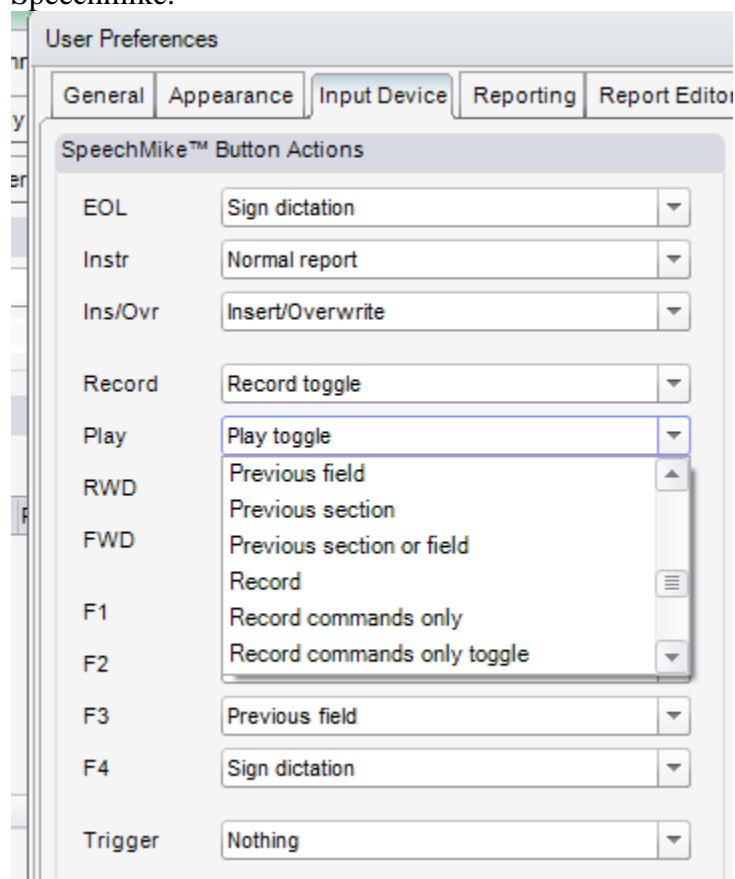


Figure 5.5 – Input tab additions and redesign

To accommodate the potential re-mapping of the play, record and Insert/Overwrite buttons their actions have also been added for use with other buttons.

Additional new commands added are:

Play – Enables play function to the assigned button

Play toggle – Start and stops play function with press/release of assigned button. This replaces the User Preference “Stop playback with button is released”

Record – Enable record function to the assigned button

Record toggle – Starts and stops record function with press/release of assigned button. This replaces the User Preference “Stop recording when button is released”

Record commands only – allow the user to issue commands without dictating in the report. This can make editing reports easier and increases voice command recognition.

Record commands only toggle – Same function as Record commands only with this command the function starts and stops with the button press/release

Insert/Overwrite – Enables insert/overwrite function to assigned button

Cap that - The first letter of each word in the selected range of text is capitalized.

Example:  results in 

Reporting – New Voice Commands for Reporting Windows

Newly added voice commands added in build 42 are:

Submit report – voice command will perform submit button click

Suspend report – voice command will perform suspend button click

Close report / Skip report – voice command will perform the skip/close button click. Invokes the button click and will use the current assigned button click

Cap that – voice command that will capitalize the first letter of each word in the selected range of text.

New line - Now when dictating “new line” you get a new line and “new paragraph” will result in a new paragraph.

Redo that – If text is removed from report while dictating using undo that voice command or select a range of text and delete/overwrite selection, or by way of Speechmike button such as undo or delete word left of cursor, issuing the redo that command will reverse the change.

Reporting – Voice Enabled Message Boxes

We added, to our base message box class, the ability to interact with the buttons on a given message box. Now when a message box is presented we load into our voice command options the following for each button.

Value - This is the value in code for the button. Most often it may equal the text but some instances it may not. For example a button that says “Close without saving” may have a value of “OK” or “Yes”. Overtime a user will get accustomed to which command is more fluid for them.

Text - This is the visible text seen on the button. So a button that shows “Close without saving” will have a voice command of “Close without saving”

Button # - This position the button shows on the message box starting with the number one. So a message box with “YES” and “NO” would have voice commands of “button one” and “button two”.

Option # - This position the button shows on the message box starting with the number one. So a message box with “YES” and “NO” would have voice commands of “option one” and “option two”.

We also added a new icon to the message boxes to indicate they are voice enabled. This icon should show only for radiologists. Even batch users can interact with message boxes via voice command. This new icon has a tooltip that displays the voice command options to invoke each button.

There are some dialog boxes that are not voice enabled. The whole application is not at that state yet.

Spell check, mic wizard, dictionary and user preferences to name a few. Goal of this item was to get most common message boxes.

The image below shows the new icon and tooltip options.

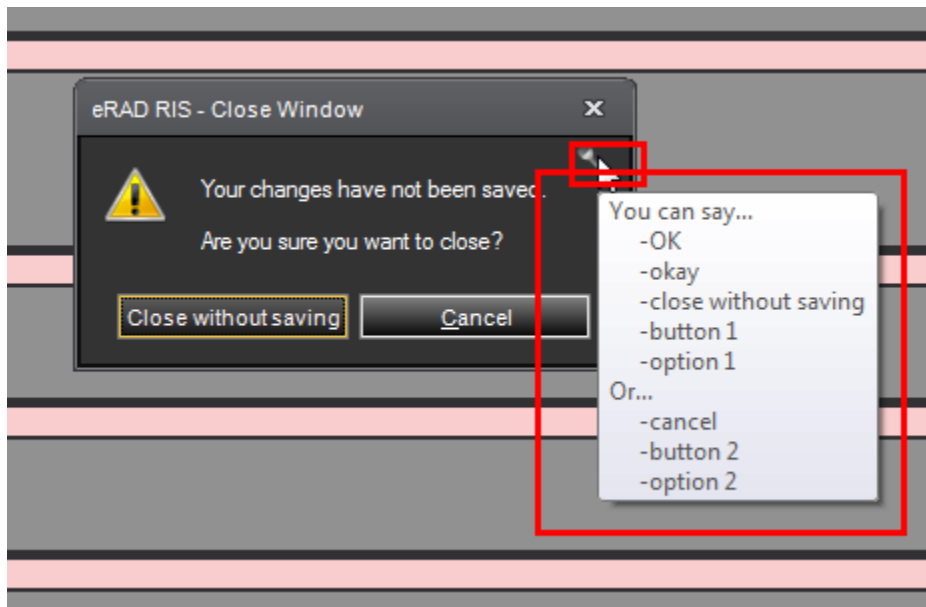


Figure 5.6 – Voice enabled message boxes displaying available command options

Reporting – Support Tracking of Magnet Strength

To start the magnet strength column has been added to the Modality lookup table. The column has a max character length of 10.

Modalities:							
Modality Code	Description	AE title	Digital	Site Code	Magnet Strength		Modality Type Co
Contai... mr	Contains: ▼	Contains: ▼	Contains: ▼	Contains: ▼	Contains: ▼	Contains: ▼	Contains: ▼
MR1FH	MR1FH	MR1FH	N	FH (Fisher)	1.5		MR (MRI)
MR1EL	MR1EL	MR1EL	N	EL (Eldersburg)	3.0		MR (MRI)

Figure 5.7 – Magnet Strength column added to Modality lookup table.

To have this value added to the template or macro a new custom field is now available in the Template/Macro editor.

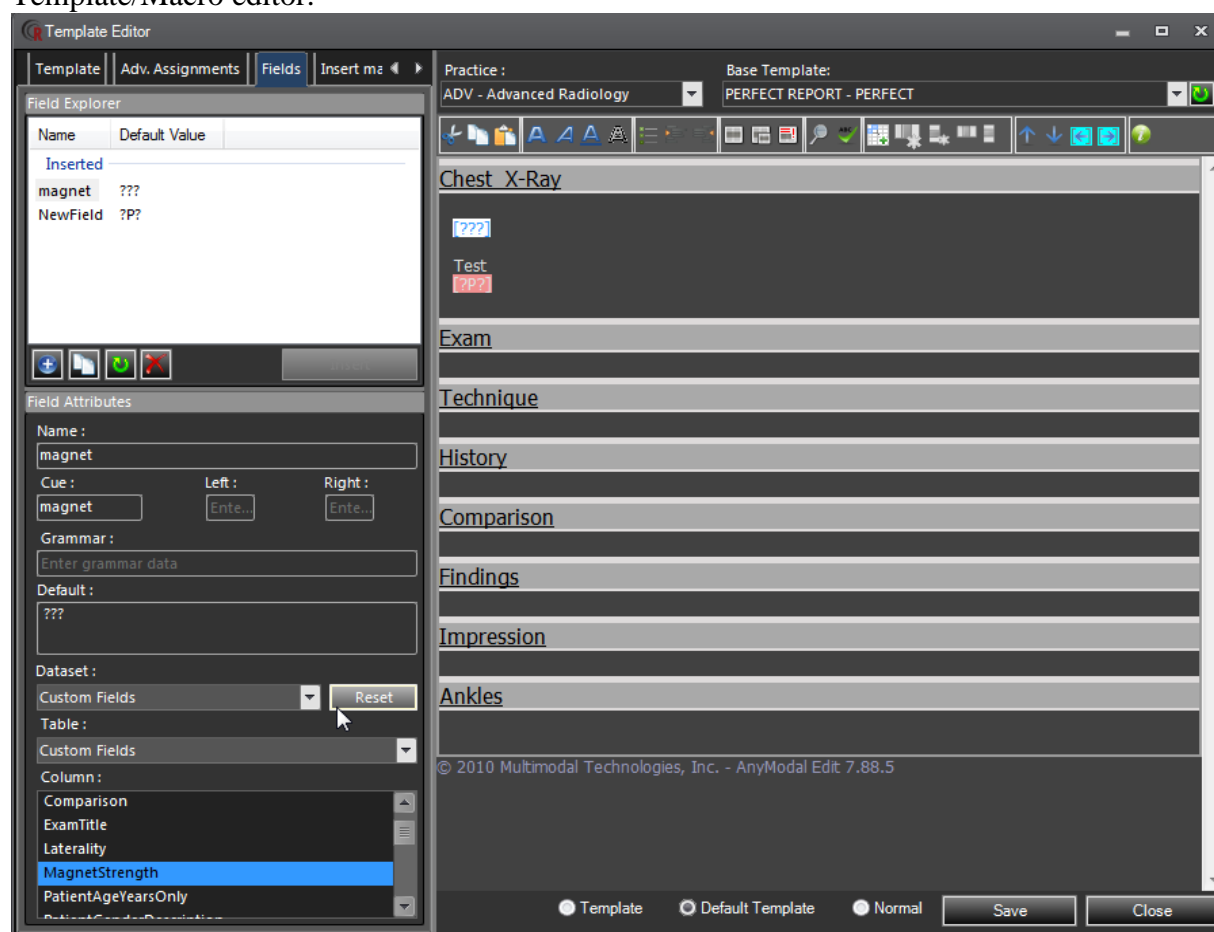


Figure 5.8 – MagnetStrength added as a custom field

Reporting – Talked to Doctor Macro

Additional custom fields have been added to aid users in creating a “Talked to Doctor Macro”. Below are the custom fields and examples of values for each field

TimeStamp12 – 6:30pm

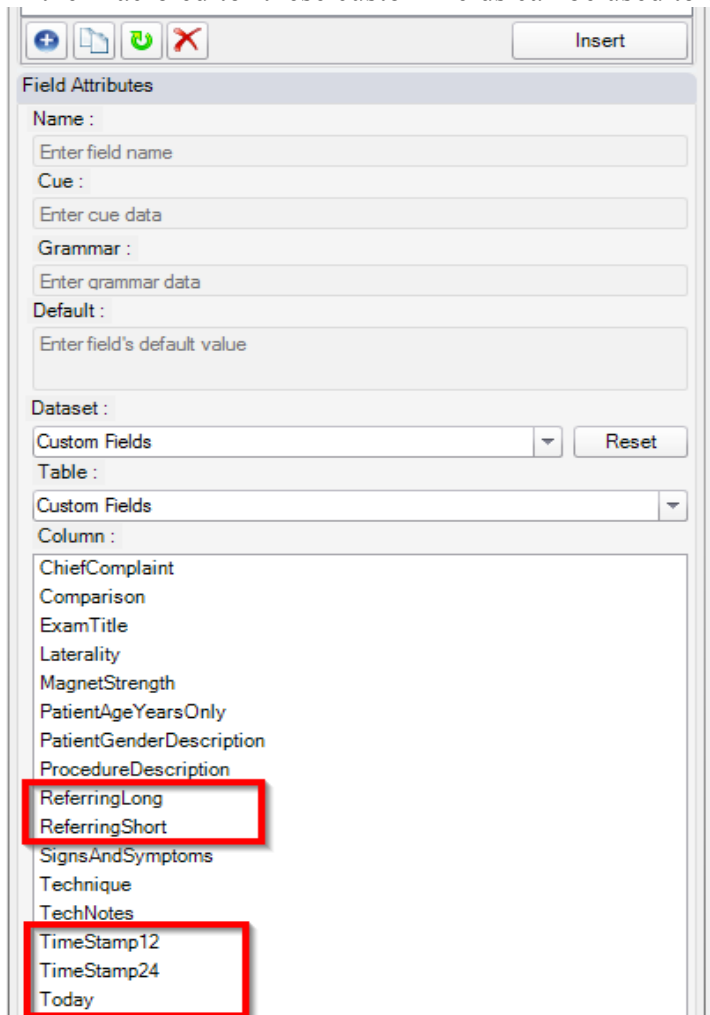
TimeStamp24 – 18:30

Today – 08-13-2013

ReferringShort – Dr. Last

ReferringLong – Dr. First Last

In the Macro editor these custom fields can be used to create a the “Talked to Doctor Macro”.



The screenshot shows the 'Field Attributes' section of a macro editor. It includes input fields for Name, Cue, Grammar, and Default. Below these are dropdown menus for Dataset (set to 'Custom Fields'), Table (set to 'Custom Fields'), and Column. The Column dropdown is open, showing a list of fields: ChiefComplaint, Comparison, ExamTitle, Laterality, MagnetStrength, PatientAgeYearsOnly, PatientGenderDescription, ProcedureDescription, ReferringLong, ReferringShort, SignsAndSymptoms, Technique, TechNotes, TimeStamp12, TimeStamp24, and Today. The fields ReferringLong, ReferringShort, TimeStamp12, TimeStamp24, and Today are highlighted with red boxes.

Figure 5.9 – New custom fields to support talked to doctor macro

The results will look something like this

The image shows a screenshot of a text entry within a software interface. The text is "Spoke with referring doctor [Dr. Laurie Graves] on [12-18-2013] at [3:57 PM]". The text is displayed in a light blue font on a dark background. The macro placeholders are enclosed in brackets.

Figure 5.10 – Talked to Doctor macro used in template

Reporting – No Wait Insert Macro

We have altered how we handle our ‘insert macro’ commands. You can now dictate and insert a macro without pausing. Once the macro is inserted a ‘beep’ (existing) will sound indicating dictation can progress. Users **MUST** wait for the macro to insert because there may be fields within the macro that direct report creation.

Reporting – No Wait Undo/Redo that Voice Commands

Currently there is no option for “redo that” voice command. Also when using the “undo that” command it rarely is recognized on the initial attempt. It will render things like “underline” or “undo that” as text. We need “undo that” and “redo that” to work well without pausing or rendering the text into the editor.

Added in build 42 is the “Redo that” voice command. Also, we now have a concept of adding word to the recognizer and lowering the cost of these words. Think of it as increasing the possibility that these words will be spoken – resulting in better recognition of these particular words.

We now have “undo that” and “undo last” added in this category. These commands existed previously but are not low cost.

We added a completely new voice command(s) “redo that” and “redo last” which will undo the undo command.

Reporting – Load Audio when Signing Reports

Using a user preference to enable and disable automatic loading of audio when signing. The user preference is “**Load audio in sign mode**”. This can be accessed in the workflow section of the reporting tab in the user preferences window.

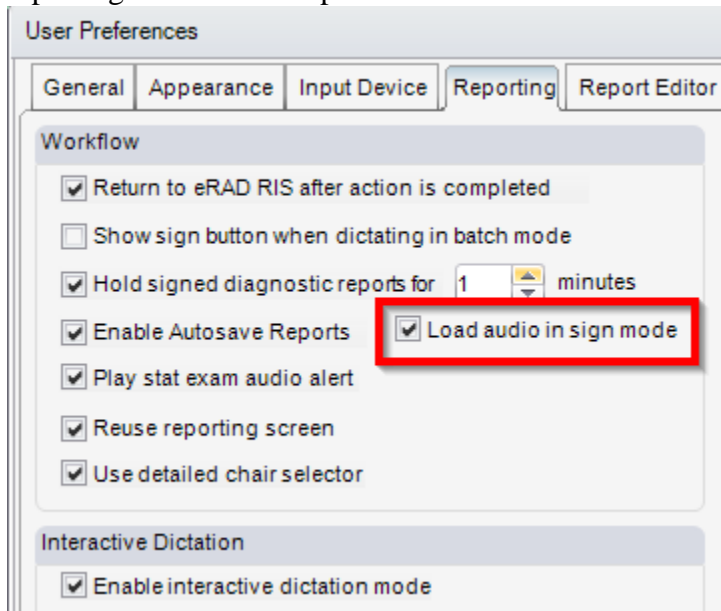


Figure 5.11 – User preference Load audio in sign mode

Reporting – Make STAT Audible Alert Configurable

A new user preference has been added to the Reporting tab / Workflow section titled “**Play stat exam audio alert**”. When selected it will work like it has in the past by informing the user when opening the study in reporting window that it is a STAT exam. When unselected the user will not be presenting with the audible message.

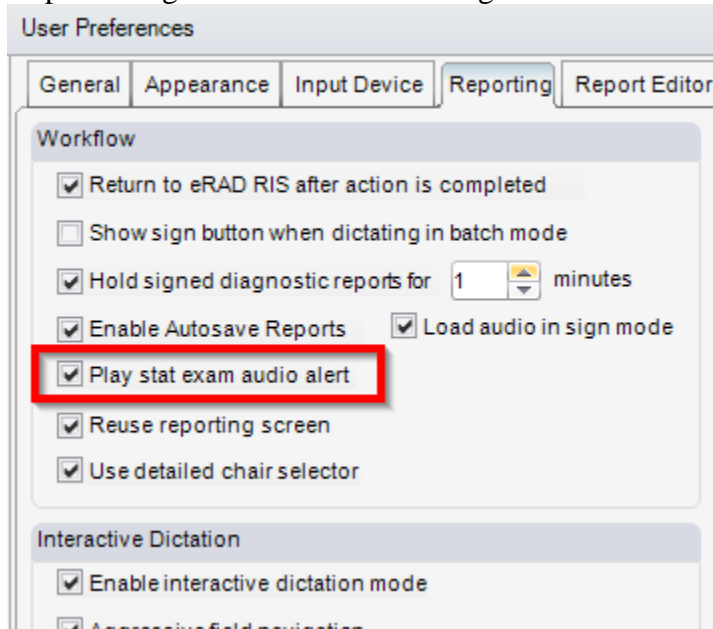


Figure 5.12 – Play stat exam audio alert User Preference

Reporting – Displaying Report Field Tooltips Configurable

Yet another user preference has been added to enable/disable the field tooltips from displaying in the reporting editor. The user preference titled “**Show report field tooltips**” has been added the Report Editor tabs Editor Section.

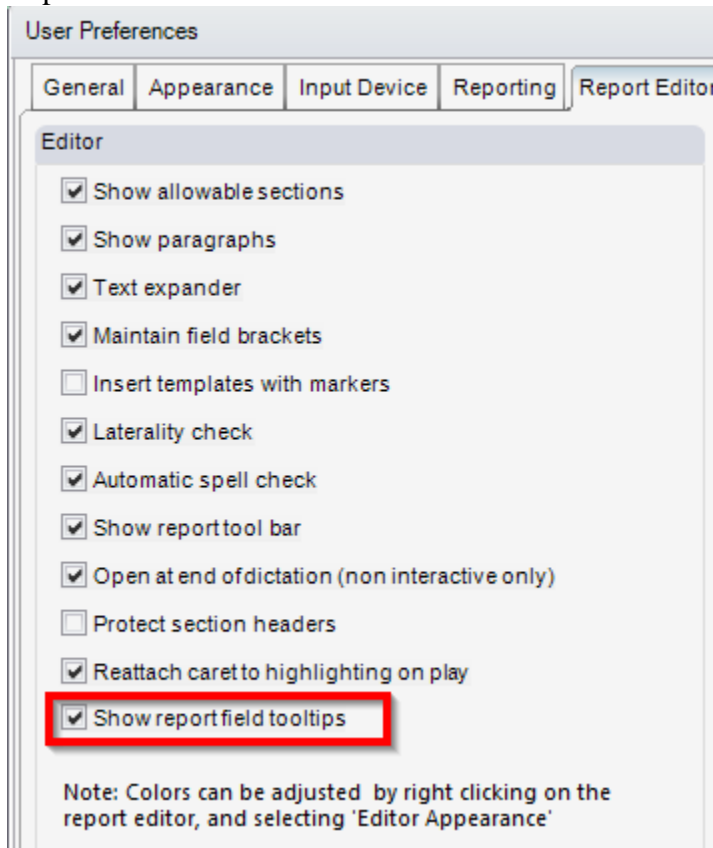


Figure 5.13 – User preference Show report field tooltips

Reporting – Load Dictation Layout in Supervised Radiologist Workflow

In addition to new option in the Sign Report window to load images and patient folder (next feature in this document) we have also added a new user preference that will automatically load the Dictation layout when performing final signature during Supervising Radiologist workflow. The new user preference titled “**Use dictation layout when final signing supervised reports**” will automatically load the users Dictation layout instead of the

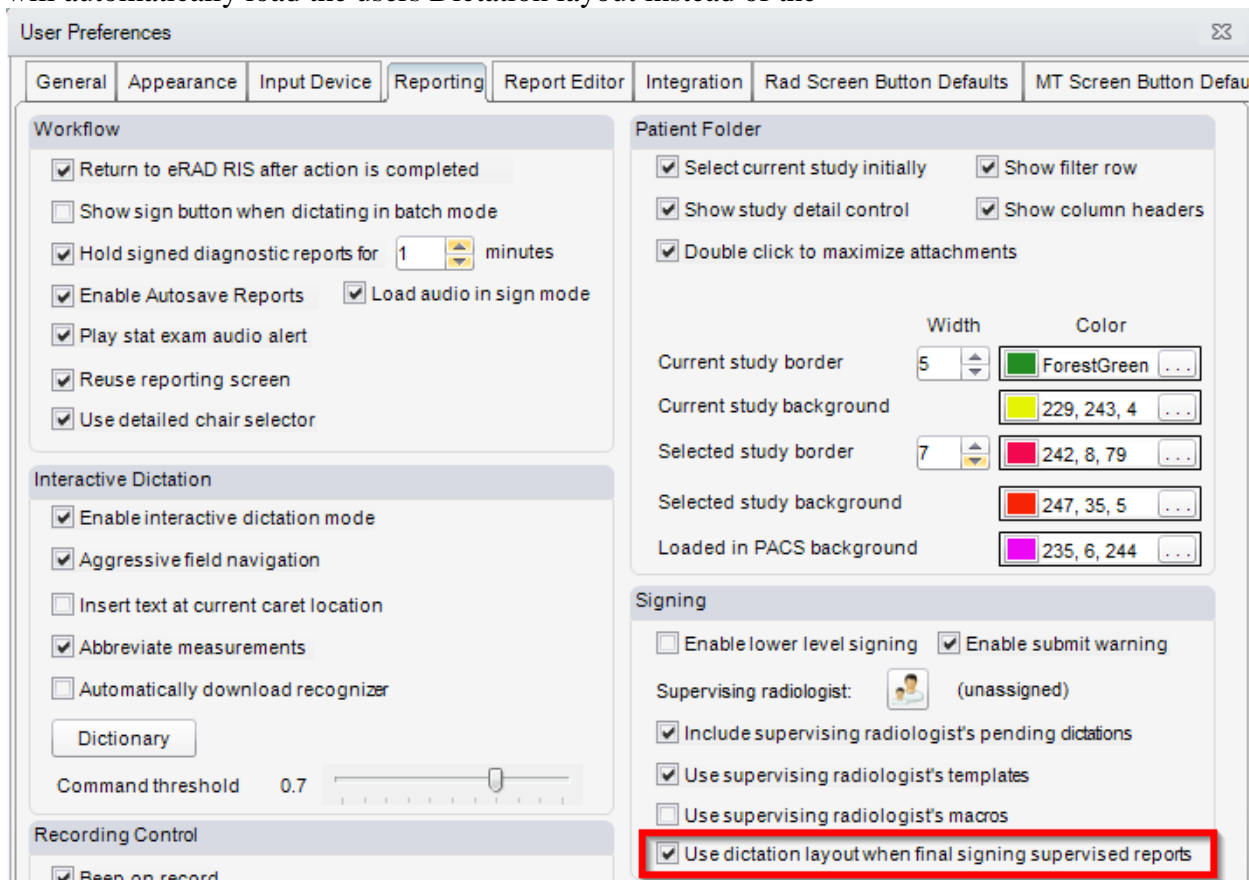


Figure 5.14 – User preference Use dictation layout when final signing supervised reports

Reporting – Open Patient Folder/Images when Signing

Users currently have two main layouts. Either they are signing or dictating. Reason for this is that most signing task don't require the full patient folder detail, pacs images or dictation. So the signing layout is typically much smaller or less detailed then the dictation layout.

Users on occasion do want to display the Patient Folder and other detail similar to dictation when signing reports.

We now provide the user ability to load the dictation layout (patient folder) when signing reports. This is a manual click to load the dictating (patient folder) layout.

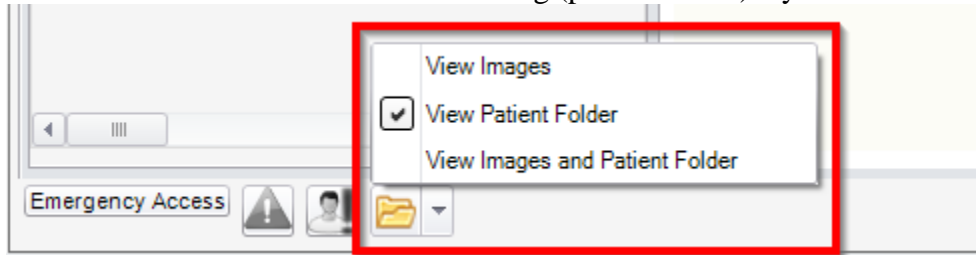


Figure 5.15 – Signing mode layout options

In the example above you can see that the Load Images button has been converted to be a split button with the additional options for “View Patient Folder” and “View Images and Patient Folder” with the “View Patient Folder” currently set as the default. This new dropdown button acts like other dropdown buttons for the reporting screen. Click the arrow to open other options and select option as desired. Holding the CTRL+<option> will render it the default and save in your user preferences.

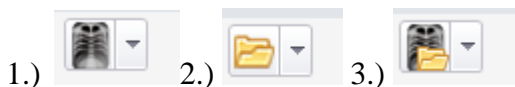


Figure 5.16 – Options available as default

The three images above show the icon when set as default action for 1.) View Images 2.) View Patient Folder 3.) View Images and Patient Folder

When the Sign Report window is reloaded with the next study either from the work list or from the Submit/Sign/Suspend/Skip and Continue option the users Signing Layout will be used. What this means is that it will load the dictation layout when clicking Load Patient Folder but it won't be sticky.

Reporting – Lock Access to Preliminary Reports

Unsigned reports can be previewed, printed and sent to distribution for faxing. To restrict users from distributing preliminary reports we have added a new access string titled

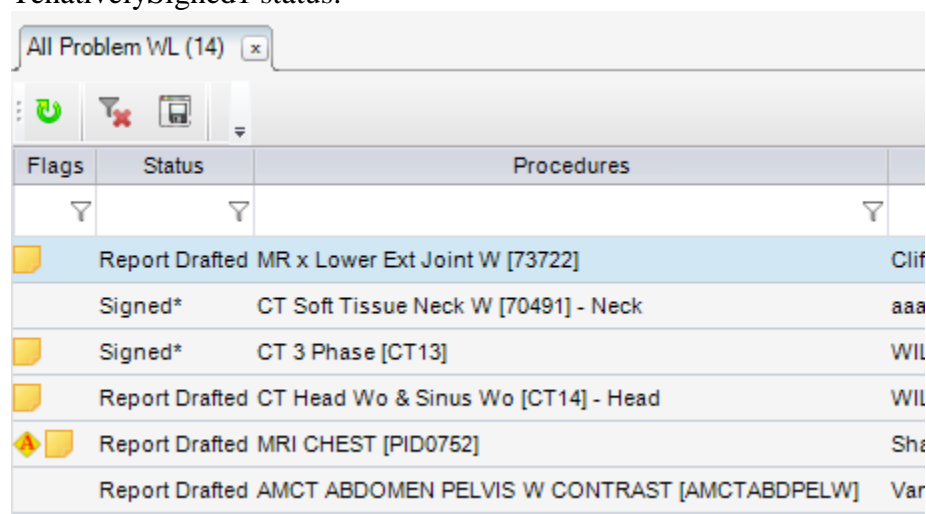
"Clinical.PreviewPreliminaryReport"

If the user does not have this access string set to full, they will not be able to preview, print or fax preliminary reports from context menu within the RIS.

Reporting – Set Problem Flag without Rejecting Report

In previous versions of eRAD RIS users would have to select the Reject/Edit button to enable the Assign to radio buttons. New in build 42 is the ability set the Problem flag without rejecting the report. Along with the Problem radio button, the Transcription list box and Notes fields are also enabled during QA verify report workflow.

Now the All Problem Worklist for MTs will show exams with problem flags set that are in TentativelySigned1 status.



Flags	Status	Procedures	
Report Drafted	MR x Lower Ext Joint W [73722]		Clif
Signed*	CT Soft Tissue Neck W [70491] - Neck		aaa
Signed*	CT 3 Phase [CT13]		WIL
Report Drafted	CT Head Wo & Sinus Wo [CT14] - Head		WIL
Report Drafted	MRI CHEST [PID0752]		Sha
Report Drafted	AMCT ABDOMEN PELVIS W CONTRAST [AMCTABDPELW]		Var

Figure 5.17 – All Problem WL showing studies in Tentatively Signed status

The Resolve problem window is now accessible in the MTs All Problem Worklist via the context menu. Please note this is dependent on the access string “**Clinical.ResolveRadProblem**”.

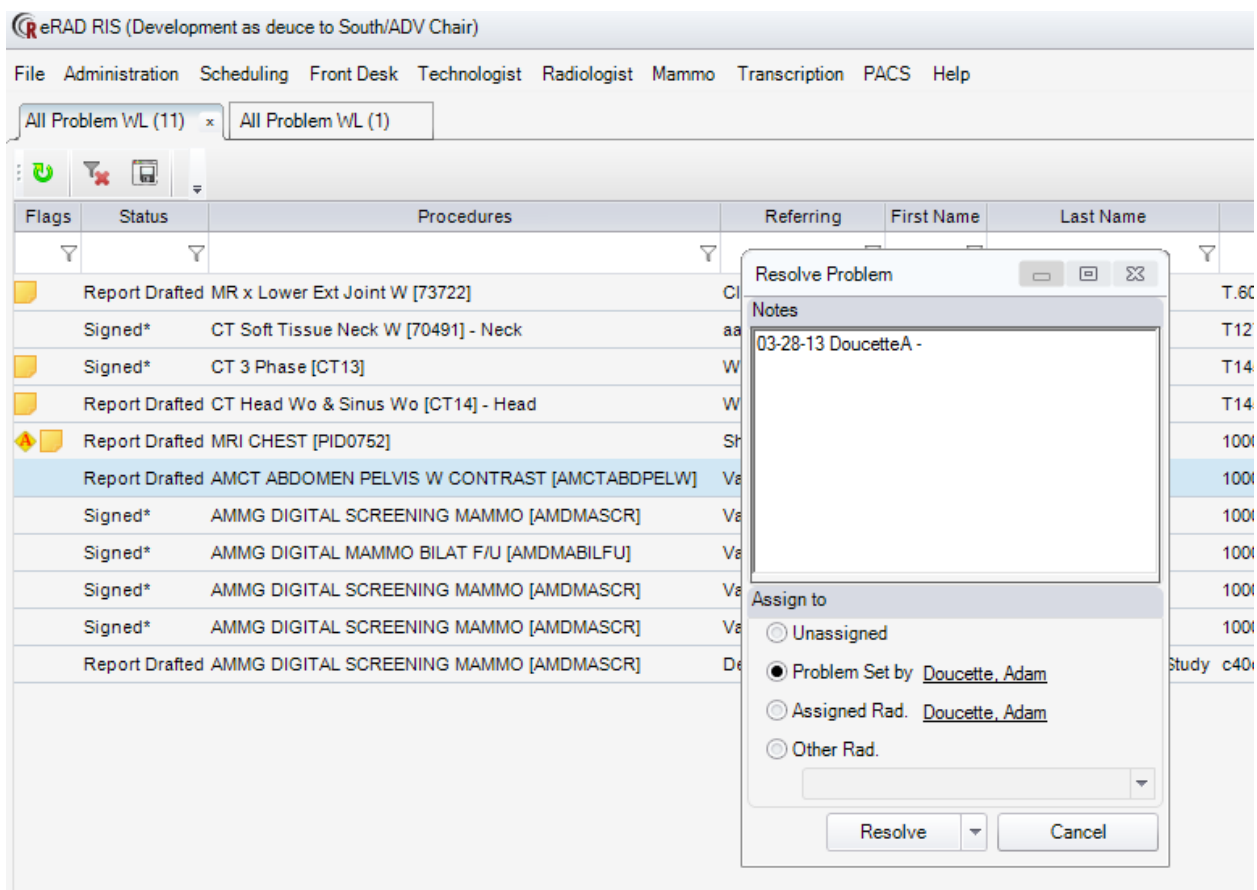


Figure 5.18 – Resolve Problem window accessible from All Problem WL

Reporting – Remove Content Tags from CDA when Creating Macros/Templates

eRAD RIS offers the ability for a user to copy an existing report as a template for future reports. This functionality is inhibited by the fact that the new template they create contains mm:status and mm:part that should be stripped out.

As a result of the mm:status and mm:part still contained in the template, some of the jumping problems we have encountered on play back were related to time stamps being saved in templates and macros at the time of save. To correct this we found we could manually remove the time stamps from the underlying document.

We are now using the convertCdsToCda method to remove the time stamps and unneeded tags.

Reporting – Ability to Configure MModal Transfer Task

The ris.exe.config now has an app setting to override the user preference for M*Modal's Data Transfer Config: **MModalDataTransferValue**

Acceptable values are any sum of the following options:

SUBMIT_TRAINING_INFO: Upload log of user interaction (including recorded audio) to server for profile building. Applicability: only for local recognition; ignored for remote recognition. constant value = **1**

SUBMIT_ERROR_LOGS: Whether to automatically submit an error report for debugging after an uncontrolled shutdown, or when encountering another non fatal error. Applicability: all modes; requires storage manager for crash log uploads (non-fatal error reports can be submitted without). constant value = **2**

STORE_USER_SETTINGS: If set, store user preferences (including audio gain etc) on CDS server, and retrieve on next startup. Applicability: all modes. constant value = **4**

UPDATE_PROFILES: If set, checks at session creation whether an updated user profile is available on the server. If yes it is downloaded in a background thread and used as soon as it becomes available. Until then the recognizer would use either a speaker independent profile, or an older locally cached profile version (only if an IStorageManager is configured). Applicability: local recognition; ignored for remote. constant value = **8**

UPDATE_RECOGNIZER: If set, check in regular intervals whether an updated compatible recognizer version is available on the server. If yes, the recognizer mode is downloaded in a background thread and used when the local recognizer is next instantiated (i.e. not switched out in a running session). Applicability: local recognition; ignored for remote. Requires an IStorageManager, ignored if none is configured. constant value = **16**

WRITE_DEBUG_LOG: Like SUBMIT_TRAINING_INFO, but leaves information in a local IStorageManager for debug purposes instead of (or in addition to) uploading it to a server. Applicability: local recognition; ignored for remote recognition constant value = **32**

If the value is not present or invalid, we resort to existing logic. This would be to check the user config for auto download, if present use 29 else 13

13 = SUBMIT_TRAINING_INFO, STORE_USER_SETTINGS, UPDATE_PROFILES
29 = SUBMIT_TRAINING_INFO, STORE_USER_SETTINGS, UPDATE_PROFILES, UPDATE_RECOGNIZER

0 (zero) is a valid option. Zero will disable the calls.

Reporting – Make Patient Name Stand Out in Reporting Windows

The reporting windows now have additional optional patient and study information that can be displayed on the top of the main reporting window and also can display on the top of any floating data panes. If a multiple floating panes are grouped together, it will only appear on the title bar of the floating group.

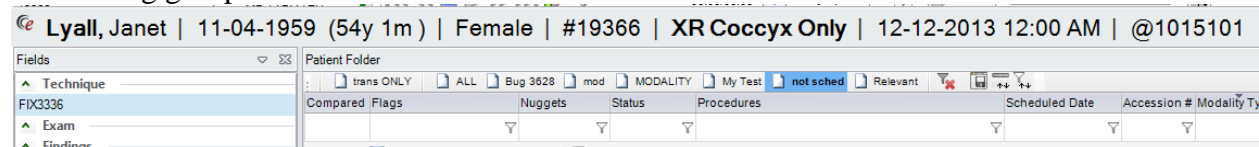


Figure 5.19 – Patient and Study information in title bar

Looking at the figure above I have the font size set to 16. The font size options are from 8-20. The context menu displayed above is accessed via a right click on the title bar. Under the Window Caption option the sub menu allows for font size change and option to display the Patient Information, Study information, both or neither.

Patient Information includes the patients name, DOB/age, gender, and MRN.

Study information includes the procedure, performed start date/time and the accession number

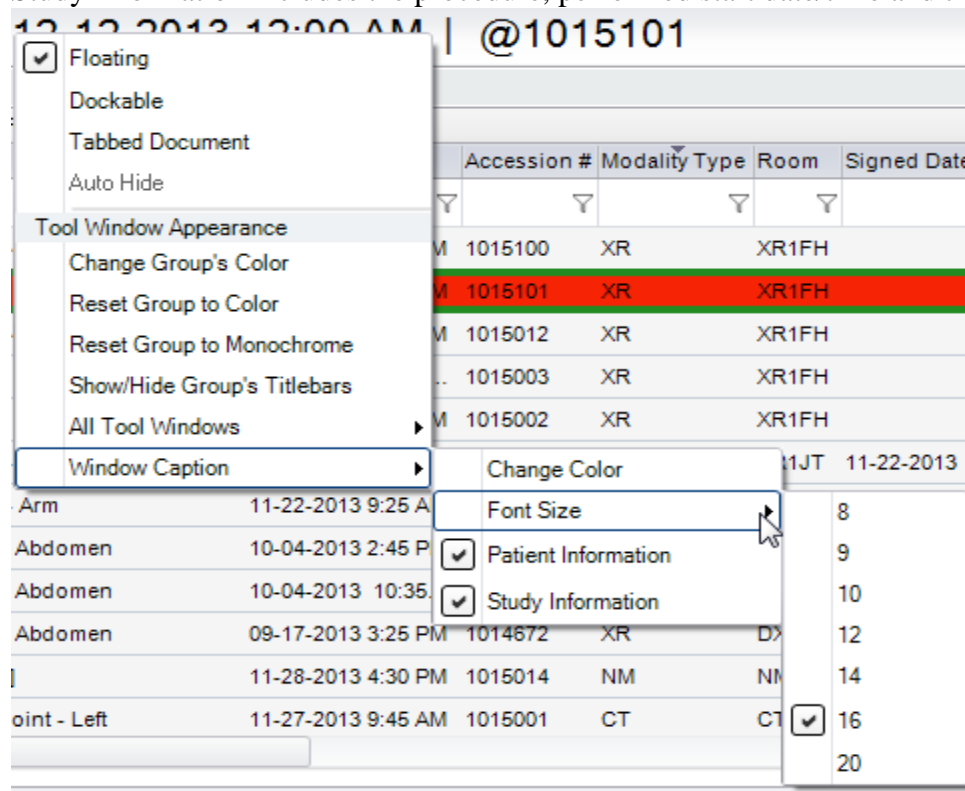


Figure 5.20 – Context menu from title bar showing Window Caption options

Reporting – Create Backup of Capture Log

We now back up old capture logs.

On startup of Interactive, we check for existing capturelog file in \$APP_PATH\captureLog.txt

If exists, we copy a backup to \$APP_PATH\Reporting\CaptureLogs\%USER%\captureLog-yyyy-MM-dd HH.mm.ss.log where yyyy-MM-dd HH.mm.ss is the LAST WRITTEN time on the current existing file.

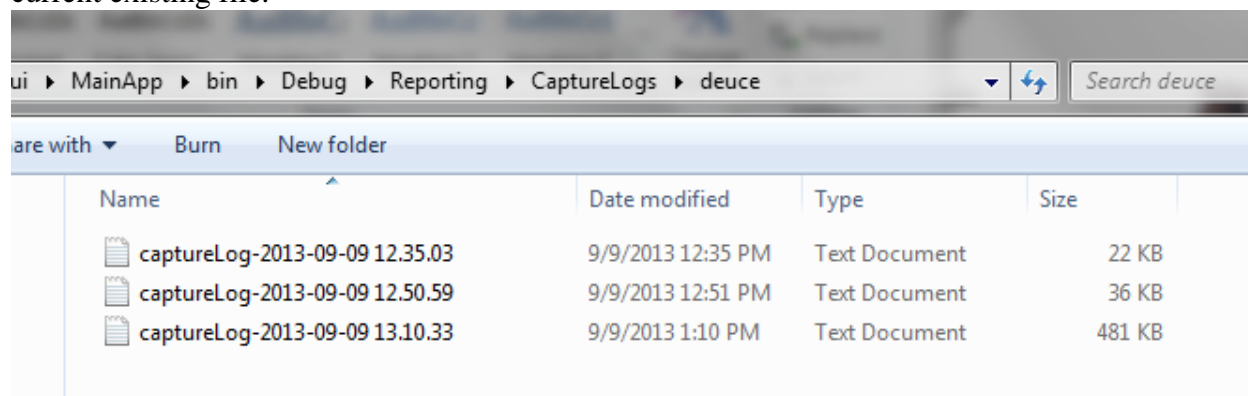


Figure 5.21 – Showing CaptureLogs backup path

Then we start up the new capture log which overwrites the old file location, as we always did.

So the current active capture log file name and location is unchanged. This will make for easy transition for support. Only the backed up logs are in a new location and file name.

Similar to the verbose logs, we check for outdated capture logs on login and delete ones that are older than two weeks and have not been accessed within the last day.

Relevancy Calculation Adjustable via Configuration

In production we have procedure codes that because of legacy data have very different names even on different modality types, but those procedures are actually exactly the same and should match exactly when assigned a relevancy score. Previous to B42 this was not possible because the relevance calculation was based entirely on word matching. A score was assigned based on the number of matching words and words that are modality type, body part or laterality are given great weight in the matching. Furthermore the administrator can setup the site so that only studies done on the same modality are considered relevant.

A new window titled Relevance Override has been added and is accessed from the “Override...” button on the Relevance lookup table.

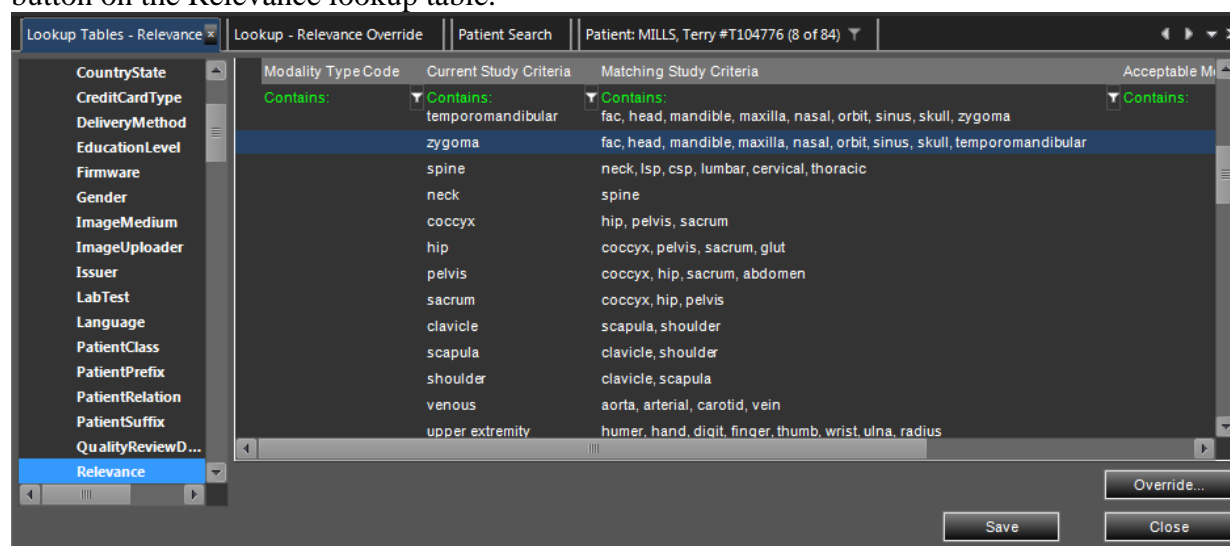


Figure 5.22 – Accessing the Relevancy Override window

When procedures in the patient’s history have a matching relevancy override the configuration defines how much weight will be assigned as part of the procedure matching score (value between 0 and 100) and if the outcome will produce a Matching or Non-Matching Relevance Flag.

This solution also allows laterality to be an option part of the matching criteria. If the laterality is blank then it isn’t considered as part of the matching criteria; however, if laterality is selected as “Same” then the rule only applies if the laterality of both procedures is identical. If the laterality is selected as “Different” then the rule only applies when the laterality differs and can be used to lower the score or make it Not Relevant, which could be useful when you want to give a high score when the laterality matches but a significantly lower score when the laterality is different.

Lookup Tables - Relevance		Lookup - Relevance Override	Patient Search	Patient: MILLS, Terry #T104776 (8 of 84)				
Procedure Code X	Procedure Code Y	Laterality	Adjusted Score	Override Relevancy	Last Updated			
Contains:	Contains:	Contains:	Equals:	Contains:	Contains:			
76645MA1 US zBREAST & MA DIGITAL MAMMO CB DIAG BI	G0206CB/US MA DIGITAL MAMMO CB DIAG UNI & US BREAST		100					
sample1 XR Chest 2 Views PA and Lateral	sample2 AMDX CHEST 2 VIEWS		100	Relevant	08-19-2013 2:...			
71275 CTA Chest W/Wo	71270 CT Chest W/Wo		100	Relevant	08-19-2013 2:...			
71275 CTA Chest W/Wo	71250 CT Chest Wo		90	Relevant	08-19-2013 2:...			
71275 CTA Chest W/Wo	71260 CT Chest W		90	Relevant	08-19-2013 2:...			
71275 CTA Chest W/Wo	CT1 CT Chest Wo & Abdomen Wo		90	Relevant	08-19-2013 2:...			
MA511 MA Digital Needle Loc 3 Sites Unilateral W Clip	MA510 MA Digital Needle Loc 2 Sites Unilateral W Clip		0	NotRelevant	08-19-2013 2:...			

Figure 5.23 – Relevance Override

When the user clicks on the “Override...” button a tab opens up for the “Relevance Override” table, which allows you to specify two procedures (X and Y). When calculating relevancy if the studies match based on X and Y then the adjusted score will be applied and the relevancy flag will be set based on the selected value in the “Override Relevancy” column.

Note: The “Adjusted Score” and “Override Relevancy” columns are optional. If the “Adjusted Score” is blank then the score will remain as it was calculated without the override but the relevancy flag override would apply. Also, if the “Override Relevancy” column is blank only the score will be adjusted.

In the above Relevance Override configuration the procedures 76645MA1 and G0206CB/US are interesting. One is a US Breast & MA MAMMO CB and the other is a MA Mammo CB and US Breast. The default word matching produces a relevance score that is very close but not exact therefore some installations of RIS will want to correct for this. The following screen shots shows the relevancy results for a test patient’s history – the first screen is with the override rule inactive and in the second screen shot the rule has been activated.

Relevance...	Relev...	Flags	Nuggets	Status	Procedures	Scheduled Date
				StartsWith: signed	Contains: mammo	
Y	100			Signed	MA DIGITAL MAMMO CB DIAG UNI & US BREAST [G0206CB/US] - Breast - Left	12-13-2012 2:52 PM
Y	72			Signed	MA DIGITAL MAMMO CB DIAG UNI & US BREAST [G0206CB/US]	07-19-2011 10:15 AM
Y	65			Signed	MA Digital Mammo Diag Uni [G0206] - Breast	11-16-2012 8:43 AM
Y	64			Signed	MA DIGITAL MAMMO SCREEN BIL [G0202] - Breast	08-19-2012 1:37 PM
Y	64			Signed	MA DIGITAL MAMMO SCREEN BIL [G0202] - Breast	08-18-2012 12:54 PM
Y	64			Signed	MA DIGITAL MAMMO SCREEN BIL [G0202] - Breast	08-18-2012 12:54 PM
Y	64			Signed	MA DIGITAL MAMMO SCREEN BIL [G0202] - Breast	08-17-2012 1:36 PM
N	68			Signed	US zBREAST & MA DIGITAL MAMMO CB DIAG BI [76645MA1] - Breast - Bilateral	08-18-2012 9:05 AM

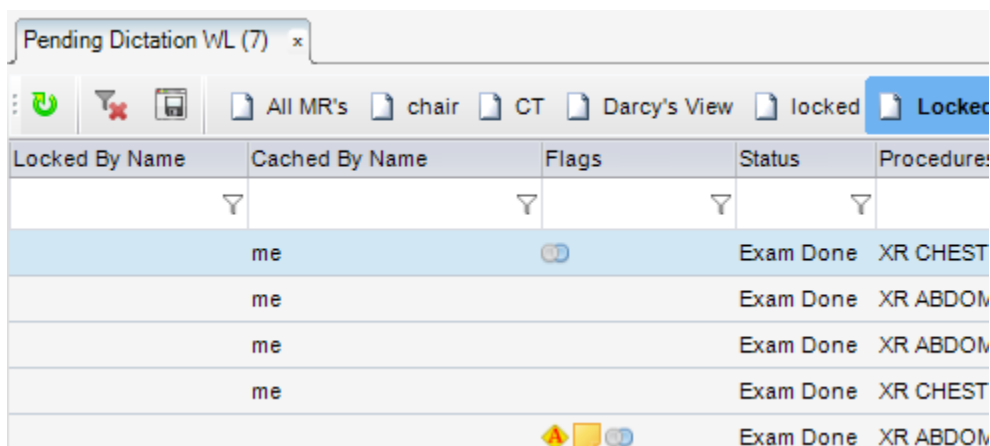
Relevance...	Relev...	Flags	Nuggets	Status	Procedures	Scheduled Date
				StartsWith: signed	Contains: mammo	
Y	100			Signed	MA DIGITAL MAMMO CB DIAG UNI & US BREAST [G0206CB/US] - Breast - Left	12-13-2012 2:52 PM
Y	99			Signed	US zBREAST & MA DIGITAL MAMMO CB DIAG BI [76645MA1] - Breast - Bilateral	08-18-2012 9:05 AM
Y	72			Signed	MA DIGITAL MAMMO CB DIAG UNI & US BREAST [G0206CB/US]	07-19-2011 10:15 AM
Y	65			Signed	MA Digital Mammo Diag Uni [G0206] - Breast	11-16-2012 8:43 AM

Figure(s) 5.24 – Before and After Override applied

Note: that in the first screen shot without the Relevance Override, the 76645MA1 doesn't even show up as relevant because in the base relevancy rules there is a rule that says only MA modality type studies are relevant to MA studies. In the second screen shot the rule for 76645MA1 and G0206CB/US says the procedure matching will get a score of 100% but since the procedure matching only accounts for half of the total score (the other half is used to sort by date), therefore we see the score increase from 68 to 72 and 76645MA1 actually gets placed before the older G0206CB/US study because it's a recent prior.

Reporting – Cached by Name Column

Cached By Name column has been added to the Pending Dictation Worklist. It shows the formatted name of the user who is caching the study. The logic behind which studies are cached follows the same criteria as the 'Next' logic of the Dictation window. That means it starts at the top of the sorted worklist. This is re-evaluated every time the worklist is refreshed. If you are the one that is marked for caching the study it will simply have "me" as the Cached by Name value.



The screenshot shows a web application window titled "Pending Dictation WL (7)". Below the title bar is a toolbar with icons for refresh, delete, save, and several filter buttons: "All MR's", "chair", "CT", "Darcy's View", "locked", and "Locked". The main area contains a table with the following columns: "Locked By Name", "Cached By Name", "Flags", "Status", and "Procedure". The "Cached By Name" column is highlighted with a dropdown arrow. The table contains five rows of data, all with "Exam Done" status and "XR ABDOM" procedure. The first row has "me" in the "Cached By Name" column and a "Flags" icon. The second row has "me" in the "Cached By Name" column. The third row has "me" in the "Cached By Name" column. The fourth row has "me" in the "Cached By Name" column. The fifth row has a warning icon, a yellow box, and a "Flags" icon in the "Flags" column, and "Exam Done" in the "Status" column.

Locked By Name	Cached By Name	Flags	Status	Procedure
	me		Exam Done	XR CHEST
	me		Exam Done	XR ABDOM
	me		Exam Done	XR ABDOM
	me		Exam Done	XR CHEST
			Exam Done	XR ABDOM

Figure 5.25 – Cached by name column on Pending Dictation work list.

Right-clicking on a study on the pending dictation worklist and selecting Add To Cache will cause that study to be cached regardless of its position in the worklist. This uses up one of the available cache slots as dictated by the Max Number to Cache user preference. Multi-selecting studies will cache studies up to this max number. Manually cached studies will be un-cached when either a different study (or set of studies) is selected to be manually cached or when they drop off the worklist due to a worklist sorting change or a change in the status of the study.

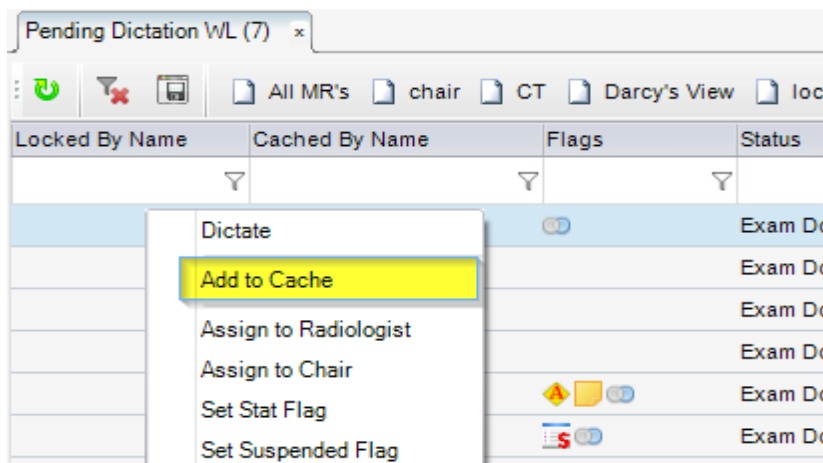


Figure 5.25a – Add to Cache context menu option from Pending Dictation WL

IW PACS “Caching” was attempted by actually opening the study. This has issues where studies that are “caching” sometimes pop up over top of images actually in use. This is probably suitable to be tested by a radiologist with warning they should be cautious and ensure that the images they are sync’d with the study they are reading.

Reporting – PACS Server Override

It has been requested that radiologists be able to access images on eRAD PACS and PACS IW from the same work list without changing the practice selected in the Org picker. This is now possible with the selection of a new user preference.

On the Integration tab there is a new option titled PACS Server and associated list box. This list box will contain the available PACS systems configured in the PACSServer lookup table that are in Active status. An access string named “**Clinical.UserPreferences.PACSServerOverride**” has been added for this preference with a default value of Disabled.

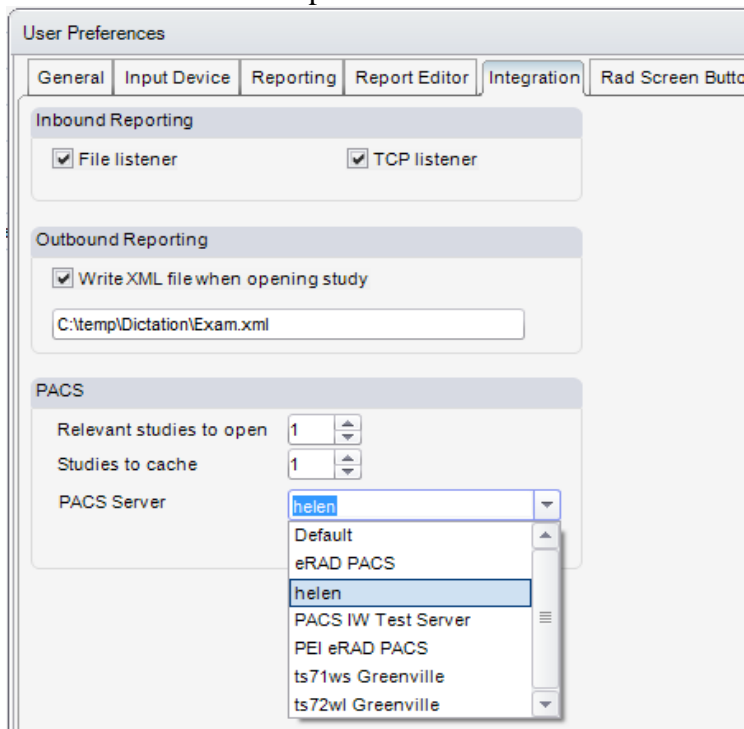


Figure 5.26 – PACS Server user preference

One of the PACS Server options is Default. If this is selected, the default PACS Server associated with your current practice selected in the Org picker will be used (same as before). If a specific server is selected, this will be the PACS that the images are displayed. For instance, if patient A has images on eRAD PACS and also PACS IW Test Server, when that server is selected the call for PACS will be made to that server and not the default for the practice.

NOTE: If the PACS Server user preference selection is changed, the user will need to log out and back in again to pick up the changes. The user may encounter an error if they don't logout after changing the user preference.

Reporting – Noticeable Sign Button in Reporting Windows

To make the Sign button in the reporting windows easier to identify a new user preference was added add color to the background of the button and the option to change the font color.

The “**Visually enhance sign button**” user preference is located on the Appearance tab under the Radiologist Reporting Buttons section.

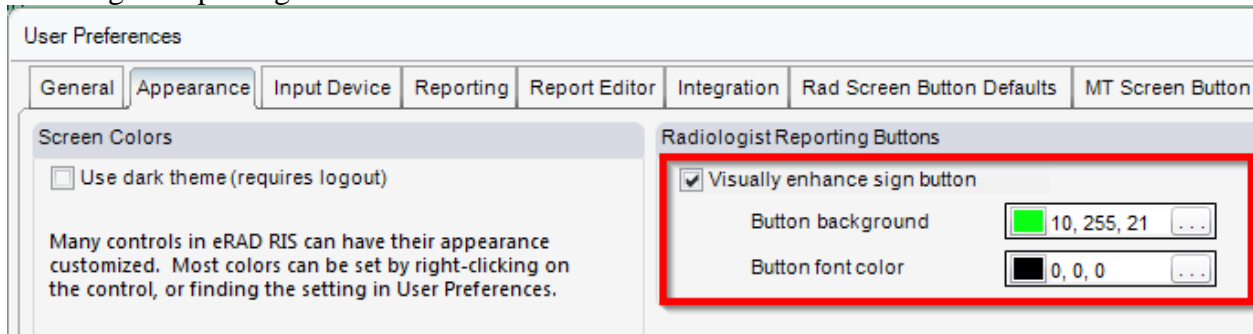


Figure 5.27a – New user preference Visually enhance sign button

With the preference selected and the above colors set the Sign button will look this in the reporting widow.

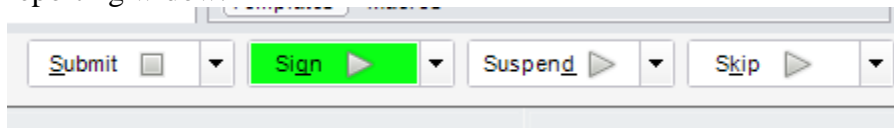


Figure 5.27b – Noticeable Sign Button in Reporting window

Reporting – Chair Workflow Enhancements

You will first notice the Chair workflow enhancements upon login of eRAD RIS in build 42. Users can be presented with the new chair selector.

The screenshot shows the 'Primary Chair Selection' window. At the top, there's a date selector set to '12-19-2013' and a 'Chair' dropdown menu currently set to '(not set)'. Below this is a table with columns for 'Chair', 'Primary Occupant', 'Directly Assigned', 'Guests', and a detailed breakdown of 'Exam Units' and 'RVUs' categorized by 'To Be Read', 'Read', and 'Total', further split into 'Left Over' and 'Today'.

Chair	Primary Occupant	Directly Assigned	Guests	Exam Units						RVUs					
				To Be Read		Read		Total		To Be Read		Read		Total	
				Left Over	Today	Left Over	Today	Left Over	Today	Left Over	Today	Left Over	Today	Left Over	Today
East	Anchikoski, Randy, Radiologist, janet_r	0		0	1	7	0	7	1	0.00	1.00	15.00	0.00	15.00	1.00
West	Martin, Jesse Lee	1		0	0	3	0	3	0	0.00	0.00	7.00	0.00	7.00	0.00

Figure 5.27 – New Chair selector

The original chair selector provided a simple drop down list of chairs and an OK and Cancel button. We have augmented this screen to show which radiologists are currently assigned to each chair, and we now describe the amount of work assigned to the chair for today and previous days. The old chair selector is still available and the user can choose “the old” or “the new” chair selector with a new User Preference “**Use detailed chair selector**”. This is found under Reporting>Workflow.

The radiologist can select a chair either by clicking the blue hyperlink for the chair, or they can use a dropdown list if they prefer to make a selection with the keyboard. Once the radiologist selects a chair, the chair selector will disappear, and a chair filter will be applied to the My Pending Dictation WL.

The calendar control in the top left of the chair selector is used to determine the effective date for the statistics shown for each chair e.g. the stats for each chair break down the number of exams into “Today” and “Left Over”. The calendar control defaults to “Today” when the chair selector is initially opened, so the “Today” column represents exams that were assigned to the chair today, while the “Left Over” column covers exams that were assigned in the previous 7 days. If the radiologist changes the date to reflect “Yesterday”, the numbers in the “Today” column will instead reflect the exams assigned “Yesterday”, while the “Left Over” column will again reflect the 7 days prior to “Yesterday”. The calendar control also affects the numbers shown in the “Directly Assigned” column, we calculate the total number of exams assigned to the primary occupants of the chair based on the specified “chair assigned date.”

For practices with a large number of chairs, we may find that there are too many choices to fit onto a single page. The tool strip has “next page / previous page” style controls that will allow the user to browse all of the chairs if desired. The “Find” control on the same tool strip can also be used to help jump to other pages.

Primary Chair vs “View Other Chairs”

The chair selector serves the dual purpose of allowing the radiologist to set their Primary Chair that they will be working for the day, while still allowing them to browse the worklist for other chairs. When the radiologist first logs in, they will be presented with the chair selector with the title “Primary Chair Selection”

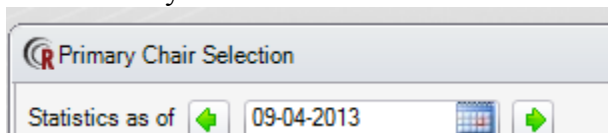


Figure 5.28 – Primary Chair Selection window

The primary chair selection will be used to ensure a particular chair is credited for the work done by the radiologist. We will assign an exam to the radiologist’s primary chair once it is dictated or signed, provided it has not already been set.

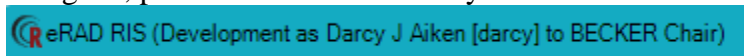


Figure 5.29 – Primary chair displayed in the title bar

After the radiologist selects a primary chair, they can bring up the chair selector by pressing the chair icon on the status bar at the bottom of RIS. The chair selector now has the title “View Other Chairs” and will be used for filtering worklists only, credit will not be assigned to this chair when the radiologist is dictating or signing exams.

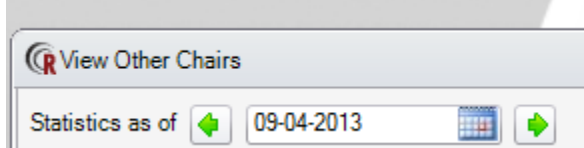


Figure 5.30 – View other chair selector

The figure below indicates that the “South” chair is occupied by Janet i.e. Janet’s Primary Chair is “South” and that “Darcy” is currently filtering his worklist for the “South” chair via the “View Other Chairs” selection. In this case the 2 “Directly Assigned” refers only to the occupant of the chair (i.e. Janet).

Chair: <u>South</u>	Directly
Occupant: Arsenault, Janet	Assigned
Guests: Aiken, Darcy J	2

Figure 5.31 – Occupants and Guests displayed in chair selector

If a user tries to choose a chair that is already occupied by another user, they are presented with a prompt to confirm their choice:

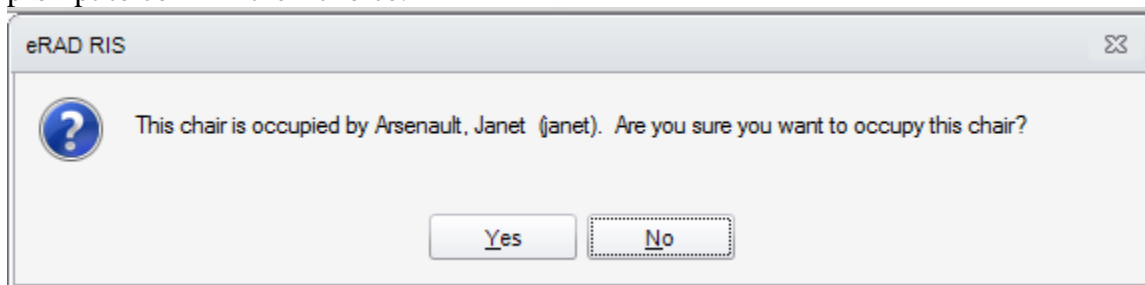


Figure 5.32 – Prompt to confirm when the user selects a chair that is occupied by another user

Previously the RIS back end services were agnostic of the user's Primary Chair selection, this was a detail managed solely by the client. We were required to save the user's choices to the database in order to be able to show occupants and guests on the new chair selector. We clear out these choices when the user logs out. In the event of an abnormal application termination (e.g. a power outage or crash), we do not have the opportunity to clear out the chairs. In this case, the chair occupants will remain in their chairs until they log back in and make a new selection, or their chair selection expires. RIS is presently set to occupy a chair for 2 hours or until the user logs out or makes a different selection, these 2 hour chair selections are renewed every hour.

Descriptive Statistics for Chairs

Chair: Becker						Directly Assigned
Occupant: Powell, Stick Gordon MD; Harding, Clifton L; Waite, Andrew R Jr; Doucette, Adam; Aiken, Darcy J						1
Guests:						
To Be Read		Read		Total		
Left Over	Today	Left Over	Today	Left Over	Today	
#	0	0	1	0	1	0
RVU	0.0	0.0	1.0	0.0	1.0	0.0

Figure 5.33 – Close-up of the statistics for a single chair

The following logic was used to calculate the numbers in the chart above:

Label	Definition
Directly Assigned	The total number of exams assigned to all primary occupants of the chair with a chair assigned date that matches the selection in the calendar control on the chair selector
To Be Read	Exams with a status of ExamDone or Signed with an addendum

	requested
Read	Exams with a status of Dictated, Transcribed, Report Drafted, Tentatively Signed, or Signed (excluding Signed Exams with an addendum requested)
Today	Exams with a chair assigned date that matches the selection in the calendar control on the chair selector
Left Over	Exams with a chair assigned date that is within the 7 days prior to the selection in the calendar control on the chair selector
#	The number of exams
RVU	The sum of the weighted value for the exams. These weighted values can be configured by procedure code and practice, the configuration for these weights is discussed later in this document.

Table 5.1 – Detailed explanation on stats in chair selector

Chair Selection Management Report

The tables shown in the chair selector thus far have all been built within a management report. There is a new system configuration setting called “**ChairSelectionReport**”. RIS will fall back to the previous chair selector if this entry is blank. A valid entry for this setting will describe the path to a management report on the report server (e.g. /dev/Management Reports/Custom/ChairSelection). The use of a configuration setting will help with the introduction of different versions of Chair Selection Reports – if the new version has issues, the configuration setting can be set to point back to another version of the report.

The hyperlinks in the chair selection report must be crafted in a particular way in order to be handled by RIS. This approach will initially be managed and refined by eRAD R&D and documented later for use in the field.

Work Unit Configuration (aka RVUs or weights)

Procedures can now be assigned a relative weight to make it easier to ensure radiologists are given the appropriate credit for their work. Some procedures are significantly more involved than others, (e.g. Chest X-Ray vs PET/CT) so comparing just the number of exams is not meaningful. Access to see the RVUs option in the chair selector is configurable based on the new access string “**Clinical.ShowRVUs**”

There is now a new configuration option under Administration -> Configure -> Procedure -> WorkUnit that allows an administrator to assign weights to different procedures.

Procedure	Practice	Work Units	Display Order	Effective Date	Dollar Value	Last Updated	Active
Contains	Contains	Equals	Equals	Equals	Equals	Equals	Contains
Click here to add a new row							
CT 3 Phase (CT13)	Advanced Radiology	2.000	1	07-01-2013		08-26-2013 2:08 PM	Y
CT 3 Phase (CT13)	Advanced Radiology	1.100	1			08-26-2013 1:16 PM	Y
CT 3 Phase (CT13)	Advanced Radiology	3.000	1	08-01-2013		08-26-2013 1:13 PM	Y

Figure 5.34 – WorkUnit configuration lookup from Administration -> Configure

Work units are designed to allow different practices to assign their own weights to the same procedure. Rather than require the administrators to map out rules for each procedure and practice, we have a default weight of 1.00 that will be used for any procedure that does not have a weight configured (for a given practice).

Because weights may be subjective, we have built in a date based versioning scheme. If an administrator decides that a Chest X-Ray should have a weight of 0.10 units, they can set the effective date to July 1, 2013 to make the new weight apply to all studies with a date of service greater than July 1, 2013. In the event that their opinion changes as to the relative weight of a Chest X-Ray, they have the option of changing the 0.10 to another value (e.g. 0.20) either by modifying the existing row, or creating a new row with a different effective date. If the new effective date is August 1st, 2013, it will apply only to exams performed after August 1st, while those performed in July will still use the original weight of 0.10. Modifying an existing weight and leaving the previous “effective date” intact will retroactively assign the new weight to exams performed after the effective date.

It is important to note that the default of 1.00 will apply to any exam performed before the earliest effective date for a given procedure and practice. If there is no rule for Chest X-Rays with an effective date earlier than July 1, 2013, then any Chest X-Rays performed in June would be the default 1.00 units. There is also a Dollar Value column that behaves the same as the weights themselves, but this may be removed if it does not add value.

Chair Assigned Date

There is now a new attribute that is set when assigning an exam to a chair: chair assigned date. Whenever a user in the RIS client assigns an exam to a chair, we now set the chair assigned date to the current date and time. Although the “chair assigned date” has not been added to any worklists, the chair assigned date is factored into the statistics on the chair selector’s statistics - “Left Over” vs “Today” is determined using the chair assigned date.

Administration - Display Locked Items in Different Color on the Work List

This requirement was almost achievable without code by using the existing “Conditional Formatting” telerik feature, except for one limitation. The user could have created a conditional format filter with a ‘Contains’ condition looking for their userID. However, this means the filter would have to be created by each radiologist independently and could not be shared since it is unique to each person’s userid. Also, the conditional formatting tool is not a simple and intuitive feature for a novice user, therefore the effort of creating and maintaining these features would have fallen to implementation people to create and maintain for each radiologist. We deemed this too much work, and a feature could be built to support it instead.

The column/cell that will be colored is the locked_by_name column and the cached_by_name column.. Therefore, implicitly this column must be in the worklist you wish to add this feature to.

The user will be able to select the foreground and background colors simply and easily. The user will be able to select either “Colour my rows” or “color other people rows” or both. The system will have default colors that will be compatible with both light and dark mode. The color filters will be part of the worklist views feature; therefore saving a worklist view implicitly saves the color filters.

To implement this, a new control was added to the right-click menu on the worklist.

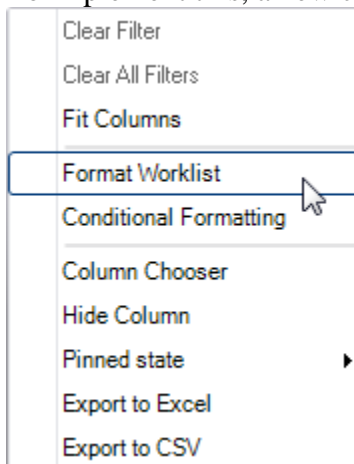


Figure 5.35 – Context menu option to create colored columns for Locked By and Cached By

Selecting Format Worklist from the context menu as displayed above will open the Formal Worklist window.

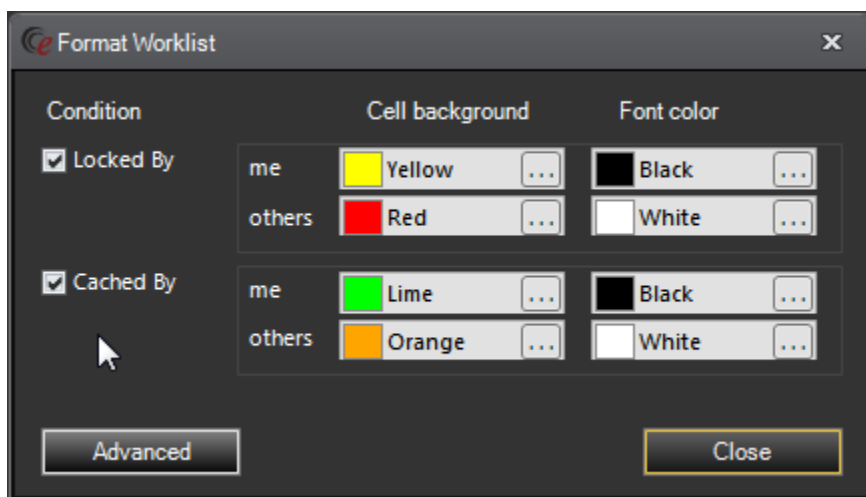


Figure 5.36 – Format Worklist window

This screen allows the user to configure their color filters.

The ‘Advanced’ button is provided as another way to access the Telerik Conditional Formatting feature. The Close button implicitly stores and invokes the color filters.

NOTE: *Once color filters are set, they must be saved into a worklist view if the user would like to keep the selection.*

As well, it was mentioned that the user might like a filter condition which would show them only the worklist rows that they currently have locked.

While the user could just create a typical worklist filter condition, it was slightly complicated by the fact that the expected filter condition (ie, starts with ‘me’) would not work. In fact, it would have to be written as (contains me). To simplify this for the user, a new filter context menu option was added.

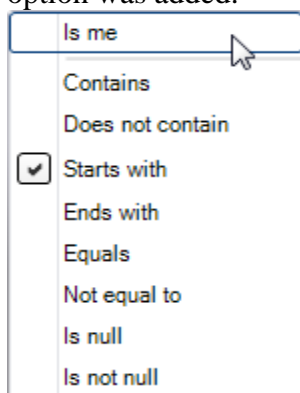


Figure 5.37 – Filter option added


Attachments - “Show Me Everything” Option

The attachment types dropdown can be configured to display only those attachments they want to see appear in the Attachments data pane or data nugget. We have added an option to enable the users to have access to the remaining attachments that may be associated with the patient.

Two new options will appear in the attachment types dropdown

+ Show More

- Show Less

By default the attachment data nugget opens with only the scan document types the user wants to see, which is configurable via the '  button'. By choosing "+ Show More" the attachment data nugget will reopen and display all attachment types regardless of user preference.

These options will not display if there are no additional attachments.

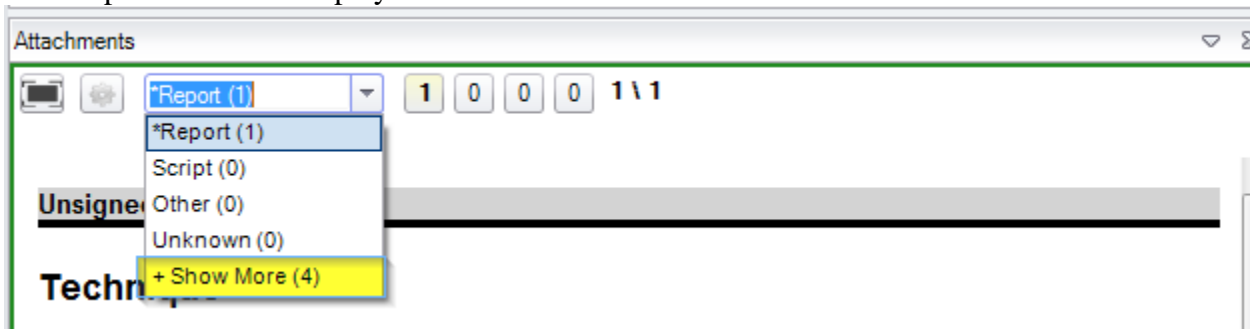


Figure 5.38 – Show more attachments

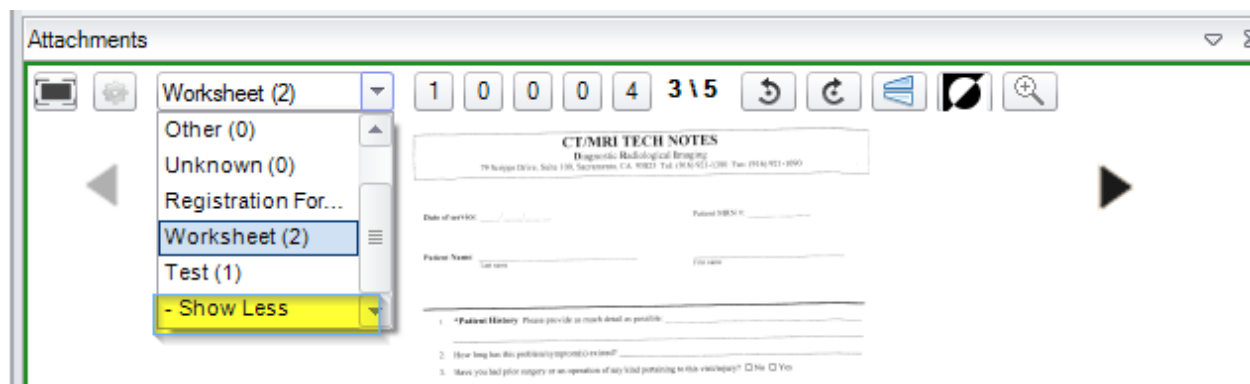


Figure 5.39 – Show less attachment options

Attachments - Ability to Add Attachments from Worklist Context Menu

The ability to add attachments from wordlist’s context menus has been added in build 42. Wordlist’s that allow for “Edit Patient” will now have the context menu option of “Attachments”

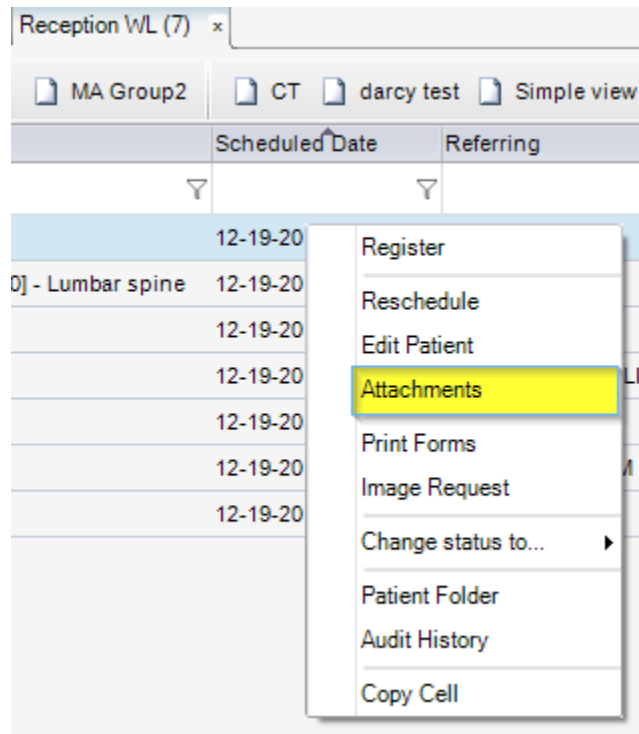


Figure 5.40 – Attachments context menu option

Also added were study details above the attachment list so we know exactly what the current study is.

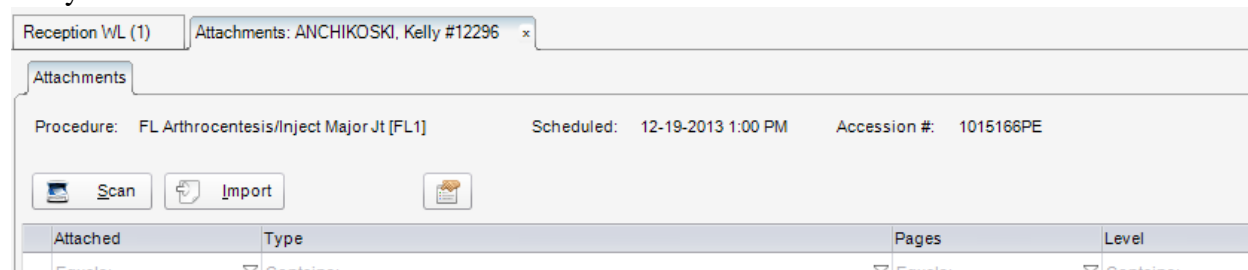


Figure 5.41 – New Attachments window opened from context menu on work list

IVT - Next Follow up Date

Both IVT and Schedulers rely upon the contact log to show the follow-up activity (e.g. phone calls, letters, etc) for a particular patient/exam. The worklist for IVT and scheduling were modified to show the last follow-up type and the date of the last follow-up, but short of opening up the IVT screen or Scheduling screen to read notes, it can be difficult to know which patient/exam to “work” next. Ideally the schedulers and IVT team would have a means to record the “Next Follow Up Date” and/or “Next Follow Up Type” and have it show on the worklist for sorting/filtering purposes in order to reduce the need to open each row on the worklist.

Figure 5.42 – Contact Log on IVT window now includes a Next Follow Up Date

In the above example the “Next Follow Up Date” is stored in a database field specific to IVT.

MRN	Site	Practice	Patient Type	Last Contact	Last Contact Type	Next Follow Up	Next Follow Up Type
	▽	▽	▽		▽	▽	▽
11504608	EL	ADV	Outpatient	05-13-2013 10:57 AM	PhoneCall	09-27-2013	PhoneCall
1000845835r	LU	ADV	Unknown				
1001338084r	FH	ADV	Unknown				

Figure 5.43 – IVT Worklist now includes Next Follow Up / Next Follow Up Type that can be sorted/filtered

The figures above are for IVT, but the Contact Log tab is the same in the Schedule Order window and columns on the Orders To Schedule work list also includes the Next Follow Up and Next Follow Up Type.

The values for the “Next follow up type drop down list are taken from the FollowUpType lookup table under Administration -> Configure -> Mammography -> FollowUpType.

Support Non Order Level Locking

Previous to build 42, RIS used Order Level application locks to reduce the risk of multiple users editing the same data at one time. If one user opens a particular exam, RIS will prevent other users from opening that exam (or any other exam that belongs to the same Order). This causes problems for our users by requiring the user to wait for the lock holder to close out before they can make their changes.

To refine the locking strategy such that we lock single studies instead of the entire order, (where appropriate) taking into consideration the action the user is attempting (e.g. Perform Exam). i.e. Two techs should not be allowed to perform an exam at the same time, but perhaps we should allow a Tech and a Rad to simultaneously have the same exam open. On the other hand, a Radiologist and a Transcriptionist should not be allowed to open the same exam at one time.

In build 42, this has become a reality. Changes to the lock tag generation will allow users to simultaneously make changes to the same study based on the following:

One of the keys to managing locks is that we generate a tag based on what we intend to lock, and if another user requests the same lock tag, we will return a lock failure message. As of build 41, we were generating these lock tags in the form of 123Order where 123 uniquely identifies the order that is locked.

The new approach is to build a 3 part lock: the identifier for the Order or Study being locked (either order_key or study_key), a lock suffix that indicates the type of action being performed e.g. IVT, PerformExam, and finally the word “Order” or “Study”.

Because some screens need to conflict with others (e.g. ReportingRadiologist and the Transcriptionist screens), we map different screens into buckets. In many cases a screen will have its own bucket e.g. IVT and PerformExam. There are a few screens that are report related that are given the same bucket “Report” in order to reduce the likelihood of conflicting changes.

A system table in the database (i.e. one that is not editable through Administration->Configuration in the RIS) assists with the mapping of screens to buckets, and helps determine if the screen will lock on the Order or on the Study.

	lock_hint	study_level_flag	lock_suffix
1	BillingConfirmation	Y	Billing
2	FollowUp	N	FollowUp
3	IVT	N	IVT
4	PerformExam	Y	Tech
5	ReportingRadiologist	Y	Report
6	ReportingTranscription	Y	Report
7	VerifyExternalReport	Y	Report
8	ViewEdit	Y	ViewEdit

Figure 5.44 – Mapping class names in RIS to lock

Any screens or other functionality that is not included in the list above will continue to lock the Order. E.g. Scheduling and Register will lock the Order with a lock tag in the form of “123Order”. Because of the lock tag design, Scheduling and Reception will not block anyone from opening any of the other screens above, but they will conflict with each other.

Server Side Checks for Locks Prior to Saving

Immediately before we save an order or study on the server, a check is performed to see if the user holds a valid lock for the data in question. In the past we simply needed to check for the existence of a valid lock in the database with a lock tag that corresponded to the order being modified. If no valid lock were found, we would throw an error back to the client and not allow the user to save their changes. Under normal circumstances, the only way this would occur would be in the event that an authorized user used the Break Lock functionality.

The new approach is to check for a valid order level lock, if found we allow the save to continue. If there is no valid order level lock, we check for a valid study level lock for each study that is being passed in. If there are enough valid locks we throw an error back to the user, otherwise we allow the save to succeed.

Note that orders and studies that are being created do not require locks, so we exclude them from the lock checks above.

Changes to Lock Management

Each screen that requires locking functionality makes use of a class called GUILockManager that is responsible for refreshing and releasing locks. Previously this class could manage only one lock at a time. We now generate a unique lock identifier that helps to uniquely identify the instance of the lock and can refresh or release multiple locks in a single service call.

In some cases the user may attempt to acquire or refresh multiple locks and the call will be only partially successful – e.g. only two of three locks will be granted. In these cases the client will behave as though the entire lock request has failed.

Changes to Worklists

The worklists that are designed for Radiologists and Transcriptionists include a column that identifies the user that holds a lock on that data. Because the lock tag is calculated differently, the worklist views were updated to filter for the type of locks that are used by Rads. If a Tech has an exam open, previously we would show the tech's name/userID in the "Locked By" column. Now that we are only interested in specific kinds of locks, we will only populate "Locked By" if it is a "Report" level lock (i.e. opened by another Rad, Transcriptionist, or someone using VerifyReport). Previously the worklists were parsing the lock_item_code in order to join to order, we now have a foreign key to Order and Study to assist with the join.

There are worklists that are not specific to Rads and Transcriptionists that have a locked by column e.g. the BI-RADS 0 and BI-RADS 4/5 worklists. Because the users working this list are not focused on the report, their worklist will only display the type of locks that pertain to them.

Changes to Perform Exam

The Perform Exam screen generates a lock for each study within an Order. When the Perform Exam screen is initially opened, a single lock tag is generated. If the user clicks the include button, we attempt to acquire additional locks to prevent other techs from working on those studies simultaneously. In the event that there is a locking failure when the tech clicks the include button, we display a locking failure message to the tech, uncheck the "Include" box, and reselect the previous exam on the patient history grid. No "break-lock" functionality is planned for this case.

Alerts for Similar Locks

A new alert was created (verbiage to be determined) to warn a user on Perform Exam or View Edit if a Rad or Transcriptionist has the same exam open.

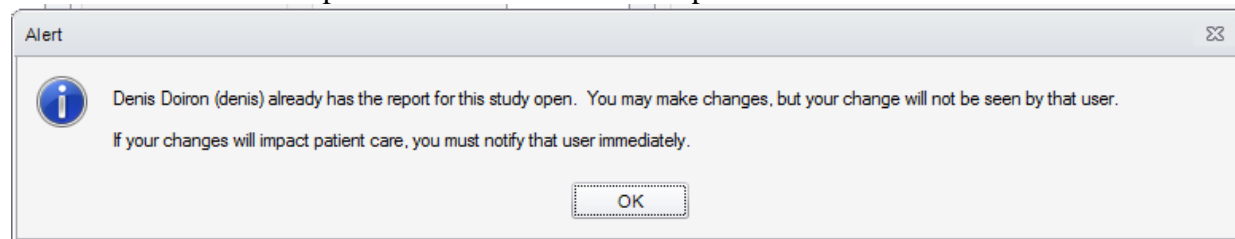


Figure 5.45 – Alert on View Edit and Perform Exam when a Rad or Transcriptionist has the same exam open

We need to determine if these types of warnings will be sufficient, or if we need to have a locking mechanism that can acquire a fine grained lock that can prevent other users from making specific types of changes.

Special Handling for Notes

Our original implementation of “Notes” requires special handling. As users add new notes, we concatenate the new notes to the existing notes. In the case where two users update patient notes at the same time, the second saver wins and the first saver’s notes are lost.

We have updated the concurrency handling to help reduce the risk of issues surrounding simultaneous updates to notes. If two users save changes at the same time, we detect the conflict on the server side and then extract the new notes from the second saver’s update and then concatenate that with the existing notes in the database.

This was tested and works well for updates (i.e. adding new notes), but there is an outstanding issue with deletions. A typical user is not authorized to delete previously saved notes, but there is a permission that can allow an authorized user to edit existing notes. We did not build any handling for deleted notes – if two users update a row at the same time and the second saver deleted some notes, we simply allow the first saver to win.

A future sprint should address the current implementation of notes, possibly considering a design change so that each note is stored in its own row.

Special Handling for Manage Policies

When the user presses Manage Policies on a screen such as Registration, IVT, or ViewEdit, we now attempt to acquire a special insurance related lock. If the attempt to acquire the lock succeeds, the manage policies dialog will appear as before. If the lock acquisition is unsuccessful, the user will be presented with a lock failure message which identifies the lock holder and presents a “Read-Only”, “Cancel”, or “Break-Lock” option (the latter requires a lock override permission).

If a user’s insurance lock is stolen, the GUILockManager will release all other related locks for that screen. E.g. if the user has ViewEdit open, they will lose the study level lock that they were granted when they opened the screen. Break lock for insurances should be used sparingly. Note that there is no enforcement of the insurance lock on the server, i.e. the user requires a lock to open the screen in the GUI, but the server will not reject an insurance update from a user that doesn’t have a lock.

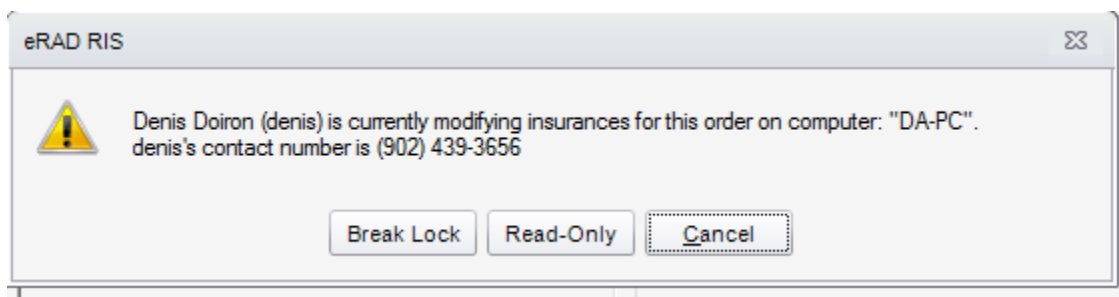


Figure 5.46 – Break lock message

Special Handling for Patient Merge

When a Patient Merge is performed, there is a Source Patient and a Destination Patient. The Source Patient's visits, orders, studies, etc. are moved to the Destination Patient and the Source Patient is marked as Deleted. We have had cases where one user was actively working on the Source Patient during the merge process, and some studies were re-associated with the Source (i.e. deleted) Patient.

The Patient Merge screen has been updated to help reduce the chance of this happening in the future. When the user presses the Merge button on the Patient Merge screen, we now check for any locks on the source patient. If any locks are held for any of that patient's orders or studies, we identify the lock holders (userID and full name) and tell the user that the merge cannot be performed until those users' locks are released.

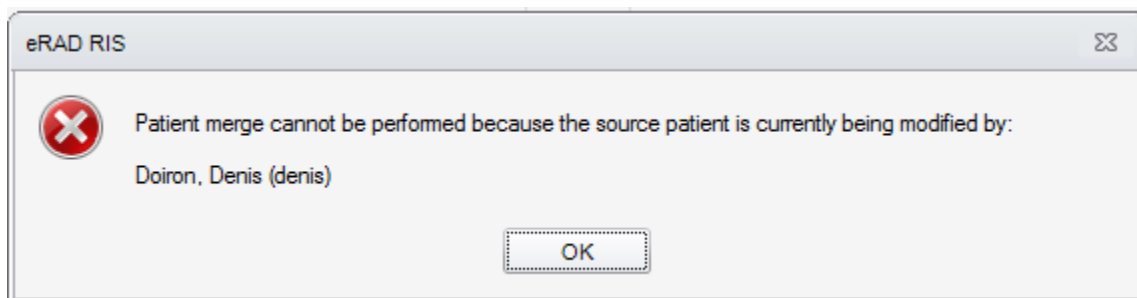


Figure 5.47 – Message prompt on Patient Merge when Source patient is locked

Change Status / Cancel Study / Manual Status Change

Change Status, Cancel Study, and Manual Status Change have been updated to include a check for locks on the same study. We first attempt to acquire a traditional order level lock, if that succeeds we do a secondary check for any locks on the given study. If either of those fail we show a message similar to the following:

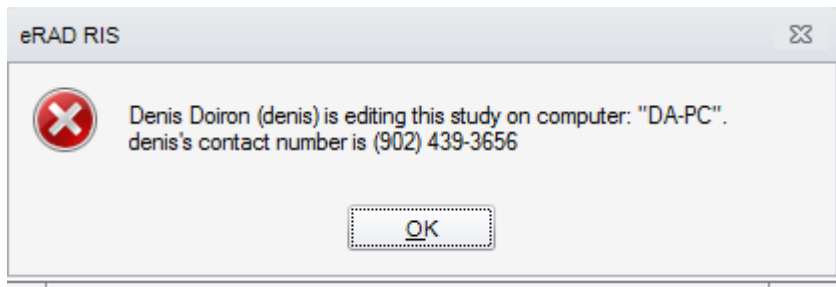


Figure 5.48 – Message prompt from change status, cancel study, manual status change on locked study

Administration - Multiple Person Ids

A grid has been added to the Account tab of the personnel editor. Users can add, edit, and delete alternate ids for the person as well as make them active/inactive. The idea is that a user can have multiple ids from a particular issuer, but only one of them *should* be active, but this is not enforced.

The screenshot shows the 'Account' tab of the personnel editor. The 'Account Information' section includes fields for 'User ID' (darcyn), 'Password' (masked), 'Schedule groups' (Lutherville x, Eldersburg x, Fisher x, Brandywine x), 'Message groups', 'User groups' (Radiologist x, Administrator x), and 'Practices' (Advanced Radiology x, Papastavros Medical Imaging x). There are also checkboxes for 'Active account', 'Prompt for credentials', 'Domain authentication', and 'Emergency Access'. Below this is the 'System Generated (read-only)' section, which contains a table of 'Alternate IDs'. The table has columns for 'ID', 'Issuer of ID', 'Active', and 'Last Updated'. The first row shows ID 1125, Issuer of ID system, Active Y, and Last Updated 12-19-2013. The second row shows ID 5211, Issuer of ID test, Active Y, and Last Updated 12-19-2013. The table is highlighted with a red border.

ID *	Issuer of ID *
1125	system

Alternate IDs	ID	Issuer of ID	Active	Last Updated
	5211	test	Y	12-19-2013

Figure 5.49 – Alternate IDs can be added in Personnel Editor

On inbound HL7 messages, the person will be resolved based on id/issuer of all primary and alternate ids and associated to the correct person.

On outbound messages, the wedge will expand the person_key and user_id nodes to include l_child_person nodes which contain the alternate ids. The mappings can then be made on a per-interface basis to select the correct alternate id to use based on the issuer. If multiple ids from that issuer exist, and they are both listed as active, then the mapping must pick one based on some other criteria ie. first one in the list or most recently updated.

Administration - Allow Editing of Billing Units

A new flag column has been added that will allow editing on the Billing Code / Procedure Code combination. In the Administration → Procedure Code lookup table → expand procedure code to view a new setting that allows the Billing Code / Procedure Code combination to be locked to users as far as ability to edit number of Units.

71550	MR Chest Wo	T-D3000 (Che...	Y	N	1	30	N	General MR
71551	MR x Chest W	T-D3000 (Che...	Y	N	1	30	N	General MR
71552	MR Chest W/Wo	T-D3000 (Che...	Y	N	1	30	N	General MR

Procedure Code	Billing Code	Units	Cpt Modifier1 Code	Cpt Modifier2 Code	Allow Edit Units Flag
71552	71552 (MRI CH C-/C+)	1			N

Click here to add a new row

Figure 5.50 – Allow Edit Units Flag

By default editing is enabled to preserve pre-upgrade functionality. If setting is set to “N” users will not be able to edit # of Units.

If set to N, in the billing code grid the user will not be able edit the number of units from the drop down for that particular procedure/cpt code.

eRAD RIS (Development as Roman Embleton [roman])

File Administration Scheduling Front Desk Technologist Radiologist Mammo Transcription Help

Lookup Tables - ProcedureCode Patient Search Patient: ELLIOTT, Roman #T.39917 (2) Perform Exam: E

Include	Flags	Status	Procedures	Scheduled Date	Referring	Sedat
✓			Arrived MR Chest W/Wo [71552] - Chest	09-03-2013 2:45 PM	Acevedo, Christa963	00109

Patient	MU	Order	Documentation	Billing Codes	Attachments	Notes / Exam Times	Image Request (0)
---------	----	-------	---------------	---------------	-------------	--------------------	-------------------

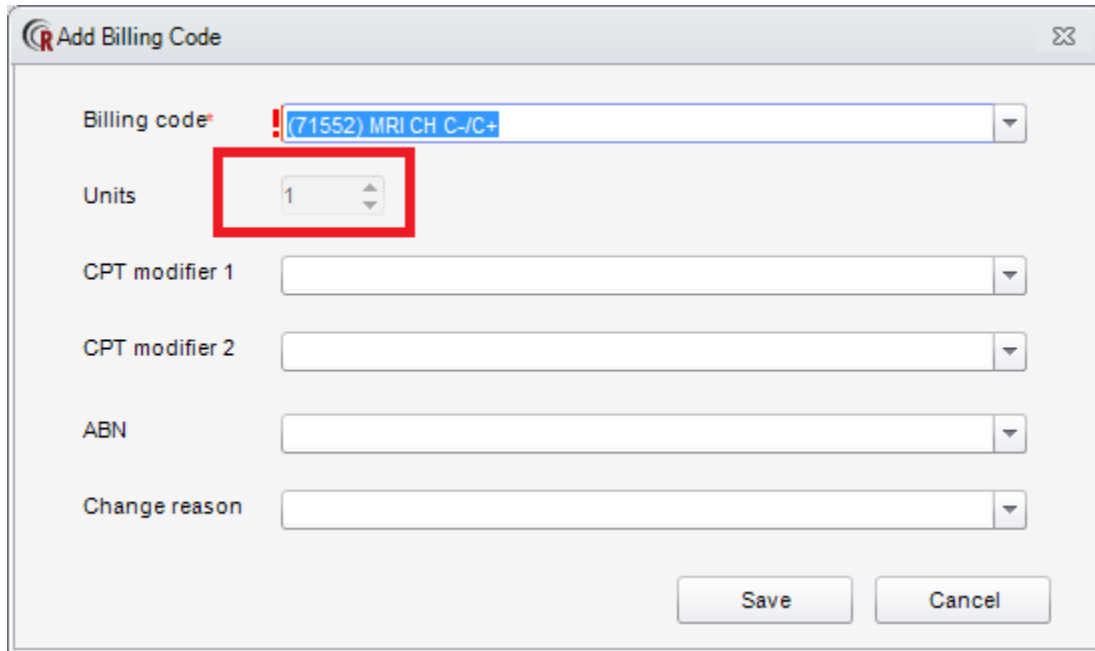
Billing Code Information

ABN	Units	Change Reason	Billing Code	CPT Modifier 1	CPT Mod
Procedure: MR Chest W/Wo (71552)	1		71552 (MRI CH C-/C+)		

Figure 5.51 – Units on billing code tab cannot be edited when set to N

The user will still be able to add other billing codes that may (or may not) be edited.

If the user attempts to add a billing code to the performed procedure and the value of “Allow Edit Units Flag” is set to N for that procedure, the Add Billing Code window will have the Units field disabled.



The screenshot shows a window titled "Add Billing Code". It contains several input fields: "Billing code" (with a red exclamation mark icon and the text "(71552) MRI CH C-/C+"), "Units" (a spinner box with the value "1", highlighted by a red rectangle), "CPT modifier 1", "CPT modifier 2", "ABN", and "Change reason" (all with dropdown arrows). At the bottom right are "Save" and "Cancel" buttons.

Figure 5.51a – Add Billing Code window on billing code that the units cannot be edited

Administration - Disable BI-RADS ® Per Site

In build 42 the ability to disable BI-RADS ® tracking can be turned off per site. The Organization Editor in Administration -> Configure has been updated to include a new checkbox to Disable BI-RADS Controls (verbiage may vary at time of release).

The screenshot shows the 'Edit Site' window. The 'Site' section includes the following fields and controls:

- Site Code: ***: Text input with value 'EL' and an ☒ **Active** checkbox.
- Description:**: Text input with value 'Eldersburg'.
- Phone #:**: Text input with value '(443) 436-7100'.
- Fax #:**: Text input with value '(443) 436-7132'.
- PACS Child Server:**: Dropdown menu with value 'Baltimore Sand Box Child'.
- Site Notes:**: Text area with value 'test123.4567'.
- Report Template Path:**: Text input with value '/Dev/Diagnostic Templates/HealthChec'.
- AvailabilityTemplate:**: Dropdown menu.
- ☒ **Mammography Tracking Enabled**
- ☐ **Outside Read Location**
- ☐ **Insurance required**
- ☒ **Disable BI-RADS Controls**

Figure 5.52 – Ability to disable BI-RADS Controls per site.

By default, “Disable BI-RADS Controls” will be unchecked when creating a new site. Mammography Tracking Enabled means that the site will generate follow-up orders, reminder letters, lay letters, etc. for any BI-RADS enabled mammo procedures.

Disable BI-RADS Controls means that the site will opt out of BI-RADS tracking altogether (in effect the setting for Mammography Tracking Enabled will be ignored if BI-RADS are disabled)

Administration - Ability to Add MRN and Accession Prefix and Suffix

The ability to add and prefix and or suffix to the patients MRN and also to the Accession number has been added. This is controlled by two new system configuration settings.

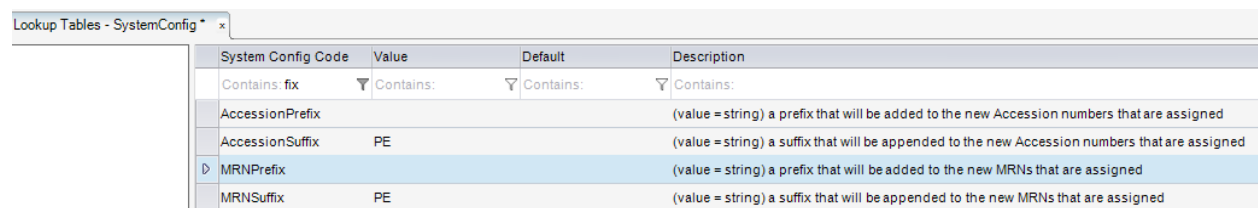
For MRN they are:

“**MRNPrefix**” – Prefix that will be added to new MRN’s

“**MRNSuffix**” – Suffix that will be appended to new MRN’s

“**AccessionPrefix**” – Prefix that will be added to new accession numbers

“**AccessionSuffix**” – Suffix that will be added to new accession numbers



System Config Code	Value	Default	Description
Contains: fix	Contains:	Contains:	Contains:
AccessionPrefix			(value = string) a prefix that will be added to the new Accession numbers that are assigned
AccessionSuffix	PE		(value = string) a suffix that will be appended to the new Accession numbers that are assigned
MRNPrefix			(value = string) a prefix that will be added to the new MRNs that are assigned
MRNSuffix	PE		(value = string) a suffix that will be appended to the new MRNs that are assigned

Figure 5.53 – New systemconfig values

Administration - Privacy Message on Locked eRAD RIS

A new system configuration setting “**PrivacyMessageText**” has been added to the system config lookup table. When this field has a string value, the string is displayed on the lock screen.

System Config Code	Value	Default	Description
Contains: priva	Contains:	Contains:	Contains:
PrivacyReminderText	REMINDER: Do not snoop in patient records!		(value = string) Defines the privacy string that will be displayed on the lock workstation screen.

Figure 5.54 – New system config setting PrivacyMessageText

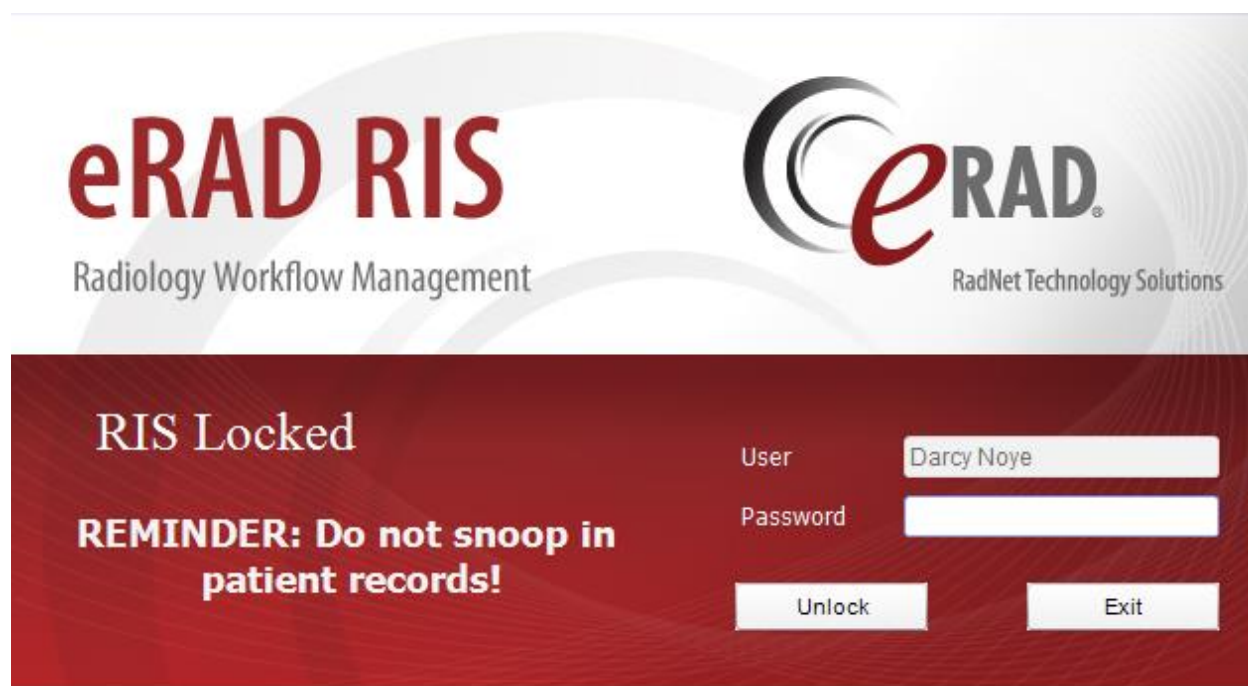


Figure 5.55 – PrivacyMessageText value displayed on locked eRAD RIS

Billing – Audit Log Capturing Billing Failure \ Reason

The audit table will now capture the success and failure of billing actions. If the billing action was successful the audit log will display “Posted to Billing”

Date	Action	Description	User	Accession #	Order #	Status	Procedure
12-12-2013 10:39 AM	UI_ReportSigned	Study updated	Aiken, Darcy (darcy)	5131280	7405261	Signed	Randy Test 02
12-12-2013 10:39 AM	UI_ReportSigned	Patient updated	Aiken, Darcy (darcy)				
12-12-2013 10:39 AM	Posted to billing		Aiken, Darcy (darcy)	5131280	7405261	Exam Done	Randy Test 02

Figure 5.56 – Successful billing action entry in audit log

An unsuccessful attempt to bill will display “Failed billing validation”. In the event of a billing failure, the reasons for the failure are recorded with the audit log entry.

12-12-2013 10:45 AM	Failed billing validation		System
12-12-2013 10:40 AM	UI_ReportTentativelySigned	Study updated	Aiken, Darcy (darcy)
12-12-2013 10:12 AM	UI_AssignRadiologist	Assigned to darcy.	Aiken, Darcy (darcy)
12-06-2013 3:21 PM	UI_InterpretationSuspended	Study updated	Doiron, Denis (denis)
12-06-2013 3:18 PM	UI_InterpretationSuspended	Study updated	Doiron, Denis (denis)
12-06-2013 3:18 PM	UI_InterpretationSuspended	Study updated	Doiron, Denis (denis)
12-06-2013 3:18 PM	UI_InterpretationSuspended	Study updated	Doiron, Denis (denis)
12-06-2013 3:17 PM	UI_InterpretationSuspended	Study updated	Doiron, Denis (denis)

Event Time: 12-12-2013 10:45:41.793 AM Client IP Address:

- Patient's address is required
- Insurance is required
- Responsible party's address is required

Figure 5.57 – Failed billing action reasons for failure

External – View Legacy Report PDF's as HTML

The web interfaces are unable to get an html version of the legacy reports, which were imported in the the RIS as PDFs. To solve this we are planning to integrate a PDF to html converter so that when we call the WebAPI interface we get the legacy PDF as html. The following is an example in the dev database of an accession number, which has a legacy PDF report.

<http://localhost:9002/api/DiagnosticReport/1014129?format=HTML4.0>

We decided to use a third party product to convert the legacy PDF documents to HTML so when you call the WebAPI url as described in the description of this issue, that the report will be returned as HTML.

The 3rd party API we are using is called AbcPDF.dll and must exist in the deployment directory for this to work.

Management Report – Dictations by User

Management report was created for displaying the dictation statistics for Radiologists broken down by

- number of reads
- number of edits
- % of their workload identified as a self-edit.
- % of the the total workload.

<div> <div>1 of 1</div> <div>100%</div> <div>Find Next</div> <div> </div> </div>					
Dictations by User					
Practice: [REDACTED]					
Site(s): [REDACTED]					
Date Range: 9/1/2013 - 9/16/2013					
Description: This report displays the dictations by user id and displays the total amount of their reads and the percentage of self edits.					
Dictated By User	Dictated Date	# Reads	# Edits	% Self Edits	%
[REDACTED]		3	2	66.67%	9.38 %
	09-03-2013	1	1	100.00%	
	09-11-2013	1	1	100.00%	
	09-16-2013	1	0	0.00%	
[REDACTED]		18	14	77.78%	56.25 %
	09-04-2013	3	3	100.00%	
	09-05-2013	4	4	100.00%	
	09-06-2013	5	4	80.00%	
	09-12-2013	6	3	50.00%	
[REDACTED]		3	1	33.33%	9.38 %
	09-03-2013	1	1	100.00%	
	09-16-2013	2	0	0.00%	
[REDACTED]		6	5	83.33%	18.75 %
	09-05-2013	1	0	0.00%	
	09-12-2013	5	5	100.00%	
[REDACTED]		2	2	100.00%	6.25 %
	09-05-2013	2	2	100.00%	
Total		32	24		

Figure 5.58 – Dictation by User management report

Management Report – Direct Referrals

Management report was created to identify all orders and studies identified as a Direct Referral on the order tab. Parameters used are:

- Practice(s)
- Site(s)
- From and to dates
- Modality(s)
- Procedures
- Referring Practice(s)
- Referring Physician(s)
- Primary Carrier(s)

Practice(s):	<input type="text"/>	Site(s):	<input type="text"/>
From:	<input type="text" value="10/1/2013"/>	To:	<input type="text" value="10/18/2013"/>
Modality(s):	<input type="text" value="MRI"/>	Procedure(s):	<input type="text" value="MR Angiography Cerebral WO"/>
Referring practice:	<input type="text"/>	Referring physician(s):	<input type="text"/>
Primary Carrier(s):	<input type="text"/>		

1 of 2 100% Find | Next

Direct referrals

Practice:

Site(s):

Modality(s): MRI

Date Range: 10/1/2013 - 10/18/2013

Description: This report looks at orders with the direct referral flag set. It excludes cancelled orders, and studies that are cancelled or discontinued.

Acc#	CPT	CPT Description	PreCert Status
Modesto Advanced Imaging Center			
10-01-2013			
MR			
Physician:			
Referring practice: None			
Accession: not scheduled		Status: OrderSigned	
Primary Insurance:			
	70553	MRI BRAIN BRAIN STEM W/O &W/CONTRAST MATERIAL	Approved
	A9579	INJECTION, GADOLINIUM-BASED MAGNETIC RESONANCE CONTRAST AGENT, NOT OTHERWISE SPECIFIED (NOS), PER ML	N

Figure 5.59 – Direct Referral management report

Management Report – User List

Management report was created to see the user and which practices and schedule groups the user is associated with.

Active\Inactive:

1

of 6

100%

Find | Next

User List

Description: This report lists the users based on active or inactive parameter as well as the practices those users have been assigned.

User Id ↕	Last name ↕	First name ↕	Practices		Schedule Groups							
			X			X						X
			X			X						X
			X			X						X
						X						X
			X			X						
			X			X						

Figure 5.60 – User List management report

Management Report – Double Count CPT's

We modified all sales management reports in the Marketing folder to double count cpt codes (74176, 74177, 74178).

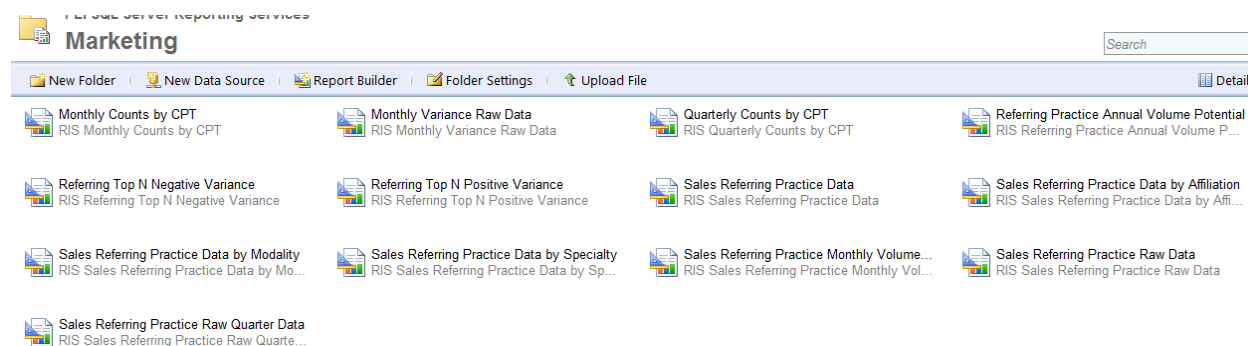


Figure 5.61 – Double Count CPT's

MU – Management Report for Patient List Creation – MU Phase 2

Report Parameters are:

1. From age
2. To age
3. From date (nullable)
4. To date (nullable)
5. Primary language (*multi-select populated from lookup table*)
6. Sex (*multi-select populated from lookup table*)
7. Race (*multi-select populated from lookup table*)
8. Ethnicity (*multi-select populated from lookup table*)
9. Problems (ICD) (*multi-valued, free text expected the ICD code itself*)
10. Medications (*multi-valued, free text using the like syntax where you just need to enter the start of a medication name. ie: pen would look return all results where the medication name starts with pen. Wild cards are added behind the scene*)
11. Medication allergies (*multi-select populated from lookup table*)
12. Lab Test (*multi-select populated from lookup table*)
13. Lab Results (*single valued free text field expecting >, <, = or combination of those comparison operators and a value. Ie: >100*) (nullable)
14. Preferred Communication
15. Max Results (*defaulting to 5000 rows, this helps control the number of results returned in a search, but can be manually increased or decreased if desired*)

From age: 20 To age: 50
 From date: ☒ NULL To date: ☒ NULL
 Primary language: English Sex: Female
 Race: No Filter Ethnicity: No Filter
 Problem (ICD-9): No Filter Medication: No Filter
 Medication allergy: No Filter Exclude Deceased? Y
 Lab Test: No Filter Lab results (ie: >=100, between 1 and 20): ☒ NULL
 Preferred Communication: No Filter Max Results: 5000

1 of 2 ? 100% Find | Next

Patient Lists MU2

☐ Parameters

From Age	To Age	From Date	To Date	Language	Sex	Race	Ethnicity	Problem(ICD-9)	Medication	Allergy	Lab	Lab Value	Max Rows
20	50			EN	F	No Filter	No Filter	No Filter	No Filter	No Filter	No Filter		5000

MRN	Last Name	First Name	Age	Sex	Primary Language	Race	Ethnicity	Preferred Communication
10085	Gruff	Hillary	21	F	English	No race assigned		Not assigned
10091	Kettleon	Holly	41	F	English	American Indian or Alaska Native	Hispanic	Not assigned

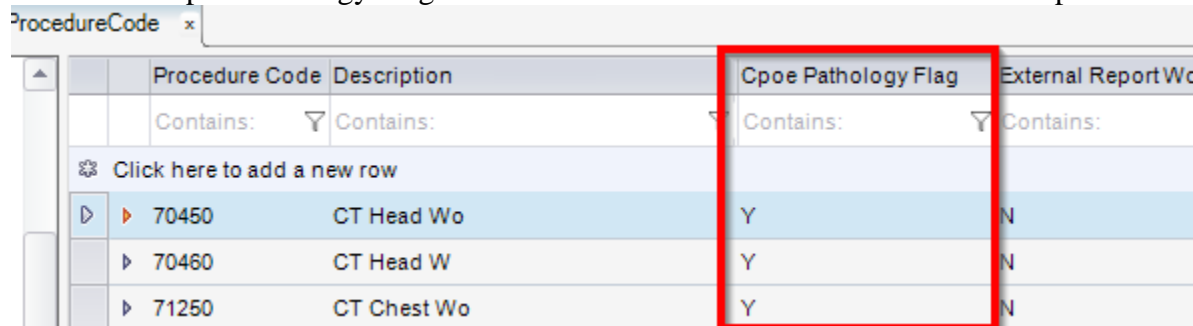
Figure 5.62 – Patient Lists MU2 management report

All parameters require a value to execute the report. The “No Filter” value in the parameters is just a placeholder that the stored procedure treats as a null. The No filter will be disregarded if you add values into the parameter, meaning there is no need to delete it out, or uncheck it.

MU – Auto Request Pathology and Follow Up with Lab Worklist

For MU requirement 170.314.b.5, we needed to create a lab test for Pathology when a report is signed for procedures that are configured to require CPOE_Pathology . We then need to track those Pathology requests in the Lab WL.

To start the CpoE Pathology Flag column was added to the Procedure Code lookup table

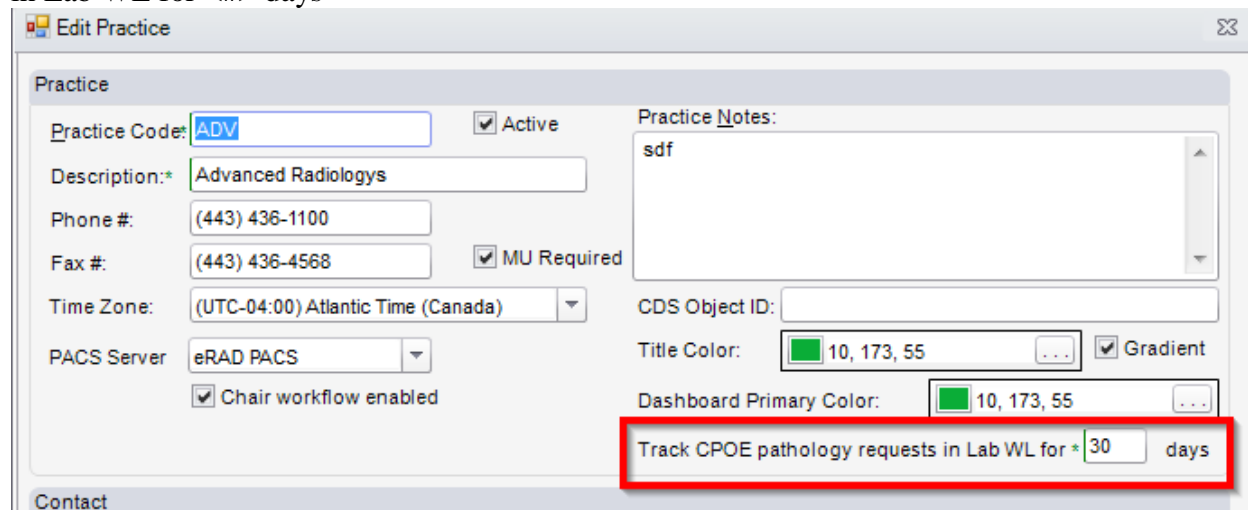


The screenshot shows a web application window titled 'ProcedureCode'. It contains a table with the following columns: Procedure Code, Description, CpoE Pathology Flag, and External Report Wc. The table has three rows of data, each preceded by a 'Contains:' label and a dropdown arrow. The data rows are highlighted in blue. A red rectangle is drawn around the 'CpoE Pathology Flag' column, which contains the values 'Y', 'Y', and 'Y' for the three rows respectively.

Procedure Code	Description	CpoE Pathology Flag	External Report Wc
Contains: ▼	Contains: ▼	Contains: ▼	Contains: ▼
70450	CT Head Wo	Y	N
70460	CT Head W	Y	N
71250	CT Chest Wo	Y	N

Figure 5.63 – CPOE Pathology Flag added to the Procedure Code lookup table

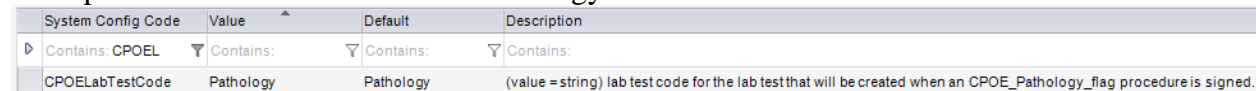
The Practice window from the Organization lookup table had the Track CPOE pathology results in Lab WL for <#> days



The screenshot shows a web application window titled 'Edit Practice'. It contains a form with various fields for practice information. A red rectangle is drawn around the 'Track CPOE pathology requests in Lab WL for 30 days' field, which is located at the bottom right of the form. The field has a dropdown arrow and a text input box containing the number '30'.

Figure 5.64 – Practice displaying new field in days to be captured to Track CPOE pathology

A new System Configuration setting “**CPOELabTestCode**” was added the system config lookup table with a default value of Pathology



The screenshot shows a web application window titled 'System Configuration'. It contains a table with the following columns: System Config Code, Value, Default, and Description. The table has two rows of data, each preceded by a 'Contains:' label and a dropdown arrow. The data rows are highlighted in blue.

System Config Code	Value	Default	Description
Contains: CPOEL	Contains: ▼	Contains: ▼	Contains: ▼
CPOELabTestCode	Pathology	Pathology	(value = string) lab test code for the lab test that will be created when an CPOE_Pathology_flag procedure is signed.

Figure 5.65 – System configuration setting CPOELabTestCode

When report is signed, if its procedure has CPOE pathology flag = 'Y', and there are no active Lab Test Requests for CPOE pathology, then a lab test result row will be created. The lab test code will have a lab_requested_by_user_id of the dictating rad and will have a requested date equal to the studies performed end date. The c_study.cpoe_request_expiry_date, will get assigned to today + l_practice.days_to_track_cpoe_requests.

The item will then appear in the Lab WL until:

1. User opens the study in View Edit and checks "Skip Lab WL"
2. User Opens the study in View Edit and records a value for the test
3. The current datetime is past cpoe_request_expiry_date
4. Or the lab test is set to the lab_order_status of "Discontinued" or "Active", meaning we've made the call to the patient and have been notified that the pathology test has either been requested or is not going to be addressed.

Note: outside read studies will not show in the Lab WL, even if they are for a procedure that is configured with cpoe_pathology_flag='Y'.

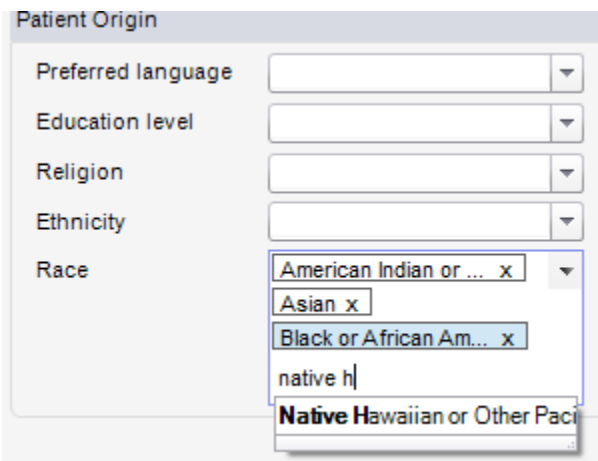
MU - Race Field Allow for Multi Select

Meaningful Use requirement 170.314.a.3.

Previous to build 42 the Race field on the Patient tab would only allow for one value to be selected. Now a user can select multiple values and save with the patient record.

The list box is not a multi select tool (expand the list and select multiple at once) the user will need to select a value one at a time or use the type ahead options

The race type can only be added once for the patient.



The screenshot shows a form titled "Patient Origin" with several fields: "Preferred language", "Education level", "Religion", "Ethnicity", and "Race". The "Race" field is expanded, showing a list of options with checkboxes. The options are: "American Indian or ... x", "Asian x", "Black or African Am... x", "native h", and "Native Hawaiian or Other Paci". The "x" indicates that multiple selections are allowed.

Figure 5.66 – Race field is now multi select/type ahead field

MU – Improvement to How We Record Height

Meaningful Use requirement 170.314.a.4

For this requirement we needed to store the patients height as a single numeric value instead of a character string such as 5ft 7in.

A new column (height_value) was added to the visit table, which will store the height in inches. The height was previously stored in the old column (height) in the visit table.

The pervious character field (height) will continue to be populated for backwards compatibility with existing reports.

Also, the upgrade was created to backfill the new field in the visit table (height_value).

MU – Retain Patients Smoking Status and Height

For existing patients that have previously had the smoking status and height captured in the previous visit, when scheduling a new procedure, these 2 values will be carried forward to the new visit. This is not a meaningful use requirement, but rather a request to try and speed up the scheduling process when capturing MU data.

MU – Problem List for MU Phase 2

Meaningful Use requirement 170.314.a.5

Record - evaluates the capability to enter patient health problems into the EHR to create the patient problem list. The Tester enters the ONC-supplied patient problem test data. The Inspection Test Guide describes several methods by which the EHR can demonstrate conformance with the vocabulary requirement.

Change – evaluates the capability to change patient problem list data which have been previously entered into the EHR. The Tester displays the patient problem list data entered during the Record Patient Problems test

- o The Tester changes the previously entered patient problems data using ONC-supplied patient problem list data.

Access – evaluates the capability to display the patient problem list data that have been previously entered into the EHR, including the capability to display the patient problem list as recorded during multiple ambulatory encounters with the same provider or during a single inpatient hospitalization.

MU – Medication List for MU Phase 2

Meaningful Use requirement 170.314.a.6

Record - evaluates the capability to enter patient active medication data into the EHR to create the patient active medication list

Change – evaluates the capability to change patient medication data that have been previously entered into the EHR. The Tester displays the patient active medication list data entered during the Record Patient Active Medications test . The Tester changes the previously entered active medication data using ONC-supplied medication data, for example, changing a medication dose or frequency and discontinuing a medication

Access – evaluates the capability to display the patient medication list data that have been previously entered into the EHR, including the capability to display the patient medication list as recorded during multiple ambulatory encounters with the same provider or during the duration of an entire inpatient hospitalization

MU – Image Results for MU Phase 2

Meaningful Use requirement 170.314.a.12

This requirement is for eRAD RIS to prove that the images and report can be viewed in the RIS when in the appropriate status. Below is a list of the test cases to validate that fact.

- Create 2 patients IM-Patient-1 and IM-Patient-2 schedule an exam.
- Go to patient folder for IM-Patient-1
- Show in rRIS where imaging information will be for Patient #1(Right click on patient folder there is no option to view images).
- Update Record for IM-Patient-1 bring exam to (Exam Done status)
- Show in rRIS where imaging information will be for Patient #1(Right click on patient folder there is an option to View Images).
- Open IM-Patient-1 and dictate exam and bring to signed1 status.
- In patient folder right click on the patient. There is an option to view narrative interpretation (report>>preview/print report) and View Images.
- Go to patient folder for IM-Patient-2
- Show in rRIS where imaging information will be for Patient #2(no images)...Right click on patient folder there is no option to view images
- Update Record for IM-Patient-2 bring exam to (Exam Done status)
- In patient folder right click on the patient. There is no option to view narrative interpretation (report>>preview/print report) however, the user can View Images.

MU – Audit Reports – MU Phase 2

Meaningful Use requirement 170.314.d.3

Enable a user to create an audit report for a specific time period and to sort entries in the audit log according to each of the data specified in the standards at § 170.210(e).

Create Audit Report – evaluates the capability of the EHR technology to enable a user to generate an audit report for a specific time period

- The Vendor provides the Tester with audit log information containing ten or more entries that was generated by the EHR technology
- Using the Vendor-provided audit log information and reporting functions, the Tester generates an audit report for a time period that includes the time at which the entries in the audit log information were recorded and verifies that the audit report is successfully created

Sort Audit Log Entries – evaluates the capability of the EHR technology to enable a user to sort entries in the audit log or in an audit report

- The Vendor provides the Tester with audit log information containing ten or more entries that was generated by the EHR technology. This could be provided through access to the audit log itself or audit reporting functions.
 - The audit report used in the previous test procedure step can be used for this test procedure step as long as the audit report entries contain the following data elements:
 - Date and time of event
 - Patient identification
 - User identification
 - Type of action (additions, deletions, changes, queries, print, copy)
 - Identification of the patient data that is accessed
- The Vendor identifies the EHR function(s) that are available to sort the audit log information by the previously described data elements

The Tester uses the Vendor-provided audit log information, sorts the audit log entries by each of the data elements listed above, and verifies that the entries were correctly sorted

MU – Goals and Condition

The Goals and Condition fields have been added to the Meaningful User Information window (hidden tab)

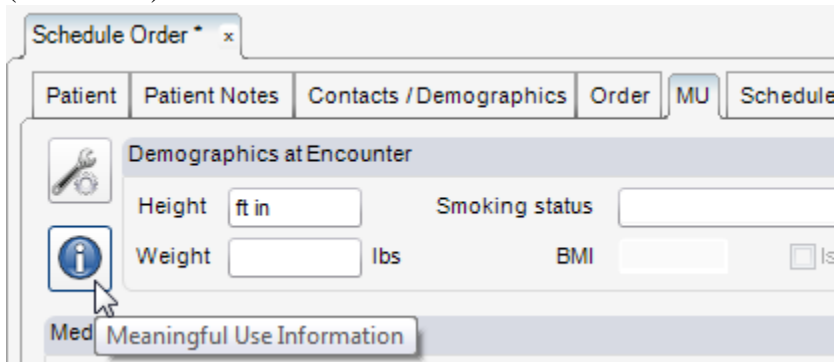


Figure 5.67– Meaningful Use Information window access

The Condition field is a type ahead/multi select field. The Goals option is a grid with 2 columns. The Goal column is list box and the Instructions column is a text field

Goal	Instructions

Figure 5.68 – Displaying Conditions and Goals field in Meaningful Use Information window

The values for the Conditions field are from a new lookup table

Administration>Configure>MU>Condition table. The Description is displayed in the eRAD RIS and the HL7 values are to be mapped to valid SNOMED CT codes used for structured data for generating CCDA.

Lookup Tables - Condition x

Condition Code	Description	Display Order	HL7v3 Value Set OID	HL7v3 Value Set Code	Last Updated	Active
Contains: ▼	Contains: ▼	Equals: ▼	Contains: ▼	Contains: ▼	Equals: ▼	Contains: ▼
Click here to add a new row						
0002	Another Test for 5231	2			12-10-2013 2:...	Y
0001	Test for feature 5231	1			12-10-2013 2:...	Y

Figure 5.69 – Condition lookup table.

The values for Goals is from another new lookup table Administration>Configure>MU>Goals table. The Description is the value what will appear in the Goal field of the Meaningful Use Information window.

Lookup Tables - Goal x

Goal Code	Description	Display Order	Last Updated	Active
Contains: ▼	Contains: ▼	Equals: ▼	Contains: ▼	Contains: ▼
Click here to add a new row				
TestGoal	Test Goal for Feature 5231	0	12-10-2013 2:...	Y

Figure 5.70 – Goal lookup table

MU – Patient Specific Education Resources

For patient education resources we will be using Medline Plus. The Medline Plus info can be accessed from the context menu on the 3 grids of Medication, Medical History and Lab Results on the MU tab and select View Medline Plus Info.

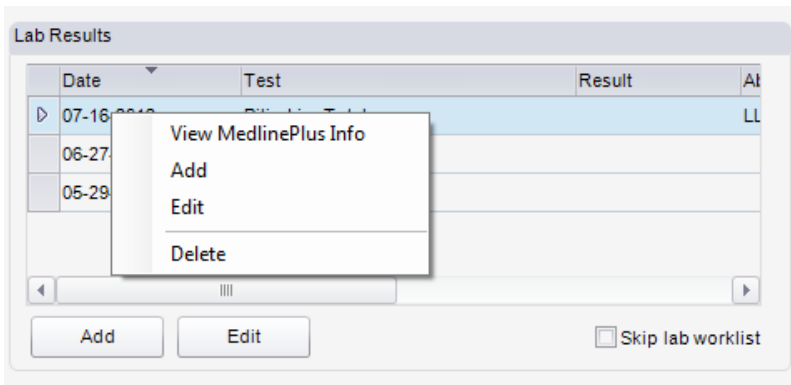


Figure 5.71 – Accessing MedlinePlus Info

Selecting the context menu option will open a modal browser window providing information on the topic selected in the grid you opened the context menu on.



Figure 5.72 – Web browser opens with search on MedlinePlus

You can right click the window and print the information for the patient.

If no results are returned from Medline a message like the following is presented to the user.

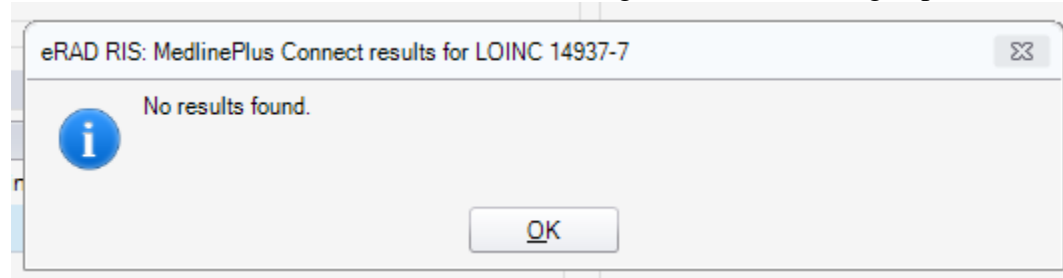


Figure 5.73 – When search doesn't find topic

When you close the browser control, you get prompted with this window to help capture the MU statistic.

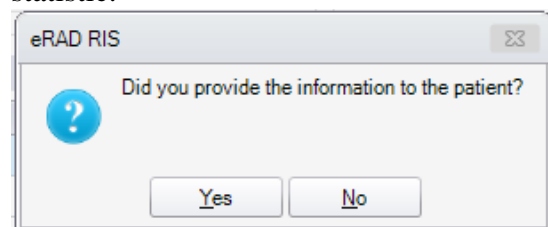


Figure 5.74 – Prompt asking if information was provided to patient

Clicking Yes is the same as checking the “Provided Education Resources” checkbox on the Documentation tab.

For this feature the following new system configuration settings have been added. The table below has the code and its default value.

Code	Default value	Actions
MUMedlinePlusConnectDebug	N	Enables debug mode
MUMedlinePlusConnectEnabled	N	Enables if Medline Plus is on or off
MUMedlinePlusConnectBaseUrl	http://apps.nlm.nih.gov/medlineplus/services/mpconnect_service.cfm	URL path for browser
MUMedlinePlusConnectDrugSearch	mainSearchCriteria.v.cs=2.16.840.1.113883.6.88	Search from Medications grid on MU tab
MUMedlinePlusConnectLabSearch	mainSearchCriteria.v.cs=2.16.840.1.113883.6.1	Search from Lab Results grid on MU tab

MUMedlinePlusConnectProblemSe arch	mainSearchCriteria. v.cs=2.16.840.1.11 3883.6.103	Search from Medical History grid on MU tab
---------------------------------------	---	--

Table 5.2 – MedlinePlus system config settings

Additionally there is a new system configuration value called **“MUMedlinePlusConnectDebug”** which when set to Y puts it into debug mode and will prompt to save the XML returned from the web service when you perform a search.

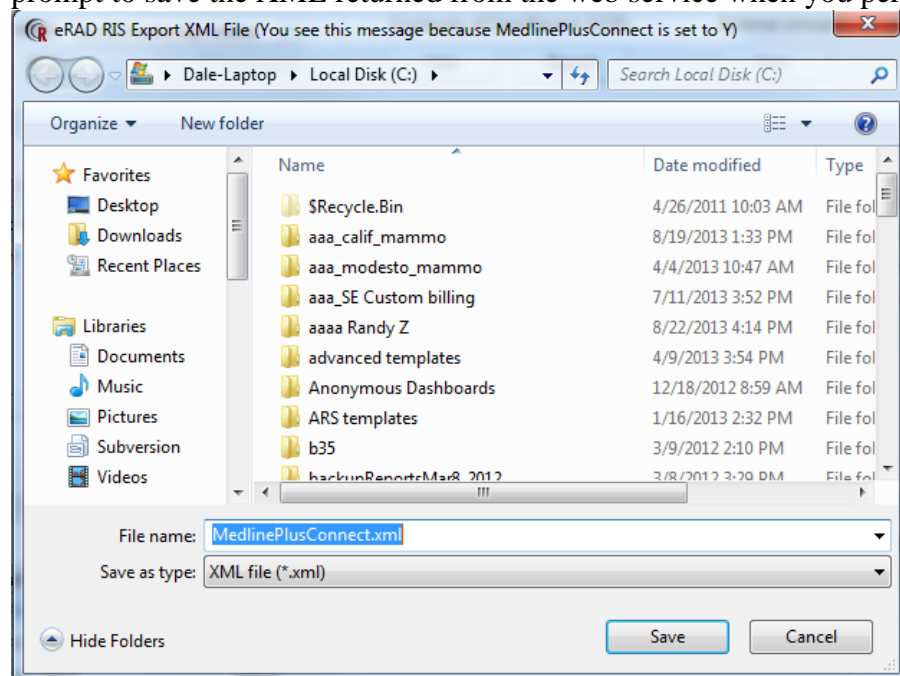


Figure 5.75 – Generating Medline Plus xml

The contents of which looks something like this...

```
<?xml version="1.0" encoding="UTF-8" ?>
- <feed xml:base="http://apps.nlm.nih.gov/medlineplus/services/" xml:lang="en" xmlns="http://www.w3.org/2005/Atom" xmlns:v3="urn:hl7-org:v3" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <title type="text">MedlinePlus Connect</title>
  <subtitle type="text">MedlinePlus Connect results for LOINC 1975-2</subtitle>
  <author>
    <name>U.S. National Library of Medicine</name>
    <uri>http://www.nlm.nih.gov</uri>
  </author>
  <updated type="text">2013-09-12T06:09:33Z</updated>
  <category scheme="REDS_MT010001UV" term="MATCHED">
    <v3:mainSearchCriteria classCode="OBS" moodCode="DEF" xmlns:v3="urn:hl7-org:v3">
      <v3:code code="KSUBJ" codeSystem="2.16.840.1.113883.5.4" xmlns:v3="urn:hl7-org:v3" />
      <v3:value code="1975-2" codeSystem="2.16.840.1.113883.6.1" displayName="" xmlns:v3="urn:hl7-org:v3" />
    </v3:mainSearchCriteria>
    <v3:informationRecipient typeCode="IRCP" xmlns:v3="urn:hl7-org:v3">
      <v3:patient classCode="PAT" xmlns:v3="urn:hl7-org:v3" />
    </v3:informationRecipient>
  </category>
  <id />
  <entry>
    <title>Bilirubin - blood</title>
    <link href="http://www.nlm.nih.gov/medlineplus/ency/article/003479.htm" rel="alternate" />
    <id>tag:.nlm.nih.gov, 2013-12-09:/medlineplus/ency/article/003479.htm</id>
    <updated>2013-09-12T06:09:33Z</updated>
    <summary />
  </entry>
</feed>
```

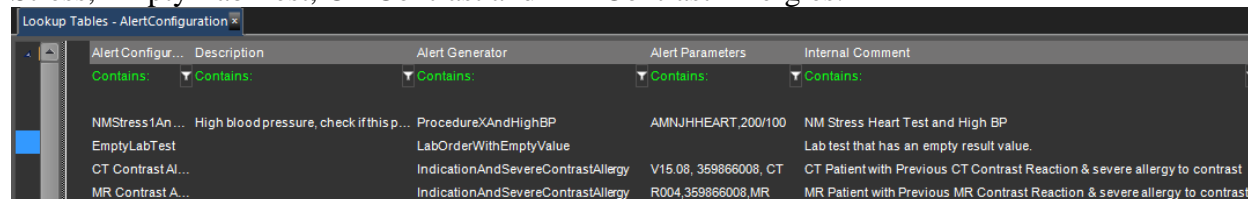
Figure 5.76 – xml file for Medline Plus when MUMedlinePlusConnectDebug = Y

MU – New Alert Rules – MU Phase 2

Here are the alerts that we have created

1. **NM Stress Test** – you can configure as many of these as you like. Typically one for each procedure_code you want the high blood pressure check on. It also allows you to configure the 200/100 to any value you like. Alert Generator name is **“ProcedureXAndHighBP”**
2. **Empty Lab Test** – This just looks over all lab tests for the patient and if any are blank will prompt with the alert. Note: the administrator isn’t allowed to provide a custom description since the description of the alert is generated dynamically and will include the text of the lab tests that are missing. Alert Generator name is **“LabOrderWithEmptyValue”**
3. **CT Contrast Allergy** & 4. **MR Contrast Allergy** – Fire when the indication specified exists and the patient has the specified contrast allergy code. This alert is highly configurable so that the alert implementation isn’t dependent on specific allergy, indication or modality type codes, which may differ depending on the customer implementation. Alert Generator name is **“IndicationAndSevereContrastAllergy”**

The following screen shot shows the above three generators configured for the 4 rules NM Stress, Empty Lab Test, CT Contrast and MR Contrast Allergies.



Alert Configur...	Description	Alert Generator	Alert Parameters	Internal Comment
Contains:	Contains:	Contains:	Contains:	Contains:
NMStress1An...	High blood pressure, check if this p...	ProcedureXAndHighBP	AMN/JH/HEART_200/100	NM Stress Heart Test and High BP
EmptyLabTest		LabOrderWithEmptyValue		Lab test that has an empty result value.
CT Contrast A...		IndicationAndSevereContrastAllergy	V15.08, 359866008, CT	CT Patient with Previous CT Contrast Reaction & severe allergy to contrast
MR Contrast A...		IndicationAndSevereContrastAllergy	R004,359866008,MR	MR Patient with Previous MR Contrast Reaction & severe allergy to contrast

Figure 5.77 – Alert Configuration table displaying new alerts

In addition to the configuration column “Alert Parameters”, the column “Internal Comments” has also been added, which can be used by the implementer to document the reasons they created or possibly disabled an alert.

The following lookup table validation error displays, if the alert parameters is blank for ProcedureXandHighBP:

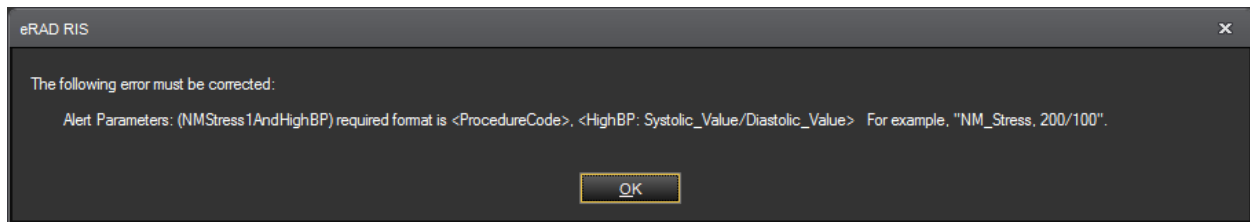


Figure 5.78– Error message presented if ProcedureXandHighBP is blank

The following lookup table validation error displays, if the alert parameters is blank for IndicationAndSevereContrastAlergy:

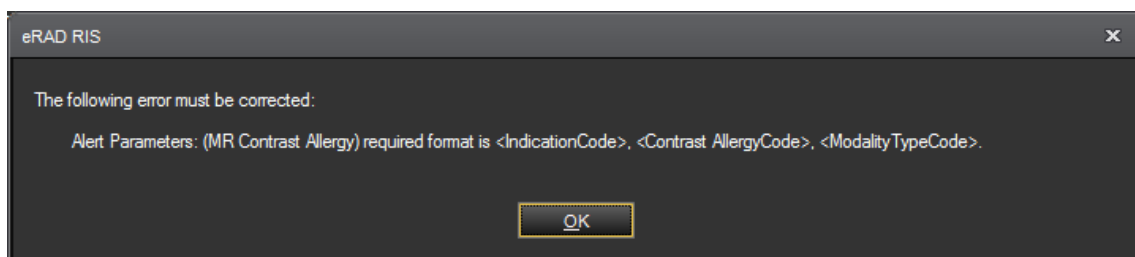


Figure 5.79 – error message presented if alert IndicationAndSevereContrastAlergy is blank

The following lookup table validation error displays, If a code is incorrect such as the Contrast AllergyCode:

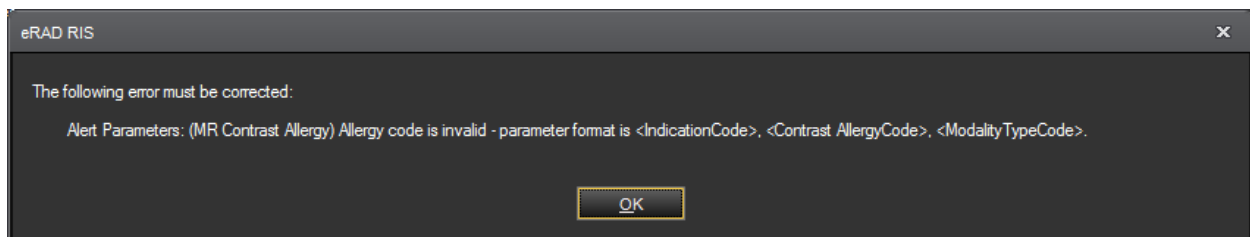


Figure 5.80 – error message presented if Contrast Allergy code is incorrect

MU – CCDA

CCDA information is a lengthy document that can be reviewed from the following URL

http://www.hl7.org/implement/standards/product_brief.cfm?product_id=7

The CDA® Release 2 document can be downloaded from this site as well.

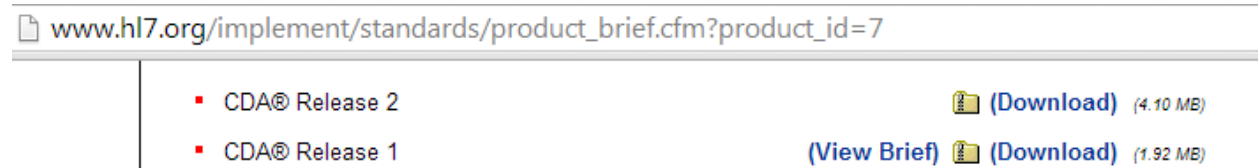


Figure 5.81 – Download CDA Release 2

MU – CCDA Generation

To access the CCDA the user can select the View button under the Clinical Document (C-CDA) section on the MU tab. Selecting this button opens the View Clinical Document (C-CDA) window.

The screenshot shows the 'View Clinical Document (C-CDA)' window. At the top, there are tabs for 'Patient', 'Patient Notes', 'Contacts / Demographics', 'MU', 'Order', 'Exams', 'Image Request (0)', 'Review', and 'Contact Log'. The 'MU' tab is selected. Below the tabs, there are sections for 'Demographics at Encounter' (Height, Weight, Smoking status, BMI, Is pregnant), 'Continuity of Care Record (CCR)' (View button), and 'Clinical Document (C-CDA)' (View button). The 'View Clinical Document (C-CDA)' window is open, showing a list of procedures, medications, and other clinical data. The 'View' button under the 'Clinical Document (C-CDA)' section is highlighted.

Procedures	Scheduled Start Date	Status Code
AMCT VIRTUAL CARDIAC SCORING [AMCTVCARDIAC]	10-22-2013	Arrived

Medication	Prescription Date	Status	Dosage Form	St...	SIG	Pharmacist Notes
ACTOplus Met	10-22-2013				asdf	This is the only field that can be edited on this screen

Item	Value
Smoking Status	
Height	
Weight	
Blood Pressure Diastolic	
Blood Pressure Systolic	
Reason For Exam	virtual cardiac score

Buttons at the bottom: Export XML, Export HTML, Preview, Close.

Figure 5.82 – Accessing CCDA

From the View Clinical Document (C-CDA) window the user can select the data elements that will be displayed in the C-CDA.

Options to Export XML, Export HTML, Preview the document and close.

MU – SNOMED CT

Meaningful Use Stage 2 Problems must be recorded in SNOMED CT codes. However, these codes do not necessarily have to be displayed in the user entry but can be stored or mapped elsewhere in the EHR product such as a dictionary map or a database. The specific vocabulary standard is **US Extension to SNOMED CT**. Today, we are recording Problems using ICD9 codes and eventually moving to ICD10 codes by October 1, 2014. We will need to find a mapping table for ICD9 and eventually ICD10 codes to SNOMED CT codes. In order to use SNOMED CT codes in the application we will need a **License Agreement** with IHTSDO (International Health Terminology Standards Development Organisation).

The International Release is updated each year in January and July. The download contains SNOMED CT files in both Release Format 1 (RF1) and the **new Release Format 2 (RF2) versions which** eRAD / Radnet will use. Updates to the US Edition will be available approximately one month after publication of the International Release of SNOMED CT. eRAD / Radnet will use the US Edition of SNOMED CT codes to certify for Meaningful Use Stage 2 (2014). The US Edition of SNOMED CT is the official source of SNOMED CT for use in US healthcare systems. **Note: The March 2013 Release of the US Extension will mark the last time that NLM will make the standalone US Extension files available for download. For future releases, users must download the US Edition to obtain US Extension content.**

For Meaningful Use (2014) we will download Snomed ct codes into two new lookups (l_snomed_concept and l_snomed_description). These get populated with the Snapshot release of the US edition of SNOMED CT codes. We will have to come up with a strategy of populating these in a future release as the codes are released every six months. We also need to download the ICD9 and SNOMED CT mapping file to a new lookup (l_snomed_icd9_map). We will also have to come up with a strategy of populating this mapping table with future releases.

NOTE: these are hidden lookups and cannot be accessed via the GUI

HL7 Payments

In eRAD RIS we are currently able to attach payments manually, no problem.

If there is HL7 integration with a patient kiosk, where a patient can check-in and also make a payment.

Payment is sent to eRAD RIS via HL7 (FT1 - financial segment).

Currently there is a logic gap in Wedge that restricts us from being able to accept payments via HL7.

Current logic --> Delete all current records from c_payment table for visit.

Add new rows provided with Study update.

The issue is the "Delete" --> This would cause an issue if a payment was already entered in RIS, then a new transaction comes through.

Existing payment in RIS would be deleted, new payment added.

Created a new column in Visit.c_payment called external_payment_id as a varchar(50).

If a message comes in that contains a c_payment row with an empty external_payment_id the wedge will throw an exception and reject the message.

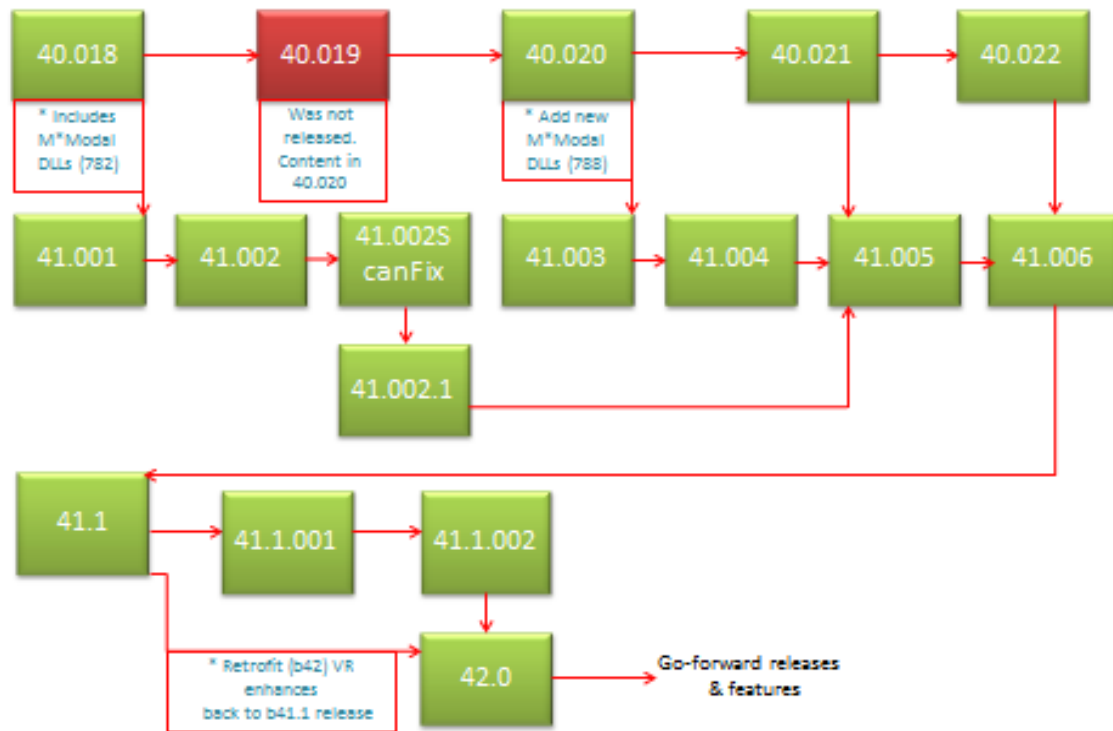
The receipt_number field needs to be populated with a value in the format "site_code-?", so in the example below I used "SS-?". The RIS core services handles generating a receipt number value based on this. This site_code value does not need to be a value from the l_site table, but it might be a good idea.

For testing purposes, I created a Mirth channel which simply reads an xml file from disk and sends it to the wedge. The export of the Mirth channel is attached to this bug in Redmine.

The file contained a very empty StudyContainer with only a c_payment row with the needed test data and a c_study row with an existing accession number.

6. Code Stream

eRad RIS– source code evolution



Legend:

Green = Released software

Red = Will not be released

Blue = Future release

7. RIS Release Version Numbers

Build	Patch	UI Version	Core Version	WS Version	DB Version	Notes
37	-	1.2.37.12843	1.2.37.12782	1.2.37.12843	1.2.37.12843	Full version release. Core install required.
37	1	1.2.37.13040	1.2.37.13040	1.2.37.13039	1.2.37.13003	Core install required. GUI.zip, web service and database updates
37	2	1.2.37.13069	1.2.37.13040	1.2.37.13069	1.2.37.13003	GUI.zip and Web service updates
37	3	1.2.37.13069	1.2.37.13040	1.2.37.13069	1.2.37.13003	Just WebAPI updated, no version changes. . Web service updates
37	4	1.2.37.13171	1.2.37.13040	1.2.37.13165	1.2.37.13171	GUI.zip, web service, and database updates
37	5	1.2.37.13347	1.2.37.13040	1.2.37.12979	1.2.37.12979	Bug was discovered with version numbers, this is why it appears we went backwards in the version number but we really did not.
37	6	1.2.37.13665	1.2.37.13040	1.2.37.13580	1.2.37.12979	GUI.zip and Web service updates
37	7	1.2.37.13807	1.2.37.13040	1.2.37.13799	1.2.37.13807	GUI.zip and Web service updates. Also MIRTH mapping changes
37	8	1.2.37.13807	1.2.37.13040	1.2.37.13827	1.2.37.13807	Web service update
37	9	1.2.37.13807	1.2.37.13040	1.2.37.13839	1.2.37.13807	Web service update

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37	10	1.2.37.13895	1.2.37.13040	1.2.37.13895	1.2.37.13895	GUI.zip, Web service and database updates
37	11	1.2.37.14161	1.2.37.13040	1.2.37.14161	1.2.37.14161	GUI.zip, Web service, database updates and SQL Management reporting
37	12	1.2.37.14267	1.2.37.13040	1.2.37.14161	1.2.37.14267	GUI.zip, Web service and database updates
37	13	1.2.37.14326	1.2.37.13040	1.2.37.14326	1.2.37.14326	GUI.zip, Web service and database updates
38	-	1.2.38.14486	1.2.38.14486	1.2.38.14486	1.2.38.14486	Full version release. Core install required.
38	1	1.2.38.14748	1.2.38.14748	1.2.38.14748	1.2.38.14748	Core install required
38	2	1.2.38.15182	1.2.38.14748	1.2.38.14748	1.2.38.14748	GUI.zip update only
38	3	1.2.38.15251	1.2.38.14748	1.2.38.14748	1.2.38.14748	GUI.zip update only
38	4	1.2.38.15327	1.2.38.14748	1.2.38.15290	1.2.38.14748	GUI.zip and Web service updates
38	5	1.2.38.15513	1.2.38.15513	1.2.38.15513	1.2.38.15451	Core install required. GUI.zip, Web service and database updates.
38	6	1.2.38.15618	1.2.38.15513	1.2.38.15513	1.2.38.15618	GUI.zip and database updates
38	7	1.2.38.15768	1.2.38.15513	1.2.38.15768	1.2.38.15618	GUI.zip and Web Service updates
39	-	1.3.39.15389	1.3.39.15389	1.3.39.15377	1.3.39.15355	Full version release. Core install required.

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39	1	1.3.39.16026	1.3.39.15943	1.3.39.15943	1.3.39.15957	Core install required. GUI.zip, Web service and database updates
40	-	1.3.40.16659	1.3.40.16659	1.3.40.16659	1.3.40.16659	Core install required. Full version release
40	1	1.3.40.16849	1.3.40.16659	1.3.40.16744	1.3.40.16727	GUI.zip, Web service, database updates and SQL Management reporting
40	2	1.3.40.16868	1.3.40.16659	1.3.40.16868	1.3.40.16727	GUI.zip and Web Service
40	3	1.3.40.16868	1.3.40.16659	1.3.40.16868	1.3.40.16727	DB updated only
40	4	1.3.40.16967	1.3.40.16659	1.3.40.16932	1.3.40.16961	GUI.zip, Web service, database updates
40	5	1.3.40.17087	1.3.40.16659	1.3.40.17069	1.3.40.17087	GUI.zip, Web service, database updates
40	6	1.3.40.17146	1.3.40.16659	1.3.40.17146	1.3.40.17146	GUI.zip, Web service, database updates
40	7	1.3.40.17268	1.3.40.16659	1.3.40.17268	1.3.40.17259	GUI.zip, Web service, database updates
40	8	1.3.40.17364	1.3.40.16659	1.3.40.17362	1.3.40.17343	GUI.zip, Web service, database updates
40	9	1.3.40.17370	1.3.40.16659	1.3.40.17370	1.3.40.17370	GUI.zip, Web service, database updates
40	10	1.3.40.17435	1.3.40.16659	1.3.40.17435	1.3.40.17370	64 BIT web service. GUI.zip, Webservice.
40	11	1.3.40.17435	1.3.40.16659	1.3.40.17525	1.3.40.17370	Web service update

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40	12	1.3.40.17685	1.3.40.16659	1.3.40.17685	1.3.40.17648	GUI.zip, Web service, database updates
40	13	1.3.40.17776	1.3.40.16659	1.3.40.17776	1.3.40.17648	GUI.zip, Web service
40	14	1.3.40.18063(3GB)	1.3.40.16659	1.3.40.18063	1.3.40.18063	GUI.zip, Web service, database updates
40	14.1	1.3.40.18063(3GB)	1.3.40.16659	1.3.40.18107	1.3.40.18063	Web service
40	15	1.3.40.18127(3GB)	1.3.40.16659	1.3.40.18127	1.3.40.18127	GUI.zip, Web service, database updates
40	16	1.1.3.40.18585 (3GB)	1.3.40.16659	1.3.40.18585	1.3.40.18646	GUI.zip, Web service, database updates
40	16.1	1.3.40.18705 (3GB)	1.3.40.16659	1.3.40.18585	1.3.40.18646	GUI.zip
40	17	1.3.40.18780 (3GB)	1.3.40.18756	1.3.40.18756	1.3.40.18646	Core install required for Radiologist User Group. GUI.zip, Core setup, and Web Service updates
40	18	1.3.40.19253(3GB)	1.3.40.18756	1.3.40.18756	1.3.40.19253	GUI.zip, Web Service and database updates
40	19	1.3.40.19909(3GB)	1.3.40.18756	1.3.40.19878	1.3.40.19253	GUI.zip, Web Service
40	20	1.3.40.20086(3GB)	1.3.40.18756	1.3.40.19878	1.3.40.19253	Gui.zip and Recognizer
40	21	1.3.40.20703(3GB)	1.3.40.18756	1.3.40.19878	1.3.40.19253	Gui.zip
40	22	1.3.40.20898(3GB)	1.3.40.18756	1.3.40.19878	1.3.40.19253	Gui.zip
41	-	1.3.41.19135(3GB)	1.3.41.19135	1.3.41.19135	1.3.41.19135	Full version release
41	1	1.3.41.19256(3GB)	1.3.41.19135	1.3.41.19256	1.3.41.19256	GUI.zip,

						Web Service and database updates
41	2	1.3.41.19620(3GB)	1.3.41.19135	1.3.41.19620	1.3.41.19346	GUI.zip and Web Service
41	2sf	1.3.41.19620SF(3G)	1.3.41.19135	1.3.41.19620	1.3.41.19346	GUI.zip
41	2.1	1.3.41.20622(3GB)	1.3.41.19135	1.3.41.20617	1.3.41.19346	GUI.zip and Web Service
41	3	1.3.41.20125(3GB)	1.3.41.19135	1.3.41.20171	1.3.41.19346	GUI.zip , Web Service and Recognizer
41	4	1.3.41.20285(3GB)	1.3.41.19135	1.3.41.20171	1.3.41.19346	GUI.zip
41	5	1.3.41.20809(3GB)	1.3.41.20708	1.3.41.20792	1.3.41.20738	GUI.zip, Core install, Web Service and database updates
41	6	1.3.41.20912(3GB)	1.3.41.20708	1.3.41.20792	1.3.41.20738	GUI.zip
41.1	-	1.3.41.20918(3GB)	1.3.41.20791	1.3.41.20918	1.3.41.20739	GUI.zip
41.1	1	1.3.41.20987(3GB)	1.3.41.20791	1.3.41.20918	1.3.41.20739	GUI.zip
41.1	2	1.3.41.21162(3GB)	1.3.41.20791	1.3.41.21162	1.3.41.21150	GUI.zip, Web Service and DB updates
42	-	2.42.0.0.21261(3GB)	2.42.0.0.21261	2.42.0.0.21261	2.42.0.0.21187	Full version release

8. Resolved Defects

Bugs Suggested Features and Support Issues resolved in build 2.42. The extract is taken from Redmine bug tracking system and only displays defects resolved in 2.42.

Bug #	Priority	Subject	Category	Found Version
5785	Immediate	Automacros containing fields lose their field attributes	Radiology Reporting	1.41.1
5165	Immediate	Losing default value for fields when saving template/macro	Radiology Reporting	40.019
2972	Immediate	multi sign - personnel search from administration will not populate the sign level saved with the user	Thick Client GUI	1.39.001
5827	Urgent	InsertTextAtPastCaretPositions is causing undesired behavior for rads when editing.	Radiology Reporting	1.40.022
5758	Urgent	Mammo follow-up orders no longer included in the list of outstanding orders when scheduling	Thick Client GUI	1.41.006
5338	Urgent	Reporting - Dictionary Add / Train changes	Radiology Reporting	1.40.20
4972	Urgent	RadNet - Sales Reports - Adjust all reports to CPT based	Mgt Reports	1.4
4710	Urgent	Reporting - inserting a template or macro with interactive timestamps will cause playback corruption and confusion	Radiology Reporting	1.41
4641	Urgent	RRR- support issue. Outside Read Bug	Thick Client GUI	40.17
5604	High	Error after login: nullable object must have a value (see alternative steps to reproduce)	Thick Client GUI	1.41.002.1
5576	High	Saving system layout saved signing layout as editing and vice versa.	Radiology Reporting	1.40.21
5438	High	Reporting - possible wrong document model loading if more than one practice	Radiology Reporting	1.40.20
5348	High	Reporting - ability to navigate cued fields without pausing	Radiology Reporting	1.4
5298	High	Next fields wraps document but previous field does not	Radiology Reporting	1.40.020

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5210	High	Not able to arrive a patient (MSK)	Thick Client GUI	41.002
5196	High	Date filter not working correctly on - Last Followup Date column (RRR)	Thick Client GUI	41.002
5171	High	Cancelled by Reason Core management report fails to run (RRR)	DB	41.002
5152	High	Correction dialog can cause word duplication	Radiology Reporting	1.40.018
5141	High	Editing fields in template editor sometimes throws an exception	Radiology Reporting	40.019
5137	High	Management Reports - Modifications to reports in Operations Folder	Mgt Reports	1.4
4987	High	Tentatively signed studies that are suspended should be better protected	Radiology Reporting	1.40.017
4984	High	HL7 --> placer order number contains literal		41.001
4856	High	Wedge fails to insert order and returns Patient and OrderPlacerNumber reference check failure The transaction ended in the trigger. The batch has been aborted. to Mirth	DB	1.41
4823	High	Reporting Screens fail to load if unable to find a good description for the current procedure code	Thick Client GUI	1.4
4803	High	Template/macro add ability to assign to Modality Type	Radiology Reporting	1.4
4751	High	Next workflow broken when using multiple tabs of different types	Radiology Reporting	1.41
4681	High	Able to sign a report when the field(s) in a template do not not have a value.	Thick Client GUI	1.41
4671	High	Unknown CC physician --> not displayed properly on Unknown reconciliation WL (RRR)	Thick Client GUI	40.17
4649	High	Error adding a procedure plan for new appointment	Thick Client GUI	1.41
4626	High	Protect Section Headers - Two new cases to handle	Radiology Reporting	1.41

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4625	High	Reporting - ability to open multiple dictations in batch mode	Radiology Reporting	1.4
4597	High	RRR - HTML Codes are breaking prep instructions	Thick Client GUI	40.18127
4580	High	Special Accommodations Flag does not get turned off if Special Accommodations is the only flag that is turned on and the user switches the Yes to a No	Web Services/DB	1.4
4546	High	Patient Merge event while another user has that patient open on a screen.	Thick Client GUI	1.4
4545	High	Referrings with No delivery preference in any address do not get their reports.	Document Distribution	1.40.16
4479	High	Reporting - using re-use causing confusion when getting a message box like "Addendum Requested"	Radiology Reporting	1.41
4379	High	All signed by date column sorts	Radiology Reporting	1.41
4378	High	Canceling Unscheduled orders not appearing on Patient Folder	Thick Client GUI	1.41.18633
4375	High	Patient Merge - Suggest button causes Index error when trying to add to the Patient Merge WL	Thick Client GUI	1.41
4366	High	Transcribe next workflow (beeps)	Radiology Reporting	1.41
4281	High	Template / macro user assignment screen slow to load.	Radiology Reporting	1.4
4198	High	patient folder doesn't load unless part of the initial layout on open of rad screen	Thick Client GUI	1.41
4005	High	Memory leak - Reporting - Resizing floating panes	Thick Client GUI	1.40.013
3909	High	Show / Hide titlebars from view menu throws exception	Thick Client GUI	1.40.010
3845	High	Lookup editor drop down won't must show existing values	Thick Client GUI	40.006
3575	High	RadNet - West Coast - Add Age as an Pre-Cert rule option	Thick Client GUI	1.39

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3570	High	Reporting - Playback then record does not work with Interactive Dictation.	Thick Client GUI	1.40.005
3528	High	Magview reports come in via HL7 containing 	HL7	1.4
3036	High	Reporting - Pending Signature worklist not obtaining lock for patients with multiple studies from same order	Thick Client GUI	1.39.001
2941	High	Request Addendum	Thick Client GUI	1.37
2532	High	access to changing the access strings needs to read only.	Thick Client GUI	1.39
5788	Normal	xkeys - insert template is not working		1.41
5779	Normal	c_selectreporttable throwing error on report server when there is no table for the dx report	Web Services/DB	1.41
5729	Normal	Exam Search with Scheduled Date Range includes one extra day	Thick Client GUI	1.41.006
5641	Normal	Parameter is not valid error while loading thumbnail images in document viewer	Thick Client GUI	1.41.005
5631	Normal	Special Accommodations flag does not display properly	Thick Client GUI	1.4
5623	Normal	null reference error when opening administration / management reports	Thick Client GUI	1.41.005
5612	Normal	null reference error from CDImportManager	Thick Client GUI	1.41.005
5600	Normal	ICM Dashboard - outside read site code issue	Web Services/DB	1.4
5599	Normal	wrong data in c_study._site_code for outside read	Web Services/DB	1.41
5583	Normal	Spell check on the fly no longer turned on. Squigly lines are not shown under misspelled words	Radiology Reporting	1.40.21
5577	Normal	Report Fields do not update when you load a new layout	Radiology Reporting	1.41
5561	Normal	foreign key error when adding follow-up / contact log entries	Thick Client GUI	1.41.005

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5525	Normal	Scanning - Performs scan but returns no pages.		1.41
5516	Normal	Error when reprinting Receipts	Thick Client GUI	1.41.002.1
5507	Normal	Patient Folder - Null Scheduled Dates should show at top as most recent.		1.41
5487	Normal	Procedure code assignment screen in template editor keeps button disabled	Radiology Reporting	1.41.002
5478	Normal	MERGE - Birad picker either shows on non Birads studies or doesn't show on birad studies.	Radiology Reporting	41.002
5460	Normal	When deleting, activating or deactivating items in the template/macro editor, all rows are updated	Radiology Reporting	1.41
5443	Normal	Reporting - rad edit text default color is yellow - should be "#810000"	Radiology Reporting	1.40.20
5408	Normal	Object Reference Error entering an OutsideRead 41.004	Thick Client GUI	41.004
5394	Normal	missing index on c_summary_mu_history	DB	1.41
5379	Normal	right click Print Report should record an audit log entry	Thick Client GUI	1.40.003
5377	Normal	Stored procedure for Radar confirmations in core install is out of date in relation to SE	Web Services/DB	1.4
5351	Normal	Reporting - Laterality check causing duplicate words	Radiology Reporting	1.40.020
5346	Normal	Reporting - report history requires a lock and offers a read only mode that will not allow you to view anything		1.40.020
5345	Normal	Playback with bouncing ball, preventing word selection with double click.	Radiology Reporting	40.016
5332	Normal	Reporting - no wait navigate fails when dictating and then clicking next field > 1 time without pausing	Radiology Reporting	1.40.019
5327	Normal	Problem with AME Spellcheck CP-14969		1.40.020
5308	Normal	Reporting - dictating negative 5 percent will render the word percent not the symbol	Radiology Reporting	1.40.20

5273	Normal	CD Import: import fails, if images don't have an accession number		1.41
5272	Normal	Reporting - Automatic spell check "on the fly" marks words as misspelled that are at the beginning of a field	Radiology Reporting	1.40.020
5271	Normal	Field navigation popup not showing for FFF	Radiology Reporting	40.02
5244	Normal	Copy and pasting words into a report should add leading and trailing space as in MS Word	Radiology Reporting	1.4
5242	Normal	Input device invokable events need proper display text	Radiology Reporting	9
5221	Normal	Reporting - User preference for Redo needs to be selected twice to work	Radiology Reporting	1.40.020
5219	Normal	Reporting - Function key action DeleteWordLeftOfCursor will delete fields and section titles	Radiology Reporting	1.40.020
5217	Normal	Solution name is wrong in installer - and possibly icon for shortcuts.		1.38
5211	Normal	Prompt when creating templates if the word colon is in a cue		1.40.019
5203	Normal	Unable to dictate a new line (shift+enter). Always renders as a paragraph	Radiology Reporting	1.40.019
5202	Normal	Next/Previous section unusable due to inconsistent results		1.40.019
5201	Normal	Rendering of spine levels have changed in 7.88		1.40.019
5200	Normal	First word in field persisting and will not overwrite	Radiology Reporting	1.41
5179	Normal	DEA blank vs Null	Thick Client GUI	1.41
5178	Normal	Template - cannot remove a value in either the Grammar or Default value fields	Thick Client GUI	41.003
5170	Normal	Reporting - template/macro editor cue text box too small	Radiology Reporting	1.41
5169	Normal	Aggressive field cue navigation fails after editing a cue on a template.	Radiology Reporting	1.40.019

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5160	Normal	Prompt when creating templates if the word colon is in a cue		1.40.019
5145	Normal	Next field voice command, showing field popup for one field too far.	Radiology Reporting	40.18
5136	Normal	Management Report updates - removals	Mgt Reports	1.4
4979	Normal	Advanced needs created date to appear on the dx template next to each addendum	Web Services/DB	1.4
4977	Normal	forms will not print for exams scheduled in closed rooms	Thick Client GUI	1.4
4976	Normal	Application icon is rris icon instead of eRAD icon - and is grainy / blocky in task bar		1.4
4974	Normal	RadNet - Sales reports - add patient zip code report	Mgt Reports	1.4
4940	Normal	Multi-type ahead control not sufficient for replacement of Race/Ethnic combo box.		1.41
4939	Normal	Type ahead for ICD codes on Medical History Grid does not handle decimal	Thick Client GUI	1.41
4934	Normal	Assign to Control can populates user list based on wrong practice	Radiology Reporting	1.41
4875	Normal	support row level caching for lookup tables	Web Services/DB	1.4
4862	Normal	null reference error in PatientGeneral constructor line 126	Thick Client GUI	1.41
4860	Normal	Ris hangs... For a long time in template editor.	Radiology Reporting	1.41
4850	Normal	TypeError: The prefix "mm" for attribute "mm:major" associated with an element type "ClinicalDocument" is not bound	HL7	1.41
4839	Normal	RRR - IVT - Managed Policies - billing code info goes blank		1.4
4828	Normal	Report fields control throws exception when in minimized mode	Radiology Reporting	1.41
4818	Normal	Reporting - reuse only - macros are not getting reset and old command are staying around on next workflow	Radiology Reporting	1.41

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4817	Normal	First chance exception when getting field description in report template editor.	Radiology Reporting	1.4
4813	Normal	First chance exception on SpeechMike Firmware check	Radiology Reporting	1.41
4812	Normal	First chance exception on PacsCacheServer	Thick Client GUI	1.41
4811	Normal	First chance exception when loading reporting autosave screen.	Radiology Reporting	1.41
4806	Normal	Reporting - spell check on the fly user preference not working	Radiology Reporting	1.41
4786	Normal	Management Report - User Group Permissions is missing access string name	Mgt Reports	1.41
4784	Normal	Patient merge - recent history list - pulls up the deleted patient	Thick Client GUI	1.4
4780	Normal	Known Limitation - Side by side registration broken from 40.016 - 40.017	Thick Client GUI	40.017
4778	Normal	duplicate "void" payment for the same payment	Thick Client GUI	1.4
4776	Normal	PACS Server override user preference requires log-out, then log-in to take effect	PACS Integration	1.41.001
4775	Normal	PACS Viewer 7.2.34 returns Success="1" with a view session id but empty openedaccessionnbs attribute. When RIS closes this view session PACS is unresponsive.	PACS Integration	1.41.001
4758	Normal	Invalid insurance policy saved to DB	Thick Client GUI	40.016
4752	Normal	Reporting - speech mics 3500 and 3600 showing incorrectly in Help>About	Radiology Reporting	1.41
4748	Normal	scan document archive "write check" fails when 2 or more processes run on the same server	Web Services/DB	1.4
4746	Normal	Reporting - performance - require two raddocks to support signing and dictating	Radiology Reporting	1.41
4741	Normal	Scan document archiving fails when the scan document page is null	Web Services/DB	1.4

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4739	Normal	Reporting - reuse enabled and open a screen for signing, skip next will not populate the tab text	Radiology Reporting	1.41
4725	Normal	IVT Worklist - new field "Last Contact entry"	Thick Client GUI	1.41
4723	Normal	Dark mode watermark (eRad RIS logo) too bright		1.41
4720	Normal	c_GetNameFromUserID still referencing c_format_name using format 1	Web Services/DB	1.4
4716	Normal	Reporting - reuse when skipping reports and there are change we don't get a prompt to save changes	Radiology Reporting	1.41
4714	Normal	RRR - unknown reconsiliation - right click not available on HoldCodeCompleted	Thick Client GUI	40.17
4683	Normal	MU Ethnic HL7 codes	Web Services/DB	1.41
4682	Normal	MU - c_patient_medication is missing FK reference to l_medication.medicaiton_code	Thick Client GUI	40.17
4676	Normal	Reporting - reuse selected report tool window keeping previous data	Radiology Reporting	1.41
4673	Normal	Management Report - Appointment Schedule	Mgt Reports	1.4
4665	Normal	Numbered lists that aren't formatted as true ordered lists are wrapping up to the seciton line	Mgt Reports	1.41
4662	Normal	Reporting - SetAccountRules not called when opening an exam for the default template	Radiology Reporting	1.41
4660	Normal	Report fields control showing as a blank canvas	Radiology Reporting	1.41
4654	Normal	Dictating previous field moves two fields back instead of one.	Radiology Reporting	1.41
4639	Normal	Interactive fast forward light up play and fast forward	Radiology Reporting	1.41

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4638	Normal	Audio control allow rewinding and fastforwarding to show at the same time as active.	Radiology Reporting	1.41
4637	Normal	RCW error closing reporting window	Radiology Reporting	1.41
4636	Normal	Recording rewinding in interactive mode falls into a playback/rewind loop.	Radiology Reporting	1.41
4635	Normal	Recording interactive and rewinding	Radiology Reporting	1.41
4634	Normal	Audio starts playing when recording	Radiology Reporting	1.41
4633	Normal	Switching from record to play in batch mode	Radiology Reporting	1.41
4632	Normal	Interactive record + playback at same time	Radiology Reporting	1.41
4630	Normal	Reporting - Edit Templates and Macros from the menu option is showing templates not soley owned by the radiologist	Radiology Reporting	1.4
4628	Normal	MU Height and Smoking Status should pre-populate for walk-in	Thick Client GUI	1.41
4627	Normal	RectangleDrawer timer throws exception	Radiology Reporting	1.4
4624	Normal	Reporting - Automacros do not use scanner in scoring which available macro should load		1.4
4621	Normal	QA workflow, set to problem without rejecting	Radiology Reporting	1.41
4607	Normal	RadNet - Dark Theme - Within template/macro editor, forecolor is the same as backcolor	Thick Client GUI	1.41
4588	Normal	CD Import - Fails to import CDs from some hospitals that have "Screen Save" type images		1.4
4581	Normal	Ampersand in template / macro field name can corrupt report	Radiology Reporting	1.4

4577	Normal	View Edit - open view edit window and save with no changes made logs entry to audit history	Thick Client GUI	1.41
4567	Normal	Reporting - notifications need to be placed above action buttons.		1.41
4566	Normal	Reporting Reuse - Next workflow loads cases that are pending saving.	Thick Client GUI	1.41
4562	Normal	Template editor, inserting a field into a section header throws an error.	Radiology Reporting	1.4
4560	Normal	Some message boxes don't close when hitting X	Thick Client GUI	1.41
4557	Normal	Read only mode hides recording button, but can still record using microphone	Radiology Reporting	1.41
4556	Normal	Read only mode not reflecting on minimized dictation controls	Radiology Reporting	1.41
4551	Normal	Modified GoggleSearchAction to support Multiple passed in params	Thick Client GUI	1.41
4549	Normal	person search results does not correctly show specialties	Thick Client GUI	1.4
4544	Normal	Send-to button blanks out the reporting screen	Radiology Reporting	1.41
4543	Normal	RXNorm is not captured from NewCrop	Thick Client GUI	1.41
4542	Normal	Worklist refresh exception		1.41
4541	Normal	autosave - button positions should be switched		1.41
4540	Normal	Autosave - close should prompt to delete		1.41
4539	Normal	Autosave - double click row does nothing		1.41
4536	Normal	Reporting - Reuse enabled status area messages not populating for action buttons	Radiology Reporting	1.41
4533	Normal	Reporting - edit template > make changes > x to close > no prompt presented about changes	Radiology Reporting	1.41
4532	Normal	Reporting - edit template > esc > cancel will close the form instead of cancelling	Radiology Reporting	1.41

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4528	Normal	WPR-000	Radiology Reporting	1.4
4527	Normal	Attachments - Verbal button causing error	Thick Client GUI	1.41
4522	Normal	intermittent error: transaction was deadlocked on lock resources with another process and has been chosen as the deadlock victim	Web Services/DB	1.41
4521	Normal	Scanning - Editing Document width and height causing error on blanks	Thick Client GUI	1.41
4516	Normal	Reporting - MT polling enabled open RIS initially will result in messed up reporting screen	Radiology Reporting	1.41
4514	Normal	Attachments - wide documents that a small height cause an out of memory exception		1.4
4510	Normal	Reporting - editing reports MT's have the microphone selection option available	Radiology Reporting	1.41
4508	Normal	Transcriptionist next workflow not properly skipping	Radiology Reporting	1.41
4490	Normal	Protect section headers does not protect against macro insertions	Radiology Reporting	1.40.017
4489	Normal	Inactive printers can still be selected in Send Report dialog	Document Distribution	1.4
4488	Normal	CD Import - add a button to access this feature from Patient Folder.		1.4
4487	Normal	CD Import - Some customers have CD media without a DICOMDIR		1.4
4486	Normal	dicom error while importing a CD	Thick Client GUI	1.40.16328
4483	Normal	Reporting - Add patient folder control to reporting window will not display history	Thick Client GUI	1.41
4481	Normal	LogTextBox - Permission for an admin to edit previous log details isn't always available.		1.41
4444	Normal	Scanning - Order/Patient/Exam Level can change when re-viewing the document		1.41

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4443	Normal	External Report Workflow - changing room/procedure resets external flag.		1.41
4434	Normal	Outside Reads do not fall into external workflow		1.41
4426	Normal	Reports that should have site filter	Mgt Reports	1.41
4392	Normal	alignments of MT screen buttons in user preferences are a little miss aligned	Thick Client GUI	1.41
4389	Normal	Reporting - Addendum request make notes required on request and reject.	Radiology Reporting	1.41
4386	Normal	Report History Error	Thick Client GUI	1.41
4383	Normal	External Report Workflow check box loses value on open of view edit		1.41
4341	Normal	QA workflow problem flag #2894	Radiology Reporting	1.41
4334	Normal	Report History Window	Thick Client GUI	1.4
4296	Normal	RRR Modality Closures and Restrictions - when you delete a row after pressing 'enter' at the end of the column 'End Time' RIS does not seem to recognize the row is gone, and prompts user for 'Description'	Thick Client GUI	40.15
4290	Normal	Reporting - next field navigating two fields when cursor immediately to the left of field	Radiology Reporting	1.4
4274	Normal	All Signed By Date WL missing context menu option for Patient Folder	Thick Client GUI	1.41
4267	Normal	Report context menu item does not have access string	Web Services/DB	1.41
4260	Normal	RRR - Appointment book is not showing all outside read locations, only one.	Admin Tools	40.15
4259	Normal	RRR - Order of preferred radiologists in the Personnel editor or image notes, is not the same order it appears in the workflow within RIS	Thick Client GUI	40.15
4227	Normal	eRAD PACS: Often not closing images	PACS Integration	1.40.012

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4199	Normal	Error thrown on refresh lock after just having closed reporting screen.	Thick Client GUI	40.15
4185	Normal	Login - After logging in as a Rad user the splash screen doesn't always repaint	Thick Client GUI	1.41
4153	Normal	Sort on audio length throws error on worklist refresh	Thick Client GUI	1.41
4135	Normal	Workstation locks do not reliably fire on workstations that have not been rebooted for 25+ days	Thick Client GUI	1.40.16328
4096	Normal	Send To button on Report History screen should be hidden	Radiology Reporting	1.40.14
4093	Normal	Assign to Radiologist from WL clears Chair when configured not to clear the chair.	Thick Client GUI	1.40.012
4087	Normal	Getting "Viewer is opening another view!" when trying to launch images in eRAD PACS	PACS Integration	40.12
4086	Normal	Scanning - HP Scanjet 3000 s2 does not work with Twain 2.0		1.4
4085	Normal	RRR reported 'painting' issue with scheduling window		40.18019
4068	Normal	Reporting - next workflow excluding reports locked by the current user	Thick Client GUI	1.4
4052	Normal	Suspended reports can still be previewed in dictate screen using patient folder		1.4
4018	Normal	Memory leak fixes discovered in B40		1.4
4006	Normal	Scan Documents from EMR	Thick Client GUI	1.4
3976	Normal	Reporting buttons, when disabled, has a wider separator.	Thick Client GUI	1.4
3975	Normal	Verify External - button is greyed out in Patient Folder, even if you have permission	Thick Client GUI	39.1
3971	Normal	RIS Administrator - permissions	Web Services/DB	39.1
3914	Normal	order lock not released in some cases, refreshes continue until user logs out	Thick Client GUI	1.4

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3901	Normal	Reporting - Chair assignment - Chair selection shows study assigned but work list doesn't have any studies assigned	Thick Client GUI	1.40.010
3873	Normal	Patient Merge - when you choose phone number details for a patient and suggest merge, then re-open, those details are not maintained.	Thick Client GUI	1.1.3.40.17435
3872	Normal	Signing contribution dates and userid missing in supervising dictation worklist	Thick Client GUI	1.40.010
3866	Normal	Installing Updates... - Two can run at the same time, which causes errors		1.4
3828	Normal	Toggle record not stopping when pressed again (Fisher site visit)	Thick Client GUI	40.006
3802	Normal	RadNet - ADV defect - Blanking out the chair	Thick Client GUI	1.40.006
3796	Normal	RadNet - ADV Call Centre - Order level scanning support	Thick Client GUI	1.40.006
3755	Normal	RadNet - Call Centre - Preferred site not always populating	Thick Client GUI	1.40.006
3753	Normal	RadNet - Call Centre - IVT Attachment - advanced scanning pop-up issue	Thick Client GUI	1.40.006
3732	Normal	MU2 (2014) Requires Gender to Change to Sex	Thick Client GUI	1.4
3708	Normal	Inactive but currently used procedures are not appearing as an option in the performed procedure list on view edit	Thick Client GUI	1.40.0007
3692	Normal	Can't reschedule - strange error -		1.4
3683	Normal	Rad Sign Level lookup exception	Admin Tools	1.40.007
3662	Normal	Schedule Group lookup table exception	Admin Tools	1.40.006
3621	Normal	RadNet - Resolve Audit log issues - resolve in b41 if time permits, else move to b42	Thick Client GUI	1.38
3587	Normal	Administration --> cross_x_reference tables and Active column	Admin Tools	1.1.3.40.17118
3586	Normal	Administration --> BIRAD + Recommendation mapping change Active = object reference ERR	Admin Tools	1.1.3.40.17118

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3562	Normal	L access string settings for Mammography worklists should default to "None"	Thick Client GUI	1.4
3464	Normal	Reporting - Increase the size of selected attachments data pane and the border doesn't repaint	Thick Client GUI	1.4
3455	Normal	Reporting - Indent / Outdent not working	Thick Client GUI	1.4
3403	Normal	IVT WL not showing the WL Row count as expected	Thick Client GUI	1.4
3397	Normal	RRR - scan doc types when marked inactive are still showing in the dropdown menus in the GUI	Thick Client GUI	40.16659
3394	Normal	problems with validation of "Visited at" for "unknown referring physicians" without an address	Thick Client GUI	1.40.16328
3391	Normal	User editor loading config values twice, causing errors	Thick Client GUI	1.38
3373	Normal	EMR order fails - sending in an unknown referring physician	Thick Client GUI	1.4
3035	Normal	Missing access string	Web Services/DB	1.4
3010	Normal	Multi-sign: When you have a preconfigured sign level overrides (RadSignLevel table), and you disable contribute a and contribute b, user cannot sign on the modality type in the override.		39.16026
2991	Normal	Patient Folder - don't duplicate attachment viewers	Thick Client GUI	1.39
2970	Normal	Reporting - Report history - Does not always load and may return object reference error	Radiology Reporting	1.39.001
2897	Normal	Report History - from patient folder tab name is not correct	Thick Client GUI	1.39
2823	Normal	audit history does not provide sufficient detail for study data	Thick Client GUI	1.39
2716	Normal	System Config Lookup Editor	Thick Client GUI	1.38

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2690	Normal	Show/Hide Titlebar issue	Thick Client GUI	1.39
2628	Normal	Reporting screen not drawing in, if user make worklists active	Thick Client GUI	1.39
2453	Normal	River Ranch - When you reschedule a study we set an internal flag on the study that was rescheduled, when we just cancel we are not clearing this flag if it was previously set.	Thick Client GUI	38
2418	Normal	River Ranch - When two users with similar names edit an order, there can be some confusion in who actually wrote notes that are stamped (ie: order notes)	Thick Client GUI	38.14486
2163	Normal	Studies in Edits Pending QA can be signed off	Thick Client GUI	1.2.38.14350
2113	Normal	error on patient search when formatted_first_name is null	Web Services/DB	1.37.12
2072	Normal	Reporting - Worklist refresh when worklist is not in focus.	Thick Client GUI	1.37
2057	Normal	Unknown Insurance reconsiliation - reload problem	Admin Tools	37.11
1943	Normal	No access string to prevent access to Unknown Carrier		1.37
1842	Normal	Reporting - CdsInterctive Text Color not consitent		1.38
1487	Normal	Worklist column does not refresh when exception thrown in Bulk Field Assignment	Thick Client GUI	1.2.37.12644
1177	Normal	Completing fields in report editor and using Back button < will return COM error.	Thick Client GUI	1.36
4368	Low	Ranjan - Date format	Radiology Reporting	1.41
4282	Low	Template / macro - Create using filter criteria	Radiology Reporting	1.41
3889	Low	Null reference exception in lookup	Admin Tools	1.1.3.40.16659
3750	Low	Reporting - Exam details pane layout	Thick Client GUI	1.40.008

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3680	Low	Font size - not saving	Thick Client GUI	1.4
3229	Low	Patient search - folder preview feature - does not clear with reset button		1.4
3228	Low	Patient Folder (Preview Mode) - docking\floating issue on Patient Search	Thick Client GUI	1.4
1977	Low	Birthdate search often defaults to dates in the future		1.37
1348	Low	Special Accommodations required fields	Thick Client GUI	1.37

9. Known Limitations

The following are Bugs Suggested Features and Support Issues found in build 2.42. Bugs reported in previous versions are not captured as Known Limitation in this document.

#	Status	Priority	Subject
5783	New	High	Dark mode login box impossible to see
5120	QE Rejected	High	Template / macro - create template from... doesnt retain custom fields
5861	New	Normal	unhandled exception logging in as a rad but without permission to some WL.
5860	New	Normal	PACS Images not opening from Patient folder
5857	New	Normal	Critical Results worklist throws null exception
5854	New	Normal	PACS Caching - Sometimes possible to steal someone else's cache lock
5851	New	Normal	Reporting - Error on pending dictation work list
5847	New	Normal	Dark mode - BMI on MU tab is white on white and unreadable
5843	New	Normal	MU - When editing the date in Lab results get error.
5839	New	Normal	Edit Templates and Macros icons enabled toggle is backwards
5837	New	Normal	Reporting - Open study in dictate window and get C++ Exception
5836	New	Normal	Chair selector throws error after RIS locked due to inactivity
5835	New	Normal	interact with message boxes via voice commands - can dictate into the message itself
5832	New	Normal	Scheduling - Restriction displayed in advanced search on Schedule tab not always accurate
5829	New	Normal	Scheduling / Registration
5822	New	Normal	'Assign' functionality throws error on report addendum
5821	MModal support	Normal	Redo That command needs to be uttered twice to work/catch up with undo that

5814	New	Normal	If lab test code matching systemconfig's CPOELabTestCode value doesn't exist for procedure who's CPOE Pathology flag is set, misleading exception occurs
5812	New	Normal	Orders to Schedule WL and IVT WL show last follow-up type code and the Mammo Worklists (0/4/5) show
5811	New	Normal	Suspended reports stops several voice commands from working
5808	New	Normal	Dark mode, very hard to read text in Recording and Playback settings
5800	New	Normal	parameter is not valid and/or out of memory error while viewing thumbnails
5784	New	Normal	Default attachment is order level, cant be changed to patient level
5777	New	Normal	Attachment Veiwew "Show More/Show Less" option is switching when pressing the Ok Button in the Attachment Viewer Preferences
5770	New	Normal	Button label on "Report on Accession Number" prompt is incorrect.
5768	New	Normal	DeleteLeftWord
5767	New	Normal	Cannot save IVT screen due to undetermined required field ("! Is Required")
5766	New	Normal	potential performance issues with c_ctrn_dictation
5762	New	Normal	Unplugging then replugging in speech mic causes Ris to crash, need to reboot
5754	New	Normal	Open quotes become duplicated
5745	New	Normal	Lookup bug "Non-static method requires a target"
5738	New	Normal	patient folder will not load when saved as a secondary tab on another tool window
5732	New	Normal	issues with sorting exam search results when max row count is reached

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5726	New	Normal	Management Reports - Many reports have new parameters, these fields should be returned on the report
5712	In Progress	Normal	C++ Exception when pressing the play button
5711	New	Normal	Using two procedures at scheduling, and patient is claustro - it is showing an option for a closed modality when it should not
5700	New	Normal	Template, cannot remove the dataset values
5697	New	Normal	RIS screen lock does not function properly when using minimize to tray mode
5685	New	Normal	Logout - after entering username and PWD error saying eRAD RIS is already running
5682	New	Normal	Inactivity message showing under ris error pop up
5678	New	Normal	View/Edit notes exam times tab marks as dirty
5672	New	Normal	Next Workflow on All _____ worklists, locked studies break work flow.
5664	New	Normal	When dictating, losing your lock, and save failed with screen recovered, you won't be able to save
5657	New	Normal	Cannot click 'OK' or 'Cancel' in PACSLoginDialog when running in 'Minimized' recording control mode
5654	In Progress	Normal	MU Lab Results Error
5637	New	Normal	Complete button on Report screen has misaligned formatting
5625	New	Normal	Reporting - cant exit minimized dictation screen with cancel button or close button
5620	New	Normal	Swap creditial user being used for user preference and lock screen
5619	New	Normal	Macro editor field "bleeds" into next line when field is at end of line and Enter pressed
5610	New	Normal	Clear Credentials is available from perform exam tab context menu
5603	New	Normal	recent activity message list shows Assign To as Dictated

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5597	New	Normal	Reporting - delete next field speech mike option leaves a space after deleting
5569	New	Normal	Lookup tables->ProcedureCode - Missing null checks on new l_procedure_code_x_billing_code rows throws exception
5563	In Progress	Normal	Reporting - Field markers allowing normal spelling errors to pass
5549	New	Normal	Edit Image Request's "Previous Requests" grid shows only 2-3 previous requests , can't be sorted or scrolled to see more
5526	In Progress	Normal	Reporting - Delete previous n words and undo that resulting in wrong cursor location
5519	New	Normal	Reporting - pending signature on login and pending signature worklist notifications can be shown at the same time
5515	In Progress	Normal	Reporting - Setting DictationEnabled = false still allows dictated text into the report.
5506	In Progress	Normal	Reporting - lowercase selection voice command inoperable
5469	New	Normal	Alerts may not fire properly if screens are re-used in RIS
5459	New	Normal	right click change status to cancel does not refresh worklist afterwards
5452	New	Normal	Reporting - Spine level 'T seven eight' rendering incorrectly.
5451	New	Normal	Reporting - enable rewind/fast forward playback rename
5446	New	Normal	Radnet only: Multi-install dashboard
5439	In Progress	Normal	new practices can cause null ref errors when signing
5420	New	Normal	some messageboxes improperly sized
5406	New	Normal	concurrency violation on save of UserPrefs can crash RIS

5305	New	Normal	Report field control shows duplicate field if laterality check highlighted words exist in a field
5259	New	Normal	Multi-type ahead: down arrow does not open the dropdown
5258	New	Normal	Multi-type ahead: control is too tall
5257	New	Normal	Multi-type ahead: Dropdown button should have a ... in the icon
5256	New	Normal	Multi-type ahead: Dropdown button is doesn't have left and bottom border
4830	New	Normal	Carrier search error if carrier name is not found
4810	New	Normal	PACSCacheServer system config setting is no longer used and should go away
4792	New	Normal	Reporting - Open multiple autosaved reports at once can cause error
4787	New	Normal	Next field not going to next field when dictating paragraphs in field.
4771	New	Normal	insert multi paragraph macro into field ignores paragraphs
4718	In Progress	Normal	Reporting - AME 7.88.3 - extra paragraph when protect section headers is on
4593	New	Normal	WPR - Send To button causes error