

User Pre-Release Notes

for RADNET rRIS

Build 1.17

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1. Purpose

This document describes some of the new features and changes implemented in rRIS as of the end of Sprint 17. This pre-release version of rRIS is referred to as Build 1.17.

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 rRIS Development team for the RadNet RIS management team.

3. Installing/Accessing the Application

The installation instructions for the rRIS 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 1.17 is considered a new core release of the application and will require a reinstallation of rRIS. This is accomplished by navigating to the rRIS 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 Spencer MacDougall with the PEI RIS Development Team.

4. New Features and Enhancements

Arbitration Signed

In Build 1.17 an Arbitration Signed Checkbox has been added to the patient form for study level data. The checkbox will not be visible if there is no associated study data.

The screenshot shows a web application window titled "Registration (Mike Richards)". It has a tabbed interface with "Patient", "Patient Contacts", "Insurance", "Exam", and "Scanning". The "Patient" tab is active, showing a "General Information" section. The form contains fields for Prefix, First Name (Mike), Last Name (Richards), Middle, Suffix, MRN (4444), Gender (Male), Birth Date (10-29-2010), and Place of Birth. On the right side of the form, there are three checkboxes: "Claustrophobic" (unchecked), "Arbitration Signed" (checked), and "Verified ID" (unchecked).

Figure 4.1 – Arbitration Signed Checkbox on the Registration Screen

Consecutive Receipt Numbers

Receipt Numbers are now generated based on the following criteria:

1. Payment Receipts have unique receipt numbers that are consecutive per site.
2. Receipts are generated when a payment is saved.
3. If a single payment is saved by itself, the system will assign it a unique receipt number.
4. If multiple payments are saved at once, they are assigned the same unique receipt number.
5. The same receipt number cannot be assigned to multiple visits.

The example on the next page will show a consecutive receipt number based on the concatenation of Site Code, Payment Number, and Visit Key.

Lutherville Receipt # LU-16-26062	Richards, Mike
Payment Receipt	
Patient Name: Richards, Mike Medical Record: 4444 DOB: 10/29/2010	
7/19/2011 11:53 AM Test Payment CreditCard 4125 \$100.00	
Total Payments \$100.00	
Billing Inquiries: (410) 580-2240 Please write this number on your check: 26062 Make checks payable to: Advanced Radiology	
We thank you for your patronage.	
Payment Receipt	Printed: 7/19/2011 11:53:41 AM

Figure 4.2 – Receipt Showing Consecutive Number Per Site “LU-16-26062”

Dataset Visualizer Change

The Dataset Visualizer is a tool that has been developed to aid support personnel in the field. It is automatically available to Super Users or can be added with an additional permission (Config.DataSetVisualizer). It basically allows the user to see the underlying datasets that belong to the current screen and is available by clicking Administration and DataSet Visualizer.



The screenshot shows a window titled "DataSet Visualizer" with a dropdown menu set to "Study.c_study". Below the menu is a table with the following data:

study_key	patient_key	order_key	accession_number	requested_procedure_id	sps_id	appointment_id	linked_id	status_code	pro
22305	152332	22941	1009094	1009082	28465	1008980	0	Scheduled	

Figure 4.3 – Dataset Visualizer Showing Study Data

Delete Dictation/Report and Reset Status

If a dictation has been submitted in error, the user requires the ability to delete the dictation and set the status of the exam back to either Signed or Exam Done status depending on the last known good state of the diagnostic report.

In Build 1.17 there is a context menu option on the Report Drafted, Dictated, and Patient Folder worklists that will allow a user to right-click on the selected exam and perform the delete dictation/report and reset status.

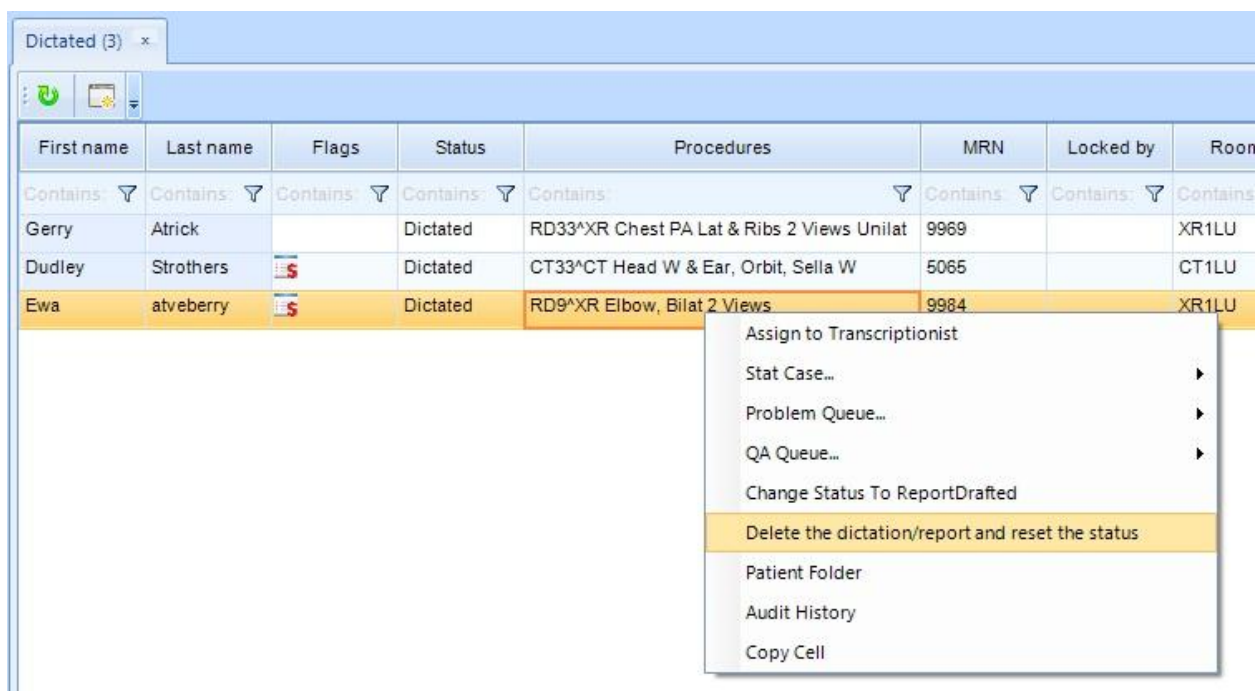


Figure 4.4 – Context Menu for Deleting a Dictation

When the delete dictation/report happens the system will remove the current dictation and set the status back to exam done with the exception of an addendum. If the dictation is for an addendum then the application will reset the status back to Signed where it can be dictated on once again if needed.

A dictation deletion can only be performed when the study is in Dictated, ReportDrafted or Transcribed status. There is a permission called “Clinical.DeleteDictationReportAndReset” with the default access level is set to “None”. Currently this permission is only enabled for Super User and Transcription Admin user groups.

When trying to delete a dictation, the system will prompt the user before completion. This action cannot be reversed and once the dictation and report are deleted there is no turning back.

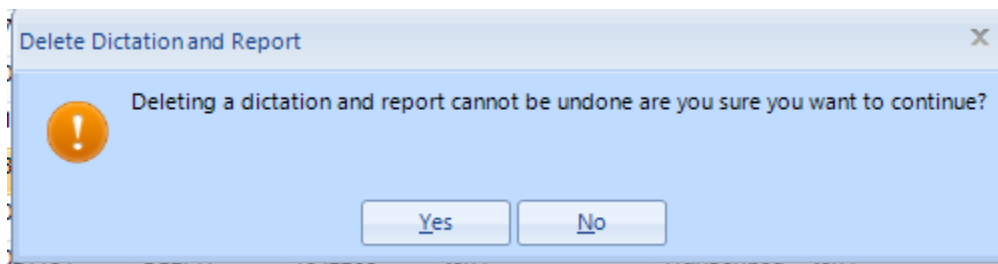


Figure 4.5 – User Prompt when Deleting a Dictation

Dictation Purge

There is a requirement for rRIS to have the ability to clean up dictations in the database based on a configurable number of days. The DaysToKeepDictation system configuration value is currently set at seven days. Dictations are deleted only for the exams that are signed.

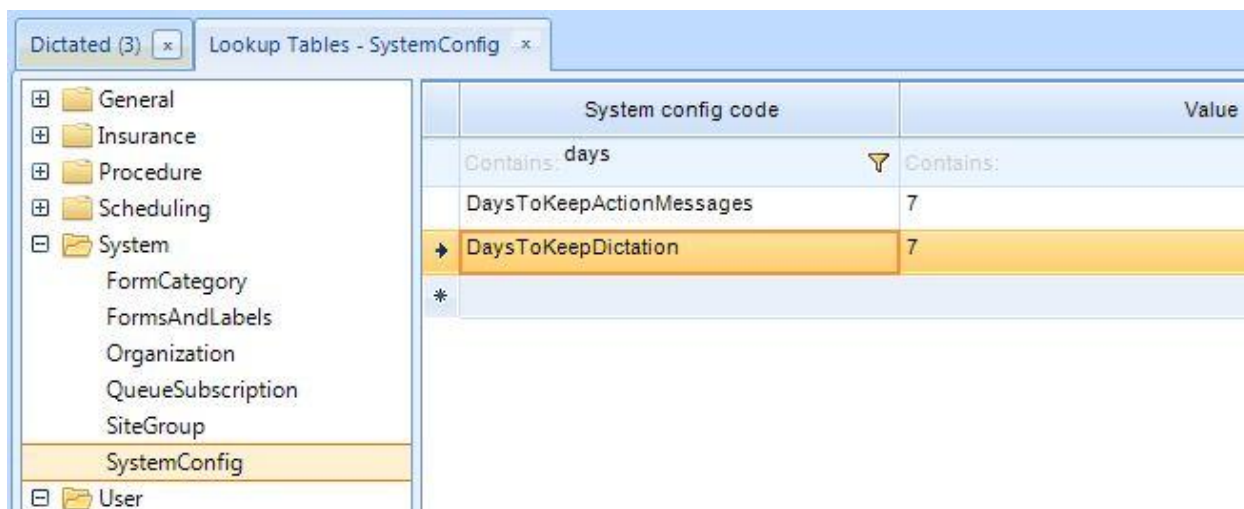


Figure 4.6 – System Config Value for the Number of Days to Keep Dictations

A user is still able to review a signed diagnostic report even if the dictation has been removed. The user is simply presented with a “No Audio Available” message.

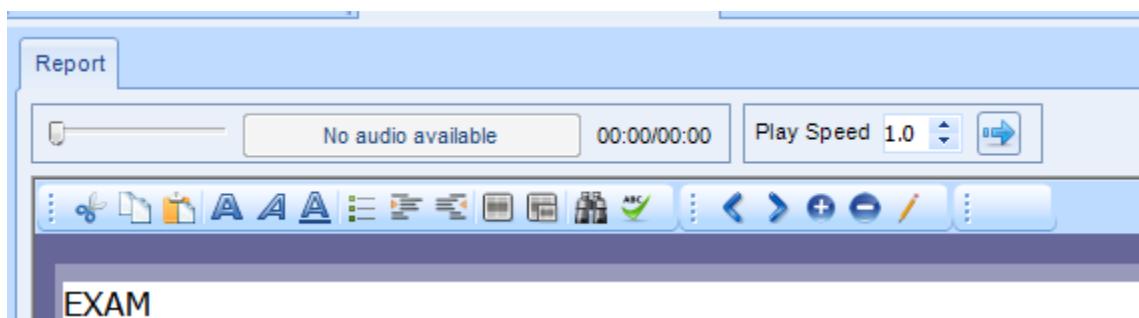


Figure 4.7 – Diagnostic Report Preview Indicating that No Audio is Available

Change Status to ReportDrafted

If a study happens to get hung or stuck in Dictated status, it may be necessary for the system administrator to advance it to the ReportDrafted status. He or she may only move the study to ReportDrafted from Dictated, Suspended, or Transcribed statuses.

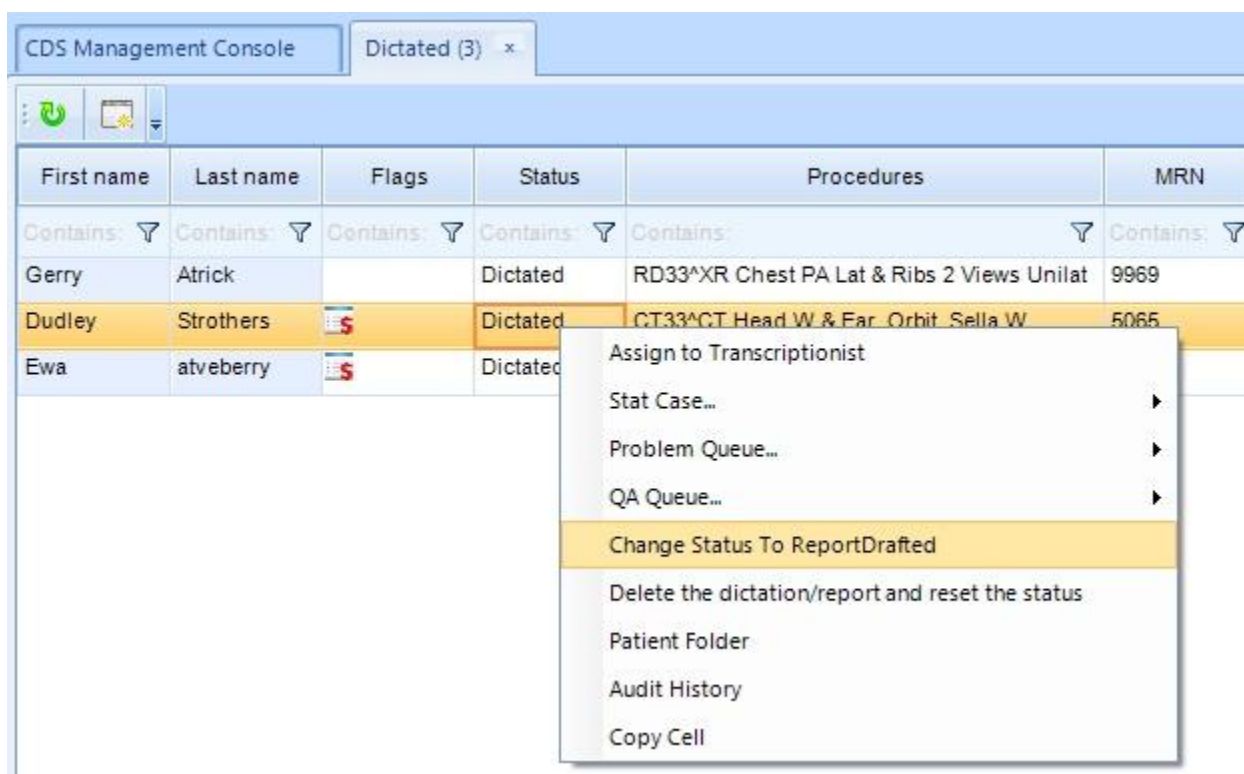


Figure 4.8 – Manually Advancing Study from Dictated to ReportDrafted Status

Forms and Labels Context Menu Refactor

In previous releases of rRIS, the Forms and Labels context menu was presenting a complete list to the user. In this release, the list is filtered by procedure code and modality type so only the appropriately mapped forms and labels will be presented to the user.

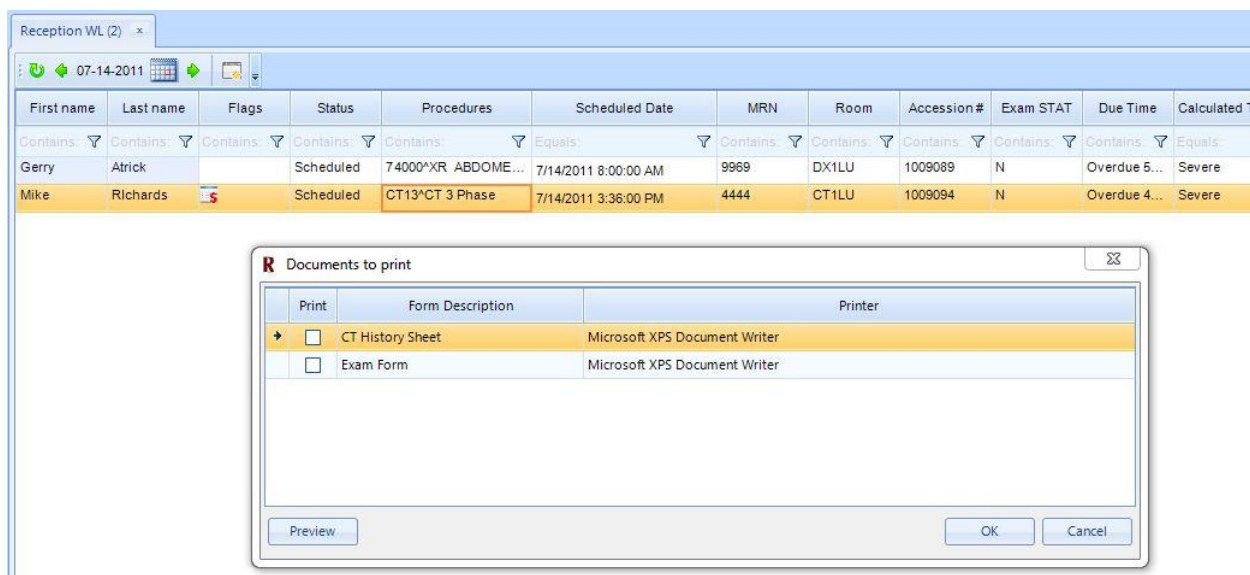


Figure 4.9 – Labels and Forms Selection Mapped to CT 3 Phase

If there are no modality type filters, the form will match any modality; otherwise it will only match the types on the list. Similarly, if there are no procedure code filters, the form will match any procedure; otherwise it will only match the procedure codes on the list. The application caches these modalities and procedures in hash tables the first time they are processed to improve performance.

If multiple rows are selected, the application will find the list of forms that match at least one row on the list. A form will only be printed for the selected rows that match the procedure and/or modality type criteria.

Insurance Policy Mask

Some insurance carriers have a policy that must conform to a known mask; the user should not be allowed to add a policy without specifying a valid policy number for these carriers that conforms to the mask.

Carrier code	Description	Policy number mask	Phone	Fax
Contains: ▼	Contains: ▼	Contains: ▼	Contains: ▼	Contains: ▼
01400030	CHIDI / TQIWO AGBAJE ESQ.		4105862007	4105586417
01400046	CHASE CHASE & HAMMERSCH...		4104884100	4104884174
➔ 01400051	CSEK	A000-000	4107521880	4105471996
0140265	KADISH & KADISH		4102961898	4103378504
01406201	MOBLEY & BROWN		(410)385-03...	4103855851

Figure 4.10 – Policy Mask set at Carrier Level

Masks can be created based on the following criteria:

- A – any letter/character is required
- 0 – any number/digit is required
- Any Character(ex: -) – a matching character is required

In the example above, A000-000 would match a policy of Z123-456 but not A123-45.

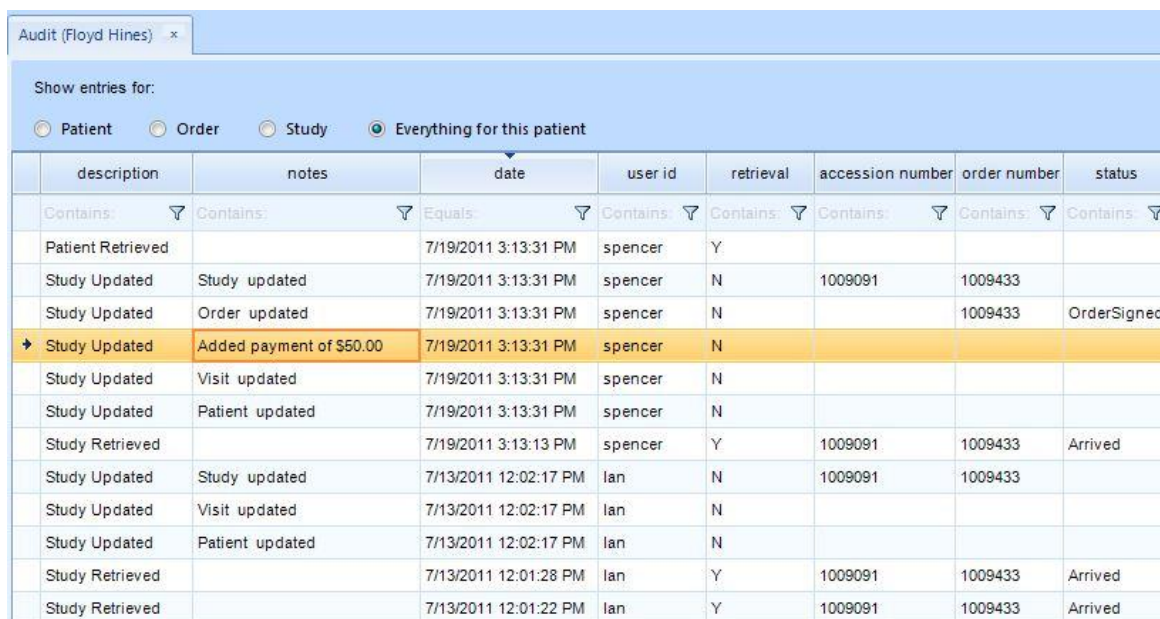
The screenshot shows a window titled "Patient Insurance Policies" with a table of policies. The table has columns: Use, carrier, policy number, group number, group name, and Expired. The second row is highlighted in yellow and contains the following data: Use (checked), carrier (0140749 ATKINS, RAYMOND M. JR, 4103217117), policy number (A0512Z), group number (1), group name (Test Data), and Expired (unchecked). Below the table, there is a link "Click here to add a new row" and an error message box that says "Invalid Policy number. Expected mask: A00000".

Figure 4.11 – Message Presented to User when Mask does not Pass Validation

In the event that the mask is wrong and has not yet been updated by an administrator, the policy number can be prefixed with a "+" to bypass the mask validation.

Log Payments to Audit Trail

rRIS will now add payments to the audit log whenever a payment is posted or voided. The payment is visible in the Audit History viewer in the GUI under “Patient” or “Everything for this patient”.



Audit (Floyd Hines) x								
Show entries for:								
<input type="radio"/> Patient <input type="radio"/> Order <input type="radio"/> Study <input checked="" type="radio"/> Everything for this patient								
description	notes	date	user id	retrieval	accession number	order number	status	
Contains: ▾	Contains: ▾	Equals: ▾	Contains: ▾	Contains: ▾	Contains: ▾	Contains: ▾	Contains: ▾	Contains: ▾
Patient Retrieved		7/19/2011 3:13:31 PM	spencer	Y				
Study Updated	Study updated	7/19/2011 3:13:31 PM	spencer	N	1009091	1009433		
Study Updated	Order updated	7/19/2011 3:13:31 PM	spencer	N		1009433		OrderSigned
→ Study Updated	Added payment of \$50.00	7/19/2011 3:13:31 PM	spencer	N				
Study Updated	Visit updated	7/19/2011 3:13:31 PM	spencer	N				
Study Updated	Patient updated	7/19/2011 3:13:31 PM	spencer	N				
Study Retrieved		7/19/2011 3:13:13 PM	spencer	Y	1009091	1009433		Arrived
Study Updated	Study updated	7/13/2011 12:02:17 PM	Ian	N	1009091	1009433		
Study Updated	Visit updated	7/13/2011 12:02:17 PM	Ian	N				
Study Updated	Patient updated	7/13/2011 12:02:17 PM	Ian	N				
Study Retrieved		7/13/2011 12:01:28 PM	Ian	Y	1009091	1009433		Arrived
Study Retrieved		7/13/2011 12:01:22 PM	Ian	Y	1009091	1009433		Arrived

Figure 4.12 – Audit Trail showing Payment of \$50.00

Categorize the Lookup Editor

The Lookup Table Editor has been simplified by adding categories which will make navigation easier for the administrative user.

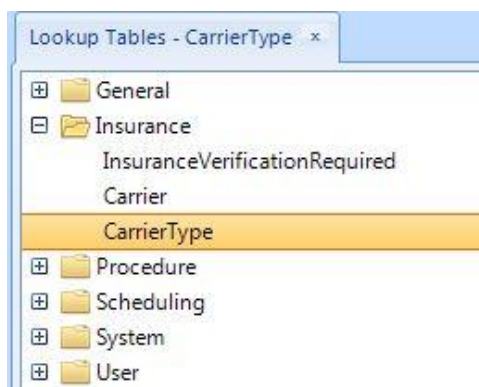
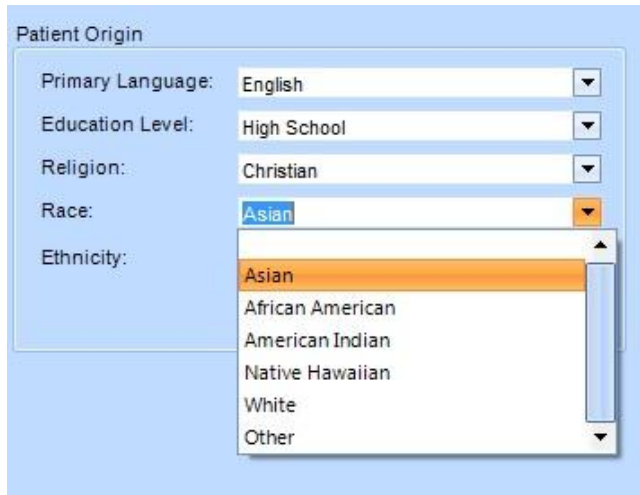


Figure 4.13 – Lookup Table Editor with Categories

Meaningful Use – Record Patient Demographics

This feature is to comply with Meaningful Use requirement 107.304.c for Patient Demographics. The system must allow a user to electronically record, modify, and retrieve patient demographic data including preferred language, gender, race, ethnicity, and date of birth for 50% of recorded patients. The race and ethnicity is to be recorded in accordance with the standard specified at §170.207(f).

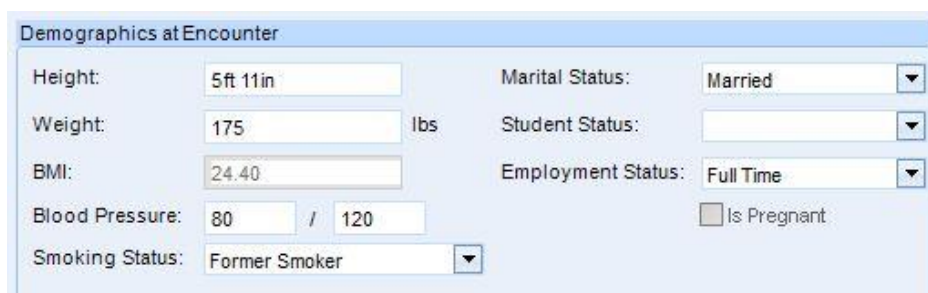


The screenshot shows a form titled "Patient Origin" with several dropdown menus. The "Race" dropdown is open, showing a list of options: Asian, African American, American Indian, Native Hawaiian, White, and Other. The "Asian" option is highlighted in orange. The other dropdowns are closed and show the following values: Primary Language: English, Education Level: High School, Religion: Christian.

Figure 4.14 – Patient Tab Showing Race Dropdown

Meaningful Use – Record Vital Statistics

Meaningful use requirement for vital signs is for a user to electronically record, modify, and retrieve a patient's vital signs including, at a minimum, the height, weight, and blood pressure (170.302.f.1_vitalsigns_v1.0.pdf). The system also needs to calculate body mass index automatically and display body mass index (BMI) based on a patient's height and weight (170.302.f.2_BMI_v1.0.pdf). The system will need to supply the means to plot and display growth charts for children 2-20 years, including BMI.



The screenshot shows a form titled "Demographics at Encounter" with various input fields and dropdown menus. The fields are: Height: 5ft 11in, Weight: 175 lbs, BMI: 24.40, Blood Pressure: 80 / 120, Smoking Status: Former Smoker, Marital Status: Married, Student Status: (empty), Employment Status: Full Time, and Is Pregnant: (checkbox). The BMI field is calculated based on the height and weight.

Figure 4.15 – Order Tab Showing Vital Signs and Calculated BMI

SpeechMike Bar Code Support

Build 1.17 has support for the SpeechMike Barcode scanner to perform specified actions in the application. The system supports two modes for barcode input:

1. Simple text entry - Takes the scanned barcode and essentially keyboards it into whatever field is active. This is the standard barcode implementation.
2. Trigger event action - This will cause the Barcode to trigger a configurable event to be fired in rRis and a corresponding action will be taken.

To configure this functionality the user will navigate to user preferences. There are two settings that they can change. One determines the mode the application will run in (keyboard text or event action). The other will determine which action will be triggered if event action mode is selected.

The screenshot shows the 'UserPreferenceForm' window with the 'Speech Recognition' tab selected. The 'SpeechMike Buttons' section contains seven dropdown menus: Function 1 (SignDictation), Function 2 (Undo), Function 3 (ContentBaseMoveNext), Function 4 (ContentBaseMovePrevious), EOL (ContentBaseMoveNext), Instr (BringRisToFront), and Trigger (BringRisToFront). The 'Foot Pedals' section contains four dropdown menus: Pedal 1 (FastForwardPressed), Pedal 2 (PlayPressed), Pedal 3 (FastRewindPressed), and Pedal 4 (Not supported), with a 'Get from device' button below. The 'SpeechMike BarCode Mode' section has two radio buttons: 'Keyboard Text' (unselected) and 'Event Action' (selected). Below this is a 'BarCode Event Action' dropdown menu set to 'DiagnoseOnAccessionNumber'. At the bottom right are 'Save' and 'Close' buttons.

Figure 4.16 – User Preference Form Showing SpeechMike BarCode Mode

Inbound TCP Reporting

Build 1.17 now supports Inbound Transmission Control Protocol (TCP) Accession Numbers for Diagnostic Reporting. This will enable rRIS to accept an Accession Number from an external system (ex: PACS or HIS) and enable Reporting workflow.

Launch rRIS to System Tray

To support Radiologist workflow, there is a requirement that rRIS may have to run as a slave system to another system like the PACS. In order to satisfy this requirement, rRIS needs to be able to be configured to launch to the system tray.

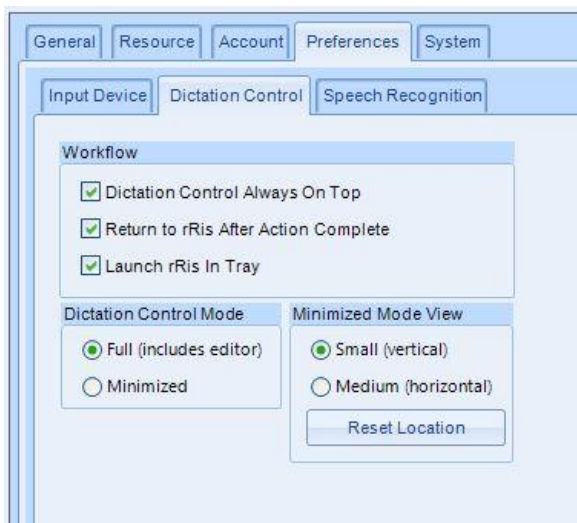


Figure 4.17 – “Launch rRIS In Tray” User Preference Enabled

If rRIS is configured to launch in tray, immediately after logging in the application will not show on the screen as usual but appear in the system tray as a small “R” icon.

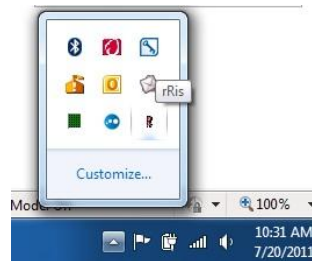


Figure 4.18 – rRIS Running on Windows System Tray

In this mode, the application can be brought on the screen by double clicking the tray icon or by using the icon's right-click context menu.

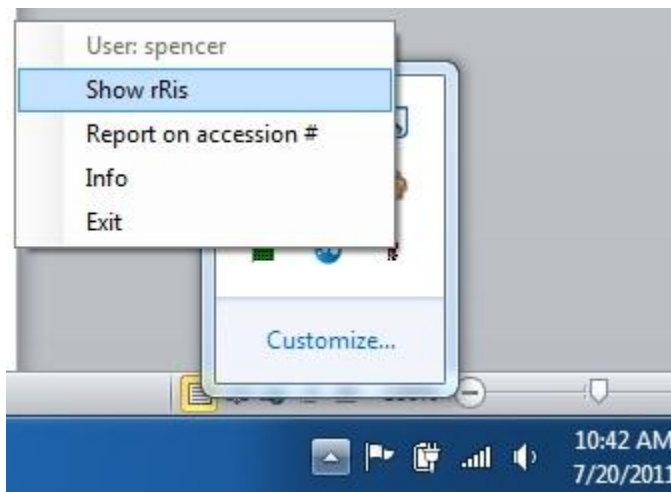


Figure 4.19 – rRIS System Tray Context Menu

Using the tray icon's context menu the user can use the following items:

- **User id** - identifies currently logged in user
- **Show rRis** - Will bring rRis on the screen, same as double clicking
- **Report on accession #** - Prompt user for the accession number
- **Info** - Will display information about rRis such as version
- **Exit** - Will exit rRis completely

When rRis is shown and this mode is configured, minimizing or closing rRis using the icons at the top right of the application window will simply return rRis to the tray icon. To actually exit rRis the user needs to select File -> Exit from the file menu when rRis is onscreen, or using the tray icons context menu -> Exit.

Report on Accession Number

This feature will allow the user to open the Diagnose screen on a study based on a specified accession number. This provides the user with the ability to bypass the worklist type workflow and run rRis in a “slave” type mode. The input of this accession number can come in different forms as tcp listener, file watcher, etc. These are all used as methods to drive workflow from another system such as a PACS system.

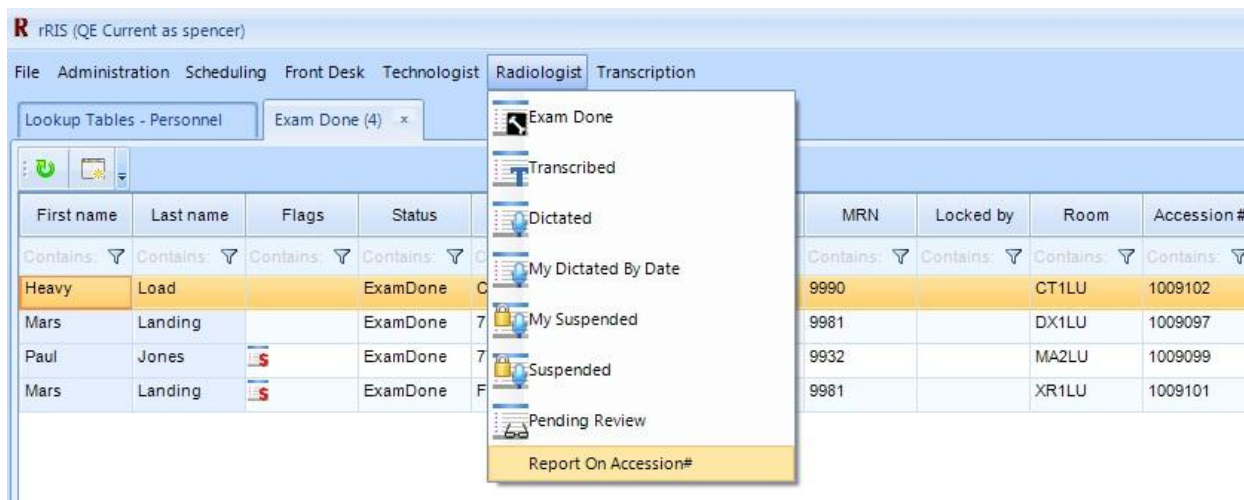


Figure 4.20 – Report On Accession# Menu Option in rRIS

The user also has the ability to manually enter an Accession Number and let rRIS search for it. This can be done by using the menu option or the right-click context menu on the system tray icon. If the Accession Number is not found, the user is prompted accordingly.

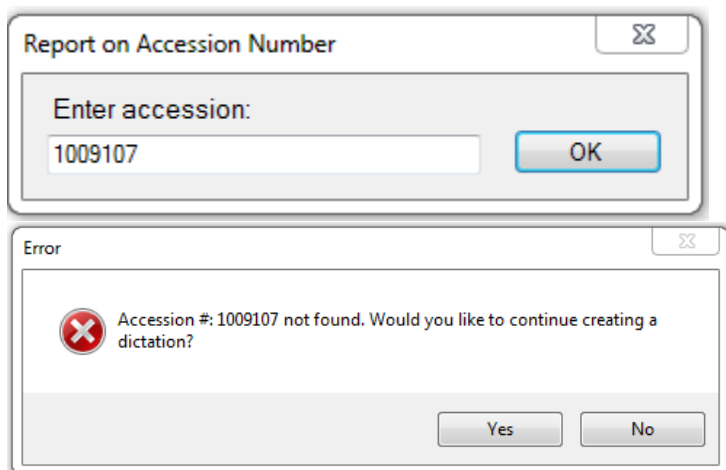


Figure 4.21 – Report on Accession Number Prompt and Accession Not Found Popup

Small and Medium Sized Dictation Control

Build 1.17 provides the radiologist user both small and medium dictation controls as a user preference for dictating on Accession Numbers outside of rRIS.

Two different dictation control layouts have been implemented; a vertical (small) and a horizontal (medium). These controls exist outside of the rRis GUI. They have the ability to float on the screen and can be placed where they interfere the least with the radiologist's existing RIS/PACS workstation.

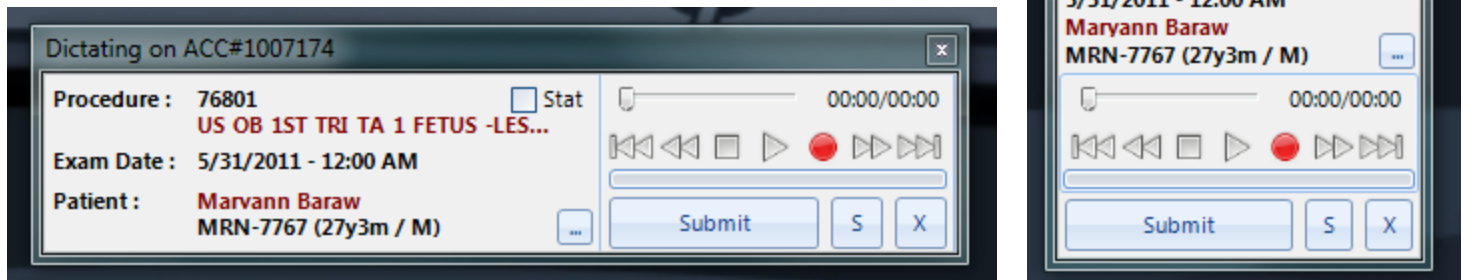


Figure 4.22 – Dictation Control Layouts

The radiologist has the option to use any of these two controls and he or she also has the option of using the full reporting screen. This is configured using the user preferences. There are two available options:

1. Dictation control mode (full or minimized)
2. Minimized Mode View (small or medium)

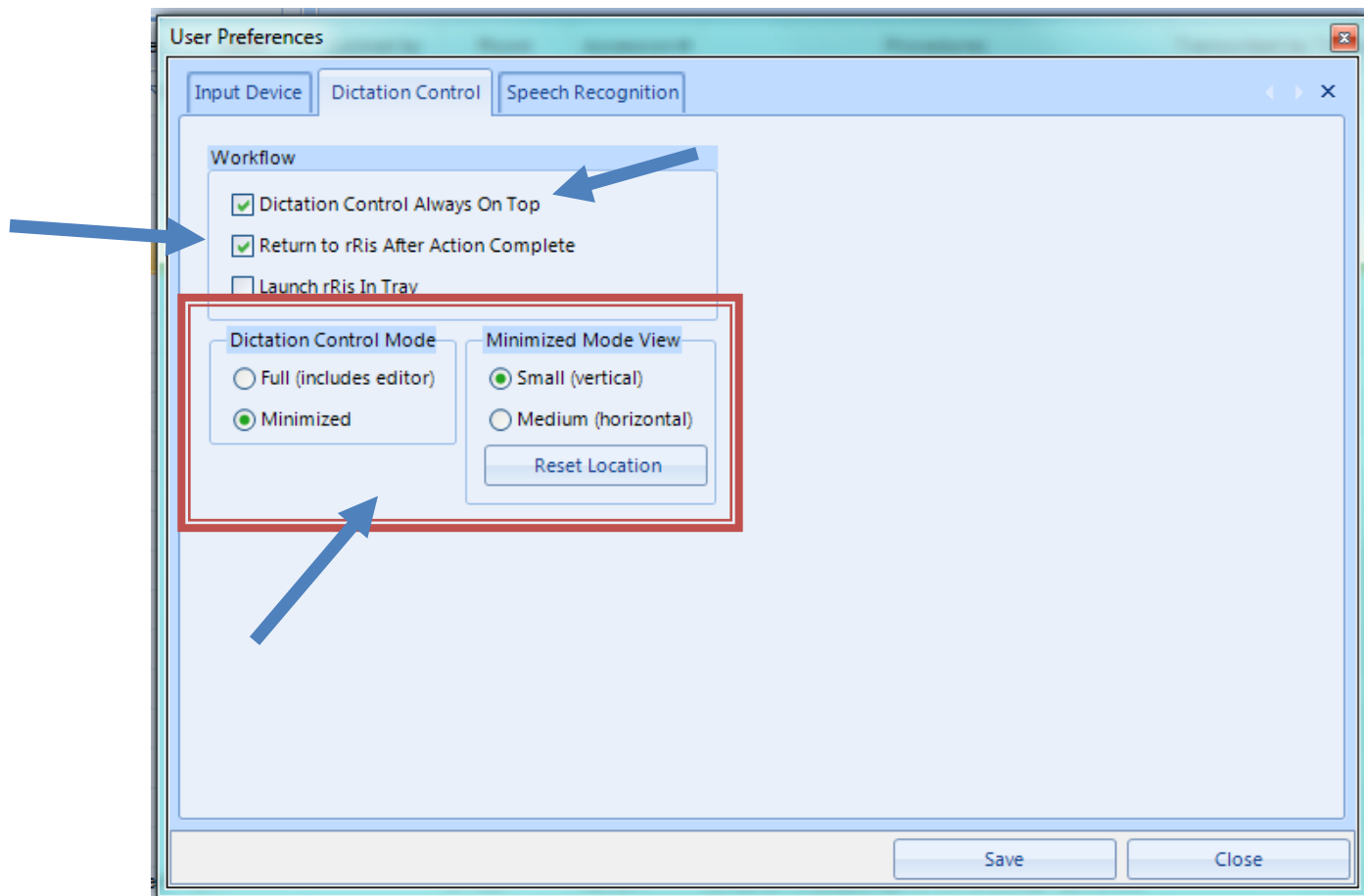


Figure 4.23 – Dictation Control User Preference

The minimized views can be placed anywhere on the screen and their location will be remembered forever. In the unlikely event that the location was saved to make them appear in an area which is not visible, in the user preferences the user can select “Reset Location” which will reset the control’s location to position 0,0 (top left of screen 1).

The “Dictation Control Always On Top” when turned on will force the control to remain on top of other windows even if the other window has focus.

When the radiologist has rRis open and diagnoses a study, if he or she is using the minimized mode, rRis will minimize and the dictation control will appear.

No Report Required Workflow

There are certain exams in rRIS that the radiologist will not be required to dictate on. These exams may need to be reported on in another system like a DEXA or not at all. There has been a new column added to the Procedure Code lookup table called No Report Required. When this column is set to “Y”, the system will not allow the radiologist to open the exam for dictation.

Lookup Tables - ProcedureCode * x					
	Procedure code	Description	Body part code	No report required flag	Laterality code
	Contains: ▼	Contains: ▼	Contains: ▼	Contains: ▼	Contains: ▼
→ ⊕	0028T	DX Body Composition Study		Y	
⊕	20605	FL Arthrocentesis Inject Intermediate Jt		N	
⊕	70030	XR ORBITS FOR FOREIGN BODY	T-D1100 (Head)	N	
⊕	70100	XR Mandible 1-3 Views	T-D1100 (Head)	N	

Figure 4.24 – No Report Required Specified at the Procedure Code Level

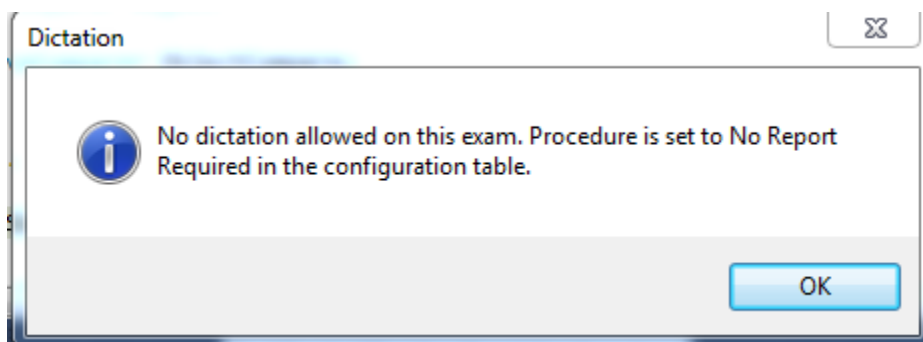


Figure 4.25 – Radiologist Prompt when No Report Required

Tech Notes Required

In Build 1.17, the “Technologists Notes” field is now required to be filled in before the technologist can make the procedure as Complete.

The screenshot displays the RADNET rRIS interface. At the top, there is a menu bar with options: File, Administration, Scheduling, Front Desk, Technologist, Radiologist, and Transcription. Below the menu bar, there are several tabs: 'Lookup Tables - Personnel', 'Exam Done (4)', 'Lookup Tables - ProcedureCode *', 'Technologist WL (1)', and 'Perform Exam (Clare Cone) *'. The 'Exam Done (4)' tab is active, showing a table with columns: Include, Flags, Status, Procedures, Scheduled Date, Room, Accession#, Locked by, and Read STAT. The table contains one row with the following data: Include (checked), Flags (empty), Status (Started), Procedures (CT66^CT Abdomen W & CTA Chest W/Wo), Scheduled Date (7/20/2011 4:37:00 PM), Room (CT1LU), Accession# (1009106), Locked by (spencer), and Read STAT (N). Below the table, there are several tabs: 'Patient', 'Documentation', 'Billing Codes', 'Scan Documents', and 'Notes / Exam Times'. The 'Notes / Exam Times' tab is active, showing a 'Tech Notes' section. The 'Tech Notes' section has a large text area for 'Technologists Notes' and a right-hand panel with fields for 'Primary Tech' (Noye, Darcy), 'Assisting Tech 1', 'Assisting Tech 2', 'Last Menstrual Period' (06-28-2011), and a 'Pregnant' checkbox. Below the 'Tech Notes' section, there is a 'Procedure' section with a 'Scanner' dropdown (CT1LU) and a 'Performed Procedure' dropdown (CT Abdomen W & CTA Chest W/Wo (CT66)). To the right of the 'Procedure' section is a 'Chief Complaint' section with a 'Referring Physician' field (Noye, Darcy Phone: (541) 574-5855) and a 'Chief Complaint' field. At the bottom of the 'Tech Notes' section, there are buttons: 'Start', 'Suspend', 'Complete', 'Abort', 'Save', and 'Close'. A status bar at the bottom of the window shows 'Connected: QE Current 1.17.4805' and a red exclamation mark icon with the text 'Tech Notes' must be entered before the exam can be completed.

Figure 4.26 – Technologists Notes as a Required Field

Closed Modality Worklist

There is a requirement for rRIS to support the ability to notify administrators and schedulers of any studies that are affected by room closures. A new Closed Rooms Reschedule worklist has been added to the application. When a room is closed for a time period and there are procedures scheduled for time slots in the closed time frame, the affected studies will appear on the Closed Rooms Reschedule worklist. This will allow the user to easily identify the affected studies and reschedule them.

Lookup Tables - Modality x

Modalities:

	Modality code	Description	AE title
	Contains: ▼	Contains: ▼	Contains: ▼
→	CT1EL	CT1EL	CT1EL
	CT1FH	CT1FH	CT1FH
	CT1LU	CT1LU	CT1LU
	DE1EL	DE1EL	DE1EL
	DE1FH	DE1FH	DE1FH
	DX1LU	DX1LU	DX1LU

CT1EL modality closure:

	From date	To date	
→	7/21/2011 6:00:00 AM	7/21/2011 10:00:00 PM	Maintenance on Scanner
*	Click here		

Figure 4.27 – Room CT1EL Closed for Maintenance

Closed Rooms Reschedule (4) x										
First name	Last name	Flags	Status	Procedures	Scheduled Date	MRN	Room	Accession#	Exam STAT	
Contains: ▼	Contains: ▼	Contains: ▼	Contains: ▼	Contains: ▼	Equals: ▼	Contains: ▼	Contains: ▼	Contains: ▼	Contains: ▼	
Mike	Richards		Scheduled	71260^CT Chest W	7/21/2011 8:15:00 AM	4444	CT1EL	1009107	N	
Abel	Jones		Scheduled	71260^CT Chest W	7/21/2011 9:15:00 AM	9765	CT1EL	1009110	N	
Bonnie783	Ballard		Scheduled	CT13^CT 3 Phase	7/21/2011 9:45:00 AM	65098	CT1EL	1009108	N	
Jeff3	Carr		Scheduled	71260^CT Chest W	7/21/2011 11:15:00 AM	39967	CT1EL	1009109	N	

Figure 4.28 – Studies from Room CT1EL that Require Reschedule

Database Cleanup Procedures

A procedure is required to clean up old unwanted data from the rRIS database. The 2 areas to date that have been identified requiring data cleaning are:

1. Audio dictations – The audio dictation is no longer needed when a report is “signed” or “action completed”. After a configurable retention period the audio should be purged.
2. Action Messages – Used by the application’s external interfaces, they should be purged when the messages are no longer referenced by a queue. Purging should happen after a configurable retention period.

To fulfil this requirement two new stored procedures have been added the database. CleanupSignedDictations will delete the dictation rows for all studies that are signed and have been signed for a configurable amount of days. CleanupActionMessages will delete the action rows for all messages that are no longer referenced in the message queue and are older than a configurable amount of days.

Both of these stored procedures can be scheduled to run by the database server.

Interval Change for Appointment Book

The Appointment Book in Build 1.17 now supports the ability to alter the size of the intervals between time slots so more hours can be displayed on the screen.

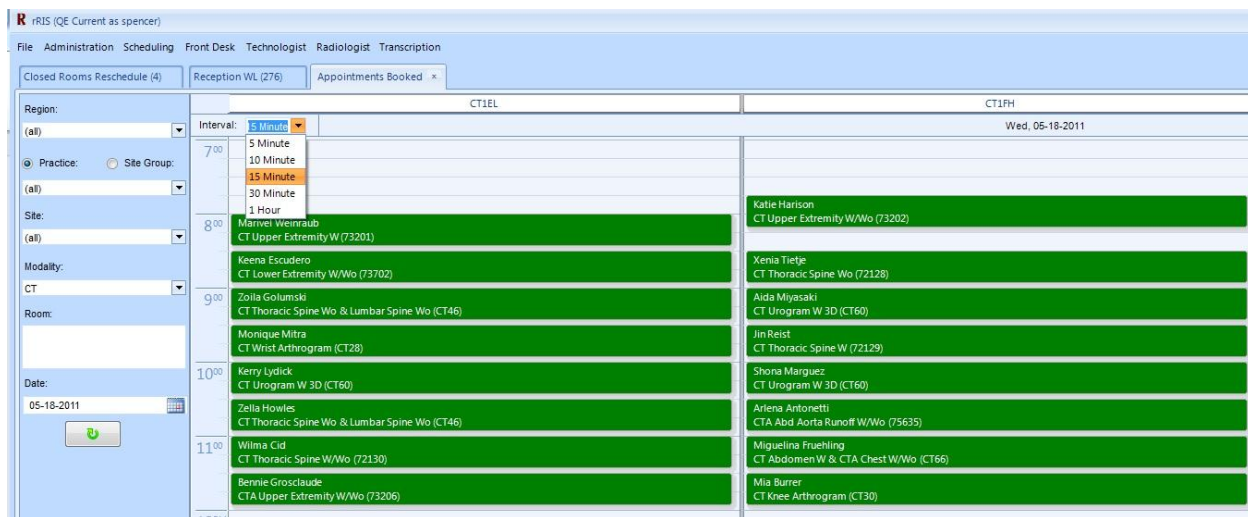


Figure 4.29 – Appointment Book showing Time Slot Intervals

LMP for Females Age 12-55

The technologist screen in this release of rRIS will now only force LMP (Last Menstrual Period) to be required for females age 12 to 55 years. In the example below, the technologist is documenting a procedure for a female patient age 21 years. The system will not allow the user to save changes until LMP has been specified.

The screenshot shows the rRIS (QE Current as spencer) interface. The top menu bar includes File, Administration, Scheduling, Front Desk, Technologist, Radiologist, and Transcription. Below the menu, there are tabs for Closed Rooms Reschedule (4), Reception WL (276), Appointments Booked, Technologist WL (1), and Perform Exam (Clare Cone) * x. A table lists procedures with columns for Include, Flags, Status, Procedures, Scheduled Date, Room, Accession#, Locked by, and Read STAT. The first row shows a procedure: CT66*CT Abdomen W & CTA Chest W/Wo, Scheduled Date 7/20/2011 4:37:00 PM, Room CT1LU, Accession# 1009106, Locked by spencer, and Read STAT N. Below the table, there are tabs for Patient, Documentation, Billing Codes, Scan Documents, and Notes / Exam Times. The Tech Notes section shows a note: Patient complaining of pain in chest during procedure. The Primary Tech is Noye, Darcy. The Last Menstrual Period field is highlighted with a red exclamation mark and the text 'mm-dd-yyyy', indicating it is required. There are also checkboxes for Pregnant, Not Pregnant, and Shielded Patient. The Procedure section shows the Scanner as CT1LU, Performed Procedure as CT Abdomen W & CTA Chest W/Wo (CT66), Laterality/Body Part as Abdomen, and Change Reason Code as . The Chief Complaint section shows the Referring Physician as Noye, Darcy Phone: (541) 574-5855 and the Chief Complaint as stomach pain. At the bottom, there are buttons for Start, Suspend, Complete, Abort, Save, and Close. The status bar at the bottom shows 'Connected: QE Current 1.17.4805' and a red exclamation mark icon with the text 'There are 2 Errors'.

Figure 4.30 – Technologist Screen showing LMP as Required for 21 Year Old Female

Weight Mask and Restriction

Because certain modalities have weight restrictions, the system will now prompt the user when scheduling a procedure in a room that has a weight restriction that the patient's weight is violating. A Weight field has been added to the Modality lookup to support this.

Appointment Booked Technologist WL (1) Lookup Tables Lookup Tables - Modality * Schedule Order (Richards Mike) *						
Modalities:						
Modality code	Description	Weight	AE title	Digital	Site code	
Contains: ▼	Contains: ▼	Equals: ▼	Contains: ▼	Contains: ▼	Contains: ▼	
CT1EL	CT1EL	300	CT1EL	N	EL (Eldersburg)	
CT1FH	CT1FH		CT1FH	N	FH (Fisher)	
CT1LU	CT1LU		CT1LU	N	LU (Lutherville)	
DE1EL	DE1EL		DE1EL	N	EL (Eldersburg)	
DE1FH	DE1FH		DE1FH	N	FH (Fisher)	
DX1LU	DX1LU		DX1LU	N	LU (Lutherville)	

Figure 4.31 – Weight Limit of 300 Pounds set on Room CT1EL

Closed Rooms Reschedule (4) Reception WL (276) Appointment Booked Technologist WL (1) Lookup Tables Lookup Tables - Modality Schedule Order (Richards Mike) * x

Patient Order Schedule Review

Studies

CT Chest W x

Click here to add another study

Warning

This Patient Exceeds the weight Limit of the rooms scanner for the following Studies:
CT Chest W(71260)

OK

Body Part: Chest

Summary Advanced

EL	FH	LU
CT1EL	CT1FH	CT1LU
Thu, 07-21-2011		Thu, 07-21-2011
	2:30 PM 30	2:30 PM 30
	3:00 PM 30	3:00 PM 30
	3:30 PM 30	3:30 PM 30
Fri, 07-22-2011		Fri, 07-22-2011
7:45 AM 30	7:45 AM 30	7:45 AM 30
8:15 AM 30	8:15 AM 30	8:15 AM 30
8:45 AM 30	8:45 AM 30	8:45 AM 30
9:15 AM 30	9:15 AM 30	9:15 AM 30

Figure 4.32 – Scheduler Prompted that the Patient Exceeds the Weight Limit of the Room

Demographics at Encounter

Height: 6ft 3in Marital Status: Married ▼

Weight: 325 lbs Student Status: ▼

Blood Pressure: 90 / 140 Employment Status: Full Time ▼

Smoking Status: Smoker ▼ ☐ Is Pregnant

Figure 4.33 – Patient Weight at the Time of the Order/Request

Void Payments Permission

In Build 1.17 a new permission has been added to the application so not just any user can void a payment. The new permission is called Clinical.VoidPayment. If the user does not have this permission granted, then the Void Payment option will not be enabled on the payment context menu.

Payments				Injuries	
Posted By	Amount	Payment Method	Date	claim #	date of injury
spencer	\$100.00	Cash	07-21-2011		

Buttons: Add Payment, Total: \$100.00, Edit Payment, View Injury Details

Context Menu: Void Payment, Delete Payment

Figure 4.34 – Void Payment Option on Registration Screen

ZIP Code to City and State

When a ZIP Code is entered for a new or existing patient, the system will now automatically populate the patient’s city, state, and country. The complete list of ZIP Codes is supplied to rRIS by a third party and will be updated periodically as new ZIP Codes are added.

Contact Information			
Address 1:	14 Pine Drive	Zip:	94539
Address 2:	Suite 456	Country:	USA
City:	Fremont	Home Phone:	(902) 555-4789
State:	California	Mobile Phone:	(902) 555-7845
		Email:	rob@mail.com

Figure 4.35 – Patient Contact Information with ZIP Code Lookup

In the example above, the user entered “94539” into the Zip field and clicked the Search button or pressed the Enter key. The City, State, and Country automatically populated for the user.

Personnel Improvements

The Personnel/User Management screen has been refactored to improve performance. Because of the potential large number of referring doctors and system users that will live in the system, it made more sense to force the user to search first rather than loading all user information into memory. In the screenshot below the system administrator is returning a list of all Referring doctors with Last Name starting with “w”.

The screenshot shows the 'Personnel Search' window. The search criteria are: First Name (empty), Last Name (w), City (empty), Phone # (empty), User ID (empty), and Type (Referring). The search results are displayed in a table with 6 rows.

Last name	First name	Summary	Resource details
WISINSKI	WIESLAWA	Gender: M Cell: 1518044239 ID: 17856 NPI: NONPI164	Ref,
WARREN	WILLIAM	Gender: M Cell: 1669478285 ID: 17984 NPI: NONPI292	Ref,
WATERFIELD	WILLIAM	Gender: M Cell: 1871552760 ID: 17985 NPI: NONPI293	Ref,
WOMENS CEN		Gender: M Cell: NONPI ID: 17994 NPI: NONPI301	Ref,
WOMENS HEA ASSOCIATES		Gender: M Cell: NONPI ID: 17995 NPI: NONPI302	Ref,
WOMENS HEA		Gender: M Cell: NONPI ID: 17996 NPI: NONPI303	Ref,

6 Rows

Figure 4.36 – Personnel Search Screen

Once the search results are returned, the administrator can select one of the returned rows or add a new user.

The screenshot displays the 'Personnel' screen in the RADNET rRIS system. On the left is a navigation pane titled 'Lookup Tables - Personnel' with a tree structure. The 'Personnel' item is selected and highlighted in orange. The main area on the right contains a form with several tabs: 'General', 'Resource', 'Account', 'Preferences', and 'System'. The 'General' tab is active. The form includes fields for 'First Name' (ASSOCIATES), 'Prefix' (empty), 'Birth Date' (03-31-2011), 'Middle Name' (empty), 'Gender' (Male), 'Last Name' (WOMENS HEALTH), and 'Suffix' (empty). There is a checkbox for 'Active Person' which is checked. Below these fields is a section titled 'Contact Information' containing 'Mobile #' (NONPI) and 'Email' (empty). At the bottom of this section is a table with three columns: 'Contact', 'Address', and 'Delivery'. The table has one data row highlighted in orange.

Contact	Address	Delivery
Work Address Phone: 4103379878 Fax: 4103376955	7300 YORK RD TOWSON, MD 21204 (US)	Fax to 4103376955

Figure 4.37 – Personnel Screen Showing Selected Referring User

Scanning – Auto Deskew and Auto Enhance

Auto Deskew - The scan control has been enhanced to automatically detect if the scanned document/image is smaller than the scan surface and if so crop, rotate (if needed), and then crop again so that the final image fits better on the screen and less wasted area is captured and saved. The purpose of this feature is so users will be able to scan batches of documents and categorize them later.

Auto Enhance - Several image processing algorithms were introduced. Mainly some scanners such as flatbed scanners introduce a lot of noise into the image such that dust or a hair could be detected as document content and affect the crop and rotation logic. For this reason a medium filter is applied to a copy of the image, which removes random and dust noise, then the crop and rotation calculations are based on that temporary (less noisy) version of the image.

The first of the following screen shots shows a document scanned directly into Photoshop without any enhancements, while the second shows the same document exported from an rRIS Scan. The histogram in the right of each of these images shows the stretching that has occurred in the data. This enhancement is dynamic based on the first occurrences of black and white in the image and has a major improvement on readability and the quality of re-prints.

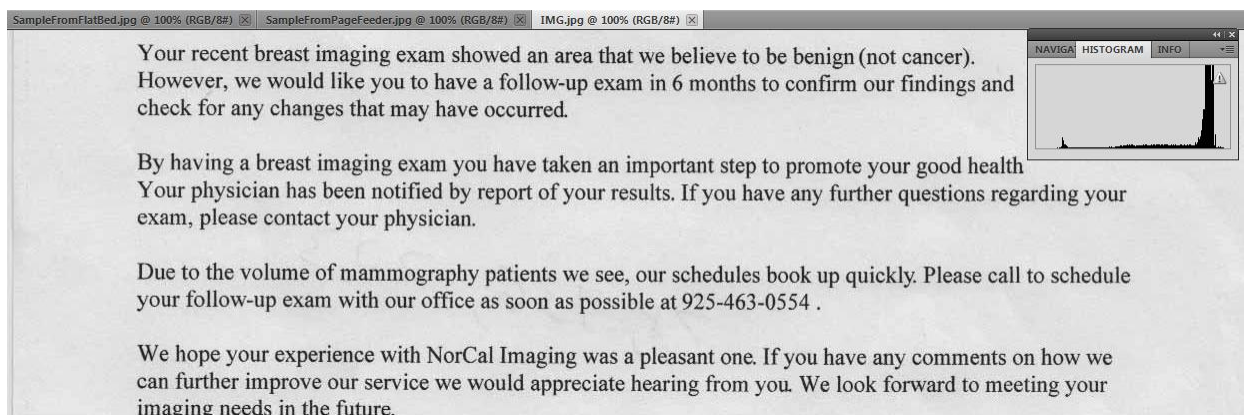


Figure 4.38 – Scanned Image with AutoEnhance Disabled

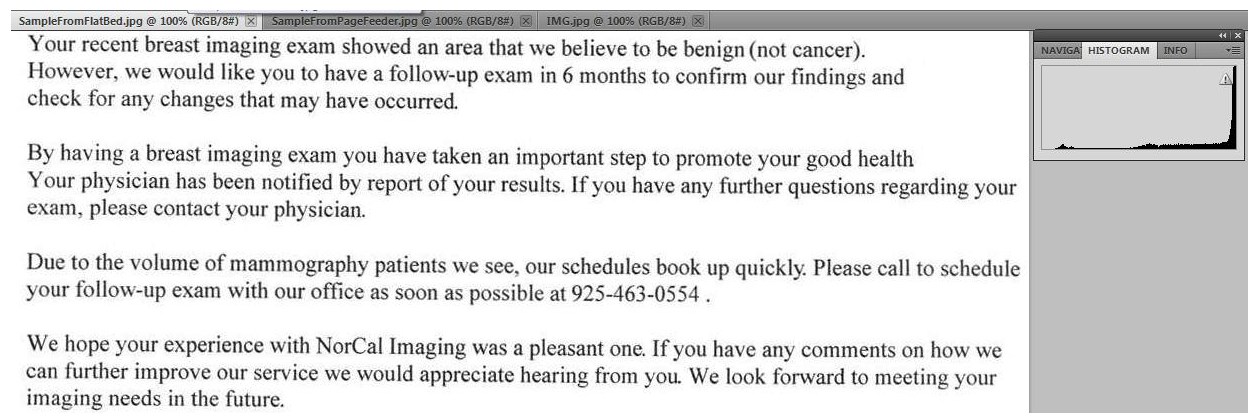


Figure 4.39 – Scanned Image with Auto Enhance Enabled

These two new options are configurable by document type and can be turned on or off at the time of scanning as shown in the following acquire scan dialog:

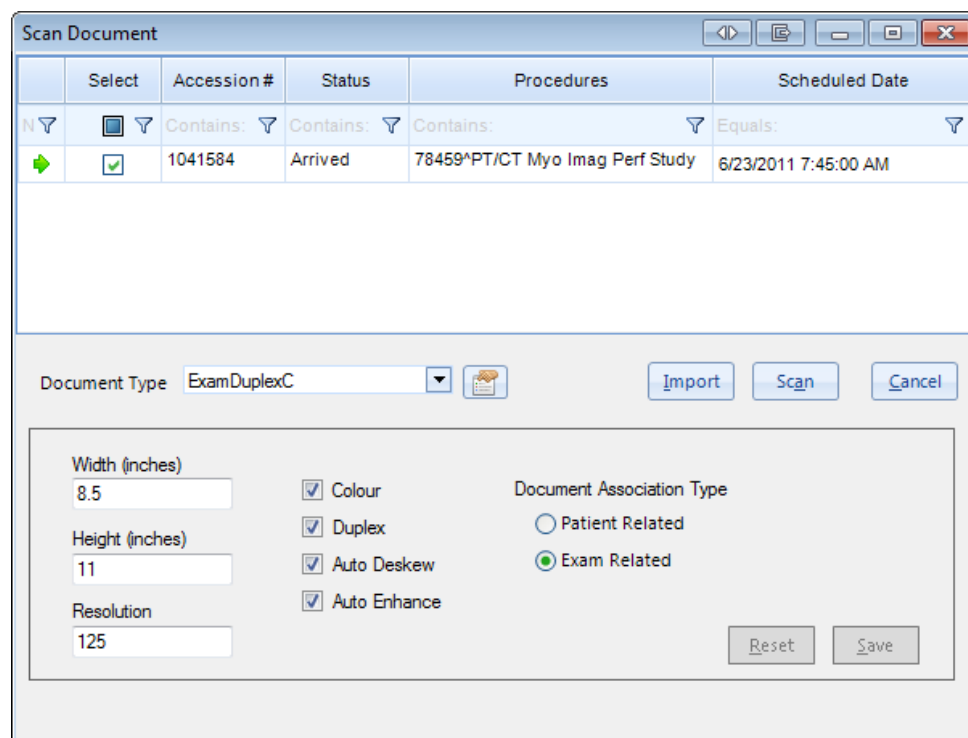


Figure 4.40 – Scanned Document Type with Auto Deskew and Auto Enhance Specified

Also to improve fixing rotations after a batch scan, keyboarding shortcuts such where tweaked to include tool tips such as <Page Down> for previous image, <Page Up> for next image, <R> for rotate right, <Shift>+<R> for rotate left, <F> for flip and <Enter> to accept the changes and close the window. In addition, the space bar will change the view type between “Fit To Screen”, “Fit To Width” and “Original”. The up and down arrows will also flip between pages; however, if the scroll bar is shown the up and down arrows will move you up and down though the document (same as mouse wheel).

Print “ALL” was introduced as a standard option in the print dialog box so that “Selection” is now the default and will only print the image the user has selected, while the “All” option, which previously didn’t function will print all the images.

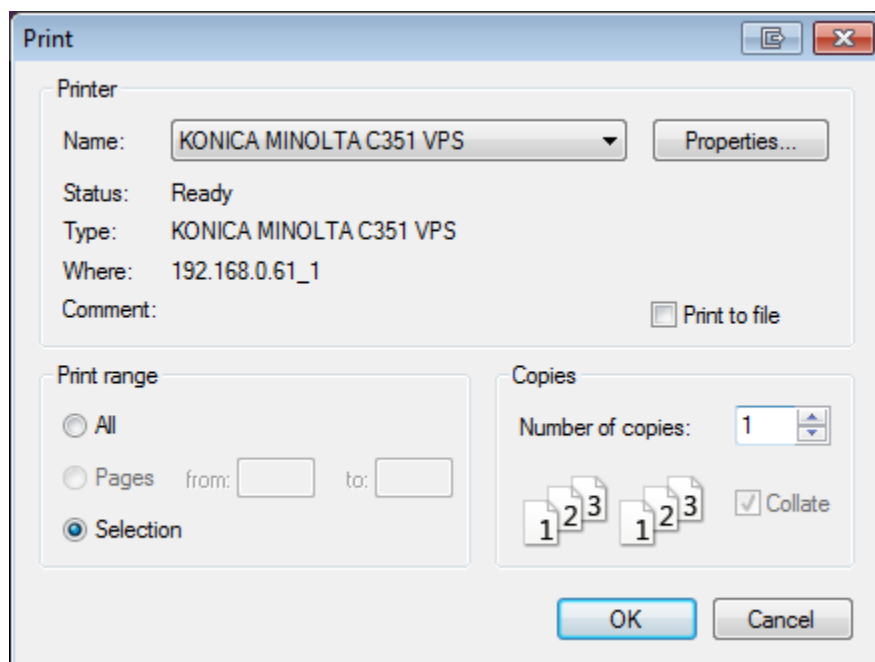


Figure 4.41 – Printing Scans Dialog Box

5. Known Limitations

Bugs, Suggested Features, and Support Issues are now tracked in a web based system called Redmine. The following is a snapshot of the issues found in Build 1.17.

#	Status	Subject	Category	Found	%Done	Resolved
463	New	Concurrency error on scheduling	Web Services/DB	1.17	0	
462	New	Error attempting to save an edited scheduled exam from Appointment Book	Thick Client GUI	1.17	0	
461	New	Editing Order Notes	Thick Client GUI	1.17	0	
460	New	Order / Scheduling > Schedule This Order button is active on scheduled exam in Patient mode	Thick Client GUI	1.17	0	
459	New	Admin tools > cannot view entire tool tip	Admin Tools	1.17	0	
458	New	Add payment error - WCFCClient Receipt_number error	Thick Client GUI	1.17	0	
457	New	Edit User - Account > Account Information > User Groups > not all user groups are displayed when more than one line of user groups assigned.	Thick Client GUI	1.17	0	
456	New	GUI dictation control visualization	Thick Client GUI	1.17	0	
455	New	Report history button is active when there is no report history	Thick Client GUI	1.17	0	
454	New	Add / edit user - Contact information edit button active when no enteries to edit!	Admin Tools	1.17	0	
452	New	Add / edit user - Contact information - problem with phone/fax number field	Admin Tools	1.17	0	
451	Resolved	Data Nuggets - Can cause multiple instances or rRIS	Thick Client GUI	1.17	100	1.18
450	Resolved	Data Nugget - Exception loading report	Thick Client GUI	1.17	100	1.18
449	New	Reporting - Exception deleting dictation	Thick Client GUI	1.17	0	
448	New	Receipt - Registration screen should stay in foreground when prompted for receipt	Thick Client GUI	1.17	0	
447	New	Dictation - User is able to start dictating with SpeechMike when it is not the recording device	Thick Client GUI	1.17	0	
446	New	Receipt - No means to reprint a receipt	Thick Client GUI	1.17	0	
445	New	Checkbox - When selecting, forms do not get marked as dirty	Thick Client GUI	1.17	0	
444	New	Worklist - Issue with dates when adjusting row height	Thick Client GUI	1.17	0	
443	Closed	Save As Order - Exception on Save	Thick Client GUI	1.17	100	1.17
442	New	Edit Order - Payments will not save to database	Thick Client GUI	1.17	0	
430	Resolved	Patient Search - Issue when searching by phone number	Thick Client GUI	1.17	100	1.18