

Clinical workflows with the XNAT imaging informatics platform

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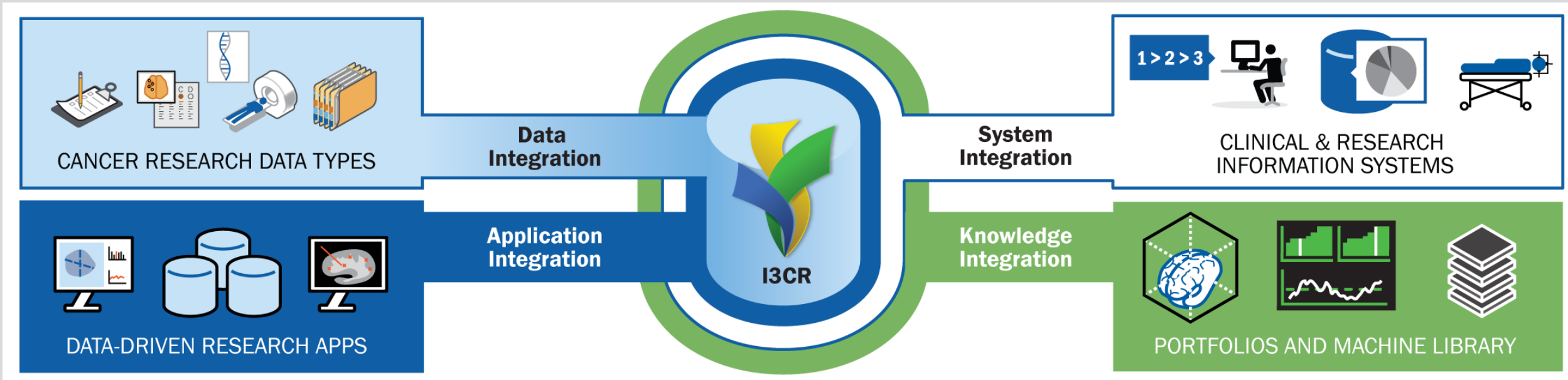
TACTICAL Tutorial

September 20, 2018

Disclosures

- This work was supported in part by funding from the National Institutes of Health (4R01EB00935208, 1U24CA20485401, 1P30NS09857701) and the McDonnell Center for Higher Brain Function.
- Dr. Marcus has an ownership interest in Radiologics, Inc. and may financially benefit if the company is successful in marketing its products that are related to this research.
- Dr. Marcus has a financial interest in White Rabbit and may financially benefit if the company is successful in marketing its products that are related to this research.

I3CR – Integrative imaging informatics to enable cancer research



I3CR builds on XNAT. XNAT is...

...a feature rich...

Archive, manage, process, view, and share imaging and related data.

...open...

Open source

Open API

Free (though commercial support is available)

Used by organizations around the world

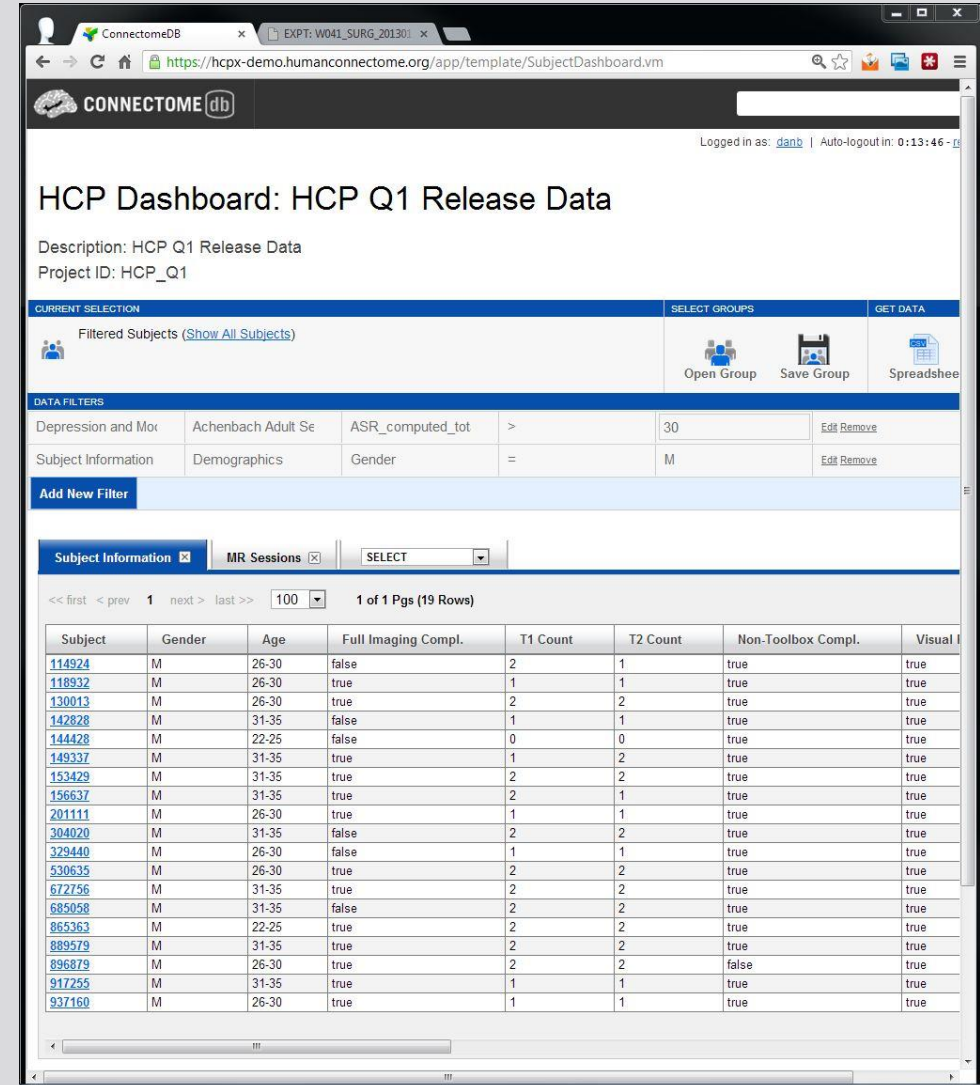
...platform.

Clinical/translational research

Institutional repositories

Multi-center studies

Data sharing



ConnectomeDB

https://hcp-demo.humanconnectome.org/app/template/SubjectDashboard.vm

CONNECTOME db

Logged in as: [dianb](#) | Auto-logout in: 0:13:46 - 10

HCP Dashboard: HCP Q1 Release Data

Description: HCP Q1 Release Data
Project ID: HCP_Q1

CURRENT SELECTION: Filtered Subjects ([Show All Subjects](#))

SELECT GROUPS: [Open Group](#) [Save Group](#) [Spreadsheet](#)

GET DATA

DATA FILTERS

Depression and Mor	Achenbach Adult Se	ASR_computed_tot	>	30	Edit Remove
Subject Information	Demographics	Gender	=	M	Edit Remove

[Add New Filter](#)

Subject Information MR Sessions SELECT

<< first < prev 1 next > last >> 100 1 of 1 Pgs (19 Rows)

Subject	Gender	Age	Full Imaging Compl.	T1 Count	T2 Count	Non-Toolbox Compl.	Visual I
114924	M	26-30	false	2	1	true	true
118932	M	26-30	true	1	1	true	true
130013	M	26-30	true	2	2	true	true
142828	M	31-35	false	1	1	true	true
144428	M	22-25	false	0	0	true	true
149337	M	31-35	true	1	2	true	true
153429	M	31-35	true	2	2	true	true
156637	M	31-35	true	2	1	true	true
201111	M	26-30	true	1	1	true	true
304020	M	31-35	false	2	2	true	true
329440	M	26-30	false	1	1	true	true
530635	M	26-30	true	2	2	true	true
672756	M	31-35	true	2	2	true	true
685058	M	31-35	false	2	2	true	true
865363	M	22-25	true	2	2	true	true
889579	M	31-35	true	2	2	true	true
896879	M	26-30	true	2	2	false	true
917255	M	31-35	true	1	1	true	true
937160	M	26-30	true	1	1	true	true

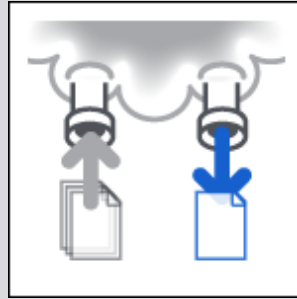
Top 10 XNAT features



User Access Control



Integrated Search & Reporting



Automated Analytics



DICOM Integration



Audit Trail



Bulletproof Security



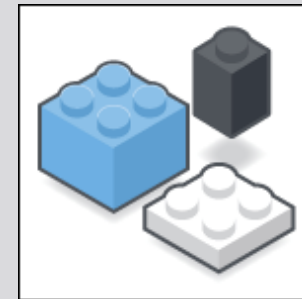
E-Signatures



Case Report Forms



Dashboards



Extensibility

Clinical use cases

1. Extract large data set from PACS
2. Process individual patient

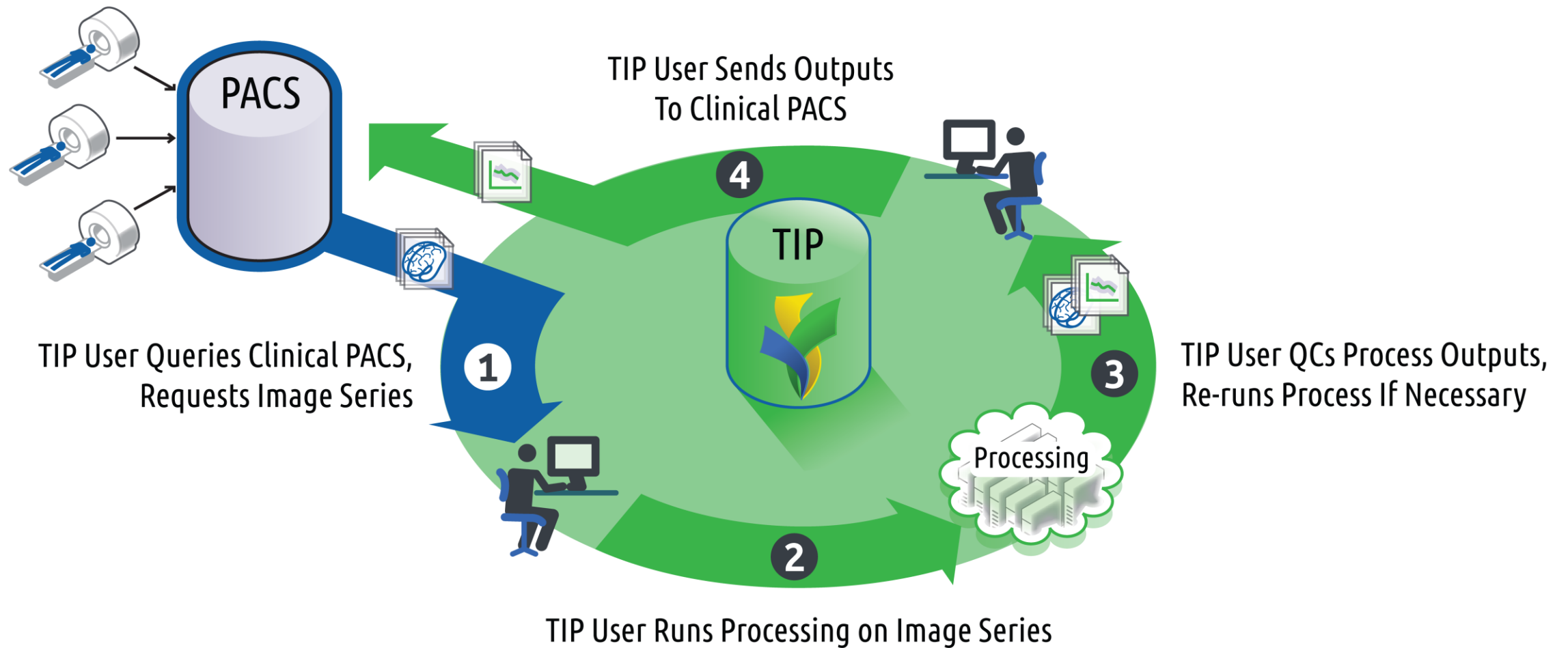
Big data extraction

- Characteristics
 - Retrieve cases based on a list or query
 - Requires scheduling
 - Likely requires anonymization
 - Data will be messy
 - Batch process data
- Examples
 - Large retrospective data analysis
 - Training data for machine learning applications

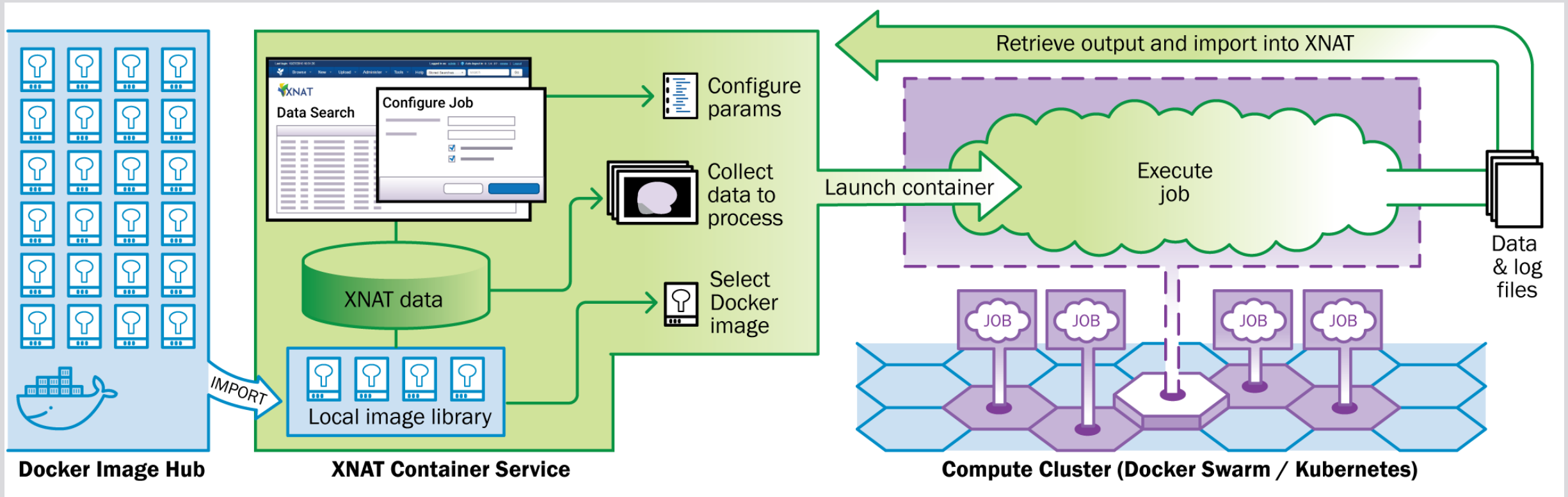
Individual patient

- Characteristics
 - Retrieve cases based real-time need
 - Requires immediate retrieval
 - No anonymization
 - Data should comply with current protocol
 - Process data immediately
- Examples
 - Insert novel analytic report into patient workflow
 - Identify patients meeting study enrollment criteria

Individual patient



XNAT Container Service



Example: stereotactic radiosurgery imaging

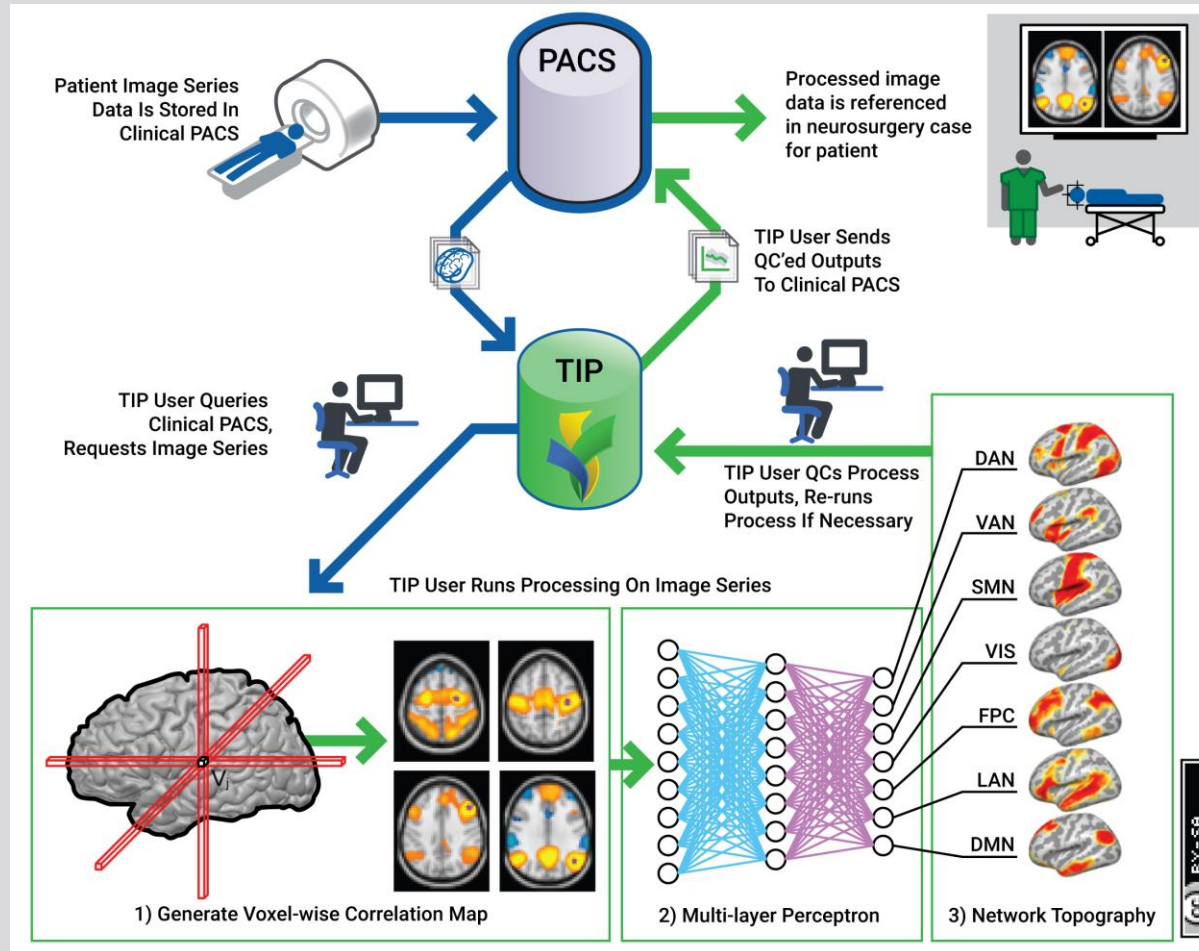
- Patients with metastatic brain tumors undergo Gamma Knife radiosurgery
- Radiosurgery involves image-guided serial treatment of each lesion over months
- Current clinical limitations
 - Manual contouring of lesions is time consuming
 - Serial time points are not spatially aligned
 - Individual lesions are not tracked over time
 - Imaging-based features are poorly leveraged
- Big Data workflow: retrieve list of patients, run batch pre-processing
- Individual patient workflow: retrieve individual patient, process, push results back to PACS

What we're about to see

- XNAT 1.7.5
- Event Service
- Plugins
 - DICOM Q/R plugin
 - ROI Collection data type plugin
 - Radiomic data type plugin
 - OHIF viewer plugin
 - Container Service plugin
- Containers: DICOM RT processor, RTlab, dcmtonii
- Hosted on AWS
- Data from CONDR project (~90 patients w/ brain mets & GammaKnife plans)

NOW'S A GOOD TIME FOR A DEMO

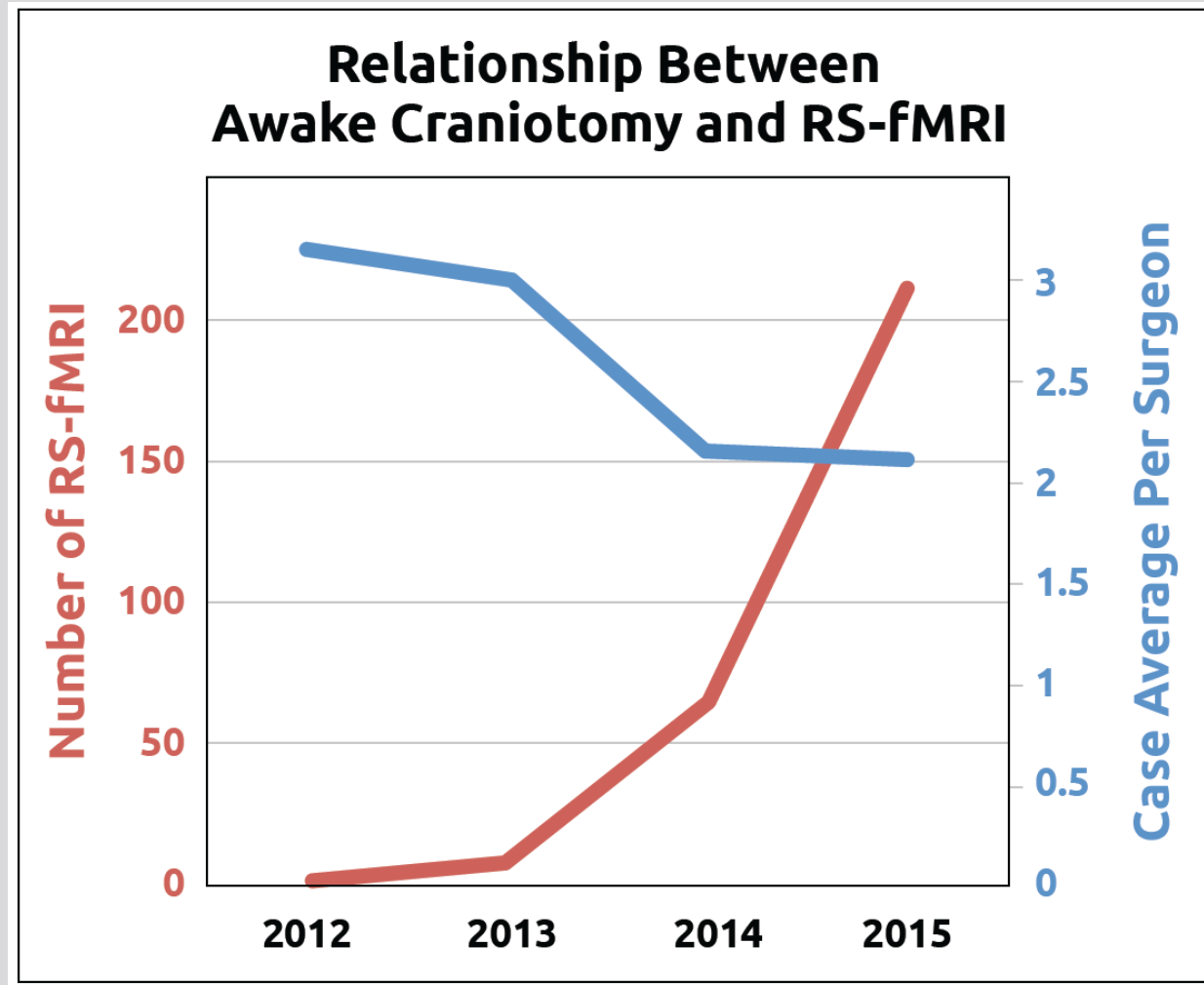
A production patient focused workflow



A production patient focused workflow



A production patient focused workflow



Future work

- Integration with RIS to extract radiology reports
- Integration with EMR to extract clinical data
- Improve UI/UX
- Improve workflows around patient privacy

Thanks from the I3CR team

Washington University

Dan Marcus (co-PI)

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Matt Kelsey, Steve

Moore, Mike McKay,

Will Horton, Mark

Florida, Charlie Moore

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James Petts, James D'Arcy

Radiologics

Tim Olsen (PI)

Brian Holt, James

Dickson, Patrick

Clough, Jordan

Woerndle

BONUS MATERIAL (IN CASE DEMO BREAKS)

Get stuff: Push from scanner



Browser window showing the I3CR administrative interface. The URL is <https://i3cr.radiologics.com/app/template/Page.vm?view=admin#tab=dicom-scp-receivers-tab>. The user is logged in as [danAdmin](#) with an auto-logout timer of 0:13:55. The navigation menu includes Browse, New, Upload, Administer, Tools, and Help. A search bar is also present.

Site Administration

- Site Settings
 - Site Setup
 - Security
 - Email Server
 - Notifications
 - Themes
 - Installed Plugins
 - Plugin Open URLs
- Manage Access
 - Registration Options
- Manage Data
 - Session Upload, Import & Anonymization

Manage DICOM SCP Receivers

Caution: Changes to these settings take effect immediately. Note that any changes, including defining a new receiver and editing or deleting an existing receiver, require restarting *all other receivers* on the same port. Before performing any operations like this, verify that there are no transmissions currently in progress to any of the receivers on that port.

AE Title	Port	Enabled	Actions
XNAT	8104	<input checked="" type="checkbox"/>	Edit Delete

[New DICOM SCP Receiver](#)

Get stuff: Pull from PACS

The screenshot shows the 'Import DICOM Images' page in the I3CR web application. The page has a dark blue navigation bar with a logo and menu items: 'Browse', 'New', 'Upload', 'Administer', 'Tools', and 'Help'. The user is logged in as 'Daniel'. The main content area is titled 'Import DICOM Images' and contains a 'Configure Search (Required)' section with a dropdown menu for 'Select DICOM AE to Query' set to 'I3CR'. Below this is a 'Search Terms' section with input fields for 'Accession Number', 'Patient ID', 'Patient Name' (containing 'Chapel'), and 'Study Date Range' (with 'From' and 'To' date pickers). There is a checkbox for 'The study happened today' and a 'Toggle advanced search fields' link. A blue 'Search' button is at the bottom.

The screenshot shows the 'Import Patient Study from PACS' page in the I3CR web application. The navigation bar is similar to the previous page, but the user is logged in as 'danAdmin'. The main content area is titled 'Import Patient Study from PACS' and contains a 'Configure Search (Required)' section with a dropdown menu for 'Select DICOM AE to Query' set to 'I3CR'. To the right is a 'Select Destination for Import' section with a 'Project:' dropdown set to 'CONDR' and 'AE: XNAT'. Below these is a 'File' section with a 'Choose File' button, the filename 'remap8.csv', and an 'Upload' button. A green arrow points from a spreadsheet window to the 'Choose File' button.

	A	B	C	D	E	F
1	Modality	Accession Number	Study Date	Patient ID	Last Name	First Name
2	MRI				Kirk	James
3	MRI				Scott	Montgomery
4	MRI				McCoy	Leonard
5	MRI				Chapel	Christine
6	MRI				Uhurua	Nytota
7	MRI				Sulu	Hikaru
8	MRI				Chekov	Pavel
9	MRI				Rand	Janice
10	MRI				Picard	Jean-Luc
11	MRI				Riker	William
12	MRI				La Forge	La Forge
13	MRI				Yar	Tasha
14	MRI				Crusher	Beverly
15	MRI				Troi	Deanna
16	MRI				Crusher	Wesley
17	MRI				O'Brian	Miles
18	MRI				Barclay	Reginald
19	MRI				O'Brian	Keiko

Do some stuff: Review acquisition protocol

Acquisition Validation for LS2101_V1_A

PROJECT: [LS Phase1b](#) > SUBJECT: [LS2101](#) > SESSION: [LS2101_V1_A](#) > [LS2101_V1_A_PC_20140922093850](#)

Acquisition Validation for LS2101_V1_A

Details Projects

Accession #:	HCPIntradb_E52805	Subject:	LS2101
Date Added:	09/22/2014 09:39:10 (mcintyrel)	Age:	9
Date:	09/22/2014	Session:	LS2101_V1_A
Time:	09:39:06	Session Date:	2014-09-21

Validation Status: **FAIL**

Scan 15 (T1w-T1w_MPR) **FAIL**

Slices (208 volumes):	PASS
Orientation (Sagittal orientation):	PASS
Flip Angle (8):	PASS
Row (300):	PASS
Column (320):	PASS
Voxel Resolution[x] (0.8mm):	PASS
Voxel Resolution[y] (0.8mm):	PASS
Slice Thickness (0.8mm):	PASS
TR ([2399ms,2401ms]):	PASS
TI (1000ms):	PASS
TE ([2.11ms,2.13ms]):	PASS
Bandwidth ((209Hz/px,211Hz/px)):	PASS
Readout SampleSpacing (7400.0):	PASS
Phase Encoding Direction (ROW):	PASS
Phase Encoding Rotation ([-0.175, 0.262]):	FAIL (-0.2117010727)

```
<?xml version="1.0"
<iso:pattern
id="Acquisition">
<iso:rule context="scans">
<iso:assert
test="count(scan[@type=
mprage']) >= 1">
<nrgxsl:acquisition>
MRSession must have at
least 1 MPRAGE scan.
(etc...)
```

Do some stuff: Anonymize & Deface

The screenshot shows the i3CR web interface. The user is logged in as 'danAdmin'. The main content area is titled 'CONDR-METS' and has tabs for 'Details', 'Access', 'Manage', and 'Pipelines'. The 'Manage' tab is active, showing 'Define Quarantine Settings', 'Define Prearchive Settings', and 'Anonymization Script'. The 'Anonymization Script' section has 'Enable Script' checked and contains the following script:

```
(0010,0010) := "Subject_346"  
-(0010,0030)! // Patient's Birth Date  
(0008,0080) = "CCIR 3T" : (0008,0080) := "WUSM CCIR"  
(0020,000d) := new UID  
(0010,0020) := replace((0010,0020)," ","")  
(0008,1030) := "0" (1) (0020,0010), (0008,1030)  
(0020,0010) ~ "d" : (0008,1030) := "One digit!"(0020,0010) ~ "dd" : (0008,1030) := "Two digits!"
```

On the right side, there is an 'Actions' menu with the following options: Add, Upload Images, View Prearchive, Scan Type Cleanup, Add to Favorites, Download XML, Download Images, Manage Files, and Project Settings.

The screenshot shows the i3CR web interface for 'Scan 7'. The scan details are:

- Scan: 7
- Type: Bias_Receive
- Description: BIAS_BC
- Usability: undetermined

A small thumbnail of the scan is shown. Below it, a grid of MRI slices is displayed, labeled 'slice 1', 'slice 19', 'slice 28', 'slice 37', 'slice 47', 'slice 56', 'slice 65', 'slice 75', 'slice 84', 'slice 93', 'slice 103', and 'slice 112'. A color scale on the right indicates values from 0 to 400. The interface also shows 'Scan 8' partially visible at the bottom.

Store stuff: Ingest into XNAT

The screenshot shows the XNAT web interface for a project named 'CONDR-METS'. The browser address bar indicates the URL: https://i3cr.radiologics.com/app/template/XDATScreen_report_xnat_projectData.vm/search_element/xnat:projectData/search_field/xnat:projectData.ID/search_value/C...

The main content area is titled 'CONDR-METS' and features a navigation menu with 'Details', 'Access', 'Manage', and 'Pipelines'. The 'Details' tab is active, showing the project ID 'CONDR-METS' and three buttons: 'Edit Details', 'Delete', and 'Manage Custom Variables'. To the right, an 'Actions' dropdown menu is open, listing options such as 'Add', 'Upload Images', 'View Prearchive', 'Scan Type Cleanup', 'Add to Favorites', 'Download XML', 'Download Images', 'Manage Files', and 'Project Settings'.

Below the details section, there is a tabbed interface with 'Subjects', 'MR Sessions', 'ROI Collections', and 'CT Sessions'. The 'Subjects' tab is selected, displaying a table of subjects. The table has columns for 'Subject', 'M/F', 'Hand', 'YOB', 'MR Sessions', and 'CT Sessions'. The table shows 15 rows of data, with the first row being 'MW005' and the last row being 'MW064'. The 'MR Sessions' column contains values ranging from 1 to 4.

At the bottom of the table, there is a pagination control showing '1 of 1 Pgs (81 Rows)' and a 'Reload' button. The table data is as follows:

Subject	M/F	Hand	YOB	MR Sessions	CT Sessions
MW005	U			2	
MW008	U			1	
MW009	U			1	
MW023	U			1	
MW034	U			1	
MW046	U			4	
MW047	U			1	
MW048	U			1	
MW049	U			1	
MW050	U			1	
MW058	U			2	
MW061	U			1	
MW064	U			1	

Store stuff: Ingest into XNAT

The screenshot displays the XNAT web interface for a project named 'COND-R-METS'. The browser address bar shows the URL: https://i3cr.radiologics.com/app/template/XDATScreen_report_xnat_projectData.vm/search_element/xnat:projectData/search_field/xnat:projectData.ID/search_value/C...

The main content area is titled 'COND-R-METS' and features a navigation menu with 'Details', 'Access', 'Manage', and 'ipelines'. The 'Details' tab is active, showing the project ID 'COND-R-METS' and three buttons: 'Edit Details', 'Delete', and 'Manage Custom Variables'. To the right, an 'Actions' menu is open, listing options such as 'Add', 'Upload Images', 'View Prearchive', 'Scan Type Cleanup', 'Add to Favorites', 'Download XML', 'Download Images', 'Manage Files', and 'Project Settings'.

Below the details section, there is a tabbed interface with 'Subjects', 'MR Sessions', 'ROI Collections', and 'CT Sessions'. The 'MR Sessions' tab is selected, displaying a table of MR sessions. The table includes columns for MR ID, Date, Subject, Age, Scanner, Scans, and ROI Collections. The table shows 102 rows of data, with the first few rows visible.

MR ID	Date	Subject	Age	Scanner	Scans	ROI Collections
MW005_MR_tx4_GK	2012-09-26	MW005			RTDose(1), RTPlan(1), RTStruct(1), TRAN 3D T1 GRE 2.5MM(1)	1
MW005_MR_tx5_GK	2013-02-27	MW005			RTDose(1), RTPlan(1), RTStruct(1), TRAN 3D T1 GRE 2MM(1)	1
MW008_MR_tx2_GK	2012-10-03	MW008			RTDose(1), RTPlan(1), RTStruct(1), TRAN 3D T1 GRE 2.5MM(1)	1
MW009_MR_tx1_GK	2012-10-03	MW009			RTDose(1), RTPlan(1), RTStruct(1), TRAN 3D T1 GRE 2.5MM(1)	1
MW023_MR_tx2_GK	2012-11-07	MW023			RTDose(1), RTPlan(1), RTStruct(1), TRAN 3D T1 GRE 2MM(1)	1
MW034_MR_tx1_GK	2012-11-28	MW034			RTDose(1), RTPlan(1), RTStruct(1), TRAN 3D T1 GRE 2MM(1)	1
MW046_MR_tx1_GK	2012-04-19	MW046			RTDose(1), RTPlan(1), RTStruct(1), tra 3dgre 2.5mm(1)	1
MW046 MR tx2 GK	2012-12-19	MW046			RTDose(1), RTPlan(1), RTStruct(1), TRAN 3D T1 GRE	1

Store stuff: Ingest into XNAT

The screenshot shows the XNAT web interface for an MR session. The browser address bar indicates the URL: https://i3cr.radiologics.com/app/action/DisplayItemAction/search_value/I3CR04_E00156/search_element/xnat:mrSessionData/...

Navigation: PROJECT: CONDR-METS > SUBJECT: MW005 > MW005_MR_tx4_GK

MR Session: MW005_MR_tx4_GK

Details | Projects

Accession #: I3CR04_E00156	Subject: MW005
Date Added: 05/22/2018 14:07:01 (drm)	Gender:
Date: 09/26/2012	Handedness:
	Age: --

Actions

- Edit
- View
- Download
- Email
- Manage Files
- View Study
- View Images
- Delete
- Send to PACS

Scans

Bulk Actions: Open In Ximg Viewer | Download | Run Container

Scan	Type	Series Desc	Usability	Files	Note
<input type="checkbox"/> 1-OT1	RTStruct	RTStruct	usable	526.9 KB in 1 files	
<input type="checkbox"/> 1-OT2	RTDose	RTDose	usable	19.1 MB in 1 files	
<input type="checkbox"/> 1-OT3	RTPlan	RTPlan	usable	17.6 KB in 1 files	
<input type="checkbox"/> 2	TRAN 3D T1 ...	TRAN 3D T1 ...	usable	10.2 MB in 80 files	

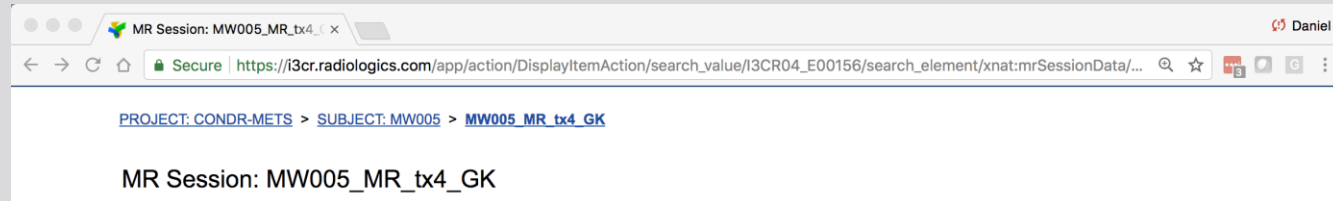
Total: 29.8 MB in 83 files

History

Assessments

Experiment	Date	Project
ROI Collection	2018-05-22	CONDR-METS

Store stuff: Ingest into XNAT



Scans

Bulk Actions:

Open In Ximg Viewer

Download

Run Container ▾

<input type="checkbox"/>	Scan	Type	Series Desc	Usability	Files
<input type="checkbox"/>	1-OT1	RTStruct	RTStruct	usable	526.9 KB in 1 files
<input type="checkbox"/>	1-OT2	RTDose	RTDose	usable	19.1 MB in 1 files
<input type="checkbox"/>	1-OT3	RTPlan	RTPlan	usable	17.6 KB in 1 files
<input type="checkbox"/>	2	TRAN 3D T1 ...	TRAN 3D T1 ...	usable	10.2 MB in 80 files

Total: 29.8 MB in 83 files

History

Assessments

Experiment	Date	Project
ROI Collection	2018-05-22	CONDR-METS

Do some more stuff: Convert RT Struct

MR Session: MW005_MR_tx4_GK

PROJECT: CONDR-METS > SUBJECT: MW005 > MW005_MR_tx4_GK

Details | Projects

Accession #: I3CR04_E00156 **Subject:** MW005
Date Added: 05/22/2018 14:07:01 (drm) **Gender:**
Date: 09/26/2012 **Handedness:**
Age: --

Actions

- Edit
- View
- Download
- Email
- Manage Files
- View Study
- View Images
- Delete
- Send to PACS

Scans

Bulk Actions: Open In Ximg Viewer | Download | Run Container

Scan	Type	Series Desc	Usability	Files	Note
1-OT1	RTStruct	RTStruct	usable	526.9 KB in 1 files	
1-OT2	RTDose	RTDose	usable	19.1 MB in 1 files	
1-OT3	RTPlan	RTPlan	usable	17.6 KB in 1 files	
2	TRAN 3D T1 ...	TRAN 3D T1 ...	usable	10.2 MB in 80 files	

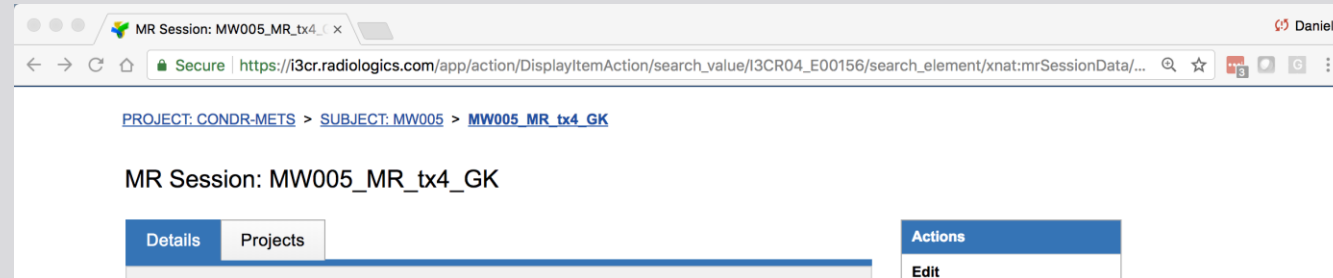
Total: 29.8 MB in 83 files

History

Assessments

Experiment	Date	Project
ROI Collection	2018-05-22	CONDR-METS

Do some more stuff: Convert RT Struct



Assessments

Experiment	Date	Project
ROI Collection	2018-05-22	CONDR-METS

Total: 29.8 MB in 83 files

History

Assessments

Experiment	Date	Project
ROI Collection	2018-05-22	CONDR-METS

Do some more stuff: Convert RT Struct

The screenshot shows a web browser window with the URL https://i3cr.radiologics.com/app/action/DisplayItemAction/search_value/I3CR04_E00156/search_element/xnat:mrSessionData/.... The page title is "MR Session: MW005_MR_tx4_GK".

MR Session: MW005_MR_tx4_GK

Details | Projects

Accession #: I3CR04_E00156 **Subject:** MW005
Date Added: 05/22/2018 14:07:01 (drm) **Gender:**
Date: 09/26/2012 **Handedness:**
Age: --

Scans

Bulk Actions: Open In Ximg Viewer | Download | Run Container ▾

<input type="checkbox"/>	Scan	Type	Series Desc	Usability
<input type="checkbox"/>	1-OT1	RTStruct	RTStruct	usable
<input type="checkbox"/>	1-OT2	RTDose	RTDose	usable
<input type="checkbox"/>	1-OT3	RTPlan	RTPlan	usable
<input type="checkbox"/>	2	TRAN 3D T1 ...	TRAN 3D T1 ...	usable

Total: 29.8 MB in 83 files

History

Assessments

Experiment	Date	Project
ROI Collection	2018-05-22	CONDR-METS

Actions

- Edit
- View ▶
- Download ▶
- Email
- Manage Files
- View Study
- View Images
- Delete
- Send to PACS
- Run Containers ▶

Do some more stuff: Convert RT Struct

The screenshot displays a web browser window with the URL https://i3cr.radiologics.com/app/action/DisplayItemAction/search_element/xnat:mrSessionData/search_field/xnat:mrSessionData.ID/search_value/I3.... The browser tab is titled "MR Session: MW005_MR_tx4...".

The main application window is titled "OHIF Viewer - Study: MW005_MR_tx4_GK" and features the Open Health Imaging Foundation logo. The interface includes a top toolbar with icons for Series, Zoom, Levels, Pan, Length, Annotate, Angle, Reset, Previous, Next, Play, CINE, Layout, and More. A secondary toolbar below it contains icons for Pairs, Stack Scroll, Magnify, ROI Window, Probe, Ellipse, Rectangle, Freehand, Export ROIs, Import ROIs, Invert, Rotate Right, Flip H, Flip V, and Clear.

The main display area is split into two panels. The left panel shows a thumbnail of the current image, labeled "RTDose" with "S: 1" and a thumbnail icon. Below it is a larger view of the same image, labeled "TRAN 3D T1 GRE 2.5MM" with "S: 2" and a thumbnail icon. The right panel shows the main image, a brain MRI slice, with a cyan dashed outline around the head and several colored (red, yellow, blue, purple) regions of interest (ROIs) overlaid on the brain. The image is labeled "R" on the left side. Technical details for the image are displayed at the bottom right: "Ser: 2", "Img: 22 (22/80)", "256 x 256", "Thick: 2.50 mm", "TRAN 3D T1 GRE 2.5MM", "Zoom: 165%", and "Lossless / Uncompressed W 222 L 83".

Do some more stuff: Convert RT Struct

MR Session: MW005_MR_tx4_GK

PROJECT: CONDR-METS > SUBJECT: MW005 > MW005_MR_tx4_GK

MR Session: MW005_MR_tx4_GK

Details Projects

Accession #: I3CR04_E00156 Subject: MW005
Date Added: 05/22/2018 14:07:01 (drm) Gender: --
Date: 09/26/2012 Handedness: --
Age: --

Actions

- Edit
- View
- Download
- Email
- Manage Files
- View Study
- View Images
- Delete
- Send to PACS

Scans

Bulk Actions: Open In Ximg Viewer Download Run Container

Scan	Type	Series Desc	Usability	Files	Note
1-OT1	RTStruct	RTStruct	usable	526.9 KB in 1 files	
1-OT2	RTDose	RTDose	usable	19.1 MB in 1 files	
1-OT3	RTPlan	RTPlan	usable	17.6 KB in 1 files	
2	TRAN 3D T1 ...	TRAN 3D T1 ...	usable	10.2 MB in 80 files	

Total: 29.8 MB in 83 files

History

Assessments

Experiment	Date	Project
ROI Collection	2018-05-22	CONDR-METS

Do some more stuff: Convert RT Struct

The screenshot shows a web browser window with the URL `https://i3cr.radiologics.com/app/template/Page.vm?view=admin/event-service#tab=subscription-tab`. The user is logged in as `danAdmin`. The main content area displays the 'Event Service A' sidebar and the 'Edit Subscription' dialog box.

Edit Subscription

Event Subscription Label

Select Event

Select Project

Select Action

Available actions are dependent on your project and xsiType selections

Event Filter

Optional. Enter filter in JSON path notation, e.g.
`[$[?(@.xsiType == "xnat:mrScanData")]`

Perform Action As: Action is performed as the user who initiates the event

Status Enabled

XNAT Event Service!

Do some more stuff: Convert RT Struct

Browser: i3CR | URL: <https://i3cr.radiologics.com/app/template/Page.vm?view=admin/plugins#tab=images-commands-tab> | Logged in as: danAdmin | Auto-logout in: 0:04:24 - renew | Logout

Navigation: Browse | New | Upload | Administer | Tools | Help | Advanced | Search

Plugin Settings

- Container Service
 - Container Server Setup
 - Images & Commands**
 - Command Configurations
 - Command Automation
 - Command History
- DQR
 - DICOM Q/R/S Settings

Installed Container Images and Commands

xnat/metlab:demo.1 [Add New Command] [Delete Image]

Command	XNAT Actions	Site-wide Config	Version	Actions
metlab	<ul style="list-style-type: none">xnat:imageSessionData: Run metlab from a sessionicr:roiCollectionData: Run metlab from an ROI Collection assessor	N/A	1.0	[Edit Command] [Delete]

docker_xnat-web:latest [Add New Command] [Delete Image]

Command	XNAT Actions	Site-wide Config	Version	Actions
No Commands Found				

XNAT
Container
Service!

Do some more stuff: Run analytics

MR Session: MW005_MR_tx4_GK

Details | Projects

Accession #: I3CR04_E00156 **Subject:** MW005
Date Added: 05/22/2018 14:07:01 (drm) **Gender:**
Date: 09/26/2012 **Handedness:**
Age: --

Actions

- Edit
- View
- Download
- Email
- Manage Files
- View Study
- View Images
- Delete
- Send to PACS
- Run Containers
 - Run matlab from a session

Scans

Bulk Actions: Open In XImg Viewer | Download | Run Container

<input type="checkbox"/>	Scan	Type	Series Desc	Usability	Files	Note
<input type="checkbox"/>	1-OT1	RTStruct	RTStruct	usable	526.9 KB in 1 files	
<input type="checkbox"/>	1-OT2	RTDose	RTDose	usable	19.1 MB in 1 files	
<input type="checkbox"/>	1-OT3	RTPlan	RTPlan	usable	17.6 KB in 1 files	
<input type="checkbox"/>	2	TRAN 3D T1 ...	TRAN 3D T1 ...	usable	10.2 MB in 80 files	

javascript:openCommandLauncher({ wrapperid: "15", launcher: "default", rootElement: "session" })

Store stuff: Post files to archive

MR Session: MW005_MR_tx4_GK

Details | **Projects**

Accession #: I3CR04_E00156 **Subject:** MW005
Date Added: 05/22/2018 14:07:01 (drm) **Gender:**
Date: 09/26/2012 **Handedness:**
Age: --

Actions

- Edit
- View
- Download
- Email
- Manage Files
- View Study
- View Images
- Delete
- Send to PACS
- Run Containers

Scans

Bulk Actions: Open In XImg Viewer | Download | Run Container

Scan	Type	Series Desc	Usability	Files	Note
1-OT1	RTStruct	RTStruct	usable	526.9 KB in 1 files	
1-OT2	RTDose	RTDose	usable	19.1 MB in 1 files	
1-OT3	RTPlan	RTPlan	usable	17.6 KB in 1 files	
2	TRAN 3D T1 ...	TRAN 3D T1 ...	usable	10.2 MB in 80 files	

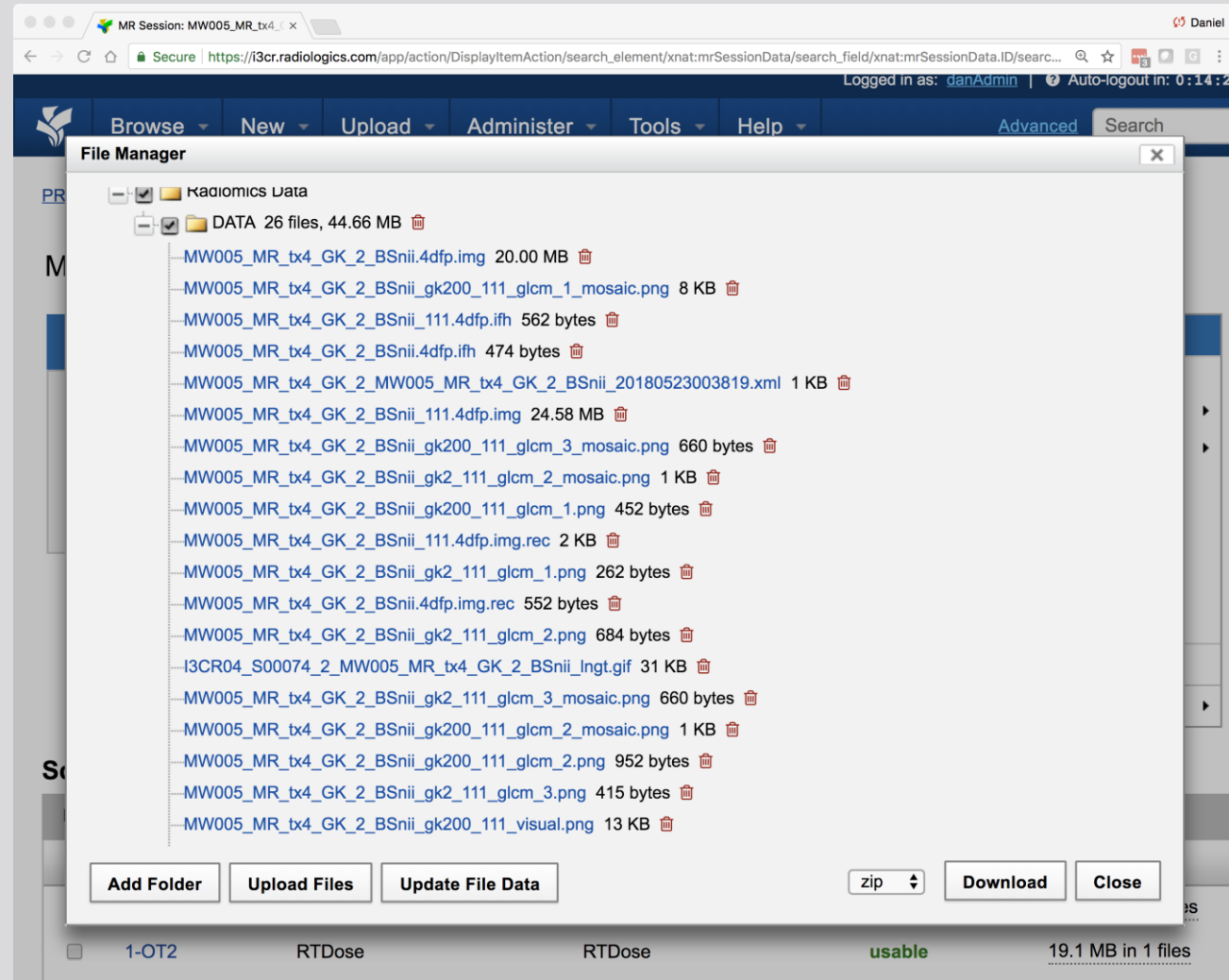
Total: 29.8 MB in 83 files

History

Assessments

Experiment	Date	Project
ROI Collection	2018-05-22	CONDR-METS
ROI Collection	2018-05-22	CONDR-METS
Radiomics Data	2018-05-23	CONDR-METS

Store stuff: Post files to archive



Store stuff: Post features to archive

MR Session: MW005_MR_tx4_GK

Details | Projects

Accession #: I3CR04_E00156 **Subject:** MW005
Date Added: 05/22/2018 14:07:01 (drm) **Gender:**
Date: 09/26/2012 **Handedness:**
Age: --

Actions

- Edit
- View ▶
- Download ▶
- Email
- Manage Files
- View Study
- View Images
- Delete
- Send to PACS
- Run Containers ▶

Scans

Bulk Actions: Open In XImg Viewer | Download | Run Container ▾

Scan	Type	Series Desc	Usability	Files	Note
<input type="checkbox"/> 1-OT1	RTStruct	RTStruct	usable	526.9 KB in 1 files	
<input type="checkbox"/> 1-OT2	RTDose	RTDose	usable	19.1 MB in 1 files	
<input type="checkbox"/> 1-OT3	RTPlan	RTPlan	usable	17.6 KB in 1 files	
<input type="checkbox"/> 2	TRAN 3D T1 ...	TRAN 3D T1 ...	usable	10.2 MB in 80 files	

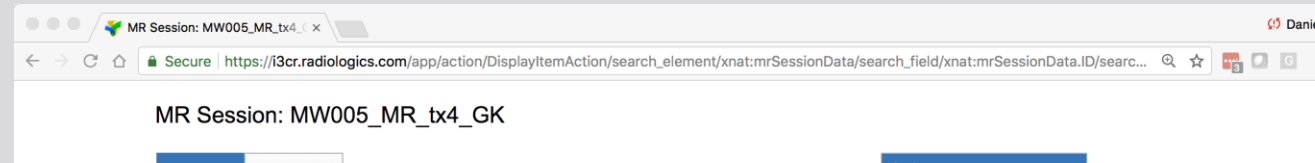
Total: 29.8 MB in 83 files

History

Assessments

Experiment	Date	Project
ROI Collection	2018-05-22	CONDR-METS
ROI Collection	2018-05-22	CONDR-METS
Radiomics Data	2018-05-23	CONDR-METS

Store stuff: Post features to archive

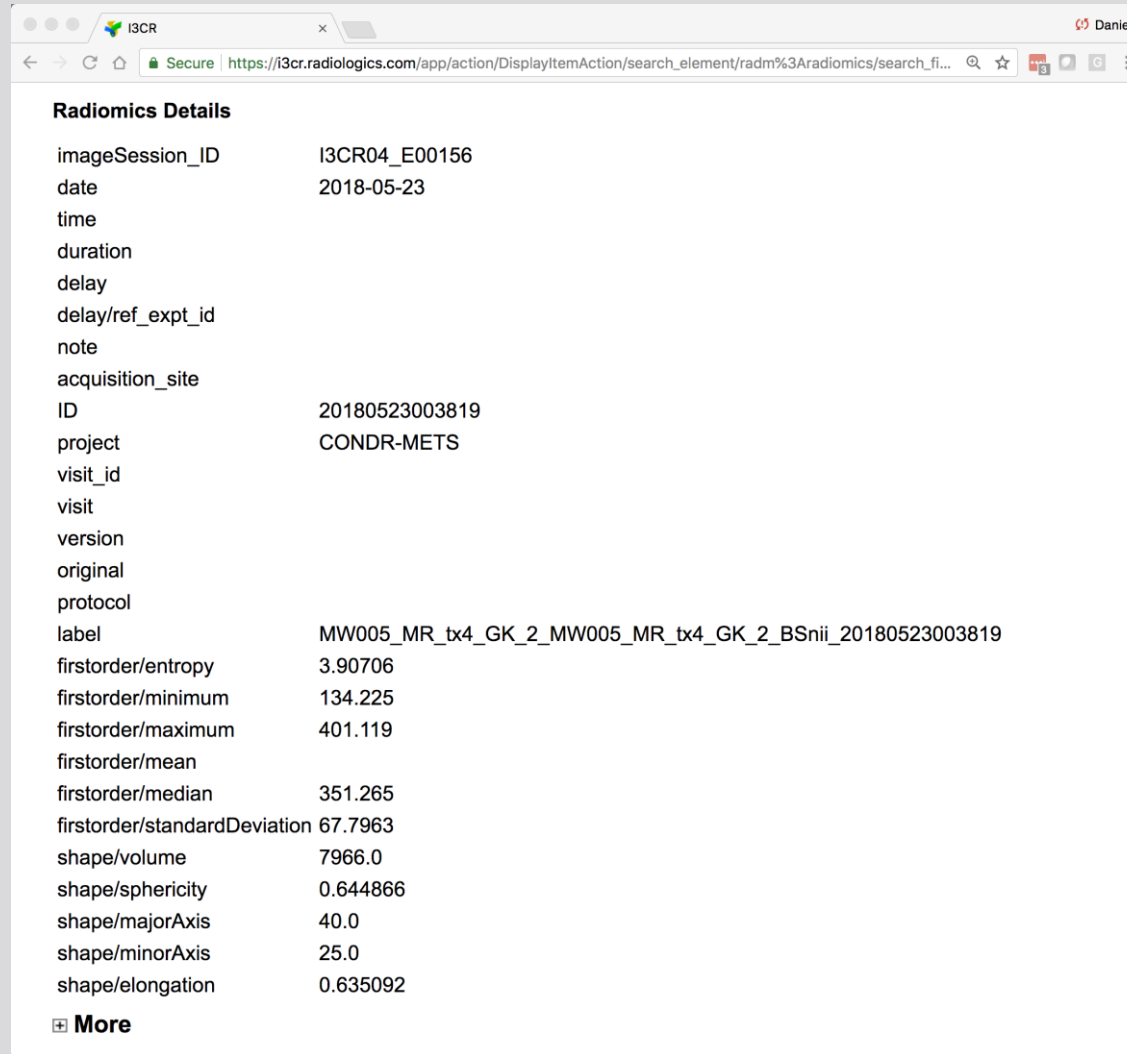


Assessments

Experiment	Date	Project
ROI Collection	2018-05-22	CONDR-METS
ROI Collection	2018-05-22	CONDR-METS
Radiomics Data	2018-05-23	CONDR-METS

ROI Collection 2018-05-22 CONDR-METS
ROI Collection 2018-05-22 CONDR-METS
Radiomics Data 2018-05-23 CONDR-METS

Store stuff: Post features to archive



The screenshot shows a web browser window with the URL `https://i3cr.radiologics.com/app/action/DisplayItemAction/search_element/radm%3Aradiomics/search_fi...`. The page title is "Radiomics Details". The content is a list of key-value pairs representing radiomics features. At the bottom, there is a "More" button with a plus icon.

Radiomics Details	
imageSession_ID	I3CR04_E00156
date	2018-05-23
time	
duration	
delay	
delay/ref_expt_id	
note	
acquisition_site	
ID	20180523003819
project	CONDR-METS
visit_id	
visit	
version	
original	
protocol	
label	MW005_MR_tx4_GK_2_MW005_MR_tx4_GK_2_BSii_20180523003819
firstorder/entropy	3.90706
firstorder/minimum	134.225
firstorder/maximum	401.119
firstorder/mean	
firstorder/median	351.265
firstorder/standardDeviation	67.7963
shape/volume	7966.0
shape/sphericity	0.644866
shape/majorAxis	40.0
shape/minorAxis	25.0
shape/elongation	0.635092

More

Use stuff: Get results to clinician

MR Session: MW005_MR_tx4_GK

Details | Projects

Accession #: I3CR04_E00156 **Subject:** MW005
Date Added: 05/22/2018 14:07:01 (drm) **Gender:**
Date: 09/26/2012 **Handedness:**
Age: --

Scans

Bulk Actions: Open In XImg Viewer | Download | Run Container ▾

<input type="checkbox"/>	Scan	Type	Series Desc	Usability
<input type="checkbox"/>	1-OT1	RTStruct	RTStruct	usable
<input type="checkbox"/>	1-OT2	RTDose	RTDose	usable
<input type="checkbox"/>	1-OT3	RTPlan	RTPlan	usable
<input type="checkbox"/>	2	TRAN 3D T1 ...	TRAN 3D T1 ...	usable

Total: 29.8 MB in 83 files

History

Assessments

Experiment	Date	Project
ROI Collection	2018-05-22	CONDR-METS
ROI Collection	2018-05-22	CONDR-METS
Radiomics Data	2018-05-23	CONDR-METS

Actions

- Edit
- View ▶
- Download ▶
- Email
- Manage Files
- View Study
- View Images
- Delete
- Send to PACS
- Run Containers ▶

Use stuff: Get results to clinician

