

1 Enter IRB Study No.:

2 Enter IRB Patient ID:

3 Select Image Data Type: **All** | None

4 Select Export Destination(s):

☐ M.R.I. ☐ CAT SCAN ☐ X-RAY ☐ NUCLEAR MEDICINE ☐ PET

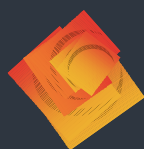
☐ Shared Drive ☒ Research PACS ☐ DICOM Node ☐ Doc(XDS.b)

Query Ex **Export**

Exam queried and results returned

Radiology Images Pathology Lab Results

Modality	StudyDate	StudyDescription
<input type="checkbox"/> CR		XR PORT CHEST 1V
<input type="checkbox"/> CT		CT INFUSED CHEST
<input type="checkbox"/> CT		CT INFUSED CHEST
<input type="checkbox"/> CT		CT CHEST AND UPPER ABD W
<input type="checkbox"/> CT		CT CHEST W
<input type="checkbox"/> CT		CT CHEST AND UPPER ABD W
<input type="checkbox"/> MR		MRI BRAIN WWO
<input type="checkbox"/> CT		CT CHEST AND UPPER ABD W
<input type="checkbox"/> CT		CT INFUSED CHEST
<input type="checkbox"/> CT\PT		Thorax^1WB_PETCT
<input type="checkbox"/> CT		CT INFUSED CHEST
<input type="checkbox"/> CT		CT INFUSED CHEST
<input type="checkbox"/> CT		CT INFUSED CHEST
<input type="checkbox"/> CR		



iBroker User Guide

Department of Radiology **IT**

(User Guide amended by HIRO)

Introduction:

- iBroker is a system which allows users to access partially de-identified images, pathology, and laboratory results. It was developed by Peng Liu, Wendy Zhu, and others in the Department of Radiology at the University of Chicago Medical Center. The Human Imaging Research Office (HIRO) provides accounts and support for the iBroker system for research users.
- A user with authorized IRB access first enters patient medical record numbers into the Electronic Honest Broker (EHB), which is a separate system. EHB will then determine randomized "assigned IDs" for each of these medical record numbers.
- An iBroker user, logged in with access to a certain IRB protocol, can then enter one of these "assigned IDs", and view pathology reports, laboratory results, and lists of radiological exams for a patient. Images from these radiological exams, with certain identifiers removed or substituted, can then be sent to destinations using the iBroker interface.

Obtaining Accounts and Specifying Image Destinations

iBroker accounts can be obtained from the Human Imaging Research Office (HIRO), for those research projects that have a protocol that has been approved by the Institutional Review Board (IRB) at the University of Chicago.

The Principal Investigator (PI) of the project should first create a HIRO account at "<http://hiro.bsd.uchicago.edu>", and register his or her IRB-approved protocol with the HIRO using the tools provided. During the IRB protocol registration, the PI will have the opportunity to indicate that certain users (who should be listed on the IRB-approved protocol) should have Enterprise Research Data Broker accounts, including Electronic Honest Broker and/or iBroker accounts.

As the individual users obtain HIRO accounts, they will be contacted by HIRO staff if they have had Electronic Honest Broker (EHB) or iBroker access granted to them by a PI of an IRB. The users will then be informed of their EHB and iBroker login names and passwords. The users can then use EHB to enter patient IDs and obtain assigned IDs, and can use iBroker to view radiological exam lists, pathology reports, and lab results.

Examination images with certain identifiers removed or substituted can be sent for research use. They can be sent to either

- (1) a DICOM destination (DICOM storage class provider);
- (2) a file share (set up for your project by HIRO) and accessible through the network;
- (3) the research PACS, or
- (4) an "XDS.b" ("Cross-Enterprise Document Sharing") destination. This is a newer technology which can send medical data via "web services".

These destinations and file shares can be configured by HIRO for your project. To set this up, please send an email to "rengel@uchicago.edu".

Anonymized DICOM Fields, and Processed Image Types

The following DICOM tags are changed by iBroker, as it partially de-identify images that pass through it. This list can be expanded in the future to include additional anonymized fields. Note that "projectName" in the text below refers to the IRB number of the specific IRB protocol. The "assignedPatientID" refers to the assigned patient ID that was produced by Electronic Honest Broker for a specified patient.

1. Tag PatientID will be replaced by assignedPatientID
2. Tag PatientName will be replaced with project name+assignedPatientID
3. Tag AccessionNumber will be replaced by assignedAccessionNumber
4. Tag 0008,0080 InstitutionName will be replaced by empty string
5. Tag 0008,0090 ReferringPhysicianName will be replaced by empty string
6. Tag 0008,1010 StationName will be replaced by empty string
7. Tag 0008,0100 CodeValue will be replaced by projectName
8. Tag 0008,1040 InstitutionalDepartmentName will be replaced by empty string
9. Tag 0008,1070 OperatorName will be replaced by empty string
10. Tag 0032,1032 RequestingPhysician will be replaced by empty string
11. Tag 0040,0253 PerformedProcedureStepID will be replaced by empty string
12. Tag 0073,0010 will be replaced by empty string
13. Tag 0073,1001 will be replaced by empty string
14. Tag 0073,1002 will be replaced by empty string
15. Tag 0073,1003 will be replaced by sending SCU AE Title
16. Tag 0040,1001 RequestedProcedureID will be replaced by projectName

Certain images that tend to have patient information "burned in" to them are not available through iBroker. These types of images include:

- Mammographic Images
- Ultrasound Images

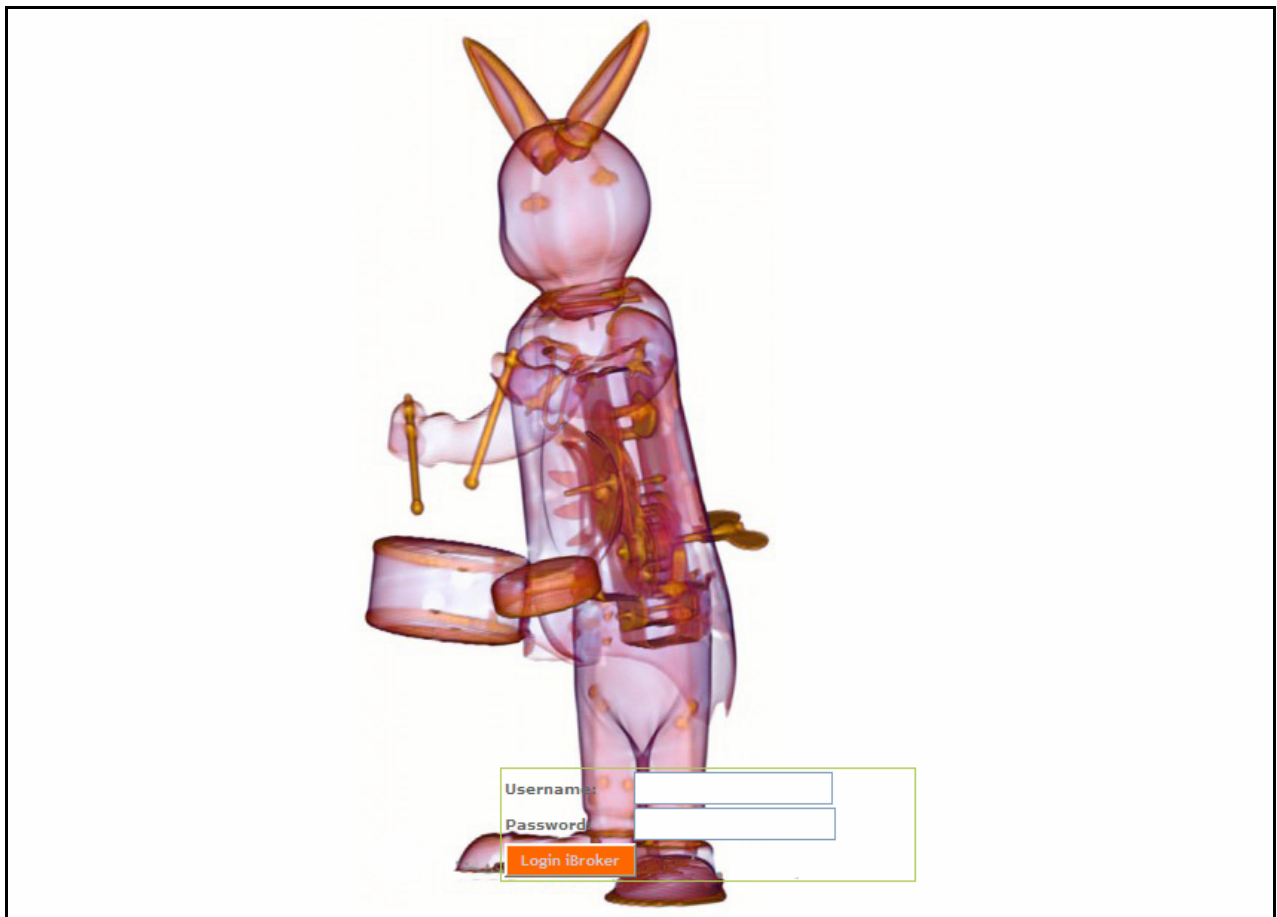
Please note that some other types of images may have burned-in annotation. You should always review the images and image headers produced by iBroker to check whether the images have the level of de-identification needed for your application.

Logging In and Using iBroker

- The iBroker website is available through the HIRO website (under "Access Broker Systems"). It is also currently available directly at the website "165.68.202.148/iBroker".
- If you are not currently logged into a UCMC hospital system, you may see a hospital system authentication/login window. This window, shown on the next page, acts as an additional authentication layer. It is prompting you for your "UCHAD" (hospital) or "radiology" domain user name and password (and not your iBroker user name and password). Enter your "UCHAD" or "radiology" username and password. For example, if you had a UCHAD username "tsmith", you would enter "UCHAD\tsmith" in the "User name" field, and your UCHAD password in the "Password" field.



- Next, the iBroker login page should appear, as shown below. Enter the iBroker user name and password that were provided to you by the HIRO group.



- The iBroker main screen will now appear, as shown below. (Note that gray boxes in this tutorial are drawn over certain identifiers that will be shown on your screen.)

The screenshot shows the iBroker main screen with the following elements:

- Step 1:** Enter IRB Study No. (Field with a gray box over the input area)
- Step 2:** Enter IRB Patient ID: (Field with "Assigned ID" text)
- Step 3:** Select Image Data Type: **All** | **None** (Buttons for M.R.I, CAT SCAN, X-RAY, NUCLEAR MEDICINE, PET)
- Step 4:** Select Export Destination(s): (Buttons for Shared Drive, Research PACS, DICOM Node, Doc(XDS.b))
- Buttons:** Query Exams, Export
- Header:** iBROKER Radiology Image Service
- Footer:** © Copyright 2008-2009 UCMC Radiology Informatics, All rights reserved

- To view lists of exams for a patient, enter the "assigned ID" for the patient that you are interested in (given to you by the Electronic Honest Broker) into the "Enter IRB Patient ID" field. You can choose to only list certain exam types by clicking boxes in the "Select Image Data Type" button set. Then, click on "Query Exams", as shown below.

The screenshot shows the iBroker main screen with annotations for the workflow:

- Step 1:** Enter IRB Study No. (Field with a gray box over the input area)
- Step 2:** Enter IRB Patient ID: (Field with "Assigned ID" text, circled in red)
- Step 3:** Select Image Data Type: **All** | **None** (Buttons for M.R.I, CAT SCAN, X-RAY, NUCLEAR MEDICINE, PET)
- Step 4:** Select Export Destination(s): (Buttons for Shared Drive, Research PACS, DICOM Node, Doc(XDS.b))
- Buttons:** Query Exams, Export
- Header:** iBROKER Radiology Image Service
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Annotations include:

- A yellow box labeled "Step 1: Enter Assigned ID of Patient" pointing to the "Enter IRB Patient ID" field.
- A yellow box labeled "Step 2: Optionally Choose Exam Types" pointing to the "Select Image Data Type" buttons.
- A yellow box labeled "Step 3: Press 'Query Exams' Button" pointing to the "Query Exams" button.
- A red oval around the "Query Exams" button.

- The queried exam results will appear below and a confirmation message will be displayed, as shown below.

1 Enter IRB Study No.:

2 Enter IRB Patient ID:

3 Select Image Data Type: All | None

4 Select Export Destination(s):

☐ M.R.I
 ☐ CAT SCAN
 ☐ X-RAY
 ☐ NUCLEAR MEDICINE
 ☐ PET

☐ Shared Drive
 ☒ Research PACS
 ☒ DICOM Node
 ☐ Doc(XDS.b)

Query Exams

Export

Exam queried and results returned :-)

Radiology Images Pathology Lab Results

Modality	StudyDate	StudyDescription
<input type="checkbox"/> CR		CHEST PA_ ES
<input type="checkbox"/> CR		GMI CHEST 1V
<input type="checkbox"/> US		MAM US CORE BIOPSY BREAST W/CLIP,LT
<input type="checkbox"/> US		MAM US BREAST UNILAT, LT
<input type="checkbox"/> MG		MAM UNILAT DIGITAL W COMP, LT
<input type="checkbox"/> MG		MAM DIGITAL DIAG UNI, LT
<input type="checkbox"/> MG		R2 Mammography Digitized Film
<input type="checkbox"/> US		Abdomen Difficult

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- To export partially de-identified DICOM images, first click the boxes next to the exams you wish to export. Then, select the export destinations, and click the "Export" button, as shown below. Please note that it may take up to 24 hours for images to be exported, although they will often be sent in 15 minutes or less.

1 Enter IRB Study No.:

2 Enter IRB Patient ID:

3 Select Image Data Type: **All** | **None**

4 Select Export Destination(s):

Step 1: Click the box(es) next to the exam(s) you wish to export

Step 2: Select Export Destination(s)

Step 3: Press "Export" Button

Query Exams

Export

Exam queried and results returned :-)

Radiology Images | Pathology | Lab Results

<input type="checkbox"/> Modality	StudyDate	StudyDescription
<input type="checkbox"/> CR		CHEST PA_ ES
<input type="checkbox"/> CR		GMI CHEST 1V
<input type="checkbox"/> US		MAM US CORE BIOPSY BREAST W/CLIP,LT
<input type="checkbox"/> US		MAM US BREAST UNILAT, LT
<input type="checkbox"/> MG		MAM UNILAT DIGITAL W COMP, LT
<input type="checkbox"/> MG		MAM DIGITAL DIAG UNI, LT
<input type="checkbox"/> MG		R2 Mammography Digitized Film
<input type="checkbox"/> US		Abdomen Difficult

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- To view available pathology reports for this patient, click the "Pathology" tab; to view available lab results data, click the "Lab Results" tab, as shown below.

1 Enter IRB Study No.:

2 Enter IRB Patient ID:

3 Select Image Data Type: **All** | None

4 Select Export Destination(s):

☐ M.R.I ☐ CAT SCAN ☐ X-RAY ☐ NUCLEAR MEDICINE ☐ PET

☐ Search PACS ☒ DICOM

To view pathology reports for patient, click "Pathology" tab

To view lab results for patient, click "Lab Results" tab

Query Exams

Export

Study queried and results returned :-)

Radiology Images **Pathology** Lab Results

<input type="checkbox"/>	Modality	StudyDate	StudyDescription
<input type="checkbox"/>	CR		CHEST PA_ ES
<input type="checkbox"/>	CR		GMI CHEST 1V
<input type="checkbox"/>	US		MAM US CORE BIOPSY BREAST W/CLIP,LT
<input type="checkbox"/>	US		MAM US BREAST UNILAT, LT
<input type="checkbox"/>	MG		MAM UNILAT DIGITAL W COMP, LT
<input type="checkbox"/>	MG		MAM DIGITAL DIAG UNI, LT
<input type="checkbox"/>	MG		R2 Mammography Digitized Film
<input type="checkbox"/>	US		Abdomen Difficult

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References

- <http://bsdirb.bsd.uchicago.edu/>
- <http://clinicalresearch.bsd.uchicago.edu/>
- <http://hiro.bsd.uchicago.edu/>