XNAT Platform:
Image De-Identification

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XNAT Is

“an open-source imaging informatics software platform dedicated to helping you perform imaging-based research. XNAT’s core functions manage importing, archiving, processing and securely distributing imaging and related study data.”
The type/level of removing identifying information depends on your use of XNAT

See next slide
### XNAT Sizing Chart

<table>
<thead>
<tr>
<th>Owner</th>
<th>Size</th>
<th>De-Identification Needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investigator</td>
<td>Small</td>
<td>?</td>
</tr>
<tr>
<td>Laboratory</td>
<td>Medium</td>
<td>?</td>
</tr>
<tr>
<td>Department</td>
<td>Large</td>
<td>?</td>
</tr>
<tr>
<td>Federation</td>
<td>X-Large</td>
<td>?</td>
</tr>
</tbody>
</table>

XNAT is a platform and not:  
- An online service  
- The Cancer Imaging Archive (TCIA)  
- Imaging Data Commons (IDC)
XNAT Accepting DICOM C-Store or ZIP Upload

Clinical

Departmental Research

External Collaborator

Site Wide Anon

Project Level Anon
Filter PHI at the Origin

XNAT Desktop Client

Local Storage

Site Wide Anon

Project Level Anon
DICOM Edit Tool in XNAT

- Script based tool that scrubs and remaps DICOM metadata
- Can remove rectangular patches of pixel data
- The same software can run
  - XNAT Desktop Client; XNAT itself never sees PHI
  - XNAT boundary: A script can be defined for the entire XNAT site
  - XNAT boundary: A script can be defined for an individual project
  - Inside XNAT: Triggered by a user action
Docker Containers in XNAT
101 Uses for a Container in XNAT

• Your favorite ML algorithm
• Matlab program
• FreeSurfer
  • Small Animal Imaging: Split DICOM images for individual subjects
• Deface Images
Summary

- XNAT is a platform and not a service
  - The nature and level of de-identification is defined by site administrators and project owners
- XNAT provides different tools to support these needs
- Washington University has both public and private instances with different practices