A Service-Oriented Interface to the iRODS Data Grid

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RENCI - UNC
The Many (Inter)Faces of a Data Grid

- Simple data browser
- Access to specialized services (administrative)
  - audit tracking
  - usage/quota monitoring
- Access to a subset of services (user)
  - audit only my own files
  - check my own usage
- Different views and services for different communities (e.g., a university institutional repository):
  - librarian
  - data administrator
  - system administrator
  - user groups
The Data Management Toolkit

• Basic iRODS services
  - Data grid architecture and support
  - DCAPE archival policy implemented into services
  - ERA module services

• iRODS framework

• Libraries of specialized services developed by grid deployers

• Specialized data grid *interface* to:
  - provide intuitive access to customized services
  - separate IT from data management (separate data grid deployment from usage)
  - enable data administrator ≠ iRODS programmer
The EnginFrame Interface

- Current version created as a demo platform
- Showcase for core iRODS services
  - audit tracking
  - quota/usage monitoring
  - metadata services
  - rule editing and running
- User-friendly and intuitive
- Proprietary software from Nice S.r.l., available to iRODS users
Audit Services

• Must query iCAT audit information
  • msiMakeGenQuery and msiExecGenQuery
  • iquest
  • differences in performance, control, results

• Audit table contains ID of the “object” in question
  • user
  • data object
  • collection

• Series of iquest commands to yield correct result
Welcome to the iRODS-Enginframe Integration DEMO site!

The iRODS-Enginframe Integration DEMO site is designed to demonstrate how Enginframe and iRODS can be integrated and show how Enginframe can be used as a tool for effectively integrate Data Grid and Computational Grid technologies.

Please click on the right tree menu to execute a demo service.
EF Interface Demo

Login to iRODS

Username: leesa
Password: ********
Host: port: ischia.renci.org:1247
Zone: nara-renci-irods

Login
Data Browser

iRODS User Meeting, March 2010
Data Browser

Browse Metadata

![Data Browser Image]

<table>
<thead>
<tr>
<th>Name</th>
<th>Size</th>
<th>Resource</th>
<th>Date Modified</th>
</tr>
</thead>
<tbody>
<tr>
<td>test</td>
<td>--</td>
<td></td>
<td>--</td>
</tr>
<tr>
<td>foo.txt</td>
<td>22 bytes</td>
<td>rencti_msResc:0</td>
<td>Mar 15 17:13</td>
</tr>
<tr>
<td>hello</td>
<td>11 bytes</td>
<td>rencti-node1:0</td>
<td>Jan 27 20:40</td>
</tr>
<tr>
<td>ncolors</td>
<td>2 KB</td>
<td>rencti-node1:0</td>
<td>Sep 03, 17:13</td>
</tr>
<tr>
<td>notes</td>
<td>55 bytes</td>
<td>rencti_msResc:0</td>
<td>Jul 21, 20:40</td>
</tr>
<tr>
<td>test1</td>
<td>24 bytes</td>
<td>rencti_node1:0</td>
<td>Sep 04, 20:40</td>
</tr>
<tr>
<td>test_write.txt</td>
<td>13 bytes</td>
<td>rencti_msResc:0</td>
<td>Aug 19, 20:40</td>
</tr>
</tbody>
</table>
Data Browser

Modify Metadata

Metadata for: /nara-rencl-irods/home/leesa/hello

Attribute | Value | Units
--- | --- | ---
Comment | Newfile |
Course | INLS490 |
Date | 2010-03-24 |

Date Modified:
- Mar 15, 17:13
- Jan 27, 20:40
- Jan 30, 14:58
- Sep 03, 2008
- Jul 21, 2009
- Sep 04, 2008
- Aug 19, 2009
Data Browser

Modify ACL

iRODS User Meeting, March 2010
## Services

![iRODS Interface Screenshot]

### iRODS Services

<table>
<thead>
<tr>
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<td>hello</td>
<td>11 bytes</td>
<td>renci-node1:0</td>
<td>Jan 27 20:40</td>
</tr>
<tr>
<td>hello</td>
<td>11 bytes</td>
<td>ncsuVault:1</td>
<td>Jan 30 14:58</td>
</tr>
<tr>
<td>lscolors</td>
<td>2 KB</td>
<td>renci-node1:0</td>
<td>Sep 03, 2008</td>
</tr>
<tr>
<td>notes</td>
<td>55 bytes</td>
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Differentiated Services

Welcome to the iRODS-Enginframe Integration DEMO site

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Services

Audit

Audit by user

Username: tip
Start date: 02/01/2010
End date: 

March 2010

1 2 3 4 5 6
7 8 9 10 11 12 13
14 15 16 17 18 19 20
21 22 23 24 25 26 27
28 29 30 31

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## Audit by User

### iRODS-Enginframe Integration

- **URL**: http://ischia.renci.org:8080/enginframe/irods/irods.xmll_uniq=/irods/audit_user&_actionId=submit
- **Location**: municipal parking chapel hill

### Services

#### Audit by User

<table>
<thead>
<tr>
<th>Type</th>
<th>Name</th>
<th>Action</th>
<th>Comment</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data</td>
<td>/nara-renci-irods/home/tip/browser.php</td>
<td>Access granted</td>
<td>modify</td>
<td>03/04/10 13:20:23</td>
</tr>
<tr>
<td>Data</td>
<td>/nara-renci-irods/home/tip/browser.php</td>
<td>Register data object</td>
<td></td>
<td>03/04/10 13:20:23</td>
</tr>
<tr>
<td>Data</td>
<td>/nara-renci-irods/home/tip/hello-ischia</td>
<td>Access granted</td>
<td>modify</td>
<td>03/04/10 13:20:23</td>
</tr>
<tr>
<td>Data</td>
<td>/nara-renci-irods/home/tip/hello-ischia</td>
<td>Register data object</td>
<td></td>
<td>03/04/10 13:20:23</td>
</tr>
<tr>
<td>Data</td>
<td>/nara-renci-irods/home/tip/hello-ischia</td>
<td>Add AVU metadata</td>
<td>-d</td>
<td>03/04/10 13:20:23</td>
</tr>
<tr>
<td>Collection</td>
<td>/nara-renci-irods/home/tip/testdir</td>
<td>Register collection</td>
<td>/nara-renci-irods/home/tip/testdir</td>
<td>03/04/10 13:24:23</td>
</tr>
<tr>
<td>Data</td>
<td>/nara-renci-irods/home/tip/testdir/notes</td>
<td>Access granted</td>
<td>modify</td>
<td>03/04/10 13:25:23</td>
</tr>
<tr>
<td>Data</td>
<td>/nara-renci-irods/home/tip/testdir/notes</td>
<td>Register data object</td>
<td></td>
<td>03/04/10 13:25:23</td>
</tr>
<tr>
<td>UNDEFINE</td>
<td>UNDEFINED</td>
<td>Access granted</td>
<td>delete</td>
<td>03/04/10 13:20:23</td>
</tr>
<tr>
<td>UNDEFINE</td>
<td>UNDEFINED</td>
<td>Unregister data object</td>
<td></td>
<td>03/04/10 13:20:23</td>
</tr>
</tbody>
</table>
## Audit by Collection

In the image, there is a screenshot of an interface for iRODS services with a focus on the Audit by Collection section. The interface includes a tree menu with options such as Audit, Audit by user, Audit by file, Audit by collection, Audit Space, Rules, and Running rules. Below the tree menu, there is a section labeled "Audit by collection" with fields for Collection, Start date, and End date.

- **Collection**: /TUCASI/home/TUCASI
- **Start date**: 01/01/2010
- **End date**: 03/23/2010

The interface also contains a search button labeled "Search."
Services

Audit by Collection

<table>
<thead>
<tr>
<th>Typ</th>
<th>Name</th>
<th>Action</th>
<th>Comment</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>/TUCASI/home/TU...</td>
<td>Register collection</td>
<td>waldoirods</td>
<td>02/26/10</td>
</tr>
<tr>
<td>C</td>
<td>/TUCASI/home/TU...</td>
<td>Recursively modify</td>
<td>modify</td>
<td>03/03/10</td>
</tr>
<tr>
<td>C</td>
<td>/TUCASI/home/TU...</td>
<td>Modify access</td>
<td>inheritance</td>
<td>03/03/10</td>
</tr>
<tr>
<td>C</td>
<td>/TUCASI/home/TU...</td>
<td>Recursively modify</td>
<td>read</td>
<td>02/26/10</td>
</tr>
<tr>
<td>C</td>
<td>/TUCASI/home/TU...</td>
<td>Modify access</td>
<td>inheritance</td>
<td>02/26/10</td>
</tr>
</tbody>
</table>
### Audit by Collection

**Filter by Date**

<table>
<thead>
<tr>
<th>Type Name</th>
<th>Action</th>
<th>Comment</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Col... /TUCASI/home/TUCASI</td>
<td>Modify access control</td>
<td>inheritance</td>
<td>03/03/10</td>
</tr>
<tr>
<td>Col... /TUCASI/home/TUCASI</td>
<td>Recursively modify access control</td>
<td>modify</td>
<td>03/03/10</td>
</tr>
<tr>
<td>Col... /TUCASI/home/TUCASI</td>
<td>Modify access control</td>
<td>inheritance</td>
<td>02/26/10</td>
</tr>
<tr>
<td>Col... /TUCASI/home/TUCASI</td>
<td>Recursively modify access control</td>
<td>read</td>
<td>02/26/10</td>
</tr>
<tr>
<td>Col... /TUCASI/home/TUCASI</td>
<td>Register collection</td>
<td>(... waldo/irods)</td>
<td>02/26/10</td>
</tr>
</tbody>
</table>
Services

Monitor Space Usage
Services

Rule Editor

Running rules
Select, edit and run rules

Rule Editor

public| 10004 | rodsgroup| TUCASI | |01266586157| 2010-02-19.08:29:17
efrods| 10012 | rodsuser| TUCASI | |01266586681| 2010-02-19.08:38:01
efrodsadmin| 10015 | rodsadmin| TUCASI | |01266586689| 2010-02-19.08:38:09
wad3| rods| 10007 | rodsadmin| TUCASI | |01266586157| 2010-02-19.08:29:17
rodaboot| 9002 | rodsadmin| TUCASI | |1170000000| 2007-01-28.11:00:00
rodsadmin| 9001 | rodsgroup| TUCASI | |1170000000| 2007-01-28.11:00:00
leosa| 10018 | rodsuser| TUCASI | |01266586756| 2010-02-19.08:39:16
tip| 10027 | rodsuser| TUCASI | |01267209228| 2010-02-26.13:33:48
TUCASI| 10024 | rodsuser| TUCASI | |01267209222| 2010-02-26.13:33:42

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