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ICAT Notification System

Antony Wilson

ICAT Workshop

Scientific Computing Department, RAL

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Overview

- JMS
- Notification Request
- Notification Request Parameters
- Examples
- Summary

Notification

- ICAT can send out notifications based on selection criteria
  - When a data set is updated
  - When a data file is read
- The notification system is intended for use by facility admin staff

Java Message Service

- Java Message Service (JMS) is used to send messages/notifications
  - Publish subscribe
    - May be read by multiple consumers
  - Point to point
    - Only available to one consumer
- Makes use of the broker in the glassfish server running ICAT

Notification Request

- ICAT uses a NotificationRequest to setup a notification
- Notification requests are analogous to authorization rules
  - CRUD flags
  - What field

Notification Request Parameters

- A NotificationRequest is configured using
  - CRUD flags
  - What
  - DataTypes
  - DestType
  - Name

CRUD Flags Parameter

- Define which operation(s) will trigger a notification
  - Create
  - Read
    - Get
    - Search
  - Update
  - Delete

What Parameter

- What is used to trigger a notification
- May contain an entity name or entity name and condition

```
Dataset <-> Investigation [name = "Fred"]
```

- If there is a condition the request will not be honoured for search calls

Data Types Parameter

- Defines what data to include in the notification
- notificationName
  - the name as provided in the name field of the request
- userId
  - the name of the authenticated user performing the operation resulting in this notification

Data Types Parameter

- entityName
  - the name of the main entity being referenced
    - This excludes any INCLUDE fields from a search or get call and also excludes entities besides the top one for create calls
- entityId
  - the id (primary key) of the main entity

Data Types Parameter

- query
  - the query string for a search call

Dest Type Parameter

- DestType.PUBSUB
  - Publish subscribe
  - Message published as a JMS topic
  - May be read by multiple consumers
- DestType.P_2_P
  - Point to point
  - Message put on a queue
  - Removed after it is consumed by first consumer

Name Parameter

- The name identifies the notification request
- MUST be unique

Example 1

```
NotificationRequest notificationRequest = new
   NotificationRequest();
notificationRequest.setCrudFlags("C");
notificationRequest.setWhat("Datafile");
notificationRequest.setDatatypes("notificationName
   userId entityName entityId");
notificationRequest.setDestType(DestType.PUBSUB);
notificationRequest.setName("Test");
icat.create(sessionId, notificationRequest);
```

Example 2

```
NotificationRequest notificationRequest = new
   NotificationRequest();
notificationRequest.setCrudFlags("R");
notificationRequest.setWhat("Dataset <-> Investigation
   [name = 'Fred']");
notificationRequest.setDatatypes("userId entityId");
notificationRequest.setDestType(DestType.PUBSUB);
notificationRequest.setName("Fred readers");
icat.create(sessionId, notificationRequest);
```

Security

- Notifications allow publication of data from ICAT
- Only publish information that is required
- It is recommended that access to the NotificationRequest table is limited to members of the `FacilityAdmins` group

Example Rule

```
Group facilityAdmins = (Group)port.search(sessionId,
   "Group[name='FacilityAdmins']").get(0);
Rule rule = new Rule();
rule.group = facilityAdmins;
rule.crudFlags = "CRUD";
rule.what = "NotificationRequest";
port.create(sessionId, rule);
```

Summary

- Notifications are sent via JMS
- Use CRUD and What to define triggering of notifications
- Publish subscribe or point to point
- ICAT authorization rules should be added for the NotificationRequest table
- http://www.icatproject.org/mvn/site/icat/4.2.1/icat.client/manual.html

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