



Workshop

Garching, June 27 – July 1, 2005

VO Registries

The Astrogrid implementation

Overview

- Demonstration of the Registry capabilities and setup.
- Exercises Part I - using your registry resources:
 - Querying
 - Entering Resource(s)
 - Removing Resource(s)
 - Harvesting
- Exercises Part II - registry installation and setup:
 - Installation
 - Setting properties through tomcat
 - Steps through eXist
 - Self Registration
- XForms

Introduction to the Registry

- Your first objective is to familiarize yourselves with various pages of a registry. It might be helpful to interact and walk through each page.
- The next series of slides demonstrate the navigation menus.
- After you have read through the slides, go through the pages yourself, then we will be doing a few exercises using those pages.
- You should be able to go through the pages at <http://localhost:8080/astrogrid-registry-SNAPSHOT>
- The credentials for the Admin pages login are as follows:
 - Username: **tomcat**
 - Password: **astrogrid**

Access Menu

Server

Home

Configure

Admin

- Takes the user to the index page
- Various configuration and installation instructions
- Setup and Administration

Documentation

Docs

[Registry Webapp Documentation](#)

Investigate

IVORN Lookup

Browse

Query

Keyword Query

Backup

- Resource Lookup
- Browse Resources
- ADQL & SQL queries
- Search by keywords
- Your XML data backup

Register

Enter Resource

- Register or Update new resource

Admin Menu

Server

Home
Browse
Restart

Documentation

Docs

Configure

Fingerprint

Admin

Clear Cache
Remove Resource
Enter Resource (Back Door)
Harvest

1. Go to the *Admin* link from the main page
2. Look at the *Admin* menu & page content focusing on :
 - Pre-Requisites
 - Initial Configuration
 - Populating your Registry
3. Look at the list of system properties and environmental variables under *Fingerprint*
4. **Deprecated**: Allows you to clear managed authorities
5. Allows to Delete Resources—pay attention to the warning
6. Calls add/update method that the harvester uses to update any Resource including the ones not managed by this Registry
7. Harvests other Registries

Exercises Part I

- Having familiarized yourselves with the navigation options of the registry, let us explore the Registry functionality.
- The following set of slides demonstrate
 - Querying,
 - Harvesting,
 - Entering Resources, and even
 - Removing Resources of a Registry.
- Follow the walkthrough of how to use the Registry shown in the slides to verify behaviour described.

Browse

- Click on Browse this is the most commonly used page for querying. (Below is an example of the *galahad* registry.)

Registry Browser

Version:

Find IVORNs including:

Browse for another version

Title	Type	AuthorityID	ResourceKey	Updated	Actions
Astrogrid Full Registry	vg:Registry	astrogrid.org	org.astrogrid.registry.RegistryService	2005-05-12T11:29:30Z	XML , Edit
Caltech NVO Registry	vg:Registry	nvo.caltech	registry	2005-05-12T10:19:00Z	XML , Edit
Caltech NVO Registry Naming Authority	vg:Authority	nvo.caltech	null?!		XML , Edit
Caltech Centre for Advanced Computing Research	vr:Organisation	nvo.caltech	CACR		XML , Edit
VOStatistics	vs:SkyService	nvo.caltech	B/2	1970-01-01	XML , Edit
Palomar-Quest Digital Synoptic Sky Survey	vs:DataCollection	itech	B/1	1970-01-01	XML , Edit
Caltech Center for Advanced Computing Research	vr:Organisation	nvo.caltech	B/3	2004-09-15	XML , Edit
Aspen Summer School	vr:Organisation	nvo.caltech	B/4	2004-09-15	XML , Edit
NCSA Radio Astronomy Imaging Registry	vg:Registry	nvo.ncsa	registry	2005-05-12T10:19:00Z	XML , Edit
Heasarc Registry	vg:Registry	nvo.heasarc	registry		XML , Edit
The Australian Virtual Observatory Naming Authority	vg:Authority	ausvo	null?!		XML , Edit
NCSA Radio Astronomy Imaging Naming Authority	vg:Authority	rai.ncsa	null?!		XML , Edit
NVO@NCSA Naming Authority	vg:Authority	nvo.ncsa	null?!		XML , Edit
ADIL Naming Authority	vg:Authority	adil.ncsa	null?!		XML , Edit
NASA/IPAC Infrared Science Archive	vg:Authority	irsa.ipac	null?!	2004-01-06T21:45:19Z	XML , Edit
The NASA/IPAC Extragalactic Database	vr:Organisation	ned	null?!	2004-10-18T21:34:46Z	XML , Edit

Browse cont.

- Type *filemanager* into the “IVORNs Including” text box and hit “List”. Now you have a reduced list.

Registry Browser

Version:

Find IVORNs including:

Browse for another version

Title	Type	AuthorityID	ResourceKey	Updated	Actions
File Manager Service Entry	vr:Service	uk.ac.le.star	filemanager	2005-05-03T14:41:30Z	XML , Edit
FileManager Service	vr:Service	uk.ac.ral.ukssdc	astrogrid-filemanager	2005-03-29T10:30:27Z	XML , Edit
FileManager Service	vr:Service	mssl.ucl.ac.uk	filemanager	2005-04-15T13:29:38Z	XML , Edit
FileManager Service	vr:Service	esdo.mssl.ucl.ac.uk	esdo-filemanager	2005-04-27T18:18:06Z	XML , Edit

* For more details about IVORN, see

Browse cont.

- Staying on the browse page hit “XML” link on the line for *org.eurovo8080/filemanager-one* (use *org.eurovo8080* –AuthorityID and *filemanager-one* –ResourceKey). Now you should see the full xml for the small filemanager service hosted at Leicester.

```
<GetResourcesByIdentifier>
- <vor:VOResources xmlns:exist="http://exist.sourceforge.net/NS/exist" xmlns:vor="http://www.ivoa.net/xml/RegistryInterface/v0.1" xmlns:vr="http://www.ivoa.net/xml/VOResource/v0.10"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
- <vor:Resource status="active" updated="2005-05-03T14:41:30Z" xmlns="http://www.ivoa.net/xml/VOResource/v0.10" xmlns:vs="http://www.ivoa.net/xml/VODataService/v0.5" xsi:type="vr:Service">
  <title>File Manager Service Entry</title>
  <identifier>ivo://uk.ac.le.star/filemanager</identifier>
- <curation>
  <publisher>File Manager Service</publisher>
- <contact>
  <name>Tony Linde</name>
  <email>ael@star.le.ac.uk</email>
  </contact>
</curation>
- <content>
  <subject>Users VOSpace</subject>
  <description>VOSpace service handling VOSTores</description>
  <referenceURL>http://www.ivoa.net/</referenceURL>
  <type>Archive</type>
- <relationship>
  <relationshipType>derived-from</relationshipType>
  <relatedResource ivo-id="ivo://org.astrogrid/FileManagerKind">FileManagerKind</relatedResource>
</relationship>
</content>
- <interface xsi:type="vs:WebService">
  <accessURL use="full">http://galahad.star.le.ac.uk:8080/astrogrid-filemanager/services/FileManagerPort</accessURL>
  </interface>
</vor:Resource>
</vor:VOResources>
</GetResourcesByIdentifier>
```

Entering Resource

- Click the “Back” button on your browser and then click “Edit” next to the *org.eurovo8080/filemanager-one*. You will see the text in the last text area, change the contact name to yours and your contact e-mail. Feel free to make other textual changes as well. XML gets validated - if you tick the “validate” checkbox - after the submission. When ready hit “Submit”.
- **Note:** The blue text at the top is simply stating that Validation is on, but the server will still try to insert the Resource even if the document is invalid - you will see later how to set this up in the properties. Ticking the “Validate” checkbox will cause the document to be sent to the server only after it ensuring its validity. We will see what happens to an invalid document later in this tutorial.
- The following slide gives a walkthrough of entering a resource.

Entering Resource Screenshot

Upload from text:

Validate

```
xmlns:vr="http://www.ivoa.net/xml/VOResource/v0.10"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <vor:Resource status="active" updated="2005-04-15T13:29:38Z"
xmlns="http://www.ivoa.net/xml/VOResource/v0.10" xsi:type="vr:Service">
  <title xmlns:vc="http://www.ivoa.net/xml/VORegistry/v0.3">FileManager
Service</title>
  <identifier
xmlns:vc="http://www.ivoa.net/xml/VORegistry/v0.3">ivo://mssl.ucl.ac.uk/filemanager</iden
tifier>
  <curation xmlns:vc="http://www.ivoa.net/xml/VORegistry/v0.3">
  <publisher>File Manager Publisher</publisher>
  <contact>
    <name>KMB</name>
    <email>kmb@mssl.ucl.ac.uk</email>
  </contact>
</curation>
  <content xmlns:vc="http://www.ivoa.net/xml/VORegistry/v0.3">
  <subject>File Manager</subject>
  <subject>VOStore</subject>
  <description>File Manager service</description>
  <referenceURL>http://www.astrogrid.org</referenceURL>
  <type>BasicData</type>
  <relationship>
    <relationshipType>derived-from</relationshipType>
    <relatedResource ivo-id="ivo://org.astrogrid/FileManagerKind">File
Manager Kind</relatedResource>
  </relationship>
  </content>
  <interface xmlns:vc="http://www.ivoa.net/xml/VORegistry/v0.3"
xsi:type="vs:WebService">
```

Entering Resource cont.

- Click the “Back” button on your browser button.
- In the XML text remove “<title>...</title>” line. Check mark the validate checkbox and hit “Submit”. Notice that it is not sent because *title* is a required XML element.

document failed to schema validate

cvc-complex-type.2.4.a: Invalid content was found starting with element 'identifier'. One of

'{"http://www.ivoa.net/xml/VOResource/v0.10":title}' is expected.

Entering a Non-Managed Resource

- Click “Back” button 2 times in your browser or from previous slides get the “filemanager” resources back on your “browse” screen.
- Click “Edit” on the “uk.ac.le.star/filemanager” line.
- Try to “Submit”.
- Notice it does not allow to submit (in fact you will get a warning message plus an exception) because you do not manage this Authority ID: it is managed and owned at Leicester.

Other Registries

- As you noticed from the previous slide you are not allowed to update Authority ID's you do not manage. There is an exception to this on Registry types: you may add/update Registry type Resources for setting up harvests.
- You may wish to load other registries if you have an Internet connection. **WARNING**: some registries contains a lot of entries, e.g. CDS has roughly 11,000.
- A final note: look at your own Registry type Resource and other Registry type Resources. You will notice a `<managedAuthority>` element - it determines what authority IDs are managed/owned by the registry.

Other Querying

- At your own pace, look at the other Querying type pages such as:
 - *IVORN Lookup*
 - *Query* (which allows ADQL or SQL queries to the registry)
 - *Keyword Query*
- Try the different query mechanism, aiming to understand how they works.

Interoperating

- In tutorials about portal or workbench you will notice you can only logon as part of the org.eurovo8080 community. You are about to go into the area of Harvest in the next few slides: this pulls other XML Resources into your registry, hence you will soon be able to log in under your org.eurovo9080 community as well as through your 8080 Tomcat port.
- This is because all these Service type XML resources have their service locations, and the community ones point to the 9080 Tomcat. This is also why - if you have the Internet connection - you will be able to log into other communities if a user and password has been setup or for example, run Data Access Services in Cambridge as well as other places or Solar Movie Maker at MSSL and many other services.

Admin

- Go into the *Admin* section of your registry. Your username and password should be:
 - Username: **tomcat**
 - Password: **astrogrid**
- This is determined in your Tomcat install directory under `conf/tomcat-users.xml` - if you wish to change it. Will require a restart of Tomcat.
- You are now in the *Admin* section.

Admin Pages (rarely used)

- **Enter Resource** - You will notice that there is an “Enter Resource (Backdoor)” in the menu. This allows you to add/update Resources that you do not manage in emergency situations. Normal use is probably for demos or XML that needs to be changed to get something working and cannot wait for the publishing registry to change it.
- **Remove Resource** – This removes a Resource from the database. Which is something you do not do if your registry is being harvested. Go to the page and read the advisory of how to remove resources correctly which is simply changing the “status” attribute to “deleted”.
- **Clear Cache** – **Deprecated**, and will soon be removed. It allowed you to clear the cache of which registry manages which authority ID’s.

Harvesting

- The following slide is a screen shot of the *Harvest* page. A very basic page showing all the registries you know. Click on “org.eurovo9080” registry.
- Click *Harvest*.
- Now in your browser you should see your org.eurovo9080 entries.
- You may wish to come back and harvest other registries if you desire. And you can harvest by date if necessary.
- **Note:** there already exists a servlet (default is turned off in the properties) that will automatically go out and harvest from all the registries at a particular interval time. This will be explained in more detail in the Installation and Setup Exercises.

AstroGrid Harvesting

Harvest by date

Server
Home
Browse
Restart

Configure
Fingerprint

Admin
Clear Cache
Enter Resource (Back Door)
Harvest

Harvest Registry Resource

Harvest a particular Registry Resource.

Look for another version

Select Date (w. year scl.):

Calendar

Title	Type	AuthorityID	ResourceKey	Updated	Actions
<input type="radio"/>	vg:Registry	astrogrid.org	org.astrogrid.registry.RegistryService	2005-05-12T11:29:30Z	XML,
<input type="radio"/>	vg:Registry	nvo.caltech	registry	2005-05-12T10:19:00Z	XML,
<input type="radio"/>	vg:Registry	nvo.ncsa	registry	2005-05-12T10:19:00Z	XML,
<input type="radio"/>	vg:Registry	nvo.heasarc	registry		XML,
<input type="radio"/>	vg:Registry	spitzer.archive	registry	2004-12-07T04:29:58Z	XML,
<input type="radio"/>	vg:Registry	aps.umn	registry	2004-12-08T21:27:04Z	XML,
<input type="radio"/>	vg:Registry	CDS	registry		XML,
<input type="radio"/>	vg:Registry	o	publishingregistry	2004-12-16	XML,
<input type="radio"/>	vg:Registry	jvo	publishingregistry	2004-12-21	XML,
<input type="radio"/>	vg:Registry	uk.ac.cam.ast	org.astrogrid.registry.RegistryService	2005-03-21T12:26:54Z	XML,
<input type="radio"/>	vg:Registry	uk.ac.le.star	org.astrogrid.registry.RegistryService	2005-05-12T11:30:22Z	XML,
<input type="radio"/>	vg:Registry	mssl.ucl.ac.uk	org.astrogrid.registry.RegistryService	2005-04-15T13:05:28Z	XML,
<input type="radio"/>	vg:Registry	esdo.mssl.ucl.ac.uk	org.astrogrid.registry.RegistryService	2005-04-25T16:55:34Z	XML,

Click the radio button of the Registry you want to harvest.

Admin Register Page

- On the main page of the *Admin* menu you will notice an “Initial Configuration” section with three different links.
- 1.) **Self-Registration** – is a quick page to create your own registry type entry for “YOUR” registry.
- 2.) **Register with other Registries** – sends your Registry type Resource to a known full registry so it can begin harvesting and telling other registries about you.
- 3.) **Harvesting other Registries** – Only do this if you want this registry to be a full registry as well. In general it simply asks a Full Registry such as *galahad* what are all the Registry Type Resources you know about, and give it to your registry for harvesting later.

Exercises on Installation and Setup

- Everything about installing and configuring is described in the “Docs” portion of the webapp - in the left menu, under “Documentation” section (or on the astrogrid maven docs site, at <http://www.astrogrid.org/maven/docs/HEAD/registry/multiproject/astrogrid-registry/index.html>)
- The following slides will go through some exercises to help you familiarize yourselves with the various properties and how to setup the registry as well as install it.

eXist

- eXist XML database can be found with all the documentation at <http://exist.sourceforge.net>. Lets peak inside it a bit.
- Go to a command prompt, then go to where your Tomcat is installed, and then in the webapps/astrogrid-registry-SNAPSHOT/WEB-INF directory. Now run this (drop this “-s” if you have GUI ability: is much nicer to look at, the -s is the shell mode):
- **Windows:** `java -Djava.endorsed.dirs=\lib -jar start.jar client -s -ouri=xmldb:exist://`
Unix: `java -Djava.endorsed.dirs=/lib -jar start.jar client -s -ouri=xmldb:exist://`
- Now you are inside the database. If you’re in shell mode type “help” and you will see the list of commands, and you can “cd” and “ls” just like a normal shell. If your in the GUI then experiment: you have a wide range of options, try various things just don’t “delete”/“remove” collections or resources. **Note:** eXist uses the term “Resources” for its documents and collections/tables so don’t confuse it with the actual XML registry resources.

eXist cont.

- Take a few minutes to get acquainted with eXist: in the WEB-INF directory you will find the previous commands in a file called startclientexample.txt (**Note:** the “\lib” needs to be “/lib” if in unix.) This file also instructs how to connect to eXist externally or when your internal database is outside your webapp.
- <http://exist.sourceforge.net/client.html>
This url carries all the various commands for the client and backup scripts that you can run just like you did in the previous slide.
- **Very important note:** eXist stores all its data in binary format in a directory called “data”, currently you see it under the WEB-INF directory. Making backups of this directory is all you need to do to revert to a backup if a database becomes corrupted or incorrect for some reason.
- Following slides will now get into setting up Registry, dealing with properties, and moving around eXist.

Properties

- All the registry properties are defined in JNDI.
- Tomcat has an administration GUI for editing these properties.
- Go to your <http://localhost:8080>
- Click on “Tomcat Administration”
- And login. (Go to the next slide)

Properties cont.

- Now go to the “Environment Entries” of your registry. You should see what is shown in the screen shot below, then go to the next slide.



The screenshot displays the Tomcat Server Administration Console. On the left, a tree view shows the server structure, with 'Environment Entries' highlighted under the 'Context (/astrogrid-registry)' folder. The main panel shows a table of environment entries with columns for Entry Name, Value, and Description. The entries include configuration for authority ID, default version, harvesting, admin email, repository name, publishing URL, validation, and namespace declarations.

Entry Name	Value	Description
reg_amend.authorityId	astrogrid.org	The Main Authority ID for this Registry (Authority ID used for the Registry type)
reg_amend.defaultversion	0.9	The default registry version used, May be overridden on updates and queries based on vr namespace.
reg_amend.harvest	false	Does this registry need to do harvesting
reg_amend.identify.adminEmail	mailto:ktn@star.le.ac.uk	Used for the Identify verb in OAI. The administration Email of this OAI repository.
reg_amend.identify.repo.sitoryName	Astrogrid Full Repository	Used for the Identify verb in OAI. The repository Name.
reg_amend.oaipublish.0.10	http://localhost:8080/astrogrid-registry/OAIHandlerV0_10	The url to the oai publishing url for 0.10, default is set to astrogrid servlet, but is not required to use.
reg_amend.quiton.invalid	false	Quit on validation.
reg_amend.returncount	60	The maximum number of results to return from queries.
reg_amend.validate	true	Have validation on or off
reg_custom.declareNS.0.10	<code>declare namespace vr = "http://www.ivoa.net/xml/VOResource/v0.10"; declare namespace vor="http://www.ivoa.net/xml/RegistryInterface/v0.1"; declare namespace vs = "http://www.ivoa.net/xml/VODataService/v0.5"; declare namespace cs = "http://www.ivoa.net/xml/ConeSearch/v0.3"; declare namespace sia = "http://www.ivoa.net/xml/SIA/v0.7"; declare namespace vg = "http://www.ivoa.net/xml/VORRegistry/v0.3"; declare namespace vc = "http://www.ivoa.net/xml/VORRegistry/v0.3"; declare namespace cea="http://www.ivoa.net/xml/CEAService/v0.2"; declare namespace ceapd="http://www.astrogrid.org/schema/AGParameterDefinition/v1"; declare namespace ag="http://www.astrogrid.org/schema/AstrogridDataService/v0.2"; declare namespace xsi="http://www.w3.org/2001/XMLSchema-instance";</code>	(Advanced) Declare the namespaces used on the registry, based on registry versions.
reg_custom.declareNS.0.9	<code>declare namespace vr = "http://www.ivoa.net/xml/VOResource/v0.9"; declare namespace vc = "http://www.ivoa.net/xml/VOCCommunity/v0.2"; declare namespace vg = "http://www.ivoa.net/xml/VORRegistry/v0.2"; declare namespace vs = "http://www.ivoa.net/xml/VODataService/v0.4"; declare namespace vt = "http://www.ivoa.net/xml/VOTable/v0.1"; declare namespace cs = "http://www.ivoa.net/xml/ConeSearch/v0.2"; declare namespace sia = "http://www.ivoa.net/xml/SIA/v0.6"; declare namespace cea="http://www.ivoa.net/xml/CEAService/v0.1"; declare namespace</code>	(Advanced) Declare the namespaces used on the registry, based on registry versions.

Properties and Moving eXist

- All these properties are explained in the description. Out of a vast range of properties only a few are used in the installation and setup. The rest are designated for custom setup areas. You may also read about the properties in your docs area. All these installation and setup exercises are available in your docs area or <http://www.astrogrid.org/maven/docs/HEAD/registry/multiproject/astrogrid-registry/index.html>
- Now for our first exercise, after reading the docs you will have learnt that you should avoid placing eXist inside your webapp or you may lose the data directory if you undeploy when upgrading. As a way out of this you can keep replacing the data directory, but it is better to move it out completely.

Properties and Moving eXist cont.

- Open up a file manager or through command prompt create a directory where eXist data will go on your machine.
 - Copy the conf.xml, and the whole “data” directory from your Tomcat installation {context name}/WEB-INF directory. So inside your new directory you should now have conf.xml, data {directory}.
 - Using the Tomcat Administration GUI, change the "reg.custom.exist.configuration" property and point to this directory.
 - Be sure to hit "save" then hit "commit changes".
 - Now when the data is being stored it is using this new data directory: be sure during upgrades to set that property to your directory. **Note:** "Windows" OS users normally need to escape their slashes, e.g. c:\\existstore.

Installing Registry

- Getting the *.war* file:
 - Go to <http://www.astrogrid.org/maven/org.astrogrid/wars/> and download an *astrogrid-registry-?????.war* that has the nearest date to today; rename it to “registry.war” and place it in the *webapps* directory.
 - Copy the *astrogrid-registry-SNAPSHOT.war* from your *Tomcat/webapps* folder into a file called “registry.war” in the same directory.
- Tomcat will automatically deploy the war file. And you can now go to <http://localhost:8080/registry>, even though it is not setup yet.
- In your Tomcat Administration GUI change properties by hitting save after each property change and then hit “commit” at the end.
 - *reg.amend.authorityid* - Your main Authority ID for this registry, normally an institution domain name e.g.: *mssl.ucl.ac.uk*. For this exercise change it to “eurovo.tutorial”.

Installing Registry cont.

- reg.amend.harvest - Only if you want registry to automatically harvest, then set to "true".
- reg.amend.identify.adminEmail - Your contact e-mail. This will soon be deprecated and go away.
- reg.amend.oaipublish.0.10 - Only if your {context name} is not "astrogrid-registry" then change it. For this exercise change it to "registry".
- **Note:** Feel free to look at other properties and change them. The property names with "amend" are ones you may typically change and "custom" are rarely changed. See the "Registry Reference" docs for ideas of how the "custom" ones can be used. (Go to next slide.)
- Now go to your <http://localhost:8080/registry> click on the "Admin" link in the menu login and on the first page click on "Self Registration".

Installing Registry cont.

- Fill out the form for *Self Registration*, be sure to use the same authority id that you used in setting the properties which is “eurovo.tutorial”, then hit submit.
- You are now at a text box that should have your completed registry type. If you want you may look at the last XML element “managedAuthority” and add more to manage other authority ID’s, or you can come back and edit this Registry type later.
- You are now all setup and ready to add XML Registry Resources to your new registry.

Being a Harvester

- Again on the initial *Admin* page click on “Register with other Registries”
- **In the text box put in <http://localhost:8080/astrogrid-registry-SNAPSHOT> - or the 9080 tomcat (please do not use *galahad* registry)**
- Hit “Submit”: now you can go to the above URL and look at your Registry Type.
- The above url can now harvest your new registry.

Being a Harvester

- Go to your *Admin* main page again and click on “Harvesting other Registries”
- You may use *hydra* or *galahad* as the main registry for Astrogrid at <http://galahad.star.le.ac.uk:8080/galahad-registry> (but either galahad or hydra should work or any other registry such as your other localhost registries if you don't have the Internet access <http://localhost:8080/astrogrid-registry-SNAPSHOT>)
- Click on “Set up Harvesting”: now it will access other registry types and place them into your new registry for harvesting.
- **Note:** As warned in the earlier part of the exercise, harvesting CDS could take a long time and advise to do this much later. The registry must do paging through a lot of their site since they have 11,000 entries and only give back 100 XML Resources at a time.

XForms

- It is assumed that you are familiar with XML or have an external tool such as XMLSpy or Oxygen to help make the XML conform to the Registry schemas. This can be a daunting task at times because of the complexity of schemas.
- XForms makes things easier, since you can fill out a form (much like an html form) and it will validate and conform to the schemas and send the data as XML to your server.
- By following the installation exercise of accessing the latest war file, or using the one included in the CD ([DataCentreInfrastructure_Registry/registry_xforms_beta.war](#)) you can get a *Xforms-enabled* version of the Registry.
- You will find now an “XForms” link in the menu (for creating brand new xml resources) and also an “Xedit” link on your main query pages such as Browse.

XForms cont.

- More information on Xforms
 - Read the first couple of chapters of:
<http://xformsinstitute.com/essentials/>
 - Read the first couple of chapters of
 - <http://www.w3.org/TR/2003/REC-xforms-20031014/> or finally
 - <http://www.w3.org/MarkUp/Forms/>
- There are no exercises to this since it is basically filling out an HTML type form similar you have done in the past.