



EUROPEAN MIDDLEWARE INITIATIVE

ARC GLUE2 Server-Side Status and Plans

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ARC local information system: ARIS

- Publishes info about the CE

Information is published via two interfaces:

- LDAP (LDIF)
- WSRF (XML)

Information is published in three schemas:

- Nordugrid
- Glue 1.2
- GLUE 2 (LDAP and XML)

GLUE2 schema

- OGF Working Group on forge.gridforum.org

<http://forge.gridforum.org/sf/wiki/do/viewPage/projects.glue-wg/wiki/HomePage>

- *“The GLUE specification is an information model for Grid entities described using the natural language and UML Class Diagrams. As a conceptual model, it is designed to be independent from the concrete data models adopted for its implementation.”*
- Status:
 - Information model document is final
 - Renderings are to be finalized this year

GLUE2 Schema - LDAP

- Latest github changeset **March 2011**:
No new entries added to the schema but several changes:

Shipped with EMI

```
# Group
attributetype ( 1.3.6.1.4.1.6757.100.1.1.8.1.1
  NAME 'GLUE2GroupID'
  DESC 'Local unique ID'
  EQUALITY caseExactIA5Match
  SUBSTR caseExactIA5SubstringsMatch
  SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
  SINGLE-VALUE
)
```

Latest Version

```
# Group
attributetype ( 1.3.6.1.4.1.6757.100.1.1.8.1.1
  NAME 'GLUE2GroupID'
  DESC 'Local unique ID'
  EQUALITY caseExactMatch
  SUBSTR caseExactSubstringsMatch
  SYNTAX 1.3.6.1.4.1.1466.115.121.1.15
  SINGLE-VALUE
)
```

Remark:

EMI still distributes the March 2009 version

GLUE2 Schema - XML

- Latest github changeset April 2011
- Completion of XML rendering
- Authors report is 98% done, but still changing
- <https://github.com/OGF-GLUE/XSD/tree/master/schema>

ARC CE LDAP GLUE2 status:

Correctness

- ARC uses the version of the schema shipped with EMI
/etc/ldap/schemas/GLUE20.schema
package: glue-schema
- ARC has been tested to validate with the github version
- EMI provided a validator:
<https://tomtools.cern.ch/confluence/display/IS/GLUEValidator>

ARC CE LDAP GLUE2 status:

Correctness

- Validating data types. ... ok
- Verifying the existence of mandatory attributes. ... ok
- Verifying the object class ... ok
- Verifying single-valued attributes only have one value. ... ok

```
=====
FAIL: Verifying the object class
-----
```

```
Traceback (most recent call last):
```

```
File "/root/glue2validator/trunk/lib/validator/EntryTest.py", line 31, in test_object_class
```

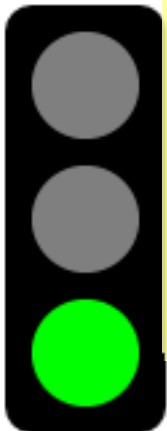
```
self.assertTrue(self.types.is_ObjectClass(obj), message)
```

```
AssertionError: The object class top in o=glue is not valid
```

```
-----
Ran 4452 tests in 0.871s
```

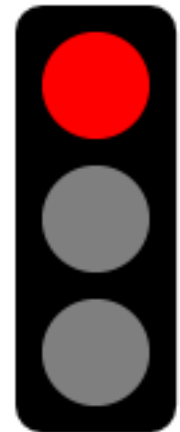
```
FAILED (failures=1)
```

Validator needs to be checked



ARC CE XML GLUE2 status: Correctness

- Used schema
schemas.ogf.org/glue/2009/03/spec/2/0
[pathto/GLUE2.xsd](#)
 - Not the github version
- There is no EMI tool to validate GLUE2 XML output
- Quick attempt: use arcwsrf tool to get some wrapped XML output
- Validator: xmlstarlet
- Does NOT validate.
 - Manual fix of the XML
improved validation



ARC GLUE2 Status: Completeness (LDAP and XML)

- We publish complete trees
- Some information is missing, must be checked:
 - ARC CE has several endpoints, some are not published
 - Further investigation needed

ARC GLUE2 Plans

Mid of November:

- Fix information completeness

ASAP EMI updates LDAP schema

- Verify LDAP rendering
- Test GLUE2 LDAP client and server

Beginning of December

- Update XML infoproviders to the latest github

**Complete GLUE2 Support server-side
will be provided for EMI2**



Thank you!

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LDAP tree example

```
extended LDIF
#
# LDAPv3
# base <o=glue> with scope subtree
# filter: (objectclass=*)
# requesting: ALL
#
# glue
dn: o=glue
objectClass: top
objectClass: organization
o: glue

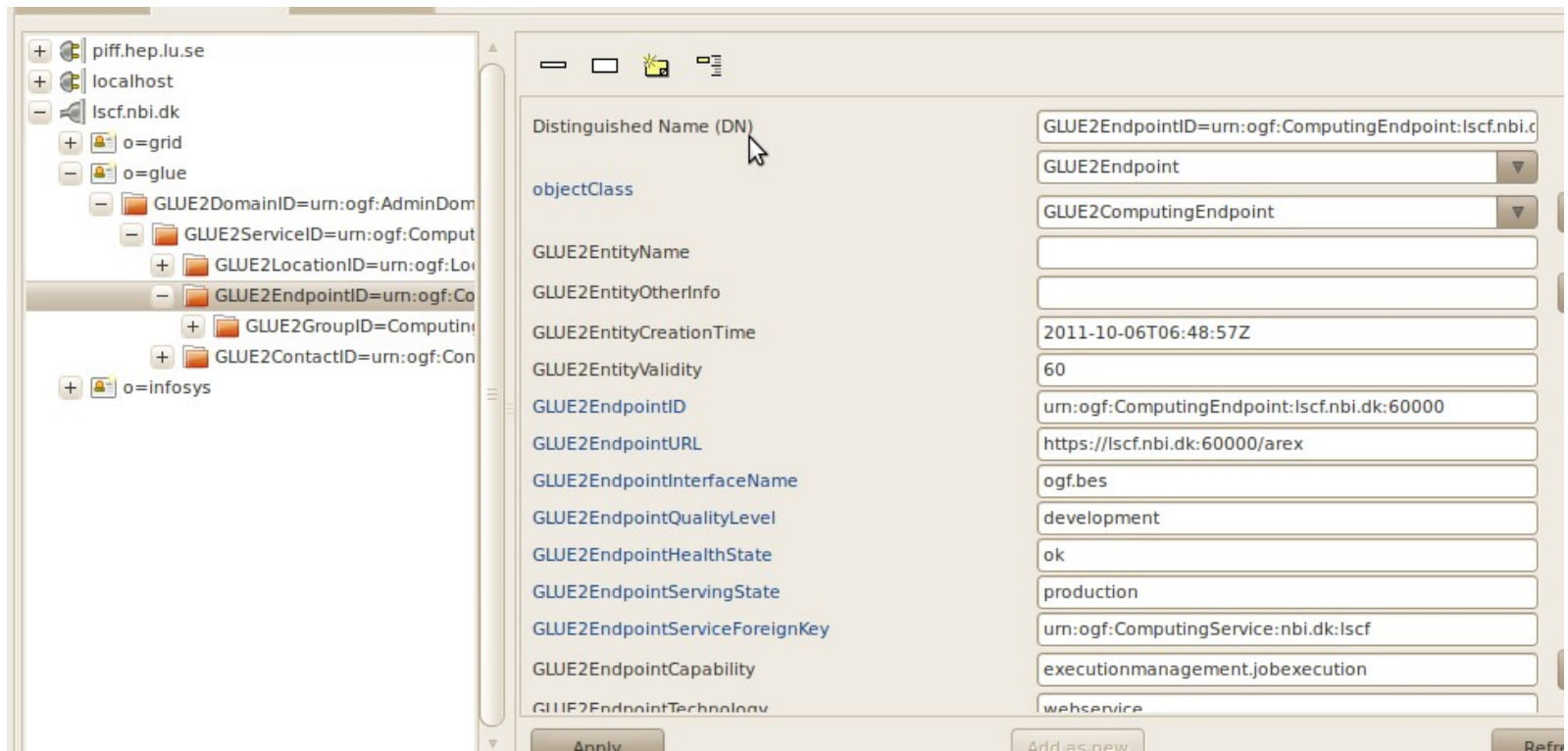
# urn:ogf:AdminDomain:nbi.dk, glue
dn: GLUE2DomainID=urn:ogf:AdminDomain:nbi.dk,o=glue
objectClass: GLUE2Domain
objectClass: GLUE2AdminDomain
GLUE2EntityName: nbi.dk
GLUE2DomainID: urn:ogf:AdminDomain:nbi.dk

# urn:ogf:ComputingService:nbi.dk:lscf, urn:ogf:AdminDomain:nbi.dk, glue
dn: GLUE2ServiceID=urn:ogf:ComputingService:nbi.dk:lscf,GLUE2DomainID=urn:ogf:
  AdminDomain:nbi.dk,o=glue
GLUE2ComputingServiceSuspendedJobs: 0
GLUE2EntityValidity: 60
GLUE2ServiceType: org.nordugrid.execution.arex
GLUE2ServiceID: urn:ogf:ComputingService:nbi.dk:lscf
objectClass: GLUE2Service
objectClass: GLUE2ComputingService
GLUE2ComputingServicePreLRMSWaitingJobs: 0
GLUE2ServiceQualityLevel: development
GLUE2ServiceComplexity: endpoint=1,share=5,resource=5
GLUE2ServiceCapability: executionmanagement.jobexecution
GLUE2ComputingServiceStagingJobs: 4
GLUE2EntityName: lscf
GLUE2ServiceAdminDomainForeignKey: urn:ogf:AdminDomain:nbi.dk
GLUE2ComputingServiceWaitingJobs: 0
GLUE2ComputingServiceTotalJobs: 4
GLUE2ComputingServiceRunningJobs: 0
GLUE2EntityCreationTime: 2011-10-06T06:38:31Z
```

1,1

Top

LDAP tree example



The screenshot shows an LDAP browser interface. On the left, a tree view displays the LDAP hierarchy. The selected entry is a GLUE2Endpoint object with the Distinguished Name (DN) `GLUE2EndpointID=urn:ogf:ComputingEndpoint:lscf.nbi.dk:60000`. The right pane shows the object's attributes and their values:

Attribute	Value
Distinguished Name (DN)	GLUE2EndpointID=urn:ogf:ComputingEndpoint:lscf.nbi.dk:60000
objectClass	GLUE2Endpoint GLUE2ComputingEndpoint
GLUE2EntityName	
GLUE2EntityOtherInfo	
GLUE2EntityCreationTime	2011-10-06T06:48:57Z
GLUE2EntityValidity	60
GLUE2EndpointID	urn:ogf:ComputingEndpoint:lscf.nbi.dk:60000
GLUE2EndpointURL	https://lscf.nbi.dk:60000/arex
GLUE2EndpointInterfaceName	ogf.bes
GLUE2EndpointQualityLevel	development
GLUE2EndpointHealthState	ok
GLUE2EndpointServingState	production
GLUE2EndpointServiceForeignKey	urn:ogf:ComputingService:nbi.dk:lscf
GLUE2EndpointCapability	executionmanagement.jobexecution
GLUE2EndpointTechnology	webservice

XML example

```

<wsrf-rp:GetResourcePropertyDocumentResponse><InfoRoot>
  <Domains xmlns="http://schemas.ogf.org/glue/2008/05/spec_2.0_d41_r01"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://schemas.ogf.org/glue/2009/03/spec/2/0 path/to/GLUE2.xsd">
    <AdminDomain BaseType="Domain">
      <ID>urn:ogf:AdminDomain:hep.lu.se</ID>
      <Name>hep.lu.se</Name>
      <Services>
        <ComputingService BaseType="Service" CreationTime="2011-10-06T07:00:22Z" Validity="60">
          <ID>urn:ogf:ComputingService:hep.lu.se:piff</ID>
          <Name>piff</Name>
          <Capability>executionmanagement.jobexecution</Capability>
          <Type>org.nordugrid.execution.arex</Type>
          <QualityLevel>development</QualityLevel>
          <Complexity>endpoint=1,share=1,resource=1</Complexity>
          <Location>
            <ID>urn:ogf:Location:hep.lu.se:piff</ID>
            <PostCode>SE-22100</PostCode>
          </Location>
          <Contact>
            <ID>urn:ogf:Contact:hep.lu.se:piff:mailto:florido.paganelli@hep.lu.se</ID>
            <Name>florido.paganelli</Name>
            <Detail>mailto:florido.paganelli@hep.lu.se</Detail>
            <Type>usersupport</Type>
          </Contact>
          <TotalJobs>0</TotalJobs>
          <RunningJobs>0</RunningJobs>
          <WaitingJobs>0</WaitingJobs>
          <StagingJobs>0</StagingJobs>
        </ComputingService>
      </Services>
    </AdminDomain>
  </Domains>
</InfoRoot>
  
```

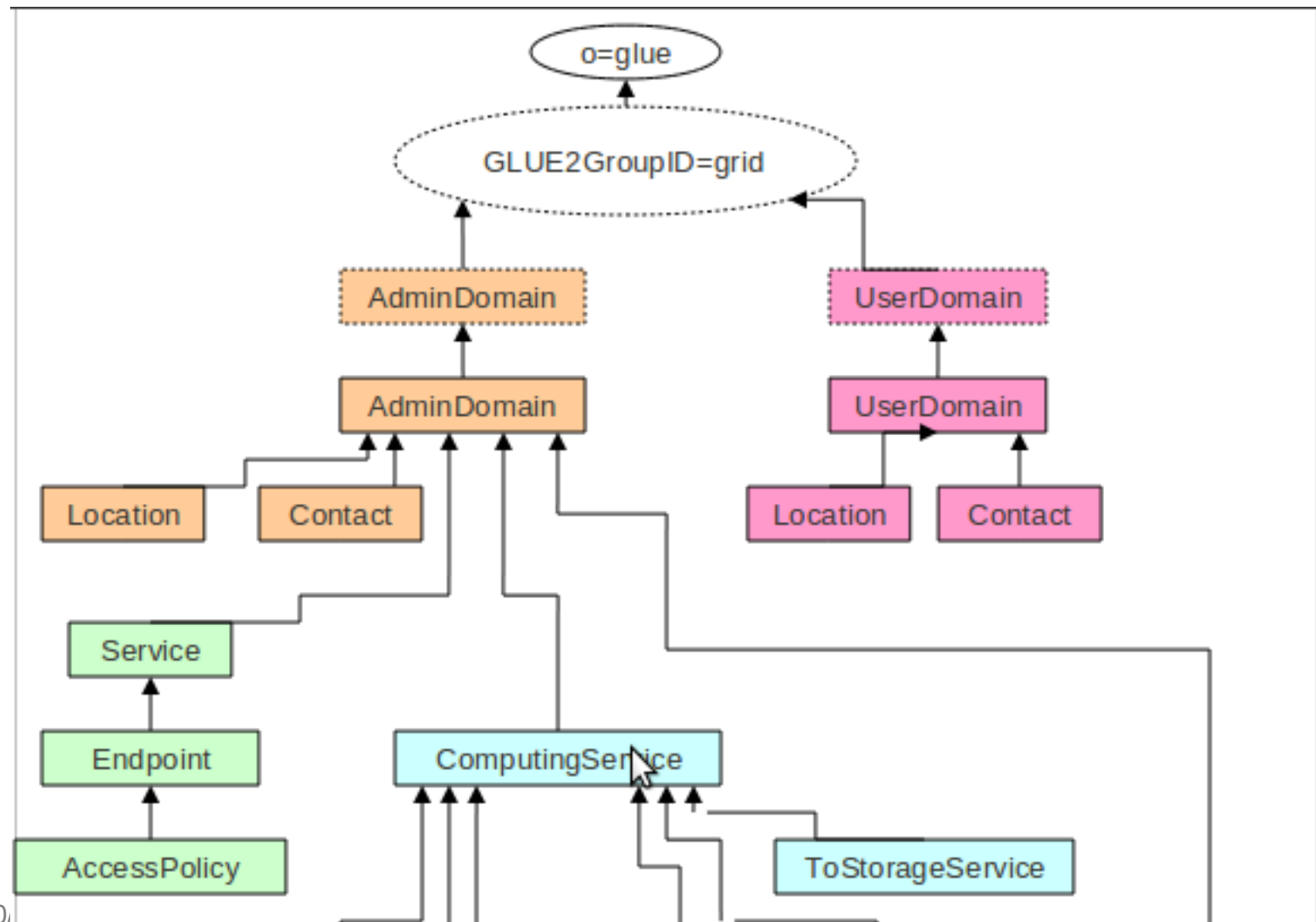
XML validation problems

```
bjast@lynx:~$ xmlstarlet val -e -s /media/BJAASTSDCRD/Documents/EMI/GLUE2/OGF-GLUE-XSD-4
98c71a/schema/GLUE2.xsd xmlout.xml
xmlout.xml:1: element Domains: Schemas validity error : Element '{http://schemas.ogf.org/
glue/2008/05/spec_2.0_d41_r01}Domains': No matching global declaration available for the
validation root.
xmlout.xml - invalid
bjast@lynx:~$ xmlstarlet val -e -s /media/BJAASTSDCRD/Documents/EMI/GLUE2/OGF-GLUE-XSD-4
98c71a/schema/GLUE2.xsd xmlout.xml
xmlout.xml:1: element Domains: Schemas validity error : Element '{http://schemas.ogf.org/
glue/2008/05/spec_2.0_d41_r01}Domains': No matching global declaration available for the
validation root.
xmlout.xml - invalid
bjast@lynx:~$ vim xmlout.xml
bjast@lynx:~$ vim xmlout.xml
bjast@lynx:~$ xmlstarlet val -e -s /media/BJAASTSDCRD/Documents/EMI/GLUE2/OGF-GLUE-XSD-4
98c71a/schema/GLUE2.xsd xmlout.xml
xmlout.xml:5: element Services: Schemas validity error : Element '{http://schemas.ogf.org
/glue/2009/03/spec_2.0_r1}Services': This element is not expected. Expected is one of ( {
http://schemas.ogf.org/glue/2009/03/spec_2.0_r1}OtherInfo, {http://schemas.ogf.org/glue/2
009/03/spec_2.0_r1}Extensions, {http://schemas.ogf.org/glue/2009/03/spec_2.0_r1}Descripti
on, {http://schemas.ogf.org/glue/2009/03/spec_2.0_r1}WWW, {http://schemas.ogf.org/glue/20
09/03/spec_2.0_r1}Location, {http://schemas.ogf.org/glue/2009/03/spec_2.0_r1}Contact, {ht
tp://schemas.ogf.org/glue/2009/03/spec_2.0_r1}Distributed, {http://schemas.ogf.org/glue/2
009/03/spec_2.0_r1}Owner, {http://schemas.ogf.org/glue/2009/03/spec_2.0_r1}Service, {http
://schemas.ogf.org/glue/2009/03/spec_2.0_r1}ComputingService ).
xmlout.xml - invalid
bjast@lynx:~$
```

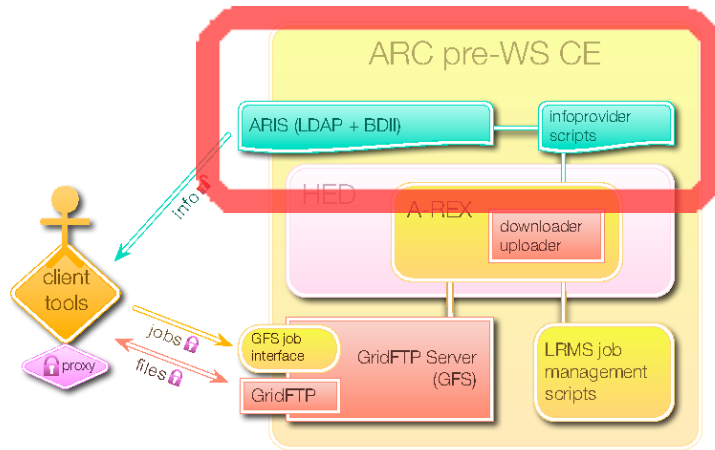
Affected files

- Infoproviders:
ARC1ClusterInfo.pm
CEinfo.pl
GLUE2ldifPrinter.pm
GLUE2xmlPrinter.pm
LdifPrinter.pm
Sysinfo.pm

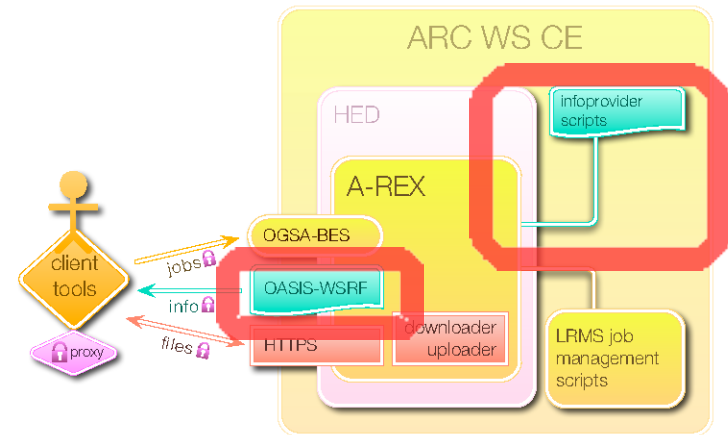
GLUE2 schema LDAP



Local information system(2/2)



(1)



(2)

Two interchangeable sets of scripts

(1) Pre-WS, triggered by bash script.

Does **NOT** generate GLUE2 info.

(2) WS, triggered by A-REX (CE main component)
generates **GLUE2** info.