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GLUE v. 2.0 – Reference Realization to LDAP Schema

Status of This Document

This document provides information to the Grid community regarding the realization of the GLUE information model (v.2.0) as LDAP Schema. Distribution is unlimited. The realizations are derived from the specification document version 42 as available in the GLUE Working Group document repository.

Abstract
The GLUE specification is an information model for Grid entities described in natural language enriched with a graphical representation using UML Class Diagrams. This document presents a realization of this information model as LDAP Schema.

Contents

1. Introduction

The GLUE 2.0 Information model defined in [glue-2] is a conceptual model of Grid entities. In order to be adopted by Grid middlewares, a realization in terms of a concrete data model is needed.

This document provides the normative realization of the GLUE 2.0 conceptual model in terms of an XML Schema. The approach followed to map the entities and relationships in the conceptual model to the concrete data model are also described.

2. Notational Conventions

The key words 'MUST," "MUST NOT," "REQUIRED," "SHALL," "SHALL NOT," "SHOULD," "SHOULD NOT," "RECOMMENDED," "MAY," and "OPTIONAL" are to be interpreted as described in RFC 2119 (see http://www.ietf.org/rfc/rfc2119.txt).

3. LDAP Schema Realization

3.1 Approach

The GLUE LDAP rendering maps an entity in the GLUE information model to a specific LDAP entry which utilizes a single objectclass. As a result there is one to one correspondence between GLUE LDAP entries and GLUE objectclasses. The GLUE LDAP rendering makes use of the Glue namespace, the objectclass and attribute names starts with the Glue prefix.

3.1.1 OID Assignement

The GLUE LDAP rendering utilizes the sub tree of 1.3.6.1.4.1.6757 which is assigned to the Global Grid Forum. An overview of the main use of the sub tree is given in tables 1, 2 and 3 representing the main entities, computing entities and storage entities respectively.

OID	Entity
1.3.6.1.4.1.6757.100.1.1.1	GlueDomain
1.3.6.1.4.1.6757.100.1.1.2	GlueLocation
1.3.6.1.4.1.6757.100.1.1.3	GlueContact
1.3.6.1.4.1.6757.100.1.1.4	GlueAdminDomain
1.3.6.1.4.1.6757.100.1.1.5	GlueUserDomain
1.3.6.1.4.1.6757.100.1.1.6	GlueService
1.3.6.1.4.1.6757.100.1.1.7	GlueServiceEndpoint

Table 1 Main Entities

OID	Entity
1.3.6.1.4.1.6757.100.1.1.20	GlueComputingService
1.3.6.1.4.1.6757.100.1.1.21	GlueComputingEndpoint
1.3.6.1.4.1.6757.100.1.1.22	GlueComputingShare
1.3.6.1.4.1.6757.100.1.1.23	GlueComputingManager
1.3.6.1.4.1.6757.100.1.1.24	GlueComputingBenchmark
1.3.6.1.4.1.6757.100.1.1.25	GlueComputingExecutionEnvironment
1.3.6.1.4.1.6757.100.1.1.26	GlueComputingApplicationEnvironment

1.3.6.1.4.1.6757.100.1.1.27	GlueComputingApplicationHandle
1.3.6.1.4.1.6757.100.1.1.28	GlueComputingActivity
1.3.6.1.4.1.6757.100.1.1.29	ComputingService2StorageService

Table 2 Computing Service

OID	Entity
1.3.6.1.4.1.6757.100.1.1.30	GlueStorageServiceCapacity
1.3.6.1.4.1.6757.100.1.1.31	GlueStorageServiceAccessProtocol
1.3.6.1.4.1.6757.100.1.1.32	GlueStorageShare
1.3.6.1.4.1.6757.100.1.1.33	GlueStorageShareCapacity
1.3.6.1.4.1.6757.100.1.1.34	GlueStorageManager
1.3.6.1.4.1.6757.100.1.1.35	GlueStorageResource
1.3.6.1.4.1.6757.100.1.1.36	GlueStorage2Computing

Table 3 Storage Service

3.1.2 Directory Information Tree Definition

The LDAP DN is constructed following the hierarchical relationships that exist between entities in the Glue information model. The resulting DIT is shown in figure 1 and SHOULD be used as a guide when constructing the DN. The top of the DN is the abstract object o=top. Below this there MAY be any number of domain entities which represent the hierarchical nature of the domains in the grid environment. For example a computing center C, participating in a national grid infrastructure N, which is part of a wider international infrastructure I SHOULD constructed the following DN.

dn: GlueDomainID=C, GlueDomainID=N, GlueDomainID=I, o=top

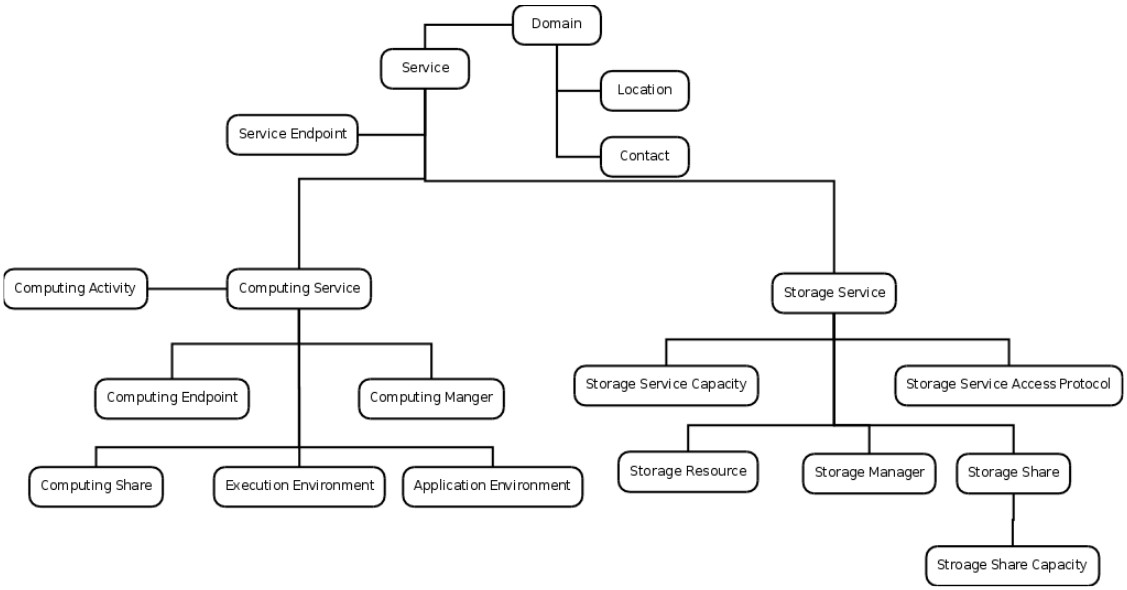

Figure 1. The GLUE LDAP DIT

3.2 The Normative LDAP Schema Realization of GLUE 2.0

```
#   Start GlueDomain

attributetype ( 1.3.6.1.4.1.6757.100.1.1.1.2.1
        NAME 'GlueDomainUniqueID'
        DESC 'A global unique ID'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.1.2.2
        NAME 'GlueDomainName'
        DESC 'Human-readable name'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.1.2.3
        NAME 'GlueDomainDescription'
        DESC 'A description of the domain'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.1.2.4
        NAME 'GlueDomainWWW'
        DESC 'The URL identifying a web page with more information about the domain'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.1.2.5
        NAME 'GlueDomainOtherInfo'
        DESC 'Placeholder to publish info that does not fit in any other attribute. Free-form string,
comma-separated tags, (name, value ) pair are example of syntax'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

objectclass ( 1.3.6.1.4.1.6757.100.1.1.1
        NAME 'GlueDomain'
        DESC 'A collection of actors that can be assigned with roles and privileges to entities via
policies. A domain may have relationships to other domains.'
        STRUCTURAL
        MUST GlueDomainUniqueID
        MAY ( GlueDomainDescription $ GlueDomainName $ GlueDomainOtherInfo $ GlueDomainWWW )
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.2.2.1
        NAME 'GlueLocationLocalID'
        DESC 'An opaque identifier local to the associated Service or Domain'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.2.2.2
        NAME 'GlueLocationName'
        DESC 'A human-readable name '
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )
```

```
attributetype ( 1.3.6.1.4.1.6757.100.1.1.2.2.3
        NAME 'GlueLocationAddress'
        DESC 'Street address'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.2.2.4
        NAME 'GlueLocationPlace'
        DESC 'Name of town/city'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.2.2.5
        NAME 'GlueLocationCountry'
        DESC 'Country name'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.2.2.6
        NAME 'GlueLocationPostCode'
        DESC 'Postal code'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.2.2.7
        NAME 'GlueLocationLatitude'
        DESC 'The position of a place north or south of the equator measured from -90Â° to +90Â° with
positive values going north and negative values going south'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.2.2.8
        NAME 'GlueLocationLongitude'
        DESC 'The position of a place east or west of Greenwich, England measured from -180Â° to
+180Â° with positive values going east and negative values going west'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.3.2.1
        NAME 'GlueContactLocalID'
        DESC 'An opaque identifier local to the associated Service or Domain'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.3.2.2
        NAME 'GlueContactURL'
        DESC 'URL embedding the contact information. The syntax of URI depends on the communication
channel'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.3.2.3
        NAME 'GlueContactType'
        DESC 'Type of contact'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
```

```
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.3.2.4
        NAME 'GlueContactOtherInfo'
        DESC 'Placeholder to publish info that does not fit in any other attribute. Free-form string,
comma-separated tags, (name, value ) pair are example of syntax'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.4.2.1
        NAME 'GlueAdminDomainDistributed'
        DESC 'True if the services managed by the admindomain are considered geographically
distributed by the administrators themselves.'
        EQUALITY booleanMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.7
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.4.2.2
        NAME 'GlueAdminDomainOwner'
        DESC 'Owner of the managed resources'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.5.2.1
        NAME 'GlueUserDomainLevel'
        DESC 'The number of hops to reach the root for hierarchically organized domains described by
the composed by association (0 is for the root).'
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.5.2.2
        NAME 'GlueUserDomainManagerEndpoint'
        DESC 'The Endpoint ID managing the users part of the domain and the related attributes such as
groups or roles'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

objectclass ( 1.3.6.1.4.1.8005.100
    NAME 'GlueTop'
    DESC 'Base class for the Glue Schema'
    SUP  'Top'
    ABSTRACT )

objectclass ( 1.3.6.1.4.1.6757.100.1.1.2
        NAME 'GlueLocation'
        DESC 'A geographical position'
        STRUCTURAL
        MUST GlueLocationLocalID
        MAY ( GlueLocationAddress $ GlueLocationCountry $ GlueLocationLongitude $ GlueLocationPostCode
$ GlueLocationName $ GlueLocationPlace $ GlueLocationLatitude )
 )

objectclass ( 1.3.6.1.4.1.6757.100.1.1.3
        NAME 'GlueContact'
        DESC 'Information enabling to establish a  communication with a person or group of persons
part of a domain'
        STRUCTURAL
        MUST GlueContactLocalID
        MAY ( GlueContactOtherInfo $ GlueContactType $ GlueContactURL )
 )

objectclass ( 1.3.6.1.4.1.6757.100.1.1.4
        NAME 'GlueAdminDomain'
        DESC 'A collection of actors that can be assigned with administrative roles and privileges to
services via policies. An AdminDomain manages services that can be geographically distributed,
nevertheless a primary location should be identified.'
        STRUCTURAL
        MUST GlueDomainUniqueID
```

```
        MAY ( GlueLocationPostcode $ GlueAdminDomainDistributed $ GlueAdminDomainOwner $
GlueDomainDescription $ GlueDomainName $ GlueDomainOtherInfo $ GlueDomainWWW )
 )


objectclass ( 1.3.6.1.4.1.6757.100.1.1.5
        NAME 'GlueUserDomain'
        DESC 'A collection of actors that can be assigned with user roles and privileges to services
or shares via policies'
        STRUCTURAL
        MUST GlueDomainUniqueID
        MAY ( GlueUserDomainLevel $ GlueUserDomainManagerEndpoint $ GlueDomainDescription $
GlueDomainOtherInfo $ GlueDomainName $ GlueDomainWWW )
 )


# Start Glue Service Attributes

attributetype ( 1.3.6.1.4.1.6757.100.1.1.6.2.1
        NAME 'GlueServiceUniqueID'
        DESC 'A global unique ID'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.6.2.2
        NAME 'GlueServiceName'
        DESC 'Human-readable name'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.6.2.3
        NAME 'GlueServiceCapability'
        DESC 'The provided capability according to the OGSA architecture (it is given by the sum of
all the capabilities provided by the related endpoints)'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.6.2.4
        NAME 'GlueServiceType'
        DESC 'The type of service according to a middleware classification'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.6.2.5
        NAME 'GlueServiceQualityLevel'
        DESC 'Maturity of the service in terms of quality of the software components'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.6.2.6
        NAME 'GlueServiceStatusPage'
        DESC 'Web page providing additional information like monitoring aspects'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.6.2.7
        NAME 'GlueServiceComplexity'
        DESC 'Human-readable summary description of the complexity in terms of the number of endpoint
types, shares and resources. The syntax should be: endpointType=X, share=Y, resource=Z.'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
```

```
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.6.2.8
        NAME 'GlueServiceOtherInfo'
        DESC 'Placeholder to publish info that does not fit in any other attribute. Free-form string,
comma-separated tags, (name, value ) pair are example of syntax'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )


objectclass ( 1.3.6.1.4.1.6757.100.1.1.6
        NAME 'GlueService'
        DESC 'An abstracted, logical view of actual software components that participate in the
creation of an entity providing one or more functionalities useful in a Grid environment. A service
exposes zero or more endpoints having well-defined interfaces, zero or more shares and zero or more
managers and the related resources. The service is autonomous and denotes a weak aggregation among
endpoints, the underlying managers and the related resources, and the defined shares. The service
enables to identify the whole set of entities providing the functionality with a persistent name.'
        STRUCTURAL
        MUST GlueServiceUniqueID
        MAY ( GlueServiceName $ GlueServiceCapability $ GlueServiceType $ GlueServiceQualityLevel $
GlueServiceStatusPage $ GlueServiceComplexity $ GlueServiceOtherInfo )
 )

# Start of Endpoint

attributetype ( 1.3.6.1.4.1.6757.100.1.1.7.2.1
        NAME 'GlueServiceEndpointUniqueID'
        DESC 'A global unique ID'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.7.2.2
        NAME 'GlueServiceEndpointName'
        DESC 'Human-readable name'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.7.2.3
        NAME 'GlueServiceEndpointURI'
        DESC 'Network location of the endpoint to contact the related service'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.7.2.4
        NAME 'GlueServiceEndpointCapability'
        DESC 'The provided capability according to the OGSA architecture'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.7.2.5
        NAME 'GlueServiceEndpointTechnology'
        DESC 'Technology used to implement the endpoint'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.7.2.6
        NAME 'GlueServiceEndpointInterface'
        DESC 'Identification of a type and version of the interface'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
```

```
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.7.2.7
        NAME 'GlueServiceEndpointInterfaceExtension'
        DESC 'Identification of an extension to the interface'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.7.2.8
        NAME 'GlueServiceEndpointWSDL'
        DESC 'URL of the WSDL document describing the offered interface (applies to Web Services
endpoint)'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.7.2.9
        NAME 'GlueServiceEndpointSupportedProfile'
        DESC 'URI identifying a supported profile'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.7.2.10
        NAME 'GlueServiceEndpointSemantics'
        DESC 'URI of a document providing a human-readable description of the semantics of the
endpoint functionalities'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.7.2.11
        NAME 'GlueServiceEndpointImplementor'
        DESC 'Main organization implementing this software component'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.7.2.12
        NAME 'GlueServiceEndpointImplementationName'
        DESC 'Name of the implementation'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.7.2.13
        NAME 'GlueServiceEndpointImplementationVersion'
        DESC 'Version of the implementation (e.g., major version.minor version.patch version)'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.7.2.14
        NAME 'GlueServiceEndpointQualityLevel'
        DESC 'Maturity of the endpoint in terms of quality of the software components'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.7.2.15
        NAME 'GlueServiceEndpointHealthState'
        DESC 'A state representing the health of the endpoint in terms of its capability of properly
delivering the functionalities'
        EQUALITY caseIgnoreIA5Match
```

```
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.7.2.16
        NAME 'GlueServiceEndpointHealthStateInfo'
        DESC 'Textual explanation of the state endpoint'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.7.2.17
        NAME 'GlueServiceEndpointServingState'
        DESC 'A state specifying if the endpoint is accepting new requests and if it is serving the
already accepted requests '
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.7.2.18
        NAME 'GlueServiceEndpointStartTime'
        DESC 'The timestamp for the start time of the endpoint'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.7.2.19
        NAME 'GlueServiceEndpointIssuerCA'
        DESC 'Distinguished name of Certification Authority issuing the certificate for the endpoint'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )


attributetype ( 1.3.6.1.4.1.6757.100.1.1.7.2.20
        NAME 'GlueServiceEndpointTrustedCA'
        DESC 'Distinguished name of the trusted Certification Authority'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.7.2.21
        NAME 'GlueServiceEndpointDowntimeAnnounce'
        DESC 'The timestamp for the announcement of the next scheduled downtime'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.7.2.22
        NAME 'GlueServiceEndpointDowntimeStart'
        DESC 'The starting timestamp of the next scheduled downtime'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.7.2.23
        NAME 'GlueServiceEndpointDowntimeEnd'
        DESC 'The ending timestamp of the next scheduled downtime'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.7.2.24
        NAME 'GlueServiceEndpointDowntimeInfo'
```

```
        DESC 'Description of the next scheduled downtime'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

objectclass ( 1.3.6.1.4.1.6757.100.1.1.7
        NAME 'GlueServiceEndpoint'
        DESC 'A network location having a well-defined interface and exposing the service
functionalities'
        STRUCTURAL
        MUST GlueServiceEndpointUniqueID
        MAY ( GlueServiceEndpointName $ GlueServiceEndpointURI $ GlueServiceEndpointCapability $
GlueServiceEndpointTechnology $ GlueServiceEndpointInterface $ GlueServiceEndpointInterfaceExtension $
GlueServiceEndpointWSDL $ GlueServiceEndpointSupportedProfile $ GlueServiceEndpointSemantics $
GlueServiceEndpointImplementor $ GlueServiceEndpointImplementationName $
GlueServiceEndpointImplementationVersion $ GlueServiceEndpointQualityLevel $
GlueServiceEndpointHealthState $ GlueServiceEndpointHealthStateInfo $ GlueServiceEndpointServingState
$ GlueServiceEndpointStartTime $ GlueServiceEndpointIssuerCA $ GlueServiceEndpointTrustedCA $
GlueServiceEndpointDowntimeAnnounce $ GlueServiceEndpointDowntimeStart $
GlueServiceEndpointDowntimeEnd $ GlueServiceEndpointDowntimeInfo )
 )


# Start Share

attributetype ( 1.3.6.1.4.1.6757.100.1.1.8.2.1
        NAME 'GlueShareLocalID'
        DESC 'An opaque identifier local to the associated Service'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.8.2.2
        NAME 'GlueShareName'
        DESC 'Human-readable name'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.8.2.3
        NAME 'GlueShareDescription'
        DESC 'Description of this share'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

# Start Manager

attributetype ( 1.3.6.1.4.1.6757.100.1.1.9.2.1
        NAME 'GlueManagerUniqueID'
        DESC 'A global unique ID'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.9.2.2
        NAME 'GlueManagerName'
        DESC 'Human-readable name'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

#Start Resource

attributetype ( 1.3.6.1.4.1.6757.100.1.1.10.2.1
        NAME 'GlueResourceUniqueID'
        DESC 'A global unique ID'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
```

```
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.10.2.2
        NAME 'GlueResourceName'
        DESC 'Human-readable name'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

# Start Activity

attributetype ( 1.3.6.1.4.1.6757.100.1.1.11.2.1
        NAME 'GlueActivityUniqueID'
        DESC 'A global unique ID'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

# Start Policy

attributetype ( 1.3.6.1.4.1.6757.100.1.1.12.2.1
        NAME 'GluePolicyLocalID'
        DESC 'An opaque identifier local to the associated Service'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.12.2.2
        NAME 'GluePolicyScheme'
        DESC 'Scheme adopted to define the policy rules'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.12.2.3
        NAME 'GluePolicyRule'
        DESC 'A policy rule (for the basic policy scheme, syntax is provide in the Appendix)'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.20.2.1
        NAME 'GlueComputingServiceTotalJobs'
        DESC 'Number of total jobs'
           EQUALITY    integerMatch
           ORDERING    integerOrderingMatch
           SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.20.2.2
        NAME 'GlueComputingServiceRunningJobs'
        DESC 'Number of running jobs'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.20.2.3
        NAME 'GlueComputingServiceWaitingJobs'
        DESC 'Number of jobs waiting in the underlying computing managers (i.e., Local Resource
Manager System or LRMS's) '
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )
```

```
attributetype ( 1.3.6.1.4.1.6757.100.1.1.20.2.4
        NAME 'GlueComputingServiceatStagingJobs'
        DESC 'Number of jobs that are staging files in/out'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.20.2.5
        NAME 'GlueComputingServiceSuspendedJobs'
        DESC 'Number of jobs which started their execution, but are suspended (e.g., for preemption)'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.20.2.6
        NAME 'GlueComputingServicePreLRMSWaitingJobs'
        DESC 'Number of jobs that are in the Grid layer waiting to be passed to the underlying
computing manager (i.e., LRMS)'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

objectclass ( 1.3.6.1.4.1.6757.100.1.1.20
        NAME 'GlueComputingService'
        DESC 'The computing service is autonomous and denotes a weak aggregation among computing
endpoints, the underlying computing managers and related execution environments, and the defined
computing shares. The computing service enables to identify the whole set of entities providing the
computing functionality with a persistent name.'
        STRUCTURAL
        MUST GlueServiceUniqueID
        MAY ( GlueComputingServiceTotalJobs $ GlueComputingServiceRunningJobs $
GlueComputingServiceWaitingJobs $ GlueComputingServiceatStagingJobs $
GlueComputingServiceSuspendedJobs $ GlueComputingServicePreLRMSWaitingJobs )
 )

# Start GlueComputingEndpoint

attributetype ( 1.3.6.1.4.1.6757.100.1.1.21.2.1
        NAME 'GlueComputingEndpointStaging'
        DESC 'Supported staging functionalities'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.21.2.2
        NAME 'GlueComputingEndpointJobDescription'
        DESC 'Supported type of job description language'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

objectclass ( 1.3.6.1.4.1.6757.100.1.1.21
        NAME 'GlueComputingEndpoint'
        DESC 'Endpoint for creating, monitoring, and controlling computational activities called jobs;
it can be used to expose also complementary capabilities (e.g., reservation, proxy manipulation)'
        STRUCTURAL
        MUST GlueServiceEndpointUniqueID
        MAY ( GlueComputingEndpointStaging $ GlueComputingEndpointJobDescription )
 )

# Start GlueComputingShare

attributetype ( 1.3.6.1.4.1.6757.100.1.1.22.2.1
        NAME 'GlueComputingShareMappingQueue'
        DESC 'Name of a queue available in the underlying computing manager (i.e., LRMS) where jobs of
this share are submitted (different shares can be mapped into the same queue; it is not foreseen that
a single share can be mapped into many different queues)'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
```

```
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.22.2.2
        NAME 'GlueComputingShareMaxWallTime'
        DESC 'The maximum obtainable wall clock time per slot that can be granted to the job upon user
request (unnormalized value)'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.22.2.3
        NAME 'GlueComputingShareMaxTotalWallTime'
        DESC 'The maximum obtainable total wall clock time that can be granted to the job upon user
request; this property is a limit for the sum of the wall clock time used in all the slots occupied by
a multi-slot job (unnormalized value)'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.22.2.4
        NAME 'GlueComputingShareMinWallTime'
           DESC 'The minimum wall clock time per slot for a job (unnormalized value); if a job
requests a lower time, than it can be rejected; if a job requests at least this value, but runs for a
shorter time, than it might be accounted for this value'
           EQUALITY    integerMatch
           ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.22.2.5
        NAME 'GlueComputingShareDefaultWallTime'
        DESC 'The default wall clock time per slot allowed to a job by the computing manager (i.e.,
LRMS) if no limit is requested in the job submission description. Once this time is expired the job
will most likely be killed or removed from the queue (unnormalized value)'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.22.2.6
        NAME 'GlueComputingShareMaxCPUTime'
        DESC 'The maximum obtainable CPU time that can be granted to the job upon user request per
slot (unnormalized value)'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.22.2.7
        NAME 'GlueComputingShareMaxTotalCPUTime'
        DESC 'The maximum obtainable CPU time that can be granted to the job upon user request across
all assigned slots; this property is a limit for the sum of the CPU time used in all the slots
occupied by a multi-slot job (unnormalized value)'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.22.2.8
        NAME 'GlueComputingShareMinCPUTime'
        DESC 'The minimum CPU time per slot for a job (unnormalized value); if a job requests a lower
time, than it can be rejected; if a job requests at least this value, but uses the CPU for a shorter
time, than it might be accounted for this value'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.22.2.9
        NAME 'GlueComputingShareDefaultCPUTime'
        DESC 'The default CPU time per slot allowed to each job by the computing manager (i.e., LRMS )
if no limit is requested in the job submission description (unnormalized value)'
```

```
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.22.2.10
        NAME 'GlueComputingShareMaxTotalJobs'
        DESC 'The maximum allowed number of jobs in this share'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.22.2.11
        NAME 'GlueComputingShareMaxRunningJobs'
        DESC 'The maximum allowed number of jobs in running state in this share'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.22.2.12
        NAME 'GlueComputingShareMaxWaitingJobs'
        DESC 'The maximum allowed number of jobs in waiting state in this share'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.22.2.13
        NAME 'GlueComputingShareMaxPreLRMSWaitingJobs'
        DESC 'The maximum allowed number of jobs that are in the Grid layer waiting to be passed to
the underlying computing manager (i.e., LRMS) for this share'        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.22.2.14
        NAME 'GlueComputingShareMaxUserRunningJobs'
        DESC 'The maximum allowed number of jobs in running state per Grid user in this share'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.22.2.15
        NAME 'GlueComputingShareMaxSlotsPerJob'
        DESC 'The maximum number of slots which could be allocated to a single job (defined to be 1
for a computing service accepting only single-slot jobs)'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.22.2.16
        NAME 'GlueComputingShareMaxStageInStreams'
        DESC 'The maximum number of streams to stage files in'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.22.2.17
        NAME 'GlueComputingShareMaxStageOutStreams'
        DESC 'The maximum number of streams to stage files out'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.22.2.18
        NAME 'GlueComputingShareSchedulingPolicy'
```

```
        DESC 'Implied scheduling policy of the share'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.22.2.19
        NAME 'GlueComputingShareMaxMemory'
        DESC 'The maximum RAM that a job can use'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.22.2.20
        NAME 'GlueComputingShareMaxDiskSpace'
        DESC 'The maximum disk space that a job can use excluding shared area such as cache'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.22.2.21
        NAME 'GlueComputingShareDefaultStorageService'
        DESC 'ID of the default Storage Service to be used to store files by jobs in case no
destination Storage Service is explicitly stated'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.22.2.22
        NAME 'GlueComputingSharePreemption'
        DESC 'True if the computing manager (i.e., LRMS) enables preemption of jobs; a preempted job
is supposed to be automatically resumed'
           EQUALITY    booleanMatch
           SYNTAX      1.3.6.1.4.1.1466.115.121.1.7
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.22.2.23
        NAME 'GlueComputingShareServingState'
        DESC 'A state specifying if the share is open to place new requests and if it is open to offer
the already present requests for execution'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.22.2.24
        NAME 'GlueComputingShareTotalJobs'
        DESC 'Number of total jobs in any state'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.22.2.25
        NAME 'GlueComputingShareRunningJobs'
        DESC 'Number of running jobs submitted via any type of interface (local and Grid)'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.22.2.26
        NAME 'GlueComputingShareLocalRunningJobs'
        DESC 'Number of running jobs submitted via a local interface'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )
```

```
attributetype ( 1.3.6.1.4.1.6757.100.1.1.22.2.27
        NAME 'GlueComputingShareWaitingJobs'
        DESC 'Number of jobs waiting in the underlying computing managers (i.e., LRMS's) submitted via
any type of interface (local and Grid)'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.22.2.28
        NAME 'GlueComputingShareLocalWaitingJobs'
        DESC 'Number of jobs waiting in the underlying computing managers (i.e., LRMS's) submitted via
a local interface'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.22.2.29
        NAME 'GlueComputingShareStagingJobs'
        DESC 'Number of jobs that are staging files in/out'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.22.2.30
        NAME 'GlueComputingShareSuspendedJobs'
        DESC 'Number of jobs which started their execution, but are suspended (e.g., for preemption)'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.22.2.31
        NAME 'GlueComputingSharePreLRMSWaitingJobs'
        DESC 'Number of jobs that are in the Grid layer waiting to be passed to the underlying
computing manager (i.e., LRMS)'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.22.2.32
        NAME 'GlueComputingShareEstimatedAverageWaitingTime'
        DESC 'Estimated time to last for a new job from the acceptance to the start of its execution'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.22.2.33
        NAME 'GlueComputingShareEstimatedWorstWaitingTime'
        DESC 'Estimated worst waiting time assuming that all jobs run for the maximum wall time'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.22.2.34
        NAME 'GlueComputingShareFreeSlots'
        DESC 'Number of free slots'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.22.2.35
        NAME 'GlueComputingShareFreeSlotsWithDuration'
        DESC 'Number of free slots with their time limits. Syntax: ns[:t] [ns:t]* where the pair ns:t
means that there are ns free slots for the duration of t (expressed in seconds); the time limit
information is optional'
        EQUALITY caseIgnoreIA5Match
```

```
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.22.2.36
        NAME 'GlueComputingShareUsedSlots'
        DESC 'Number of slots used by running jobs'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.22.2.37
        NAME 'GlueComputingShareRequestedSlots'
        DESC 'Number of slots which are needed to execute all waiting and staging jobs'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.22.2.38
        NAME 'GlueComputingShareReservationPolicy'
        DESC 'Type of reservation policy'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.22.2.39
        NAME 'GlueComputingShareTag'
        DESC 'UserDomain-defined tag (the values SHOULD use namespace to avoid collision)'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

objectclass ( 1.3.6.1.4.1.6757.100.1.1.22
        NAME 'GlueComputingShare'
        DESC 'A utilization target for a set of execution environments defined by a set of
configuration parameters and characterized by status information'
        STRUCTURAL
        MUST GlueShareLocalID
        MAY ( GlueComputingShareMappingQueue $GlueComputingShareMaxWallTime $
GlueComputingShareMaxTotalWallTime $ GlueComputingShareMinWallTime $ GlueComputingShareDefaultWallTime
$ GlueComputingShareMaxCPUTime $ GlueComputingShareMaxTotalCPUTime $ GlueComputingShareMinCPUTime $
GlueComputingShareDefaultCPUTime $ GlueComputingShareMaxTotalJobs $ GlueComputingShareMaxRunningJobs $
GlueComputingShareMaxWaitingJobs $ GlueComputingShareMaxPreLRMSWaitingJobs $
GlueComputingShareMaxUserRunningJobs $ GlueComputingShareMaxSlotsPerJob $
GlueComputingShareMaxStageInStreams $ GlueComputingShareMaxStageOutStreams $
GlueComputingShareSchedulingPolicy $ GlueComputingShareMaxMemory $ GlueComputingShareMaxDiskSpace $
GlueComputingShareDefaultStorageService $ GlueComputingSharePreemption $
GlueComputingShareServingState $ GlueComputingShareTotalJobs $ GlueComputingShareRunningJobs $
GlueComputingShareLocalRunningJobs $ GlueComputingShareWaitingJobs $
GlueComputingShareLocalWaitingJobs $ GlueComputingShareStagingJobs $ GlueComputingShareSuspendedJobs $
GlueComputingSharePreLRMSWaitingJobs $ GlueComputingShareEstimatedAverageWaitingTime $
GlueComputingShareEstimatedWorstWaitingTime $ GlueComputingShareFreeSlots $
GlueComputingShareFreeSlotsWithDuration $ GlueComputingShareUsedSlots $
GlueComputingShareRequestedSlots $ GlueComputingShareReservationPolicy $GlueComputingShareTag )
 )


# Start ComputingManager

attributetype ( 1.3.6.1.4.1.6757.100.1.1.23.2.1
        NAME 'GlueComputingManagerType'
        DESC 'Type of the computing manager (i.e., LRMS)'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.23.2.2
        NAME 'GlueComputingManagerVersion'
        DESC 'Version of the computing manager (i.e., LRMS)'
        EQUALITY caseIgnoreIA5Match
```

```
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.23.2.3
        NAME 'GlueComputingManagerReservation'
        DESC 'True if the computing manager (i.e, LRMS) supports advance reservation'
        EQUALITY    booleanMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.7
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.23.2.4
        NAME 'GlueComputingManagerBulkSubmission'
        DESC 'True if the computing manager (i.e, LRMS) supports the bulk submission'
        EQUALITY    booleanMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.7
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.23.2.5
        NAME 'GlueComputingManagerTotalPhysicalCPUs'
        DESC 'Number of managed physical CPUs accessible via any of the available endpoints (there is
one physical CPU per socket)'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.23.2.6
        NAME 'GlueComputingManagerTotalLogicalCPUs'
        DESC 'Number of managed logical CPUs accessible via any of the available endpoints (a logical
CPU corresponds to a CPU visible to the operating system)'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.23.2.7
        NAME 'GlueComputingManagerTotalSlots'
        DESC 'Number of managed slots'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.23.2.8
        NAME 'GlueComputingManagerSlotsUsedByLocalJobs'
        DESC 'Number of slots used by jobs submitted via local interface'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.23.2.9
        NAME 'GlueComputingManagerSlotsUsedByGridJobs'
        DESC 'Number of slots used by jobs submitted via a Grid interface'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.23.2.10
        NAME 'GlueComputingManagerHomogeneity'
        DESC 'True if the computing manager has only one type of execution environment'
        EQUALITY    booleanMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.7
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.23.2.11
        NAME 'GlueComputingManagerNetworkInfo'
        DESC 'Type of internal network available among all the managed execution environment
instances'
        EQUALITY caseIgnoreIA5Match
```

```
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.23.2.12
        NAME 'GlueComputingManagerLogicalCPUDistribution'
        DESC 'Syntax: X1:Y1, …, Xn:Yn where Xi is the number of logical CPUs and Yi is the number of
boxes for the execution environment i'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.23.2.13
        NAME 'GlueComputingManagerWorkingAreaShared'
        DESC 'A working area is an allocated storage extent that holds the home directories of the
Grid jobs; this property is true if the working area is shared across different execution environment
instances (i.e., cluster nodes)'
        EQUALITY    booleanMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.7
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.23.2.14
        NAME 'GlueComputingManagerWorkingAreaTotal'
        DESC 'Total size of working area available to all the Grid jobs either as a shared area across
all the execution environments (WorkingAreaShared is true) or local to a certain execution environment
(WorkingAreaShared is false); even if individual quota per job is enforced, this is not advertised'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.23.2.15
        NAME 'GlueComputingManagerWorkingAreaFree'
        DESC 'Free size of working area available to all the Grid jobs either as a shared area across
all the execution environments (WorkingAreaShared is true) or local to a certain execution environment
(WorkingAreaShared is false); (even if individual quota per job is enforced, this is not advertised)'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.23.2.16
        NAME 'GlueComputingManagerWorkingAreaLifeTime'
        DESC 'Lifetime of the Grid job files present in the working area; the lifetime is related to
the end time of the job'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.23.2.17
        NAME 'GlueComputingManagerCacheTotal'
        DESC 'Total size of a temporary storage area where frequently accessed data can be stored for
rapid access by consequent Grid jobs'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.23.2.18
        NAME 'GlueComputingManagerCacheFree'
        DESC 'Free size of a temporary storage area where frequently accessed data can be stored for
rapid access by consequent Grid jobs; in the computation of the free size, files which are not claimed
by any job can be considered as deleted'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.23.2.19
        NAME 'GlueComputingManagerTmpDir'
```

```
        DESC 'The absolute path of a temporary directory local to an execution environment instance
(i.e., worker node). This directory must be available to programs using the normal file access
primitives (open/read/write/close)'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.23.2.20
        NAME 'GlueComputingManagerScratchDir'
        DESC 'The absolute path for a shared directory available for application data. Typically a
POSIX accessible transient disk space shared between the execution environment instances. It may be
used by MPI applications or to store intermediate files that need further processing by local jobs or
as staging area, specially if the execution environment instances have no internet connectivity'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.23.2.21
        NAME 'GlueComputingManagerApplicationDir'
        DESC 'The path of the directory available for application installation.  Typically a PO-SIX
accessible disk space with transient to permanent allocation to the users'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.23.2.22
        NAME 'GlueComputingManagerOtherInfo'
        DESC 'Placeholder to publish info that does not fit in any other attribute. Free-form string,
comma-separated tags, (name, value) pair are example of syntax'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

objectclass ( 1.3.6.1.4.1.6757.100.1.1.23
        NAME 'GlueComputingManager'
        DESC 'A software component locally managing one or more execution environments. It can
describe also aggregated information about the managed resources. The computing manager is also known
as Local Resource Management System (LRMS).'
        STRUCTURAL
        MUST GlueManagerUniqueID
           MAY (GlueComputingManagerType $ GlueComputingManagerVersion $
GlueComputingManagerReservation $ GlueComputingManagerBulkSubmission $
GlueComputingManagerTotalPhysicalCPUs $ GlueComputingManagerTotalLogicalCPUs $
GlueComputingManagerTotalSlots $ GlueComputingManagerSlotsUsedByLocalJobs $
GlueComputingManagerSlotsUsedByGridJobs $ GlueComputingManagerHomogeneity $
GlueComputingManagerNetworkInfo $ GlueComputingManagerLogicalCPUDistribution $
GlueComputingManagerWorkingAreaShared $ GlueComputingManagerWorkingAreaTotal $
GlueComputingManagerWorkingAreaFree $ GlueComputingManagerWorkingAreaLifeTime $
GlueComputingManagerCacheTotal $ GlueComputingManagerCacheFree $ GlueComputingManagerTmpDir $
GlueComputingManagerScratchDir $ GlueComputingManagerApplicationDir $ GlueComputingManagerOtherInfo )
 )


# Start Benchmark

attributetype ( 1.3.6.1.4.1.6757.100.1.1.24.2.1
        NAME 'GlueComputingBenchmarkLocalID'
        DESC 'An opaque identifier local to the Computing Service'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.24.2.2
        NAME 'GlueComputingBenchmarkType'
        DESC 'Type of benchmark'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )
```

```
attributetype ( 1.3.6.1.4.1.6757.100.1.1.24.2.3
        NAME 'GlueComputingBenchmarkValue'
        DESC 'Value'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

objectclass ( 1.3.6.1.4.1.6757.100.1.1.24
        NAME 'GlueComputingBenchmark'
        DESC 'Benchmark information about an entity providing computing capacity'
        STRUCTURAL
        MUST GlueComputingBenchmarkLocalID
           MAY ( GlueComputingBenchmarkType $ GlueComputingBenchmarkValue )
 )

# Start ExecutionEnvironment

attributetype ( 1.3.6.1.4.1.6757.100.1.1.25.2.1
        NAME 'GlueComputingExecutionEnvironmentLocalID'
        DESC 'An opaque identifier local to the Computing Service'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.25.2.2
        NAME 'GlueComputingExecutionEnvironmentPlatform'
        DESC 'The architecture platform of this execution environment'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.25.2.3
        NAME 'GlueComputingExecutionEnvironmentVirtualMachine'
        DESC 'True if the execution environment is based on a virtual machine (in this case, the
values of the other attributes are related to the virtualized environment and not to the hosting
environment)'
        EQUALITY    booleanMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.7
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.25.2.4
        NAME 'GlueComputingExecutionEnvironmentTotalInstances'
        DESC 'Number of execution environment instances'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.25.2.5
        NAME 'GlueComputingExecutionEnvironmentUsedInstances'
        DESC 'Number of used execution environment instances; an instance is used when, according to
the policies of the Computing Manager (i.e., LRMS), it cannot accept new jobs because it already runs
the maximum number of allowed jobs'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.25.2.6
        NAME 'GlueComputingExecutionEnvironmentUnavailableInstances'
        DESC 'Number of unavailable execution environment instances because of failures or
maintenance'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.25.2.7
        NAME 'GlueComputingExecutionEnvironmentPhysicalCPUs'
        DESC 'Number of physical CPUs in an execution environment instance'
        EQUALITY    integerMatch
```

```
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.25.2.8
        NAME 'GlueComputingExecutionEnvironmentLogicalCPUs'
        DESC 'Number of logical CPUs in an execution environment instance'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.25.2.9
        NAME 'GlueComputingExecutionEnvironmentCPUMultiplicity'
        DESC 'Information about the multiplicity of both physical CPUs and cores available in an
execution environment instance'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.25.2.10
        NAME 'GlueComputingExecutionEnvironmentCPUVendor'
        DESC 'Name of the physical CPU vendor'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.25.2.11
        NAME 'GlueComputingExecutionEnvironmentCPUModel'
        DESC 'Physical CPU model as defined by the vendor'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.25.2.12
        NAME 'GlueComputingExecutionEnvironmentCPUVersion'
        DESC 'Physical CPU version as defined by the vendor'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.25.2.13
        NAME 'GlueComputingExecutionEnvironmentCPUClockSpeed'
        DESC 'Nominal clock speed of the physical CPU'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.25.2.14
        NAME 'GlueComputingExecutionEnvironmentCPUTimeScalingFactor'
        DESC 'Factor used by the Computing Manager (i.e., LRMS) to scale the CPU time (CPU Time
divided by CPUTimeScalingFactor); for the reference execution environment, this attribute is equal to
1'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.25.2.15
        NAME 'GlueComputingExecutionEnvironmentWallTimeScalingFactor'
        DESC 'Factor used by the Computing Manager (i.e., LRMS) to scale the Wall time (Wall Time
divided by WallTimeScalingFactor)'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )
```

```
attributetype ( 1.3.6.1.4.1.6757.100.1.1.25.2.16
        NAME 'GlueComputingExecutionEnvironmentMainMemorySize'
        DESC 'Amount of RAM (if many jobs run in the same execution environment, they compete for the
total RAM)'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.25.2.17
        NAME 'GlueComputingExecutionEnvironmentVirtualMemorySize'
        DESC 'The amount of Virtual Memory (RAM+Swap)'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.25.2.18
        NAME 'GlueComputingExecutionEnvironmentOSFamily'
        DESC 'Family of the operating system'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.25.2.19
        NAME 'GlueComputingExecutionEnvironmentOSName'
        DESC 'Name of the operating system'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.25.2.20
        NAME 'GlueComputingExecutionEnvironmentOSVersion'
        DESC 'Version of the operating system'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.25.2.21
        NAME 'GlueComputingExecutionEnvironmentConnectivityIn'
        DESC 'Permission for direct inbound connectivity, even if limited'
        EQUALITY    booleanMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.7
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.25.2.22
        NAME 'GlueComputingExecutionEnvironmentConnectivityOut'
        DESC 'Permission for direct outbound connectivity, even if limited'
        EQUALITY    booleanMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.7
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.25.2.23
        NAME 'GlueComputingExecutionEnvironmentNetworkInfo'
        DESC 'Type of internal network available among the execution environment instances'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

objectclass ( 1.3.6.1.4.1.6757.100.1.1.25
        NAME 'GlueComputingExecutionEnvironment'
        DESC 'A description of hardware, operating system and network characteristics that defines the
environment available to and requestable by a Grid job when submitted to a Computing Service via a
Computing Endpoint; the description also includes information about the total/available/used instances
of the execution environment'
        STRUCTURAL
        MUST GlueComputingExecutionEnvironmentLocalID
           MAY ( GlueComputingExecutionEnvironmentPlatform $
GlueComputingExecutionEnvironmentVirtualMachine $ GlueComputingExecutionEnvironmentTotalInstances $
```

```
GlueComputingExecutionEnvironmentUsedInstances $ GlueComputingExecutionEnvironmentUnavailableInstances
$ GlueComputingExecutionEnvironmentPhysicalCPUs $ GlueComputingExecutionEnvironmentLogicalCPUs $
GlueComputingExecutionEnvironmentCPUMultiplicity $ GlueComputingExecutionEnvironmentCPUVendor $
GlueComputingExecutionEnvironmentCPUModel $ GlueComputingExecutionEnvironmentCPUVersion $
GlueComputingExecutionEnvironmentCPUClockSpeed $ GlueComputingExecutionEnvironmentCPUTimeScalingFactor
$ GlueComputingExecutionEnvironmentWallTimeScalingFactor $
GlueComputingExecutionEnvironmentMainMemorySize $ GlueComputingExecutionEnvironmentVirtualMemorySize $
GlueComputingExecutionEnvironmentOSFamily $ GlueComputingExecutionEnvironmentOSName $
GlueComputingExecutionEnvironmentOSVersion $ GlueComputingExecutionEnvironmentConnectivityIn $
GlueComputingExecutionEnvironmentConnectivityOut $ GlueComputingExecutionEnvironmentNetworkInfo )
 )

# Start  Application Environment

attributetype ( 1.3.6.1.4.1.6757.100.1.1.26.2.1
        NAME 'GlueComputingApplicationEnvironmentLocalID'
        DESC 'An opaque identifier local to the Computing Service'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.26.2.2
        NAME 'GlueComputingApplicationEnvironmentName'
        DESC 'Name of the application environment'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.26.2.3
        NAME 'GlueComputingApplicationEnvironmentVersion'
        DESC 'Version of the application environment'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.26.2.4
        NAME 'GlueComputingApplicationEnvironmentRepository'
        DESC 'URL of a service which offers a repository and/or a name service for this application
environment'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.26.2.5
        NAME 'GlueComputingApplicationEnvironmentState'
        DESC 'State about the installation'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.26.2.6
        NAME 'GlueComputingApplicationEnvironmentRemovalDate'
        DESC 'Date and time after which the application can be removed'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.26.2.7
        NAME 'GlueComputingApplicationEnvironmentLicense'
        DESC 'The type of license'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.26.2.8
        NAME 'GlueComputingApplicationEnvironmentDescription'
        DESC 'The description of this application environment'
```

```
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.26.2.9
        NAME 'GlueComputingApplicationEnvironmentBestBenchmark'
        DESC 'Type of benchmark which best identify the sensitivity of this application to the
performance aspect'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.26.2.10
        NAME 'GlueComputingApplicationEnvironmentParallelSupport'
        DESC 'The type of supported parallel execution framework'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.26.2.11
        NAME 'GlueComputingApplicationEnvironmentMaxSlots'
        DESC 'Maximum number of slots that can be used to run jobs using the application environment
at the same time'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.26.2.12
        NAME 'GlueComputingApplicationEnvironmentMaxJobs'
        DESC 'Maximum number of jobs that can use the application environment at the same time'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.26.2.13
        NAME 'GlueComputingApplicationEnvironmentMaxUserSeats'
        DESC 'Maximum number of user seats that can use the application environment at the same time'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.26.2.14
        NAME 'GlueComputingApplicationEnvironmentFreeSlots'
        DESC 'Available number slots that can be used to run jobs using the application environment at
the same time'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.26.2.15
        NAME 'GlueComputingApplicationEnvironmentFreeJobs'
        DESC 'Number of new jobs that could start their execution and use the application environment
at the same time'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.26.2.16
        NAME 'GlueComputingApplicationEnvironmentFreeUserSeats'
        DESC 'Free seats for additional users that can use the application environment at the same
time'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
```

```
 )

objectclass ( 1.3.6.1.4.1.6757.100.1.1.26
        NAME 'GlueComputingApplicationEnvironment'
        DESC 'Description of the application software or environment characteristic available within
one or more execution environments'
        STRUCTURAL
        MUST GlueComputingApplicationEnvironmentLocalID
           MAY ( GlueComputingApplicationEnvironmentName $ GlueComputingApplicationEnvironmentVersion
$ GlueComputingApplicationEnvironmentRepository $ GlueComputingApplicationEnvironmentState $
GlueComputingApplicationEnvironmentRemovalDate $ GlueComputingApplicationEnvironmentLicense $
GlueComputingApplicationEnvironmentDescription $ GlueComputingApplicationEnvironmentBestBenchmark $
GlueComputingApplicationEnvironmentParallelSupport $ GlueComputingApplicationEnvironmentMaxSlots $
GlueComputingApplicationEnvironmentMaxJobs $ GlueComputingApplicationEnvironmentMaxUserSeats $
GlueComputingApplicationEnvironmentFreeSlots $ GlueComputingApplicationEnvironmentFreeJobs $
GlueComputingApplicationEnvironmentFreeUserSeats )
 )

# Start Application Handle

attributetype ( 1.3.6.1.4.1.6757.100.1.1.27.2.1
        NAME 'GlueComputingApplicationHandleLocalID'
        DESC 'An opaque identifier local to the Computing Service'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.27.2.2
        NAME 'GlueComputingApplicationHandleType'
        DESC 'Type of handle for an application environment'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.27.2.3
        NAME 'GlueComputingApplicationHandleValue'
        DESC 'Actionable value to trigger the handle method'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

objectclass ( 1.3.6.1.4.1.6757.100.1.1.27
        NAME 'GlueComputingApplicationHandle'
        DESC 'Technique for bootstrapping and/or accessing the application'
        STRUCTURAL
        MUST GlueComputingApplicationHandleLocalID
           MAY ( GlueComputingApplicationHandleType $ GlueComputingApplicationHandleValue )
 )

# Start Computing Activity

attributetype ( 1.3.6.1.4.1.6757.100.1.1.28.2.1
        NAME 'GlueComputingActivityUniqueID'
        DESC 'A global unique ID'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.28.2.2
        NAME 'GlueComputingActivityName'
        DESC 'Human-readable name as specified by the user in the job description document'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.28.2.3
        NAME 'GlueComputingActivityType'
        DESC 'Type of computing activity'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
```

```
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.28.2.4
        NAME 'GlueComputingActivityIDFromEndpoint'
        DESC 'The job ID as assigned by the computing endpoint'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.28.2.5
        NAME 'GlueComputingActivityLocalIDFromManager'
        DESC 'The local ID of the job as assigned by the computing manager (i.e., LRMS)'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.28.2.6
        NAME 'GlueComputingActivityJobDescription'
        DESC 'Job description language used to specify the job request'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.28.2.7
        NAME 'GlueComputingActivityState'
        DESC 'The state of the job according to the Grid state model for jobs'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.28.2.8
        NAME 'GlueComputingActivityRestartState'
        DESC 'The state from which a failed job can restart upon a client request'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.28.2.9
        NAME 'GlueComputingActivityExitCode'
        DESC 'The exit code as returned by the executable of the job'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.28.2.10
        NAME 'GlueComputingActivityComputingManagerExitCode'
        DESC 'The exit code provided by the computing manager (i.e., LRMS)'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.28.2.11
        NAME 'GlueComputingActivityError'
        DESC 'Error messages as provided by the software components involved in the management of the
job'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.28.2.12
        NAME 'GlueComputingActivityWaitingPosition'
        DESC 'For a waiting job in the computing manager (i.e., LRMS), the position of the job in the
queue'
        EQUALITY    integerMatch
```

```
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.28.2.13
        NAME 'GlueComputingActivityUserDomain'
        DESC 'User domain selected by the job owner in the job submission request (an owner can belong
to several user domains, it should decide which one to choose when submitting a job)'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.28.2.14
        NAME 'GlueComputingActivityOwner'
        DESC 'The Grid identity of the job's owner; in case of anonymity is required, the value
CONFIDENTIAL should be advertised'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.28.2.15
        NAME 'GlueComputingActivityLocalOwner'
        DESC 'The local user name to which the  job's owner is mapped into'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.28.2.16
        NAME 'GlueComputingActivityRequestedTotalWallTime'
        DESC 'The total wall clock time requested by the job; for multi-slot jobs, it represents the
sum of wall clock time needed in each required slot'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.28.2.17
        NAME 'GlueComputingActivityRequestedTotalCPUTime'
        DESC 'The total CPU time requested by the job for multi-slot jobs, it represents the sum of
CPU time needed in each required slot'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.28.2.18
        NAME 'GlueComputingActivityRequestedSlots'
        DESC 'The number of requested slots'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.28.2.19
        NAME 'GlueComputingActivityRequestedApplicationEnvironment'
        DESC 'Serialization of the Name and Version of the requested Application Environment to match
the Name and Version properties of the Application Environment (the serialization of the Name and
Version is delegated to the implementers)'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.28.2.20
        NAME 'GlueComputingActivityStdIn'
        DESC 'The name of the file which is used as the standard input of the job'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
```

```
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.28.2.21
        NAME 'GlueComputingActivityStdOut'
        DESC 'The name of the file which contains the standard output of the job'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.28.2.22
        NAME 'GlueComputingActivityStdErr'
        DESC 'The name of the file which contains the standard error of the job'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.28.2.23
        NAME 'GlueComputingActivityLogDir'
        DESC 'The name of the directory which contains the logs related to the job and generated by
the Grid layer (usually the directory is private to the job)'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.28.2.24
        NAME 'GlueComputingActivityExecutionNode'
        DESC 'Hostname associated to the execution environment instance (i.e., worker node) running
the job; multi-node jobs are described by several instances of this attribute'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.28.2.25
        NAME 'GlueComputingActivityQueue'
        DESC 'The name of the Computing Manager (i.e, LRMS) queue to which this job was queued'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.28.2.26
        NAME 'GlueComputingActivityUsedTotalWallTime'
        DESC 'The totally consumed wall clock time by the job (in case of multi-slot jobs, this value
refers to the sum of the wall clock time consumed in each slot)'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.28.2.27
        NAME 'GlueComputingActivityUsedTotalCPUTime'
        DESC 'The totally consumed CPU time by the job (in case of multi-slot jobs, this value refers
to the sum of the consumed CPU time in each slot)'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.28.2.28
        NAME 'GlueComputingActivityUsedMainMemory'
        DESC 'The RAM used by the job'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.28.2.29
        NAME 'GlueComputingActivitySubmissionTime'
        DESC 'Time when the job was submitted to a computing endpoint'
```

```
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )


attributetype ( 1.3.6.1.4.1.6757.100.1.1.28.2.30
        NAME 'GlueComputingActivityComputingManagerSubmissionTime'
        DESC 'Time when the job was submitted to the Computing Manager (i.e., LRMS) by the Grid layer'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.28.2.31
        NAME 'GlueComputingActivityStartTime'
        DESC 'Time when the job entered in the Computing Manager (i.e., LRMS)  running state'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.28.2.32
        NAME 'GlueComputingActivityComputingManagerEndTime'
        DESC 'Time when the job entered its final Computing Manager (i.e., LRMS) state'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.28.2.33
        NAME 'GlueComputingActivityEndTime'
        DESC 'Time when the job entered its final Grid state'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.28.2.34
        NAME 'GlueComputingActivityWorkingAreaEraseTime'
        DESC 'A working area is an allocated storage extent that holds the home directories of the
Grid jobs; the time when the dedicated working area of this job will be removed'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.28.2.35
        NAME 'GlueComputingActivityProxyExpirationTime'
        DESC 'The expiration time of the proxy related to the job'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.28.2.36
        NAME 'GlueComputingActivitySubmissionHost'
        DESC 'The name of the host from which the job was submitted (e.g., IP address, port and host
name)'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.28.2.37
        NAME 'GlueComputingActivitySubmissionClientName'
        DESC 'The name of the software client which was used to submit the job'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )
```

```
attributetype ( 1.3.6.1.4.1.6757.100.1.1.28.2.38
        NAME 'GlueComputingActivityOtherMessages'
        DESC 'Optional job messages provided by either the Grid Layer or the Computing Manager (i.e.,
LRMS)'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

objectclass ( 1.3.6.1.4.1.6757.100.1.1.28
        NAME 'GlueComputingActivity'
        DESC 'An activity managed by an OGSA execution capability service (the computing activity is
traditionally called job)'
        STRUCTURAL
        MUST GlueComputingActivityUniqueID
           MAY ( GlueComputingActivityName $ GlueComputingActivityType $
GlueComputingActivityIDFromEndpoint $ GlueComputingActivityLocalIDFromManager $
GlueComputingActivityJobDescription $ GlueComputingActivityState $ GlueComputingActivityRestartState $
GlueComputingActivityExitCode $ GlueComputingActivityComputingManagerExitCode $
GlueComputingActivityError $ GlueComputingActivityWaitingPosition $ GlueComputingActivityUserDomain $
GlueComputingActivityOwner $ GlueComputingActivityLocalOwner $
GlueComputingActivityRequestedTotalWallTime $ GlueComputingActivityRequestedTotalCPUTime $
GlueComputingActivityRequestedSlots $ GlueComputingActivityRequestedApplicationEnvironment $
GlueComputingActivityStdIn $ GlueComputingActivityStdOut $ GlueComputingActivityStdErr $
GlueComputingActivityLogDir $ GlueComputingActivityExecutionNode $ GlueComputingActivityQueue $
GlueComputingActivityUsedTotalWallTime $ GlueComputingActivityUsedTotalCPUTime $
GlueComputingActivityUsedMainMemory $ GlueComputingActivitySubmissionTime $
GlueComputingActivityComputingManagerSubmissionTime $ GlueComputingActivityStartTime $
GlueComputingActivityComputingManagerEndTime $ GlueComputingActivityEndTime $
GlueComputingActivityWorkingAreaEraseTime $ GlueComputingActivityProxyExpirationTime $
GlueComputingActivitySubmissionHost $ GlueComputingActivitySubmissionClientName $
GlueComputingActivityOtherMessages )
 )

# Start Computing2Storage


attributetype ( 1.3.6.1.4.1.6757.100.1.1.29.2.1
        NAME 'GlueComputingStorageLocalPath'
        DESC 'The local path of the computing service enabling to access a remote path in the
associated storage service (this is typically an NFS mount point)'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.29.2.2
        NAME 'GlueComputingStorageRemotePath'
        DESC 'The remote path in the storage service which is associated the local path in the
computing service (this is typically an NFS exported directory)'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

objectclass ( 1.3.6.1.4.1.6757.100.1.1.29
        NAME 'ComputingService2StorageService'
        DESC 'Description of  a POSIX access via a file system technology enabling the computing
service to access the associated storage service'
        STRUCTURAL
        MAY ( GlueComputingStorageLocalPath $ GlueComputingStorageRemotePath )
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.30.2.1
        NAME 'GlueStorageServiceCapacityLocalID'
        DESC 'An opaque identifier local to the Storage Service'
        EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.30.2.2
        NAME 'GlueStorageServiceCapacityType'
        DESC 'Type of storage capacity'
           EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
```

```
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.30.2.3
        NAME 'GlueStorageServiceCapacityTotalSize'
        DESC 'Size of dedicated storage extent'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.30.2.4
        NAME 'GlueStorageServiceCapacityFreeSize'
        DESC 'Size of free storage extent'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.30.2.5
        NAME 'GlueStorageServiceCapacityUsedSize'
        DESC 'Size of used storage extent'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.30.2.6
        NAME 'GlueStorageServiceCapacityReservedSize'
        DESC 'Size of reserved storage extent'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.30.2.7
        NAME 'GlueStorageServiceCapacityOtherInfo'
        DESC 'Placeholder to publish info that does not fit in any other attribute. Free-form string,
comma-separated tags, (name, value ) pair are example of syntax'
           EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )


objectclass ( 1.3.6.1.4.1.6757.100.1.1.30
        NAME 'GlueStorageServiceCapacity'
        DESC 'Description of the size and state of an homogenous storage extent'
           STRUCTURAL
        MUST GlueStorageServiceCapacityLocalID
        MAY ( GlueStorageServiceCapacityType $ GlueStorageServiceCapacityTotalSize $
GlueStorageServiceCapacityFreeSize $ GlueStorageServiceCapacityUsedSize $
GlueStorageServiceCapacityReservedSize $ GlueStorageServiceCapacityOtherInfo )
 )

#Start StorageAccessProtocol

attributetype ( 1.3.6.1.4.1.6757.100.1.1.31.2.1
        NAME 'GlueStorageAccessProtocolLocalID'
        DESC 'An opaque identifier local to the Storage Service'
           EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.31.2.2
        NAME 'GlueStorageServiceAccessPotocolType'
        DESC 'The name of the protocol'
           EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.31.2.3
```

```
        NAME 'GlueStorageServiceAccessProtocolVersion'
        DESC 'The version of the protocol'
           EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.31.2.4
        NAME 'GlueStorageServiceAccessProtocolMaxStreams'
        DESC 'The number of parallel streams this protocol supports'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.31.2.5
        NAME 'GlueStorageServiceAccessProtocolOtherInfo'
        DESC 'Placeholder to publish info that does not fit in any other attribute. Free-form string,
comma-separated tags, (name, value ) pair are example of syntax'
           EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

objectclass ( 1.3.6.1.4.1.6757.100.1.1.31
        NAME 'GlueStorageServiceAccessProtocol'
        DESC 'A type of protocol available to access the available storage capacities '
        STRUCTURAL
        MUST GlueStorageAccessProtocolLocalID
        MAY ( GlueStorageServiceAccessPotocolType $ GlueStorageServiceAccessProtocolVersion $
GlueStorageServiceAccessProtocolMaxStreams $ GlueStorageServiceAccessProtocolOtherInfo )
 )

#Start StorageShare

attributetype ( 1.3.6.1.4.1.6757.100.1.1.32.2.1
        NAME 'GlueStorageShareLocalID'
        DESC 'An opaque identifier local to the associated Service'
           EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.32.2.2
        NAME 'GlueStorageShareName'
        DESC 'Human-readable name'
           EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.32.2.3
        NAME 'GlueStorageShareDescription'
        DESC 'Description of this share'
           EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.32.2.4
        NAME 'GlueStorageShareServingState'
        DESC 'A state specifying if the share is open to place new requests and if it is open to offer
the already present requests for execution'
           EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.32.2.5
        NAME 'GlueStorageSharePath'
        DESC 'A namespace where files are logically assigned to when they are stored into this share'
           EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
```

```
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.32.2.6
        NAME 'GlueStorageShareSharingID'
        DESC 'Local ID common to the storage shares which use the same storage share capacities
(‘dedicated’ is a reserved term and means that the storage share capacities are not shared with other
storage share capacities part of different storage shares)'
           EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.32.2.7
        NAME 'GlueStorageShareAccessLatency'
        DESC 'The maximum latency category for a file stored in this share to be made available for
reading'
           EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.32.2.8
        NAME 'GlueStorageShareRetentionPolicy'
        DESC 'The quality of retention, which indicates the probability of the storage system losing a
file'
           EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.32.2.9
        NAME 'GlueStorageShareExpirationMode'
        DESC 'Support for files with infinite and/or finite lifetimes, and what actions the storage
service may take upon the expiration of a file'
           EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.32.2.10
        NAME 'GlueStorageShareDefaultLifeTime'
        DESC 'The default lifetime assigned to the file if no explicit lifetime is specified'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.32.2.11
        NAME 'GlueStorageShareMaximumLifeTime'
        DESC 'The maximum lifetime that can be requested for a file'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.32.2.12
        NAME 'GlueStorageShareTag'
        DESC 'A user defined tag for additional information'
           EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.32.2.13
        NAME 'GlueStorageShareOtherInfo'
        DESC 'Placeholder to publish info that does not fit in any other attribute. Free-form string,
comma-separated tags, (name, value ) pair are example of syntax'
           EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )
```

```
objectclass ( 1.3.6.1.4.1.6757.100.1.1.32
        NAME 'GlueStorageShare'
        DESC 'A utilization target for a set of storage resources defined by a set of configuration
parameters and characterized by status information'
        STRUCTURAL
        MUST GlueStorageShareLocalID
        MAY ( GlueStorageShareName $ GlueStorageShareDescription $ GlueStorageShareServingState $
GlueStorageSharePath $ GlueStorageShareSharingID $ GlueStorageShareAccessLatency $
GlueStorageShareRetentionPolicy $ GlueStorageShareExpirationMode $ GlueStorageShareDefaultLifeTime $
GlueStorageShareMaximumLifeTime $ GlueStorageShareTag $ GlueStorageShareOtherInfo )
 )

# Start StorageShareCapacity

attributetype ( 1.3.6.1.4.1.6757.100.1.1.33.2.1
        NAME 'GlueStorageShareCapacityLocalID'
        DESC 'An opaque identifier local to the Storage Service'
           EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.33.2.2
        NAME 'GlueStorageShareCapacityType'
        DESC 'Type of storage capacity'
           EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.33.2.3
        NAME 'GlueStorageShareCapacityTotalSize'
        DESC 'Size of dedicated storage extent'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.33.2.4
        NAME 'GlueStorageShareCapacityFreeSize'
        DESC 'Size of free storage extent'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.33.2.5
        NAME 'GlueStorageShareCapacityUsedSize'
        DESC 'Size of used storage extent'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.33.2.6
        NAME 'GlueStorageShareCapacityReservedSize'
        DESC 'Size of reserved storage extent'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.33.2.7
        NAME 'GlueStorageShareCapacityOtherInfo'
        DESC 'Placeholder to publish info that does not fit in any other attribute. Free-form string,
comma-separated tags, (name, value ) pair are example of syntax'
           EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

objectclass ( 1.3.6.1.4.1.6757.100.1.1.33
        NAME 'GlueStorageShareCapacity'
        DESC 'Description of the size and state of an homogenous storage extent'
```

```
        STRUCTURAL
        MUST GlueStorageShareCapacityLocalID
        MAY ( GlueStorageShareCapacityType $ GlueStorageShareCapacityTotalSize $
GlueStorageShareCapacityFreeSize $ GlueStorageShareCapacityUsedSize $
GlueStorageShareCapacityReservedSize $ GlueStorageShareCapacityOtherInfo )
 )

# Start StorageManager

attributetype ( 1.3.6.1.4.1.6757.100.1.1.34.2.1
        NAME 'GlueStorageManagerUniqueID'
        DESC 'A global unique ID '
           EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.34.2.2
        NAME 'GlueStorageManagerName'
        DESC 'Human-readable name'
           EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.34.2.3
        NAME 'GlueStorageManagerType'
        DESC 'Type of storage manager'
           EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.34.2.4
        NAME 'GlueStorageManagerVersion'
        DESC 'ersion of the storage manager'
           EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.34.2.5
        NAME 'GlueStorageManagerOtherInfo'
        DESC 'Placeholder to publish info that does not fit in any other attribute. Free-form string,
comma-separated tags, (name, value ) pair are example of syntax'
           EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

objectclass ( 1.3.6.1.4.1.6757.100.1.1.34
        NAME 'GlueStorageManager'
        DESC 'The primary software component locally managing one or more storage resources. It can
describe also aggregated information about the managed resources.'
        STRUCTURAL
        MUST GlueStorageManagerUniqueID
        MAY ( GlueStorageManagerName $ GlueStorageManagerType $ GlueStorageManagerVersion $
GlueStorageManagerOtherInfo )
 )

# Start StorageResource

attributetype ( 1.3.6.1.4.1.6757.100.1.1.35.2.1
        NAME 'GlueStorageResourceUniqueID'
        DESC 'A global unique ID'
           EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.35.2.2
        NAME 'GlueStorageResourceName'
        DESC 'Human-readable name'
           EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
```

```
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.35.2.3
        NAME 'GlueStorageResourceType'
        DESC 'Type of storage resource'
           EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.35.2.4
        NAME 'GlueStorageResourceLatency'
        DESC 'The maximum latency category for a file stored in this resource to be made available for
reading'
           EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.35.2.5
        NAME 'GlueStorageResourceTotalSize'
        DESC 'Size of storage extent'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.35.2.6
        NAME 'GlueStorageResourceFreeSize'
        DESC 'Size of free storage extent '
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.35.2.7
        NAME 'GlueStorageResourceUsedSize'
        DESC 'Size of used storage extent'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.35.2.8
        NAME 'GlueStorageResourceOtherInfo'
        DESC 'Placeholder to publish info that does not fit in any other attribute. Free-form string,
comma-separated tags, (name, value ) pair are example of syntax'
           EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

objectclass ( 1.3.6.1.4.1.6757.100.1.1.35
        NAME 'GlueStorageResource'
        DESC 'Abstracted of a sufficiently homogeneous storage device providing a storage capacity,
managed by a local software component (storage manager), part of a storage service, reachable via one
or more endpoints and having one or more shares defined on it. A storge resource refers to a category
with summary information on the capacity'
        STRUCTURAL
        MUST GlueStorageResourceUniqueID
        MAY ( GlueStorageResourceName $ GlueStorageResourceType $ GlueStorageResourceLatency $
GlueStorageResourceTotalSize $ GlueStorageResourceFreeSize $ GlueStorageResourceUsedSize
$GlueStorageResourceOtherInfo )
 )

# Start Storage2Computing

attributetype ( 1.3.6.1.4.1.6757.100.1.1.36.2.1
        NAME 'GlueStorage2ComputingLocalID'
        DESC 'An opaque identifier local to the Storage Service'
           EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
```

```
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.36.2.2
        NAME 'GlueStorage2ComputingNetworkInfo'
        DESC 'Type of network available among the storage service and computing service'
           EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.36.2.3
        NAME 'GlueStorage2ComputingBandwidth'
        DESC 'The nominal bandwidth available between the storage service and computing service'
        EQUALITY    integerMatch
        ORDERING    integerOrderingMatch
        SYNTAX      1.3.6.1.4.1.1466.115.121.1.27
        SINGLE-VALUE
 )

attributetype ( 1.3.6.1.4.1.6757.100.1.1.36.2.4
        NAME 'GlueStorage2ComputingOtherInfo'
        DESC 'Placeholder to publish info that does not fit in any other attribute. Free-form string,
comma-separated tags, (name, value ) pair are example of syntax'
           EQUALITY caseIgnoreIA5Match
        SUBSTR caseIgnoreIA5SubstringsMatch
        SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
        SINGLE-VALUE
 )

objectclass ( 1.3.6.1.4.1.6757.100.1.1.36
        NAME 'GlueStorage2Computing'
        DESC 'Description of the network link quality of a storage service to a computing service'
        STRUCTURAL
        MUST GlueStorage2ComputingLocalID
        MAY ( GlueStorage2ComputingNetworkInfo $ GlueStorage2ComputingBandwidth $
GlueStorage2ComputingOtherInfo )
 )
```

3.3 Security Considerations

Please refer to RFC 3552 (http://www.ietf.org/rfc/rfc3552.txt) for guidance on writing a security considerations section. This section is required in all documents, and should not just say "there are no security considerations." Quoting from the RFC:

> "Most people speak of security as if it were a single monolithic property of a protocol or system, however, upon reflection, one realizes that it is clearly not true. Rather, security is a series of related but somewhat independent properties. Not all of these properties are required for every application.
>
> We can loosely divide security goals into those related to protecting communications (COMMUNICATION SECURITY, also known as COMSEC) and those relating to protecting systems (ADMINISTRATIVE SECURITY or SYSTEM SECURITY). Since communications are carried out by systems and access to systems is through communications channels, these goals obviously interlock, but they can also be independently provided."

4. Author Information

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