



GLUE for SRM v2.2 in production

- GLUE 1.3 for SRM v2.2
- What is an SA?
- Example and testing
- Glue SE record
- Glue 1.2 SA
- Custodial-Nearline SA
- Custodial-Nearline space 1 and 2
- Replica-Online SA
- Replica-Online space
- Custodial-Online SA
- Custodial-Online space 1 and 2
- Control Protocol records
- SRM Service records



GLUE 1.3 for SRM v2.2

- GLUE 1.3 SE defined to allow publication of SRM v2.2 properties
 - Retention Policy
 - 1 per SA
 - Access Latency
 - 1 per SA
 - Expiration Mode
 - Always “NeverExpire” in the WLCG MoU
 - Space token user descriptions
 - 0 or more per SA
 - New size attributes for Online and Nearline
 - SE has {Total,Used}{Online,Nearline}Size (4)
 - SA has {Total,Used,Reserved,Free}{Online,Nearline}Size (8)
 - Nearline sizes do not make sense for Replica-Online (TOD1)
 - Some of these numbers may be hard to provide in practice
 - At least on some SE implementations
 - Sensibility \leftrightarrow accuracy \leftrightarrow cost \leftrightarrow usefulness
 - Publish the “easy” ones now, check what remains desirable later

- For now: a storage “basin” with given Retention Policy and Access Latency, out of which SRM v2.2 spaces can be carved
 - Limiting case: SA == space
 - That extreme encountered technical objections from some implementations
 - Plan: implement simple schema, see if all important use cases are met
 - Enhancements later, when experience has been gained
 - An SE would have at most 3 SAs per VO (T1D0, T1D1, T0D1)
 - Each SA can have multiple space token user descriptions pointing to it

- Still need to publish GLUE 1.2 SA for backward compatibility with “broken” clients currently in production
 - GFAL looks for “GlueSALocalID == VO”
 - And “GlueAccessControl(Base)Rule == VO”
 - Bug turned out handy to protect old clients from new info!

- <https://twiki.cern.ch/twiki/bin/view/LCG/GSSDGLUEExample>
- Example for atlas, dteam, lhcb and ops
- VOs, paths, space token tags, hostname and site name to be adapted
- Spaces for dteam may be shared with ops
- Dteam/ops tokens
 - T1 site should at least implement srm2_d0t1 and srm2_d1t0
 - T2 site should implement srm2_d1t0
- Conformance checked by S2 test suite
 - <http://lxdev25.cern.ch/s2test/bdii/>
- Latest results
 - http://lxdev25.cern.ch/s2test/bdii/s2_logs/
- BDII check scripts available
 - <https://twiki.cern.ch/twiki/pub/LCG/GSSD/bdii-publication-check.tar.gz>



Glue SE record

dn: **GlueSEUniqueID**=ccsrmtestv2.in2p3.fr,mds-vo-name=IN2P3-
CC,o=grid

[...]

GlueSEUniqueID: ccsrmtestv2.in2p3.fr

GlueSEName: ccsrmtestv2.in2p3.fr

← No ":srm_vN"

GlueSEPort: 8443

GlueSEArchitecture: tape

GlueSEStatus: Production

GlueSEImplementationName: dCache

GlueSEImplementationVersion: 1.8.0-26

GlueSESizeTotal: 9730000

GlueSESizeFree: 6355000

GlueSETotalOnlineSize: 220000

GlueSEUsedOnlineSize: 198000

GlueSETotalNearlineSize: 9510000

GlueSEUsedNearlineSize: 3177000

[...]



Glue 1.2 SA

```
dn: GlueSALocalID=lhcb,GlueSEUniqueID=  
ccsrmtstv2.in2p3.fr,mds-vo-name=IN2P3-CC,o=grid  
[...]
```

```
GlueSAPath: /pnfs/in2p3.fr/data/lhcb ← No more SARoot
```

```
GlueSALocalID: lhcb ← VO name
```

```
GlueSAPolicyFileLifeTime: permanent
```

```
GlueSAStateAvailableSpace: 300000000000
```

```
GlueSAStateUsedSpace: 160000000000
```

```
GlueSAAccessControlBaseRule: lhcb ← keep old syntax
```

```
GlueSAAccessControlBaseRule: VO:lhcb ← add new syntax
```

```
[...]
```



Custodial-Nearline SA

```
dn: GlueSALocalID=lhcb:custodial:nearline,  
    GlueSEUniqueID=ccsrmtstv2.in2p3.fr,mds-vo-name=IN2P3-CC,o=grid  
[...]  
GlueSAPath: /pnfs/in2p3.fr/data/lhcb  
GlueSALocalID: lhcb:custodial:nearline  
GlueSAPolicyFileLifeTime: permanent  
GlueSAStateAvailableSpace: 300000000000 ← in kB  
GlueSAStateUsedSpace: 160000000000 ← in kB  
GlueSAAccessControlBaseRule: lhcb ← old syntax to be dropped  
GlueSAAccessControlBaseRule: VO:lhcb ← new syntax  
GlueSARetentionPolicy: custodial  
GlueSAAccessLatency: nearline  
GlueSAExpirationMode: neverExpire  
GlueSATotalOnlineSize: 70000 ← disk cache for tape back-end  
GlueSAUsedOnlineSize: 50000  
GlueSAFreeOnlineSize: 20000  
GlueSAReservedOnlineSize: 0  
GlueSATotalNearlineSize: 300000 ← tape back-end  
GlueSAUsedNearlineSize: 160000  
GlueSAFreeNearlineSize: 140000  
GlueSAReservedNearlineSize: 0  
[...]
```



Custodial-Nearline space 1

```
dn: GlueVOInfoLocalID=lhcb:LHCb_RAW,GlueSALocalID=  
lhcb:custodial:nearline,GlueSEUniqueID=  
ccsrmtestv2.in2p3.fr,mds-vo-name=IN2P3-CC,o=grid  
[...]
```

```
GlueVOInfoLocalID: lhcb:LHCb_RAW
```

```
GlueVOInfoName: lhcb:LHCb_RAW
```

```
GlueVOInfoPath: /pnfs/in2p3.fr/data/lhcb
```

```
GlueVOInfoTag: LHCb_RAW
```

```
GlueVOInfoAccessControlBaseRule: VO:lhcb
```

```
GlueChunkKey: GlueSALocalID=lhcb:custodial:nearline
```

```
GlueChunkKey: GlueSEUniqueID=ccsrmtestv2.in2p3.fr
```

```
[...]
```




Custodial-Nearline space 2

```
dn: GlueVOInfoLocalID=lhcb:LHCb_RDST,GlueSALocalID=  
lhcb:custodial:nearline,GlueSEUniqueID=  
ccsrmtestv2.in2p3.fr,mds-vo-name=IN2P3-CC,o=grid  
[...]
```

```
GlueVOInfoLocalID: lhcb:LHCb_RDST
```

```
GlueVOInfoName: lhcb:LHCb_RDST
```

```
GlueVOInfoPath: /pnfs/in2p3.fr/data/lhcb
```

```
GlueVOInfoTag: LHCb_RDST
```

```
GlueVOInfoAccessControlBaseRule: VO:lhcb
```

```
GlueChunkKey: GlueSALocalID=lhcb:custodial:nearline
```

```
GlueChunkKey: GlueSEUniqueID=ccsrmtestv2.in2p3.fr
```

```
[...]
```



Replica-Online SA

dn: **GlueSALocalID**=atlas:replica:online,GlueSEUniqueID=
ccsrmtstv2.in2p3.fr,mds-vo-name=IN2P3-CC,o=grid
[...]

GlueSAPath: /pnfs/in2p3.fr/data/atlas/disk ← normally VO root !

GlueSALocalID: atlas:replica:online

GlueSAPolicyFileLifeTime: permanent

GlueSAStateAvailableSpace: 10000000000

GlueSAStateUsedSpace: 190000000000

GlueSAAccessControlBaseRule: atlas

GlueSAAccessControlBaseRule: VO:atlas

GlueSARetentionPolicy: replica

GlueSAAccessLatency: online

GlueSAExpirationMode: neverExpire

GlueSATotalOnlineSize: 200000 ← disk space managed by VO

GlueSAUsedOnlineSize: 190000

GlueSAFreeOnlineSize: 10000

GlueSAReservedOnlineSize: 0

GlueSATotalNearlineSize: 0 ← 0 nearline sizes need not be published

GlueSAUsedNearlineSize: 0

GlueSAFreeNearlineSize: 0

GlueSAReservedNearlineSize: 0

[...]



Replica-Online space

```
dn: GlueVOInfoLocalID=atlas:DISK,GlueSALocalID=  
atlas:replica:online,GlueSEUniqueID=  
ccsrmtestv2.in2p3.fr,mds-vo-name=IN2P3-CC,o=grid  
[...]
```

GlueVOInfoLocalID: atlas:DISK

GlueVOInfoName: atlas:DISK

GlueVOInfoPath: /pnfs/in2p3.fr/data/atlas/disk (*)

GlueVOInfoTag: DISK

GlueVOInfoAccessControlBaseRule: VO:atlas

GlueChunkKey: GlueSALocalID=**atlas:replica:online**

GlueChunkKey: GlueSEUniqueID=ccsrmtestv2.in2p3.fr

[...]

(*) Normally VO root !



Custodial-Online SA

```
dn: GlueSALocalID=dteam:custodial:online,GlueSEUniqueID=  
ccsrmtstv2.in2p3.fr,mds-vo-name=IN2P3-CC,o=grid
```

```
[...]
```

```
GlueSAPath: /pnfs/in2p3.fr/data/dteam
```

```
GlueSALocalID: dteam:custodial:online
```

```
GlueSAPolicyFileLifeTime: permanent
```

```
GlueSAStateAvailableSpace: 8000000000
```

```
GlueSAStateUsedSpace: 2000000000
```

```
GlueSAAccessControlBaseRule: dteam
```

```
GlueSAAccessControlBaseRule: ops
```

```
GlueSAAccessControlBaseRule: VO:dteam
```

```
GlueSAAccessControlBaseRule: VO:ops ← can share between VOs
```

```
GlueSARetentionPolicy: custodial
```

```
GlueSAAccessLatency: online
```

```
GlueSAExpirationMode: neverExpire
```

```
[...]
```



Custodial-Online space 1

```
dn: GlueVOInfoLocalID=dteam:srm2_d1t1,GlueSALocalID=  
dteam:custodial:online,GlueSEUniqueID=  
ccsrmtestv2.in2p3.fr,mds-vo-name=IN2P3-CC,o=grid  
[...]
```

```
GlueVOInfoLocalID: dteam:srm2_d1t1
```

```
GlueVOInfoName: dteam:srm2_d1t1
```

```
GlueVOInfoPath: /pnfs/in2p3.fr/data/dteam
```

```
GlueVOInfoTag: srm2_d1t1
```

```
GlueVOInfoAccessControlBaseRule:
```

```
VOMS:/dteam/Role=lcgadmin ← not for whole VO
```

```
GlueChunkKey: GlueSALocalID=dteam:custodial:online
```

```
GlueChunkKey: GlueSEUniqueID=ccsrmtestv2.in2p3.fr
```

```
[...]
```



Custodial-Online space 2

```
dn: GlueVOInfoLocalID=ops:srm2_d1t1,GlueSALocalID=  
dteam:custodial:online,GlueSEUniqueID=  
ccsrmtestv2.in2p3.fr,mds-vo-name=IN2P3-CC,o=grid  
[...]
```

```
GlueVOInfoLocalID: ops:srm2_d1t1
```

```
GlueVOInfoName: ops:srm2_d1t1
```

```
GlueVOInfoPath: /pnfs/in2p3.fr/data/dteam
```

```
GlueVOInfoTag: srm2_d1t1 ← private namespace per VO
```

```
GlueVOInfoAccessControlBaseRule: VO:ops
```

```
GlueChunkKey: GlueSALocalID=dteam:custodial:online
```

```
GlueChunkKey: GlueSEUniqueID=ccsrmtestv2.in2p3.fr
```

```
[...]
```



Control Protocol records

```
dn: GlueSEControlProtocolLocalID=srm_v2.2,  
    GlueSEUniqueID=ccsrmtestv2.in2p3.fr,  
    mds-vo-name=IN2P3-CC,o=grid
```

[...]

```
GlueSEControlProtocolType: SRM
```

```
GlueSEControlProtocolLocalID: srm_v2.2
```

```
GlueSEControlProtocolVersion: 2.2.0
```

```
GlueSEControlProtocolEndpoint:
```

```
    httpg://ccsrmtestv2.in2p3.fr:8443/srm/managerv2
```

[...]

- And similar for SRM v1.1 if supported
- Allow for proper way to detect SRM service at site



SRM Service records

dn: **GlueServiceUniqueID**=http://ccsrmtestv2.in2p3.fr:8443/srm/managerv2,
mds-vo-name=IN2P3-CC,o=grid

[...]

GlueServiceUniqueID: http://ccsrmtestv2.in2p3.fr:8443/srm/managerv2

GlueServiceName: IN2P3-CC-SRM-2.2.0

GlueServiceType: SRM ← not "srm"

GlueServiceVersion: 2.2.0

GlueServiceEndpoint: http://ccsrmtestv2.in2p3.fr:8443/srm/managerv2

GlueServiceURI: http://ccsrmtestv2.in2p3.fr:8443/srm/managerv2 (*)

GlueServiceAccessPointURL:

http://ccsrmtestv2.in2p3.fr:8443/srm/managerv2 (*)

[...]

GlueServiceAccessControlRule: atlas ← keep old syntax

GlueServiceAccessControlRule: dteam

[...]

GlueServiceAccessControlBaseRule: VO:atlas ← add new attributes with

GlueServiceAccessControlBaseRule: VO:dteam new syntax

[...]

(*) Keep for compatibility with old clients

- And similar for SRM v1.1 if supported