

DBIS: Directory-Based Information Services

A replacement for NIS and RFC2307

by
Mark R. Bannister

Background

- RFC 2307, late 1990s (experimental)
- RFC 2307bis, 2002-2009 (draft)
- RFC 4876, 2007

- nss_ldap (PADL, Sun Microsystems)
- NSS doesn't support all maps
- NSS libraries open their own LDAP connections
- 2005/2006 lightweight library, daemon process
 - Solaris 10
 - nss-pam-ldapd

Background

- 2010, merge two large NIS domains into AD
 - Clashing UIDs and GIDs
 - Duplicate configuration (NSS and automounter)
 - 10,000+ netgroup entries
- 2013, NIS-to-LDAP migration
 - Case sensitivity
 - Custom attributes and object classes

Approach

- Split RFC 2307 & RFC 2307bis into separate documents
- Needed a new name: DBIS
- Mission:
 - Solve case sensitivity problem
 - Add enterprise-class features
 - Mix schemas & clients
 - Not allowed to redefine attributes / classes
 - Thin NSS library / daemon process
 - `nss_dbis` / `nss_ldap` can work together
- New IETF internet drafts, 2013
- Reference implementation completed 2015

Features

- Configuration maps
- Case-sensitive attributes, e.g. en (exactName)
- Replacement object classes, e.g. posixUserAccount
- Transformation rules
 - Prefix, suffix, increment, decrement
- Overlays
- Netgroup constraints, i.e. tailored “views”
- Netservices
 - Roles, permissions and services

“Am I in this netgroup? Therefore I have this role”

becomes “Do I have this role?”

(DBIS client handles netgroup check)

Miscellaneous

- dbisMapGecos (passwd maps)
- Automount improvements
- netgroupUser, netgroupHost
- ipv4Address, ipv6Address
- LDAP alias objects
- disableObject
- dbisMapName (custom maps)
- Comprehensive schema comparison:
 - <http://sourceforge.net/p/dbis/wiki/DBIS%20and%20RFC2307%20schemas/>

Reference Implementation

- DBIS 1.5.0, September 2015
 - Tested on OpenSUSE, RHEL and Solaris
 - dbis-cachemgr
 - nss_dbis
 - dbis
 - Python API
 - Perl API
 - C API
 - Pyloom

Future Plans

- Integration: Autofs, Sudo, Puppet
- Multi-column custom data
- Packaging
- LDAP persistent searches
- Migration tools
- Java API
- Load-balancing algorithms
- LDAP authentication schemes
- LDAP server profiles
- Defacto standard for reference data

Further Information

- IETF Internet Drafts:
 - DBIS Mapping Objects: [draft-bannister-dbis-mapping](#)
 - DBIS Netgroups and Netservices: [draft-bannister-dbis-netgroup](#)
 - DBIS Users and Groups: [draft-bannister-dbis-passwd](#)
 - DBIS Hosts, Networks and Services: [draft-bannister-dbis-hosts](#)
 - DBIS Devices: [draft-bannister-dbis-devices](#)
 - DBIS Automounter: [draft-bannister-dbis-automounter](#)
 - DBIS Custom Maps: [draft-bannister-dbis-custom](#)
- Download DBIS from SourceForge, try it today!
<http://dbis.sf.net>
- Blog articles:
<http://technicalprose.blogspot.co.uk/2013/08/introducing-dbis.html>
- Connect to me on LinkedIn:
<https://uk.linkedin.com/in/mbannister>
- Discuss DBIS on (old) IETF mailing list: ldapext@ietf.org