OpenLDAP 2.4.44 (64-bit)

Thank you for choosing OpenLDAP 2.4.44 Server for Windows (64-bit).

Build Options

- OpenSSL 1.0.2j (FIPS-enabled)

- LMDB 0.9.18

- Kerberos V (Heimdal 1.7rc1)

- Cyrus SASL 2.1.26
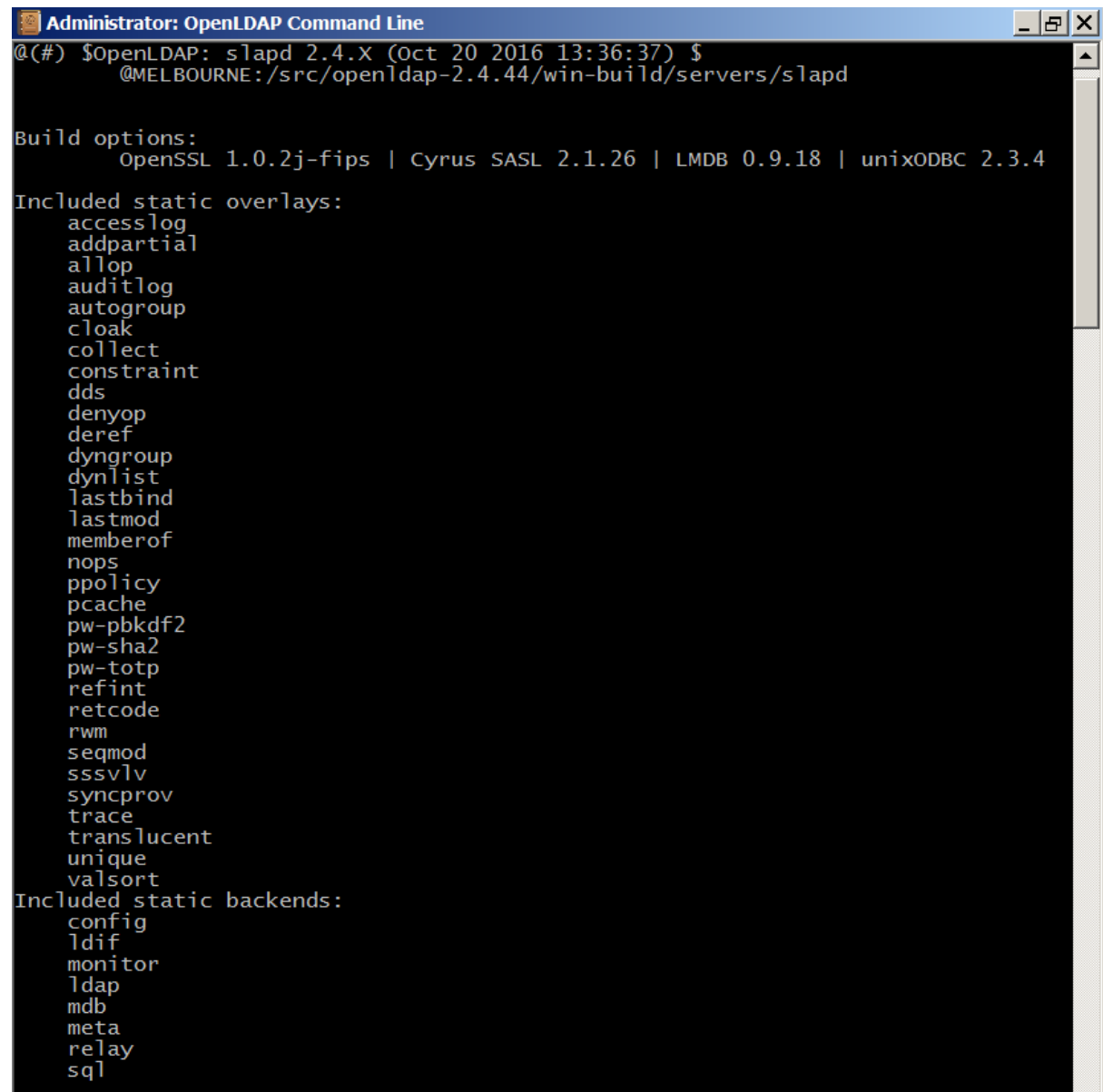
- ODBC support (unixODBC 2.3.4)

Unit Tests

Database: **mdb**

[OK] test000-rootdse
[OK] test001-slapadd
[OK] test002-populate
[OK] test003-search
[OK] test004-modify
[OK] test005-modrdn
[OK] test006-acls
[OK] test008-concurrency
[OK] test009-referral
[OK] test010-passwd
[OK] test011-glue-slapadd
[OK] test012-glue-populate
[OK] test013-language
[OK] test014-whoami
[OK] test015-xsearch
[OK] test016-subref
[OK] test017-syncreplication-refresh
[OK] test018-syncreplication-persist
[FAILED] test019-syncreplication-cascade
[OK] test020-proxycache
[OK] test021-certificate
[OK] test022-ppolicy
[OK] test023-refint
[OK] test024-unique
[OK] test025-limits
[OK] test026-dn
[OK] test027-emptydn
[OK] test028-idassert
[OK] test029-ldapglue
[OK] test030-relay
[SKIPPED] test031-component-filter

[OK] test032-chain
[OK] test033-glue-syncrepl
[OK] test034-translucent
[OK] test035-meta
[OK] test036-meta-concurrency
[OK] test037-manage
[OK] test038-retcode
[OK] test039-glue-ldap-concurrency
[OK] test040-subtree-rename
[SKIPPED] test041-aci
[OK] test042-valsort
[OK] test043-delta-syncrepl
[OK] test044-dynlist
[OK] test045-syncreplication-proxied
[OK] test046-dds
[OK] test047-ldap
[OK] test048-syncrepl-multiproxy
[FAILED] test049-sync-config
[OK] test050-syncrepl-multimaster
[OK] test051-config-undo
[OK] test052-memberof
[OK] test054-syncreplication-parallel-load
[OK] test055-valregex
[OK] test056-monitor
[OK] test057-memberof-refint
[FAILED] test058-syncrepl-asymmetric
[OK] test059-slave-config
[OK] test060-mt-hot
[FAILED] test061-syncreplication-initiation
[OK] test063-delta-multimaster
[OK] test064-constraint

Testing OpenLDAP

OpenLDAP Build Options

```
Administrator: OpenLDAP Command Line                           _ 🗗 ✕
@(#) $OpenLDAP: slapd 2.4.X (Oct 20 2016 13:36:37) $
        @MELBOURNE:/src/openldap-2.4.44/win-build/servers/slapd


Build options:
        OpenSSL 1.0.2j-fips | Cyrus SASL 2.1.26 | LMDB 0.9.18 | unixODBC 2.3.4

Included static overlays:
    accesslog
    addpartial
    allop
    auditlog
    autogroup
    cloak
    collect
    constraint
    dds
    denyop
    deref
    dyngroup
    dynlist
    lastbind
    lastmod
    memberof
    nops
    ppolicy
    pcache
    pw-pbkdf2
    pw-sha2
    pw-totp
    refint
    retcode
    rwm
    seqmod
    sssvlv
    syncprov
    trace
    translucent
    unique
    valsort
Included static backends:
    config
    ldif
    monitor
    ldap
    mdb
    meta
    relay
    sql
```

SASL Mechanism: DIGEST-MD5   (via proxy user)

```
Administrator: OpenLDAP Command Line                              _ 回 X

C:\OpenLDAP-2.4.44\bin>ldapwhoami.exe -v -H ldap://melbourne.matear.eu:8888/ -U
proxyuser -Y DIGEST-MD5 -X u:hacker
ldap_initialize( ldap://melbourne.matear.eu:8888/??base )
SASL/DIGEST-MD5 authentication started
Please enter your password:
SASL username: u:hacker
SASL SSF: 128
SASL data security layer installed.
dn:uid=hacker,ou=people,dc=my-domain,dc=com
Result: Success (0)

C:\OpenLDAP-2.4.44\bin>_
```

Password Policies (External) Component

```
Administrator: OpenLDAP Command Line                              _ 回 X

C:\OpenLDAP-2.4.44\bin>ldappasswd.exe -v -x -S -h melbourne -p 8888 -e ppolicy -
D "uid=hacker,ou=People,dc=my-domain,dc=com" "uid=hacker,ou=People,dc=my-domain,
dc=com" -W
New password:
Re-enter new password:
ldap_initialize( ldap://melbourne:8888 )
Enter LDAP Password:
Result: Constraint violation (19)
Additional info: Password fails quality checking policy
control: 1.3.6.1.4.1.42.2.27.8.5.1 false MAOBAQY=
ppolicy: error=6 (Password is too short for policy)

C:\OpenLDAP-2.4.44\bin>_
```

SASL Mechanisms: List of all available mechanisms

```
Administrator: OpenLDAP Command Line                              _ 回 X

C:\OpenLDAP-2.4.44\bin>ldapsearch.exe -v -H ldaps://melbourne.matear.eu:8889/ -x
 -b "" -s base -LLL supportedSASLMechanisms
ldap_initialize( ldaps://melbourne.matear.eu:8889/??base )
filter: (objectclass=*)
requesting: supportedSASLMechanisms
dn:
supportedSASLMechanisms: SRP
supportedSASLMechanisms: SCRAM-SHA-1
supportedSASLMechanisms: GSSAPI
supportedSASLMechanisms: GSS-SPNEGO
supportedSASLMechanisms: DIGEST-MD5
supportedSASLMechanisms: EXTERNAL
supportedSASLMechanisms: OTP
supportedSASLMechanisms: CRAM-MD5
supportedSASLMechanisms: NTLM
supportedSASLMechanisms: LOGIN
supportedSASLMechanisms: PLAIN


C:\OpenLDAP-2.4.44\bin>_
```

SASL Mechanism: EXTERNAL (TLS enabled) – Default user

```
Administrator: OpenLDAP Command Line                              _ |日| X

C:\OpenLDAP-2.4.44\bin>ldapwhoami.exe -v -H ldap://melbourne.matear.eu:8888/ -ZZ
 -Y EXTERNAL
ldap_initialize( ldap://melbourne.matear.eu:8888/??base )
SASL/EXTERNAL authentication started
SASL username: 2.5.4.13=End User Certificate (OpenLDAP 2.4.44),2.5.4.5=1234-2016
-UK,title=Mr,ou=Finance Department,o=MateAR.eu IT Solutions,l=Westminster,st=Lon
don,c=GB,email=info@matear.eu,0.9.2342.19200300.100.1.1=Administrator,dc=EU,cn=A
dministrator
SASL SSF: 0
dn:description=end user certificate (openldap 2.4.44),serialNumber=1234-2016-uk,
title=mr,ou=finance department,o=matear.eu it solutions,l=westminster,st=london,
c=gb,email= info@matear.eu,uid=administrator,dc=eu,cn=administrator
Result: Success (0)

C:\OpenLDAP-2.4.44\bin>
```

Cyrus SASL: Adding new user to SALDB

```
Administrator: C:\Windows\System32\cmd.exe                        _ |日| X

C:\CMU\bin>saslpasswd2.exe -c -u my-domain.com testuser
Password:
Again (for verification):
```

'testuser' does not exist in any LDAP database

```
Administrator: OpenLDAP Command Line                              _ |日| X

C:\OpenLDAP-2.4.44\bin>ldapwhoami.exe -v -h melbourne -p 8888 -Y DIGEST-MD5 -U t
estuser
ldap_initialize( ldap://melbourne:8888 )
SASL/DIGEST-MD5 authentication started
Please enter your password:
SASL username: testuser
SASL SSF: 128
SASL data security layer installed.
dn:uid=testuser,cn=my-domain.com,cn=digest-md5,cn=auth
Result: Success (0)

C:\OpenLDAP-2.4.44\bin>
```

SASL Mechanism: SRP

```
Administrator: OpenLDAP Command Line                              _ |日| X

C:\OpenLDAP-2.4.44\bin>ldapwhoami.exe -v -h melbourne -p 8888 -Y SRP -U testuser
@my-domain.com
ldap_initialize( ldap://melbourne:8888 )
SASL/SRP authentication started
Please enter your password:
SASL username: testuser@my-domain.com
SASL SSF: 128
SASL data security layer installed.
dn:uid=testuser@my-domain.com,cn=my-domain.com,cn=srp,cn=auth
Result: Success (0)

C:\OpenLDAP-2.4.44\bin>_
```

S/Key: Generating a new key for OTP mechanism

```
Administrator: C:\Windows\System32\cmd.exe                          _ □ X

C:\OpenLDAP-2.4.44\bin>skey.exe -sha1 498 me3385
Reminder - Do not use this program while logged in via telnet or rlogin.
Enter secret password: 1234

AIDS RENT SUE ALLY JILL TIER

C:\OpenLDAP-2.4.44\bin>_
```

SASL Mechanism: OTP

```
Administrator: OpenLDAP Command Line                                _ 日 X

C:\OpenLDAP-2.4.44\bin>ldapwhoami.exe -v -H ldap://melbourne.matear.eu:8888/ -U
testuser -Y OTP -X u:hacker
ldap_initialize( ldap://melbourne.matear.eu:8888/??base )
SASL/OTP authentication started
Challenge: otp-sha1 498 me3385 ext
Please enter your one-time password: AIDS RENT SUE ALLY JILL TIER
ldap_sasl_interactive_bind_s: Invalid credentials (49)
        additional info: SASL(-13): authentication failure: user: testuser@my-do
main.com property: slapAuthzDN not found in sasldb

C:\OpenLDAP-2.4.44\bin>_
```

Kerberos V Server (KDC)

```
Start KDC Server - C:\heimdal-1.7rc1\start_kdc.cmd                    _ |⊡| X|

Using config file: C:\heimdal-1.7rc1\etc\krb5.conf

Starting KDC Server ...
label: label
        dbname: lmdb:./var/heimdal/current-db
        mkey_file: ./var/heimdal/m-key
        acl_file: ./var/heimdal/heimdal.acl
windc init
listening on IPv6:::1 port 49188/udp
listening on IPv6:::1 port 49188/tcp
listening on IPv4:127.0.0.1 port 49188/udp
listening on IPv4:127.0.0.1 port 49188/tcp
KDC started pid=3912
AS-REQ Administrator@TEST.H5L.SE from IPv6:::1 for krbtgt/TEST.H5L.SE@TEST.H5L.S
E
Client sent patypes: REQ-ENC-PA-REP
Looking for PK-INIT(ietf) pa-data -- Administrator@TEST.H5L.SE
Looking for PK-INIT(win2k) pa-data -- Administrator@TEST.H5L.SE
Looking for ENC-TS pa-data -- Administrator@TEST.H5L.SE
Need to use PA-ENC-TIMESTAMP/PA-PK-AS-REQ
sending 317 bytes to IPv6:::1
AS-REQ Administrator@TEST.H5L.SE from IPv6:::1 for krbtgt/TEST.H5L.SE@TEST.H5L.S
E
Client sent patypes: ENC-TS, REQ-ENC-PA-REP
Looking for PK-INIT(ietf) pa-data -- Administrator@TEST.H5L.SE
Looking for PK-INIT(win2k) pa-data -- Administrator@TEST.H5L.SE
Looking for ENC-TS pa-data -- Administrator@TEST.H5L.SE
ENC-TS Pre-authentication succeeded -- Administrator@TEST.H5L.SE using aes256-ct
s-hmac-sha1-96
ENC-TS pre-authentication succeeded -- Administrator@TEST.H5L.SE
client_access
pac generate
AS-REQ authtime: 2016-10-21T13:24:50 starttime: unset endtime: 2016-10-21T23:24:
43 renew till: unset
Client supported enctypes: aes256-cts-hmac-sha1-96, aes128-cts-hmac-sha1-96, des
3-cbc-sha1, arcfour-hmac-md5, using aes256-cts-hmac-sha1-96/aes256-cts-hmac-sha1
-96
Requested flags: forwardable
sending 913 bytes to IPv6:::1
```

Requesting a ticket (TGT) for user 'Administrator'

```
Administrator: Command Prompt                                        _ |⊡| X|

C:\heimdal-1.7rc1>bin\kinit.exe Administrator
Administrator@TEST.H5L.SE's Password:

C:\heimdal-1.7rc1>bin\heimtools.exe klist -v
Credentials cache: FILE:C:\Users\ADMINI~1\AppData\Local\Temp/krb5cc_500
        Principal: Administrator@TEST.H5L.SE
    Cache version: 4

Server: krbtgt/TEST.H5L.SE@TEST.H5L.SE
Client: Administrator@TEST.H5L.SE
Ticket etype: aes256-cts-hmac-sha1-96, kvno 1
Ticket length: 519
Auth time:  Oct 21 13:24:50 2016
End time:   Oct 21 23:24:43 2016
Ticket flags: enc-pa-rep, pre-authent, initial, forwardable
Addresses: addressless


C:\heimdal-1.7rc1>_
```

SASL Mechanism: GSSAPI

```
Administrator: OpenLDAP Command Line                                    _ |8|X|

C:\OpenLDAP-2.4.44\bin>ldapsearch.exe -v -H ldap://melbourne.matear.eu:8888/ -Y
GSSAPI -b "" -s base -LLL -ZZ supportedSASLMechanisms
ldap_initialize( ldap://melbourne.matear.eu:8888/??base )
SASL/GSSAPI authentication started
SASL username: ldap/melbourne.matear.eu@TEST.H5L.SE
SASL SSF: 56
SASL data security layer installed.
filter: (objectclass=*)
requesting: supportedSASLMechanisms
dn:
supportedSASLMechanisms: SRP
supportedSASLMechanisms: SCRAM-SHA-1
supportedSASLMechanisms: GSSAPI
supportedSASLMechanisms: GSS-SPNEGO
supportedSASLMechanisms: DIGEST-MD5
supportedSASLMechanisms: EXTERNAL
supportedSASLMechanisms: OTP
supportedSASLMechanisms: CRAM-MD5
supportedSASLMechanisms: NTLM
supportedSASLMechanisms: LOGIN
supportedSASLMechanisms: PLAIN


C:\OpenLDAP-2.4.44\bin>_
```

ODBC: MS SQL Server

```
Administrator: OpenLDAP Command Line                                    _ |8|X|

C:\OpenLDAP-2.4.44\bin>ldapsearch.exe -v -x -h melbourne -p 8888 -b "dc=example,
dc=com" sn=Kovalev
ldap_initialize( ldap://melbourne:8888 )
filter: sn=Kovalev
requesting: All userApplication attributes
# extended LDIF
#
# LDAPv3
# base <dc=example,dc=com> with scope subtree
# filter: sn=Kovalev
# requesting: ALL
#

# Mitya Kovalev, example.com
dn: cn=Mitya Kovalev,dc=example,dc=com
objectClass: inetOrgPerson
cn: Mitya Kovalev
sn: Kovalev
seeAlso: documentTitle=book1,dc=example,dc=com
seeAlso: documentTitle=book2,dc=example,dc=com
givenName: Mitya
userPassword:: bW10
telephoneNumber: 222-3234
telephoneNumber: 332-2334

# search result
search: 2
result: 0 Success

# numResponses: 2
# numEntries: 1

C:\OpenLDAP-2.4.44\bin>
```

Some related projects include:

❖ **OpenSSL for Windows**, http://sourceforge.net/projects/openssl/

❖ **RADIUS Server for Windows**, http://winradius.eu/

❖ **Kerberos V for Windows**, http://sourceforge.net/projects/heimdal-win/

❖ **Cyrus SASL for Windows**, http://sourceforge.net/projects/saslwindows/