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NetIQ OpenLDAP-Based SDK and Extended Library

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1. LDAP C SDK and OpenLDAP-Based SDK

NetIQ/Novell provides LDAP C SDK for application developers. LDAP C SDK is a descendant of an old version of OpenLDAP SDK with additional features such as LDAP extensions, interactive SSL, and Schema functionality. These additional features are NetIQ proprietary. In past, any fixes from OpenLDAP community required NetIQ/Novell to release an LDAP C SDK patch without which the OpenLDAP fixes would not be available to developers. Rather than having two versions of LDAP SDK, we see a value in leveraging a single SDK and provide the additional functionality through an extended library. This will enable our customers to leverage the OpenLDAP SDK fixes directly from OpenLDAP.

2. What's New

NetIQ built OpenLDAP-based SDK is now available on both Linux and Windows platforms. In past, the LDAP C SDK provided LDAPv3 functionality and NetIQ/Novell specific extensions in a separate extended library. The new NetIQ OpenLDAP-based SDK provides the LDAPv3 functionality along with the extended library to provide the NetIQ/Novell specific extensions. The SDK also includes sample programs for LDAP and NetIQ extensions.

Although your existing NetIQ LDAP C SDK-based applications that you developed will continue to work with eDirectory-8.8 SPx and eDirectory-9.0.x, now you have a choice to migrate these applications to the new OpenLDAP SDK.

3. Migrating to NetIQ OpenLDAP-Based SDK

3.1. Header files

ldap.h included APIs for basic functionality in addition to the NetIQ specific extensions. NetIQ OpenLDAP based SDK now provides ldap.h that includes only the basic functionality APIs. There are other headers with NetIQ OpenLDAP-based SDK that can be included as needed. To leverage the NetIQ specific extensions, use the following headers depending on your requirement:

- ldap_schema.h
- ldap_events.h
- ldap_ds_constants.h
- ldapx.h
- psearchctrl.h
- urlsearch.h
- sstatctrl.h
- referencectrl.h

3.2. Libraries

The applications that use NetIQ LDAP C SDK link to libldapsdk.so, libldapssl.so, and libldapx.so libraries in Linux and corresponding libraries in Windows. With NetIQ OpenLDAP-based SDK, the libraries are now different. The below table maps the functionality of NetIQ LDAP C SDK libraries with NetIQ OpenLDAP-based SDK libraries.

LDAP C SDK/Linux	LDAP C SDK/Windows	OpenLDAP-based SDK/Linux	OpenLDAP-based SDK/Windows
libldapsdk.so	ldapsdk.dll	libldaps.so/libldap_r.so	libldap.dll/libldap_r.dll
libldapssl.so	ldapssl.dll	libnldapx.so	nldapextd.dll
libldapx.so	ldapx.dll	libnldapx.so	nldapextd.dll

- Applications that only need to use NetIQ OpenLDAP-based SDK APIs should link to libldap_r.so (reentrant) or libldap.so in Linux and libldap_r.lib (reentrant) and libldap.lib in Windows. There are some more libraries such as liblber.so in Linux and liblber.dll in Windows that libldap_r may depend on or your LDAP application may need to link to depending on the functionality needed.
- Applications that need to use the extensions library should link to libnldapx.so in Linux and nldapextd.dll in Windows.

3.3. Differences between LDAP C SDK and OpenLDAP-based SDK APIs

The following table lists the differences between them:

LDAP C SDK	OpenLDAP-Based SDK
ldap_get_lderrno	Use ld->ld_errno
ldap_set_lderrno	Use ld->ld_errno
ldap_set_msgid	Use ld->ld_msgid
ldapssl_start_tls	ldap_start_tls_s
ldapssl_stop_tls	ldap_stop_tls_s
ldap_parse_sort_control	ldap_parse_sortresponse_control
ldap_parse_vlv_control	ldap_parse_vlvresponse_control
ldap_set_rebind_proc	Signature of the API has changed
LDAP_OPT_REFERRAL_LIST	LDAP_OPT_REFERRALS
LDAP_RES_EXTENDED_PARTIAL	LDAP_RES_INTERMEDIATE
ldap_x_utf8_chars	ldap_utf8_chars
ldap_x_utf8_charlen	ldap_utf8_charlen
ldap_x_utf8_charlen2	ldap_utf8_charlen2
ldap_x_utf8_copy	ldap_utf8_copy
ldap_x_utf8_next	ldap_utf8_next
ldap_x_utf8_prev	ldap_utf8_prev
ldap_x_utf8_strcspn	ldap_utf8_strcspn
ldap_x_utf8_strspn	ldap_utf8_strspn
ldap_x_utf8_strchr	ldap_utf8_strchr
ldap_x_utf8_strprbk	ldap_utf8_strprbk
ldap_x_utf8_strtok	ldap_utf8_strtok
LDAP_X_UTF8_ASCII	LDAP_UTF8_ASCII
LDAP_X_UTF8_CHARLEN	LDAP_UTF8_CHARLEN
LDAP_X_UTF8_CHARLEN2	LDAP_UTF8_CHARLEN2
LDAP_X_UTF8_COPY	LDAP_UTF8_COPY

LDAP_X_UTF8_NEXT	LDAP_UTF8_NEXT
LDAP_X_UTF8_INCR	LDAP_UTF8_INCR
LDAP_X_UTF8_PREV	LDAP_UTF8_PREV
LDAP_X_UTF8_DECR	LDAP_UTF8_DECR

3.4. APIs supported by LDAP C SDK but not by OpenLDAP-Based SDK

- ldap_get_digest_md5_realms
- ldap_bind_digest_md5_start
- ldap_bind_digest_md5_finish and other digest_md5 related APIs
- ldap_gssbind and gssapi related APIs

4. Supported platforms

- **Linux:** 32-bit and 64-bit platforms
- **Windows:** 32-bit and 64-bit platforms