

neon HTTP/WebDAV client library

by Joe Orton

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Chapter 1. Introduction to neon

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This chapter gives an introduction to neon, an HTTP and WebDAV client library

How to use neon from your application

The neon source package is designed to be easily incorporated into applications:

- autoconf macros are distributed in the 'macros' subdirectory of the neon distribution. Use NEON_LIBRARY from your configure.in to check for the presence of the neon library installed on the system. The macro adds an '--with-neon=...' argument to configure, which allows the user to specify a location for the library (the standard /usr and /usr/local directories are checked automatically without having to be specified).
- The 'src' directory of the neon package can be imported directly into your application, if you do not wish to add an external dependency. If you wish to bundle, use the NEON_BUNDLED macro to configure neon in your application: here, the neon sources are bundled in a directory called 'libneon':

```
NEON_BUNDLED(libneon, ...)
```

If your application supports builds where srcdir != builddir, you should use the NEON_VPATH_BUNDLED macro like this:

```
NEON_VPATH_BUNDLED(${srcdir}/libneon, libneon, ...)
```

If you use this macro, a '--with-included-neon' option will be added to the generated configure script. This allows the user to force the bundled neon to be used in the application, rather than any neon library found on the system. If you allow neon to be configured this way, you must also configure an XML parser. Use the NEON_XML_PARSER macro to do this.

- The final argument to the _BUNDLED macros is a set of actions which are executed if the bundled build *is* chosen (rather than an external neon which might have been found on the user's system). In here, use either the NEON_LIBTOOL_BUILD or NEON_NORMAL_BUILD macro to set up the neon Makefile appropriately: including adding the neon source directory to the recursive make.

A full fragment might be:

```
NEON_BUNDLED(libneon, [  
    NEON_NORMAL_BUILD  
    NEON_XML_PARSER  
    SUBDIRS="libneon $SUBDIRS"  
])
```

This means the bundled neon source directory (called 'libneon') is used if no neon is found on the system, and the standard XML parser search is used.

neon API guidelines

neon reserves the namespace `ne_*`: an application which uses neon may not use symbols within this namespace.

Protocol compliance

neon is intended to be compliant with all relevant IETF and W3C standards.

RFC2518

neon is deliberately not compliant with section 23.4.2, and treats property names as a (namespace-URI, name) pair. This is generally considered [<http://lists.w3.org/Archives/Public/w3c-dist-auth/1999OctDec/0343.html>] to be the correct behaviour by the WebDAV WG and is likely to change in a future revision of the spec.

RFC2616

The redirect interface is deliberately not compliant with section 10.3, and will automatically follow redirects for the `PROPFIND` and `OPTIONS` methods as well as `GET` and `HEAD`. This behaviour is approved by the HTTP errata [<http://purl.org/NET/http-errata>] document.

Chapter 2. The neon API for the C language

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Sessions

An HTTP session is created using the `ne_session_create` function

Low-level request interface

`ne_request.h` interface

Basic HTTP and WebDAV methods

`ne_basic.h`

HTTP authentication

Authentication in HTTP is based on the "challenge-response" principle: the client will not provide authentication credentials to the server until challenged to do so. After being challenged, the HTTP request can be re-sent with an extra header presenting the authentication credentials. For this reason, authentication is implemented in neon using callbacks: when an authentication challenge is received by the client, a callback function is invoked which must supply the username and password required to authenticate the user. In an interactive application, this callback will typically be implemented using some form of username/password prompt.

Two types of authentication are supported: server authentication (via the `ne_set_server_auth` function), and proxy authentication (via the `ne_set_proxy_auth` function), which act independently of each other.

Parsing XML

`ne_xml.h` functions

WebDAV properties

`ne_props.h` functions

WebDAV locking

`ne_locks.h` functions

Utility routines

neon offers some abstract data types and utility functions for performing string manipulation, date and time handling, and a convenient interface for adding debugging output to your application.

String handling

The `ne_string.h` offers a string buffer data type, `ne_buffer *`, a transparent type storing a

Date/time manipulation

`ne_dates.h` functions

neon API reference


```
<refentryinfo>
<title>neon</title>
</refentryinfo>
```

Name

ne_session_create -- Manipulate HTTP sessions

ne_session_create, ne_close_connection, ne_session_proxy, ne_session_destroy

Synopsis

```
#include <ne_session.h>
```

```
ne_session *ne_session_create(scheme, hostname, port);
const char *scheme;
const char *hostname;
int port;
void ne_session_proxy(session, hostname, port);
ne_session *session;
const char *hostname;
int port;
int ne_close_connection(session);
ne_session *session;
void ne_session_destroy(session);
ne_session *session;
```

Description

An `ne_session *` object is used to group a sequence of HTTP requests made to a certain server. Requests made using the session can use a persistent connection, share authentication credentials, and so on. If *scheme* is passed as "https", SSL will be used for the session.

Return Values

`ne_session_create` will always return a valid session (and never NULL).

Examples

Create and initialize a session:

```
ne_session *sess;
sess = ne_session_create("http", "host.example.com", 80);
/* ... use sess ... */
ne_session_destroy(sess);
```

Name

ne_session_proxy -- Proxy server settings
ne_session_proxy, ne_session_decide_proxy

Synopsis

```
void ne_set_error(session, error);
ne_session *session;
const char *error;
const char *ne_get_error(session);
ne_session *session;
const char *ne_get_scheme(session);
ne_session *session;
const char *ne_get_server_hostport(session);
ne_session *session;
void ne_set_useragent(session, product);
ne_session *session;
const char *product;
void ne_set_expect100(session, use_expect100);
ne_session *session;
int use_expect100;
void ne_set_persist(session, use_persist);
ne_session *session;
int use_persist;
typedef int (*ne_use_proxy)(userdata, scheme, hostname);
void *userdata;
const char *scheme;
const char *hostname;
void ne_session_decide_proxy(session, use_proxy, userdata);
ne_session *session;
ne_use_proxy use_proxy;
void *userdata;
```

Description

An ne_session * object is a foo.

```
<refentryinfo>
<title>neon</title>
</refentryinfo>
```

Name

neon-config -- provide information about installed copy of neon library
neon-config

Synopsis

```
neon-config [--prefix] [--cflags | --libs | --support feature | --help | --version]
```

Description

The **neon-config** script provides information about an installed copy of the neon library. The `--cflags` and `--libs` options instruct how to compile and link an application against the library; the `--version` and `--support` options can help determine whether the library meets the applications requirements.

Options

<code>--cflags</code>	Print the flags which should be passed to the C compiler when compiling object files, when the object files use neon header files.
<code>--libs</code>	Print the flags which should be passed to the linker when linking an application which uses the neon library
<code>--version</code>	Print the version of the library
<code>--prefix <i>dir</i></code>	If <i>dir</i> is given; relocate output of <code>--cflags</code> and <code>--libs</code> as if neon was installed in given prefix directory. Otherwise, print the installation prefix of the library.
<code>--support <i>feature</i></code>	The script exits with success if <i>feature</i> is supported by the library.
<code>--help</code>	Print help message; includes list of known features and whether they are supported or not.

Example

Below is a Makefile fragment which could be used to build an application against an installed neon library, when the **neon-config** script can be found in `$PATH`.

```
CFLAGS = `neon-config --cflags`
LIBS = `neon-config --libs`
OBJECTS = myapp.o
TARGET = myapp

$(TARGET): $(OBJECTS)
    $(CC) $(LDFLAGS) -o $(TARGET) $(OBJECTS) $(LIBS)

myapp.o: myapp.c
    $(CC) $(CFLAGS) -c myapp.c -o myapp.o
```

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