

Subversion Error Messages Demystified

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Questions I want to address in this talk

- Why are Subversion error messages sometimes hard to understand?
- How can users deal with obscure error messages?
- Which obscure error messages have people often run into...
- ... and how can Subversion's developers improve them?



Some Error Messages

```
svn: Server sent unexpected return value (403 Forbidden) in  
response to OPTIONS request for 'https://my.cool.server/f00/trunk'
```

Some Error Messages

```
svn: Server sent unexpected return value (403 Forbidden) in  
response to MKACTIVITY request for  
'/svn/!svn/act/d5936c16-fd56-4f62-a9f1-b1285bea6c7'
```

Some Error Messages

```
svn: OPTIONS of 'https://svn.example.com/repos':  
SSL negotiation failed: SSL error code -1/1/336032856
```

Some Error Messages

```
Error writing base64 data: APR does not understand this error code
```

Some Error Messages

```
Provider encountered an error while streaming a REPORT response.  
[500, #0]
```

Some Error Messages

```
A failure occurred while driving the update report editor  
[500, #190004]
```


Some Error Messages

```
svn: REPORT of '/svn/code/!svn/vcc/default': Could not read  
response body: An existing connection was forcibly closed by  
the remote host.
```

Some Error Messages

```
svn: E175002: REPORT of '/repos/asf/!svn/vcc/default': Could
not read chunk size: Secure connection truncated
(https://svn.apache.org)
```

Some Error Messages

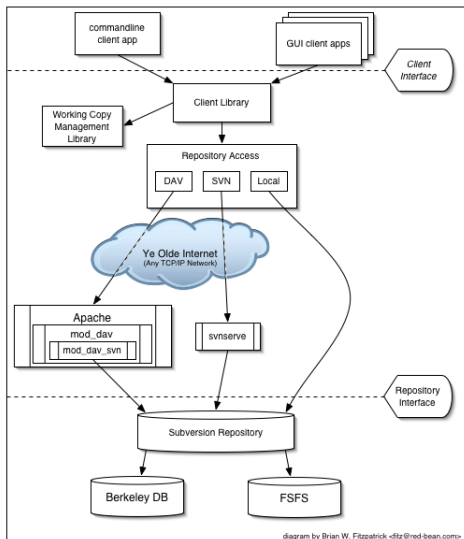
```
Error: Commit failed (details follow):  
At least one property change failed; repository is unchanged  
Server sent unexpected return value (502 Proxy Error (The  
specified network name is no longer available.))  
in response to PROPPATCH request for  
'/svn/!svn/wrk/7dd58c21-7924-4369-b284-63743240434b'
```

Some Error Messages

```
svn: REPORT of '/svn/!svn/vcc/default': 200 OK
```

What???

Subversion's Architecture



Client-side

- clients (command line, GUI clients, ...)
- client library
- working copy library
- repository tools (svnadmin, svnlook, ...)
- repository access library
 - ra_neon (http://, https://)
 - ra_serf (http://, https://)
 - ra_svn (svn://, svn+ssh://)
 - ra_local (file://)

Server-side

- mod_dav_svn
- svnserve
- repository library
- repository filesystem backends
 - FSFS
 - BDB

External Dependencies

- Apache Portable Runtime (APR)
- Apache HTTPD Server
 - httpd itself
 - mod_dav
 - mod_dav_svn
 - other modules (mod_auth_kerb, mod_auth_ldap, ...)
- neon
- serf
- OpenSSL
- OpenSSH
- Berkeley DB
- iconv
- Cyrus SASL
- SQLite
- zlib
- ...

Creating Errors

```
svn_error_t *  
svn_error_create(apr_status_t apr_err,  
                svn_error_t *child,  
                const char *message);
```

Creating Errors

```
svn_error_t *
svn_io_read_link(...)
{
    #ifdef HAVE_READLINK
        /* ... */
    #else
        return svn_error_create(SVN_ERR_UNSUPPORTED_FEATURE, NULL,
            _("Symbolic links are not "
              "supported on this platform"));
    #endif
}
```

Catching Errors

```
err = svn_wc_prop_get2(&value, ...);  
if (err)  
{  
    if (err->apr_err == SVN_ERR_WC_PATH_NOT_FOUND)  
    {  
        svn_error_clear(err);  
        value = NULL;  
    }  
    else  
        return svn_error_return(err);  
}
```

Catching Errors

```
err = svn_wc_canonicalize_svn_prop(...)
```

```
/* ... */
```

```
/* ### The errors which svn_wc_canonicalize_svn_prop() will  
* ### return aren't documented. */
```

```
if (err->apr_err == SVN_ERR_ILLEGAL_TARGET ||  
    err->apr_err == SVN_ERR_NODE_UNEXPECTED_KIND ||  
    err->apr_err == SVN_ERR_IO_UNKNOWN_EOL ||  
    err->apr_err == SVN_ERR_BAD_MIME_TYPE ||  
    err->apr_err ==  
        SVN_ERR_CLIENT_INVALID_EXTERNALS_DESCRIPTION)  
{  
    /* ... */
```

Developers See Error Traces

```
$ svn ls http://svn.example.com/repos
subversion/svn/list-cmd.c:301: (apr_err=175002)
subversion/libsvn_client/list.c:153: (apr_err=175002)
subversion/libsvn_client/ra.c:461: (apr_err=175002)
subversion/libsvn_client/ra.c:321: (apr_err=175002)
subversion/libsvn_ra/ra_loader.c:496: (apr_err=175002)
svn: E175002: Unable to connect to a repository at URL
'http://svn.example.com/repos'
subversion/libsvn_ra_neon/util.c:659: (apr_err=175002)
svn: E175002: OPTIONS of 'http://svn.example.com/repos':
Could not resolve hostname 'svn.example.com': no address
associated with name (http://svn.example.com)
```

Developers See Error Traces

```
$ svn ls http://svn.example.com/repos
subversion/svn/list-cmd.c:301: (apr_err=670005)
subversion/libsvn_client/list.c:153: (apr_err=670005)
subversion/libsvn_client/ra.c:461: (apr_err=670005)
subversion/libsvn_client/ra.c:321: (apr_err=670005)
subversion/libsvn_ra/ra_loader.c:496: (apr_err=670005)
subversion/libsvn_ra/ra_loader.c:496: (apr_err=670005)
svn: E670005: Unable to connect to a repository at URL
'http://svn.example.com/repos'
subversion/libsvn_ra_serf/serf.c:430: (apr_err=670005)
svn: E670005: no address associated with name
```

SSL error code -1/1/336032856

```
svn: OPTIONS of 'https://svn.example.com/repos':  
SSL negotiation failed: SSL error code -1/1/336032856
```

- reason: *ServerName* parameter in *httpd.conf* does not match hostname given in SSL certificate (found out via www search)
- comes from SSL library and HTTPD – no good way to fix in Subversion

Update Report Editor

A failure occurred while driving the update report editor
[500, #190004]

- generic server-side error message during updates (could mean anything)
- generated by mod_dav_svn
- human-readable error message is sent to client
- only APR error code is logged on server (**#190004**)
- should be fixed to log human-readable error message on server

Decoding APR error codes

```
$ ./tools/dev/which-error.py 190004  
00190004  SVN_ERR_APMOD_CONNECTION_ABORTED
```

<https://svn.apache.org/repos/asf/subversion/trunk/tools/dev/which-error.py>
(needs Subversion python bindings)

What can developers do?

Fix omissions in error handling:

```
-----
r876615 | jrvernooij | 2009-03-14 16:07:08 +0100 (Sat, 14 Mar 2009) | 6 lines
* subversion/libsvn_ra_neon/util.c(generate_error): Return
  SVN_ERR_RA_DAV_FORBIDDEN for 403 errors.
-----
```

Fixed this obscure message:

```
svn: Server sent unexpected return value (403 Forbidden) in
response to MKACTIVITY request for
'/svn/!svn/act/d5936c16-fd56-4f62-a9f1-b1285bea6c7'
```

to say:

```
svn: Access to 'https://my.cool.server/f00/trunk' forbidden
```

What can developers do?

Use `svn_error_quick_wrap()` to add information to errors:

```
-----
r898777 | julianfoad | 2010-01-13 15:41:29 +0100 (Wed, 13 Jan 2010) | 7 lines
```

```
On failure to connect to the repository, give a consistent and readable
error message. This particularly helps in cases where the error message
from the specific RA layer is poor, such as RA-Neon's "200 OK" error message.
-----
```

Improved this obscure message:

```
svn: REPORT of '/svn/!svn/vcc/default': 200 OK
```

to say:

```
Unable to connect to a repository at URL
'http://svn.example.com/repos'
```

What can developers do?

Make error handling more specific on a case-by-case basis.

r1098986 | philip | 2011-05-03 11:41:56 +0200 (Tue, 03 May 2011) | 4 lines

* subversion/mod_dav_svn/util.c

(dav_svn__convert_err): When a client sends a mismatched lock token and
owner return "423 locked" rather than "500 internal server error".

What can developers do?

Make error handling more specific on a case-by-case basis.

 r939000 | rhuijben | 2010-04-28 18:15:57 +0200 (Wed, 28 Apr 2010) | 18 lines

Provide an error message instead of just 'connection truncated' when updating to a revision higher than the current head revision of the repository over HTTPs.

 Improved this obscure message:

```
svn: E175002: REPORT of '/repos/asf/!svn/vcc/default': Could not
read chunk size: Secure connection truncated
(https://svn.apache.org)
```

to say:

```
svn: A reported revision is higher than the current repository
HEAD revision. Perhaps the repository is out of date with respect
to the master repository?
```

What can users do?

- update clients and servers to latest versions to get fixes
- decode APR error codes found in server log files
- compile svn in maintainer mode and read error traces
- search for error strings on the world wide web
- ask for help on the users@ list
- help us identify obscure error messages and demand to get them fixed

Thank you for your attention

Questions?