

File::ExtAttr Lightning Talk

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Presented by and © Richard Dawe

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Goals of File::ExtAttr

- Cross-platform support of extended attributes on Linux, Mac OS X, *BSD, Solaris, <your OS here>
- Have fun collaborating
- Scratch my itch

What are xattrs?

- Extended attributes or “xattrs” are arbitrary metadata in (key, value) pairs

OS	Xattrs supported?	Namespace type
Linux	Yes	Pre-defined, text
Mac OS X	Yes	Unsupported
FreeBSD	Yes	Pre-defined, numeric
NetBSD	Yes and no	Pre-defined, numeric
OpenBSD	No	Not applicable
Solaris	Yes	Unsupported

Example

```
use File::ExtAttr ':all';  
use IO::File;
```

```
setfattr('foo.txt', 'colour', 'red') || die;  
my $colour = getfattr('bar.txt', 'colour');  
if (defined($colour))  
{  
    print $colour;  
    delfattr('bar.txt', 'colour');  
}
```

Uses for xattrs

- Security: SELinux, Samba, NFSv4
- Indexing and searching: Beagle
- Blogging: Angerwhale
- Tagging images, so some are preferred on certain days by “image of the day” software
- xmlfs, XML filesystem
- <your suggestion here>

Fix it, *fix it*, FIX IT!

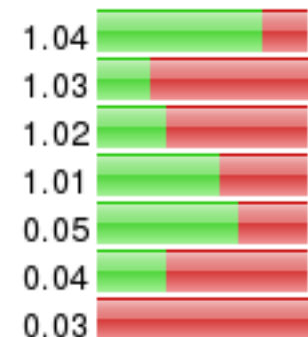
CPAN Testers: Reports for File-ExtAttr

These are the test reports that we have for the CPAN distribution [File-ExtAttr](#).

Version summary:

File-ExtAttr 1.04 (2 FAILs, 7 PASSes)

- PASS [484644](#) 5.9.5 patch 31209 on Netbsd 3.1 (i386-netbsd-thread-multi-64int)
- PASS [482910](#) 5.8.8 on Solaris 2.10 (i86pc-solaris-thread-multi-64int)
- PASS [482392](#) 5.9.5 patch 31198 on Netbsd 3.1 (i386-netbsd-thread-multi-64int)
- FAIL [481041](#) 5.9.5 patch 31192 on Cygwin 1.5.24(0.15642) (cygwin-thread-multi-64int)
- PASS [479773](#) 5.8.7 on Solaris 2.11 (i386-pc-solaris2.11-thread-multi)
- FAIL [477260](#) 5.8.8 on Cygwin 1.5.21(0.15642) (cygwin-thread-multi-64int)
- PASS [477220](#) 5.8.8 on Solaris 2.9 (sun4-solaris-thread-multi)
- PASS [475771](#) 5.8.8 on Netbsd 3.1 (i386-netbsd-thread-multi-64int)
- PASS [475766](#) 5.8.8 on FreeBSD 5.3-release (i386-freebsd-thread-multi-64int)



Thanks for all the patches!

Portability Complications

- Namespacing or not
 - Caller's problem in 0.0x
- Ways of creating attribute, if needed
- Ways of creating attribute, or failing if exists
- Ways of updating attribute, or failing if missing
 - None of these flags were supported in 0.0x
- Solaris, why art thou so different?

Portability Solutions

- Module calls into XS, which calls into a standard C interface
- Each platform provides an implementation
 - *BSD share an implementation
- Namespaces and flags are handled by an optional hash argument, which has sensible defaults
 - Namespace defaults to the “user” namespace

Performance

- How fast is using xattrs?
- Why not store your metadata in an sqlite DB?
- Beagle project FAQ says:
“Do I really need extended attributes? It is strongly recommended. There is an sqlite-based fallback in place, but using this as the primary store is slow and noticeably degrades performance.”
- Benchmarking needed for each platform

Futures

- Windows support?
- Cygwin support?
- Symlink support (`lgetfattr()`, `lsetfattr()`, etc.)
- <your idea here>

History

- `Linux::xattr`: Collaboration with Kevin M. Goess
- `File::ExtAttr 0.03`: Security fix
- `File::ExtAttr 0.04`: Mac OS X support (jrock)
- `File::ExtAttr 0.05`: Tied access (dgl)
- `File::ExtAttr 1.00`: Solaris, *BSD support
- `File::ExtAttr 1.04`: Fewer bugs (rafl, jrock, me)

Further Information

- The module: <http://search.cpan.org/dist/File-ExtAttr/>
- FreeBSD Access Control Lists:
http://www.onlamp.com/pub/a/bsd/2003/08/14/freebsd_acls.html
- Filesystem benchmarks of xattrs from 2004:
<http://lwn.net/Articles/112566/>
- Angerwhale:
<http://search.cpan.org/dist/Angerwhale/lib/Angerwhale.pm>