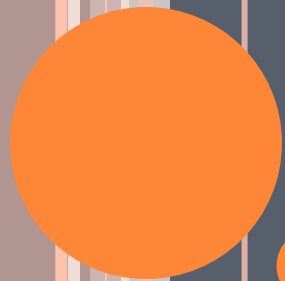


PHP RUNS EVERYWHERE

If you can compile it...

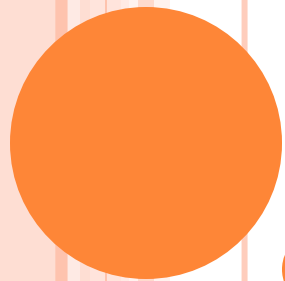
- Unix
- Windows
- Linux
- Embedded Systems
- Risc
- NetWare
- I5 (or whatever it's called this week)





OTHERWISE KNOWN AS

Elizabeth ranting about pet peeves!



CROSS PLATFORM PHP

Write once... run on your phone?

FACTS ARE BETTER THAN WHINING

- Operating systems are different
- Being different is not a bad thing
- Operating systems have a lot of similarities
- Learning the key differences is easy



UNIX BASICS

- What is UNIX?
- Been around a LONG time
- Must conform to Single UNIX specification
- UNIX is the trademark



UNIX DISTRIBUTIONS

- Proprietary

- Solaris
- HP-UX
- AIX
- OS X

- Open Source

- OpenSolaris
- OpenDarwin (OS X)

- BSD

- OpenBSD
- FreeBSD
- NetBSD



USING UNIX

- Kernel
- Shell
- Programs
- Everything is a
 - File or
 - Process
- Filesystem
 - /
 - /home
 - /tmp
 - /usr
 - /var
 - Case Sensitive
 - CLI based
 - Can have GUI on top (using X)



UNIX AND SHARED LIBRARIES

ELF

- Most Linux and UNIX
- .so files

Mach-O

- Mac OS X
- .dylib files



SO WHAT ABOUT LINUX?

- Linux is just a kernel
- Linux is usually consumed through distributions
- Distributions build GNU utilities and GUI on top
- Most the functionality is identical to UNIX
- There are some differences



LINUX VS. UNIX

Linux

- Multiple Vendors
- Kernel
- Open Source
- Usually ext3 and ext4

Unix

- Single Vendor
- Complete System
- Mixed
- jfs, gpfs (AIX), jfs, gpfs (HP-UX), jfs, gpfs (Solaris)



WINDOWS BASICS

○ Case Insensitive

- You can make it sensitive in NTFS
- The problem is half your windows programs don't know how to do this

○ GUI Based (except for Server core – that's a whole nother story)

○ Filesystem

- Backends are FAT and NTFS
- If you're using FAT – get out
- Drive letter abstraction (C:/)



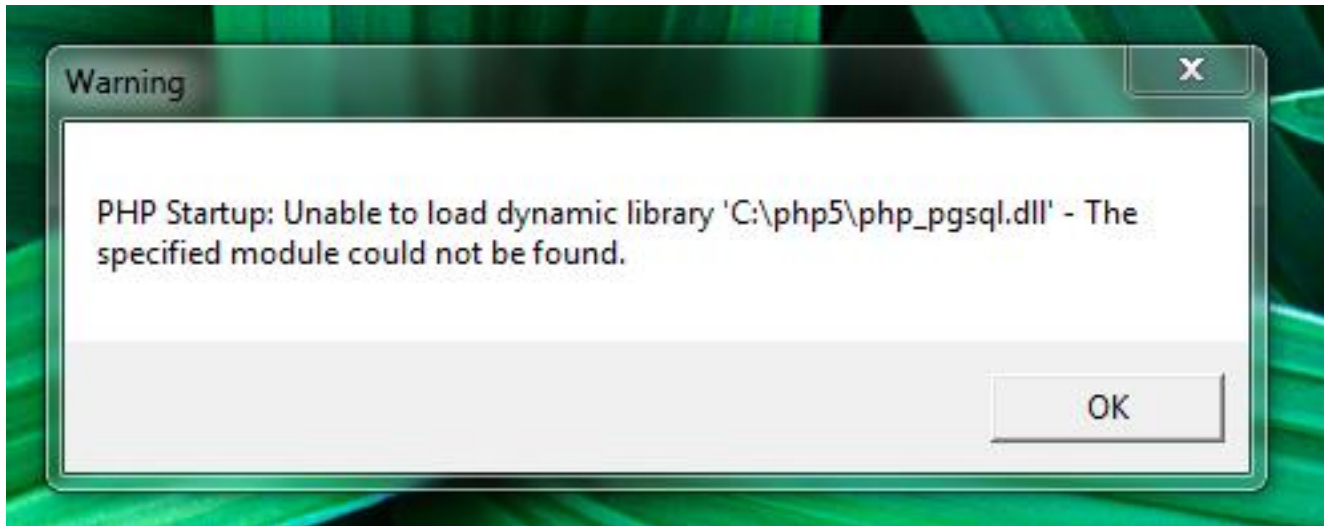
WINDOWS LIBRARIES

- DLL HELL
- SxS is the fix – two people on earth know how to use it (documentation Sigh)
- What do you need to know about dlls?
 - What is my search path
- The directory where the executable module for the current process is located.
- The current directory.
- The Windows system directory. The **GetSystemDirectory** function retrieves the path of this directory.
- The Windows directory. The **GetWindowsDirectory** function retrieves the path of this directory.
- The directories listed in the PATH environment variable.



THE HORRIBLE ERROR

- This does not mean what you think it means
- This is passed from the OS (why, I have NO CLUE)
- This means “I want a C function from a DLL, I can’t find the DLL or the C function – I can’t do this, have a nice day”



A decorative vertical bar on the left side of the slide, featuring a gradient from dark blue to light orange, with several vertical lines and a series of orange circles of varying sizes.

INSTALLATION AND CONFIGURATION

Tips to get PHP running wherever you are

UNIX AND LINUX

- Use the distributions
- Compile your own



HOW DISTRIBUTIONS SCREW IT UP

- Patches beyond backporting security fixes
- Additional extensions that change behavior
- Altering header files
- Stripping binaries of symbols
- Experimental Flags on
- Turning off default extensions (`--disable-all`)
- Take forever to update versions
- `--enable-maintainer-zts`
- Using system libraries instead of bundled versions



HOW DISTRIBUTIONS HELP

- Simple installs for newcomers
- Binaries with locations tailored to the environment
- Support
- (Marginally) Sane default settings
- Lots of extensions available



HOW TO DECIDE

- Is this a production box?
- Is this a staging box?
- Is this a development machine?
- Will some crazy person decide to put this live from this box for everyone in the company?



WINDOWS

- Windows is the only system for which PHP currently provides binaries
- Use PHP's binaries – we do not screw with the source... or
- Use the WebPI installer – they use PHP binaries
- Compile your own, if you're brave





ON TO THE CODE

Issues that PHP just can't do for you

ENVIRONMENTAL DIFFERENCES

- `$_SERVER` contents
- Information about the system
 - You can use COM to get information about windows
 - Environment information can be different
- Don't hard code anything
 - Make this your mantra



SERVER DIFFERENCES

- IIS
- Apache

- Real difference is in the SAPI not the server
 - Fastcgi
 - Mod_php
 - Isapi (ewww – run away)
 - Nsapi
 - Etc...



STUPID CODING ISSUES

- Be careful with streams and sockets
- `stream_select` and `stream_set_blocking`
- Process spawning (`com` can help in some cases with `wscript.shell` stuff)
- Using platform specific stuff (`pcntl`, etc)
- BUT: I see no problem filing a bug if the function does not work the same on multiple platforms!



BATCH FILES WON'T KILL YOU

```
@echo off
```

```
dir "C:\Program Files" > C:\list_of_program_files.txt
```

```
dir %1\*.mp3 > %2
```

```
xcopy %1 %2 /d /s
```

- Different Commands
- You can stick a bunch of linux command line tools in your PATH to make things work better
- <http://gnuwin32.sourceforge.net>



NEITHER WILL BASH (I PROMISE)

```
#!/bin/bash
```

```
tar -cZf /var/my-backup.tgz /home/me/
```

```
grep da * 2> grep-errors.txt
```

- More like batch files than you think





DIFFERENT IS NOT WRONG

Why knowing the pitfalls leads to more robust code

THANKS!

- Elizabeth M Smith auroraeosrose@gmail.com
- <http://www.ee.surrey.ac.uk/Teaching/Unix/>
- <http://tldp.org/HOWTO/Bash-Prog-Intro-HOWTO.html>
- <http://www.computerhope.com/batch.htm>
- <http://iis.net/php>

