

# open



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## Building And Deploying OpenSolaris

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# What Is OpenSolaris

- Open development effort based on the source code for the Solaris Operating System
- Goals: innovation, collaboration and the extension of OpenSolaris technology.
- **Not an installable binary image or product**
- Collection of source bases (*consolidations*) and projects
- ON – kernel and userland – Nevada Project
- Developer communities, coordinated via the [opensolaris.org](http://opensolaris.org) infrastructure



# What You Need To Get Started

- Solaris Express
  - Download from [sun.com](http://sun.com)
- Build Tools – onbld
  - Download from [opensolaris.org](http://opensolaris.org)
- Compilers
  - Sun Studio 11 + Patches is recommended
    - Download via [opensolaris.org](http://opensolaris.org)
  - Gcc compilation possible – version 3.4.3
    - `/usr/sfw/bin/gcc`
- Encumbered Binaries
  - Download from [opensolaris.org](http://opensolaris.org)



# Getting The Source

- Browse the Source at
  - `http://src.opensolaris.org`
- Get The Source With Mercurial
  - `/usr/bin/hg` – available in Solaris Express
- Create a local copy of the code/workspace
  - `hg clone`  
`ssh://anon@hg.opensolaris.org/hg/onnv/onnv-gate`
- Keeping In Sync
  - `hg update`
- Tip : use ssh to speed up access
  - `http://blogs.sun.com/sch/entry/tip:_mercurial_atop_ssh`



## Handy Tools : wx is your friend

- Mercurial changes are ongoing
  - ( [hg.opensolaris.org/hg/scm-migration/onnv-scm](http://hg.opensolaris.org/hg/scm-migration/onnv-scm))
- Wx makes your life very, very easy
  - Used for editing and keeping track of changes
  - Use wx nits to catch common problems
  - Use wx pbchk to make sure your okay to putback
- Webrev is used for code reviews
  - Generates html, pdf and patch output
  - Hosting for webrevs available at <http://cr.grommit.com>



## Build Environment & Tools

- Setup your onbld tools path
  - Be careful, a clean environment makes life easier
- Tools – nightly(1) and bldenv(1) need an environment setup
- Example OpenSolaris env file
  - `$MYGATE/usr/src/tools/env/opensolaris.sh`
- Important variables
  - `$GATE`, `$STAFFER`, `$CODEMGR_WS`
- Important and/or handy nightly options
  - `-a`, `-D`, `-z`



# Building Everything

- Use nightly to do your build
  - Go to your source dir (`cd $MYGATE`)
  - `nohup nightly ./opensolaris.sh &`
  - This builds everything
    - Think `make clean; make`
  - Use `-i` for an incremental build
- Follow your build
  - `tail -f $MYGATE/log/nightly.log`



## .... and just building something

- Do a full build first, unless you're just doing a kernel build
- Setup your environment with `bldenv(1)`
- Go to the directory with your changes
  - If you are using `wx` you could just do a `wx list` and see where your changes are (really, use `wx`)
- Use `dmake(1)`
- Kernel example
  - `bldenv ./opensolaris.sh`
  - `cd $MYGATE/usr/src/uts`
  - `dmake all`



## Enough, let's do something....

- Adding a syscall
  - Gratuitously borrowed from Eric Schrock
  - [http://blogs.sun.com/eschrock/entry/how\\_to\\_add\\_a\\_sys](http://blogs.sun.com/eschrock/entry/how_to_add_a_sys)
- Slightly modified (and a hint for later)
  - `fintanr_likes(2)`
- .... and build .....
- `nohup nightly ./opensolaris.sh &`
- But a quicker example for now ...
  - `bldenv ./opensolaris.sh`
  - `cd $MYGATE/usr/src/cmd/vi`
  - `dmake all`



# Installing and testing your changes

- **BFUs**
  - Be careful, Bfu is a developer tool, not something for use on production systems
  - Tip : liveupgrade is your friend here
  - Tip : zfs-mountroot
    - [http://blogs.sun.com/timf/entry/zfs\\_mountrootadm](http://blogs.sun.com/timf/entry/zfs_mountrootadm)
- **BFU can create conflicts**
  - acr is used to resolve conflicts
  - acr is very, very important
- **Cap-Eye installs....**
  - Installs a kernel only
  - Handy for quick tests



# Get Involved

- More than just the kernel....
  - Don't be scared, it's not all kernel land
    - GNOME on Solaris, USB, SMF are just some examples
- Take a look at the bite-sized bugs
  - <http://bugs.opensolaris.org>
- Sign up to the discussion lists
- Download an OpenSolaris distro
- Play with the code... at worst you might need to reinstall
  - But not if you used liveupgrade :)



## Credits, Thanks and a Demo

- Stephen Lau
  - Building OpenSolaris Presentation from the OpenSolaris Roadshow
- Darren Moffat
  - wx, webrev and mecurial info
- Tim Foster
  - Zfs tips and mountrootadm
- ... and now let's go bfu....

# open



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## Thank you!

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“open” artwork and icons by chandan:  
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