

Scratchbox2 for Debian

- Riku Voipio

maemo.ORG

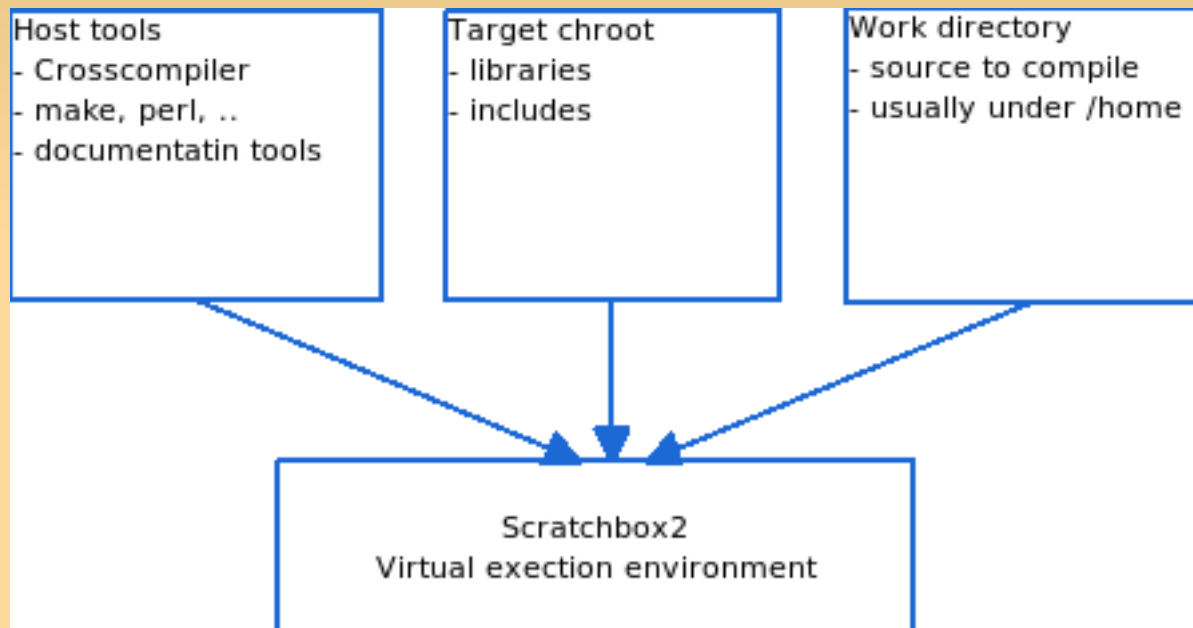


Scratchbox2

- Non-traditional solution to crosscompiling
- Virtual, native-like development environment
- Use fast host tools when possible
- ...And emulation for rest
- Tested on i386 and amd64 hosts and ARM, PowerPC, MIPS, i386 and SH targets

Virtual environment

- Mapping paths together



Setting up host

- Host tools
 - `apt-get install scratchbox2`
 - Emdebian toolchain:
 - `deb http://www.emdebian.org/debian/ unstable main`
 - `apt-get install g++-4.3-arm-linux-gnueabi libc6-dev-armel-cross`
 - Other essential tools:
 - `apt-get install build-essential debootstrap fakeroot`
 - ...any typical tools needed for your development

Creating scratchbox config

- `cd /targets/armel-sid`
- `sb2-init -n -c /usr/bin/qemu-arm ARM "arm-linux-gnueabi-gcc"`
 - Configures `/data/armel-arget` to use `qemu-arm` as cpu transparency method
 - And `arm-linux-gnueabi-gcc` as the compiler form `$PATH`
 - Qemu from git HEAD / 0.11 recommended

Creating target filesystem

- Debootstrap in sid has right variant
- `fakeroot /usr/sbin/debootstrap --variant=scratchbox --foreign --arch armel sid /targets/armel-sid http://ftp.fi.debian.org/debian`
- “-e” for emulate (chroot) mode, “-R” for (fake)root
- `sb2 -eR ./debootstrap/debootstrap --second-stage`
- Edit `./etc/apt/sources.list` to your liking
- `sb2 -eR`
 - `apt-get update; apt-get install build-essential fakeroot`
 - `exit`

Building the first package

- `Cd ~/workdir`
- `Apt-get source hello-debhelper`
- `apt-get build-dep --no-install-recommends hello-debhelper`
- `sb2 -eR apt-get build-dep --no-install-recommends hello-debhelper`
- `Sb2 dpkg-buildpackage -d -rfakeroot`
- `success?`

Mapping modes

- emulate
 - Basicly just a cross-arch (fake)chroot
 - Use it for target management (apt-get)
- simple
 - Most stuff from host, minimal required from target
 - For building software
- devel / accel
 - “scratchbox1 drop in”

Tools distro

- Host and target distro must be 100% compatible!
 - Host: ubuntu jaunty, target maemo = BAD
- Tools distro is host-arch version of the target distro (nb mentioned on multiarch talk)
 - When a tools distro is enabled, instead of host tools tools are used from the tools distro.
 - Host = ubuntu jaunty amd64, target = lenny armel, tools= lenny i386
- -m tools mapping for bootstrapping and installing to tool distro

Debugging

- Logging options: -L
error,warning,notice,info,debug,noise, ...
- Tracing tools: QEMU_STRACE, ltrace, strace
- Use Emulate mode for “leaks”
- Use Nomap mode to test for sideeffects of LD_PRELOAD

Build time results

- Overhead from filesystem operations considerable
- Best speed advantage from c++ apps
- gzip/lzma other slow commands on big packages
- Future optimizations via “faked” style “sboxd”