

Mamona – an open SDK for Maemo

- Sponsored by Nokia Institute of Technology (INdT) – Recife – Brazil
- Project crew (#platform team):
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Origins of the name 'Mamona'



- Mamona is “castor oil seed” in Portuguese
- Source of oil and biodiesel
- Pun with other projects' names (Maemo and Canola)

Reasons for the project – in a nutshell

- Maemo is open, which is an improvement over e.g. Symbian
- But the development process is not so open, for several reasons
- Some people might prefer a non-Scratchbox development environment (e.g. in automated tests)
- Specifically, sometimes a fully-emulated ARM environment would be better
- It is not easy to update core components in Maemo SDK, like the toolchain or glibc, since they are external to the SDK

Reasons for the... (continued)



- Most of the reasoning for Mamona came from the Python for Maemo project
 - Compilation on a partially-emulated ARM environment brought some funny problems, since the fresh-compiled interpreter is run during its own building process
 - Some module-loading optimization tests involved updating the library loading system, which was difficult under Scratchbox

Reasons for the... (continued)

- Maemo development process is not as open as we would like:
 - As a new SDK is release, open-source projects (like Python for Maemo) need to rush to provide packages
 - Upgrade path could be smoother, like a Linux distro
 - (IMPORTANT) It is not possible for an “outsider” to build Maemo from scratch, either by dependency problems or lack of documentation
 - No streamlined way to receive community-generated improvements

Reasons for the... (continued)

- Scratchbox environment is great, but it could be optional
 - Sometimes a fully emulated environment, where everything ran under qemu-arm, would be desirable
 - Python for Maemo building/testing
 - Sometimes a plain insulated chroot would be just fine
 - Easy to create and destroy by automated scripts
 - Perfect insulation from other environments

Reasons for the... (continued)



- Different than Symbian, Maemo target device runs exactly the same operating system as the development workstation
- Almost 100% of the development cycle is carried out under i386 (big exception: DSP-dependent software)
- ARM target is mostly used to build the final target packages
- “Real” ARM testing must be done on the device anyway
- Conclusion: the partial ARM emulation done by Scratchbox is underused. Full ARM emulation would be simpler, slower, and perfectly acceptable.

Project guidelines

- Keep it the simplest possible
- Each environment is a separate chroot “sandbox”
- Except for the very small sandbox rootstrap, everything is installed via apt-get
- The ARM sandbox runs fully emulated: shell, compiler, package installer, everything! (except the kernel – maybe someday :)

Project guidelines (continued)

- No automatic sharing of data between environments, except by /tmp
- Debian development guidelines (stable, unstable, testing, automated building and testing etc. etc.)
- Open development workflow
- Software packages will come mostly from Maemo open repositories

Project guidelines (continued)

- What to do about Maemo closed-source packages?
 - may be replaced by open-source versions in the future
 - a challenge for generation of Mamona flash images for Internet Tablets
- Will also generate rootstraps for Scratchbox
- The development process will be fully documented

Mamona milestones

- Milestone 1: to be a capable SDK
 - allows development in the desktop
 - builds packages that work on Internet Tablets
- Milestone 2: to generate flash images for Internet Tablet devices
 - allows generation of nonstandard images with e.g. modified or updated core libraries
 - stripped-down versions for a specific application like Canola (vaguely analog to gumstix's buildroot)

Current status

- Very, very early stages of development
- Bootstrap using Cross Linux from Scratch + CodeSourcery toolchain
- QEMU 0.9 package w/ several patches obtained from community (armv6 emulation ready but not released yet)
- Fully emulated ARM sandbox is working; packages can be built inside that with *dpkg-buildpackage*.
- Package repository and community services are being set up as we speak

Relationship with Maemo project

- Mamona will employ the open-sourced Maemo software packages
- So it is not a fork
- It will be a Sardine-like environment with much more stress on openness, flexibility and process documentation.
- We expect that, eventually, Maemo project will profit from our work by absorbing the ideas, processes, scripts etc.

Relationship with Scratchbox

- Vanilla version does not depend of Scratchbox to be useful
- Mamona will generate rootstraps for Scratchbox so it can be optionally used inside it

Project risks



- Community reception (do other people praise KISS principle as much as us?)
- Sardine may take off as the open-process version of Maemo (at least we would have a reliable source of packages :)
- Nokia IPR issues?
- Playing catch-up with Maemo project and being condemned to be always late
- Not being able to provide suitable replacements for Maemo closed-source software
 - More a 2nd milestone worry

THE END

- Questions
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