

Community News

A weekly update of One Laptop per Child September 15, 2008

Technology

1. Ed McNierney joined OLPC this week. He is in charge of software, and will pick up complete responsibility before the 9.1 release. Kim Quirk will be transitioning to focusing solely on our increasing support challenge. Jim Gettys is transitioning to focusing entirely on the great challenge of touch input for Gen-2.
2. Kim Quirk helped transfer tons of stuff to Ed this week. Very excited to have him aboard! G1G1 work with marketing to get them going with the amazon store front.
3. Jim Gettys has started work on the touch input challenge. See http://wiki.laptop.org/go/Image:Gen-2_touch.pdf#file for more details, and please do come help us rise to the challenge. We cannot succeed without you! Started handing off the Fedora desktop work to Jeremy Katz, Greg Dekoenigsberg, and Sebastian Dziallas. Investigated available multi-touch products, which are few; the Dell Latitude XT seems to be about the first to market. Made tentative arrangements for Peter Hutterer of Red Hat to visit, and also for Peter give talks.
4. XO release 8.2 is approaching final test. We plan one or two more release candidate builds then barring any last minute surprises the release will be ready for shipment. For a link to the latest release candidate and instructions on testing see: http://wiki.laptop.org/go/Friends_in_testing
5. Release planning for 9.1 is starting to ramp up. The rough target for the release is first half of 2009. Early thinking and rough draft list of target features are available at: <http://wiki.laptop.org/go/9.1.0>. The brief strategy section is new so any comments or question on that are welcome.

Gen 2 News:

6. The team working on the design of Gen 2, the next-generation XO, as well as updating the current design to Gen 1.5 - Mike Bove, Nicholas, Chuck, John Watlington, Jim Gettys, Michail Bletsas and Richard Smith - met Wednesday the 10th. They reviewed the state of the Gen 2 design, with specific reference to easy battery and screen replacement, water resistance, and placement of the power connector. Jim presented an analysis of what will be involved in adding multi-touch support to the software environment. Russ Wilcox of E-Ink presented his company's latest color and video-rate screens. The Gen 2 team expects to

continue discussions with him regarding possible use of an E-Ink screen in future OLPC designs.

7. Gen 1.5 technical specs are nearing completion, with expected updates including a faster LX processor, increased DRAM of the DDR2 variety, increased flash (sufficient to support dual-boot), a newer wireless chip, and rubber bumpers to improve screen protection, if possible. Target ship date for Gen 1.5 is Q1 2009. The target for Gen 2 is Q2 2010.

Gen 1.5:

8. The desire for more non-volatile storage in future versions of the XO has OLPC pushing the limits of NAND Flash technology. For reasons discussed in earlier Community News, we are looking at devices that transparently perform a number of the functions currently provided by software running on the main processor. There are questions about the suitability of particular devices for the XO, as they are generally designed for uses (such as storing large amounts of multimedia) which have different access characteristics and tolerance to errors than the primary storage for a laptop.

9. Mitch Bradley has been working on support for one of these devices, Toshiba's LBA-NAND, in both OFW and Linux. John Watlington has laptops with a 4GB version of this device in Cambridge, and will start accelerated life testing on them next week. Samples of similar devices (eMMC) from three other vendors should arrive next week, and will also undergo the same testing. We hope to qualify at least one vendor as acceptable for our future hardware.

Firmware:

10. We discovered this week that Open Firmware 2 (used in the current q2e series of firmware releases) did not support our pre-production B2 laptops, and will "brick" them. Please do not install recent software builds on these machines until firmware Q2E18 or later is available (in a couple of weeks.)

11. Mitch Bradley and Richard Smith were busy with several incremental firmware releases made to fix bugs found in wider testing of the Q2E1x firmware. The end result being Q2E17 which is in both 8.2 and 8.1.3. The inclusion into the stable release of 8.1.x was due to needing a released firmware that can properly detect a C3 PCB when they start coming off of the manufacturing line.

12. For the EC Richard Smith spent time collecting up all the modifications that have been proposed for the 9.1 release. This week he will sit down and review those with Paul Fox and John Watlington and come up with a proposed plan for 9.1 EC code to submit into the feature set for 9.1.

Multi-Battery charger:

13. RCAL did several drop tests with the prototype units to try and find a solution that would keep the power supply PCB from cracking and breaking when the unit is subjected to a large shock. Eventually they found a series of modifications and addition of supports that they believe will allow the power supplies have to ship inside the unit and survive both the shipping an smaller impacts such as knocking the unit over or dropping it while carrying. RCAL has shipped 2 units to OLPC. One unit has a power supply inside with the shipping modifications. Two more power supplies are being shipped separately in extra packing. Sometime next week 1CC will have 2 Multi-Battery test units to start working with.

14 The power supply vendor has had their mechanical team look at the breakage problems and they introduced a series of changes that they feel should solve the problems. A test power supply has been built and is undergoing drop and vibration testing at the Taiwan design center.

15. Shipping Lithium Batteries: On October 1 new regulations and restrictions on shipping Lithium batteries will take full effect. Richard reviewed the final ruling for the new DOT regulations. He does not have the exact specification from BYD (yet) on the amount of Lithium used in our battery, but using the calculations included in the ruling the XO LiFePO4 battery is under the level of that is restricted from air travel as long as you don't carry a bunch of them. Eight grams of Lithium is the limit and using the metric Richard estimates our batteries at about 1g. While most of this is just a logistics issue for Quanta and Brightstar, some repair centers were concerned about sending and receiving bulk shipments of Li-based batteries. Shipments of more than 12 batteries in a single box do fall under the new regulations and have to have special labeling that it is restricted from air travel. Bulk shipments of batteries may also require the shipper to have a hazardous materials agreement set up with the shipping company.

Networking:

16. We have achieved a breakthrough with access point compatibility this week by debugging and producing a driver patch that addresses intermittent failures to associate with WPA encrypted access points. Javier's fix speeds up WPA encryption key installation in the driver by a factor of four, dramatically improving association success rates that have been decreasing in recent builds. It is important to note that this is a design flaw in the WPA protocol itself (the access point starts sending encrypted information without any confirmation that the necessary key has been installed on the client). Our network implementation is particularly susceptible to this bug since the encryption key has to make its way from the radio to the host kernel to the WPA process and back and there is no way to tell the AP not to send encrypted info before that path has been traversed.

We may also add some buffering for yet-to-be-decrypted WPA association frames on the firmware, so that they can be decrypted when the key has been installed. In that manner we can work around the WPA flaw regardless of how

fast the access point goes through the association encryption negotiation exchange. It should be noted that WPA2 doesn't suffer from that issue and has the added benefit of using a more efficient encryption algorithm so it should be preferred over WPA wherever that is possible.

Special kudos to Daniel Drake for diagnosing this in a precise and helpful manner, he gets the "best diagnostic intern" award!

SW Release Update:

17. We are within a few weeks of releasing 8.2. The triage team is evaluating the critical bugs every day to decide if we can fix them or work around them. Greg Smith continues to update the release notes in preparation for release. He and Michael Stone created an ECO that explains final steps to close the release. See: <http://wiki.laptop.org/go/ECO/8.2.0/Checklist> .

18. Greg updated the Release 9.1 page (our next major release) with more requirements, including those he has gathered from meetings and emails with Uruguay, Haiti, Rwanda, Birmingham, Mongolia, Ethiopia and others. He has added the brief strategy of the 3 main goals of the 9.1 (<http://wiki.laptop.org/go/9.1.0>) release.

19. Chris Ball worked with Dan Williams of Red Hat to diagnose and fix a wireless driver bug that had prevented us from turning off the wireless chipset to save power. John Gilmore tested the resulting build, and found that he was able to achieve around 45 hours of battery life in "sleep" mode with the lid closed and the system suspended! Several other power management/kernel bugs were fixed this week with help from Deepak Saxena.

20. Chris also released the first version of Wikibrowse English, an 8000-article offline snapshot of English Wikipedia. Thanks to Martin Walker and the Wikipedia Release Team for providing the article list, and to Madeleine Ball for building a snapshot with those articles. The activity is available for download on the wiki's Activities page, <http://dev.laptop.org/~cjb/enwiki/WikipediaEN-2.xo> .

21. Paul Fox tested and gathered data on various high priority bugs. He and a number of others worked on the difficult issues of the 8.2 Release, including system memory consumption and leaks, USB Ethernet behavior (suspend/resume issues), daemon socket leaks, unexpected screen dimming, and some UI issues.

22. Tomeu Vizoso and Marco Pesenti Gritti worked on several memory problems discovered during 8.2 testing, and apparently the main cause of instability. Tomeu moved the Journal activity to run inside the same process as the shell, which could save us around 10MB (exact value needs to be checked) and will allow for easier integration of the Journal inside the Sugar shell. Marco

discovered how to reduce the Sugar shell memory usage by replacing some heavyweight dependency, which should gain us 6 MB or more at startup. He also investigated the leaks caused by buddies appearing and disappearing from the mesh view. We tracked down almost all of them, part in Sugar and part in the system. Patches are being worked on and will hopefully land this week. All the other Sugar blockers are fixed in joyride and are making their way into a stable build. Marco and Simon Schampijer also worked on the bundlebuilder so that rpm packaging of activities will be easier.

23. Sayamindu Dasgupta worked on possible ways to convert the existing keyboard layout data into a format suitable for SCIM <http://en.wikipedia.org/wiki/Scim>. He wrote a tool which is able to parse the XKB symbol files and extract the mapping data out of it. The tool is in git at <http://dev.laptop.org/git?p=users/sayamindu/xkb2scim> He worked on the Paint activity performance regressions, and created fixes for the most visible performance issues (#8285). Sayamindu also published a list of administrators of all languages currently in Pootle - it is available online at <http://dev.laptop.org/~sayamindu/pootleadmins.txt>

We received some screen-shots from the China people (at the university?) earlier where they were actually using SCIM (probably by following the instructions at <http://wiki.laptop.org/go/SCIM>) There are various possible input mechanisms they might be using, and some of them do not require Chinese symbols to be printed on the keyboard. They usually enter the phonetic romanized equivalent, and a small window pops up, showing them a list of choices (sometimes arranged in order of probability), one of which is chosen (somewhat similar to what we have on some mobile phones). This kind of input is usually achieved via SCIM.

We need to probably decide soon whether we want to go for SCIM or not - currently the reasons for going for SCIM are

- a) China will probably need SCIM to be preinstalled
- b) Ethiopia wants a better way of entering their characters (currently, they enter the character ህ (which is pronounced as 'hu') with the sequence 'u' followed by 'h', which can be difficult to pick up
- c) The current Nepali layout will not be possible without SCIM unless we are prepared to do a large number of hacks with our current input framework (and this will be difficult to get into upstream).

24. Deepak Saxena also worked on the bug fixes for 8.2. Deepak spent some time creating new kernel repositories in preparation for maintaining multiple released kernels and on making our overall driver code cleaner for upstream maintenance.

25. Simon Schampijer continued this week in fixing bugs and smaller regressions for the 8.2 release. In collaboration with nearly the whole techteam we landed the discard network history feature for the control panel #7480.

26. Martin Langhoff reports the F9-based School Server build now installs and upgrades cleanly -- not entirely "release" quality but we have a fairly usable XS at this stage. Now Martin Langhoff is back into feature work, with a strong focus on delivering an initial Moodle-based Web UI for the School Server. For a while, school servers have been able to check newly installed material such as activities or leases against a manifest describing what should be there, but it hasn't been able to check that that manifest is trusted. This week Douglas Bagnall worked to make sure it can. He also packaged a version of idmgr for Fedora 9. Until Dougless writes more about this the git is at: <http://dev.laptop.org/git?p=users/martin/xs-tools.git>

27. Bert Freudenberg reports the Etoys team launched the redesigned <http://squeakland.org/> website this week. There is much improved content and tutorials. It features a new Etoys release for Macintosh, Windows, and Linux which is compatible with the OLPC version now. Example projects are embedded in the website and viewable with the Squeakland browser plugin. On the XO, visiting these projects downloads them to the Journal instead.

28. Morgan Collett tested collaboration using Read, and scared up a couple of issues with the sugar.network code it uses for HTTP, working around them in Read for now. To get the new license field into activity.info, he did releases of Read, Chat and Paint - which included patches from Tomeu and Sayamindu. Morgan also started notifying activity authors of this license field and the need to fix MANIFEST files.

29. Guillaume Desmottes improved the new ejabberd package to allow easy (if not automatic) creation of the shared roster group (#5310). He fixed various bugs as making the "sugar-xos" working again on XO and with sugar-jhbuild (#7811) or the default jabber server configured (#8346, #8354 and #8368). Finally, he started to stress test ejabberd using hyperactivity in order to better understand ejabberd scalability problems (as #5313).

Testing:

30. Joe Feinstein and Frances Hopkins tested build 8.2-759. This build demonstrated the best stability since the new Sugar design was introduced. No single laptop out of ~ 40 crashed to the point of becoming completely unusable without a reboot after the new build was installed. Though we experienced some trouble installing the build over the Internet (olpc-update) (maybe due to the RF situation at 1cc). One unusual effect was that the previously unsecured machine somehow became secured during the (online) build upgrade, couldn't even be booted and required obtaining a developer key to rectify the situation.

We also observed the suspected memory pressure effect in two laptops connected to a school server, as well as the presence service's misbehavior, observed in laptops sitting on a mesh network; it resulted in not seeing (in the Neighborhood view) all laptops actually connected to the same mesh and stopped shared activities that were still shown in the Neighborhood view of machines connected to the network.

We and the members of the volunteer community wrote and modified some of the test cases.

31 Kim Quirk wrote a couple of test cases and did a minimal amount of testing on 714 (signed) and 759 and reviewed the biggest outstanding issues from QA perspective (presence issue on the mesh, crash/hangs, how/when to test and document power management issues)

Support:

32. Reuben Caron gathered and updated deployment information for use on the public and private wikis from Kim Quirk and others. He also worked with the deployments in Rwanda and Mongolia, testing the XS.4 build for XO backup and restore. Reuben met with learning team members from Birmingham to discuss the project and also helped the learning team with technical details for next week's Learning Workshop.

33. OLPC Europe has had several conference calls with the Dubai coordinator about the Arabic XOs, which seem to malfunction.

34. Daniel Drake worked on the 8.1.3 software release, the candidate build for Ethiopia. Daniel is en route to Ethiopia, where he will spend four weeks educating and assisting the local team with their 5000 XO rollout.

35. Kim Quirk met with Adam Holt and repair/spare parts centers to come up with better ways to work together, thoughts on shipping overseas discussions with support-gang on how could we include Canada and France (the first two countries currently outside the G1G1 program that have proponents who can possibly help)

36. Kim also created and presented our collaboration/connectivity solutions (what works today) and anti-theft in delivery chain security feature to sales team; answered questions on mesh, sharing activities, AP and school server solutions participated in discussion on country agreements to ensure the tech and support issues are well represented.

And in other news...

Rhode Island: Nicholas last week delivered the keynote at the inaugural ceremony for John Maeda, who was installed as the 16th president of the Rhode Island School of Design. John was both a student and a faculty member at the Media Lab. While this does not sound directly related to OLPC, he was involved in the nascent period while conceiving a program in SIMPLICITY.