The Debian New Maintainer Process: History and Aims

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1 Introduction

The Debian New Maintainer process forms a key part of Debian's social and organisational structure. Debian has a large body of volunteer Developers, distributed across many countries, and for some years has been running the New Maintainer process as a formal procedure for entry to the organisation. The process is unique to Debian, and the standards it enforces are widely considered to make a significant contribution to Debian's reputation for technical excellence. It is possible to work on Debian packages without becoming an official Developer, but to upload packages directly to the Debian archive, and to vote in Debian elections, it is necessary to go through the New Maintainer process and become an official Developer.

At the same time, many people outside the project see the New Maintainer process as a negative barrier to joining Debian. Some who get as far as applying to the process get bogged down when they receive their first communications from their Application Manager. We suggest that both these problems are often due to false perceptions of the process, for example in misunderstanding what kind of responses Application Managers expect from their applicants.

In this paper we describe how the New Maintainer process evolved over the years, and explain what its various parts are intended to achieve. We hope that this will help people who would like to join Debian understand the purpose of the tests they have to go through in the New Maintainer process, and that it will clarify discussion about the aims of the current New Maintainer process for those inside Debian, by reminding them why the various requirements were originally introduced.

2 History of the New Maintainer process

When Debian began, there was an extremely informal process for becoming a New Maintainer: applicants only needed to send in their details, and accounts would be created for them. As Debian grew, the process became more formal, with applicants questioned about their skills and their views on software freedom. This scheme in turn failed to scale with Debian's growth, and the New Maintainer process ground to a halt until it was revived in a still more formal version, with many more people involved in running it.

Initially Ian Murdock, the founder of Debian, controlled upload access. Some people had a password for an FTP account that allowed them to upload directly, while others uploaded to a staging area, where Ian could examine the packages, and move ones he liked into the official archive. There was to some degree an informal 'web of trust' as people were introduced to the project by friends, or came through the early association with the Free Software Foundation. Bdale Garbee [pers. comm.] describes how he became involved in the project:

> I read IanM's Debian Manifesto, resonated with it, and dove in. Within a couple days of getting an early mostly unreleased Debian system running, I was asking Bruce [Perens] how to contribute a couple of utilities that I considered essential that Debian didn't have (like 'watch'). After a couple email iterations, I offered up a package, and he emailed IanM to tell him who I was and what I'd done. I got a nice email back from IanM thanking me for my contribution, and welcoming me to the Debian project. ;-)

As Debian grew, the first formal process was created for joining: until April 1997, Bruce Perens dealt with creating accounts for New Maintainers. People who wanted to take over an existing package or upload a new one could email `new-maintainer@debian.org` to ask for an account.

In April 1997, Bruce delegated approval of New Maintainers to the security team, Christian Hudon and Klee Dienes. Processing of New Maintainers had previously slowed down or stopped, but now a new stream of applicants was accepted. At this stage applicants were expected to say who they were, and what they planned to do in Debian, and attempts were made to verify that they were really who they claimed.

By September 1997, the New Maintainer process had again ground to a halt. James Troup and Martin 'Joey' Schulze offered to help out. James Troup [pers. comm.] describes his initial involvement:

> At a Linux conference in Aachen, around September 1997 or so,

Joey (Martin Schulze) and I hatched a plan to basically hijack new-maintainer in order to rescue it from stagnation.

James and Joey established a set of minimal procedures, designed to test for basic competence and suitability of applicants:

When we took it over, we instituted minimal procedures—before that there wasn't really any (AFAICR)—*i.e.* we had to have a trust path to you. (Though in those days, we relied a lot more on scanned photo-ID (!), as the web of trust hadn't really exploded to usable levels like it has today.)

We didn't have the whole novella question/answer thing, and you merely had to say what were you going to be working on, not be able to prove you could/had already.

We did however phone every applicant. We would ask the applicant about what they planned to do for Debian, check they weren't completely clueless/opposite-aligned when it came to core freeness issues, and try to get a general impression of their technical competence and involvement/awareness with/of Debian. Despite the call usually not lasting very long (though I had one or two that were over an hour—fun, given they were to the U.S. and I was a student!), it was surprising how much you could get from the call.

For two years, James and Joey ran the New Maintainer process using these procedures.

In October 1999, James announced he planned to resign from New Maintainer. There had been complaints about the speed at which applicants were being processed, but James felt that Debian was growing too fast as it was, with the additional Developers increasing the bug count as they added new packages, rather than helping with existing problems. James believed that better vetting of applicants was needed, but that even as it was the workload was far beyond what Joey and he could manage.

Following James' resignation announcement, the then Debian Project Leader, Wichert Akkerman, proposed a new procedure for handling New Maintainer applicants [5]. Wichert suggested that a new New Maintainer committee should be recruited to process applicants. Members of the team needed to be experienced Developers, with strong views in favour of free software, who could be trusted more than ordinary active Developers, and who understood the responsibility involved in accepting new Developers to Debian. James agreed to remain on the New Maintainer team.

The new procedure aimed to reduce the amount of work the New Maintainer committee would need to do themselves, by involving other people in

the approval process. It also intended to preserve the requirement that had already become established, that applicants understood and agreed with Debian's principles. Wichert outlined a set of four stages: initial contact, checking identification, 'internship period', and final acceptance as Developer. The most interesting of these stages is the 'internship period': this stage has continued to evolve since Wichert's original proposal, and constitutes the bulk of the New Maintainer procedure from an applicant's point of view.

Over the next few months the details of the new process were worked out by a group led by Dale Scheetz. The new process was tested with applicants whose applications had been left pending when the old process closed. A new website was set up at `http://nm.debian.org` with details of the new process and a database of applicants [8].

In February 2001, Martin Michlmayr introduced some changes to the New Maintainer process to encourage people to become active contributors to Debian before they apply to the New Maintainer process. People who were not yet contributing to Debian would already not be accepted as Developers, but they slowed down the New Maintainer process for others who had already done more, given the limited number of people involved in running the process. Now applicants would have to find an Advocate, an existing Developer who was prepared to say that they were ready to start the New Maintainer process.

Over the next few years the New Maintainer process ran smoothly, although there continued to be complaints about the speed of processing applicants. A new requirement was added that applicants should generally have a package in the archive before applying. This formalised the process of package 'sponsorship', where a Developer vets an individual source package version from someone else before rebuilding it and uploading it to the archive. The role of the Front Desk (see section 3.2) increased alongside this; as well as enforcing these requirements, the Front Desk would check applications for problems before they were sent to the Debian Account Manager for final approval (see section 3.3).

In the same period Jörg Jaspert and others worked on the New Maintainer templates for Application Managers (section 3.1 summarises an Application Manager duties). These had begun from skeleton suggestions to Application Managers of the kinds of area they might like to ask about, but became a detailed set of questions that could be sent out directly to applicants. Some Application Managers continue to use their own approaches to showing that applicants have satisfied the philosophical and skills requirements to become Developers, but many now use these templates verbatim or with only minor changes.

In February 2005 Jörg Jaspert was appointed as a new Debian Account Manager, to take pressure off James Troup [7]. Jörg checks over all applications, while James is still responsible for final account creation.

3 People involved

In this section we give a summary of the roles involved in running the New Maintainer process, to clarify the terminology used below.

3.1 Application Manager

Most of an applicant's interactions during the New Maintainer process will be with an Application Manager. Unless there are problems, an applicant keeps the same Application Manager throughout the process. An Application Manager's job is to assess applicants, and to recommend to the Debian Account Managers those who are ready to become Developers. This is clearly a subjective decision, so Application Managers should be people who are trusted to be fair and to have good judgement. However, most Application Managers rarely reject applicants, instead leaving their applications open. Application Managers update at any time the number of applicants they would like to deal with at once, so they can take on more or fewer depending on how much time they have for Application Manager duties. There are presently 34 active Application Managers [3].

3.2 Front Desk

The Front Desk members assign Application Managers to new applicants. They try to eliminate applicants who do not satisfy the entry requirements for the New Maintainer process, so that people who apply too early do not occupy the available Application Managers. They also check Application Managers' reports on applicants for problems before applicants progress to the Debian Account Managers. At present, three people make up the Front Desk: Martin Michlmayr, Marc Brockschmidt and Brian Nelson.

3.3 Debian Account Managers

The Debian Account Managers create accounts for New Maintainers on Debian machines, and control the Debian keyring. They check reports from Application Managers and have the final say on whether someone is ready to become a Developer. There are currently two Debian Account Managers: James Troup and Jörg Jaspert.

4 The current New Maintainer process

In this section we give an overview of how the New Maintainer process is currently functioning in June 2005, then discuss each of the major stages.

Someone who wants to apply to the New Maintainer process must first find an Advocate, an existing Developer who is prepared to say that they are ready to start the New Maintainer process. Once they have an Advocate, they can apply via the New Maintainer website [3], and join the queue for an Application Manager. Front Desk members check the application before an Application Manager is assigned: before an applicant gets an Application Manager, they should normally have a package in the Debian archive, and have a signature from an existing Developer on their GPG public key.

Three primary types of checks are performed by Application Managers: applicants must give evidence of their identity; applicants must show that they understand and agree with Debian's philosophy; and applicants must show that they are technically competent.

Applicants must also agree to the Debian Machine Usage Policy [2], and say what username they would like on the Debian machines. Applicants are asked for a short public biography that can be used to introduce them to other Developers.

Once Application Managers are satisfied that applicants are ready to become Developers, they write up a private report for the Debian Account Managers and Front Desk. The private report is usually a long document, including all emails exchanged between the applicant and Application Manager as well as an assessment newly written for the Debian Account Managers. A short public summary is posted to the `debian-newmaint` mailing list. Front Desk members check over the private report, and raise any queries either with the Application Manager or directly with the applicant. Once the Front Desk is satisfied with the report, it goes to the Debian Account Managers. Currently one Debian Account Manager (Jörg Jaspert) checks over reports, while another (James Troup) is responsible for final account creation.

When an account is created for a New Maintainer, they are immediately informed by email from the Debian Account Managers, and other Debian Developers are informed in the next New Maintainer update on the `debian-project` mailing list.

4.1 Advocate

An Advocate is an existing Debian Developer who vouches for the suitability of an applicant to the New Maintainer process. Any applicant who already has a package in the archive, as is now required for applicants who want to join Debian to work as package maintainers, must have already interacted with a Sponsor who checked and uploaded the package. A Sponsor is therefore often the most suitable person to be an Advocate, since they have first-hand knowledge of the applicant's Debian work.

For people who know Debian Developers socially, the requirement for an Advocate may not be a very high barrier to entry: many Developers will advocate anyone they believe to be a good candidate for becoming a Developer, even if they have not yet worked with them within Debian. To try to make the 'advocate' stage fairer, the Advocate must now write a short reference for the applicant, rather than simply tick a box.

4.2 Identity check

Since Debian work is done remotely over untrusted networks, heavy use is made of cryptographic authentication. Each Developer needs a cryptographic key in the central Debian keyring [1], so that material purporting to come from official Developers can be checked by digital signatures. For example, votes cast in Debian elections, and messages to the `debian-devel-announce` mailing list, must be signed by a recognised key. In everyday Debian work, each upload to the Debian archive also needs to be signed by the Developer who builds it. Besides the centralised keyring, Debian Developers are tightly linked in a 'web of trust' by signatures given after face-to-face meetings. Many Developers will go out of their way when travelling to meet other Developers or New Maintainer applicants for key signing.

Before passing through the New Maintainer process, applicants must link themselves into Debian's web of trust, by physically meeting an existing Developer, giving evidence of who they are, generally by using an official government-issued proof of identity, and exchanging key fingerprints. Recently this requirement was modified so that if the only signature on an applicant's key is from their Advocate, they also need a signature from any well-connected member of the GPG web of trust, either within or outside of Debian [6].

For many applicants the 'identity check' stage poses no problem—with over 950 current Debian Developers distributed throughout the world, most applicants are able to arrange a face-to-face meeting with at least one Developer. There are still provisions for performing an identity check without a physical meeting, from when there were fewer Developers, but it is becoming increas-

ingly hard for applicants to make a persuasive argument that they cannot meet a Developer.

4.3 'Philosophy and procedures'

Debian's Social Contract [4] describes Debian's commitments to its users. An important part of the Social Contract the set of Debian Free Software Guidelines, which describe Debian's criteria for what it considers free software. Applicants must demonstrate that they understand the Social Contract, and affirm that they will uphold it in their Debian work.

As part of this stage, applicant are often asked to examine a set of software licences and evaluate whether they comply with Debian's standards of freeness.

Many applicants find this section of the New Maintainer process tedious, and get bogged down at this stage. Often this may be because applicants overestimate the length and depth of the answers they are expected to give. Another reason for frustration with this stage is that it is not at all applied: there is no purpose to answering the questions asked, other than to demonstrate that they understand Debian's philosophy and procedures. Unlike the 'skills' section, applicants are not asked to undertake tasks that directly contribute towards Debian. This, combined with the fact that some Application Managers discourage applicants from making their answers public, means that this section can feel very bureaucratic and time-consuming, with little benefit to either the applicant or the wider Debian community.

At the same time, this is often one of the first opportunities applicants have to really voice their views regarding free software. It is beneficial to Debian and to applicants that New Maintainers think about their views on free software. Debian is much stricter about software licensing than most other projects; not all Developers need to take part in discussions about licensing, but they need to be aware when licensing issues are raised by material in their packages.

4.4 'Tasks and skills'

All applicants need to demonstrate that they have skills which they can contribute to the project. In most cases people want to become Developers to maintain packages, so Application Managers generally focus on skills related to package maintenance. Similarly an applicant who intends to work on documentation will be tested on the skills needed for that area. As at the 'philosophy and procedures' stage applicants may be asked questions designed to test how much they already know, and if they can find information about topics they don't yet know about.

This stage also includes an assessment by the Application Manager of the work the applicant has done so far in Debian. For example, the Application Manager may look through the build scripts and patches in an applicant's source packages, and ask the applicant to fix any problems found. Application Managers can also search for messages from applicants in the Bug Tracking System and the Debian mailing list archives, to see how active the applicant is and how they are interacting with users and with other Developers.

4.5   What an Application Manager really wants to see

The ideal New Maintainer applicant is one who the Application Manager would have assumed was already a Debian Developer: already active and doing useful work in Debian. An applicant like this can pass through the New Maintainer process very quickly, because there is already evidence that they have the skills and the time needed to work in Debian. While some applicants are obviously not ready to become Developers, the current process should mean that such people are filtered out by the Front Desk, rather than being assigned to Application Managers. In a more typical case, an applicant has perhaps adopted an orphaned packaged and uploaded one or two versions. Since this only gives a limited amount of evidence for the applicant's skills and commitment to Debian, the Application Manager needs to try to get more evidence by asking questions and setting specific tasks in packaging and bug-fixing.

Besides skills and commitment to Debian, the Application Manager also needs to see that the applicant agrees with Debian's Social Contract. The intention here is not really to uncover bad intentions, but rather to detect misunderstandings. Questions about the Debian Free Software Guidelines, for example, may not have a single 'correct' answer, but if the applicant has misunderstood something then their answers may make that apparent.

5   Discussion

Overall, the New Maintainer process is working well, with new Developers being approved regularly and the number of applicants waiting for people other than themselves currently going down. In this section we discuss some of the perceived problems with the current process, before we close by considering what its aims should be.

A lack of Application Managers means that applicants often wait for a long time to be assigned an Application Manager. Of the approximately 904 active Debian Developers [1], only 34 of them (3.8%) are presently active in Application Manager duties [3]. Much of the bad reputation of the process as being

slow, however, comes from applicants who get bogged down while satisfying their Application Manager's requirements. Some applicants never find time to answer questions they are sent as part of the process, while other applicants give reasonable answers, but never do very much practical work in Debian. While Applicant Managers may intend to be fair to borderline applicants by keeping them in the process rather than rejecting them, it is possible that sometimes an early rejection, allowing the candidate to come back once they have some more evidence of their skills, would be fairer.

Similarly, some applicants take a long time to answer questions from their Application Manager since they misunderstand what Application Managers need to see and why. Some applicants may be good at creating packages, but bad at writing long English answers to questions. However, the same kind of comprehension and writing skills will be needed as a Developer. A package maintainer needs to be able to work out what users are asking about in bug reports, and to write clear answers and follow-up questions back to them.

There has always been a tendency towards making the process more complex and adding further requirements on applicants, as a natural consequence of Debian's rapid growth. Increased requirements are good if they mean that Debian gets better trained Developers out of the process, but are bad if it discourages people who would make good Developers from applying or from completing the process. Some people misunderstand the requirements of the process, and think that people who intend to work on, for example, documentation, quality assurance, or porting, are excluded from becoming Developers. In reality, the current process does not require that all Developers are package maintainers, but it is true that few people become Developers without maintaining any packages.

A potential weakness of the New Maintainer process is the level of discretion given to individual Application Managers. There is nothing to stop, for example, one Application Manager being much harsher than others, making it more difficult for the applicants who happen to be assigned to that person to become Developers. Besides variation in, for example, how neat they require packages to be, one Application Manager could reject an applicant over the 'philosophy and procedures' stage who another would accept. In practice, though, Application Managers to give applicants the benefit of the doubt, passing on applicants with problems to the next stage rather than rejecting them. Indeed, Application Managers should probably be rejecting more applicants who currently linger on in the process without making progress. An early rejection with a suggestion that an applicant applies again later may be less discouraging than waiting for the applicant to put a lot of effort into the process and leaving them stuck in it.

The primary aim of the New Maintainer process is to produce suitable new Developers. This is usually viewed as a matter of screening, as verifying that the applicant has an appropriate outlook and sufficient skills. The process is not quite as simple as judging those who apply against a set standard, however:

in most cases the Application Manager stage of the New Maintainer process has a secondary aim of teaching applicants things they did not yet know about, for example, software licensing, the Debian Free Software Guidelines, package maintenance, or the Bug Tracking System.

This suggests that we can view the primary aim of the New Maintainer process in a second way: people who get through it should have become full 'citizens' of Debian. This makes Debian much more open to newcomers than many projects which do not have a formal joining procedure, since there is a clear route to becoming a recognised member. While discussion of the process often focusses on excluding people from Debian, fully including those who are judged appropriate to become Developers is just as important for Debian's success. This does not only mean that they are given the rights of a full citizen of Debian, but also that as recognised citizens they should feel responsibility towards Debian as a whole.

6   About the authors

Hanna Wallach maintains several Debian packages, and is currently in the New Maintainer process.

Moray Allan went through the New Maintainer process in 2003, and has been an Application Manager since April 2004.

Dafydd Harries completed the New Maintainer process in June 2005.

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