389 Directory Server: Developing Administrative Tools

Contact Information

Name: Thomas Ingram
FAS: taingram
Email: taingram@mtu.edu
Blog: https://taingram.org
Code: https://gitlab.com/taingram (also https://github.com/taingra)
Matrix: @ti:matrix.org
Jabber: delimiters@dukgo.com
IRC: adverb on freenode.net

About Me

Past Involvement:

I have not contributed to Fedora Project before, however I closely follow the Fedora community through mailing lists and blogs as I am a heavy Fedora user. There have been a few opportunities in the past for me to submit bugs, but they always got fixed so quickly I never needed to!

Field of study:

Computer Science with a concentration in Computer Systems. I am most interested in systems programming on GNU/Linux systems. My interest computers started with video games when I was young. I wanted to develop my own games. In high school I discovered open-source software and fell in love with the philosophy of code anyone can modify and everyone benefits from. I have used GNU/Linux and free open-source applications exclusively ever since. Since so many fundamental programs of GNU/Linux are written in C it drew me towards systems programming. My ideal job is one where I get to develop open-source software.

Experience:

- Strong understanding of using GNU/Linux (specifically Fedora, Debian, and Ubuntu)
  - Maintaining and deploying Linux desktops, servers and routers
  - Basic experience deploying Apache web server, MySQL
- Programming in Java, C, Python, bash, and some Perl
  - Strong understanding of object oriented programming: classes, inheritance, modules
- Programming on GNU/Linux and POSIX systems
  - Understanding of syscalls, signals, pipes, and processes
- Using git for project version control
- Web development
  - Created static websites for small businesses with HTML and CSS

Motivations:

I am strongly motivated by things I am passionate about. I like to plan things out by writing a list of tasks and working through them. Often I find it is good to have two different parts of a project I can work on simultaneously, that way if I get stuck on one part I can focus on another for a bit. That way I don't waste time staring at the same problem, I get more work done, and take a break from the problem I am stuck with.

Why Fedora Project?

I use Fedora daily as my desktop operating system of choice. I love Fedora's commitment to keeping all the software it includes free as in freedom, as well as it being the best, most cohesive, GNOME desktop experience. I want to be able to give back, help improve Fedora, and make Fedora Project as a whole better. Plus this will give me a foot in the door to help get involved in a project I already love and community I want to contribute to! After GSoC I would definitely love to keep contributing to Fedora Project. I would be interested in helping maintain packages, maintaining websites, improving system utilities, and GNOME apps.

389 Directory Server: Developing Administrative Tools

Improve 389 Directory Server's Python administration framework. This will allow people using 389 LDAP server to administer the server using a more modern language like Python rather than having to use the older legacy Perl tools. This will allow new and old 389 users to better, and more painlessly administer their directory server in a Python as they can use for almost everything else.

Plan:

Before Summer:

- Learn how to set up 389 Directory Server
  - I could use my Intel Nuc for this
- Learn basics of 389
  - Account policy, plugin management, etc.
- Familiarize myself with 389's code base
  - Read through perl and shell scripts in 389 that python code will replace
  - Read through existing python base classes
- Get to know 389 by reading mailing lists 389-devel@lists.fedoraproject.or and hanging out on irc #389 and talk to mentor about any questions.

Coding starts:

- Start extending python tools dsconf to support enabling, disabling, configuration of modules in Directory Server to replace legacy tools
  - Write good unit tests to verify code is high quality
- Review other 389 team members code, and ask them to review mine
- Continue interacting with the 389 mailing list for help and advice, as well as help others

Deliverables:

- 389 Directory Server now has a full featured python administration framework
- Well-documented clean python code
- Develop code that is thoroughly tested with unit tests

Why Pick Me?

I have been using GNU/Linux for my all my computing for the past six years. Thanks to that I lots of experience with Linux and the Fedora community. I've also focused my academic studies on developing for GNU/Linux. I am a second year college student attending Michigan Technological University. This semester I took a course on Systems Programming on GNU/Linux which greatly improved my C programming. As well as my ability to find, fully understand, and make use of system documentation documentation. This will help me quickly get up to speed on 389 Directory Server, its features, as well as being able to understand the lower level code if needed.

I have three years experience with programming in Java. Thanks to that I have a great understanding of object-oriented programming, classes, inheritance, and polymorphism. Python is been

my go to for scripting everything for the past few years, its ease of programming makes it a joy to use. I used it to write a simple command line podcast manager as well as some other small projects. I also have experience using git for source version control and have contributed small patches to projects using it.

Already since I've started working on my application I have learned a lot about Fedora Project from the wiki, and reading the mailing lists. I have also started working on some old personal Python projects as review, one I even hope to release as free software once cleaned up. Next steps will be read 389 documentation and look into deploying it on my own hardware. Then I will begin to try out the basic 389 features, and familiarize myself it them.

I am extremely passionate about free open-source software, and I am ready to give 110% to working on this project. Where I may lack experience I will make up for it with enthusiasm for learning to develop with an open source project. Thanks to that I will spend my non-working hours on improving my Python, 389, and other skills that will help to improve throughout the summer project and continuing into the future.

Schedule

Date	GSoC Schedule	My Plan
April 3 to May 3	Application deadline	Review my python code by working on personal projects, write some small python modules.
May 4	Accepted students announced, community bonding starts	Learn to deploy 389 Directory Server, learn it's basic features and functionality. Introduce myself to the community and learn the way things are done for 389. Read 389's existing perl/shell scripts and python classes to understand what needs to be done
May 30	Coding Starts	Begin extending 389's python base classes focus
June 26-30	Phase 1 Evaluation	Make sure all the python code I have written thus far is thoroughly tested with proper unit tests
July 1	2nd Work period	Continue extending 389's python administration tools
July 24-28	Phase 2 Evaluation	Make sure all the new python code I have written thus far is thoroughly tested with proper unit tests
July 29	3rd Work Period	Finish bringing 389's python administration tools up to the features of the legacy perl tools
August 21-29	Final evaluation	389's python administration framework is as powerful as the legacy perl tools and are properly tested with good united tests

Summer Plans

Google Summer of Code will be my only big summer commitment, therefore it will receive all of my attention. Outside of Summer of Code the only conflicts I have are two short camping trips: one in start of June and the other in second week of August. Both trips are over weekends so they should not conflict with my work week for more than two days at maximum. I will work extra hard in the weeks preceding and after in order to not fall behind in my progress.