Mozilla Build Activity. Let's build Firefox!

In Class Activity: Sept 29, 2014

Before class:

Read:
https://developer.mozilla.org/en-US/docs/Introduction
https://developer.mozilla.org/en-US/docs/Simple_Firefox_build

One person per group should perform this activity. Everyone should follow along.

- **Connect to server:**
  `ssh -X punetid@cs360-#`

  `-X means display GUIs on the local machine (for example, geany should display on your local machine but run on your server). Make your window a decent size!`

- **Make a record**
  `script mozillaBuild`

- **Linux Prep**
  We need to install some dependencies.
  Find the OpenSUSE install instructions here:
  https://developer.mozilla.org/en-US/docs/Mozilla/Developer_guide/Build_Instructions/Linux_Prerequisites
  You should be able to copy and paste from the web to your ssh session.

- **Download**:
  Mozilla uses Mercurial (hg), which is like Git.

  `hg clone https://hg.mozilla.org/mozilla-central`
  This can take a while so let's shortcut this:
  `mkdir mozilla`
  `cd mozilla`
  `tar zxf /tmp/mozilla-central_25Sept2014.tar.gz`
  `ls`
  `cd mozilla-central`
  `ls`

- **Configure build environment**
  Make sure you are inside the **mozilla-central** directory
  `pwd`
  `nano .mozconfig`
  add the text: **mk_add_options MOZ_MAKE_FLAGS=”-j4”**
  Save and exit nano.
  # This step is not strictly necessary. The build system generally spawns the correct
  # number of processes. However, as a serious Mozilla developer you may need to set
  # other options in this file.

- **Build**
  Make sure you are inside the **mozilla-central** directory
  `pwd`
  `time ./mach build`
  Wait for about 20-30 minutes
  Let’s take this time to work on Quiz 3! Ask me questions!

- **Run**
  `./mach run`

- **Patch**
  https://developer.mozilla.org/en-US/docs/Mercurial_FAQ#How_can_I_generate_a_patch_for_somebody_else_to_check-in_for_me.3F

  ./**mach mercurial-setup**
  Give your name and email. Answer Y to everything.
  nano ~/.hgrc
  add **editor = nano** to the **[ui]** section

  `nano gfx/2d/Types.h`
  Add a comment with your group number at the top.
  Save and exit nano

  `hg qnew Group#-example.patch`

  `ls .hg/patches/`
  `cat .hg/patches/Group#-example.patch`

  `nano gfx/2d/Tools.h`
  Add a comment with your group number at the top.
  `hg qref # update the patch`
  `cat .hg/patches/Group#-example.patch`

If you were to submit a patch to Mozilla, you would attach the file `.hg/patches/Group#-example.patch` to a bug report in Bugzilla.

Copy and paste this patch into an email to Chadd. Make sure to put "**CS360 Mozilla Patch Group #**" as the subject line.

- **Rebuild**
  `./mach build`
  OR
  `./mach build gfx/2d`

- **Get rid of your local changes**
  `hg qpop`

- **To get new updates from Mozilla**
  `hg pull -u`

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EXTRA CREDIT

Finding a Bug and Looking at the source.

The document above (https://developer.mozilla.org/en-US/docs/Introduction) contains a link to [good first bug] in Bugzilla. I have selected a bug for us to look at.

https://bugzilla.mozilla.org/show_bug.cgi?id=1001582 or
https://bugzilla.mozilla.org/show_bug.cgi?id=1030741

This is the bug I started with. When I started, the bug was listed as:
https://bugzilla.mozilla.org/show_bug.cgi?id=980493

Let's look at the 980493 bug to see what a fix looks like and how the process proceeds.

At this point you do not need a Bugzilla account. You only need a Bugzilla account to post a comment to a bug report or submit a patch via Bugzilla.

0. What do each of the Bugzilla fields mean? Whiteboard is especially important.
1. What is Panning and Zooming? gfx?
2. Where is FrameMetrics defined?

The following commands work on Linux.

Note the single dash and single quotes!

[Assume the module we are working on is part of the filename to some file]

find . -iname '*FrameMetrics*'
find . -iname '*.c' | xargs grep FrameMetrics
find . -iname '*.cpp' | xargs grep FrameMetrics
find . -iname '*.h' | xargs grep FrameMetrics

3. Take a look at the other getter/setter methods in the file. What pattern do they follow?

4. What fields are available in FrameMetrics to transition to getter/setter? What is each field's data type?

5. Choose a field.

6. Where is that field accessed and can you change the access to a getter/setter?
find . -name '*.cpp' | xargs grep fieldName

7. Change the code. Compile. Test.

A good plan is to build Firefox before you make any changes, just to be sure you are starting from a valid source tree.

Some documents about how to speed up the build process.
https://developer.mozilla.org/en-US/docs/Mozilla/Developer_guide/Mozilla_build_FAQ#Making_builds_faster

When you are finally done and want to find a real project to work on:

http://whatcanidoformozilla.org/

Here, you say "Next Please" until you find an area you are interested in.