imageV2

and other

hgTracks UI Improvements

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Talk Objectives

- "Drag Reorder"
  - demo, to be done
  - how it works
- "Drag Scroll"
  - demo, to be done
  - how it works
- imgBox details
  - hgTracks CGI integration
- Right Click
  - Demo
  - Technical details
- QA/Browser Strategy
- JS Support Proposal
- Additional discussion

“Drag Reorder”

- Demonstation

  http://hgwdev-tdreszer.cse.ucsc.edu

- Could be released soon!
  - Slight differences between FF and IE
  - Composite-level reordering works now
  - Subtrack level reordering should be done! (discussion later)
  - right-click to “save image” has original order

“Drag Reorder” how it works

- imgBox (in C structures)

  kent/src/hg/hgTracks/imageV2.h

  - sl of imgTracks which carry track definitions

- imgTbl (in HTML)

  http://hgwdev-tdreszer.cse.ucsc.edu view source

```
<!--------------vvv IMAGEv2 vvv--------------->
<!--------------^^^ IMAGEv2 ^^^--------------->
```

  - Image is a table (imgBox => imgTbl)
  - One row per track (imgTrack => row)
  - row content is “slice” of an image (gif, png)

  - Drag and Drop by jQuery.tablednd.js

“Drag Scroll”

- Demonstration

  http://hgwdev-tdreszer.cse.ucsc.edu

- Needs work
  - Little blue stripes (png and clear image)
  - 3x image and vertical spacing
  - Next Item
  - Scroll past end of image – ajax
  - right-click “save image” must generate new image

“Drag Scroll” how it works

- imgBox (in C structures)

  kent/src/hg/hgTracks/imageV2.h
  - sl of imgTracks which carry track definitions
    - sl of imgSlices, currently three: side, center and data

- in HTML: imgSlice

```
<table id='imgTbl'>
    <tr id='tr_knownGene'>
      <td id='td_data_knownGene'>
        <div style='overflow:hidden;'>
          <MAP name='map_data_knownGene'>
          <img id='img_data_knowngene‘ src=‘trash/tmpFile.png’
               style='position:relative; left:-1200px; … >
```

- Javascript manipulates ‘style:left=?’
  - is homegrown, but tricks learned from jquery.panFullSize.js

imgBox details

imgBox <table id='imgTbl'>

imgTrack <tr>

<td>

imgSlice "side"
<map>
<img>

<td>

imgSlice <map> <img> "center" label

imgSlice "data"
<map>
<img src=[common.png | unique.png]
style='position:relative; left:-1200px; top:-32px;'>

imgTrack <tr>

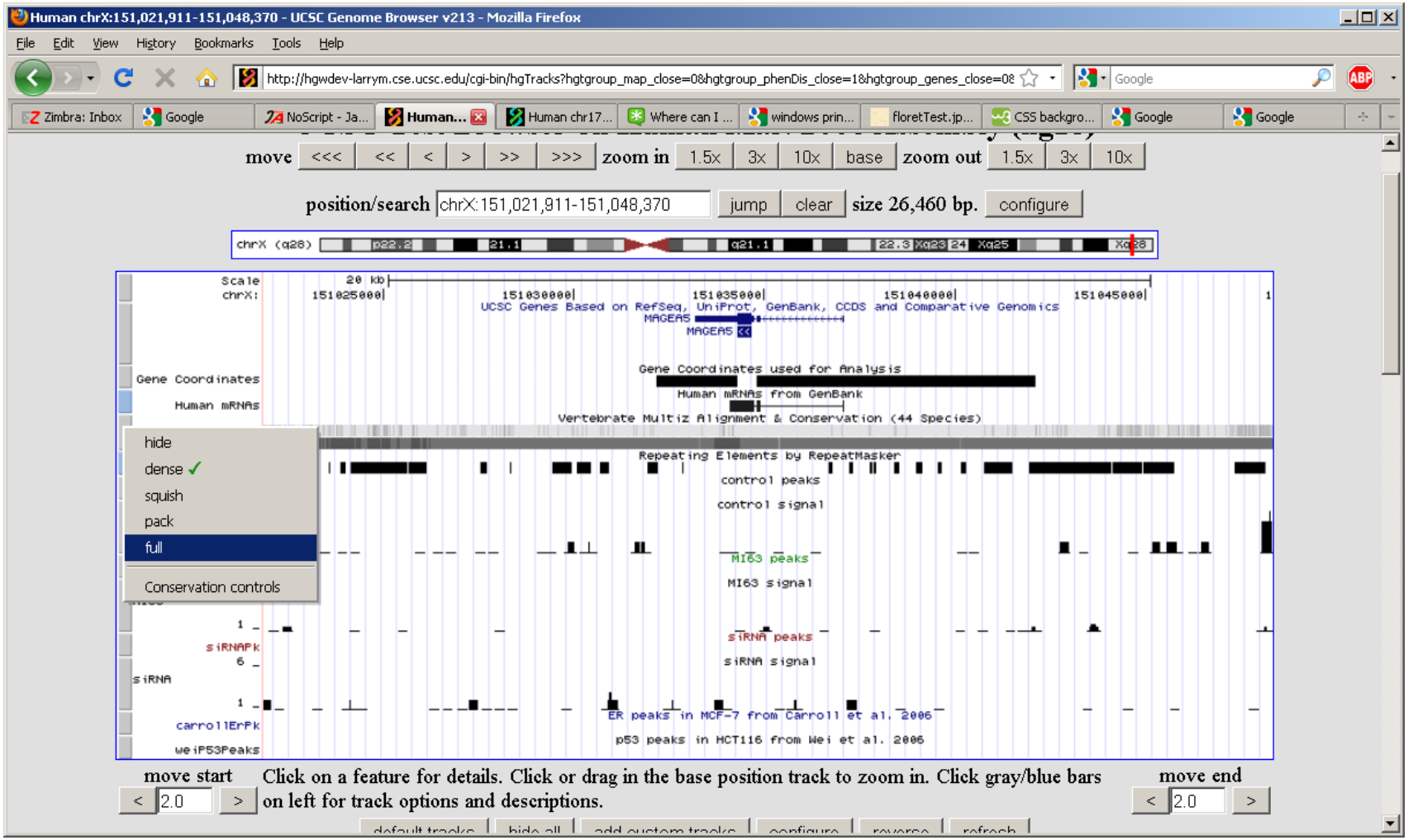
imgTrack <tr>

imgTrack <tr>

hgTracks CGI integration

- Low Impact. Minimize code changes.
  - imageV2.c and imageV2.h
  - hgTrack.c #ifdef IMAGEv2_UI
- Build structures instead of HTML
  - Inside makeActiveImage()
    "curImgTrack" and "curSlice"
  - Hated globals: "theImgBox", "curMap"
- Write out HTML when "theImgBox" structure is complete. (imageBoxDraw() at end of imageV2.c)
- To be done:
  - Flatten track list for subtrack reordering
  - Generate right-click save image
  - Stripes background for drag-scroll
  - Ajax replace one track; ajax get new image
  - Integrate with Larry's work

Right Click in Track Image



Right Click in Track Image

- Replaces generic browser right-click/context menu
- Demonstration

  http://hgwdev-larrym.cse.ucsc.edu/

Right Click Options

- Visibility (hide, dense ...)
- hgTrackUi controls (?)
- Ruler specific menus
  - Drag-and-zoom mode
  - Hilight mode (suggested by angie)
  - View image (possibly -> an improved PDF/PS page)
- Context sensitive items
  - Show whole gene/feature

Right Click – technical details

- Backwards compatible
  - Uses existing <map>
  - Slight modifications to hgTracks
- Hides are instantaneous (manipulates DOM)
- Updates just the track image when possible
  - Saves 100k+ in hgTracks response
  - Speeds up re-rendering
  - Update of just a single track is

Right Click – tech (cont.)

- Improved UI and code that retrieves single tracks motivates improving hgTracks speed
  - Track loading code: 200-300 milliseconds on hgwdev, 500-2000+ ms on RR

QA/Browser Strategy

Safari anecdote:

- drag-and-zoom was broken in Safari 4.0 for 2+ months due to a bug in Safari code. There was no possible workaround on our side without very substantial re-implementation.
- One of user's prodded Apple and they eventually found and fixed the bug (in AppleWebKit)

Lessons Learned

- Sometimes, you can’t do anything when a JS dependent feature breaks in a browser
- You need a non-JS fallback

JS Support Proposal

- Support Javascript dependent features in current and previous versions of major browsers
  - FF 3.x and 2.x
  - IE 8.x and 7.x
  - Safari 4
- We make no attempt to support older versions or obscure browsers

JS Support Proposal (cont.)

- Maintain non-js fallbacks for critical functionality; e.g.:
  - 3x zoom
  - <map>
  - <<< and >>> navigation
- QA periodically verifies these features still work

How do we control what new features are active?

(A) Javascript config (“Enable Javascript based UI features”)

or

(B) configs for each feature (drag-and-zoom, drag-scroll, right-click etc.)

- Pro: richer feature set when user has to fallback on some features
- Con: Exponentially bigger development/testing matrix

Additional discussion

- Do we have to maintain “Show track controls under main graphic“ config? (this complicates the right click code).
- Shall we flatten tracklist at image generation time (for subtrack reordering)? How will we identify grouped tracks
- Further options in “right-click”?
- ??

Thanks

- Angie!
- Zach and Steve for pioneering use of jQuery
- All involved in discussions so far:

  Jim, Donna, Mark, Ann, Brooke, Kayla, Bob, Kate…

  “I’d like to thank all the little people…”
- Other ENCODE wranglers for taking up some of that burden!
- jQuery – John Resig

  jquery.tablednd.js – Denis Howlett

  jquery.imgareaselect.js - Michal Wojciechowski

  jquery.contextmenu.js - Cori S.N. LaViska

  jquery.panFullSuze.js - Esa-Matti Suuronen