JavaScript Applications for the Enterprise: Building for Production

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@bosshenek @randysjones
A Typical User

gzip is awesome
<table>
<thead>
<tr>
<th>Method</th>
<th>Status</th>
<th>Type</th>
<th>Initiator</th>
<th>Size</th>
<th>Time</th>
<th>Waterfall</th>
</tr>
</thead>
<tbody>
<tr>
<td>GET</td>
<td>200 OK</td>
<td>script</td>
<td>init.js:39 Script</td>
<td>15.0 KB</td>
<td>277 ms</td>
<td></td>
</tr>
<tr>
<td>GET</td>
<td>200 OK</td>
<td>script</td>
<td>init.js:39 Script</td>
<td>45.0 KB</td>
<td>56 ms</td>
<td></td>
</tr>
<tr>
<td>GET</td>
<td>200 OK</td>
<td>script</td>
<td>init.js:39 Script</td>
<td>8.4 KB</td>
<td>1.53 s</td>
<td></td>
</tr>
<tr>
<td>GET</td>
<td>200 OK</td>
<td>script</td>
<td>init.js:39 Script</td>
<td>30.1 KB</td>
<td>108 ms</td>
<td></td>
</tr>
<tr>
<td>GET</td>
<td>200 OK</td>
<td>script</td>
<td>init.js:39 Script</td>
<td>1.0 KB</td>
<td>1.41 s</td>
<td></td>
</tr>
<tr>
<td>GET</td>
<td>200 OK</td>
<td>script</td>
<td>init.js:39 Script</td>
<td>1005 B</td>
<td>36 ms</td>
<td></td>
</tr>
<tr>
<td>GET</td>
<td>200 OK</td>
<td>script</td>
<td>init.js:39 Script</td>
<td>3.8 KB</td>
<td>720 ms</td>
<td></td>
</tr>
<tr>
<td>GET</td>
<td>200 OK</td>
<td>script</td>
<td>init.js:39 Script</td>
<td>7.6 KB</td>
<td>47 ms</td>
<td></td>
</tr>
</tbody>
</table>
Your images are too big
Blocking Elements
PageSpeed Insights

http://arcgis.com/

Average Speed:
- FCP: 1.5s
- DCL: 1.2s

Low Optimization:
- 56 / 100

Data from the Chrome User Experience report indicates this page's median FCP (1.5s) and DCL (1.2s) ranks it in the middle third of all pages. This page has a low level of optimization because most of its resources are render-blocking. Learn more.

Optimization Suggestions

Optimize images

Properly formatting and compressing images can save many bytes of data.

Optimize the following images to reduce their size by 381.2KiB (40% reduction).

- Compressing http://www.arcgis.com/features/img/main/main-admin-bg.jpg could save 64.8KiB (50% reduction).

Leverage browser caching

Show how to fix

Eliminate render-blocking JavaScript and CSS in above-the-fold content

Show how to fix
Boilerplate configurations for various web servers.

- Apache
- Google App Engine (GAE)
- Internet Information Services (IIS)
- lighttpd
- Nginx
- Node.js
ORGANIZE
layers: {
  'dojo/dojo': {
    boot: true, // include AMD loader
customBase: true,

    include: [
      'dojo/i18n',
      'buildProject/SiteManager',
      'esri/dijit/Attribution',
      'dojox/gfx/path',
      'dojox/gfx/svg',
      'dojox/gfx/shape',
      'dojox/gfx/filters',
      'dojox/gfx/svgext',
      'dojo/_firebug/firebug'
    ],
    includeLocales: ['en-us']
  }
}
Bower
A package manager for the web
http://bower.io
npm install --g bower

bower install arcgis-js-api --save-dev

bower install Esri/arcgis-js-api#4.6.0 --save-dev
```json
{
   "name": "arcgis-js-api-sample-app",
   "version": "1.0.0",
   "license": "Apache-2.0",
   "devDependencies": {
      "esri": "arcgis-js-api#4.6.0"
   }
}
}```
.bowerrc

```
{
    "directory": ".

}

{
    "directory": "build-src"

}
```
Running the Build

node ./dojo/dojo load="build", profile="../../build/buildProject.profile.js", profiles=null, appConfigFile=null, package=null, packages=null, require=null, requires=null, releaseDir="../build-temp/js", action=null, cwd="./build-src/js", dojoConfig=null, basePath="."
Build Automation

- Gulp
- Grunt
- Node.js
npm install --g grunt-cli

npm install grunt-dojo --save-dev

npm install grunt-replace --save-dev
package.json

```
{
  "name": "enterprise-test-sample",
  "version": "1.0.0",
  "description": "...
  "main": "Gruntfile.js",
  "devDependencies": {
    "grunt": "^0.4.5",
    "grunt-contrib-clean": "^1.0.0",
    "grunt-contrib-copy": "^1.0.0",
    "grunt-dojo": "^1.1.1",
    "grunt-karma": "^0.12.1",
    "grunt-replace": "^0.11.0",
    "karma": "^0.13.22",
    "karma-chrome-launcher": "^0.1.4",
    "karma-dojo": "0.0.1",
    "karma-jasmine": "^0.1.5",
    "karma-junit-reporter": "^0.3.8"
  }
}
```

```bash
npm install
```
Sample Project

https://github.com/Esri/enterprise-build-sample-js
Continuous Integration
What about... Web AppBuilder?
Separate Your Code

https://github.com/Esri/generator-esri-appbuilder-js
Source Control the Right Things

https://github.com/Esri/generator-esri-appbuilder-js
Web AppBuilder Pipeline

- Widget Project
- Config Project
- Template App w/All Widgets

Copy to app directory

App to build

App.zip

Create

Web AppBuilder Dev Edition

https://github.com/rsjones/wab-config
https://github.com/rsjones/wab-widget
Resources

Web Dev Best Practices
https://developers.google.com/speed/pagespeed/insights/
https://github.com/h5bp/server-configs
https://developers.google.com/web/tools/lighthouse/

Custom App Example
https://github.com/Esri/enterprise-build-sample-js

Web AppBuilder Resources
App Separation Example: https://github.com/rsjones/wab-config
https://github.com/rsjones/wab-widget
https://github.com/gbochenek/esri-wab-build
https://github.com/Esri/generator-esri-appbuilder-js
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Complete Answers, add a Comment, and Select “Submit”
Questions?

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