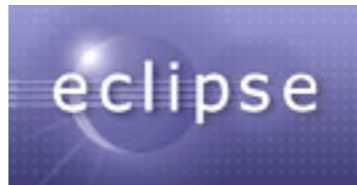


GWT 2.0



Sean C. Sullivan
Portland Java User Group
December 15, 2009



Google™



- write AJAX applications in Java
- compile to JavaScript
- open source

<http://code.google.com/webtoolkit/>

GWT 2.0

The screenshot shows a browser window with the title "Google Web Toolkit Overview - Google Web Toolkit - Google Code". The address bar contains the URL "http://code.google.com/webtoolkit/overview.html". The page features a search bar with the text "Google code" and a search button. Below the search bar is a navigation menu with links for "Home", "Docs", "Blog", "Community", "Terms", and "Download". The main content area is titled "Google Web Toolkit Overview" and includes a red toolbox icon. The text describes GWT as a development toolkit for building and optimizing complex browser-based applications. Below this is a section titled "What's inside the toolbox?" which highlights three key components: the SDK, Speed Tracer, and the Plugin for Eclipse. The left sidebar contains a "Learn More" section with links to "Overview", "SDK", "Speed Tracer", "Plugin for Eclipse", and "Examples", as well as a "Get Started" section with links to "SDK", "Set up Eclipse", "Speed Tracer", and "Tutorials". The "Documentation" section includes links for "What's New in 2.0?", "Organize Projects", "Compile & Debug", "Coding Basics", and "Build User Interfaces". At the bottom of the browser window, a status bar indicates "2 errors occurred in opening the page. For more information, choose Window > Activity."

Google Web Toolkit Overview - Google Web Toolkit - Google Code

http://code.google.com/webtoolkit/overview.html

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Google code Search

e.g. "ajax apis" or "open source"

Google Web Toolkit Home Docs Blog Community Terms Download

[Downloads](#)

Learn More

- Overview
- [SDK](#)
- [Speed Tracer](#)
- [Plugin for Eclipse](#)
- [Examples](#)


Get Started

- [SDK](#)
- [Set up Eclipse](#)
- [Speed Tracer](#)
- [Tutorials](#)




Documentation

- [What's New in 2.0?](#)
- [Organize Projects](#)
- [Compile & Debug](#)
- [Coding Basics](#)
- [Build User Interfaces](#)

Google Web Toolkit Overview

 Google Web Toolkit (GWT) is a development toolkit for building and optimizing complex browser-based applications. Its goal is to enable productive development of high-performance web applications without the developer having to be an expert in browser quirks, XMLHttpRequest, and JavaScript. GWT is used by many products at Google, including Google Wave and the new version of AdWords. It's open source, completely free, and used by thousands of developers around the world.

What's inside the toolbox?

-  **SDK**
The GWT SDK contains the Java API libraries, compiler, and development server. It allows to you write client-side applications in Java and deploy them as JavaScript.
-  **Speed Tracer**
Speed Tracer is a Chrome Extension that allows you to pinpoint performance problems in your web applications.
-  **Plugin for Eclipse**
The Plugin for Eclipse provides IDE support for Google Web Toolkit and App Engine web projects.

2 errors occurred in opening the page. For more information, choose Window > Activity.

released on December 8, 2009

GWT SDK

The screenshot shows a web browser window with the address bar displaying `http://code.google.com/webtoolkit/download.html`. The page title is "Google Web Toolkit Downloads - Google Web Toolkit - Google Code". The browser's search bar contains the word "Google".

The page content includes a search bar with the text "Google code" and a search button. Below the search bar, there is a navigation menu with links for "Home", "Docs", "Blog", "Community", "Terms", and "Download".

The main content area is titled "Google Web Toolkit Downloads" and features three download options:

- SDK**: The Google Web Toolkit SDK contains the core libraries and compiler that you need to write web applications. A "Download SDK" button is provided.
- Speed Tracer**: Speed Tracer is a Chrome Extension that allows you to pinpoint performance problems in your web applications. A "Download Speed Tracer" button is provided.
- Plugin for Eclipse**: The Google Plugin for Eclipse provides IDE support for Google Web Toolkit and App Engine web projects. A "Download Plugin" button is provided.

On the left side of the page, there is a sidebar with the following sections:

- Learn More**: Overview, SDK, Speed Tracer, Plugin for Eclipse, Examples.
- Get Started**: SDK, Set up Eclipse, Speed Tracer.
- Tutorials**: (indicated by a plus sign icon).
- Documentation**: What's New in 2.0?, Organize Projects, Compile & Debug, Coding Basics, Build User Interfaces.

At the bottom of the page, there is a message: "One error in opening the page. For more information, choose Window > Activity."

New features in GWT 2.0

- Development Mode
- Speed Tracer
- Developer guided code splitting

New features in GWT 2.0

- Compiler optimizations
- Draft Compile
- Declarative User Interfaces (*UiBinder*)

New features in GWT 2.0

- Layout panels
- Bundled resources via ClientBundle
- HtmlUnit for testing

Development Mode




Development Mode

The screenshot shows a web browser window with the title "Google Web Toolkit Developer Plugin Not Installed". The address bar contains the URL "http://gwt.google.com/samples/MissingPlugin/MissingPlugin.html". The main content area has a yellow background and contains the following text:

Development Mode requires the Google Web Toolkit Developer Plugin

By downloading, you agree to the [Terms & Conditions](#) and [Privacy Policy](#).

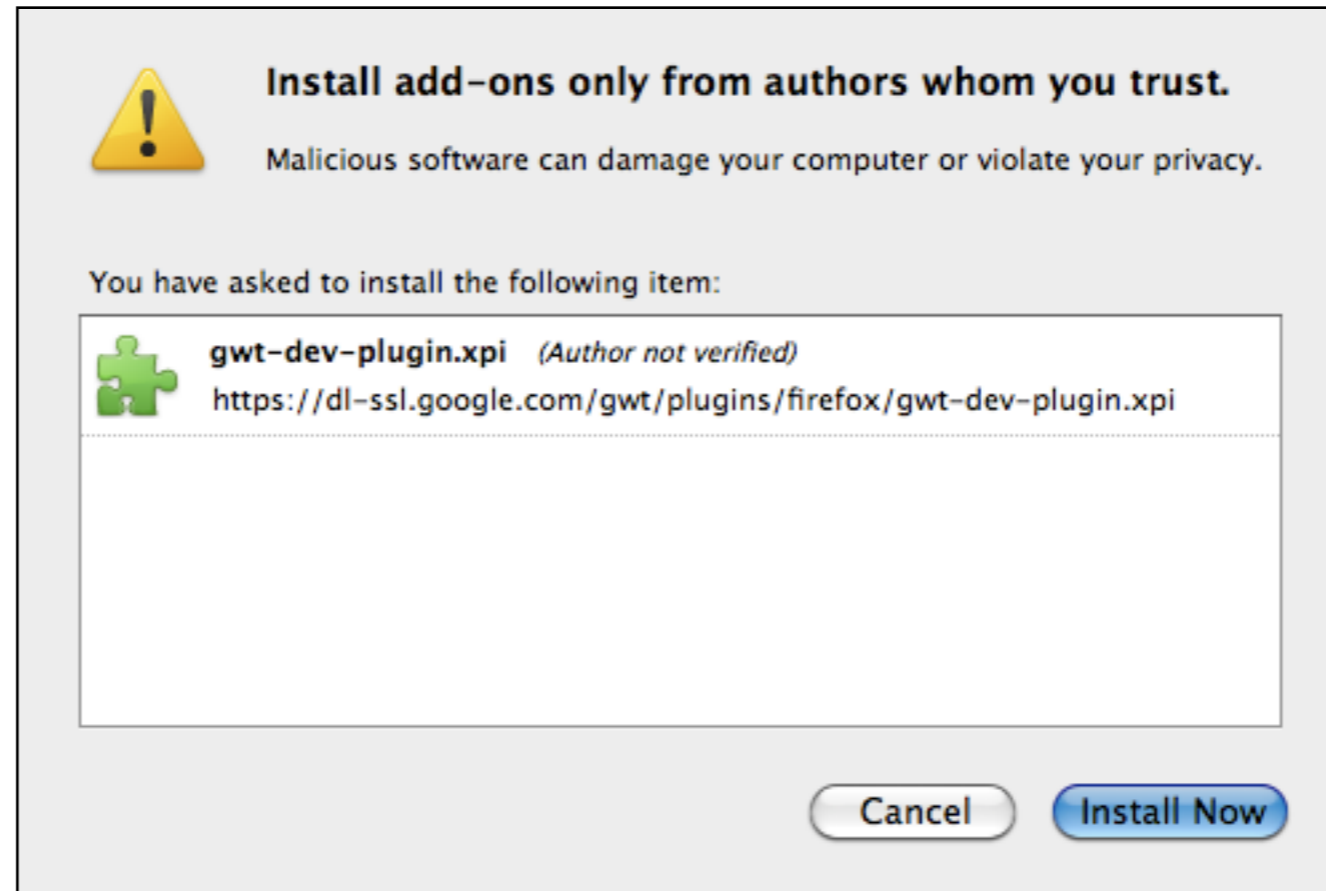
[Download the GWT Developer Plugin For Firefox](#) 

[plugins for other systems](#)

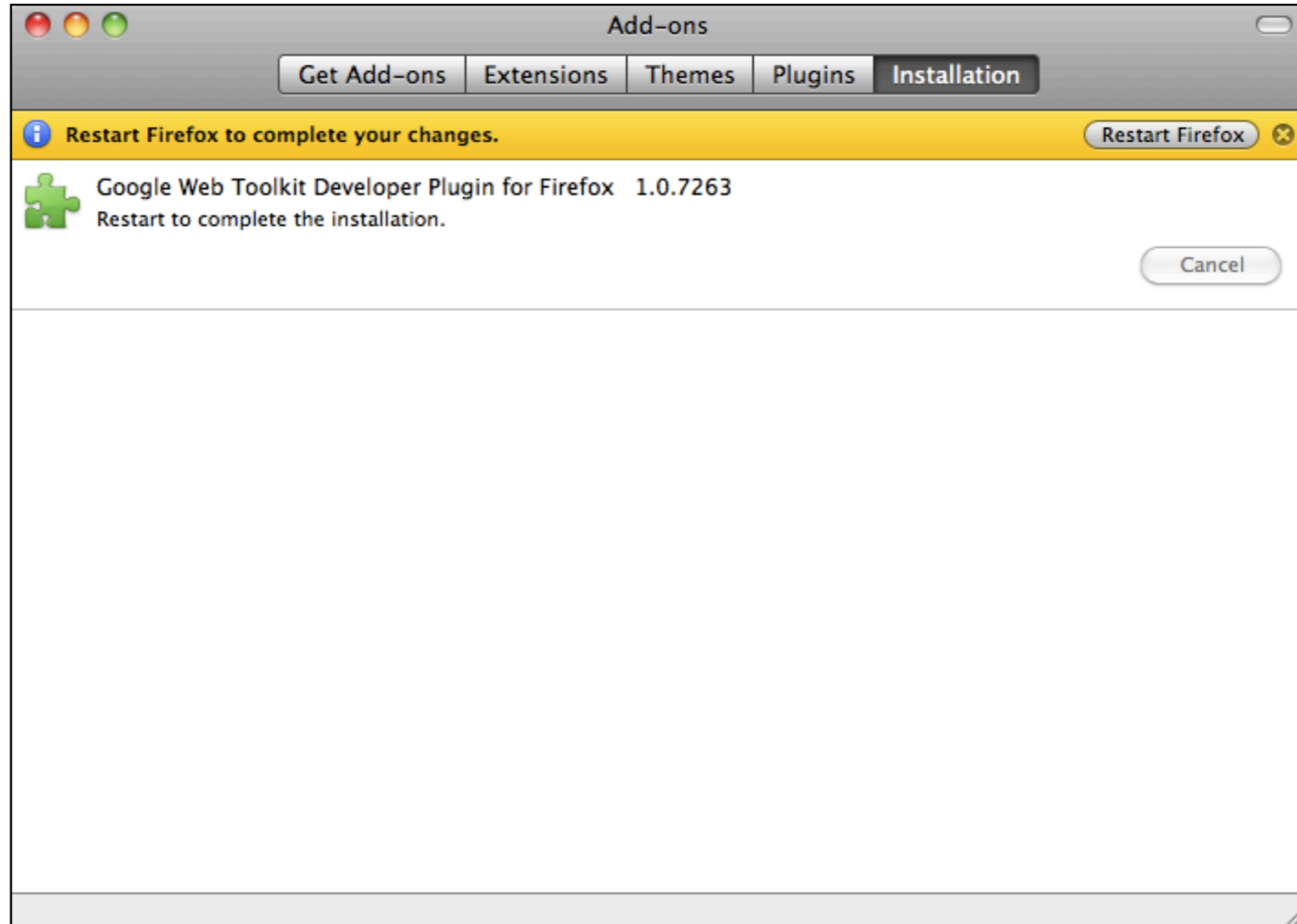
For help or troubleshooting, ask questions in the [discussion group](#).

At the bottom of the browser window, there is a status bar that says "Transferring data from dl-ssl.google.com..." and a system tray with icons for network, volume, and power.

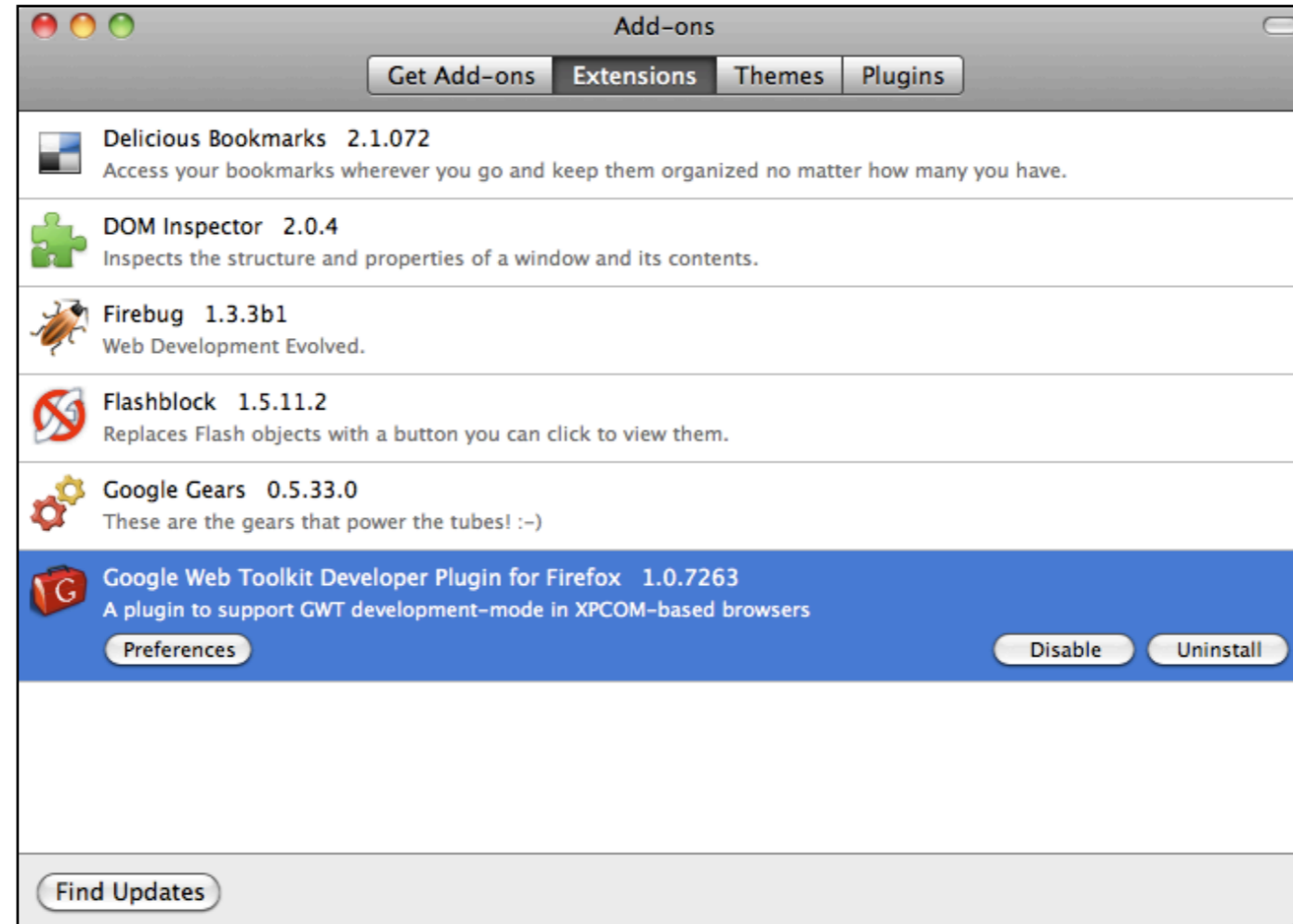
Development Mode



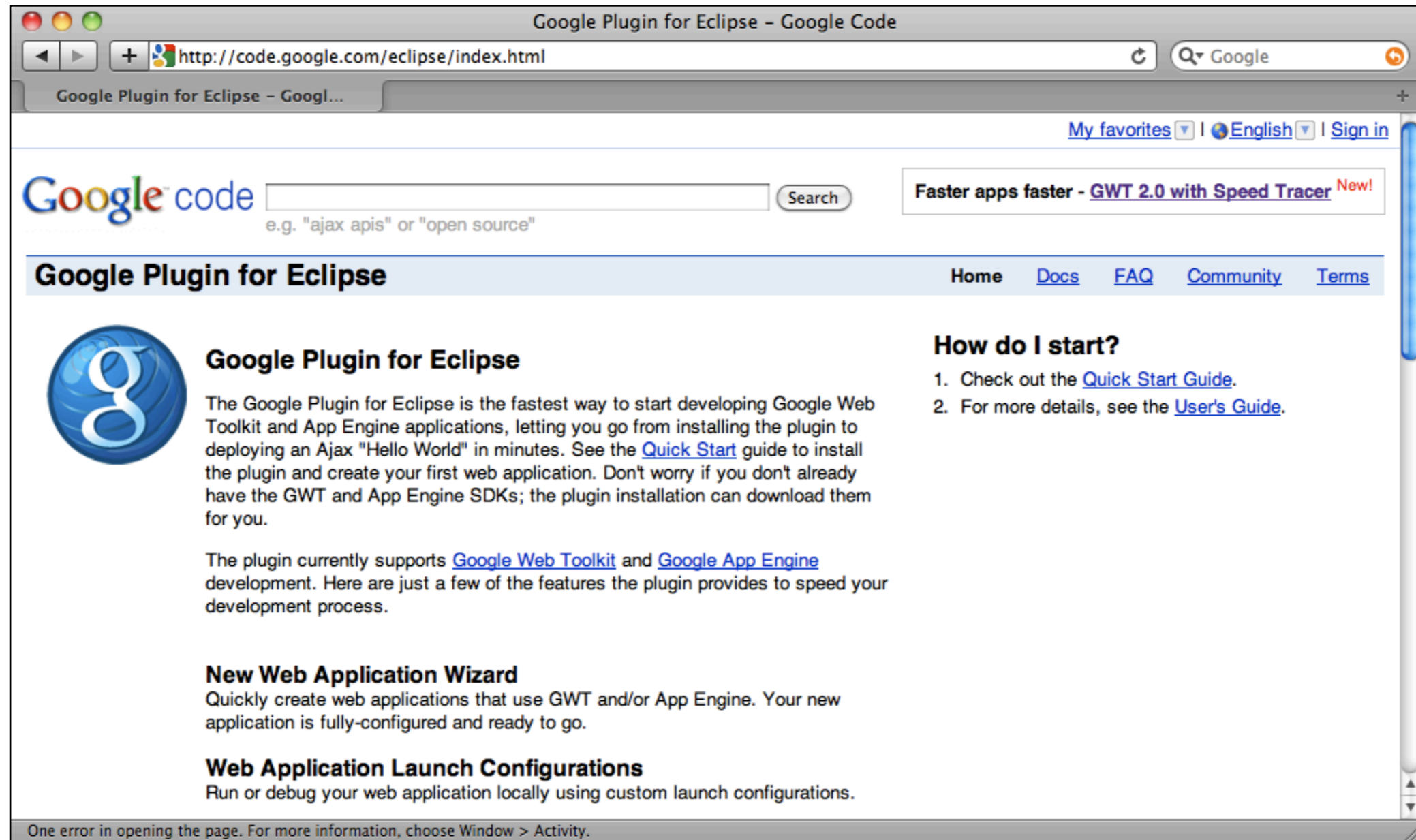
Development Mode



Development Mode



Google Plugin for Eclipse



The screenshot shows a web browser window with the title "Google Plugin for Eclipse - Google Code". The address bar contains the URL "http://code.google.com/eclipse/index.html". The page features the Google Code logo, a search bar, and a navigation menu with links for "Home", "Docs", "FAQ", "Community", and "Terms". The main content area includes a large blue "g" logo, a heading "Google Plugin for Eclipse", and several sections of text and links.


Google Plugin for Eclipse - Googl...

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Google code Search
e.g. "ajax apis" or "open source"

Faster apps faster - [GWT 2.0 with Speed Tracer](#) **New!**

Google Plugin for Eclipse Home Docs FAQ Community Terms

 **Google Plugin for Eclipse**

The Google Plugin for Eclipse is the fastest way to start developing Google Web Toolkit and App Engine applications, letting you go from installing the plugin to deploying an Ajax "Hello World" in minutes. See the [Quick Start](#) guide to install the plugin and create your first web application. Don't worry if you don't already have the GWT and App Engine SDKs; the plugin installation can download them for you.

The plugin currently supports [Google Web Toolkit](#) and [Google App Engine](#) development. Here are just a few of the features the plugin provides to speed your development process.

New Web Application Wizard
Quickly create web applications that use GWT and/or App Engine. Your new application is fully-configured and ready to go.

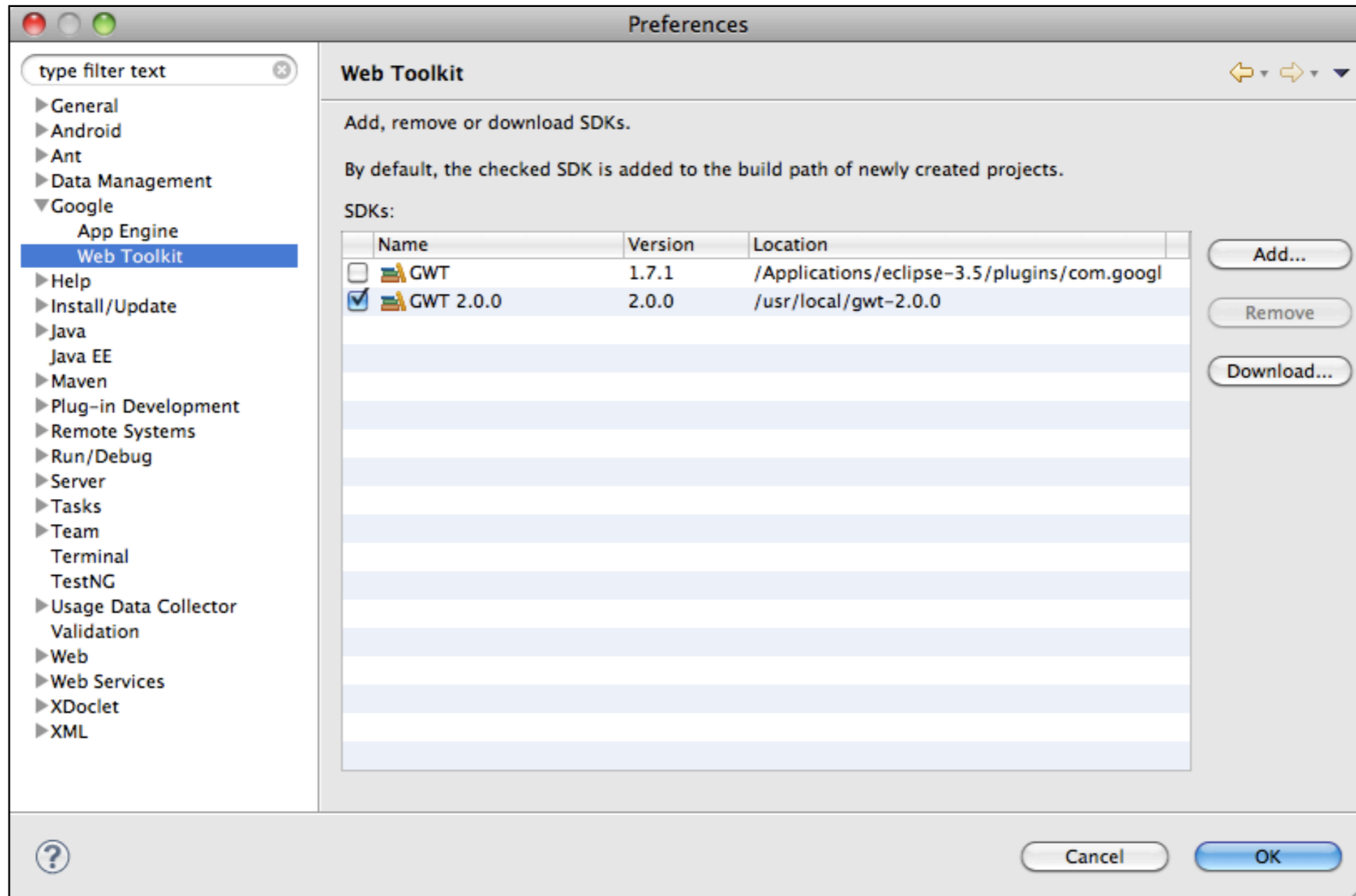
Web Application Launch Configurations
Run or debug your web application locally using custom launch configurations.

How do I start?

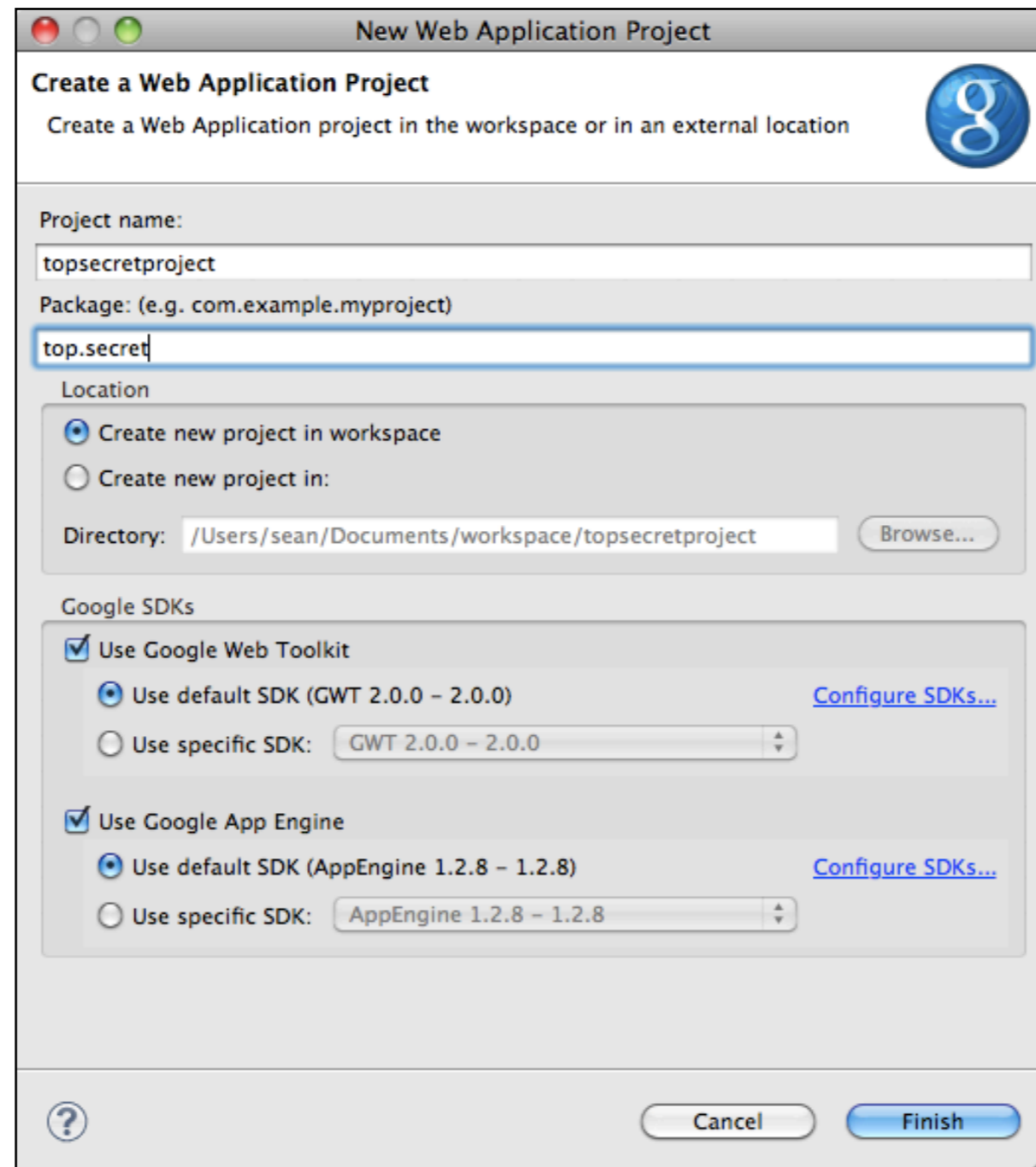
1. Check out the [Quick Start Guide](#).
2. For more details, see the [User's Guide](#).

One error in opening the page. For more information, choose Window > Activity.

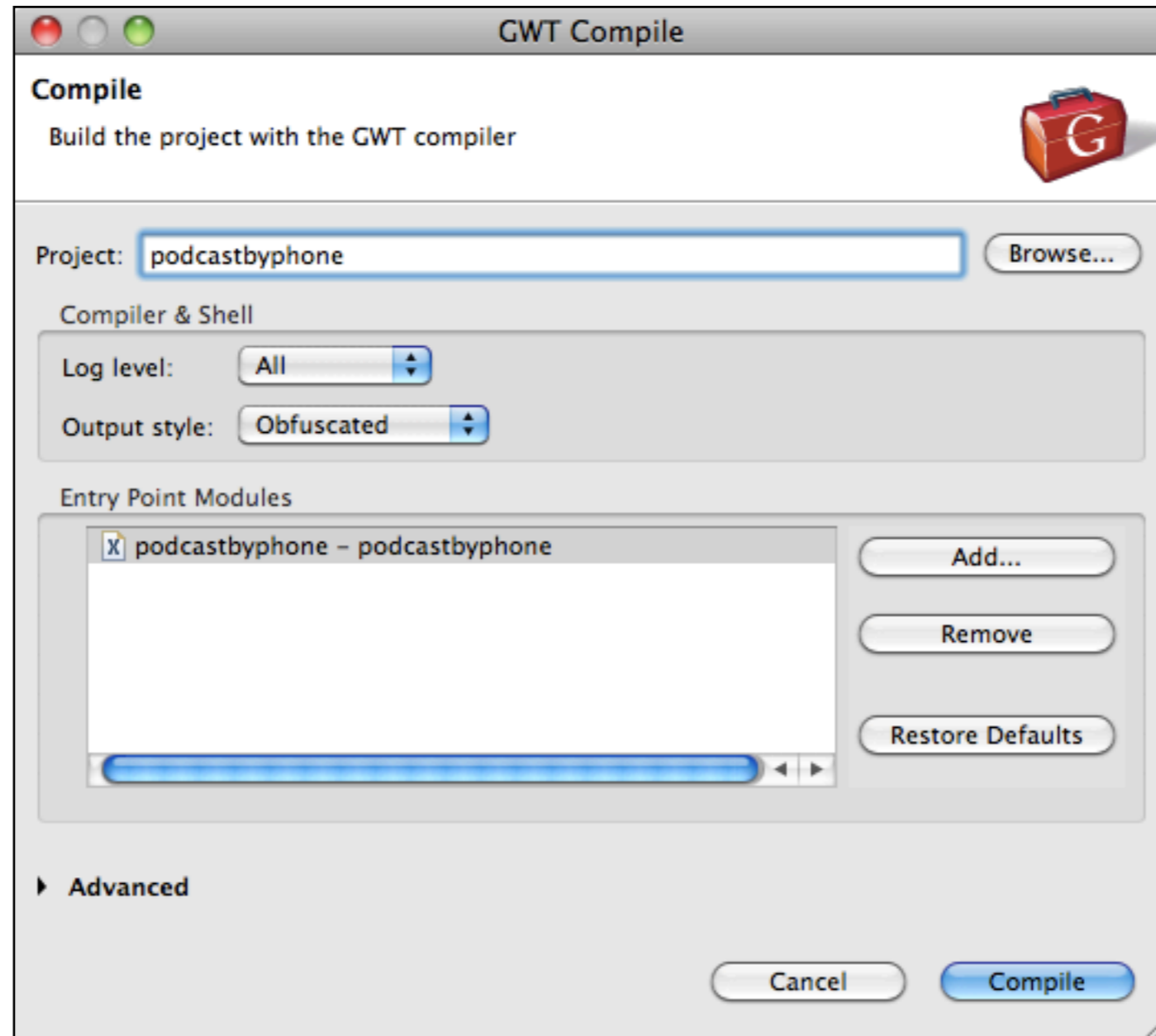
Google Plugin for Eclipse



Google Plugin for Eclipse



Google Plugin for Eclipse



Layout panels in GWT 2.0

- relies on the browser's layout engine
- works correctly in browser's standards mode

Layout panels in GWT 2.0

- *com.google.gwt.user.client.RootLayoutPanel*
- *com.google.gwt.user.client.LayoutPanel*
- *com.google.gwt.user.client.ui.DockLayoutPanel*

Layout panels in GWT 2.0

- *com.google.gwt.user.client.ui.SplitLayoutPanel*
- *com.google.gwt.user.client.ui.StackLayoutPanel*
- *com.google.gwt.user.client.ui.TabLayoutPanel*

UiBinder

- declarative layout
- XML
- UiBinder constructs HTML at compile time

UiBinder

```
<!-- HelloWorld.ui.xml -->  
  
<ui:UiBinder xmlns:ui='urn:ui:com.google.gwt.uibinder'>  
  <div>  
    Hello, <span ui:field='nameSpan' />.  
  </div>  
</ui:UiBinder>
```

UiBinder

- *com.google.gwt.uibinder.client.UiBinder*
- *com.google.gwt.uibinder.client.UiField*

UiBinder

```
public class HelloWorld extends Widget {
interface MyUiBinder extends UiBinder<DivElement, HelloWorld> {}
private static MyUiBinder uiBinder = GWT.create(MyUiBinder.class);

@UiField SpanElement nameSpan;

public HelloWorld() {
    // createAndBindUi initializes this.nameSpan
    setElement(uiBinder.createAndBindUi(this));
}

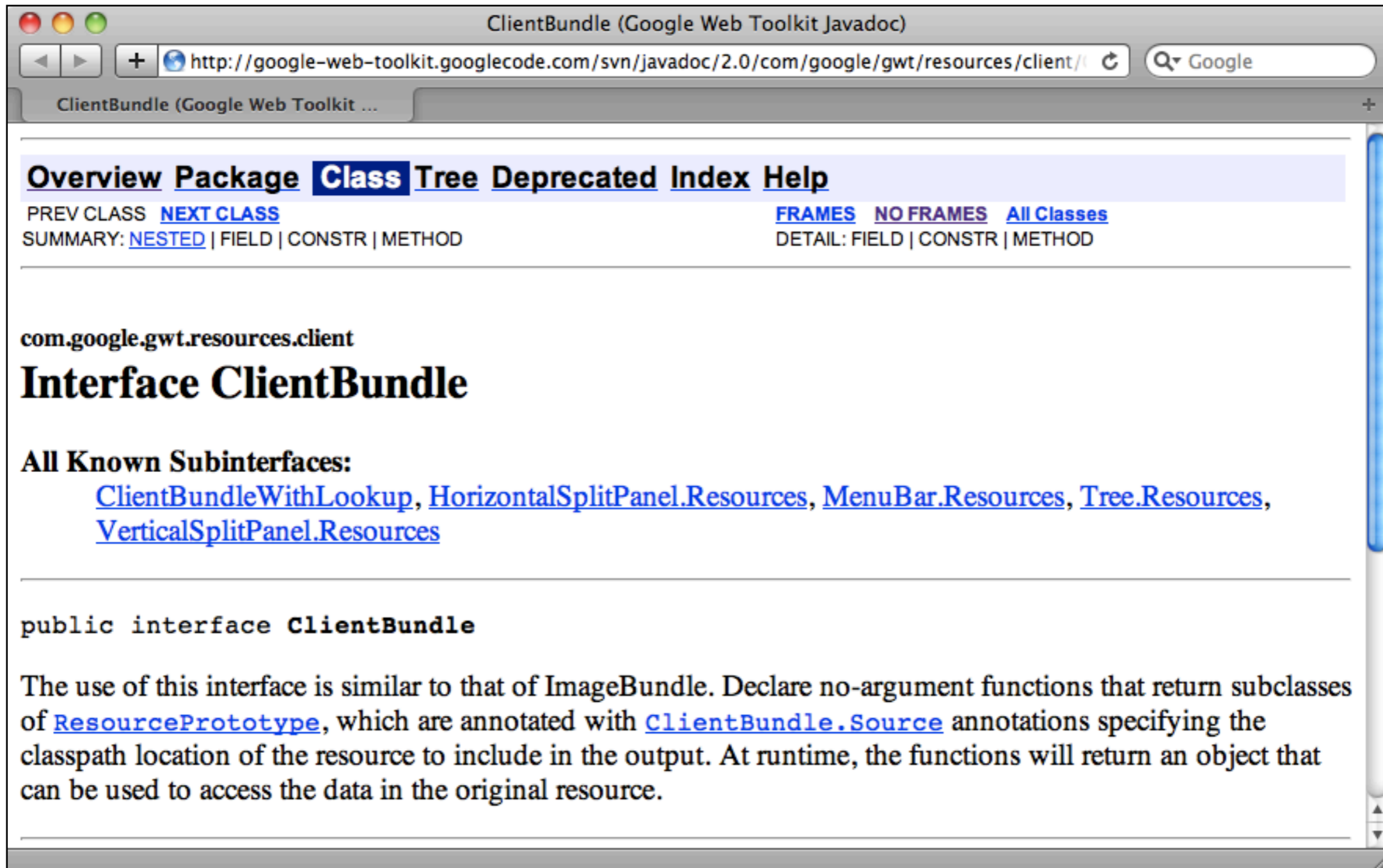
public void setName(String name) { nameSpan.setText(name); }
}
```


ClientBundle

- bundle images, CSS, data, and other resources
- For more information, see

<http://code.google.com/webtoolkit/doc/latest/DevGuideClientBundle.html>

ClientBundle



The screenshot shows a web browser window with the title "ClientBundle (Google Web Toolkit Javadoc)". The address bar contains the URL "http://google-web-toolkit.googlecode.com/svn/javadoc/2.0/com/google/gwt/resources/client/". The browser's search bar shows "Google". The page content includes a navigation menu with "Overview", "Package", "Class", "Tree", "Deprecated", "Index", and "Help". Below the menu are links for "PREV CLASS", "NEXT CLASS", "FRAMES", "NO FRAMES", and "All Classes". The main content area displays the package "com.google.gwt.resources.client" and the interface "Interface ClientBundle". It lists "All Known Subinterfaces" as "ClientBundleWithLookup", "HorizontalSplitPanel.Resources", "MenuBar.Resources", "Tree.Resources", and "VerticalSplitPanel.Resources". The interface is defined as "public interface ClientBundle". A descriptive paragraph explains that the interface is similar to ImageBundle and is used to declare no-argument functions that return subclasses of ResourcePrototype, which are annotated with ClientBundle.Source annotations to specify the classpath location of the resource to include in the output. At runtime, these functions return an object that can be used to access the data in the original resource.

ClientBundle (Google Web Toolkit Javadoc)

http://google-web-toolkit.googlecode.com/svn/javadoc/2.0/com/google/gwt/resources/client/

ClientBundle (Google Web Toolkit ...)

[Overview](#) [Package](#) **[Class](#)** [Tree](#) [Deprecated](#) [Index](#) [Help](#)

[PREV CLASS](#) [NEXT CLASS](#) [FRAMES](#) [NO FRAMES](#) [All Classes](#)

SUMMARY: [NESTED](#) | [FIELD](#) | [CONSTR](#) | [METHOD](#) [DETAIL: FIELD](#) | [CONSTR](#) | [METHOD](#)

com.google.gwt.resources.client

Interface ClientBundle

All Known Subinterfaces:

[ClientBundleWithLookup](#), [HorizontalSplitPanel.Resources](#), [MenuBar.Resources](#), [Tree.Resources](#), [VerticalSplitPanel.Resources](#)

```
public interface ClientBundle
```

The use of this interface is similar to that of ImageBundle. Declare no-argument functions that return subclasses of [ResourcePrototype](#), which are annotated with [ClientBundle.Source](#) annotations specifying the classpath location of the resource to include in the output. At runtime, the functions will return an object that can be used to access the data in the original resource.

Unit testing with GWT 2.0

As of 2.0, GWTTestCase no longer uses SWT or native code. Instead, it uses HtmlUnit as the built-in browser. [...] Debugging GWT Tests in development mode can be done entirely in a Java debugger

source: google.com

Unit testing with GWT 2.0

By default, GWT runs HtmlUnit in the Firefox3 emulation mode

source: google.com

Unit testing with GWT 2.0

Because HtmlUnit is a GUI-less browser, layout cannot be tested on HtmlUnit.

source: google.com

Unit testing with GWT 2.0

... correct tests can sometimes fail on HtmlUnit, either because the HtmlUnit support for that feature is lacking or because of HtmlUnit's issues with flakiness when running asynchronous tests

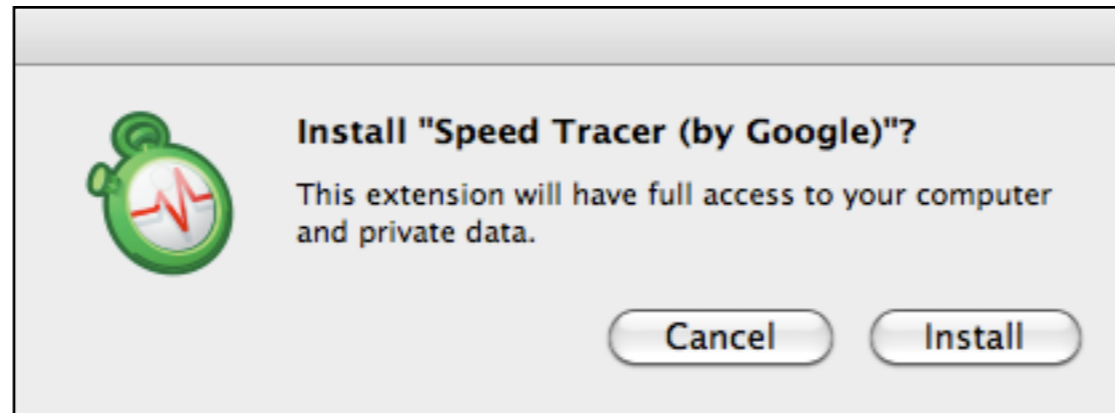
source: google.com

Code splitting

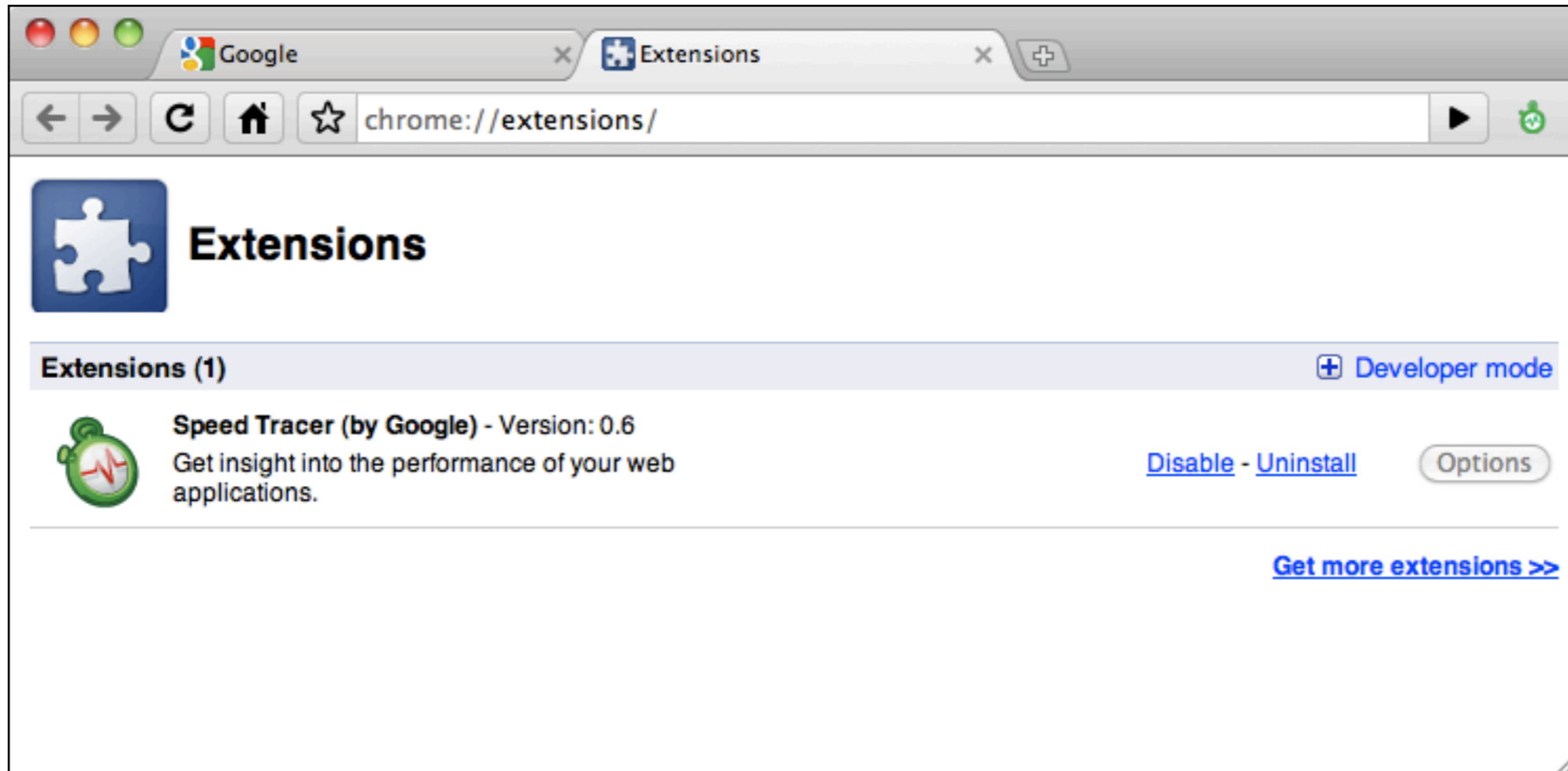
- allows you to chunk your GWT code into multiple fragments for faster startup
- aka “developer guided code splitting”
- For more information, see

<http://code.google.com/webtoolkit/doc/latest/DevGuideCodeSplitting.html>

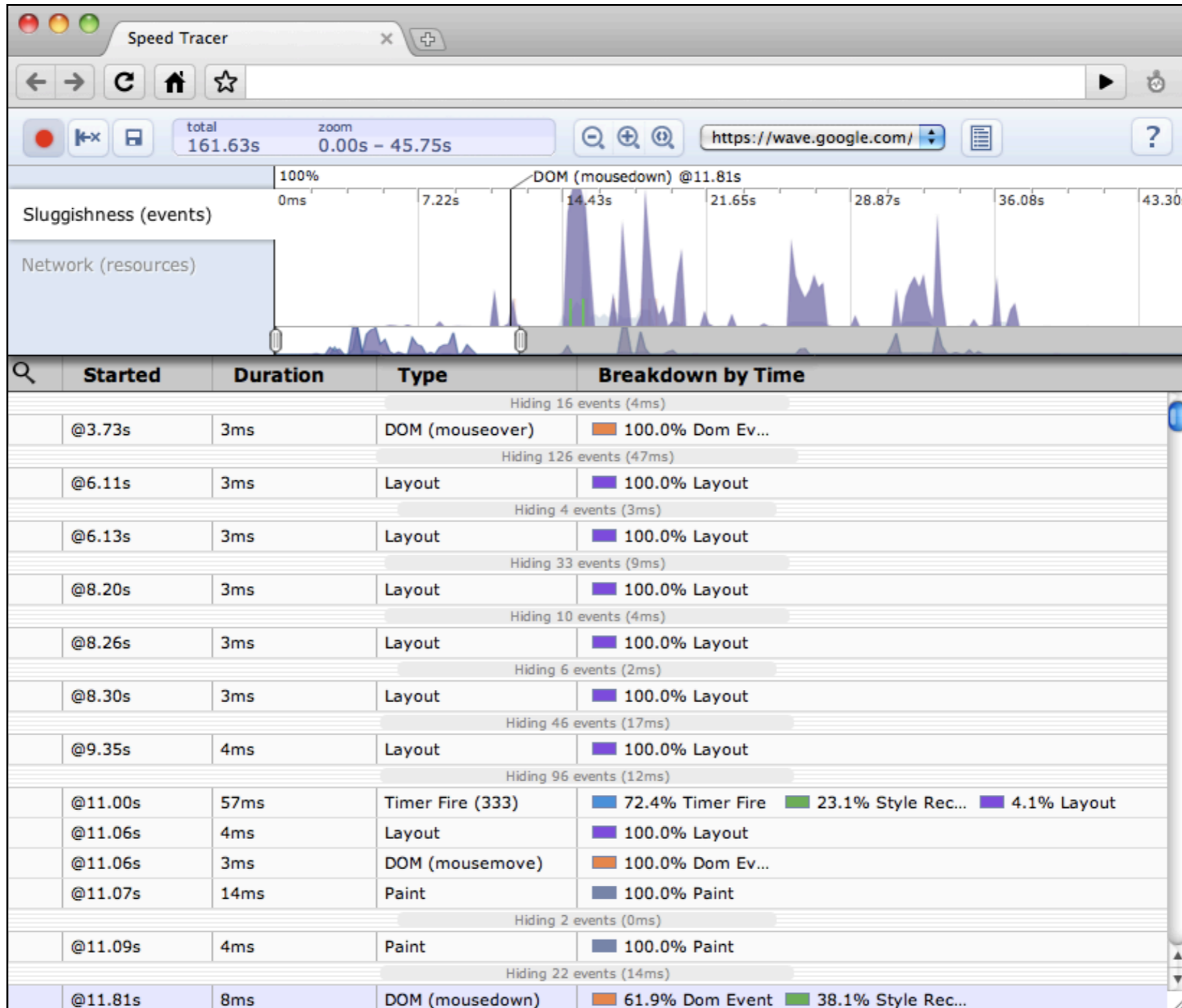
Speed Tracer



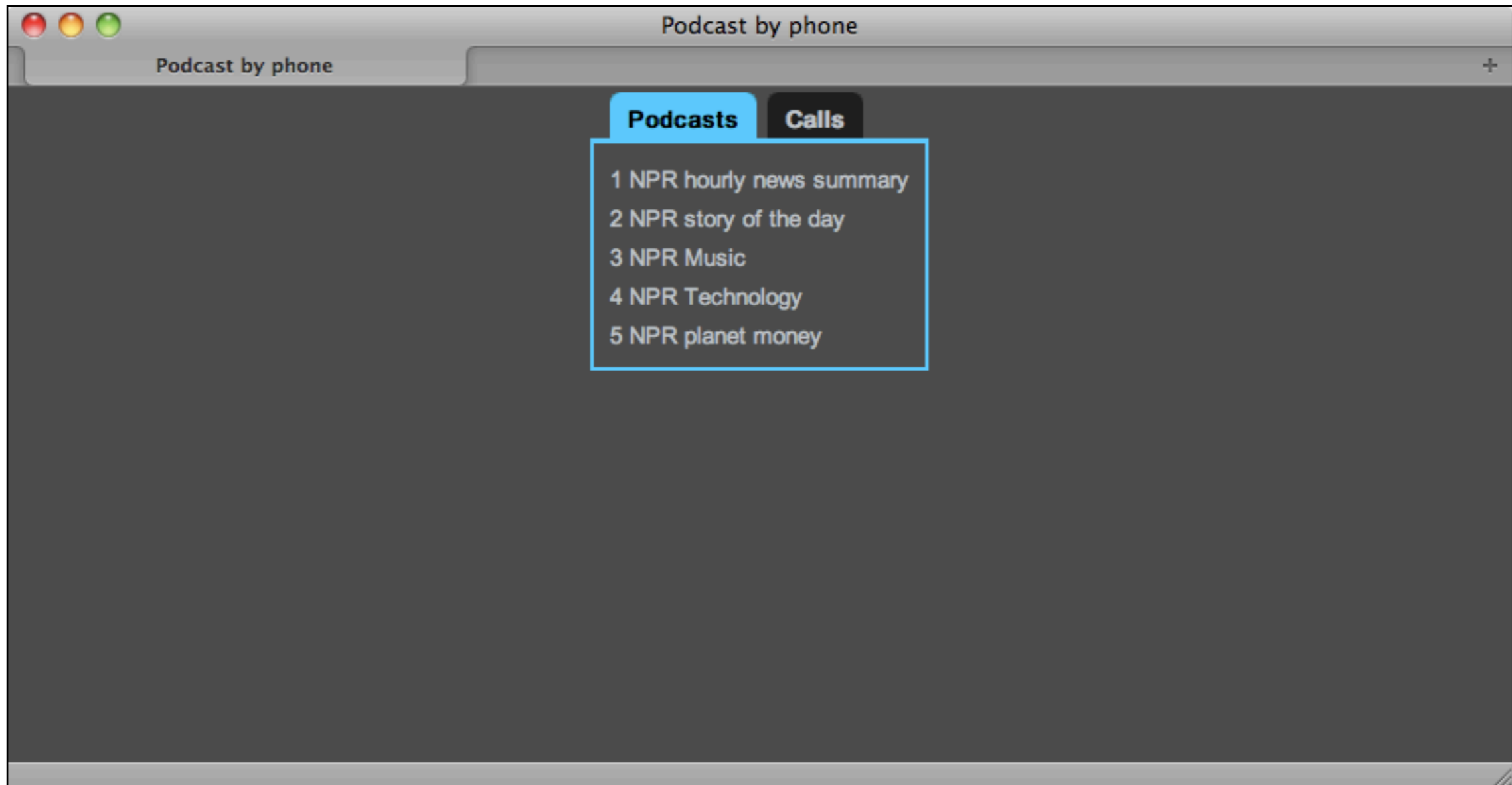
Speed Tracer



Speed Tracer



Demo



Questions?

