

A decorative header at the top of the slide features a horizontal line. Above this line, there are four overlapping spheres: a green one on the far left, a blue one in the middle, a red one slightly behind the blue one, and a yellow one on the right.

# Google Gadgets for Linux

GNOME.Asia Summit 2008

James Su



# Agenda



- What is Google Gadgets
- How to create a desktop gadget
- Google Gadgets for Linux
- Overall Architecture
- Technical Details
- Current Status
- Future Plan
- Demo
- Q & A

# What is Google Gadgets

- iGoogle/OpenSocial Gadgets (<http://code.google.com/apis/gadgets/>)  
Simple HTML and JavaScript applications that can be embedded in webpages and other apps.
- Desktop Gadgets (<http://code.google.com/apis/desktop/>)  
Interactive mini-applications that can be placed anywhere on your desktop. Such as weather, clock, calendar, news, etc.



# How to create a desktop gadget

- **gadget.gmanifest file**

Specifies, in XML format, metadata describing the gadget, as well as components that need to be installed before gadget creation.

- **main.xml file**

Defines, in XML format, the overall appearance of gadget's main view.

- **main.js file**

Includes JavaScript code of the gadget.

- **en/strings.xml file**

Includes, in XML format, all localizable strings.

- **Additional data files**

Image, text, xml data, etc.



# Hello world!

## gadget.gmanifest

```
<gadget minimumGoogleDesktopVersion="5.0.0.0">
  <about>
    <id>B1CD09CC-71E7-485f-ACD9-CA53080FAF98</id>
    <version>1.0.0.0</version>
    <author>Google</author>
    <authorEmail></authorEmail>
    <authorWebsite>&GADGET_WEBSITE;</authorWebsite>
    <copyright>&GADGET_COPYRIGHT;</copyright>
    <name>&GADGET_NAME;</name>
    <description>&GADGET_DESCRIPTION;</description>
    <aboutText>&GADGET_ABOUT;</aboutText>
    <smallIcon>icon_small.png</smallIcon>
    <icon>icon_large.gif</icon>
  </about>
</gadget>
```

## main.xml

```
<view width="250" height="150">
  <script src="main.js" />

  
  <label x="0" y="60" align="center" width="250"
    size="15" enabled="true"
    onclick="onTextClick();" &HELLO_WORLD;</label>
</view>
```

## main.js

```
function onTextClick() {
  view.alert(HELLO_WORLD);
}
```

## en/strings.xml

```
<strings>
<GADGET_NAME>Hello World Sample Gadget</GADGET_NAME>
<GADGET_DESCRIPTION>
Demonstrates a simple Google Desktop Gadget
</GADGET_DESCRIPTION>
<GADGET_COPYRIGHT>
Copyright (c) 2007 Google Inc. All Rights Reserved
</GADGET_COPYRIGHT>
<GADGET_WEBSITE>
http://desktop.google.com/
</GADGET_WEBSITE>
<GADGET_ABOUT>
Hello World Sample Gadget
Copyright (c) 2007 Google Inc. All Rights Reserved
This gadget displays the text 'Hello World' on top
of a picture using the main.xml design file. If the
text is clicked on, a message box will show up as
an event.
</GADGET_ABOUT>
<HELLO_WORLD>Hello World!</HELLO_WORLD>
</strings>
```



# Google Gadgets for Linux

- Platform for running Google Desktop Gadgets under Linux.
- Supports most gadgets written for Google Desktop for Windows.
- Supports iGoogle/OpenSocial Gadgets.
- Open source under Apache License 2.0
- Written in C/C++ and JavaScript
- Allows easy porting or substitution of components:
  - UI engines (GTK/cairo, Qt, ...)
  - Script engines (Mozilla SpiderMonkey, V8, even Python, ...)
  - Hosts (Sidebar, Dashboard, ...)
- Provides shared libraries for third-party applications to embed Google Gadgets.
- <http://code.google.com/p/google-gadgets-for-linux>



# Overall Architecture

Simple Host

GTK Sidebar Host

## Core Library

Graphics Interface

Script Interface

Other Interfaces

Graphics Library  
(cairo/gtk)

Graphics Library  
(QT)

Script Adapter for  
SpiderMonkey JS

Other Script  
Adapters

GTK Main Loop

Default Options

GTK framework

GTK edit element

Extension Modules

# Technical Details

- Core Library
  - Platform independent.
  - Handles loading, running and displaying the gadgets, and processing all user interactions with the gadgets.
  - Interfaces with host, graphics library, script adapter and extension modules through platform-independent interfaces.
- Host
  - Platform dependent.
  - Creates and manipulates windows/widgets, and passes events to the core library in platform-independent form.
- Graphics Libraries
  - Platform dependent.
  - Draws images and gadgets on to canvases.

# Technical Details

- Extension Modules
  - Platform dependent or independent.
  - The core library has no build time dependencies on them.
  - Some gadget can have local extension modules.
- Platform Independent Script Interface
  - The core library can easily be scriptable without binding on specific script library.
  - It's possible to support multiple script languages at the same time.
- Script Adapters
  - Binds to a specific script library.
  - We have SpiderMonkey JavaScript library adapter for now.
  - V8 or other library in the future, without modifying the core library.

# Current Status

- First release on 30th May.
- Current version: 0.10.2 on 14th Sept.
- Core library 100% ready
- Graphics implementation based on Gtk/Cairo 100% ready
- Graphics implementation based on Qt 100% ready
- JavaScript adapter based on SpiderMonkey 100% ready
- Framework implementation for Linux 90% ready
- Audio/Video support based on Gstreamer 90% ready
- Sidebar host based on Gtk 90% ready
- Dashboard host based on Gtk 100% ready
- iGoogle Gadgets support 100% ready
- Host based on Qt 80% ready
- Full integration with KDE Plasma 60% ready



# Future Plan

- Full integration with KDE 4.2 Plasma
- Integration with GNOME Desktop
  - Gadget on GNOME Panel (Applet)
  - Gadget on GNOME Desktop
- Script Adapter for other JavaScript engines
  - V8
  - Tracemonkey
- Browser element based on WebKit Gtk
- Full functional DBus binding
- Ports to Mobile devices, such as MID (Moblin)
  - Integrates GGL into clutter
- Ports to other operating systems
  - Mac OS X
  - OpenSolaris



A decorative header at the top of the slide features four overlapping spheres. From left to right, they are light green, light blue, light red, and light yellow. A thin horizontal line is positioned below the spheres.

# Demo & QA

<http://code.google.com/p/google-gadgets-for-linux>

