


# Bringing the Open Web & APIs to mobile devices with Firefox OS

 @robertnyman



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Webring**

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# TXJS 1997

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## Speakers



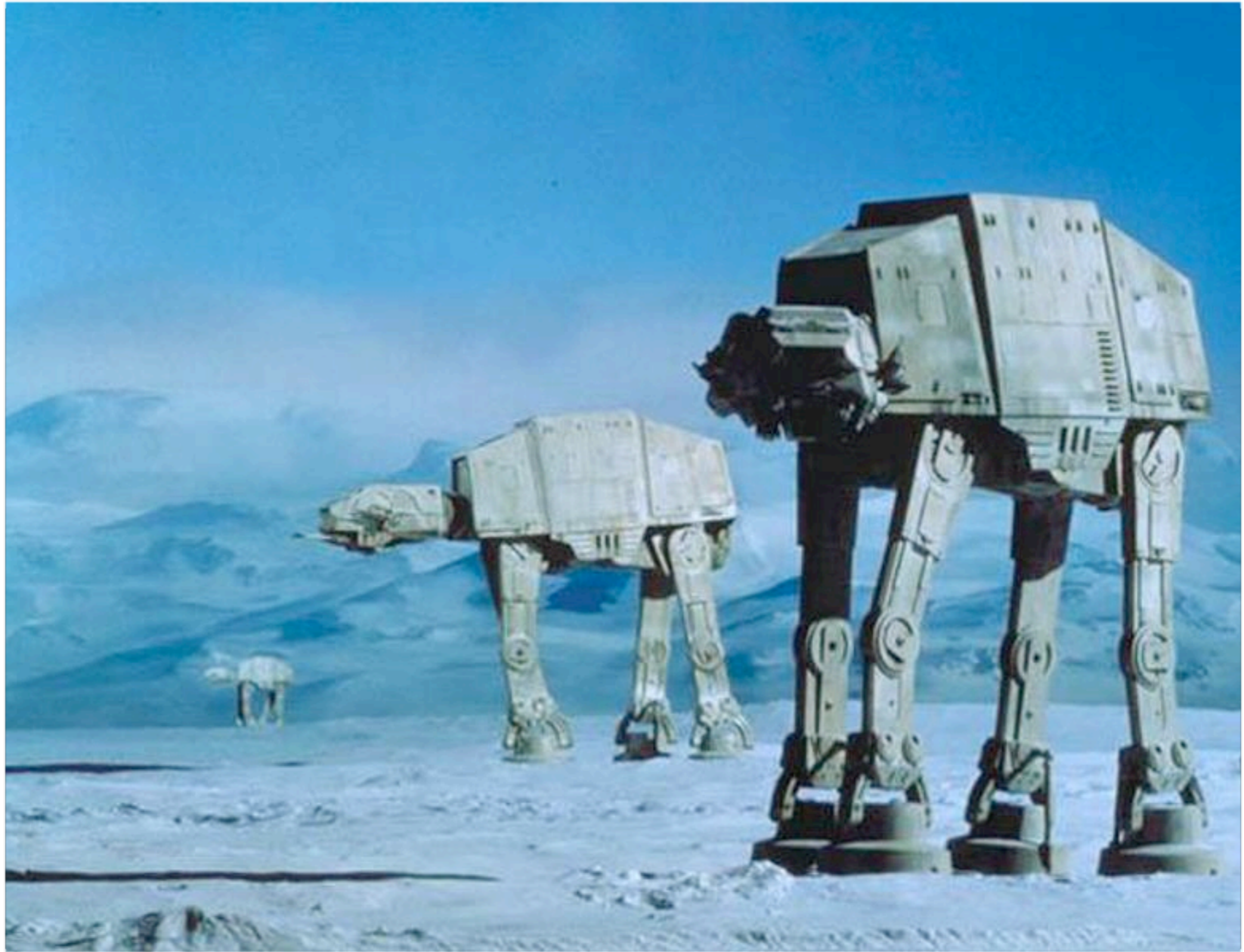
Brendan Eich, Netscape

## Schedule

Time	Speaker	Title
10:00 AM	Brendan Eich	What is JavaScript, anyways?
12:00 PM		Lunch
1:00 PM		Wrap Up

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June 27, 2013 • by Jeff Griffiths, Victor Porof and Robert Nyman [Editor] • Developer Tools, Firefox • 25 comments

### WebRTC comes to Firefox

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### Optimizing your JavaScript game for Firefox OS

May 30, 2013 • by Louis Stowasser, Harald Kirschner and Robert Nyman [Editor] • Firefox OS, Games, Performance • 12 comments

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July 4, 2013 • by Fabian Gort and Robert Nyman [Editor] • WebRTC • 7 comments • [Edit Post](#)

It was somewhere in the midst of 2010 when I first learned that the people at Ericson Labs were working on an 'open standards' browser implementation for P2P video chat.

## PROMOTE MDN







@robertnyman





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10/11/11-6-2011

10/11/11-9-2011





Dad says  
you're  
spying us  
online

He's not  
your dad



1990



2013







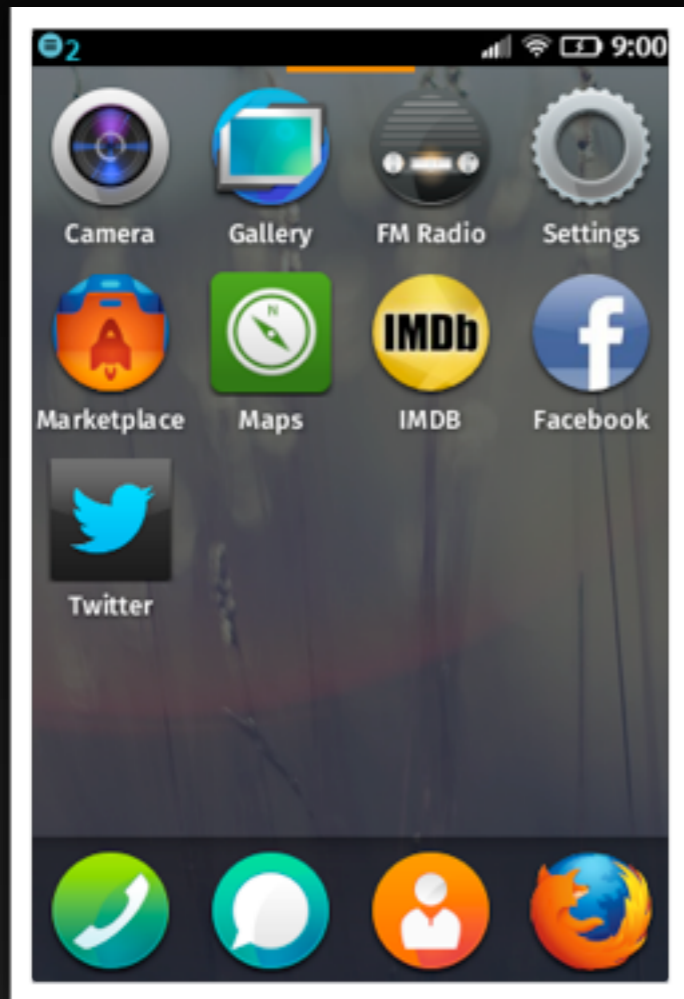
**WE BUY THINGS WE DON'T NEED  
WITH MONEY WE DON'T HAVE  
TO IMPRESS PEOPLE WE DON'T LIKE.**

"We are all idiots  
with deadlines."

-Mike West



# Firefox OS



Using HTML5, CSS and JavaScript together with a number of APIs to build apps and customize the UI.



## Launch!

*"Movistar to offer the ZTE Open for €69, including €30 of balance for prepaid customers and a 4GB microSD card"*




Foxconn



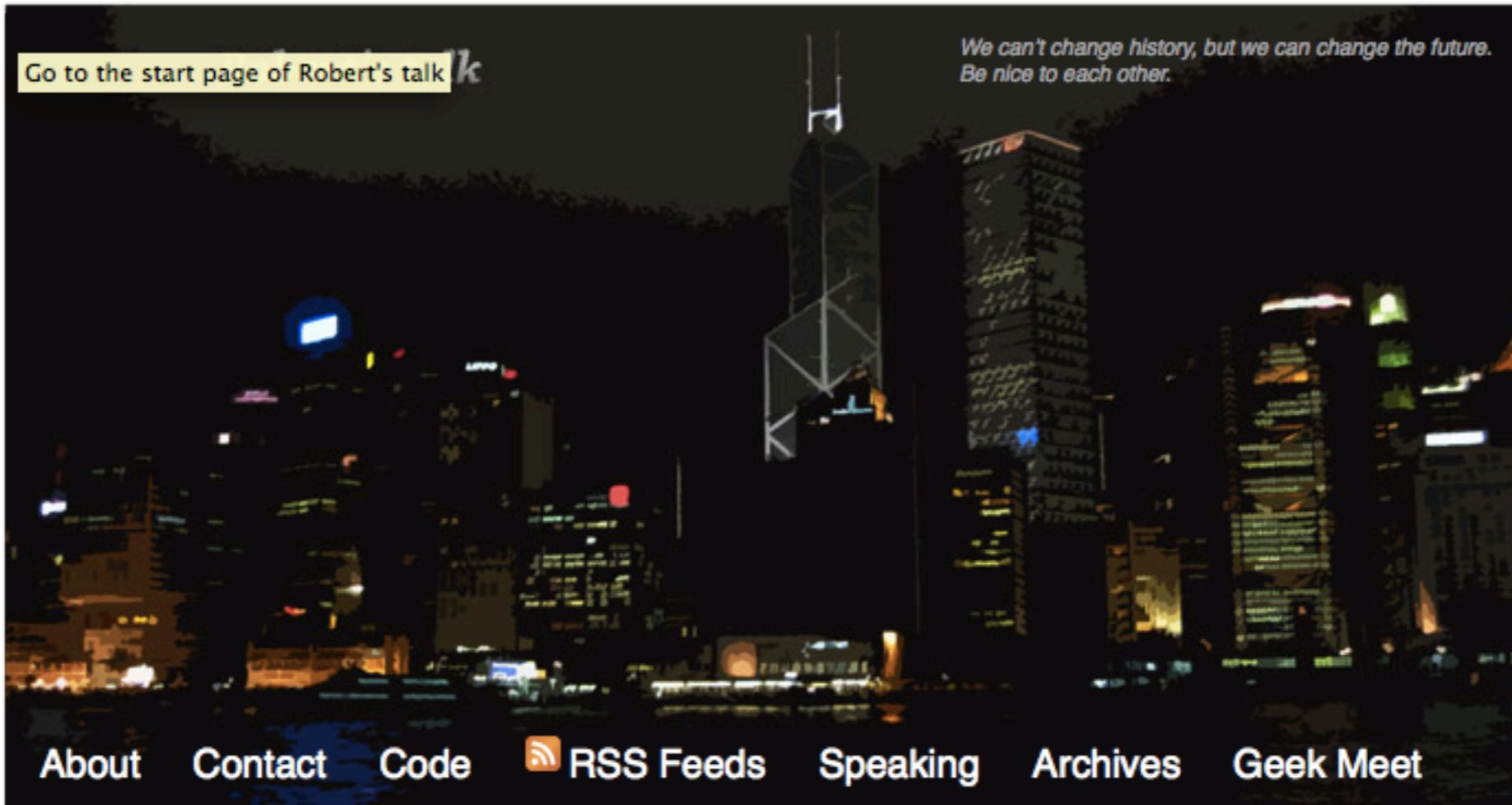
mozilla


Firefox®



Go to the start page of Robert's talk 

*We can't change history, but we can change the future.  
Be nice to each other.*




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## The Launch Of Firefox OS – My Thoughts And Some History

*Published on Tuesday, July 2, 2013*

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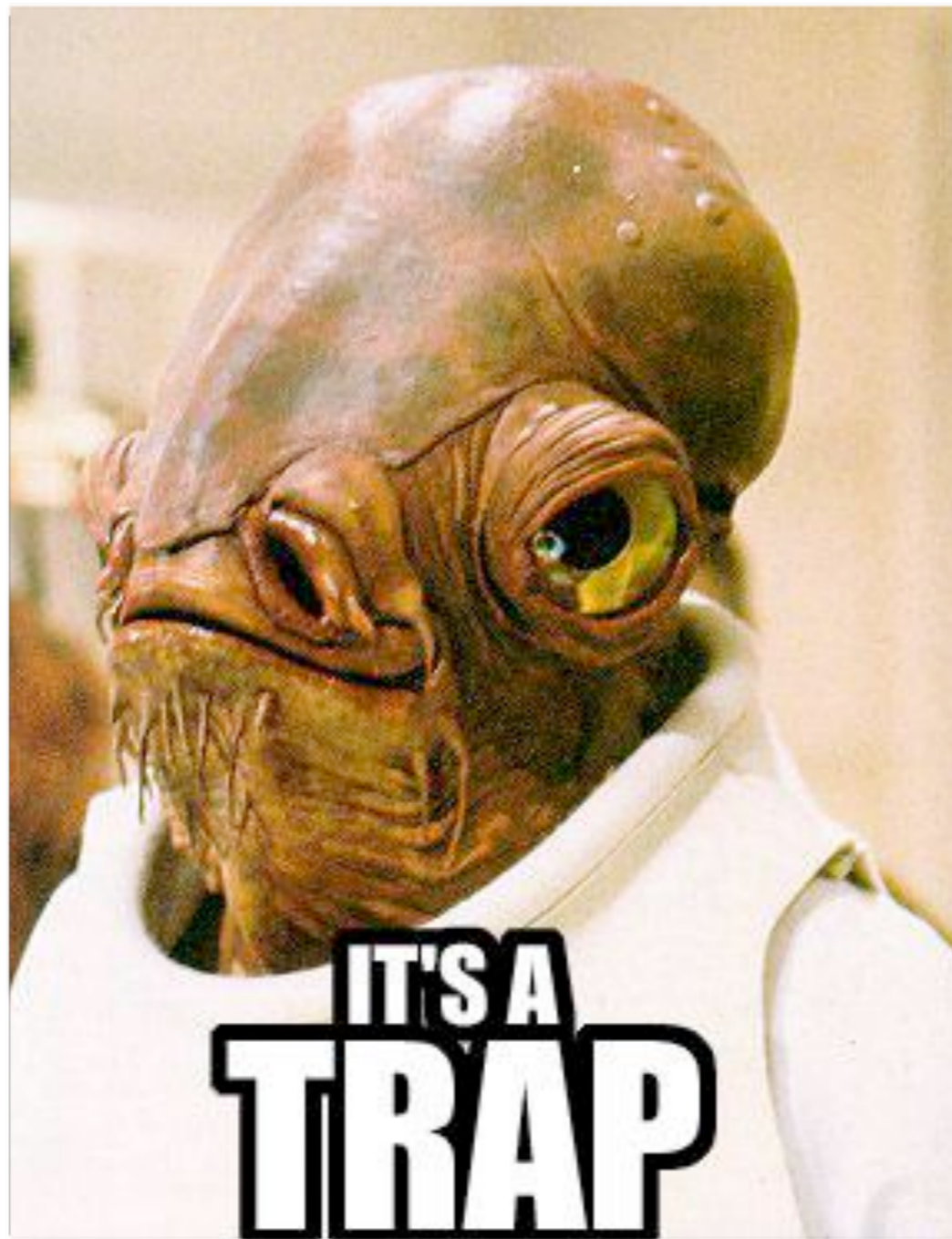
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Open Web Apps

---







**What's this?** A QR (quick response) code is a way of loading info quickly onto your mobile. To download our free app:

- 1** If a QR code reader is not pre-installed on your mobile, search for 'QR code reader' on your mobile's internet browser and download one.
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- 3** Scan the code on the front cover.
- 4** Open the link and follow the instructions to download our app.
- 5** You now have access to the Yell mobile app!

**Or** just type 'apps.yell.com' directly into your phone's browser.

HTML5 + manifest file (JSON)



```
{
  "version": "1",
  "name": "Firefox OS Boilerplate App",
  "launch_path": "/index.html",
  "description": "Boilerplate Firefox OS app",
  "icons": {
    "16": "/images/logo16.png",
    "32": "/images/logo32.png",
    "48": "/images/logo48.png",
    "64": "/images/logo64.png",
    "128": "/images/logo128.png"
  },
  "developer": {
    "name": "Robert Nyman",
    "url": "http://robertnyman.com"
  },
  "installs_allowed_from": ["*"],
  "default_locale": "en"
}
```

🏠 » Developers » Validate App

## Validate an App

Hosted

Packaged

Submit your app manifest URL

Validate

Manifest URLs must start with a protocol (for example, `http://` or `https://`) and typically use the `.webapp` extension.

# MANIFEST CHECKER

<http://appmanifest.org/>



---

Packaged & hosted apps

---

---

WebAPIs

---





# Guitar Hero. Now on Linux





---

# Security Levels

---

## **Web Content**

Regular web content

## **Installed Web App**

A regular web app

## **Privileged Web App**

More access, more responsibility

## **Certified Web App**

Device-critical applications



API	Description	Standardization	Availability			See also
WebTelephony	Allow placing and answering phone calls as well as build in-call UI.	W3C ED (SysApps)	D .....	A .....	B .....	bug 674726, Security
Vibration API	Control device vibration for things like haptic feedback in games. Not intended to solve things like vibration for notification.	W3C CR (Device APIs)	D .....	A .....	B .....	bug 679966, Security
WebSMS	Send/receive SMS messages as well as manage messages stored on device.	W3C ED (SysApps)	D .....	A .....	B .....	bug 674725, Security
Idle API	Get notifications when user is idle.	Needs plan	D .....	A .....	B .....	bug 715041, Security
Screen Orientation	Get notification when screen orientation changes as well as control which screen orientation a page/app wants.	W3C WD (WebApps)	D .....	A .....	B .....	bug 720794 bug 740188 bug 673922, Security
Settings API	Set system-wide configurations that are saved permanently on the device.	Future?	D .....	A .....	B .....	bug 678695, Security
Power Management API	Turn on/off screen, cpu, device power, etc. Listen and inspect resource lock events.	Future?	D .....	A .....	B .....	bug 708964, Security
Mobile Connection API	Expose signal strength, operator, etc for GSM and other mobile connections. This does not cover WiFi.	Future?	D .....	A .....	B .....	bug 729173, Security
TCP Socket API	Low-level TCP socket API. Will also include SSL support.	W3C ED (SysApps)	D .....	A .....	B .....	bug 733573, Security
Geolocation API	Access to the end user's location.	W3C CR	D .....	A .....	B .....	Security

[https://wiki.mozilla.org/  
WebAPI#Planned\\_for\\_initial\\_release\\_of\\_B2G\\_.28aka\\_Basecamp.29](https://wiki.mozilla.org/WebAPI#Planned_for_initial_release_of_B2G_.28aka_Basecamp.29)

```
"permissions": {  
  "contacts": {  
    "description": "Required for autocompletion in the share screen",  
    "access": "readcreate"  
  },  
  "alarms": {  
    "description": "Required to schedule notifications"  
  }  
}
```

# App permissions

HISTORY EDIT

The `permissions` field in the [app manifest](#) controls the app's access to various sensitive APIs on the device (WebAPIs). The permissions are described in the following tables.

Privileged apps have all the permissions of hosted apps plus more. Certified apps have all the permissions of privileged and hosted apps plus more. For more information on app types, see [Types of packaged apps](#).

**TABLE OF CONTENTS**

- [Hosted app and privileged app permissions](#)
- [Certified app permissions](#)
- [See also](#)

TAGS FILES

## Hosted app and privileged app permissions

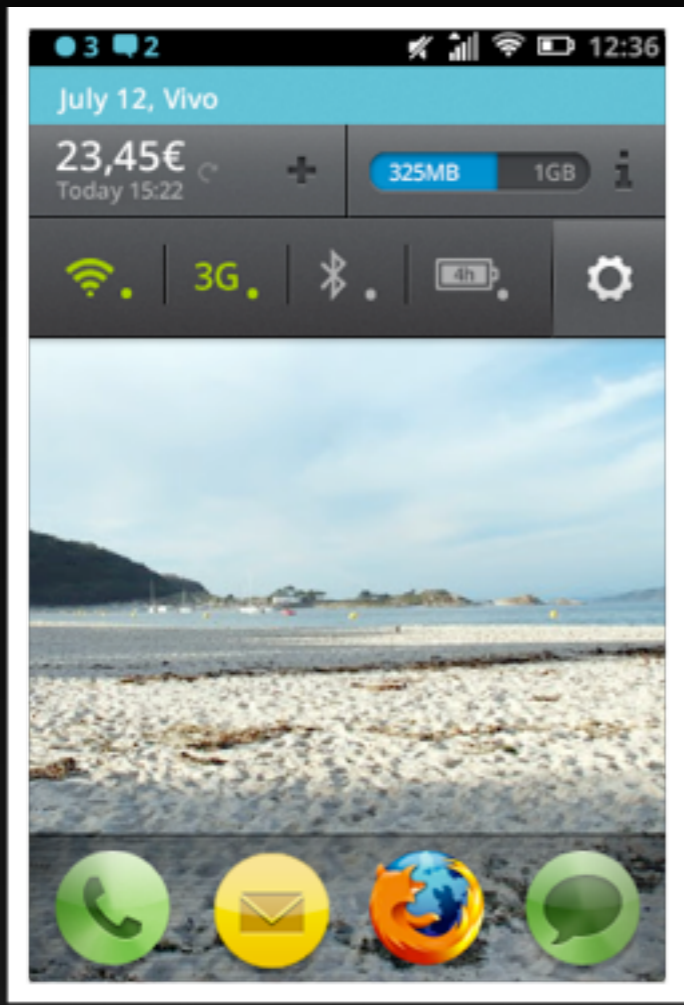
Manifest permission	API name	Description	Minimum app type required	access property	Default granted	Platform
alarms	<a href="#">Alarm</a>	Schedule a notification, or schedule an application to be started.	hosted	none	Allow	FxOS
audio-channel-normal	<a href="#">Audio Policy</a>	UI sounds, Web content, music, radio.	hosted	none	Allow	FxOS
audio-channel-content	<a href="#">Audio Policy</a>	Music, video.	hosted	none	Allow	FxOS
audio-channel-alarm	<a href="#">Audio Policy</a>	Alarm clock, calendar alarms.	privileged	none	Allow	FxOS
audio-channel-notification	<a href="#">Audio Policy</a>	New email, incoming SMS.	privileged	none	Allow	FxOS

# PERMISSIONS



Vibration API (W3C)	Web Activities
Screen Orientation	Push Notifications API
Geolocation API	WebFM API
Mouse Lock API (W3C)	WebPayment
Open WebApps	IndexedDB (W3C)
Network Information API (W3C)	Ambient light sensor
Battery Status API (W3C)	Proximity sensor
Alarm API	Notification

REGULAR APIS



# BATTERY STATUS API

```
var battery = navigator.battery;
if (battery) {
    var batteryLevel = Math.round(battery.level * 100) + "%",
        charging = (battery.charging)? "" : "not ",
        chargingTime = parseInt(battery.chargingTime / 60, 10),
        dischargingTime = parseInt(battery.dischargingTime / 60, 10);

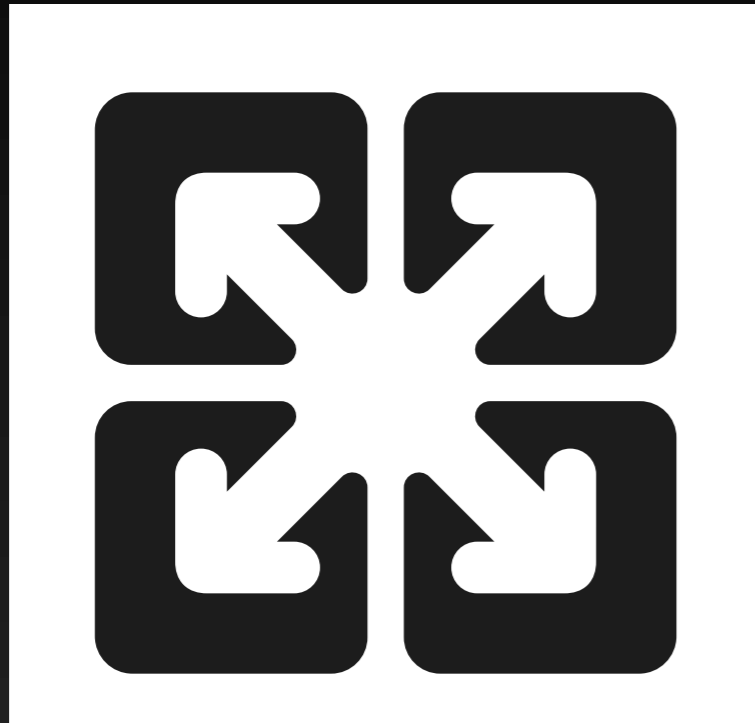
    // Set events
    battery.addEventListener("levelchange", setStatus, false);
    battery.addEventListener("chargingchange", setStatus, false);
    battery.addEventListener("chargingtimechange", setStatus, false);
    battery.addEventListener("dischargingtimechange", setStatus, false);
}
```





# NOTIFICATION

```
var notification = navigator.mozNotification;  
notification.createNotification(  
    "See this",  
    "This is a notification",  
    iconURL  
);
```

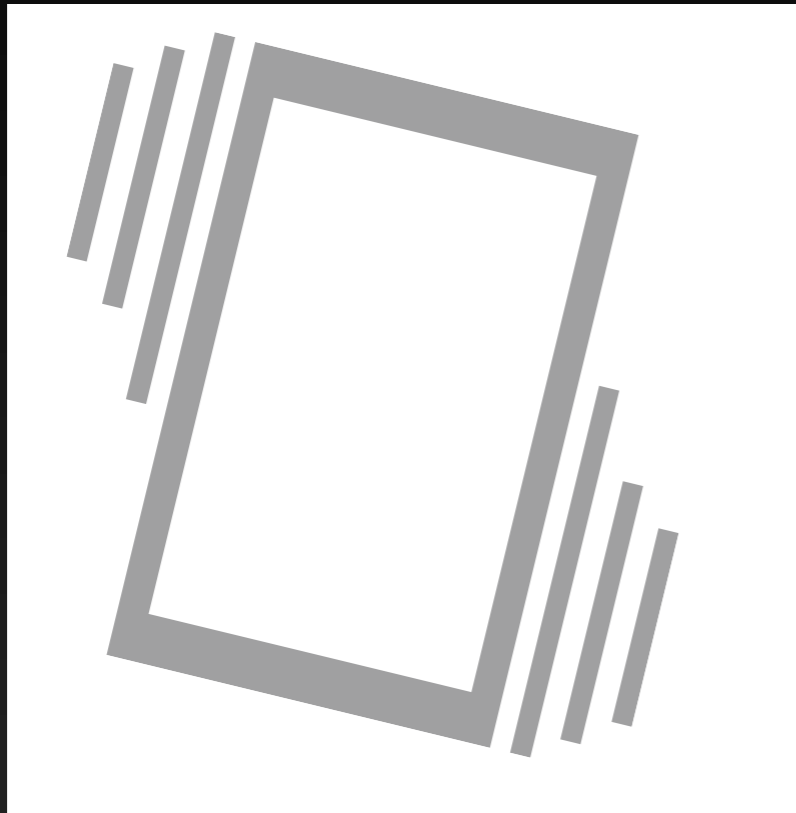


SCREEN  
ORIENTATION API



```
// Portrait mode:  
screen.mozLockOrientation("portrait");
```

```
/*  
    Possible values:  
    "landscape"  
    "portrait"  
    "landscape-primary"  
    "landscape-secondary"  
    "portrait-primary"  
    "portrait-secondary"  
*/
```



# VIBRATION API

```
// Vibrate for one second  
navigator.vibrate(1000);
```

```
// Vibration pattern [vibrationTime, pause,...]  
navigator.vibrate([200, 100, 200, 100]);
```

```
// Vibrate for 5 seconds  
navigator.vibrate(5000);
```

```
// Turn off vibration  
navigator.vibrate(0);
```





# WEB PAYMENTS

```
var pay = navigator.mozPay(paymentToken);  
pay.onsuccess = function (event) {  
    // Weee! Money!  
};
```



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robnyman



PUBLIC



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Fork 6

A helper Javascript library for doing useful things with Open Web Apps.

74 commits

1 branch

0 releases

4 contributors



branch: master ▾

**receiptverifier** /

Merge pull request #19 from andymckay/902946



ianb authored a month ago

latest commit 99ecbbb091

example	Adds a working example app	7 months ago
.gitignore	Adds a working example app	7 months ago
.gitmodules	added some testing	a year ago
.npmignore	added npm package manifest and .npmignore file to properly package no...	a year ago
LICENSE	Added MPL 2.0 License information	a year ago
MockHttpRequest @ 1ab0a3e	added some testing	a year ago
README.md	split out the ui from the lib (bug 902946)	a month ago
doctestjs @ 90ebabf	update	a year ago

Code

Issues 1

Pull Requests 0

Pulse

Graphs

Network

HTTPS clone URL

https://github.com/


You can clone with HTTPS, SSH, or Subversion. ?


Clone in Desktop


Download ZIP



```
mozmarket.receipts.Prompter({
  storeURL: "https://marketplace.mozilla.org/app/myapp",
  supportHTML: '<a href="mailto:me@example.com">email
me@example.com</a>',
  verify: true
});
```

 Push

 Refresh

 Connect

Receipt:

None

Valid

Invalid

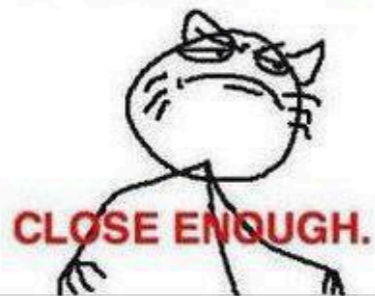
Refunded



DEVICEPROXIMITY



```
window.addEventListener("deviceproximity", function (event) {  
    // Current device proximity, in centimeters  
    console.log(event.value);  
  
    // The maximum sensing distance the sensor is  
    // able to report, in centimeters  
    console.log(event.max);  
  
    // The minimum sensing distance the sensor is  
    // able to report, in centimeters  
    console.log(event.min);  
});
```



# AMBIENT LIGHT EVENTS

```
window.addEventListener("devicelight", function (event) {  
    // The lux values for "dim" typically begin below 50,  
    // and the values for "bright" begin above 10000  
    console.log(event.value);  
});
```



PAGE VISIBILITY



```
document.addEventListener("visibilitychange", function () {  
    if (document.hidden) {  
        console.log("App is hidden");  
    }  
    else {  
        console.log("App has focus");  
    }  
});
```

Device Storage API

Browser API

TCP Socket API

Contacts API

systemXHR

PRIVILEGED APIS



# DEVICE STORAGE API

```
var deviceStorage = navigator.getDeviceStorage("videos");
```



```
var storage = navigator.getDeviceStorage("videos"),
    cursor = storage.enumerate();

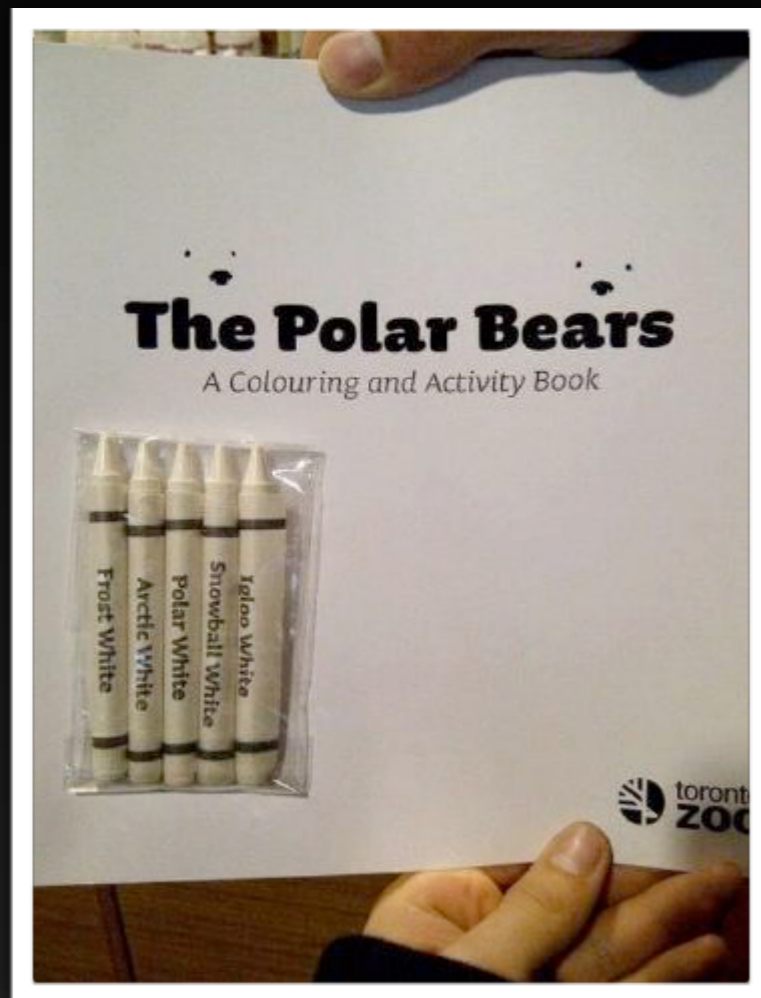
cursor.onerror = function() {
    console.error("Error in DeviceStorage.enumerate()", cursor.error.name);
};

cursor.onsuccess = function() {
    if (!cursor.result)
        return;

    var file = cursor.result;

    // If this isn't a video, skip it
    if (file.type.substring(0, 6) !== "video/") {
        cursor.continue();
        return;
    }

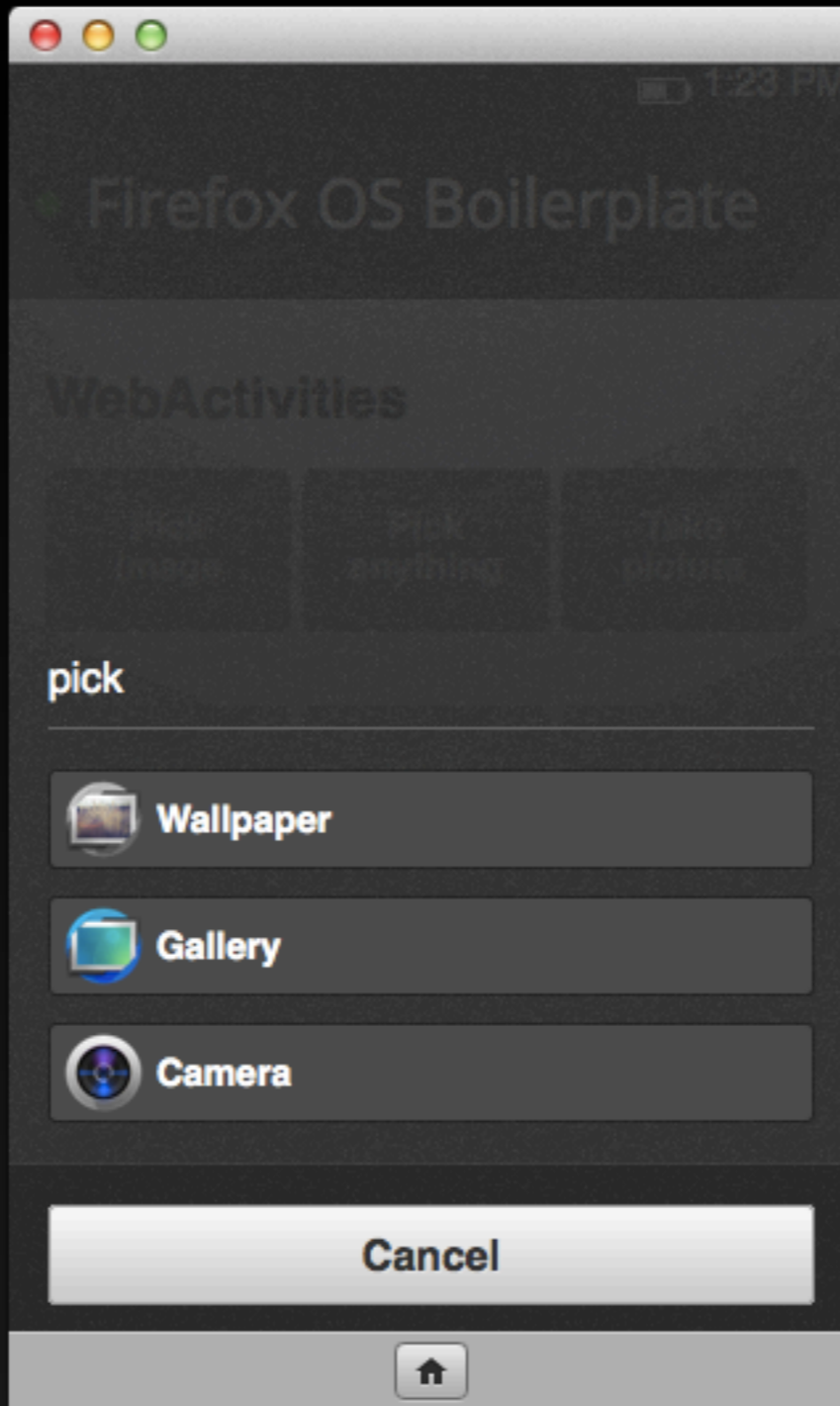
    // If it isn't playable, skip it
    var testplayer = document.createElement("video");
    if (!testplayer.canPlayType(file.type)) {
        cursor.continue();
        return;
    }
};
```



# WEB ACTIVITIES



Interacting with the camera





```
var activity = new MozActivity({
  name: "view",
  data: {
    type: "image/png",
    url: ...
  }
});

activity.onsuccess = function () {
  console.log("Showing the image!");
};

activity.onerror = function () {
  console.log("Can't view the image!");
};
```

```
{
  "activities": {
    "share": {
      "filters": {
        "type": ["image/png", "image/gif"]
      }
      "href": "sharing.html",
      "disposition": "window"
    }
  }
}
```

```
navigator.mozSetMessageHandler("activity", function (a) {  
    var img = getImageObject();  
    img.src = a.source.url;  
    // Call a.postMessage() or a.postMessage() if  
    // the activity should return a value  
});
```

---

# Future APIs

---

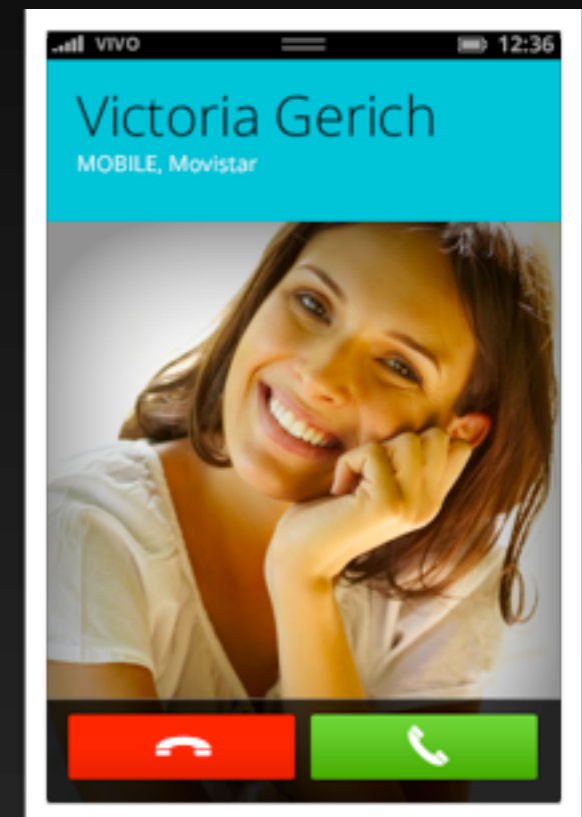
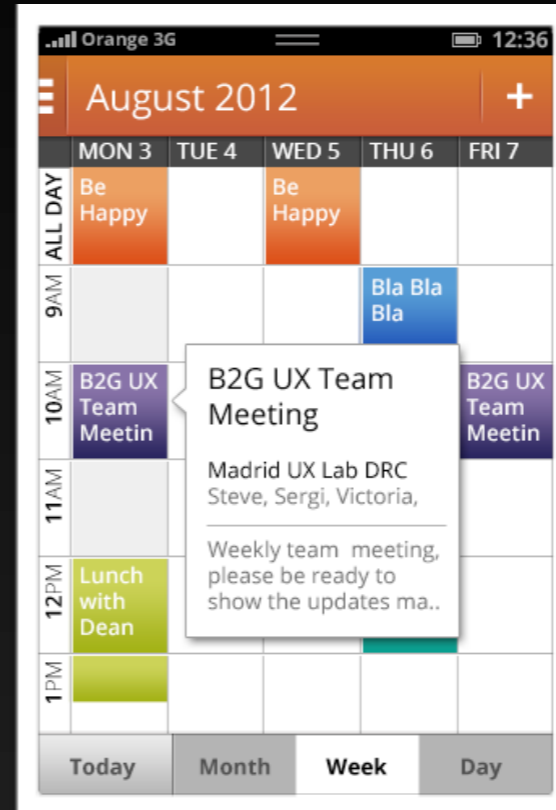
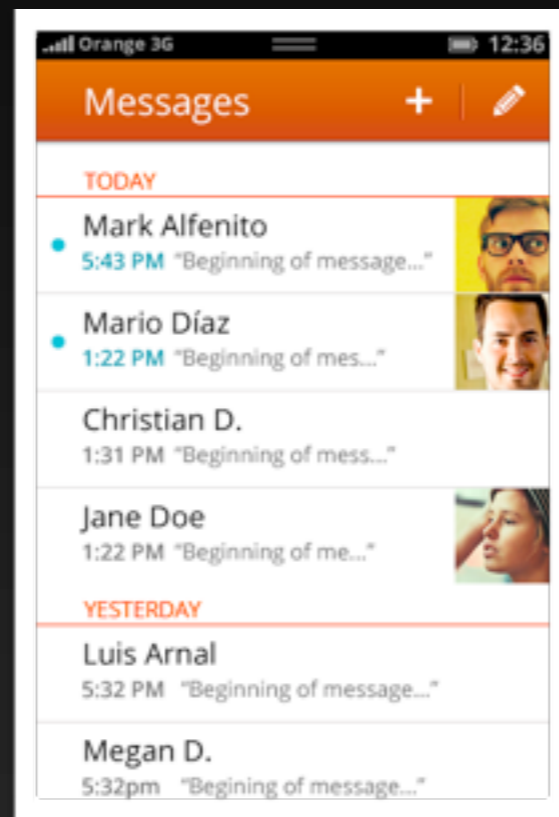
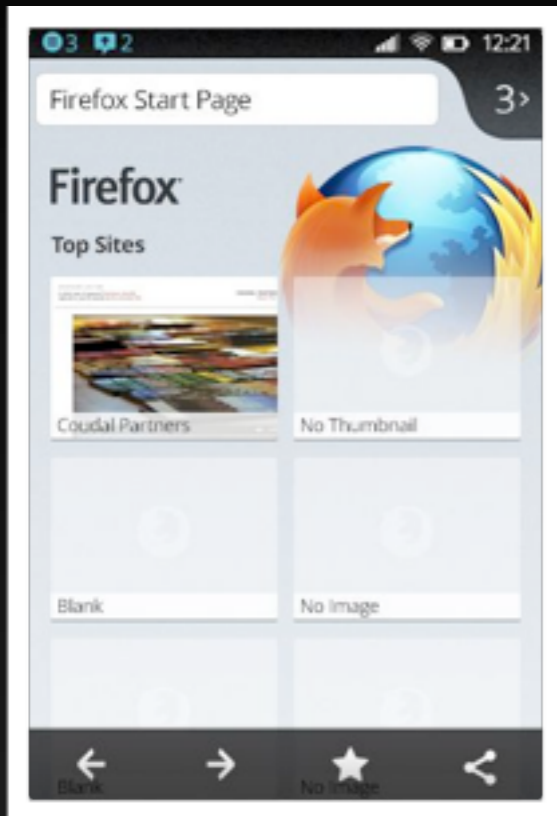


WHAT DO WE WANT?  
TIME TRAVEL  
WHEN DO WE WANT IT?  
IT'S IRRELEVANT!



Resource lock API	Spellcheck API
UDP Datagram Socket API	LogAPI
Peer to Peer API	Keyboard/IME API
WebNFC	WebRTC
WebUSB	FileHandle API
HTTP-cache API	Sync API
Calendar API	

# Web Apps from Mozilla



Dialer

Contacts

Settings

SMS

Web browser

Gallery

Video Player

Music Player

E-mail (POP, IMAP)

Calendar

Alarm Clock

Camera

Notes

First Run Experience

Notifications

Home Screen

Mozilla Marketplace

System Updater

Localization Support





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PUBLIC



mozilla-b2g / gaia

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965

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455

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Graphs

Gaia is a HTML5-based Phone UI for the Boot 2 Gecko Project — [Read more](#)

<https://wiki.mozilla.org/B2G>



Clone in Mac



ZIP

HTTP

SSH

Git Read-Only

`git://github.com/mozilla-b2g/gaia.git`



Read-Only access



branch: master

Files

Commits

Branches 4

Tags 2

gaia /

1000+ commits

Merge pull request #7234 from dominickuo/music-open-received-file



dominickuo authored 4 hours ago



latest commit `ac6440dc6a`

apps	4 hours ago	Merge pull request #7234 from dominickuo/music-open-received-file [dominickuo]
build	3 days ago	Bug 821296 - Allow single files to be packaged as shared resources an... [gabrielesvelto]
dictionaries	4 months ago	Remove en dictionary. We already have en_gb and en_us. [andreasgal]
external-apps	9 days ago	Merge pull request #7153 from dclarke/master [dclarke]
locales	4 months ago	Merged with master [lodr]
media-samples	6 months ago	move sample photos from /sdcard/Pictures back to /sdcard/DCIM [davidflanagan]
shared	2 days ago	Merge pull request #7237 from leibovic/manifest-locales [leibovic]
showcase_apps	3 days ago	Bug 822565 - Remove the calculator app [vingtetun]
test_apps	3 days ago	Merge pull request #6907 from lissyx/fix-geoloc-buttons [vingtetun]
test_media	6 months ago	Add a directory to allow for Test Media to be delivered onto the device [dclarke]
tests	3 days ago	Bug 820188 Email app integration tests a=test-only r=squib [willkg]

---

# Web Components & Mozilla Brick

---



Brick 1.0beta7

[Documentation & Demos](#)

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[Issues](#)

# Brick

UI Components for Modern Web Apps

## What is Brick?

Brick is a bundle of reusable UI components created to enable **rapid development** of cross-browser and mobile-friendly HTML5 web applications.

## Neat. How?

Brick components are **custom HTML tags** created using [X-Tag](#) — a library that makes developing Web Components easier.

## Um, Web Components?

[Web Components](#) is a series of emerging **W3C standards** that allow developers to define custom HTML elements, and interact with them using the native DOM.

<http://mozilla.github.io/brick/>

```
<x-flipbox>  
  <div>I'm the front face.</div>  
  <div>And I'm the back face.</div>  
</x-flipbox>
```

```
// assume that toggleButton and flipBox are already
// defined as their respective DOM elements
toggleButton.addEventListener("click", function(){
    flipBox.toggle();
});
```



appbar  
calendar  
datepicker  
deck  
flipbox  
iconbutton  
layout

slidebox  
slider  
tabbar  
toggle  
togglegroup  
tooltip

---

Get started

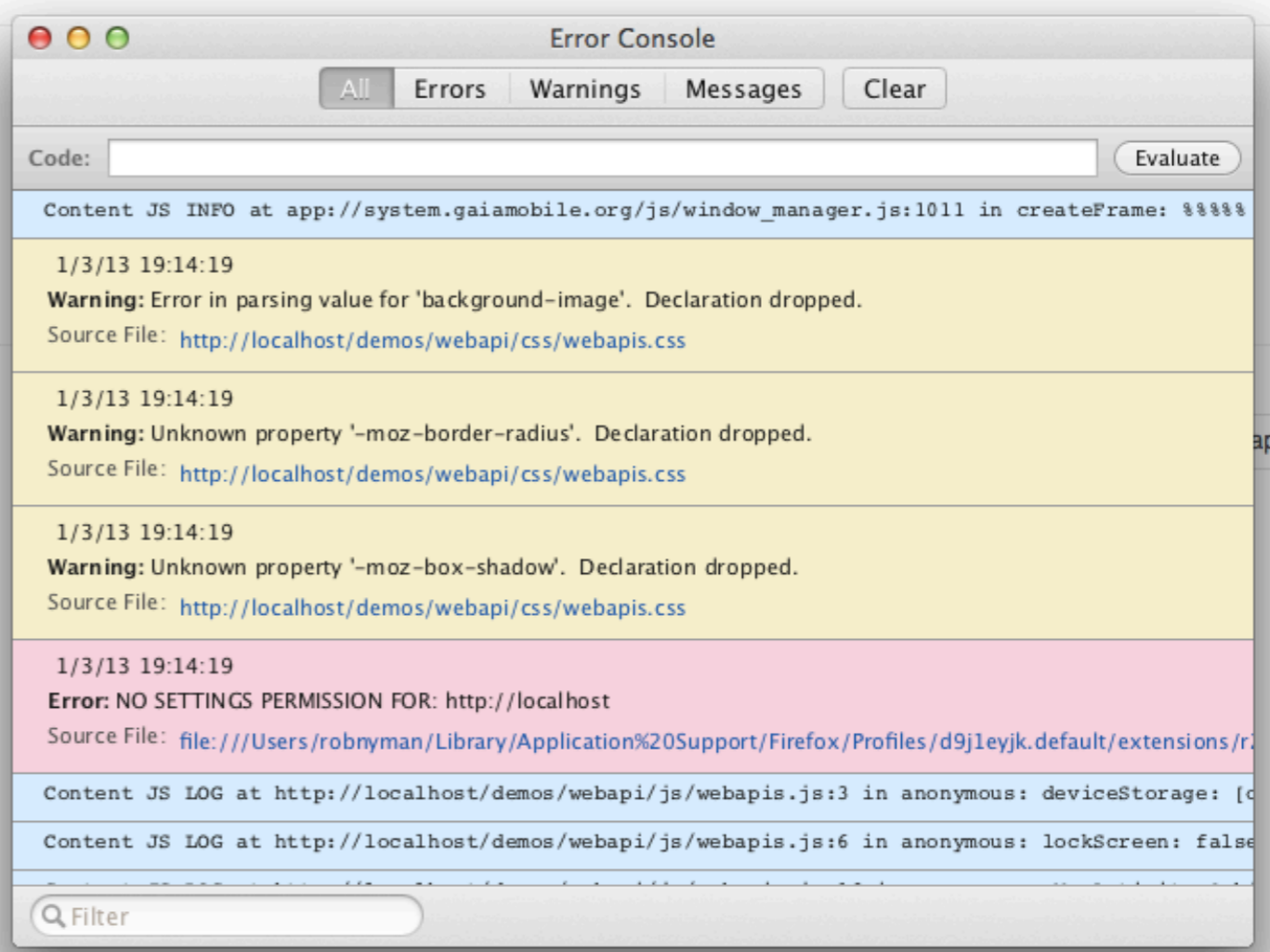
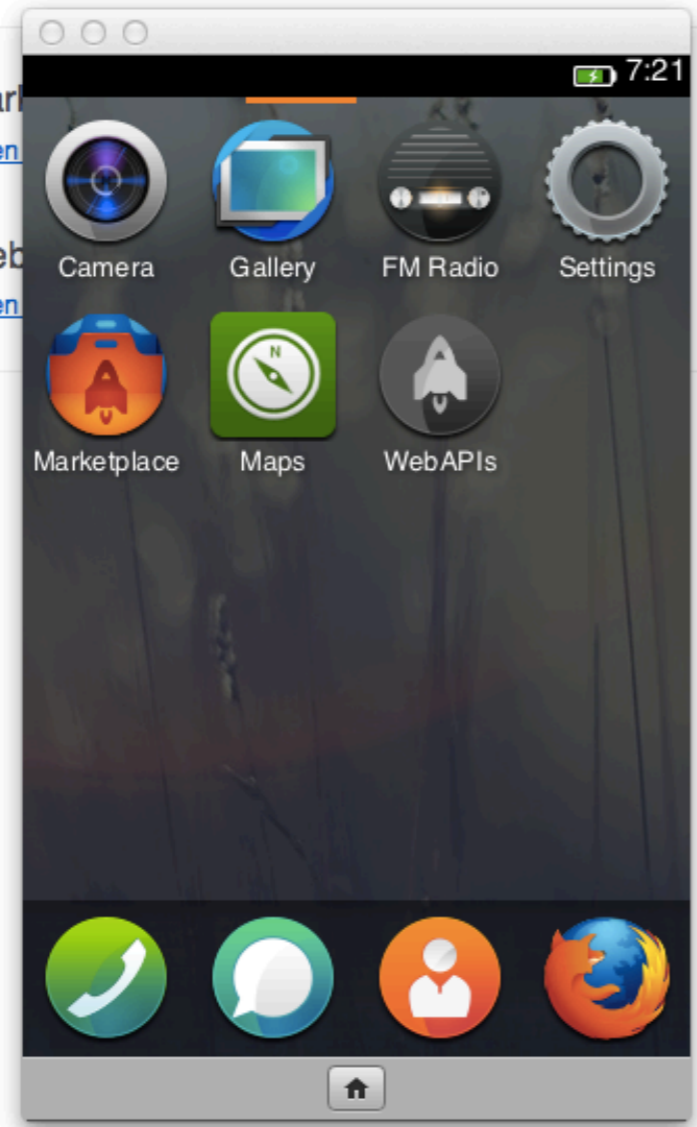
---

# Firefox OS Simulator

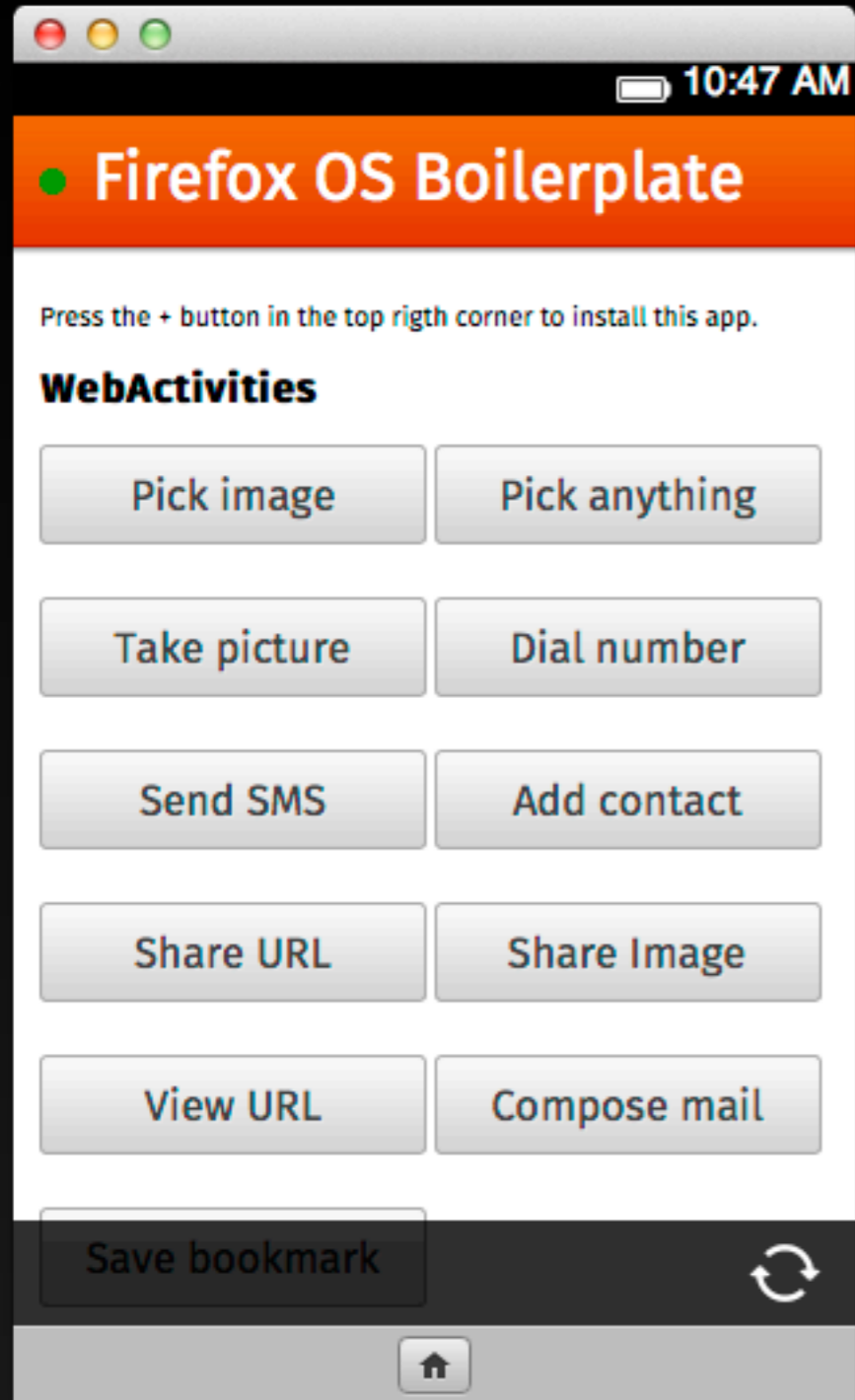
Running  Console

Dashboard Help

## Dashboard



<https://addons.mozilla.org/firefox/addon/firefox-os-simulator/>



# FIREFOX OS BOILERPLATE APP

<https://github.com/robnyman/Firefox-OS-Boilerplate-App>



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AccuWeather  
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Free  
★★★★★



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Pasjans/Sol...  
Free  
★★★★★



Wikipedia  
Free  
★★★★★



Jauntly  
Free  
★★★★★



SoundCloud  
Free  
★★★★★



YOUZEEK  
Free  
★★★★★



AccuWeather  
Free  
★★★★★





# Developer Hub

Develop HTML5 Web Apps for an open marketplace.

## Design

Learn how to design Web Apps that provide a user experience optimized for Firefox OS & Mobile

[Design your App](#)

## Build

All the tools, docs and references you'll need for development and testing of your App

[Build your App](#)

## Publish

Find out how to distribute your Apps on an open marketplace that puts users and developers first

[Publish your App](#)

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*Look who's already here*



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<https://marketplace.firefox.com/developers/>

Trying things out







**BRING ME ANOTHER SMURF!!!!**



Go have some fun!



Robert Nyman

robertnyman.com

robert@mozilla.com

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