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INTRODUCING
FIREFOX OS

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What is Firefox OS?

Firefox OS is an open platform for mobile Devices, built entirely using HTML5 and other open Web standards which is free from the rules and restrictions of existing proprietary platforms.

WHY USE HTML5?

In-built distribution - the web

Simple technologies used by lots of developers

Evolution of existing practices

Open, independent, standardized

PROMISES OF HTML5

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Firefox®

How Real is it?

Released in four countries: Spain, Poland, Venezuela and Columbia (more to come very soon)

18 mobile operator partners, 6 hardware partners

Hardware options: Alcatel One Touch Fire, ZTE Open, Geeksphone Keon, Geeksphone Peak...

Aimed at emerging markets/low end market

Aimed to be an alternative to feature phones and unavailable closed environments.

Open source - it is all on GitHub

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

ARCHITECTURE

Third Party HTML5 Apps

GAIA

Web APIs / Web Actitivies

Gecko rendering engine

Linux/Gonk (ADB enabled)

Firefox OS
Firefox OS

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PREDICTABLE HTML5 SUPPORT

SECURITY

APPLICATION MANIFEST

```
{
 "version": "1.0",
 "name": "MozillaBall",
 "description": "Exciting Open Web development action!",
 "icons": {
  "16": "/img/icon-16.png",
  "48": "/img/icon-48.png",
  "128": "/img/icon-128.png"
 },
 "developer": {
  "name": "Mozilla Labs",
  "url": "http://mozillalabs.com"
 },
 "installs_allowed_from": ["*"],
 "appcache_path": "/cache.manifest",
 "locales": {
  "es": {
   "description": "¡Acción abierta emocionante del desarrollo del Web!",
   "developer": {
    "url": "http://es.mozillalabs.com/"
   }
  }
 },
 "default_locale": "en"
}
```

APPLICATIONS

Web Content

Regular web content

Privileged Web App

More access, more responsibility

Installed Web App

A regular web app

Certified Web App

Device-critical applications

APPLICATIONS

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`	Alarm	Schedule a notification, or schedule an application to be started.	hosted	none	`Allow`	FxOS
`audio-channel-normal`	Audio Policy	UI sounds, Web content, music, radio.	hosted	none	`Allow`	FxOS
`audio-channel-content`	Audio Policy	Music, video.	hosted	none	`Allow`	FxOS
`audio-channel-alarm`	Audio Policy	Alarm clock, calendar alarms.	privileged	none	`Allow`	FxOS
`audio-channel-notification`	Audio Policy	New email, incoming SMS.	privileged	none	`Allow`	FxOS

PERMISSIONS

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

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WEB APIS

WEB APIS (FOR ALL

- Vibration API (W3C)
- Screen Orientation
- Geolocation API
- Mouse Lock API (W3C)
- Open WebApps
- Network Information API (W3C)
- Battery Status API (W3C)
- Alarm API

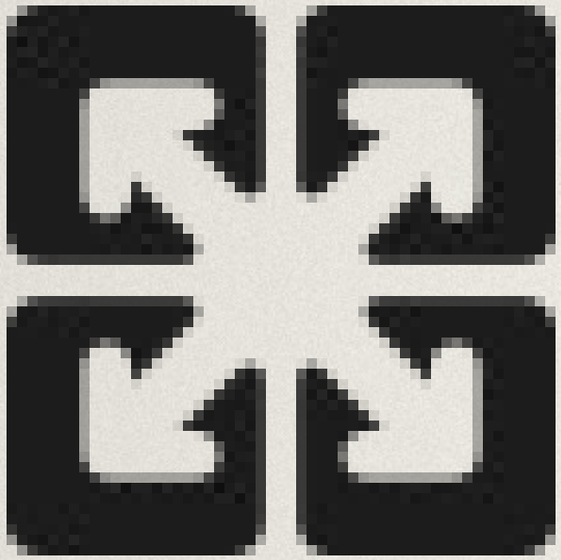
- Web Activities
- Push Notifications API
- WebFM API
- WebPayment
- IndexedDB (W3C)
- Ambient light sensor
- Proximity sensor
- Notification

BATTERY STATUS API

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);
}
```



SCREEN ORIENTATION API

SCREEN ORIENTATION API

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

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

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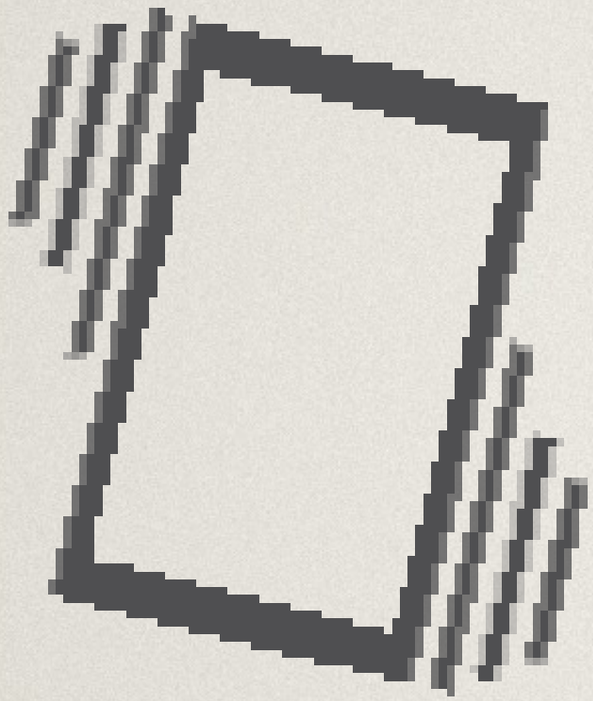
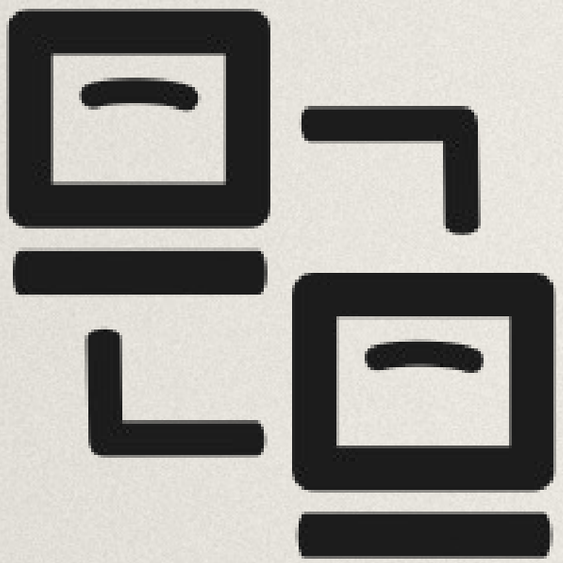


VIBRATION API

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);
```



NETWORK INFORMATION API

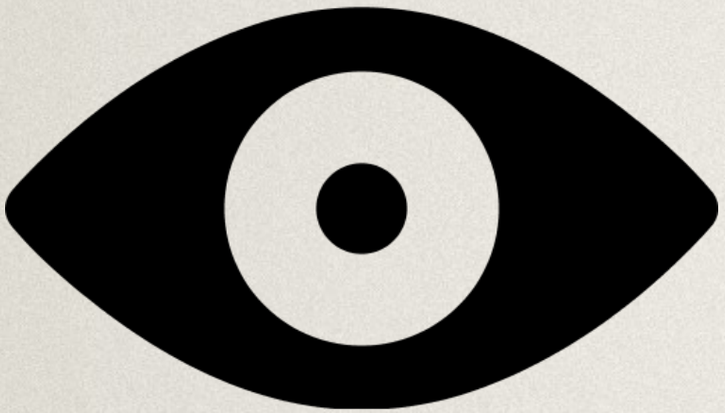
NETWORK INFORMATION API

```
var connection = window.navigator.mozConnection,
    online = connection.bandwidth > 0,
    metered = connection.metered;
```

AMBIENT LIGHT EVENTS

AMBIENT LIGHT EVENTS

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



PAGE VISIBILITY

PAGE VISIBILITY

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

WEB APIS (PRIVILEGED APPS)

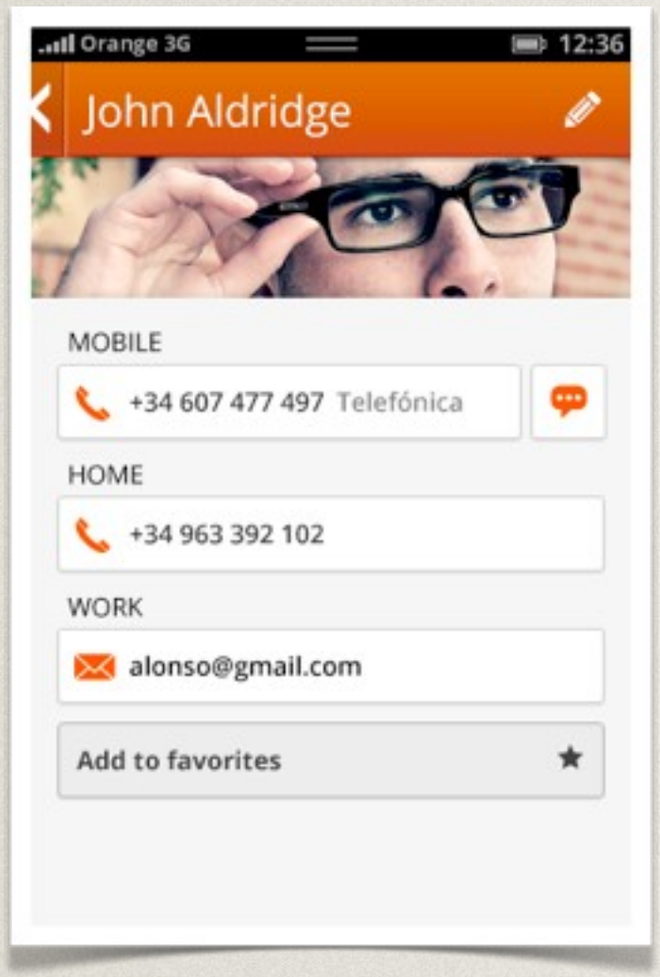
Device Storage API

Browser API

TCP Socket API

Contacts API

systemXHR



CONTACTS API

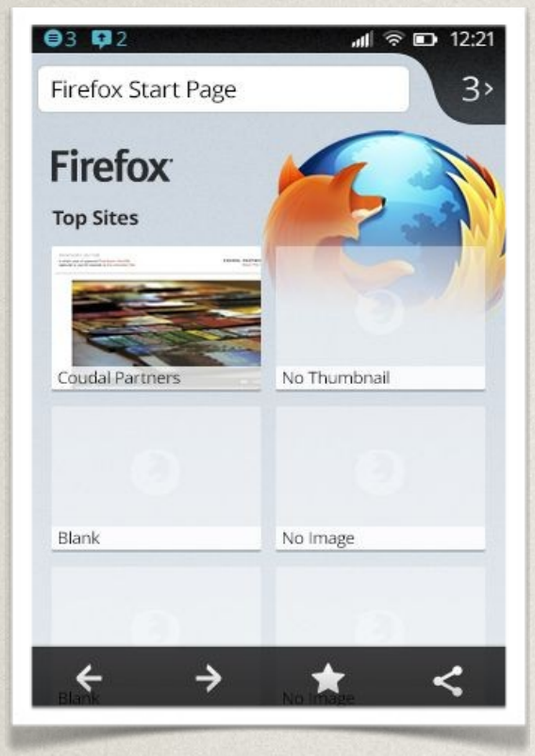
CONTACTS API

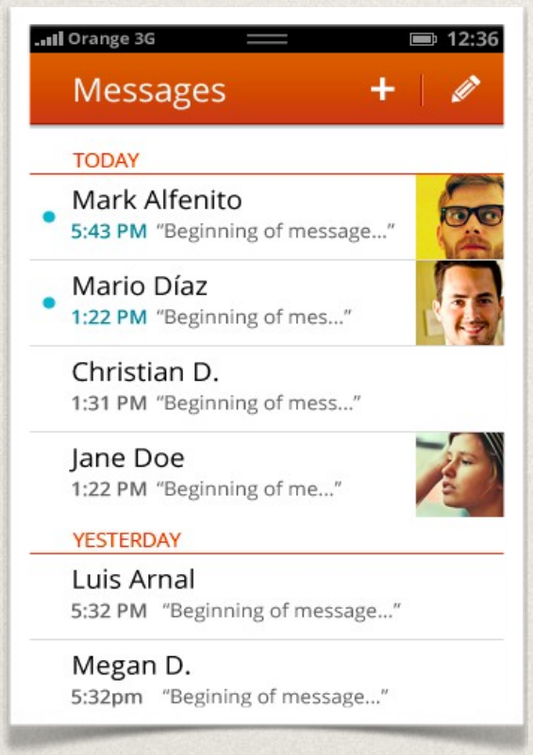
```
var contact = new mozContact();
contact.init({name: "Tom"});

var request = navigator.mozContacts.save(contact);
request.onsuccess = function() {
   console.log("Success");
};

request.onerror = function() {
   console.log("Error")
};
```

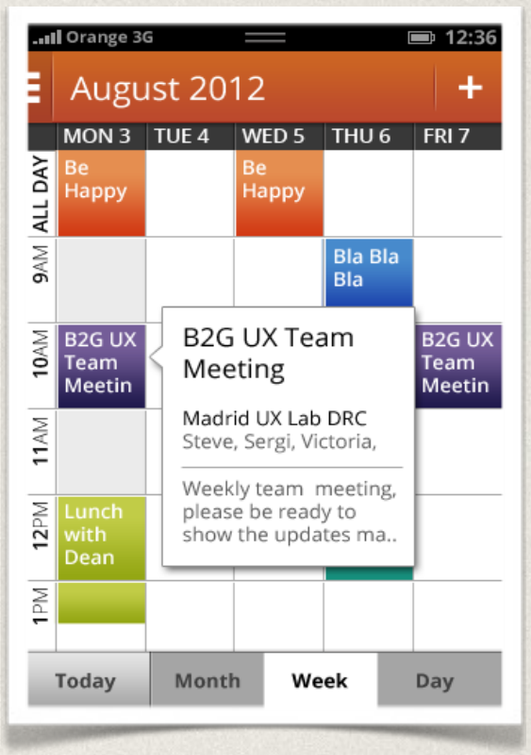
WEB APIS (CERTIFIED APPS)

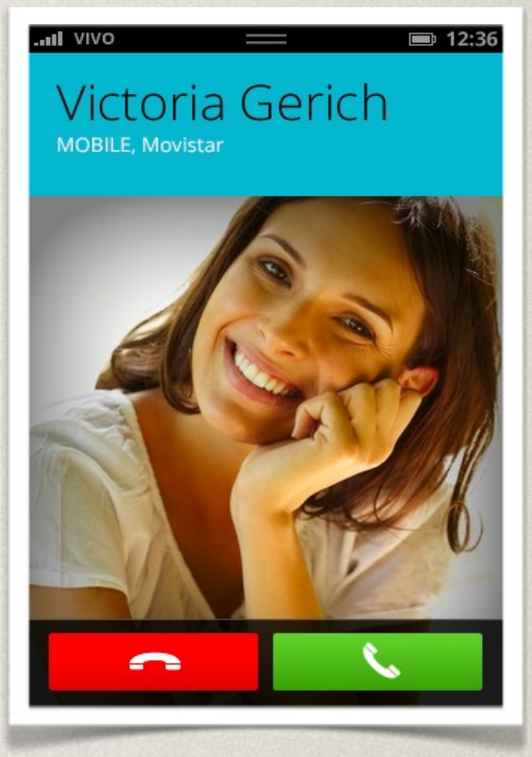
- WebTelephony
- WebSMS
- Idle API
- Settings API
- Power Management API
- Mobile Connection API
- WiFi Information API
- WebBluetooth
- Permissions API
- Network Stats API
- Camera API
- Time/Clock API
- Attention screen
- Voicemail

CERTIFIED APPS = THE OS ☺









CERTIFIED APPS

- 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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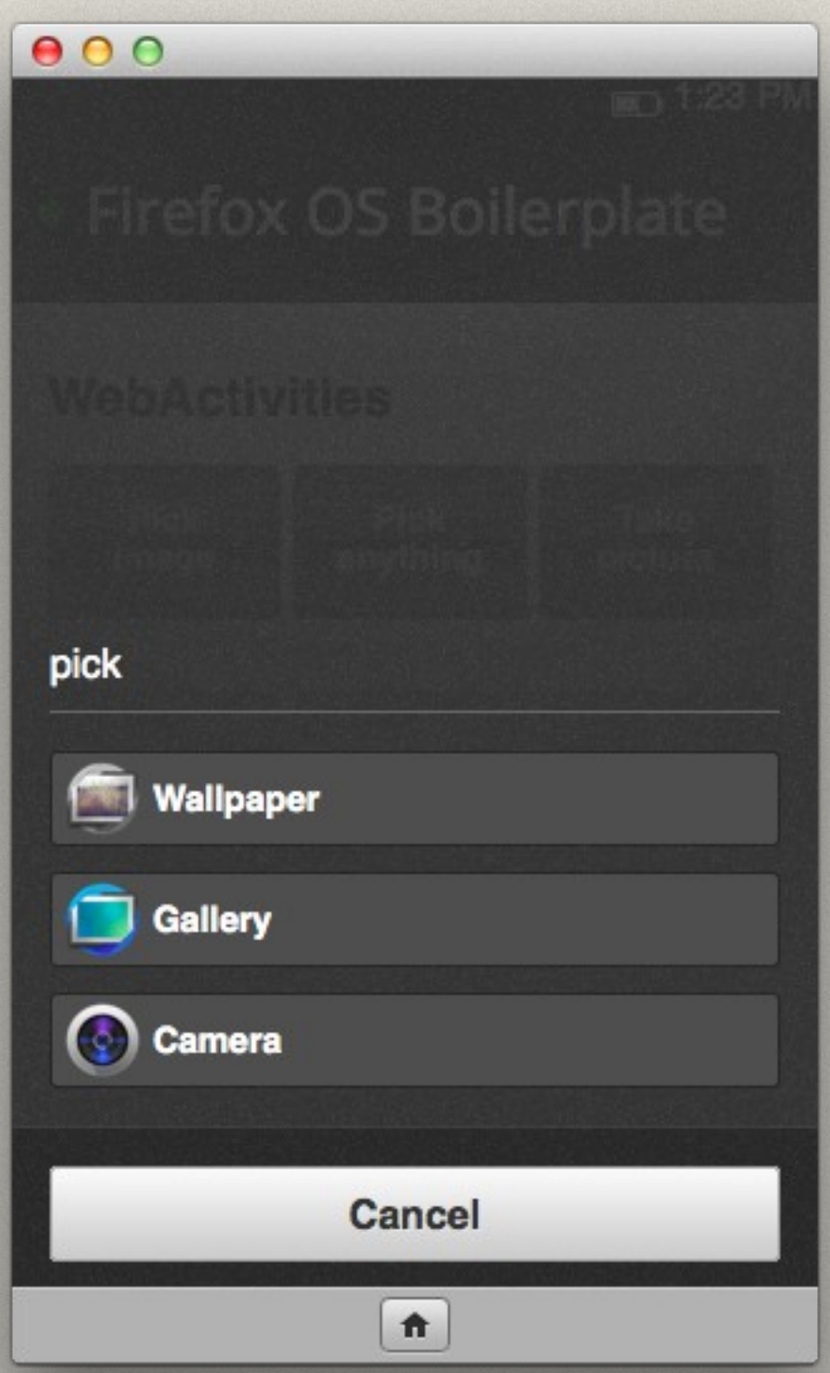
WEB ACTIVITIES


1:23 PM
Firefox OS Boilerplate
WebActivities
pick
Wallpaper
Gallery
Camera
Cancel

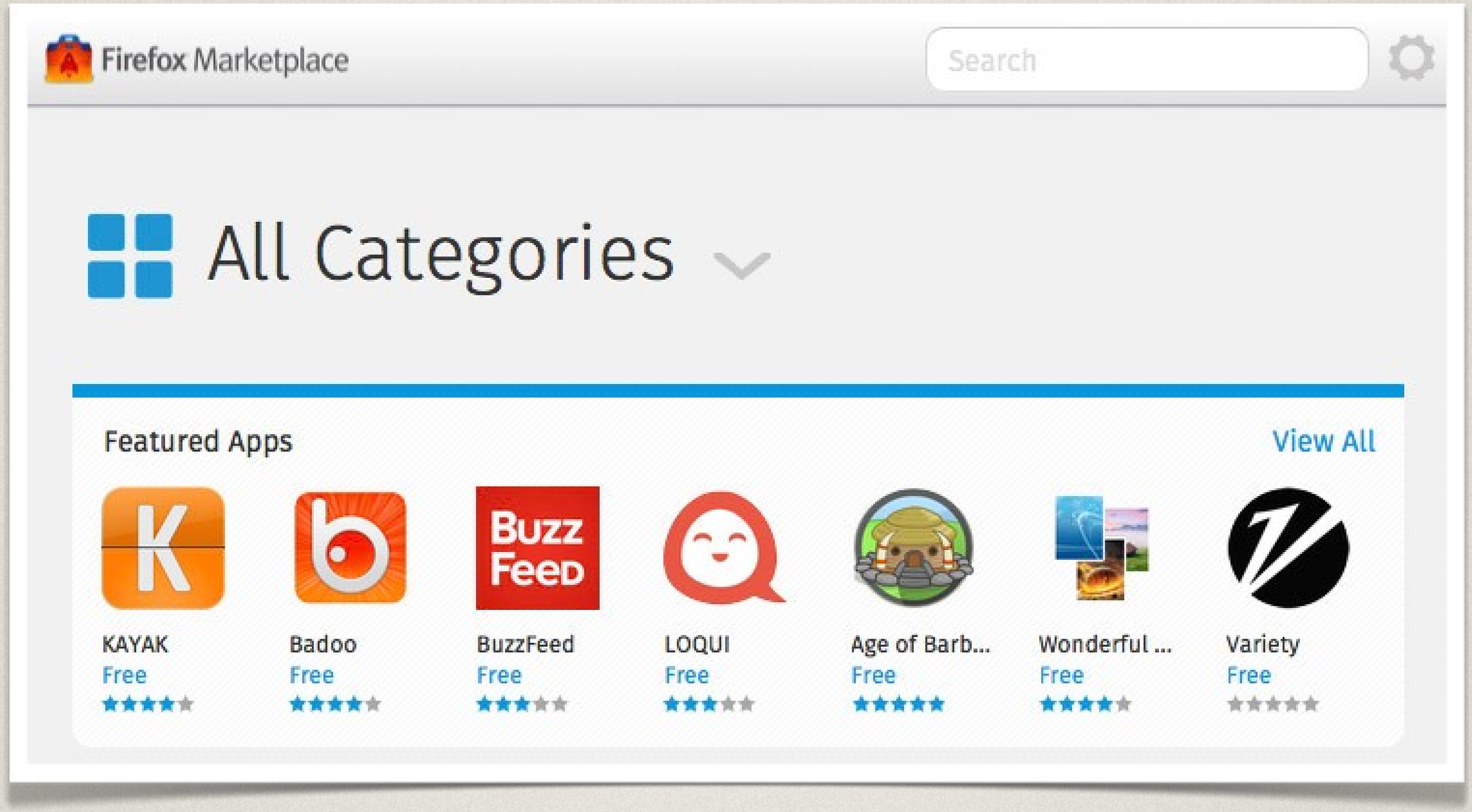
GET A PHOTO?

```
var getphoto = new MozActivity({
    name: "pick",
    data: {
        type: ["image/png", "image/jpeg"], "image/jpg"]
    }
});

getphoto.onsuccess = function () {
  var img = document.createElement("img");
  if (this.result.blob.type.indexOf("image") != -1) {
    img.src = window.URL.createObjectURL(this.result.blob);
  }
};
getphoto.onerror = function () { // error
};
```

FIREFOX OS + ANDROID!

APP DISTRIBUTION

FIREFOX OS MARKETPLACE

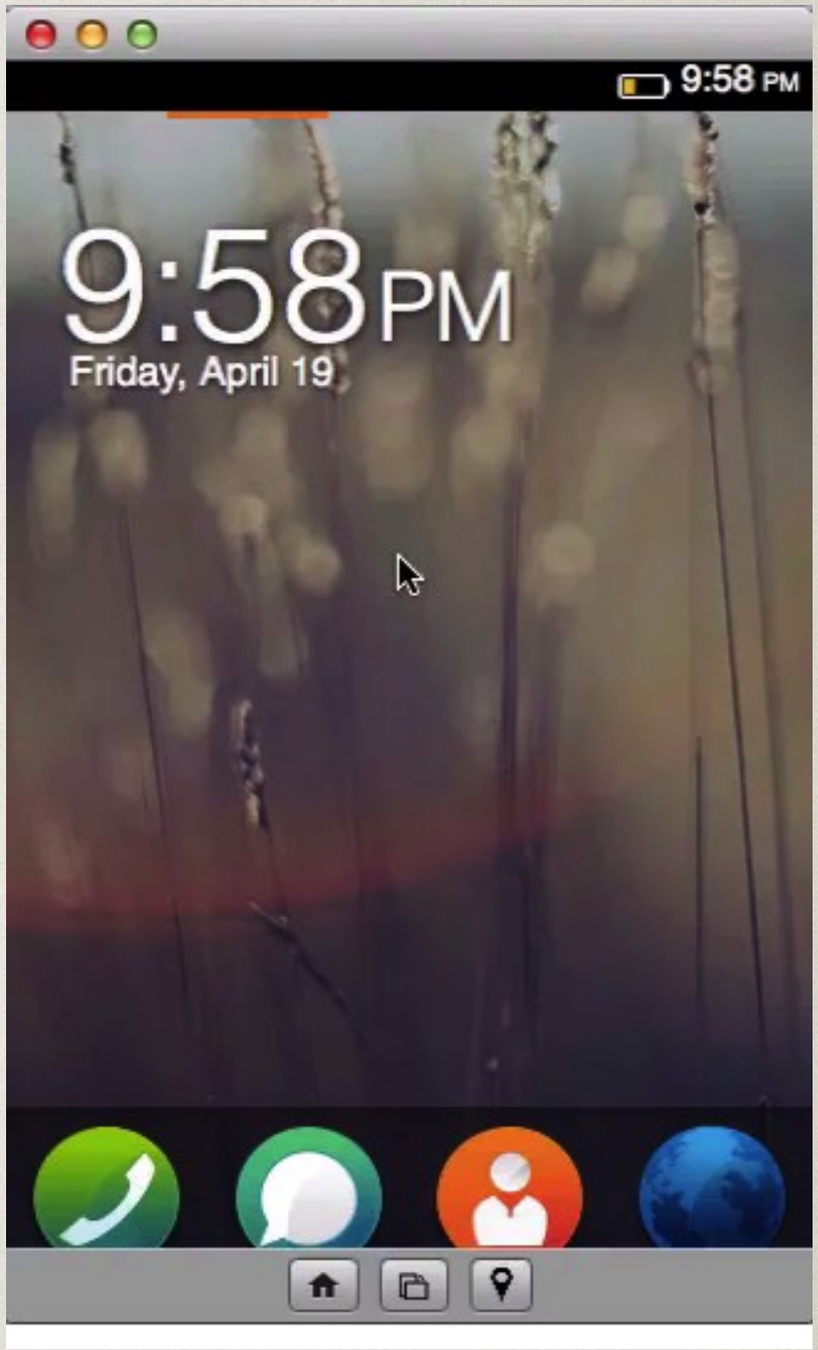


https://marketplace.firefox.com/

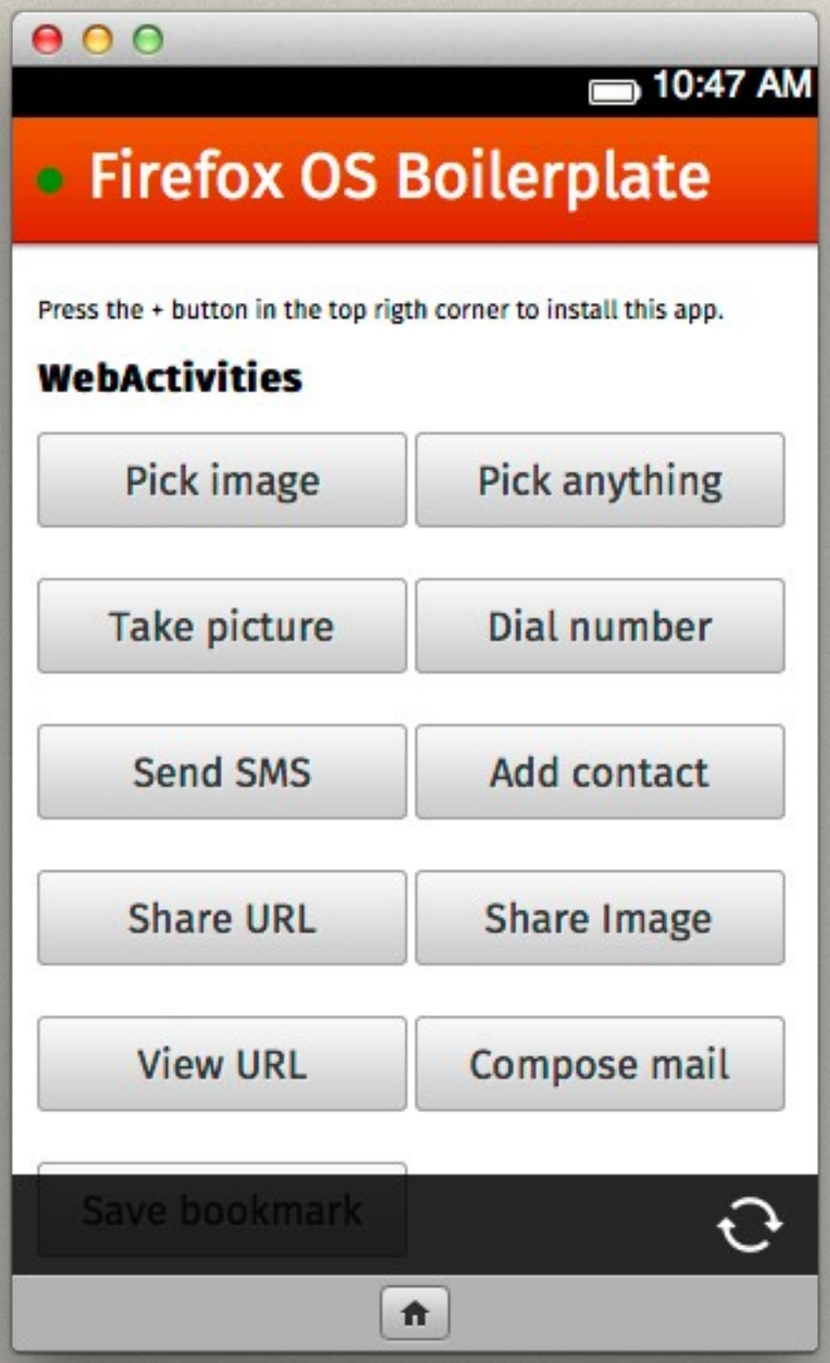
INSTALL FROM THE WEB...

```
var installapp = navigator.mozApps.install(manifestURL);

installapp.onsuccess = function(data) {
  // App is installed
};

installapp.onerror = function() {
 // App wasn't installed, info is in
 // installapp.error.name
};
```

DYNAMIC APP WEB SEARCH



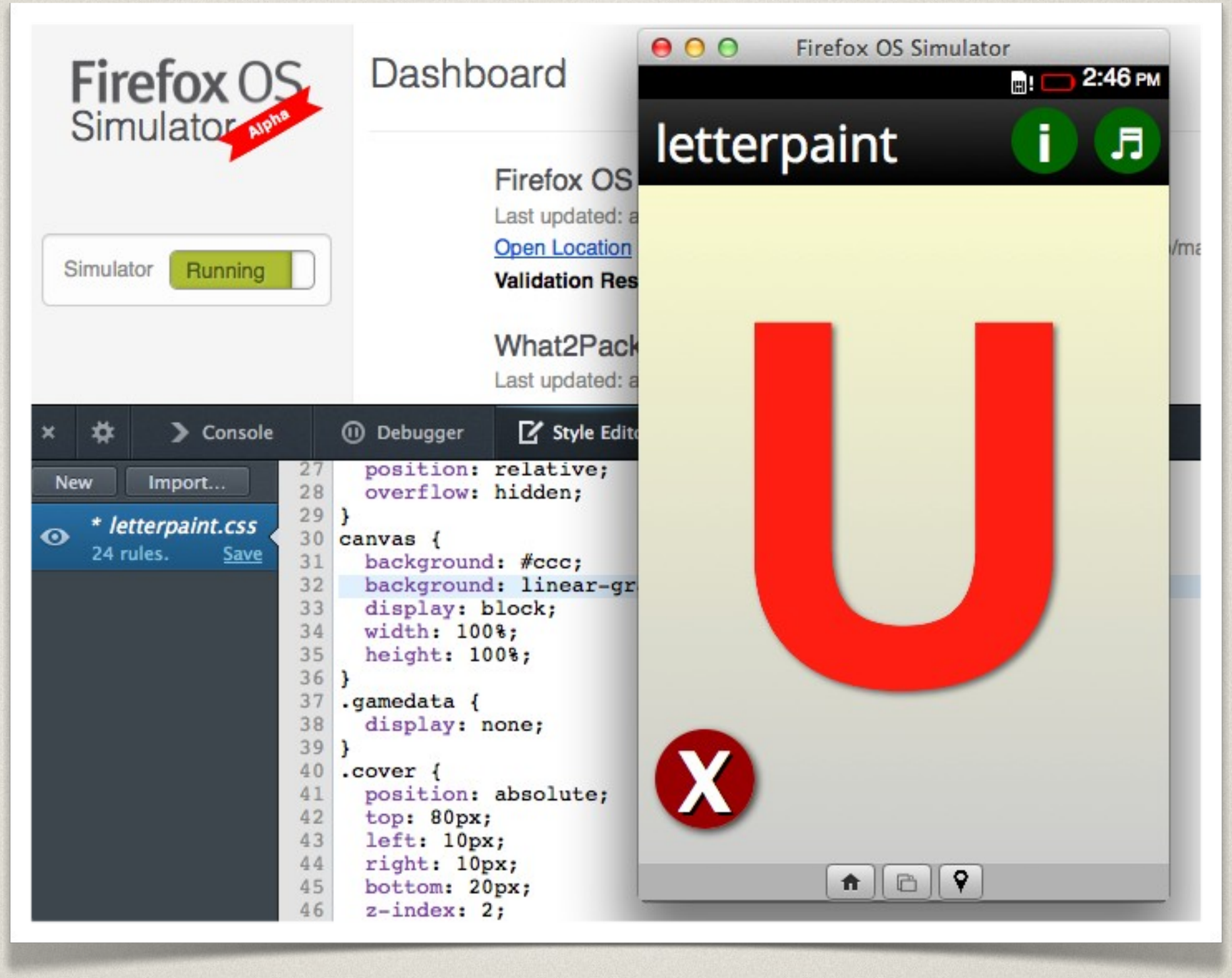
DEVELOPMENT ENVIRONMENT



FIREFOX OS BOILERPLATE APP

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

FIREFOX OS SIMULATOR



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

PROTOTYPING WITH JSFIDDLE

1. Write your code as a JSFiddle

2. Append /webapp.manifest to your Fiddle URL and paste this link into the Firefox OS simulator to install the app

3. Alternatively, append /fxos.html to your Fiddle URL to get an install page like a typical Firefox OS hosted application

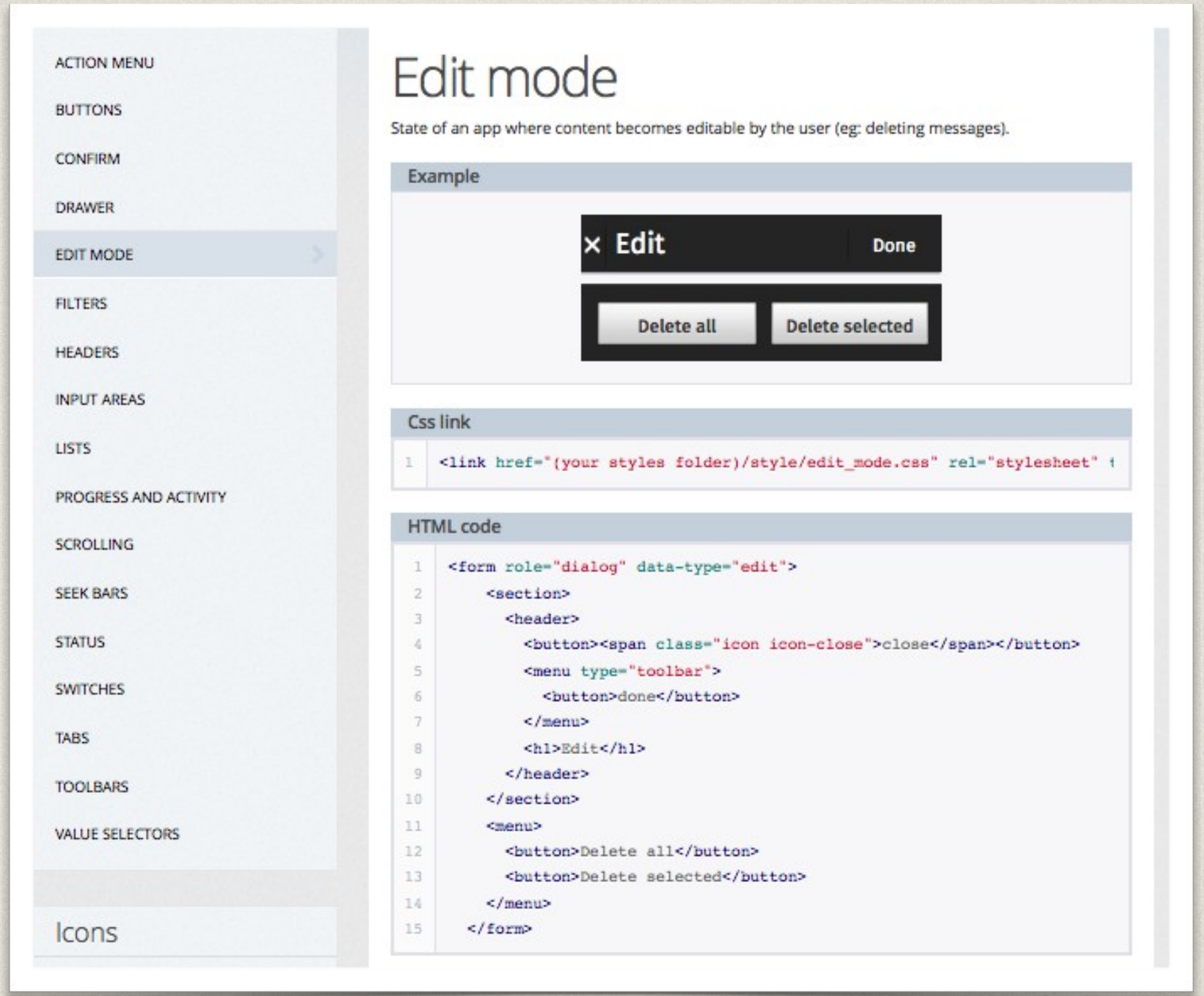
https://hacks.mozilla.org/2013/08/using-jsfiddle-to-prototype-firefox-os-apps/

BUILDING BLOCKS?

CERTIFIED APPS BUILDING BLOCKS

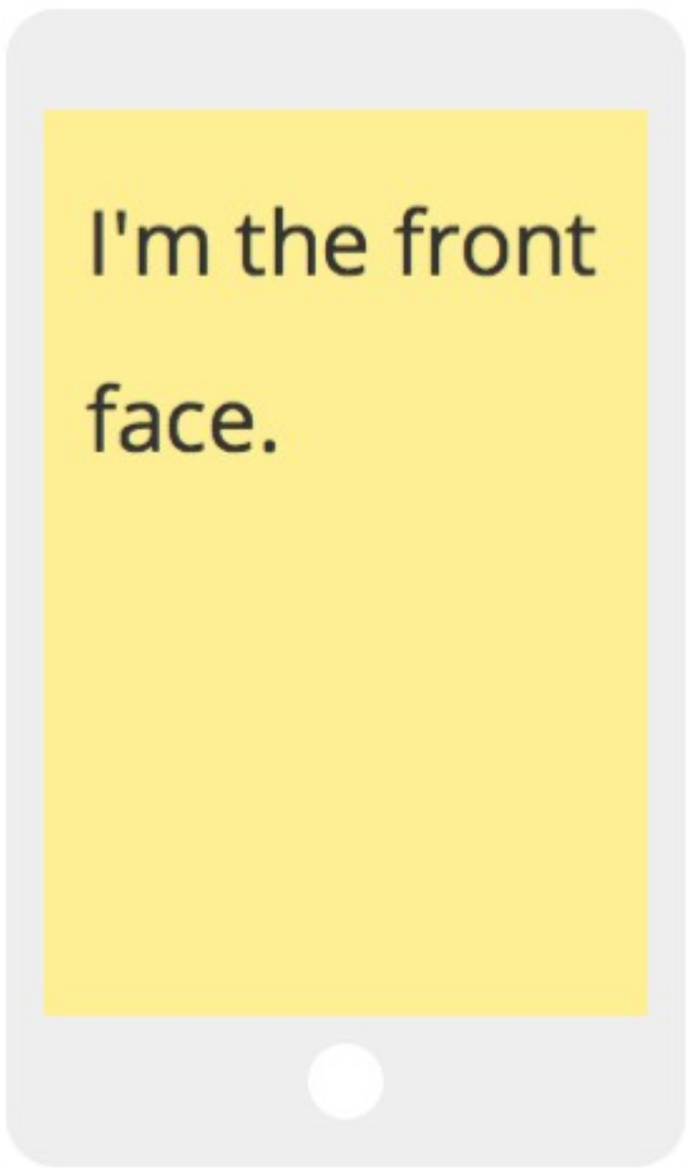
http://buildingfirefoxos.com/

CERTIFIED APPS BUILDING BLOCKS



http://buildingfirefoxos.com/

MOZILLA BRICK



Brick in Action

Toggle flip

Markup

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

JavaScript

```
var toggleButton = document.getElementById('toggleButton');
var flipBox = document.getElementById('flipBox');
toggleButton.addEventListener("click", function(){
    flipBox.toggle();
});
```

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

WHAT'S COOKING?

MORE WEB APIS

Resource lock API

UDP Datagram Socket API

Peer to Peer API

WebNFC

WebUSB

HTTP-cache API

Calendar API

Spellcheck API

LogAPI

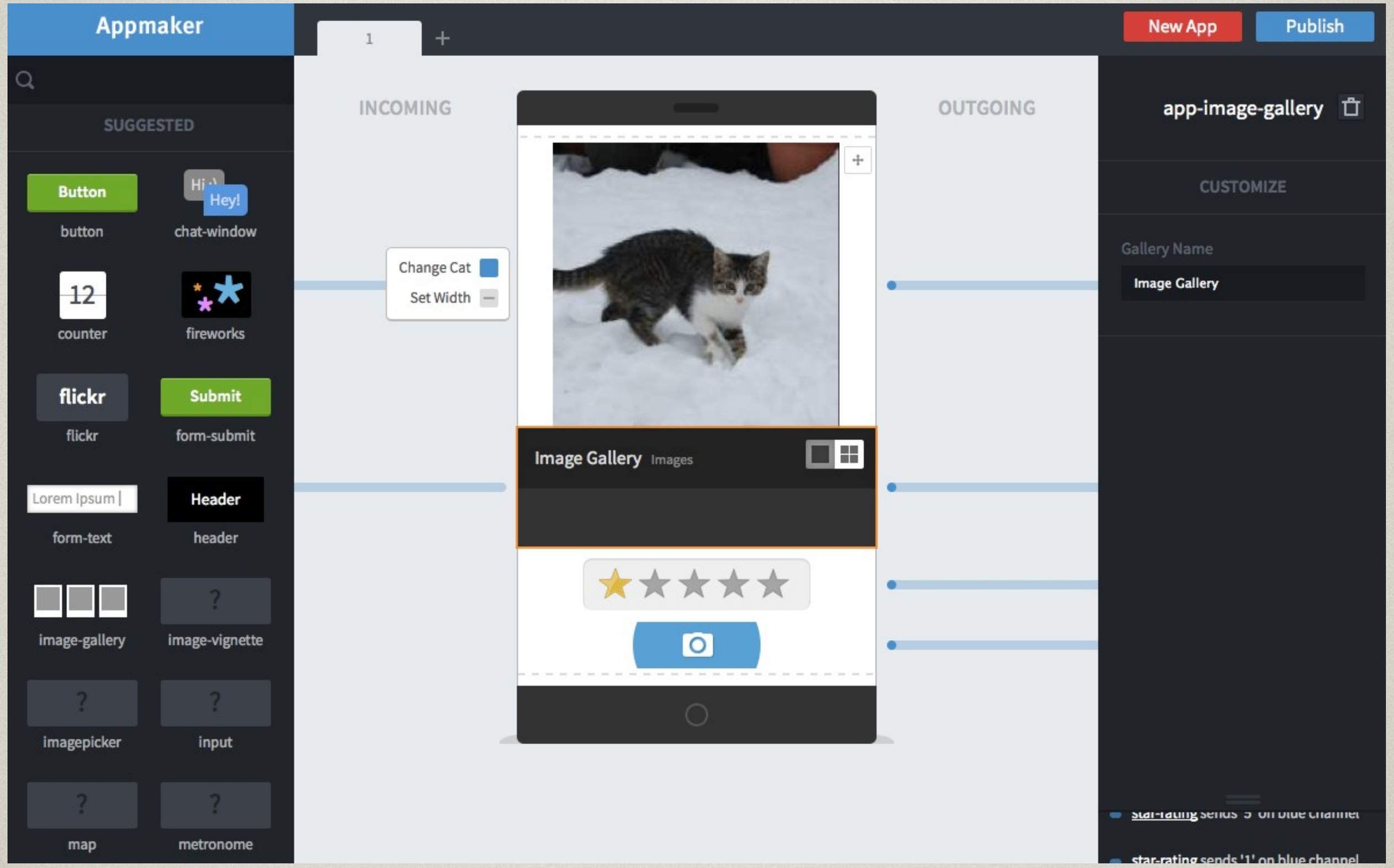
Keyboard/IME API

WebRTC

FileHandle API

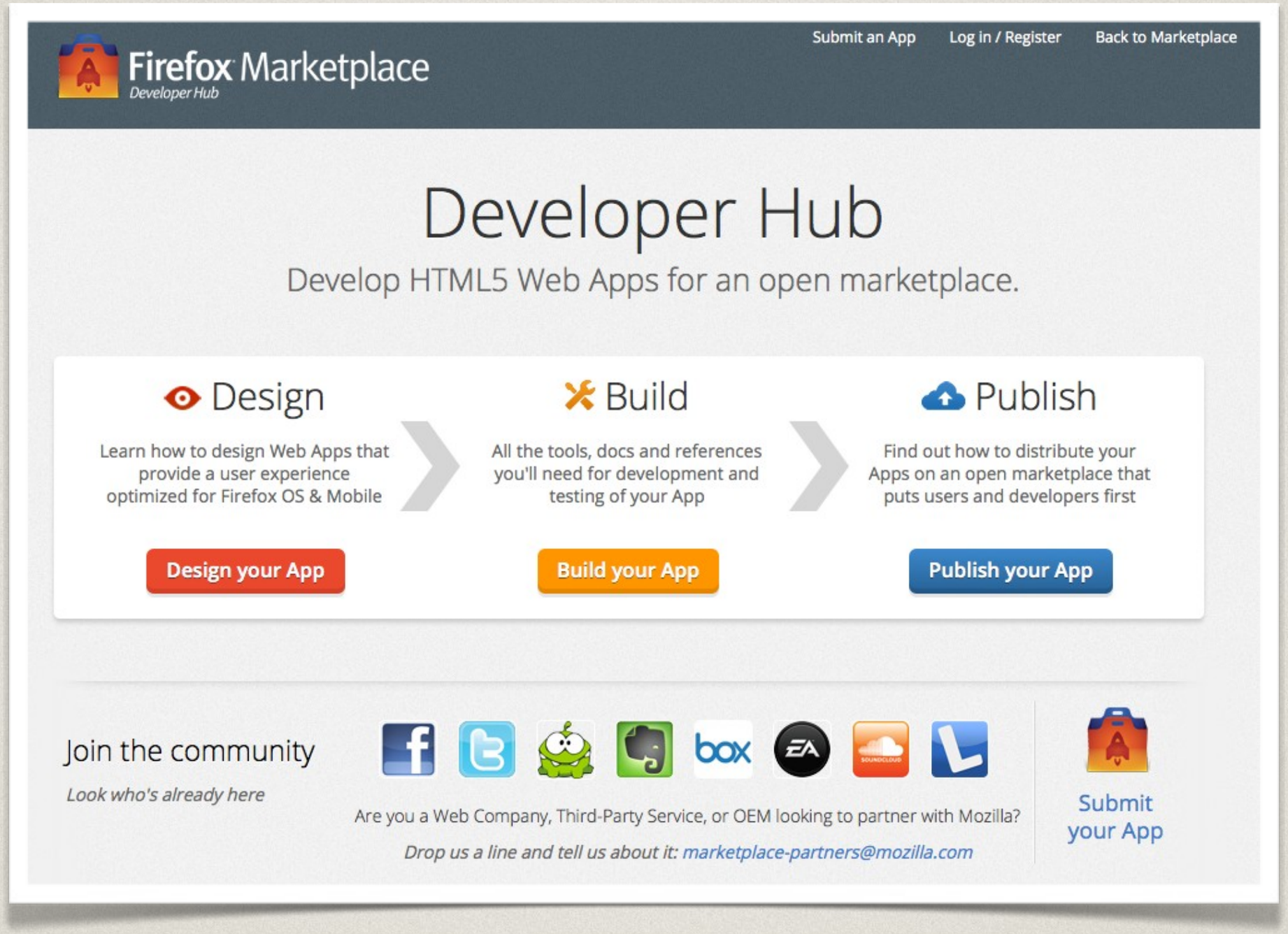
Sync API

APPMAKER


Appmaker
1
New App
Publish
SUGGESTED
Button
button
Hey!
chat-window
12
counter
fireworks
flickr
flickr
Submit
form-submit
Lorem Ipsum
form-text
Header
header
image-gallery
image-vignette
imagepicker
input
map
metronome
INCOMING
Change Cat
Set Width
Image Gallery
Images
OUTGOING
app-image-gallery
CUSTOMIZE
Gallery Name
Image Gallery

RESOURCES

DEVELOPER HUB



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

MOZILLA DEVELOPER BLOG

https://hacks.mozilla.org/category/firefox-os/

FIREFOX OS VIDEO SERIES

https://hacks.mozilla.org/category/videoseries/

FIREFOX OS WIKI

Firefox OS

HISTORY EDIT

Read content offline

Firefox OS (sometimes abbreviated **FxOS**) is a new mobile operating system developed by Mozilla. It uses a Linux kernel and boots into a Gecko-based runtime engine, which lets users run applications developed entirely using HTML, JavaScript, and other open web application APIs.

Firefox OS is currently under heavy development; we are constantly working on ways to make it easier for you to use and hack on Gaia (the default set of apps) and create your own. However, you need knowledge about systems in order to do things like build the entire Firefox OS stack, or flash a phone with a build of Firefox OS. Linked below are guides meant for Web developers interested in running and making changes to Gaia or developing apps to run on Firefox OS devices.

THE FIREFOX OS PLATFORM

Introduction to Firefox OS

Introductory information about what Firefox OS is and how it works.

Firefox OS usage tips

Short articles to explain various useful functions you can perform with Firefox OS to help with usage and development.

Firefox OS platform guide

Documentation about the Firefox OS platform, including Gonk, Gaia, and everything in between.

Build and install Firefox OS

This includes documentation for building and installing the platform onto devices, as well as building the simulator and emulators.

GETTING HELP FROM THE COMMUNITY

If you're working with Firefox OS, or developing applications you'd like to run on Firefox OS devices, there are community resources to help you!

- Consult the Boot to Gecko project forum:
  - as a mailing list
  - as a newsgroup
  - as a Google Group
  - as a Web feed
- Ask your question on Mozilla's Boot to Gecko IRC channel: #b2g

Don't forget about the *netiquette*...

https://developer.mozilla.org/en/docs/Mozilla/Firefox_OS

THANKS!

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