



# Offline Editing with JavaScript

Andy Gup, Javier Abadia

# Why go offline with JavaScript?

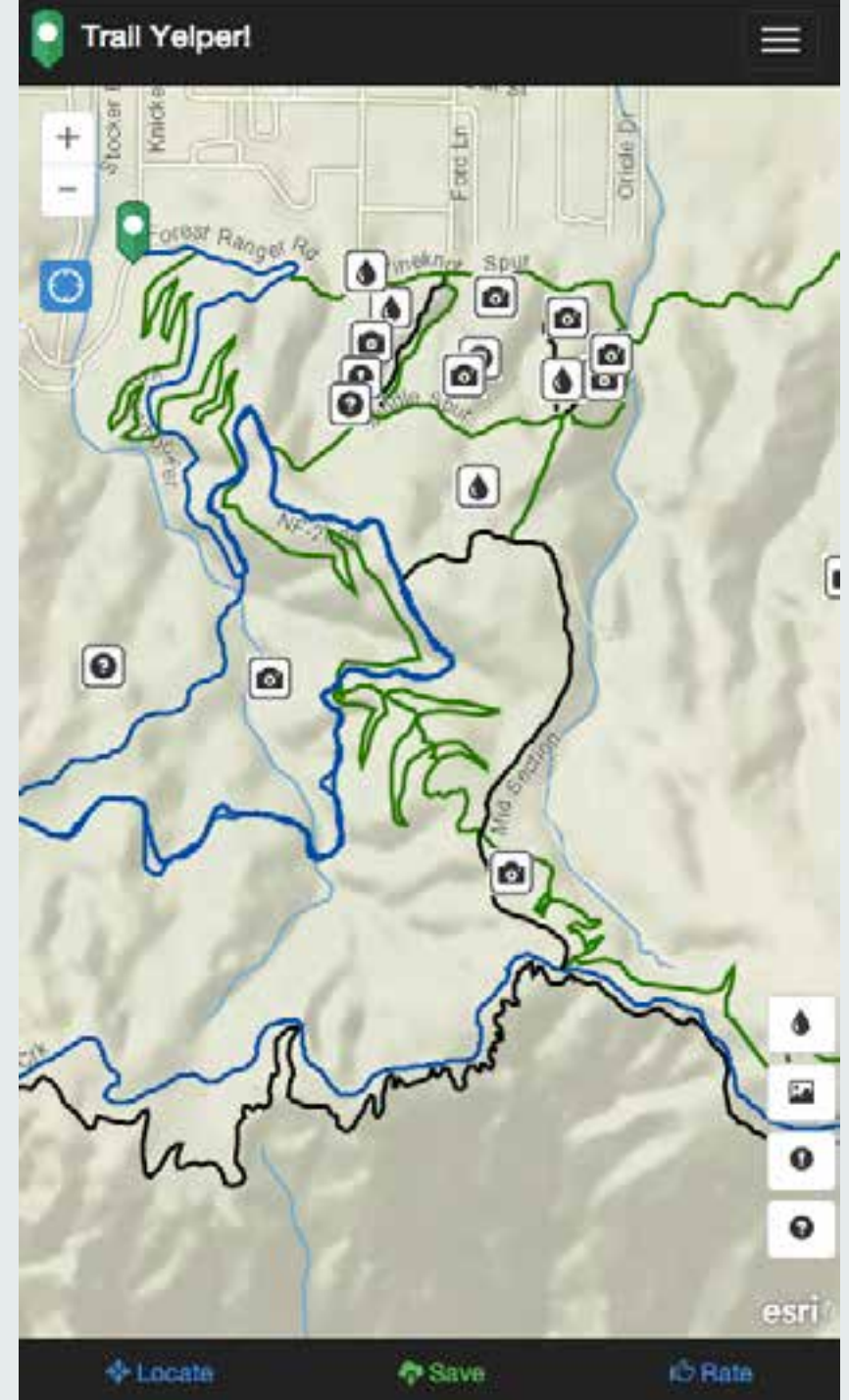
A need for editing and mapping offline

Apps being used in areas of limited or no connectivity

Re-use JavaScript skills

Cross-platform

# TrailYelper



# Use Cases

When would you need offline use of web maps?

- Field Inspection – remote areas with no cell coverage
- Tourist Guide – avoid high roaming rates when abroad
- Military COP – no connection to server nor internet (but may be connected with peers)
  
- Device
  - laptop
  - smartphone / tablet

# What would the user need?

	Base Map	Editing Features	Anything Else?	Device of choice
Field Inspector	Yes	Yes	Attachments	laptop / smartphone / tablet
Tourist Guide	Yes	Not really	Routing?	smartphone / tablet
Military COP	Yes	Yes	Attachments Desirable to share edits with peers as soon as possible	smartphone / tablet

# What would the developer need to do?

Enhancing an online app with offline functionality

- Keep a local copy of HTML/CSS, [all] Javascript code and other static resources (imgs)
- Keep a local copy of map data...
  - basemap
  - feature layers
- Keep a local copy of edits made to the feature layers...
  - including new attachments
- ...and “teach” the JS API to use the local data instead of fetching/pushing data through the network

# Is it possible?

What mechanisms can we use to do what we need to do?

- HTML5 cache mechanism
  - cache code and static resources
- HTML5 storage APIs
  - localStorage
    - sync, store key,value pairs, low capacity (<5Mb)
    - good support
  - indexed db (50Mb +)
    - async, store key,value pairs, more capacity
    - not as well supported (more using shim)
  - websql
    - not considered

# Is it possible?

What mechanisms can we use to do what we need to do?

- HTML5 cache mechanism
  - cache code and static resources
- HTML5 storage APIs
  - localStorage
    - sync, store key,value pairs, low capacity (<5Mb)
    - good support
  - indexed db
    - async, store key,value pairs, more capacity
    - not as well supported (more using shim)
  - websql
    - not considered

**good for...**

**code and static resources**

**feature edits**

**basemap tiles**



# Demos

Tiles, Editing

## Map: Sample

Sample Webmap to t

Min Zoom Level (farthest from ground)


Current Zoom Level

Max Zoom Level (closer to ground)

Level	Tile Count	Size Mb (aprox.)
13	2	0.07 Mb
14	4	0.14 Mb
15	6	0.21 Mb
16	12	0.43 Mb
17	35	1.25 Mb
18	104	3.72 Mb
19	375	13.42 Mb
<b>Total</b>	<b>551</b>	<b>19.71 Mb</b>

 Prepare for Offline

 Delete All Tiles

 Go Offline

 Usage: 0.13

Using proxy: Yes



# Offline JavaScript workflows

## Scenario 1 – online > offline > online

simplest scenario, if we don't need to support "browser reload"  
(scenario 2)

1. no need to cache code and static resources  
(already loaded online)
2. no need to store feature layers  
(already loaded with mode SNAPSHOT)

## Scenario 2 – offline > online

## Scenario 3 – offline > local sync

# Caniuse.com

## IndexedDB - Working Draft

of storing data client-side, allows indexed database  
pleDB API.

versions	IE	Firefox	Chro
	8.0		
	9.0		31.0
	10.0	26.0	32.0
	11.0	27.0	33.0
ure		28.0	34.0
uture		29.0	35.0
s ahead		30.0	36.0

Known issues (1)

Resources (5)

Feedback

l support in BB10 refers to an outdated speci  
ication might not work.

# Offline-editing-js Library

<https://github.com/Esri/offline-editor-js>

# Questions?

Andy Gup

@agup

[agup@esri.com](mailto:agup@esri.com)

Javier Abadia

@javierabadia

[javier.abadia@esri.es](mailto:javier.abadia@esri.es)



Understanding our world.