



Esri International Developer Summit  
Palm Springs, CA

# Esri on GitHub: How to Participate in Open Source Projects

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# GitHub

Little Background



# What is GitHub?

- § **Cloud-based platform for building, collaborating and managing open source projects**
- § **Built on Git**
- § **4+ million projects**
- § **1+ million developers**

# Why Git/GitHub?

- § DVCS (Distributed Version Control System)
- § Full copy distribution
- § Branching, merging, issues, wiki
- § Large community of developers
  
- § Someone might help you!

# GitHub Components

## § GitHub.com (in the cloud)

- § Search, watch, star, notifications, issues, wiki, gist
- § Dashboards - activity, repos, contributions...
- § User accounts
- § Organization

GitHub

## § GitHub Clients

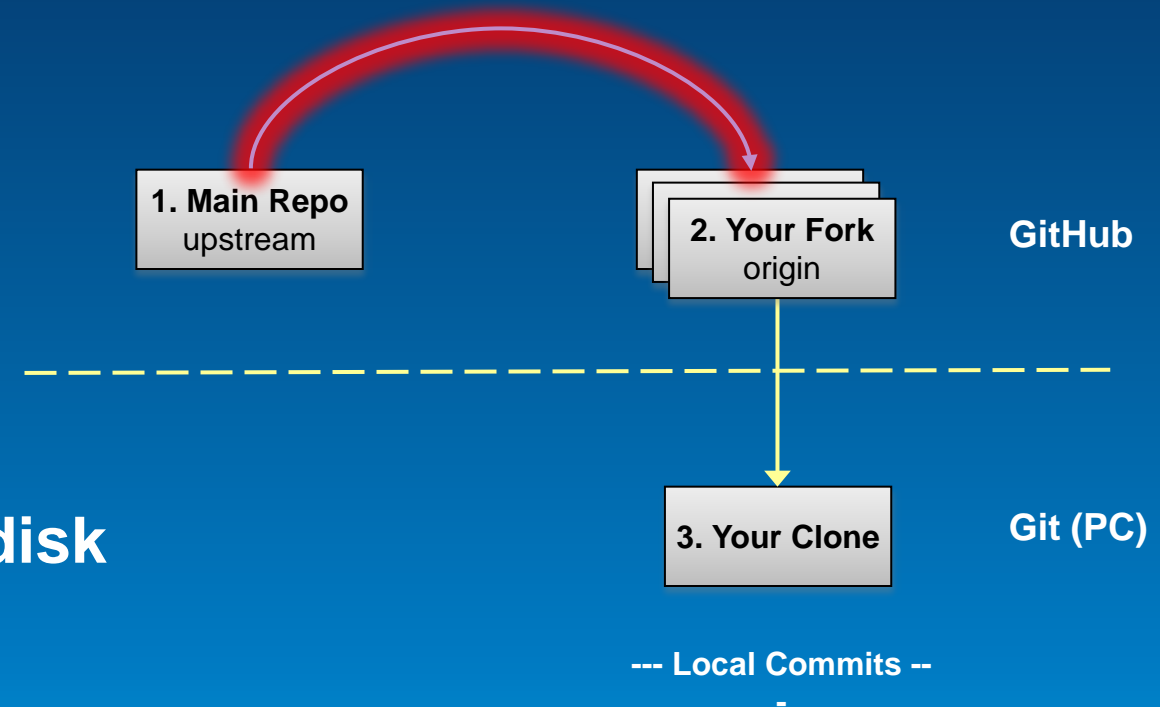
- § GitHub for Mac or Windows
- § Git – command-line

Git

# Terminology

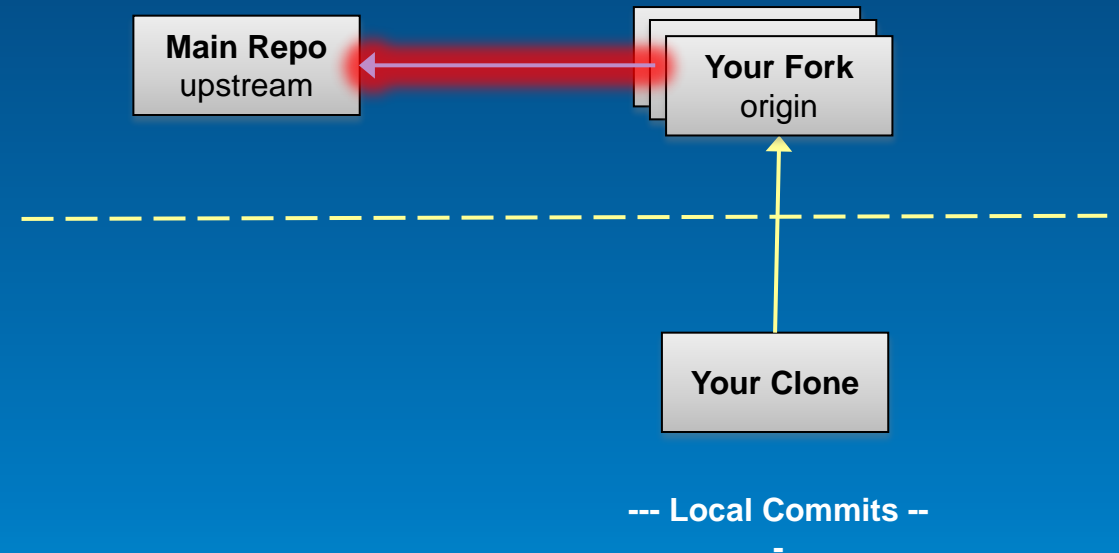
# Repo = Project

1. Main Repo = upstream
2. Your Fork = Your copy of a repo
3. Your Clone = Your local copy on disk



# Pull Request

- Your code contribution to a project
- Asking to accept changes





# What can you publish?

- **Typical**

- Code
- Documents
- Slide presentations
- Website content
- GeoJSON

- **Other**

- Music
- Recipes
- Travel logs
- Blogs
- Legal docs
- City data...

github.com

# Esri on GitHub

Open Source Projects



# Esri Organization

[github.com/esri](https://github.com/esri)

The screenshot shows the GitHub profile for the Esri organization. At the top, the GitHub logo is on the left, followed by a search bar and navigation links for Explore, Features, Enterprise, and Blog. On the right, there are buttons for Sign up and Sign in. The profile header includes the Esri logo (a globe) and tabs for Repositories and Members. Below this is a search bar for repositories and a list of filters: All, Sources, Forks, and Mirrors. The main content area displays a list of repositories:

- arcgis-samples-flex**: Basic API samples for the ArcGIS API for Flex. Last updated an hour ago. Language: ActionScript. 30 stars, 50 forks.
- quickstart-map-phonegap**: ArcGIS JavaScript samples for use with PhoneGap/Cordova. Last updated an hour ago. Language: CSS. 0 stars, 0 forks.
- twitter-for-geoevent**: ArcGIS GeoEvent Processor Sample Twitter connectors for sending and receiving tweets. Last updated 2 hours ago. Language: Java. 4 stars, 1 fork.
- pushlet**: A simple HTTP wrapper around the Apple Push Notification Service and Google Cloud Messaging Service. Last updated 3 hours ago. Language: JavaScript. 12 stars, 5 forks.

On the left side of the profile, the Esri organization name is displayed with its location (Redlands, California, USA), website (http://www.esri.com), and join date (Feb 20, 2011). At the bottom of this section, it shows 138 public repos and 139 members.

# Esri Organization

esri.github.com

## Esri is on GitHub!

We're excited about helping developers build and share software. Browse our open source code and get started with our powerful ArcGIS platform.

[BROWSE ON GITHUB](#)

Need an ArcGIS subscription? Start developing today for free.

Filter by language or keyword:

Search/Select

**arcgis-viewer-flex**  
ActionScript

Source code for ArcGIS Viewer for Flex – a great application framework for web applications.

↙ 88 ★ 108

**terraformer**  
JavaScript

A geometric toolkit for dealing with geometry, geography, formats, and building geo-databases.

↙ 23 ★ 78

**esri-leaflet**  
JavaScript

A lightweight set of tools for working with ArcGIS services with Leaflet.

↙ 35 ★ 74

**geometry-api-java**  
Java

The Esri Geometry API for Java enables developers to write custom applications for analysis of spatial data. This API is used in the Esri GIS Tools for Hadoop and other 3rd-party data processing solutions.

↙ 30 ★ 44

**quickstart-map-library-flex**  
ActionScript

Easy mapping for Flex developers – Open Source project demonstrating the powers of the ArcGIS API for Flex.

↙ 9 ★ 34

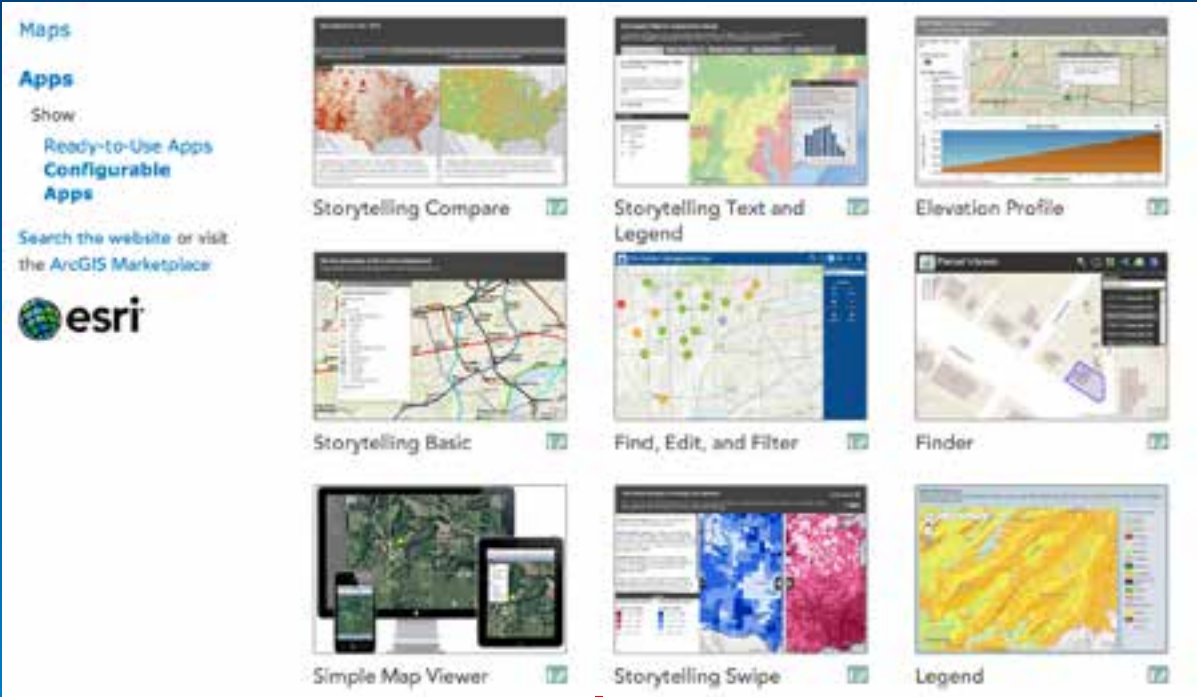
**gis-tools-for-hadoop**  
Python

The GIS Tools for Hadoop are a collection of GIS tools for spatial analysis of big data.

↙ 16 ★ 40

**geojson-utils**  
JavaScript

# ArcGIS Online Items on GitHub



The screenshot shows the ArcGIS Online Apps gallery. On the left, there are navigation options: "Maps", "Apps", "Show", "Ready-to-Use Apps", "Configurable Apps", and a search prompt "Search the website or visit the ArcGIS Marketplace" with the Esri logo. The main area displays a grid of application thumbnails with their titles: "Storytelling Compare", "Storytelling Text and Legend", "Elevation Profile", "Storytelling Basic", "Find, Edit, and Filter", "Finder", "Simple Map Viewer", "Storytelling Swipe", and "Legend". Each thumbnail includes a small green checkmark icon in the bottom right corner.



The screenshot shows the GitHub repository page for "Simple Map Viewer". The repository name is at the top. Below it, there is a description: "A configurable application template that provides a simple and easy-to-use mapping application for ArcGIS Online. Last updated: March 5, 2019." It shows 29 forks and 5,176 stars. The "Description" section states: "Simple Map Viewer is a configurable application template that provides a simple user interface to browse, zoom, and filter. The template can be configured with the following options: 1. Map: Choose the web map used in the application." Below this, there are "Screenshots" showing the application interface on a desktop and mobile device. The "Properties" section at the bottom shows the repository URL: "https://github.com/Esri/simple-map-viewer".



# Esri Projects

# Project Types

1. **Products and SDK Samples**
2. **Apps and Examples**
3. **Templates and Frameworks**
4. **Geo Tools**
5. **Industry and Government**



# ArcGIS Products and SDK Samples

`arcgis-flex-viewer`

`arcgis-osm-editor`

`arcgis-runtime-samples-ios`

`geotrigger-editor`

`arcgis-dijit-geocoder-js`

# **Apps and Examples**

**quickstart-map-js**

**maps-app-android**

**sencha-touch-map-checkin-js**

**driving-directions-ios**

**jquery-mobile-map-js**

# Templates and Frameworks

**[bootstrap-map-js](#)**

**[basic-storytelling-template-js](#)**

**[social-media-map-template-js](#)**

**[3d-cities-template](#)**

**[simple-map-template-js](#)**

# Geo Tools

esri-leaflet

Terraformer

geoportal-server

gis-tools-for-hadoop

geometry-api-java

node-geoservices-adaptor/koop

geoservices-js

# Industry and Government

**my-government-services**

**executive-dashboard**

**park-and-recreation-finder**

**citizen-service-request**

**water-utility-network-editing**

# Project Activity

**+190 Geo Projects**  
**+600 Esri engineers**  
**+1700 Forks**  
**+1000 Pull Requests**  
**+500 Issues**

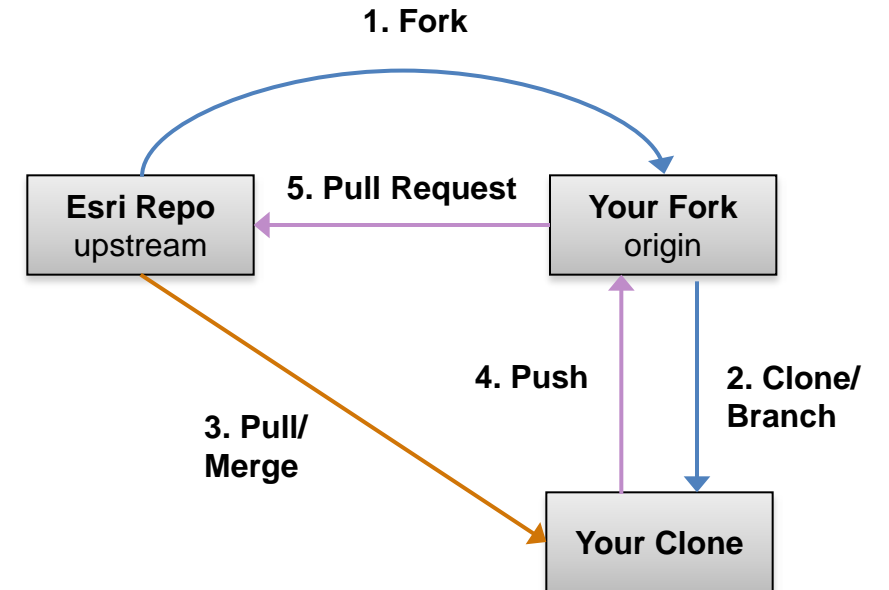


[github.com/esri](https://github.com/esri)

[esri.github.com](https://esri.github.com)

# How to Participate

GitHub Workflows





# Getting Started – Homework Assignment!

1. **Create a GitHub.com account**
2. **Install a GitHub client (and Git)**
  - [windows.github.com](https://windows.github.com)
  - [mac.github.com](https://mac.github.com)
  - [sourcetreeapp.com](https://sourcetreeapp.com)

## Resources

- Doc, videos, ref - [git-scm.com](https://git-scm.com)
- Top Git Commands - [gitref.org](https://gitref.org)
- Markdown - [daringfireball.net/projects/markdown/syntax](https://daringfireball.net/projects/markdown/syntax)
- Tutorial - [try.github.com](https://try.github.com)

[help.github.com](https://help.github.com)



Set Up Git



Create A Repo



Fork A Repo



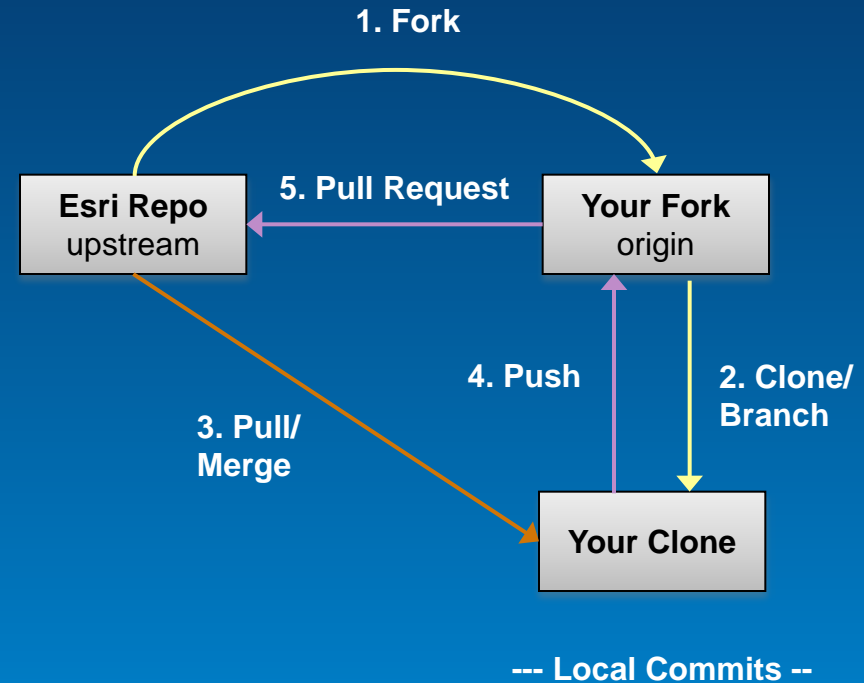
Be Social

# You will do one of the following:

- 1) **Get (steal) Code**
- 2) **Contribute Code**
- 3) **Create a New Project**

# GitHub Workflow

1. Fork
2. Clone + Branch
- Local commits ---
3. Pull + Merge
4. Push
5. Pull Request

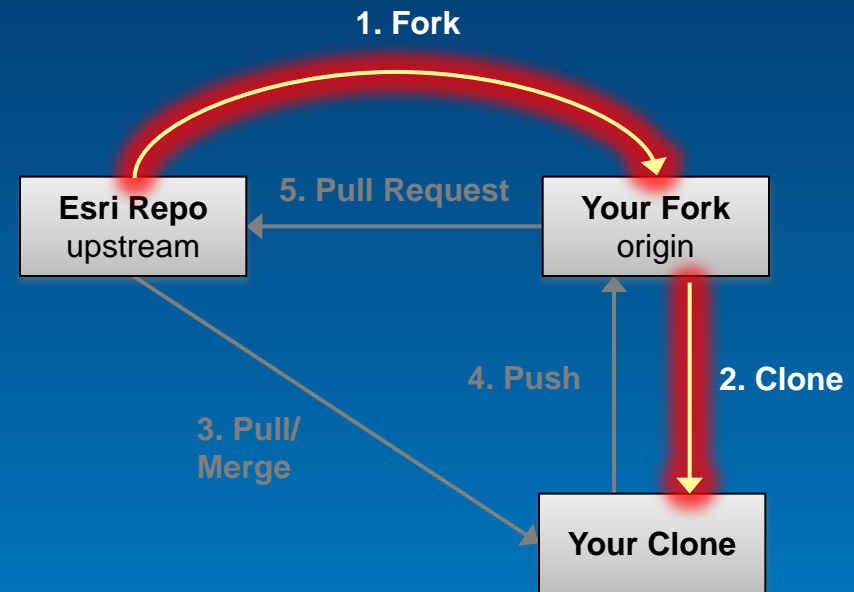


**The first thing  
you'll do...**

# Fork and Clone

# Get Code

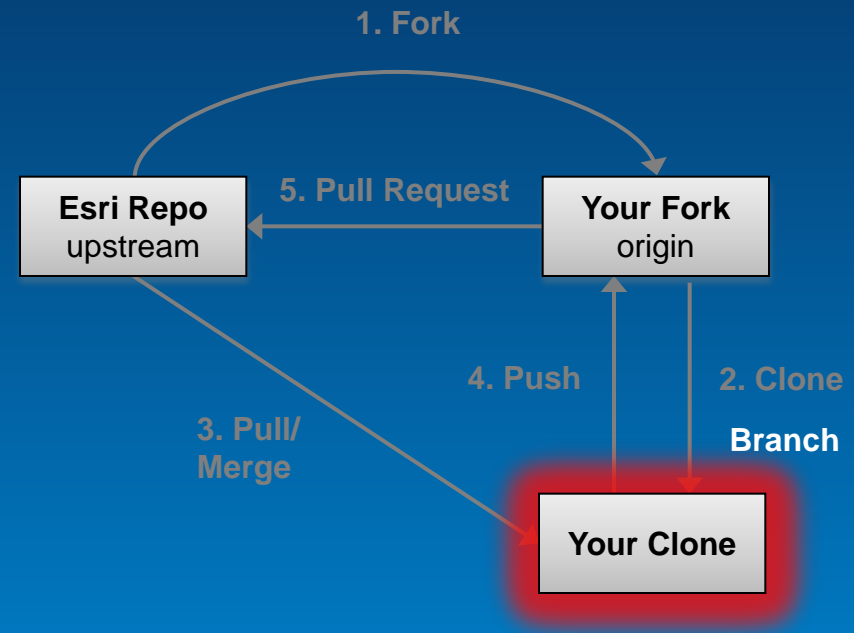
- Fork - cloud copy
- Clone - local copy



```
$ git clone https://github.com/nixta/quickstart-map-js.git
```

# Create Working Branch

- Copy of master
- Do all of your work here

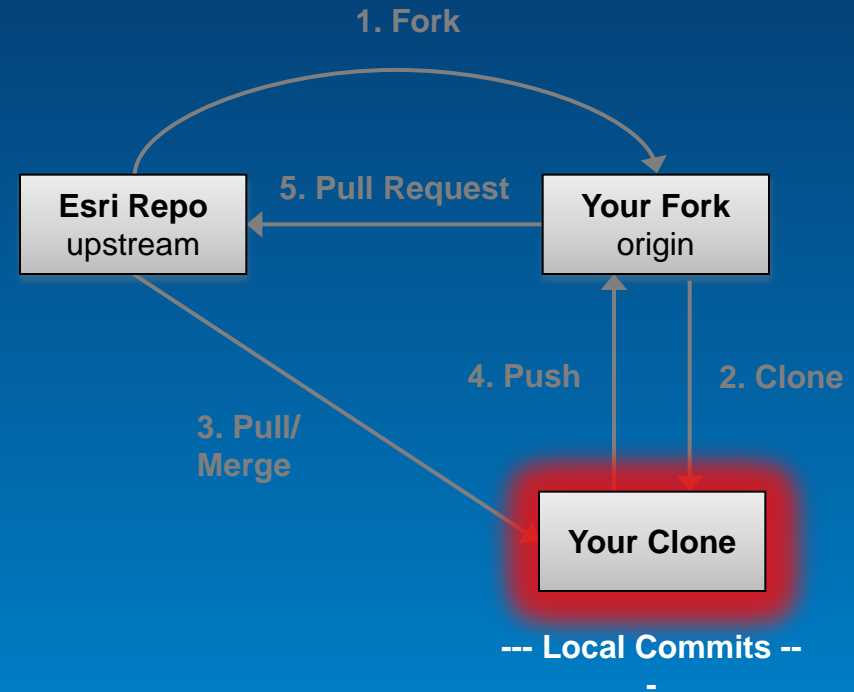


```
$ git branch nick-working  
$ git branch -av
```



# Make Local Commits

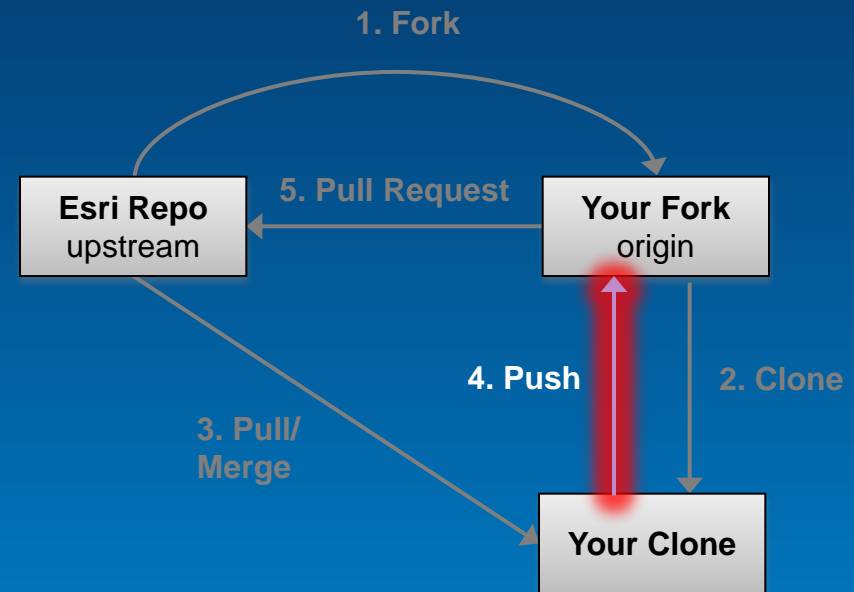
- Add changes to the index
- Store local edits



```
$ git add *  
$ git commit -m "These are my cool edits to code"
```

# Push Code

- Update your fork
- Safe keeping!



```
$ git push origin nick-working
```

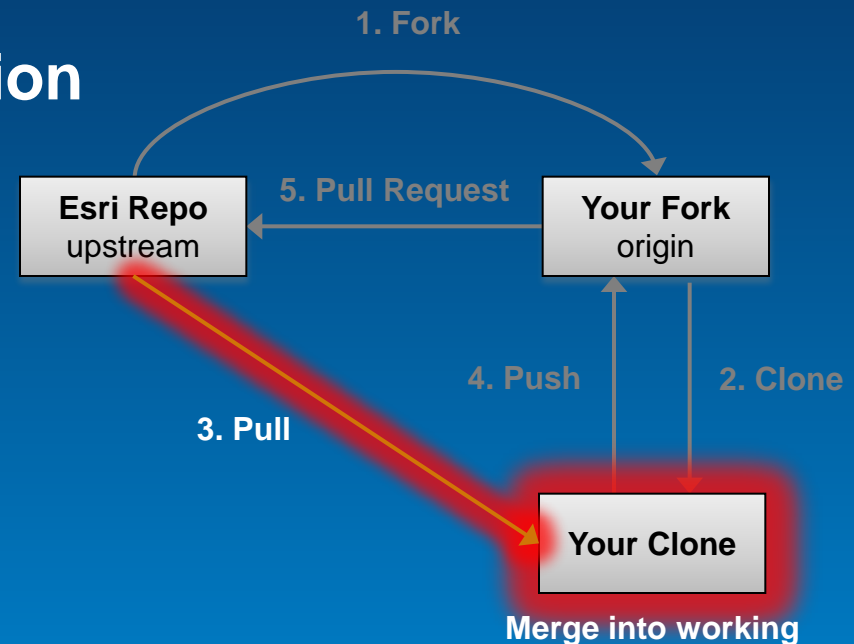
**The second thing  
you'll do...**

# Pull Request

# Get Up-to-date

- Create upstream connection
- Pull edits to master
- Merge into working

Tip: Always merge before pushing

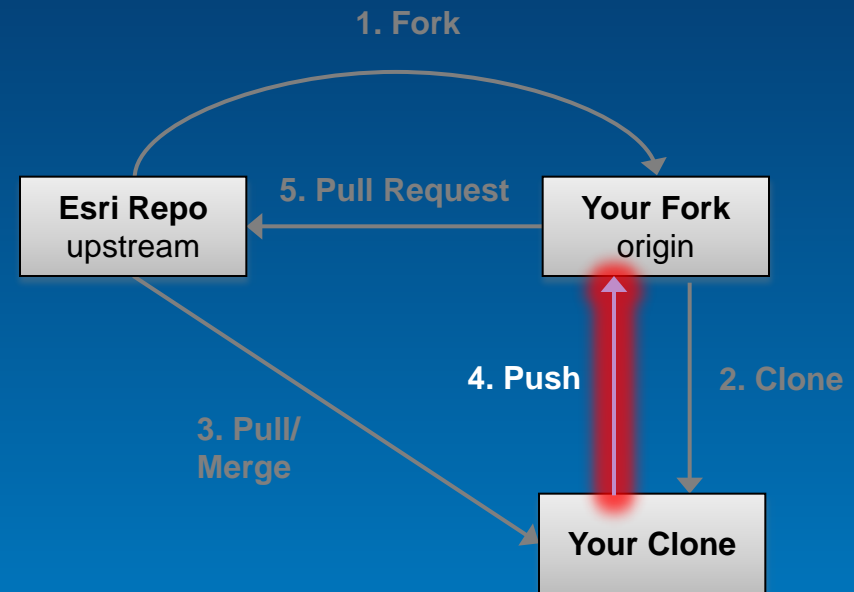


```
$ git add remote upstream https://github.com/Esri/quickstart-map-js.git
$ git pull upstream master
$ git checkout nick-working
$ git merge master
```

# Update Your Fork

- Push to your fork
- Makes code public

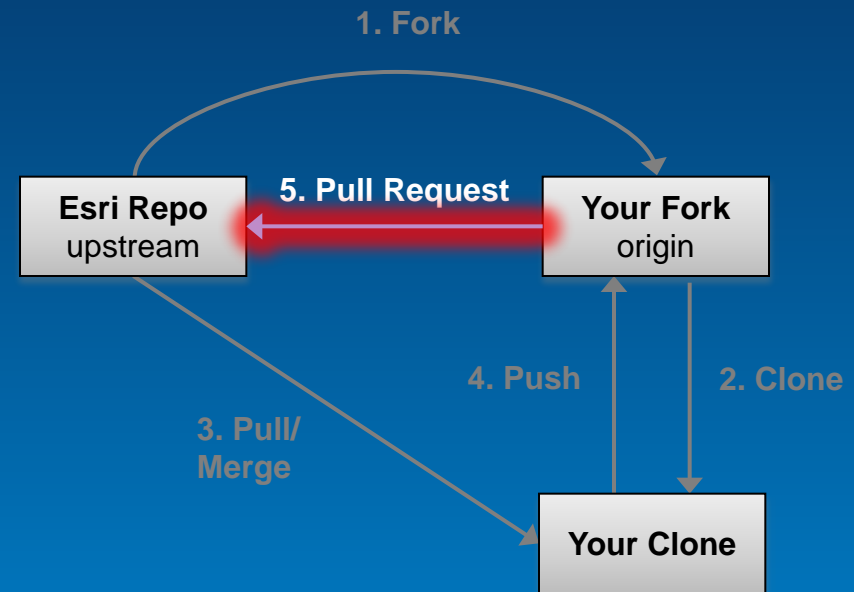
Tip: Push your working branch



```
$ git push origin
```

# Pull Request

- § Request to accept changes
- § Specify branch
- § Ensure can merge



Tip: Use GitHub web client!

**The third thing  
you'll do...**



**New Project**

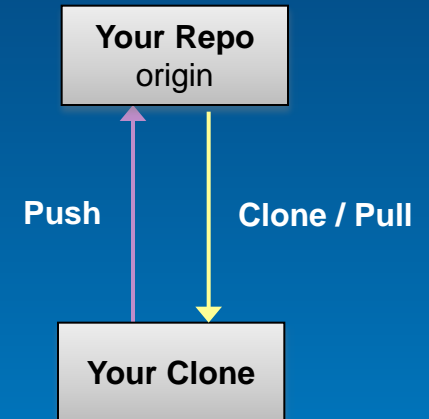
# New Project

§ Create in GitHub

§ Clone

§ Push

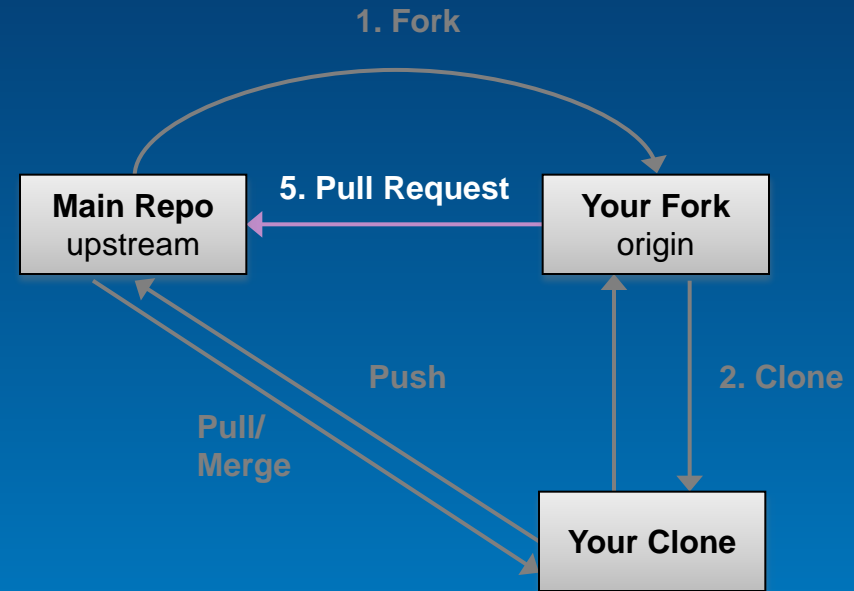
§ Pull/Merge



```
Create on GitHub and $git clone...  
Add files...  
$ git add *  
$ git commit -m "My awesome project"  
$ git push master
```

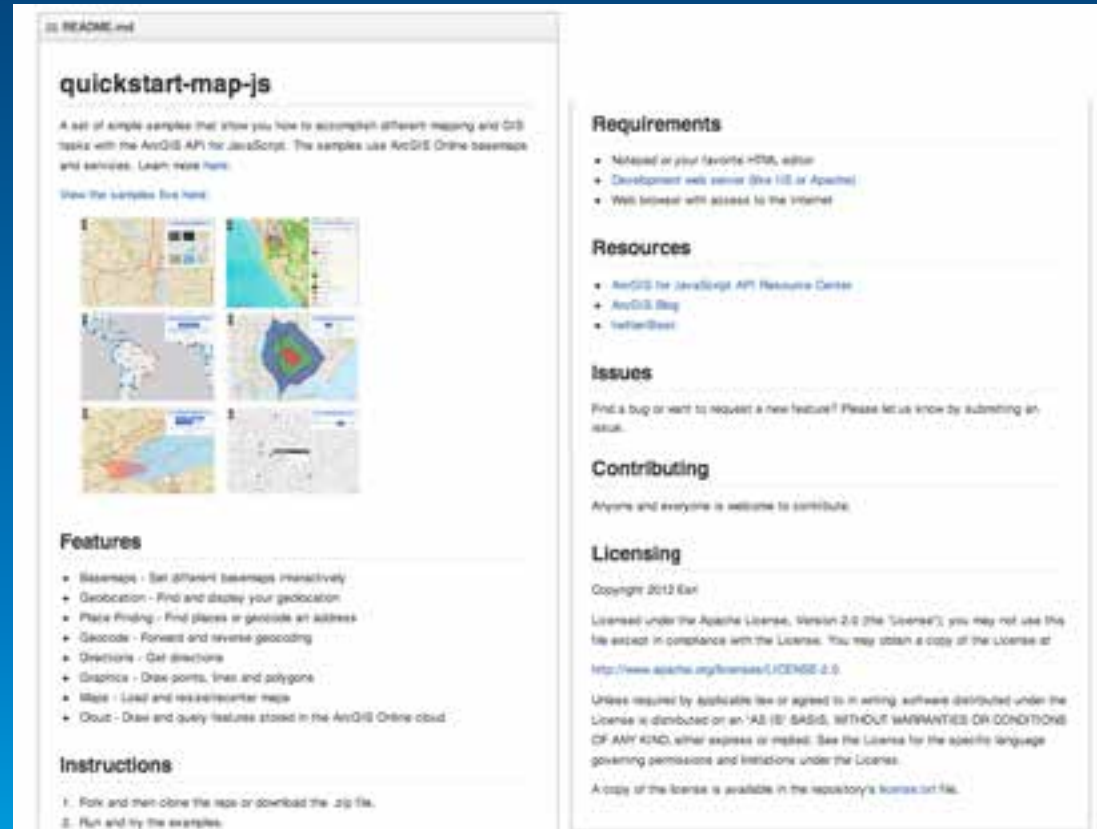
# Documentation

- § README.md
- § CONTRIBUTING.md
- § Optional: wiki



# README.md

- Description
- Features
- Instructions
- Requirements
- Resources
- Issues
- Contributing
- Licensing



The screenshot shows a README.md file for a project named 'quickstart-map-js'. The file is structured as follows:

- quickstart-map-js**
  - A set of simple examples that show you how to accomplish different mapping and GIS tasks with the ArcGIS API for JavaScript. The samples use ArcGIS Online basemaps and services. [Learn more here.](#)
  - [View the samples live here.](#)
- Features**
  - Basemaps - Set different basemaps interactively
  - Geolocation - Find and display your geolocation
  - Place Finding - Find places or geocode an address
  - Geocode - Forward and reverse geocoding
  - Directions - Get directions
  - Graphics - Draw points, lines and polygons
  - Maps - Load and reconfigure maps
  - Cloud - Draw and query features stored in the ArcGIS Online cloud
- Instructions**
  1. Fork and then clone the repo or download the .zip file.
  2. Run and try the examples.
- Requirements**
  - Notepad or your favorite HTML editor
  - Development web server (like IIS or Apache)
  - Web browser with access to the Internet
- Resources**
  - ArcGIS for JavaScript API Resource Center
  - ArcGIS Blog
  - TwitterDev
- Issues**

Find a bug or want to request a new feature? Please let us know by submitting an issue.
- Contributing**

Anyone and everyone is welcome to contribute.
- Licensing**

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Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

A copy of the license is available in the repository's license.txt file.

# CONTRIBUTING.md

- Describe the guidelines or rules
- Point to another resource or repository
- GitHub links to it on Pull Requests

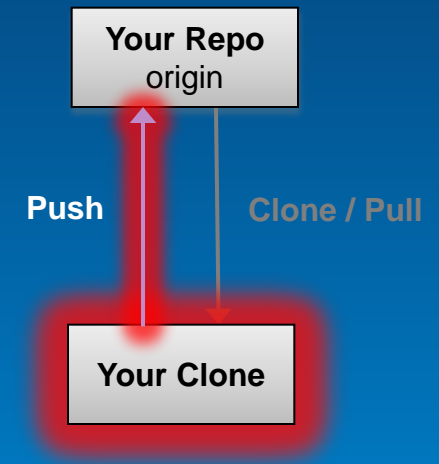


**And if you are really cool...**

**Web-enable**

# Web-enabling Your Project

- § Create gh-pages branch
- § Include an index.html
- § Push up to your fork



```
$ git checkout -b "gh-pages"  
$ git push origin gh-pages
```



# Summary

**+190 Geo Projects**  
**+600 Esri engineers**  
**+1700 Forks**  
**+1000 Pull Requests**  
**+500 Issues**



**Repos are living entities!**

**Real Esri developers**

**Updated between release  
cycles**

**Fork – Push – Pull Request**

**You can participate**

**Downloading Source Code**



**[esri.github.com](https://esri.github.com)**





Understanding our world.