

# Tales from the Tasking Manager

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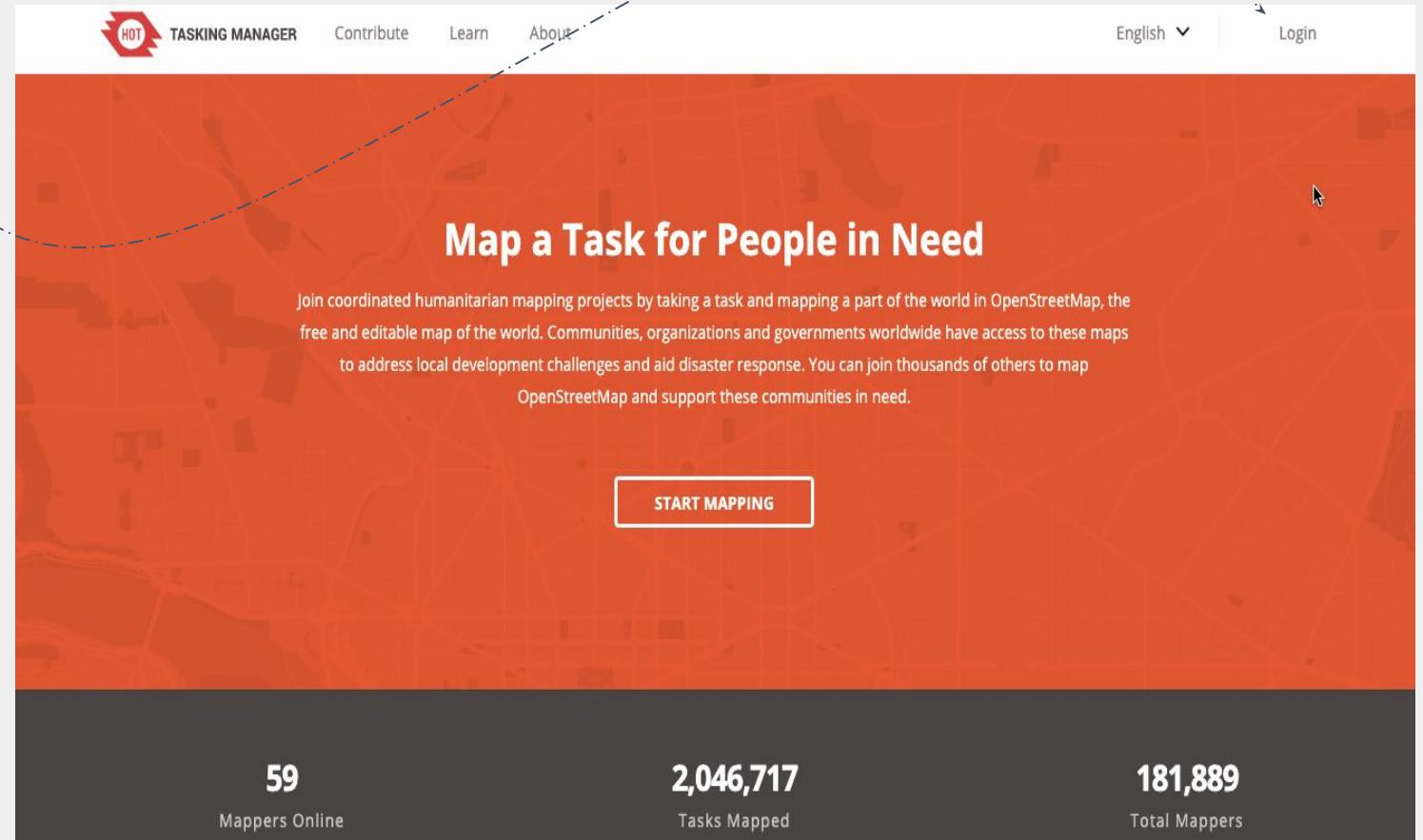
# Tasking Manager

Tool for coordination of volunteers and organization of groups to map on OpenStreetMap.

<https://tasks.hotosm.org>

Widely used within humanitarian organizations, local communities and for mapping teams of large companies.

Free and Open Source Software.



# Tasking Manager

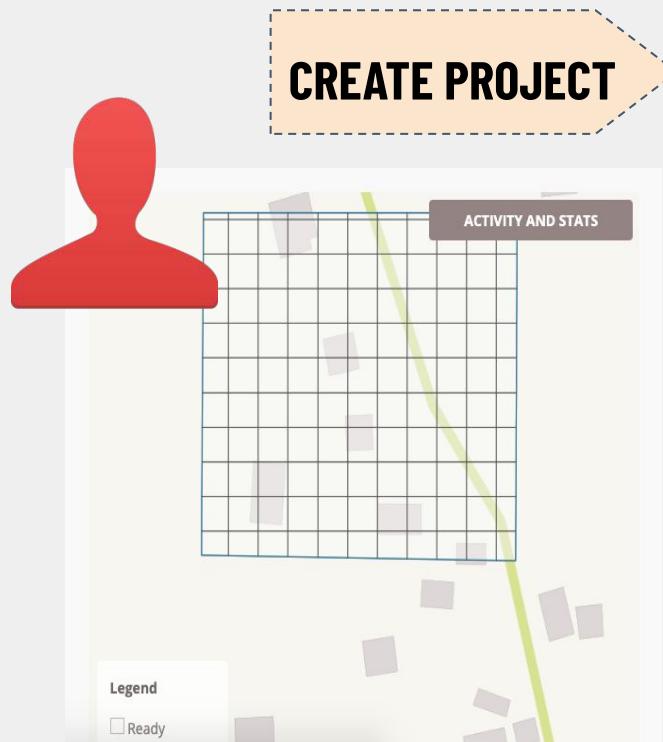
The application is designed to divide up a mapping project into smaller tasks that can be completed rapidly with many people working on the same overall area.

It shows which areas need to be mapped and which areas need the mapping validated.

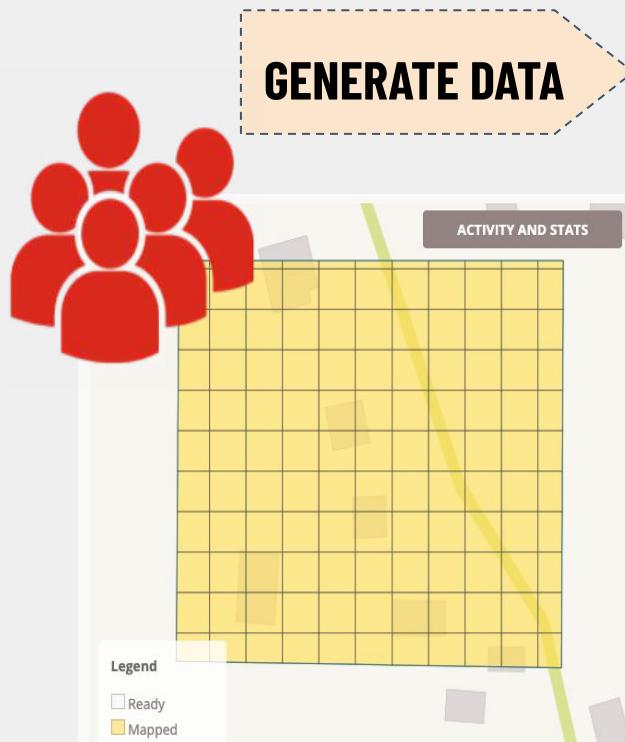
The screenshot shows a project page from the HOT Tasking Manager. At the top left is the HOT logo and the text "TASKING MANAGER". On the far right is a menu icon (three horizontal lines). Below the header, there's a "HIGH" priority indicator and a "3 - Active Mappers" link. The main title of the project is "#5305 - Guatemala, Las Cruces - National Malaria Program". To the right of the title is a "SHARE" button. Below the title is a "EDIT PROJECT" button. Further down, there are download links for "Aoi as .geojson", "Tasks as .geojson, .osm, .gpx", and "Update/Validation Project". The "Update/Validation Project" link has a small arrow icon to its right. Below these links is a paragraph about the project's purpose: "Author: HOT Requesting Org: Clinton Health Access Initiative This project is to review, update and complete the basemap (buildings and roads) in Parcelamiento Las Cruces, Escuintla, Guatemala. Whereas most of the buildings and roads have been mapped, there remains some which are not mapped and several misaligned. Your mapping contribution will help prevent the suffering and loss of life the disease malaria causes." At the bottom of the page, there's a note: "Clinton Health Access Initiative is supporting the National Malaria program in Guatemala to eliminate malaria by 2020. HOT will be conducting field mapping exercises to add details to remotely mapped buildings starting October 2018."



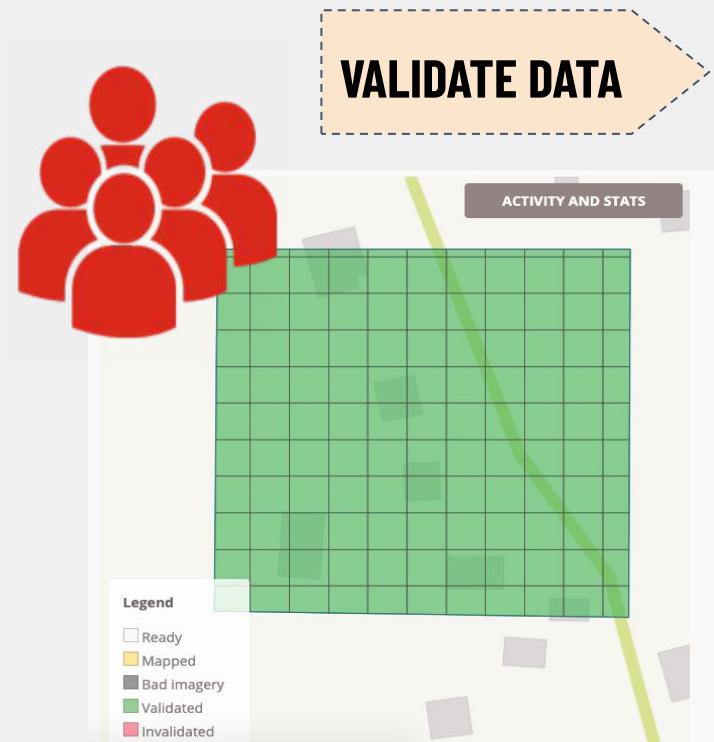
# Tasking Manager



PROJECT MANAGER



MAPPER



VALIDATOR

# The Software

**Python based backend**, using the Flask framework.

**Frontend in transition to the React framework (this summer!)** - currently in AngularJS.

Source code and documentation:  
<https://github.com/hotosm/tasking-manager>

Internal API:  
<https://tasks.hotosm.org/api-docs>

**Tasking Manager backend API 2.0.0**  
http://127.0.0.1:5000/api/v2/system/docs.json

API endpoints for the backend

**campaigns**

<small>GET</small>	/api/v2/campaigns/	Gets all campaign tags
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**licenses**

<small>GET</small>	/api/v2/licenses/	Get all imagery licenses
<small>POST</small>	/api/v2/licenses/	Creates a new mapping license
<small>DELETE</small>	/api/v2/licenses/{license_id}/	Delete the specified mapping license
<small>GET</small>	/api/v2/licenses/{license_id}/	Get specified mapping license
<small>PATCH</small>	/api/v2/licenses/{license_id}/	Update a specified mapping license
<small>POST</small>	/api/v2/licenses/{license_id}/actions/accept-for-me/	Post to indicate user has accepted license terms

**notifications**

<small>GET</small>	/api/v2/notifications/	Get all messages for logged in user
<small>DELETE</small>	/api/v2/notifications/delete-multiple/	Delete specified messages for logged in user
<small>GET</small>	/api/v2/notifications/queries/myself/count-unread/	Gets count of unread messages
<small>DELETE</small>	/api/v2/notifications/{message_id}/	Deletes the specified message
<small>GET</small>	/api/v2/notifications/{message_id}/	Gets the specified message



# HOT Tasking Manager

Organizations - Over 100

Projects - Over 6000

Mappers - Over 180 000

Mapped (area and tasks) - 33 Million km<sup>2</sup> by ~2  
mio task squares

Mapped the home of 80 mio. people

Downloads by humanitarians - 34 000



# OSM Communities

Francophone libre

OSM India

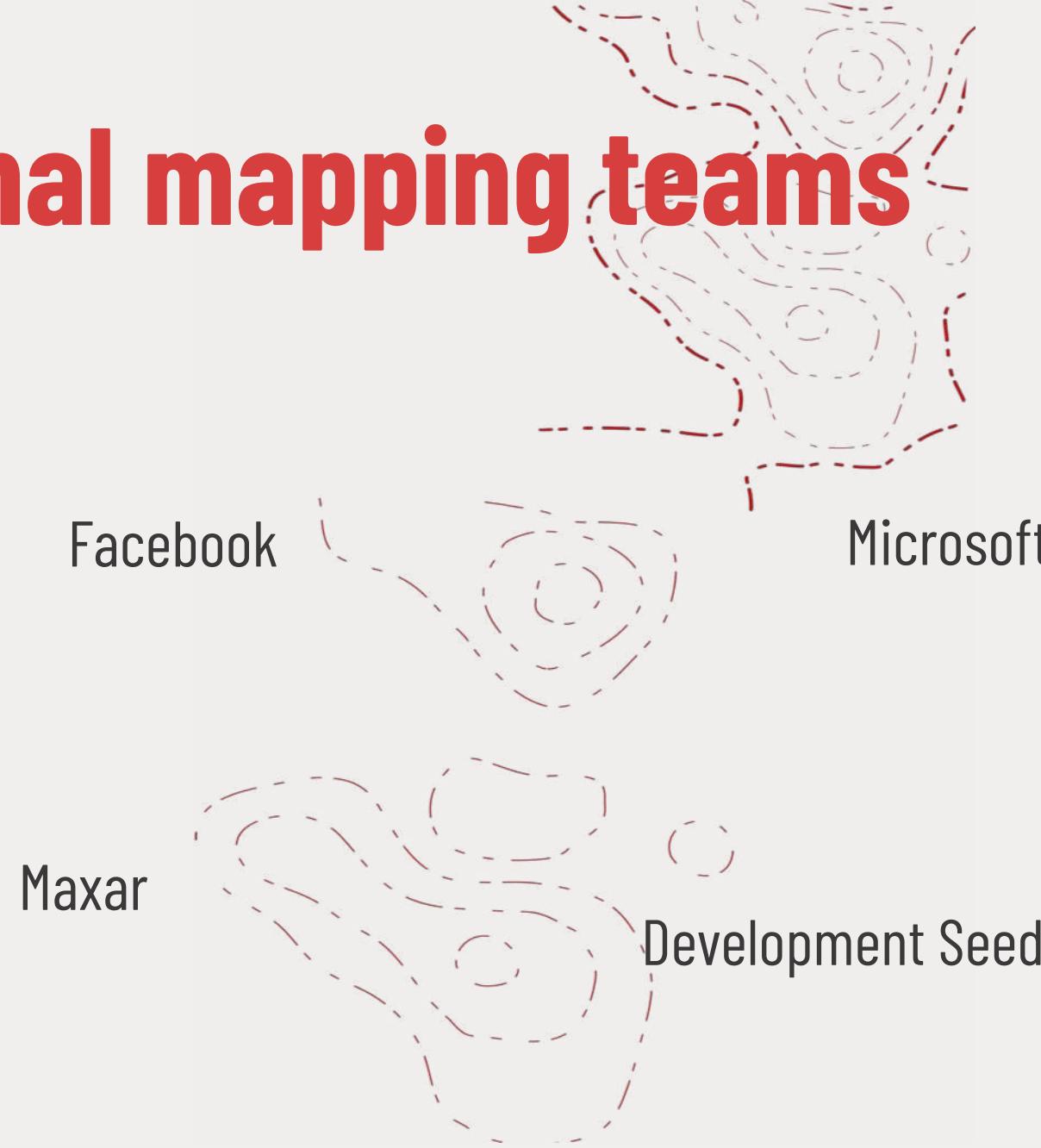
OpenHistoricalMap

OSM Colombia

OSM Philippines



# Professional mapping teams



# The idea - Version 1

Community emerged Free Software

Prototypes from 2007

Release of version 1: 2011

You are PatrickMeier  
Profile Log Out

## OSM Tasking Manager

Jobs list

### Job: Imagery of Padang

51044 / 32599  
Open with JOSM, Potlatch, Potlatch 2, Walking Papers

Now you can edit the elements in this area. Once the task is done, come back here and then mark it as done. Don't forget to leave a comment.

Comment

Mark task as done

Can't work on this task right now? No problem. [Unlock it!](#)  
119 minutes left

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**Job Description**  
HOT purchased imagery for Padang because only Landsat was available. We would like to digitize all the buildings in the areas as well as roads.

**Job Workflow**  
Add tile service  
tms[18]:<http://tile.kompetisiosm.org/b/{zoom}/{x}/{y}.png>  
to your editor of choice  
Trace all roads and buildings in the square assigned.



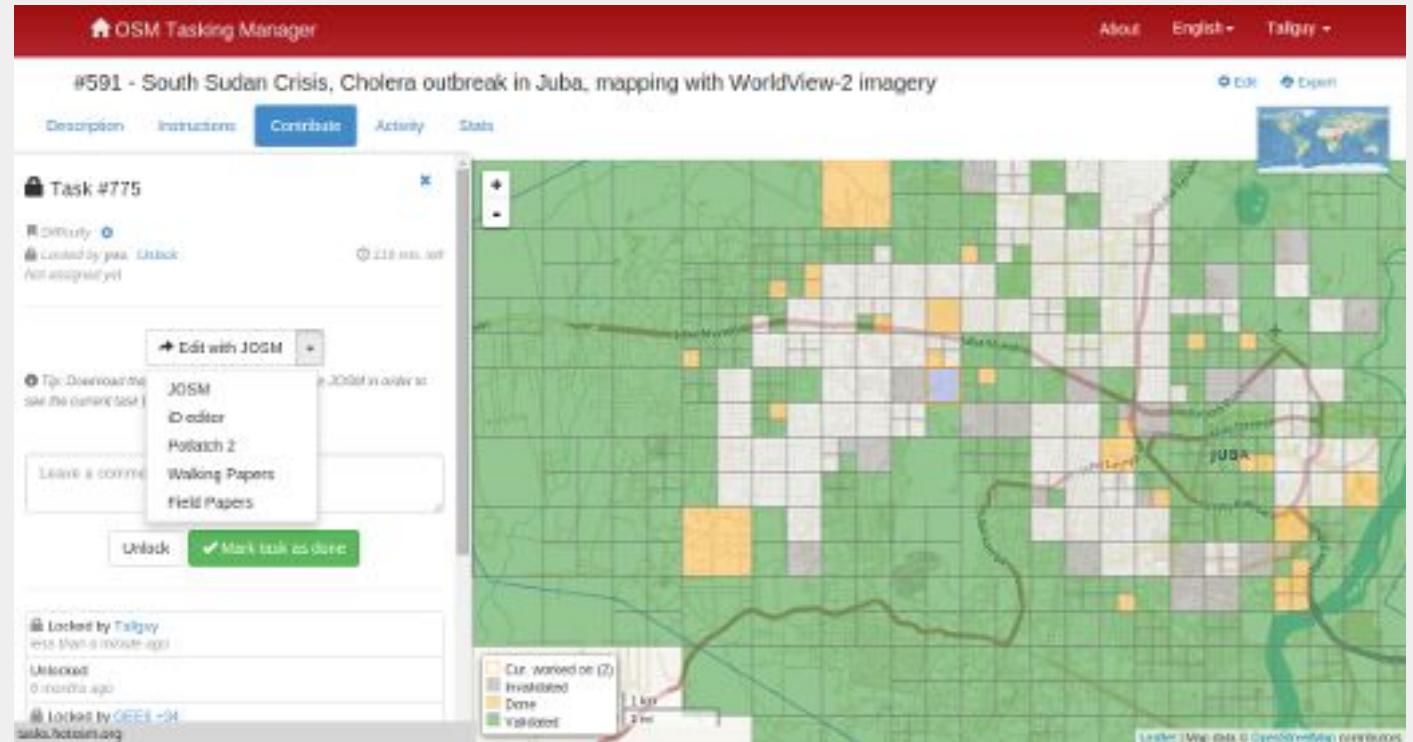
# The tool - Version 2

Released in 2014

More stable

Simplified interface for improved user experience

Widely used tool



# The service - Version 3

Backend rewrite

Focus on mapper engagement and better communication

Professionalize TM as a Service

HOT TASKING MANAGER Contribute Learn About What is New? English International

Mapping 1 hour 59 minutes left

Get started by choosing your editor of choice.

ID Editor START EDITOR Download this task as a gpx file to see its boundary.

SPLIT TASK MARK AS BAD IMAGERY

Task too big to complete quickly? Or is the satellite imagery not good? Choose split task or mark as bad imagery.

Can't finish but need to stop mapping? Or have you completely mapped the area? Leave a comment and select one of the options below that matches your editing status.

Leave a comment: 5000 characters remaining

Tip: You can use Markdown. (HTML is not allowed)

PREVIEW STOP MAPPING MARK AS COMPLETELY MAPPED

ACTIVITY AND STATS

Legend

- Ready
- Mapped
- Bad imagery
- Validated
- Invalidated
- Locked
- Locked by you

1 km

OpenStreetMap contributors



# The future - Version 4

User experience analysis

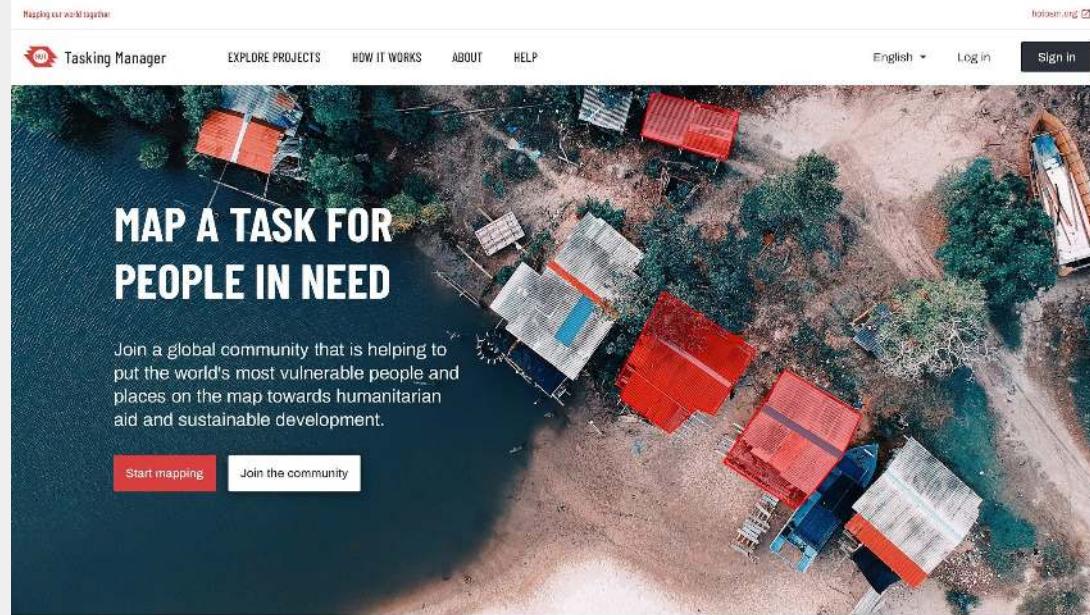
Frontend rewrite

Backend API review and consolidation



# Redesign

Update user interface with a state-of-the-art frontend framework.



**38K**  
Buildings Mapped

**952**  
Roads Mapped (Km)

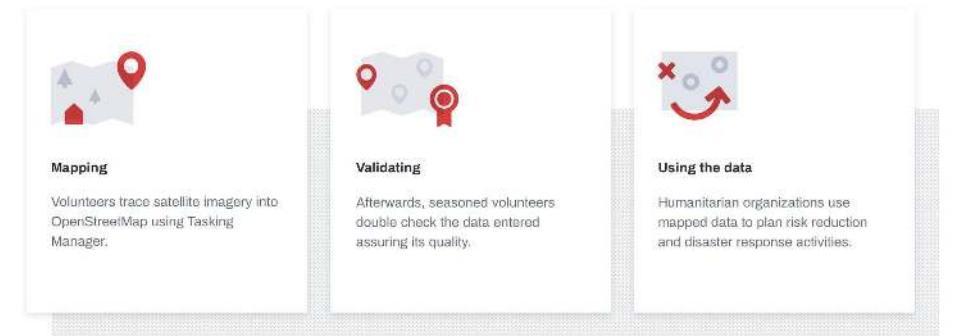
**45K**  
Total Map Edits

**156K**  
Community Mappers

**146**  
Mappers Online

Each year, disasters around the world kill nearly 100,000 and affect or displace 200 million people. We're on a mission to change that. Here's how.

Through the Tasking Manager this mapping projects are divided into smaller tasks allowing them to be completed by many different people working in the same area in a more streamlined and quick way.

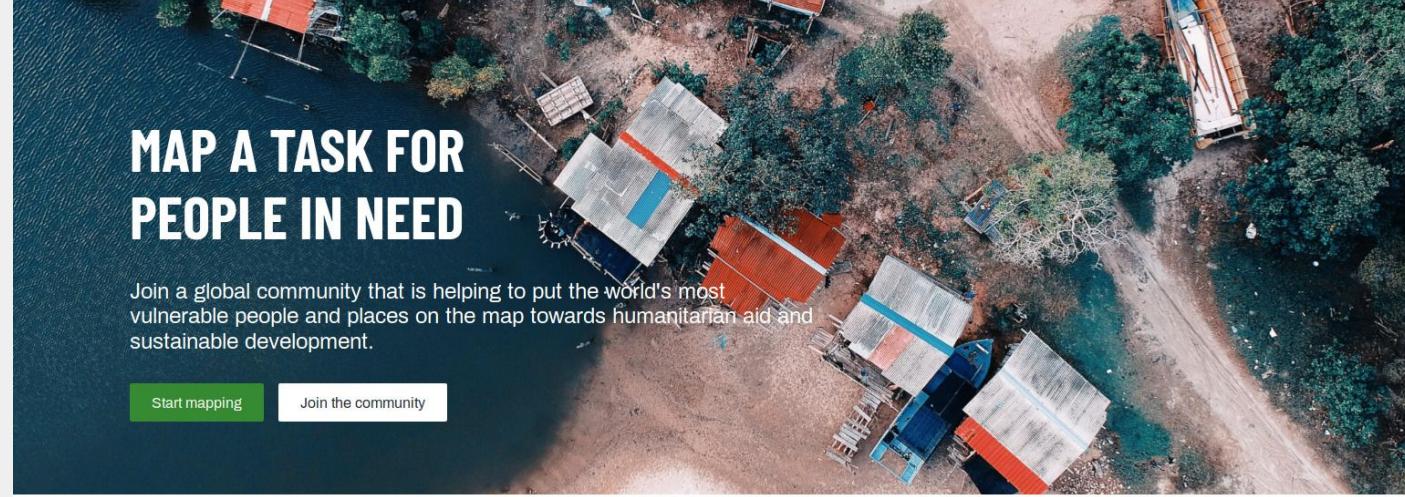


# Redesign

Easily customizable

Mapping our world together [hotosm.org](#)

Tasking Manager EXPLORE PROJECTS MY PROJECTS MY TASKS STATS & BADGES English Log in Sign up



**MAP A TASK FOR PEOPLE IN NEED**

Join a global community that is helping to put the world's most vulnerable people and places on the map towards humanitarian aid and sustainable development.

[Start mapping](#) [Join the community](#)

**1.1M**  
Buildings Mapped

**896.3K**  
Mapped Roads (Km)

**3.9M**  
Total Map Edits

**2**  
Community Mappers

**1**  
Mappers Online

**Each year, disasters around the world kill nearly 100,000 and affect or displace 200 million people. We're on a mission to change that. Here's how.**

Through the Tasking Manager this mapping projects are divided into smaller tasks allowing them to be completed by many different people working in the same area in a more streamlined and quick way.



**Mapping**  
Volunteers trace satellite imagery into OpenStreetMap using Tasking Manager.



**Validation**  
Afterwards, seasoned volunteers double check the data entered assuring its quality.



**Using the data**  
Humanitarian organizations use mapped data to plan risk reduction and disaster response activities.

 14

# Redesign

User centered design

The image displays the Humanitarian OpenStreetMap Tool (HOT) interface, illustrating a user-centered design process across three main sections: Settings, Personal Information, and Recommended Projects for You.

**SETTINGS**

This section includes:

- Preferences**: Includes tabs for **Health**, **Clean Energy**, and **Disaster Response**.
- Settings**: Includes tabs for **Open maps** (disabled), **Public data** (disabled), and **Decommissioned**.
- Notifications**: Includes tabs for **Version** (disabled), **Project updates** (disabled), and **Contributions** (disabled).

**Personal Information**

This section includes:

- A profile picture placeholder.
- Fields for **NAME** (Amanda Smith), **ADDRESS** (123 Main St), **CITY** (New York), and **STATE/PROVINCE** (New York).
- Checkboxes for **Gender** (Female) and **Occupation** (Mapper).
- A **VIEW PROFILE** button.

**RECOMMENDED PROJECTS FOR YOU**

This section lists four recommended projects:

- Response to the impact of Cyclone Idai in Mozambique**: Status: Pending, Last contribution: 10 days ago, 480 total contributions.
- Prepare for the influx of Venezuelan refugees into Colombia**: Status: Pending, Last contribution: 10 days ago, 554 total contributions.
- Tracing borderlands to contain Ebola outbreak**: Status: Pending, Last contribution: 10 days ago, 460 total contributions.
- Mapping mosquito net coverage**: Status: Pending, Last contribution: 10 days ago, 450 total contributions.

**AMANDA SMITH**

Profile details for Amanda Smith, Beginner mapper, 657,700 contributions, 12h 48m time spent mappin.

**BADGES**

Badges displayed include:

- The Right Stuff**: 180+ changes to land & buildings - 10 days.
- Administrator**: The administrator for projects in your area.
- The Wrong Stuff**: The last 10 changes you've made, nothing to do with OSM.
- Scoutmaster**: Scouting the way to Level 1! 200+ changes - 10 days.
- Whizbang Rating**: Whizbangs... lots of them and fast.
- Awesome OSM**: Just an OSMer... 220+ changes - 10 days.

**CONTRIBUTION TIMELINE**

A heatmap visualization showing the distribution of contributions over time.

**HOT**

# Redesign

Vector-tiles maps!

Mapping our world together

**Tasking Manager** EXPLORE PROJECTS HOW IT WORKS ABOUT HELP

Language ▾ Log in Sign up

Mapping difficulty ▾ HOT More Filters Sort By Search Projects Clear Filters

Show map

Showing 14 projects of 233

#6261 <b>Papua New Guinea Volcanic Risk Reduction: Mount Lamington Buildings</b> HOT has launched a disaster risk reduction campaign, mapping the 147 total contributors Beginner	#6260 <b>Papua New Guinea Volcanic Risk Reduction: Umboi Island Buildings and</b> HOT has launched a disaster risk reduction campaign, mapping the 80 total contributors Beginner	#6219 <b>Papua New Guinea Volcanic Risk Reduction: Karkar Island Buildings and</b> HOT has launched a disaster risk reduction campaign, mapping the 105 total contributors Beginner	#5792 <b>Ayuda Venezuela 1: Barranquilla Buildings</b> As the political situation in Venezuela continues to decline, 211 total contributors Advanced
#6220 <b>Papua New Guinea Volcanic Risk Reduction: Rabaul Buildings and</b> HOT has launched a disaster risk reduction campaign, mapping the 95 total contributors Beginner	#5069 <b>Uganda Crowdsourcing Non-Camp Refugee Data Baratuku Refugee</b> Author: Missing Maps / HOT Uganda/MapUganda * Requesting 5 total contributors Beginner	#5019 <b>Uganda Crowdsourcing Non-Camp Refugee Data Mungula 1 Refugee</b> Author: Missing Maps / HOT Uganda/MapUganda * Requesting 10 total contributors Beginner	#5169 <b>DRC/Kanungu District Border Mapping - Buildings</b> Author: Missing Maps / HOT Uganda * Requesting organization: HOT 157 total contributors Beginner



HOT

# iD in TM

Work in progress

Manage tasks inside iD

Integrate into the user flow of the application

The screenshot shows the HOT Tasking Manager interface. At the top, there's a red header with the HOT logo and the text "Tasking Manager". Below it is a search bar with the placeholder "Search features" and a search icon. The main area is a satellite map of a residential neighborhood. A green polygon highlights a specific area labeled "Condominio Alegra". The map includes various buildings, roads, and other geographical features. At the bottom of the map, there's a copyright notice: "Bing © 2019 Microsoft Corporation, © 2019 DigitalGlobe, ©CNES (2019) Distribution Airbus DS" and a scale bar indicating "200 m". To the right of the map, there's a sidebar with the following information:

- #5001 | Created by klain890
- RESPONSE TO THE IMPACT OF CYCLONE IDAI IN MOZAMBIQUE · #699
- 1 hour 59 minutes left
- COMPLETION INSTRUCTIONS HISTORY
- Once you have finished mapping:
  - Select one of the options below that matches your edit status
  - Leave a comment (optional)
  - Submit your work (submit button)
- EDIT STATUS:
  - Satellite imagery is not good
  - This task is already mapped
  - I completely mapped (this option is checked)
- COMMENT: Write comment
- Buttons: Stop Validating, Select another task, Submit task



# API v2

Backend updated to allow a better performance to Tasking Manager.

**Tasking Manager backend API 2.0.0**  
<http://127.0.0.1:5000/api/v2/system/docs/json>  
API endpoints for the backend

**campaigns**

`GET /api/v2/campaigns/` Gets all campaign tags

**licenses**

`GET /api/v2/licenses/` Get all imagery licenses

`POST /api/v2/licenses/` Creates a new mapping license

`DELETE /api/v2/licenses/{license_id}/` Delete the specified mapping license

`GET /api/v2/licenses/{license_id}/` Get specified mapping license

`PATCH /api/v2/licenses/{license_id}/` Update a specified mapping license

`POST /api/v2/licenses/{license_id}/actions/accept-for-me/` Post to indicate user has accepted license terms

**notifications**

`GET /api/v2/notifications/` Get all messages for logged in user

`DELETE /api/v2/notifications/delete-multiple/` Delete specified messages for logged in user

`GET /api/v2/notifications/queries/myself/count-unread/` Gets count of unread messages

`DELETE /api/v2/notifications/{message_id}/` Deletes the specified message



# Collaboration



Humanitarian  
OpenStreetMap  
Team



# An old idea that evolved

The TM concept dates from 2007.

Development made by volunteers  
and by contractors and companies  
hired by HOT.

## Pain points:

HOT didn't have a technology team.

Lack of organizational knowledge  
about TM code.

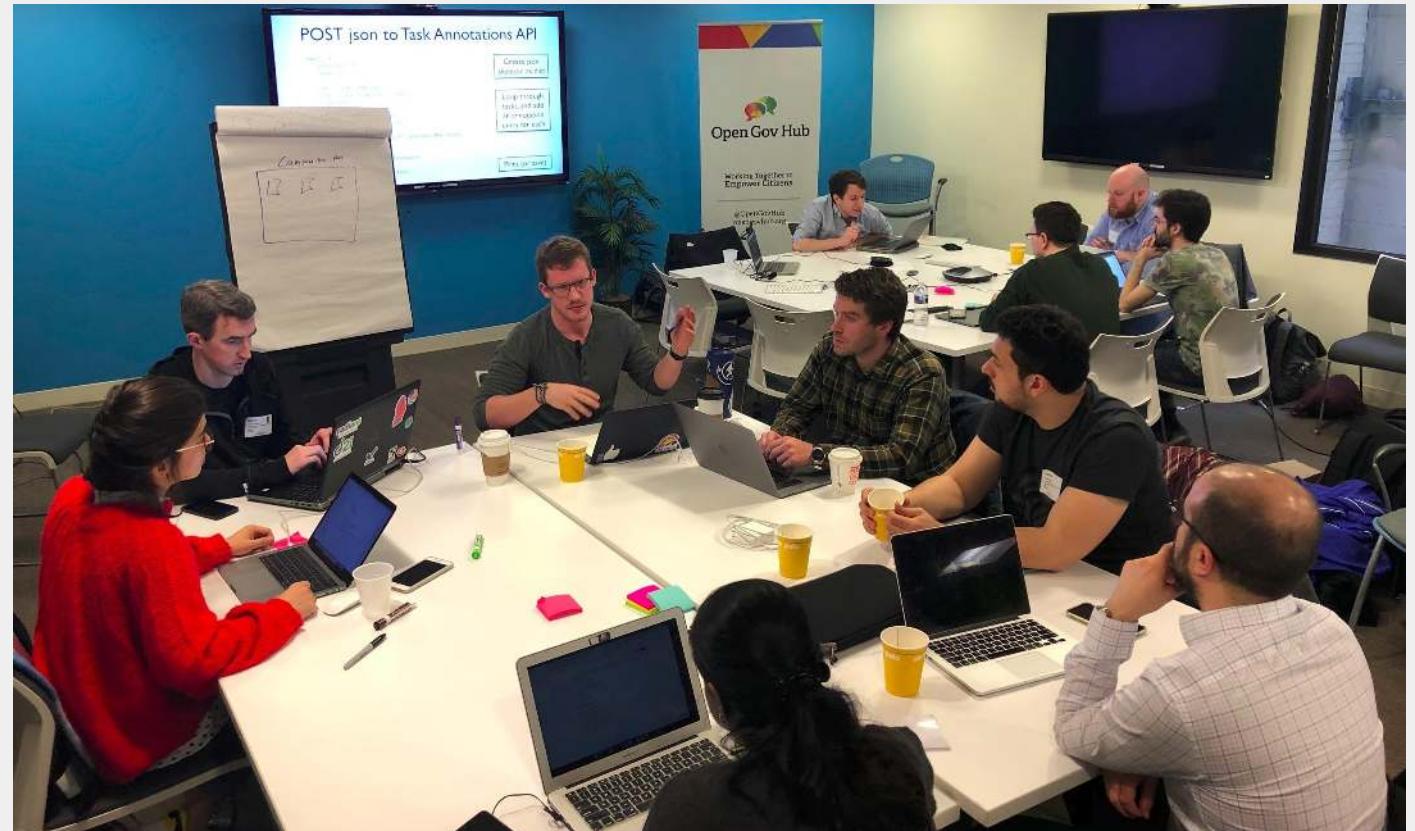


# Current collaboration state

Codebase maintained by the HOT Tech Team.

Contributions from many companies and organizations:

Apple, Facebook, Microsoft, DevSeed, Youth Mappers, American Red Cross, Kaart, World Bank...



# Mapper Statistics



Humanitarian  
OpenStreetMap  
Team



**API documentation:** <https://tasks.hotosm.org/api-docs>

**User Statistics:** <https://tasks.hotosm.org/api/v1/stats/user/ramyaraqupathy>

# Tasking Manager API 0.0.1

<https://tasks.hotosm.org/api/docs>

API endpoints for the backend

## authentication

**GET** </api/auth/email> Authenticates user owns email address

**GET** </api/v1/auth/login> Redirects user to OSM to authenticate

**GET** </api/v1/auth/oauth-callback> Handles the OSM OAuth callback

## docs

**GET** </api/docs> Generates Swagger UI readable JSON



## health-check

**GET** </api/health-check> Simple health-check, if this is unreachable load balancers should be configured to raise an alert

## project admin



# Where have all the mappers gone?



Humanitarian  
OpenStreetMap  
Team



**Around 50% of the signed up users are not getting started on mapping**



## Mapping

This task is available for mapping.

**START MAPPING**

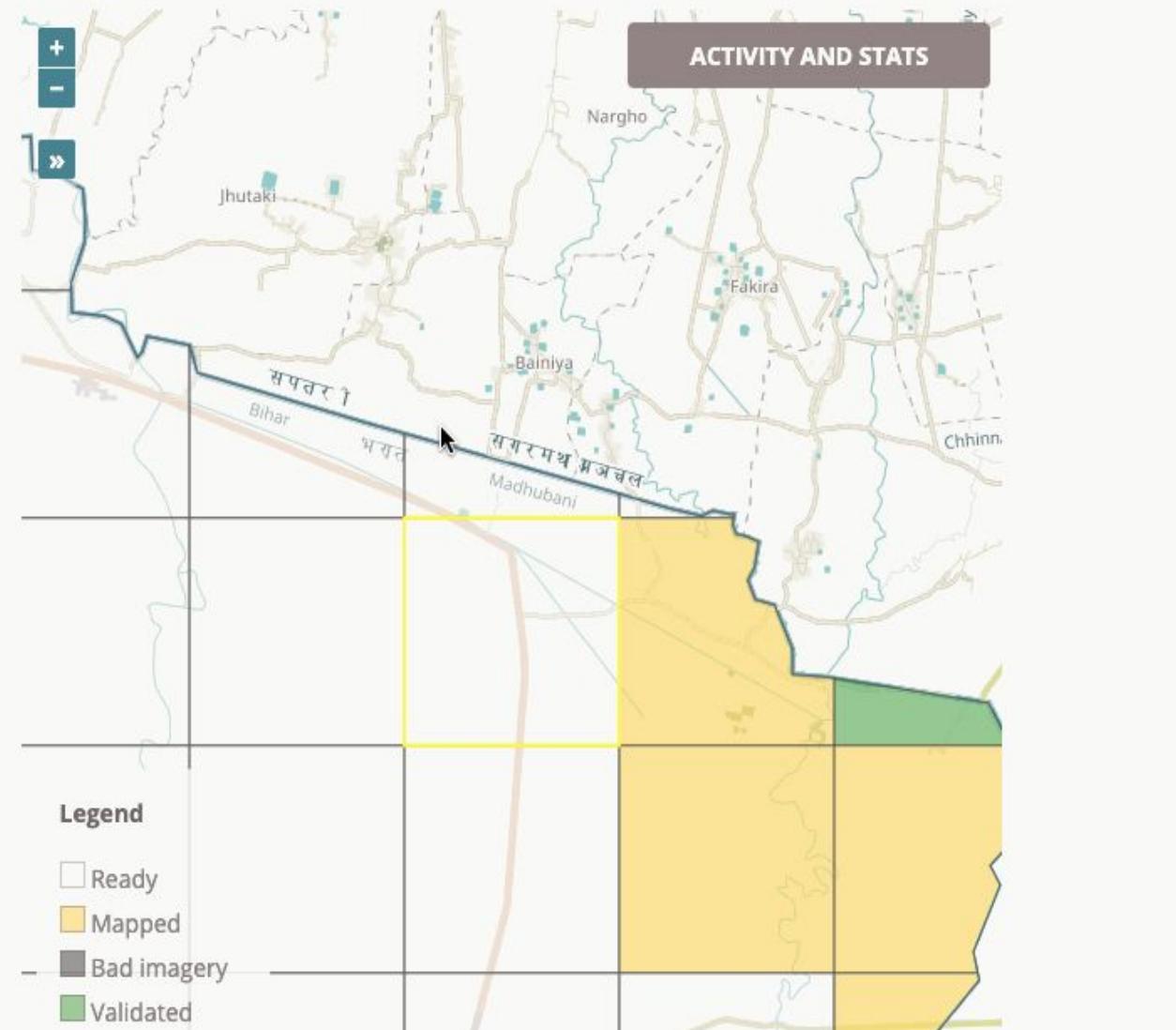
**SELECT ANOTHER TASK**

## History

Nothing has happened yet.

**> Advanced**

Advanced task information and editing options



## **Around 50% of the signed up users are not getting started on mapping**

There are some pitfalls

- Login to two places
- Jump to an external application - the editor
- Waiting for feedback that never comes

Version 3 announcement:

*... “On User profiles you can now add your email address. This should be the first thing everyone does in the new Tasking Manager.” ....*



# It's about all of us

Connect to us over chat: [#tasking-manager](https://hotosm.slack.com)

## Support us and get involved:

- Test the new version
- Contribute to the documentation (learnOSM)
- Translate the new UI (Transifex)

[bit.ly/tm4-testing](https://bit.ly/tm4-testing)  
[bit.ly/tm4-documentation](https://bit.ly/tm4-documentation)  
[bit.ly/tm4-internationalisation](https://bit.ly/tm4-internationalisation)

## Developers welcome!

- Check-out the code and issue queue:
- And join our bi-weekly online TM-WG meetings

[github.com/hotosm/tasking-manager](https://github.com/hotosm/tasking-manager)  
[bit.ly/tm-wg-meetings](https://bit.ly/tm-wg-meetings)



Thank you!

Interested in the Tasking Manager? Can we support you?  
Please do not hesitate to contact us.

[ramya.ragupathy@hotosm.org](mailto:ramya.ragupathy@hotosm.org)

[wille.marcel@hotosm.org](mailto:wille.marcel@hotosm.org)

[felix.delattre@hotosm.org](mailto:felix.delattre@hotosm.org)