

# 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.

**HOT TASKING MANAGER** Contribute Learn About English ▼ Login

## Map a Task for People in Need

Join coordinated humanitarian mapping projects by taking a task and mapping a part of the world in OpenStreetMap, the free and editable map of the world. Communities, organizations and governments worldwide have access to these maps to address local development challenges and aid disaster response. You can join thousands of others to map OpenStreetMap and support these communities in need.

**START MAPPING**

**59**  
Mappers Online

**2,046,717**  
Tasks Mapped

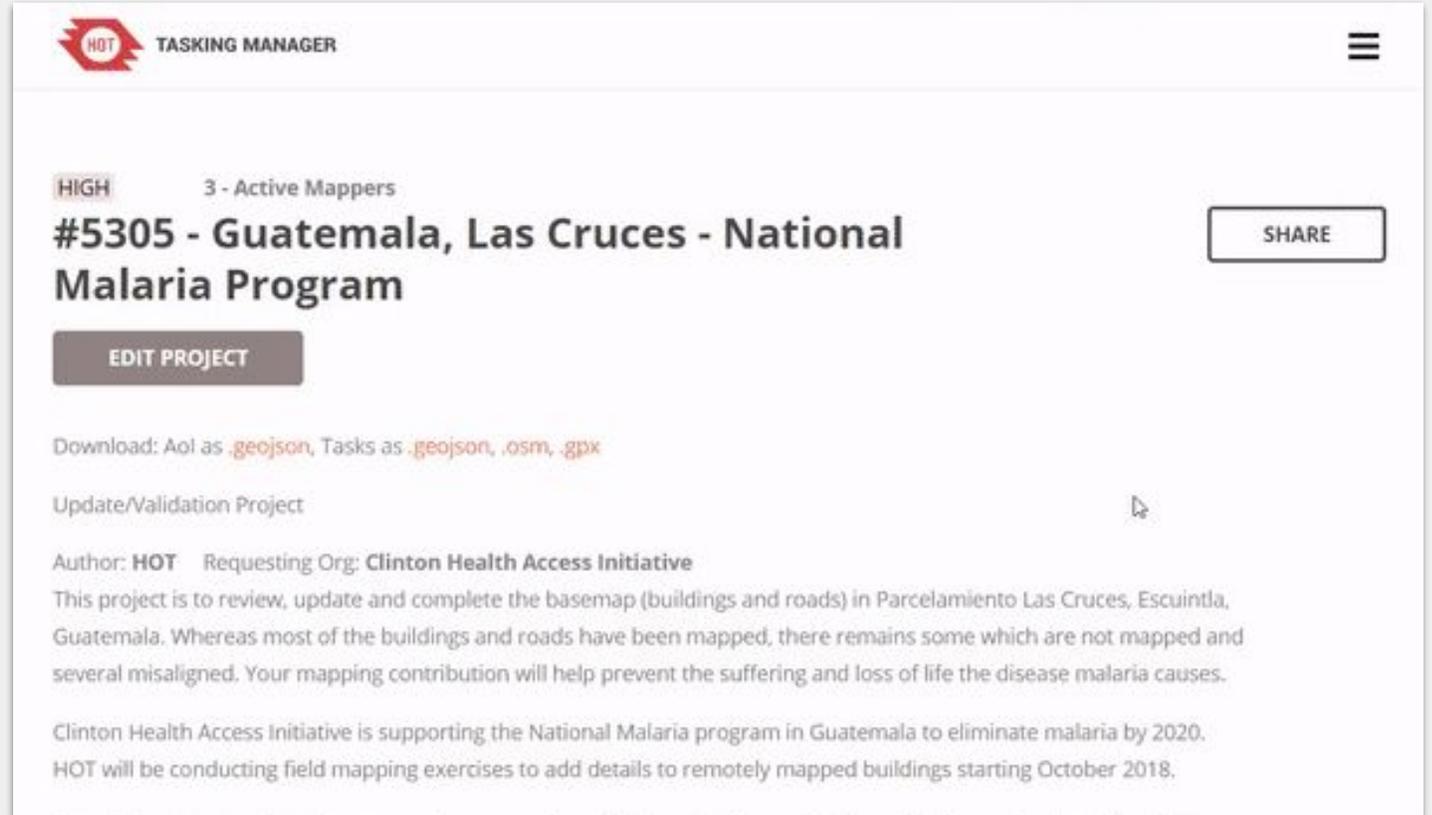
**181,889**  
Total Mappers



# 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.

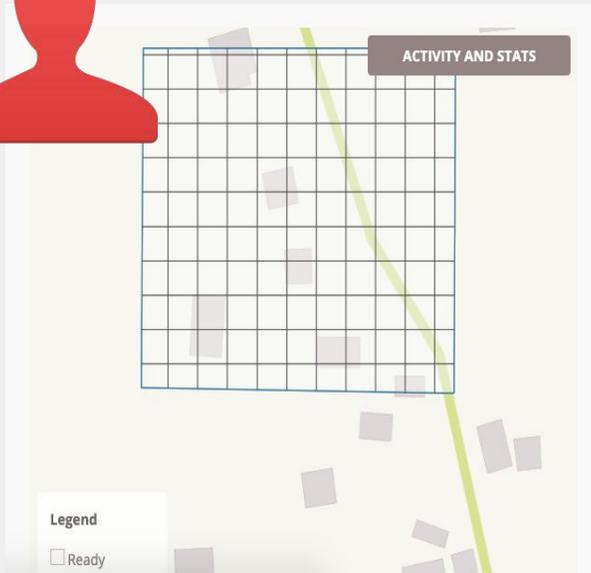
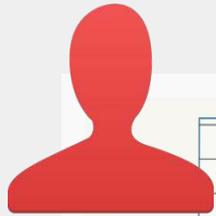
It shows which areas need to be mapped and which areas need the mapping validated.



The screenshot shows the HOT Tasking Manager interface. At the top left is the HOT logo and the text 'TASKING MANAGER'. At the top right is a hamburger menu icon. Below the header, the project is identified as 'HIGH' priority with '3 - Active Mappers'. The main title is '#5305 - Guatemala, Las Cruces - National Malaria Program'. To the right of the title is a 'SHARE' button. Below the title is an 'EDIT PROJECT' button. Underneath, it lists download and task formats: 'Download: Aoi as .geojson, Tasks as .geojson, .osm, .gpx'. The project type is 'Update/Validation Project'. The author is 'HOT' and the requesting organization is 'Clinton Health Access Initiative'. A description follows: '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.' A final paragraph states: '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.'

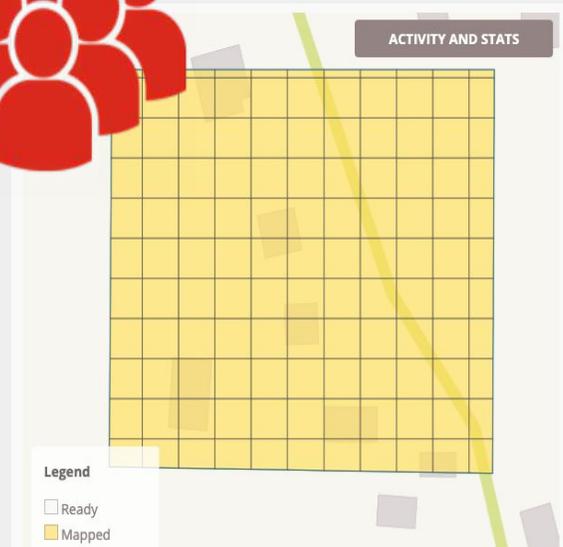
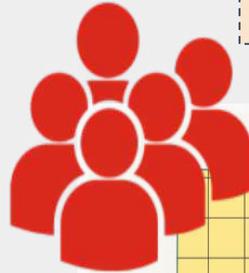
# Tasking Manager

CREATE PROJECT



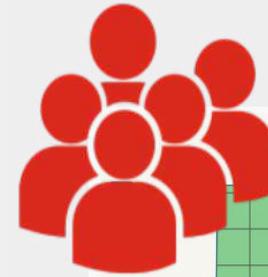
PROJECT MANAGER

GENERATE DATA



MAPPER

VALIDATE DATA



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>

The screenshot shows the 'Tasking Manager backend API' documentation page, version 2.0.0. The page lists API endpoints for the backend, categorized into 'campaigns', 'licenses', and 'notifications'. Each endpoint is represented by a colored bar indicating the HTTP method (GET, POST, DELETE, PATCH) and the endpoint path with a brief description.

Method	Endpoint	Description
GET	/api/v2/campaigns/	Gets all campaign tags
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
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
GET	/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

OSM Colombia

Francophone libre

OSM Philippines

OSM India

OpenHistoricalMap

# Professional mapping teams

Apple

Facebook

Microsoft

Maxar

Development Seed

# The idea - Version 1

Community emerged Free Software

Prototypes from 2007

Release of version 1: 2011

OSM Tasking Manager [Jobs list](#) You are PatrickMeler  
[Profile](#) [Log Out](#)

### 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

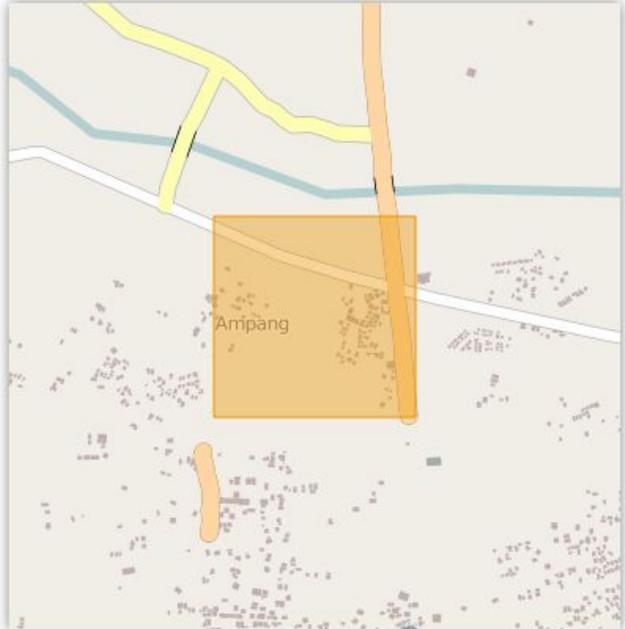
[Mark task as done](#)

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

---

**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.



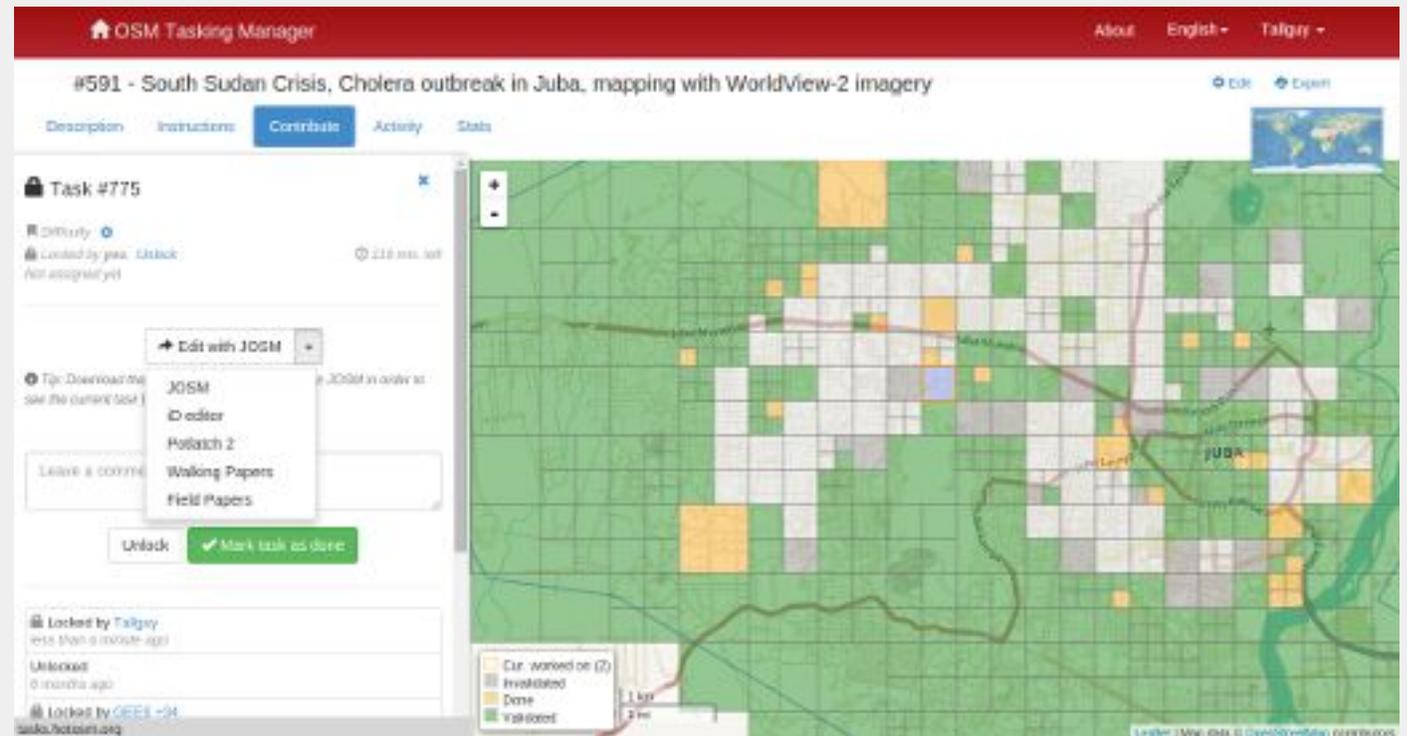
# The tool - Version 2

Released in 2014

More stable

Simplified interface for improved user experience

Widely used tool

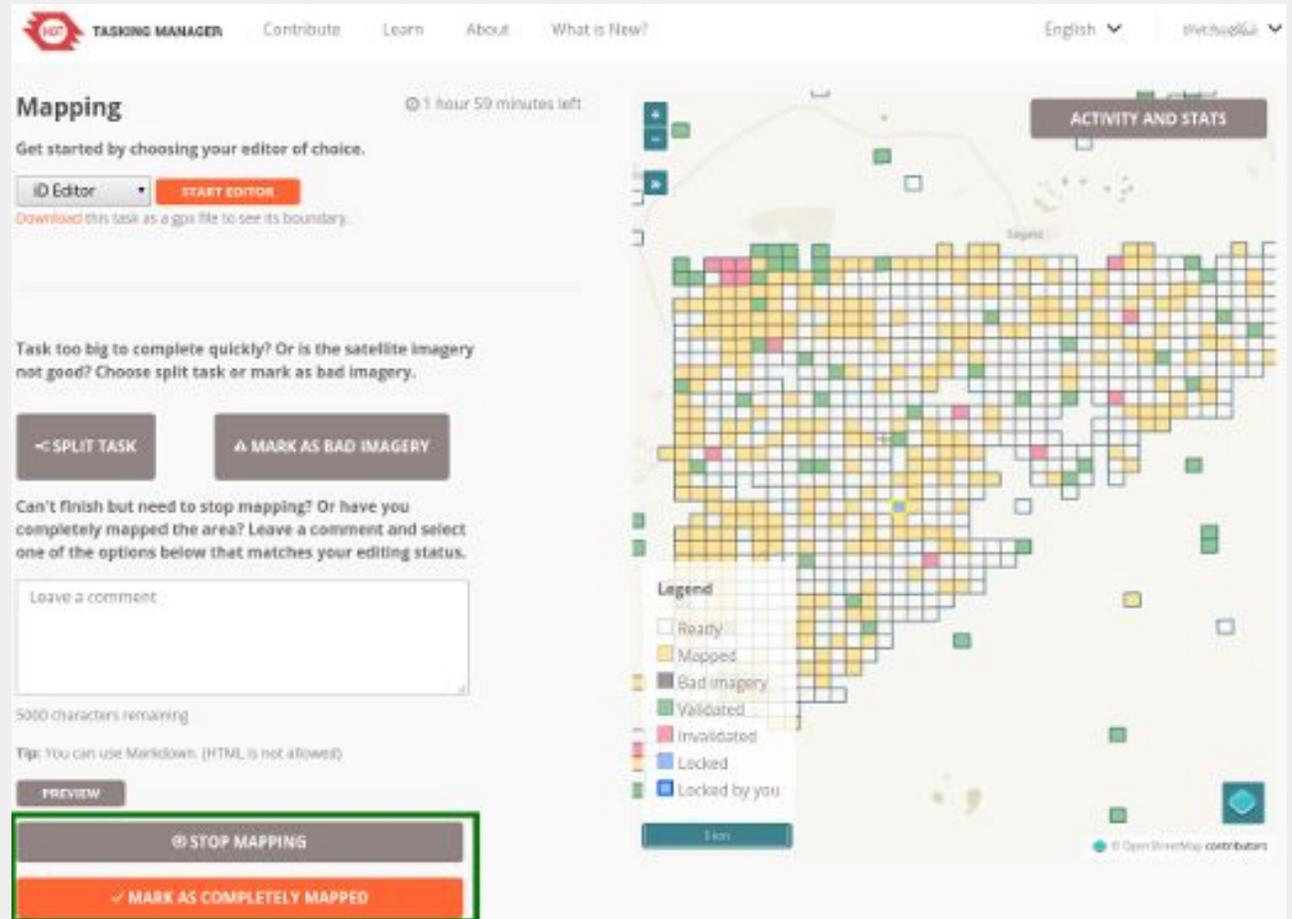


# The service - Version 3

Backend rewrite

Focus on mapper engagement and better communication

Professionalize TM as a Service



# The future - Version 4

User experience analysis

Frontend rewrite

Backend API review and consolidation

HOT TASKING MANAGER					
Mapper user flow					
Map a Task					
STEP	1.1	1.2	1.3	1.4	1.5
USER FLOW					
ACTIONS	Selects Project	Selects "Map" tab or button	Selects a task	Clicks "Start Mapping" button	Clicks "Start Editor"
WHERE	TM				
NOTES	<ul style="list-style-type: none"> <li>- It's not easy to know how to select a project to contribute</li> <li>- Project cards have too much information</li> <li>- By default the project list should be filtered by my level of expertise</li> </ul>	<ul style="list-style-type: none"> <li>- This page combines what should be two separate pages:</li> <li>1. Project information page which should have a general overview, statistics, contributors and activity history, and CTA to contribute;</li> <li>2. Mapping page with steps explanation</li> <li>- Needs improvement in visual design and content hierarchy (both sections of the page)</li> <li>- Tabs should not mix read-only content with main actions (Map/Validate)</li> <li>- "Activity and Stats" button goes unnoticed</li> </ul>	<ul style="list-style-type: none"> <li>- Needs improvement in visual design and content hierarchy (text, ui elements)</li> <li>- There's room for improvement in map visualization</li> </ul>	<ul style="list-style-type: none"> <li>- This journey is not clear, the steps to follow are confusing</li> </ul>	
RECOMMENDATION	<ul style="list-style-type: none"> <li>- By default, show beginner level projects</li> <li>- Move filters and view modes to the top of the page and make it sticky</li> <li>- Rethink card content and hierarchy</li> <li>- Rethink Campaign filter. Should be more highlevel: Disease, Climate, War, etc</li> </ul>	<ul style="list-style-type: none"> <li>- Split this page into two different pages</li> <li>- Replace tabs with a more efficient solution</li> <li>- Improve content hierarchy and structure</li> </ul>			

# Redesign

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

Mapping our world together

Tasking Manager

EXPLORE PROJECTS HOW IT WORKS ABOUT HELP

English Log in Sign in

## 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

**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.

### Mapping

Volunteers trace satellite imagery into OpenStreetMap using Tasking Manager.

### Validating

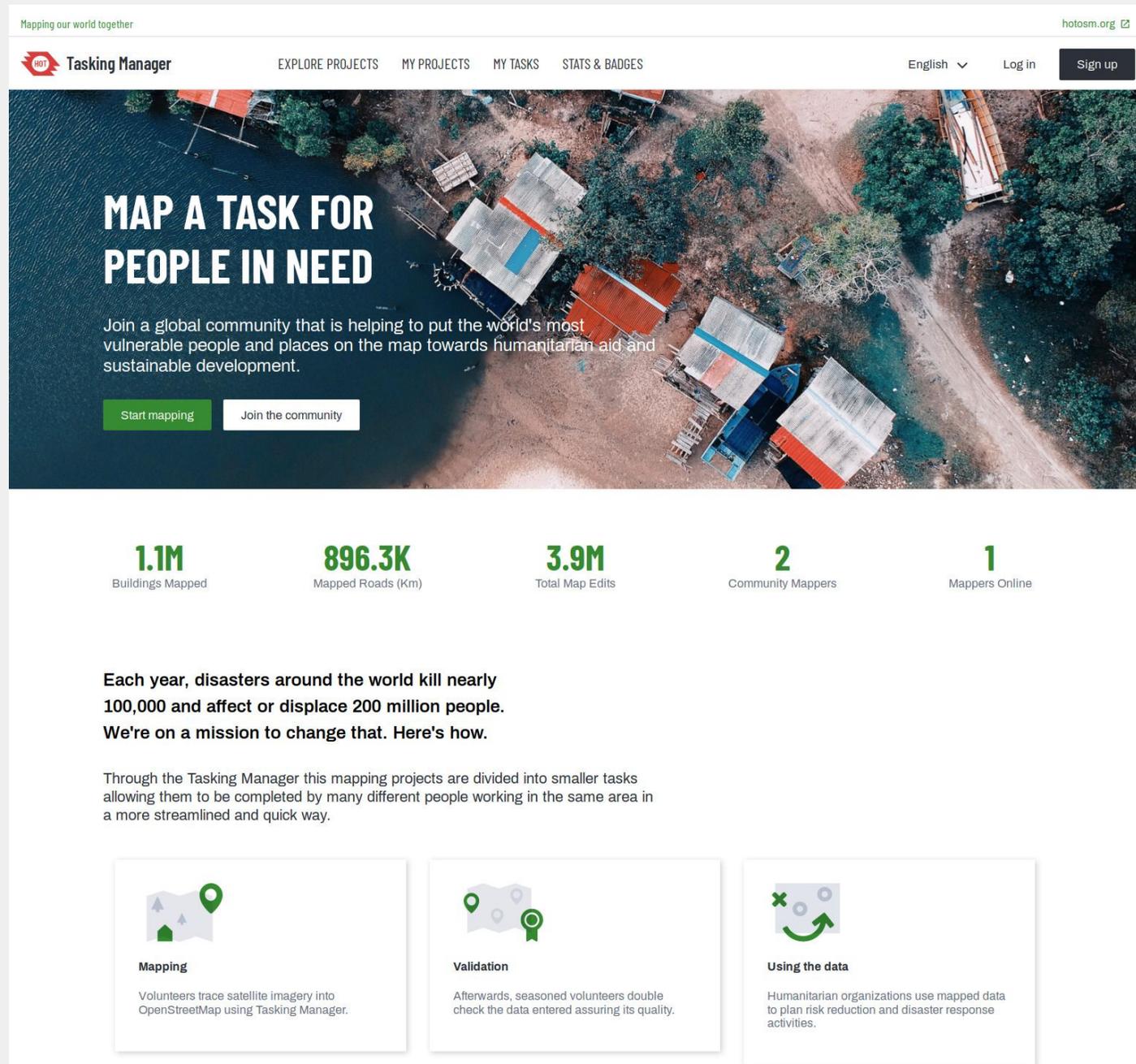
Afterwards, seasoned volunteers double check the data entered assuring its quality.

### Using the data

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

# Redesign

Easily customizable



Mapping our world together hotosm.org

**HOT** 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.

# Redesign

User centered design

**SETTINGS**

**Preferences**  
Select the colors of the interface to help you customize the design elements for you.

Energy Efficiency | **Apply Health** | Manage color |  
Gender Equality | **Clean Energy** | Gender Response |  
**Environment** | Sustainable | **Water Health**

**Settings**

**Open mode**  
Open mode makes your data and map segments visible and able to be downloaded.

**Default color**  
Select the default color for your map. You can change the color by clicking on the color swatch.

**Become a validator**  
You can help improve the quality of the data by becoming a validator.

**Notifications**

**Verifica**  
Daily the data is verified by a community of users.

**Project updates**  
You get notified on the project and the community tasks.

**Comments**  
You get notified on the comments and the community tasks.

**Personal Information**

Profile picture |  |   
 |   
 |   
 |

**OSM details**

OSM ID:   
2 months ago | AB  
OSM ID:  |  |

**Map your first task.**  
Looks like you haven't mapped any task yet. Fortunately, it's very easy to map one! You can start mapping by selecting one of the projects below, recommended for you.

**RECOMMENDED PROJECTS FOR YOU**

- Response to the impact of Cyclone Idai in Mozambique**  
Last contribution 30 days ago | Beginner |
- Prepare for the influx of Venezuelan refugees into Colombia**  
Last contribution 30 days ago | Beginner |
- Tracing borderlands to contain Ebola outbreak**  
Last contribution 30 days ago | Beginner |
- Mapping mosquito net coverage**  
Last contribution 30 days ago | Beginner |

**AMANDA SMITH**  
Beginner mapper  
@amandasmith | @amandasmith | @amandasmith | @amandasmith

**12h 48m** (The more the better)  
**04** (The more the better)  
**10.4** (The more the better)  
**10.4** (The more the better)  
**10.4** (The more the better)

**BADGES**

- The night shift**  
1st place in the world 1st place in the world
- Stardew**  
1st place in the world 1st place in the world
- The night shift**  
1st place in the world 1st place in the world
- Scoutmaster**  
1st place in the world 1st place in the world
- Whitecap Rating**  
1st place in the world 1st place in the world
- Oversea 1000**  
1st place in the world 1st place in the world

**CONTRIBUTION TIMELINE**

Timeline showing activity from 2017 to 2019, with a grid of green and yellow squares representing contributions.



# Redesign

Vector-tiles maps!

The screenshot shows the HOT Tasking Manager interface. At the top, it says "Mapping our world together" and "HOT Tasking Manager". Navigation links include "EXPLORE PROJECTS", "HOW IT WORKS", "ABOUT", and "HELP". There are also links for "Language", "Log in", and "Sign up".

Below the navigation, there are filters for "Mapping difficulty" (set to "HOT"), "More Filters", "Sort By", a search bar, and "Clear Filters". A "Show map" toggle is on the right.

The main content area displays "Showing 14 projects of 233". The projects are listed in a grid:

- #6261 URGENT:** Papua New Guinea Volcanic Risk Reduction: Mount Lamington Buildings. 147 total contributors, Beginner level.
- #6260 URGENT:** Papua New Guinea Volcanic Risk Reduction: Umboi Island Buildings and. 80 total contributors, Beginner level.
- #6219 HIGH:** Papua New Guinea Volcanic Risk Reduction: Karkar Island Buildings and. 105 total contributors, Beginner level.
- #5792 HIGH:** Ayuda Venezuela 1: Barranquilla Buildings. 211 total contributors, Advanced level.
- #6220 HIGH:** Papua New Guinea Volcanic Risk Reduction: Rabaul Buildings and. 95 total contributors, Beginner level.
- #5089 MEDIUM:** Uganda Crowdsourcing Non-Camp Refugee Data Baratuku Refugee. 5 total contributors, Beginner level.
- #5019 MEDIUM:** Uganda Crowdsourcing Non-Camp Refugee Data Mungula 1 Refugee. 10 total contributors, Beginner level.
- #5169 MEDIUM:** DRC/Kanungu District Border Mapping - Buildings. 157 total contributors, Beginner level.

On the right, a world map shows the locations of these projects with red markers and numbers: #6703 in South America, #209 in Africa, #3906 and #4154 in Asia.



# iD in TM

Work in progress

Manage tasks inside iD

Integrate into the user flow of the application

The screenshot displays the HOT Tasking Manager interface. On the left, there is a sidebar with a search bar and a 'Search features' section. The main area shows a satellite map with white task boundaries overlaid on a residential area. Labels on the map include 'Gasolinera la 14 Alfaguara', 'La 14 de Alfaguara', 'Condominio Alegre', and 'Calle 2'. A toolbar at the top of the map area includes icons for 'Point', 'Line', and 'Area', along with a 'Save' button. On the right side, a task details panel is visible. It shows the task ID '#5001', the creator 'Klain890', and the task title 'RESPONSE TO THE IMPACT OF CYCLONE IDAI IN MOZAMBIQUE · #699'. Below this, there are tabs for 'COMPLETION', 'INSTRUCTIONS', and 'HISTORY'. A section titled 'Once you have finished mapping' contains three instructions: 'Select one of the options below that matches your edit status', 'Leave a comment (optional)', and 'Submit your work (submit button)'. An 'EDIT STATUS' section has three radio buttons: 'Satellite imagery is not good', 'This task is already mapped', and 'I completely mapped' (which is selected). A 'COMMENT' section has a text input field with the placeholder 'Write comment'. At the bottom of the panel, there are buttons for 'Stop Validating', 'Select another task', and a large red 'Submit task' button. The bottom of the map shows a scale bar for 200 meters and a list of editors: 'Edits by Cristhian Molina, cris\_1994, Emmanuel Ramirez, and 22 others'. The version number '2.14.3' is also visible.

# 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.

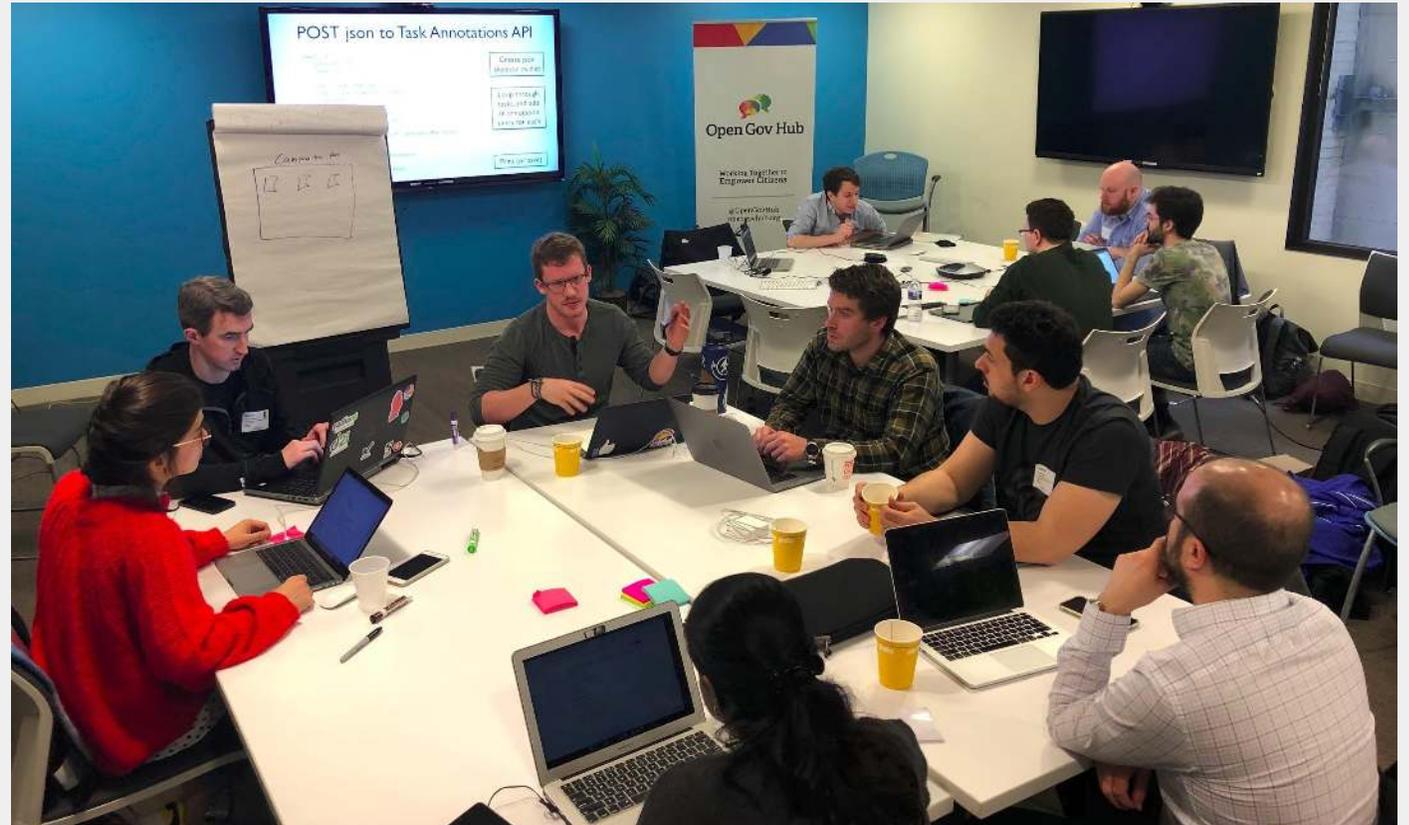


# Current collaboration state

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?



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



## Mapping

This task is available for mapping.

**START MAPPING**

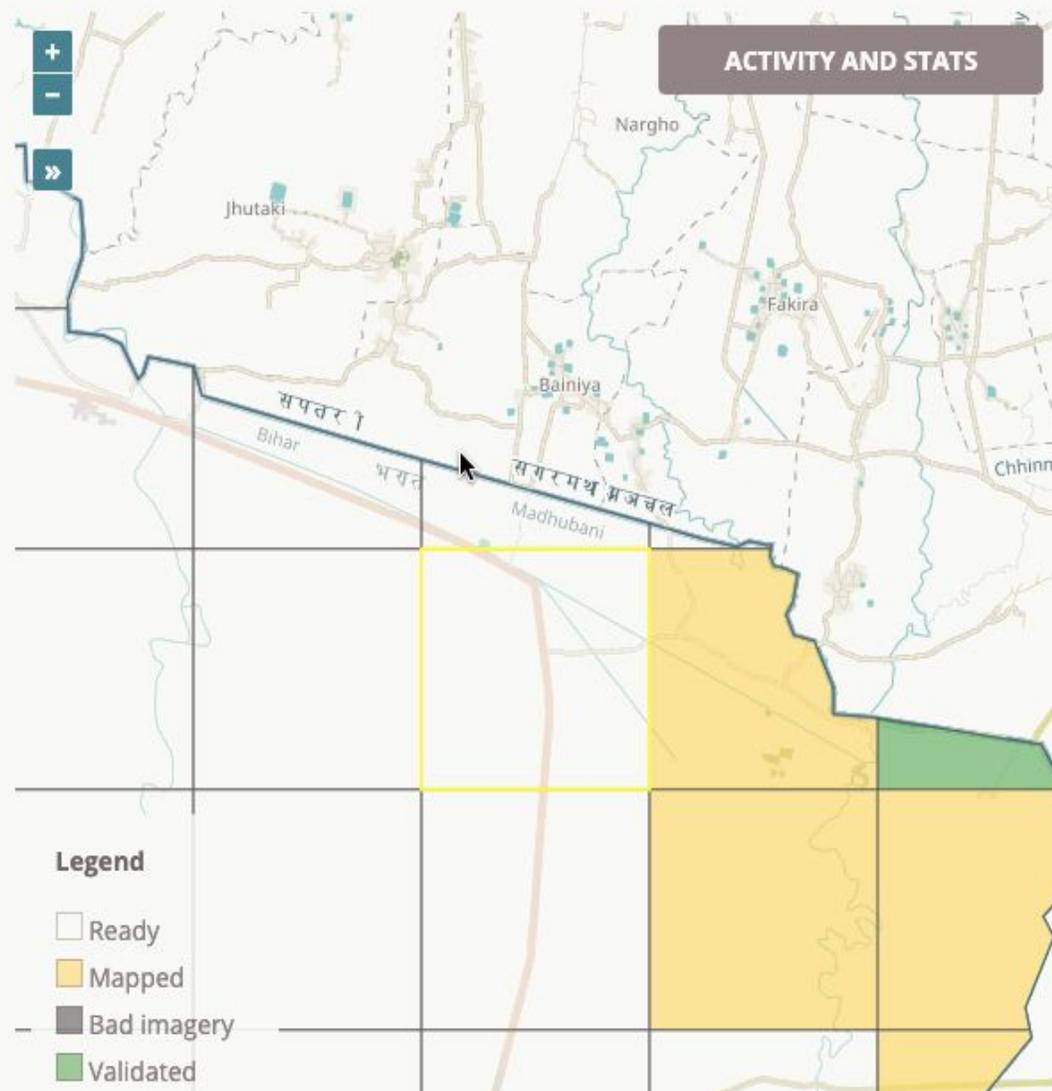
**SELECT ANOTHER TASK**

## 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: [#hotosm.slack.com](https://hotosm.slack.com) *#tasking-manager*

## 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)