

# What is E2E ?

End To End is a data flow between HOT projects.

- Data exchange between projects
- Shareable code modules





# Modularization

- Create standalone python modules that can be shared between projects
- Modules support data exchange between projects
- Modules support the high-level REST APIs





# Module Classes

There are two classes of shareable modules. The primary ones deal with manipulating map data. Data extracts, data conversion, and data imports, etc...

The other class of modules is for the project database. This covers profiles for users, organizations, and OSM Teams, as well as support for projects and tasks.





# Shared Functionality

All Tasking Manager style projects have similar requirements on backend functionality

- Managing profiles for users, organizations, and OSM teams
- Manage projects and tasks
- Split an area into tasks
- Access data from OpenStreetMap
- Login with OAUTH 2.0





# Communication Layer

To have an end to end data flow, projects need to be able to exchange data. To do this gRPC is used, as it'll run under the existing REST APIs.

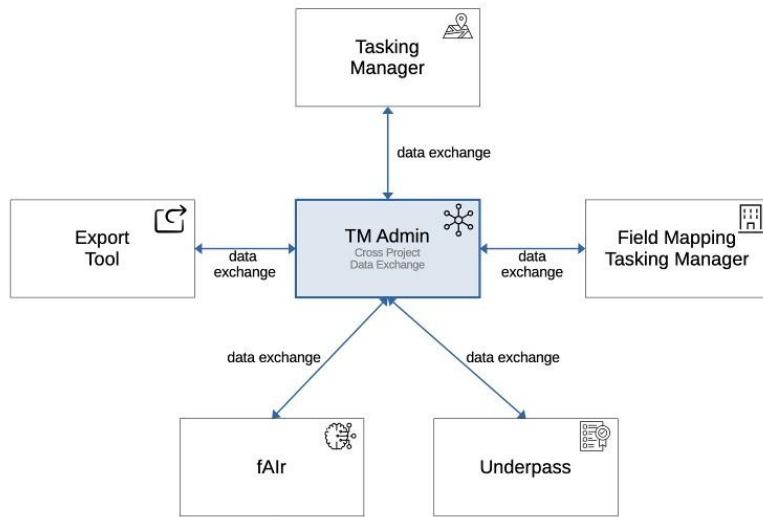
gRPC lets projects exchange complicated data structures to support the REST API currently used by the projects.





# Data Flow

Component View  
E2E Data Integration Layer  
7-Dec-2023 v1.0.0





# Module Projects

The current modules are contained in projects of grouped functionality.

- osm-rawdata
- osm-fieldwork
- conflator
- tm-admin
- osm-login





# OSM Rawdata

- Downloads OSM data extracts from Underpass
- Makes OSM data extracts from a local postgres database
- Imports external datasets into postgres, including Overture maps
- Used by the Field Mapping Tasking Manager





# OSM Fieldwork

- Makes OSM data extracts for ODK Collect
- Converts data from ODK Collect to OSM XML and GeoJson
- Converts data from ODK Central to OSM XML and GeoJson
- Used by the Field Mapping Tasking Manager





# Conflator

- Conflates external datasets with current OSM data
- Can find duplicate buildings
- Can find nearby buildings from a POI
- Used by the Field Mapping Tasking Manager





# TM Admin

- Shared Tasking Manager modules for common functionality
- Manage profiles for users, organizations, tasks, projects, and OSM teams
- Handles all gRPC communication





# Data Exchange

Imagine a data flow where in response to an event, a remote mapping project is started in The Tasking Manager. As critical regions are remotely mapped, that project and those same areas could be sent to the Field Mapping Tasking Manager for ground-truthing.





# Notifications

It will also be possible to send notifications to other projects. For example, a Tasking Manager project may be waiting for imagery to become available from OAM.

Or an field mapping project is waiting for fAIr to process the imagery for buildings.

Or Underpass finds bad geometry while the mapper is still active, so can be notified.





# Resources

- <https://docs.hotsm.org/modules/modules-backend/>
  - There's a list of all the existing modules on the new website for HOT project documentation. It has links to all the project specific documentation.
- <https://www.github.com/hotsm>
  - All of HOT's github repositories

