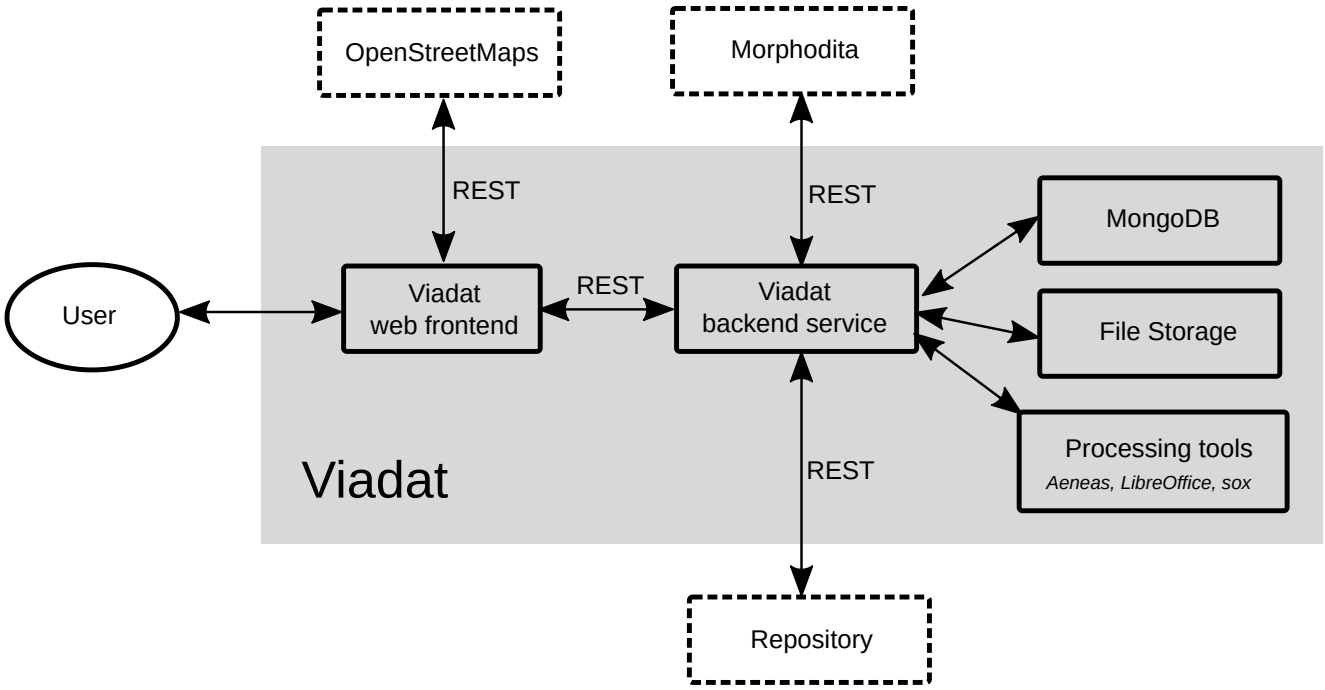
Architecture of VIADAT



Viadat architecture

Viadat is composed of the following components:

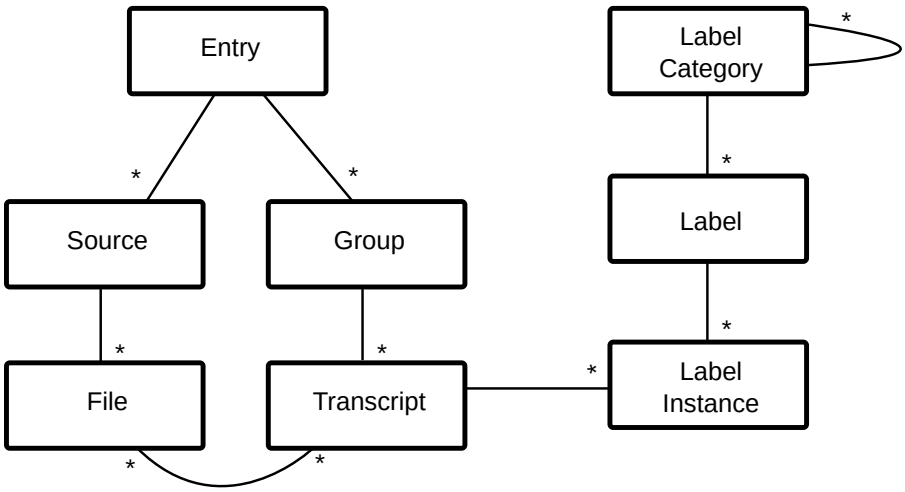
- *Backend service* -- A main component that provides REST API for web front, communications with database and manages uploaded files. It also implements document processing features
- *Web frontend* -- A React application that provides user interface for viadat features. It communicates with backend service via REST API and with OpenStreetMaps.
- *MongoDB* -- Database that stores the state of the application (users, entries, labels) except data files (uploaded files and annotated transcripts).
- *File storage* -- Storage for data files.
- *Processing tools* -- Viadat utilizies several external tools in processing documents:
  - Aeneas for forced alignment
  - LibreOffice for converting document formats
  - sox for audio manipulation

Viadat also communicates with external services:

- *Morphodita* -- http://ufal.mff.cuni.cz/morphodita UFAL service for morphological analysis
- *Repository* --
- *OpenStreetMaps* -- OpenStreetMap for displaying geographic information to users

Database structure

The following figure shows the main entities occuring in Viadat:



Database structure

- *Entry* -- A top-level entity that may contains source data files and annotated transcripts
- *Source* -- A primary sources that are upload by user and is stored untouched within the system. Each Source may one or more files.
- *Transcript* -- A transcript managed by Viadat. It is generated from Source files. They are may be enriched by information from force alignment and may contains label instances.
- *Label category* -- Labels are organized into categories that formes a tree structure. A label category is a node in this tree. A category may contains another categories or labels.
- *Label* -- Labels are entities that are used for anotating transcripts. Usually, it represents a persons, disciplnes, places, and historical events. Label have name and may be connected with geographical point or set aliases.
- *Label instance* -- Label instance is actual occurence of label in transcript.

Source code structure

- *backend/* -- Python backend service
- *backend/audio* -- Processing audio files
- *backend/text* -- Processing text documents
- *web/* -- React frontend
- *tests/* -- Python tests
- *docs/* -- Documentation
- *files/* -- Default location where to store files
- *tools/* -- Helpler utilities