

Research Object Crates

Bundling Research (meta-)data

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Research Object Crate (RO-Crate) is an open, community-driven data package specification to describe all kinds of file-based data, as well as entities outside the package. In order to do so, it uses the widespread JSON format, representing Linked Data (JSON-LD), allowing to link to external information. This makes the format flexible and machine-readable. These packages are referred to as (RO-)crates.

We developed the ro-crate-java library, which allows creating, modifying, and validating crates using the Java programming language. The focus of development was the ease of use: We aimed to make it intuitive and easy to create valid crates, without knowing the specification too well.

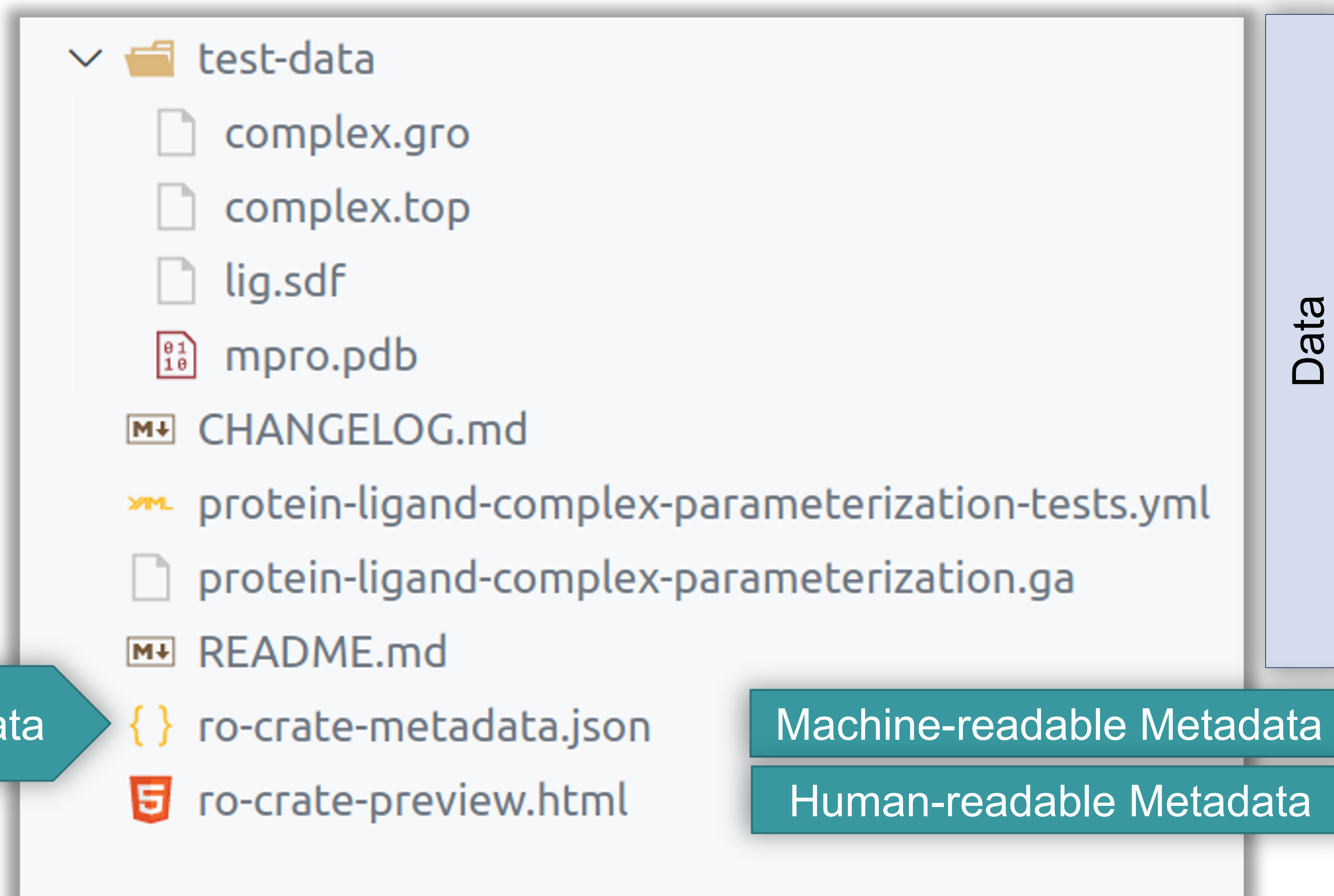
 **The RO-Crate Specification**
<https://www.researchobject.org/>



The ro-crate-java implementation
<https://github.com/kit-data-manager/ro-crate-java>



Example



test-data

- complex.gro
- complex.top
- lig.sdf
- mpro.pdb
- CHANGELOG.md
- protein-ligand-complex-parameterization-tests.yml
- protein-ligand-complex-parameterization.ga
- README.md
- ro-crate-metadata.json
- ro-crate-preview.html

Data

Linked Data

Machine-readable Metadata

Human-readable Metadata

Can also link to external data!

Available implementations and other tools for RO-Crate are listed at <https://www.researchobject.org/ro-crate/tools/>

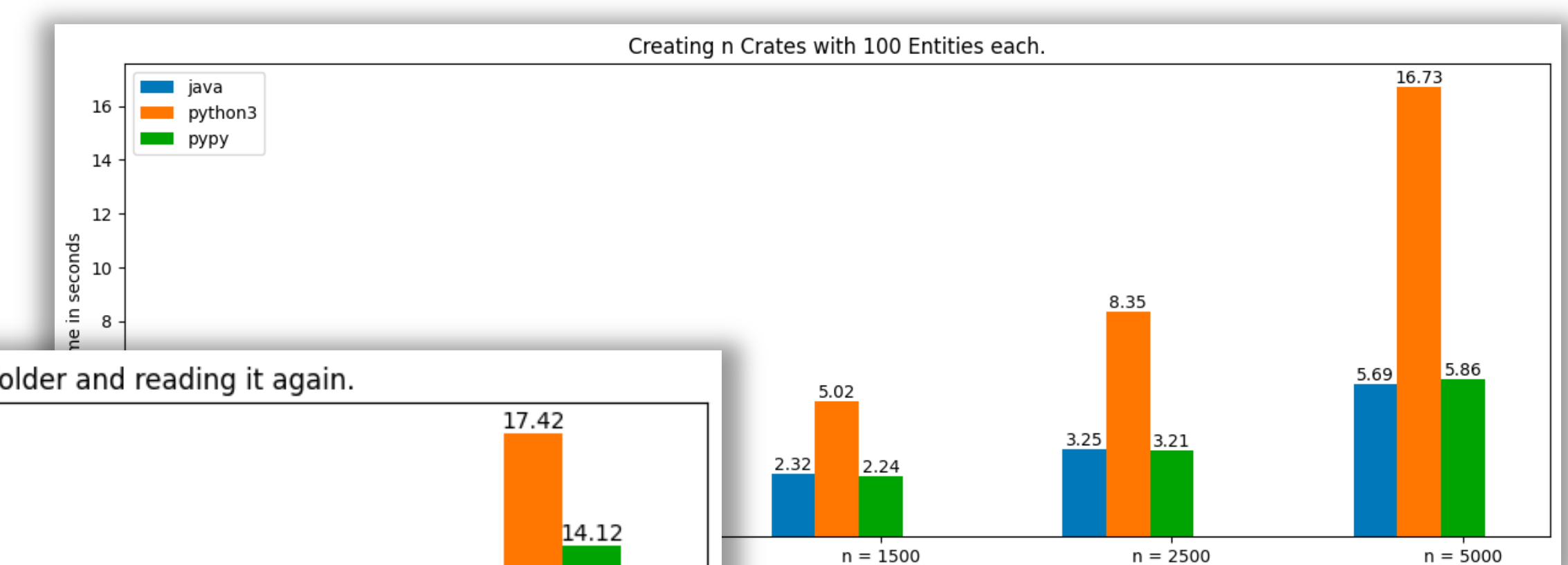
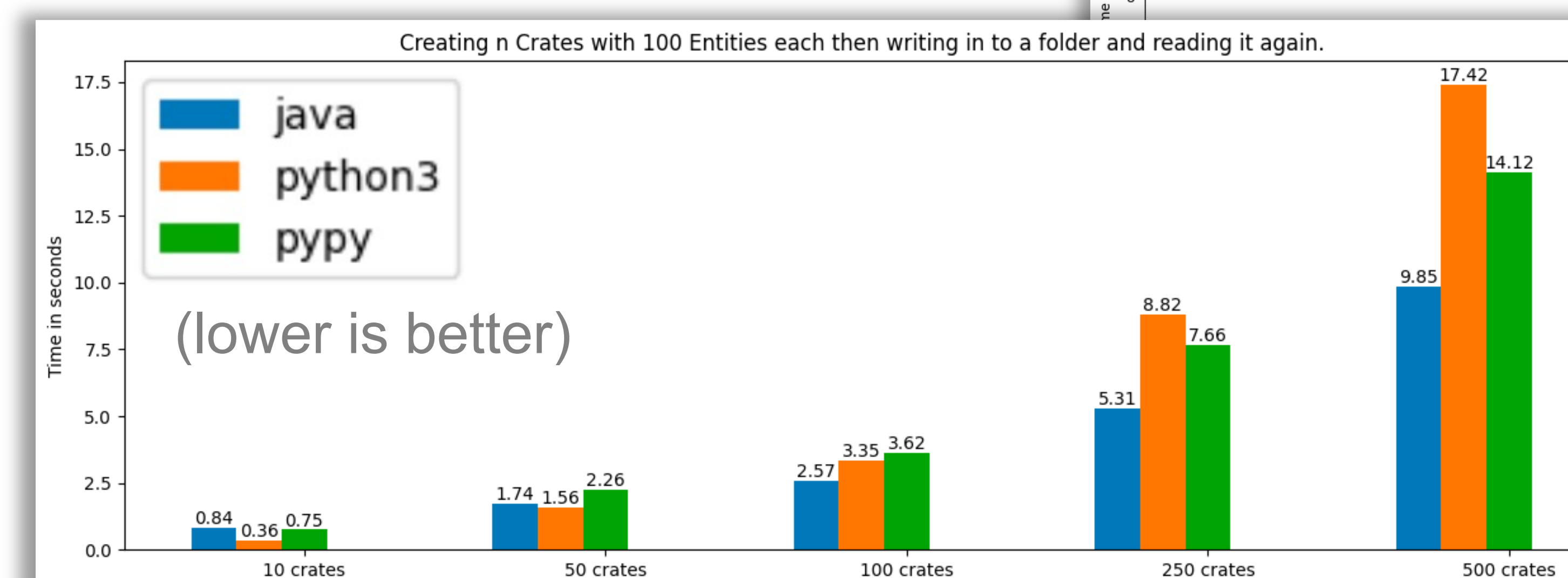
Easy to use
without knowing
the specification

```
PersonEntity person = new PersonEntity.PersonEntityBuilder()
    .setId(id: "https://orcid.org/0000-0001-6575-1022")
    .setContactPoint(contactPoint: "...@...")
    .setAffiliation(organisation: "https://ror.org/03f0f6041")
    .setFamilyName(familyName: "Pfeil")
    .setGivenName(name: "Andreas")
    .addProperty(key: "name", value: "Andreas Pfeil")
    .build();
```

Reuse existing metadata easily
here from ORCID.org

```
PersonEntity person = OrcidProvider.getPerson(url: "https://orcid.org/0000-0001-6575-1022");
```

Comparable performance
to implementations in
other languages



<https://github.com/kit-data-manager/ro-crate-benchmarks>