ESAP executable metadata

Feb 2022

D.Morris University of Edinburgh

Summary of use cases

Type of executable

- Jupyter notebook

- Binder project

- Docker (OCI) container

- Kubernetes deployment

- Openstack deployment

- Science workflow

Summary of use cases

Type of executable

- Jupyter notebook

- Binder project

- Docker (OCI) container

In scope for version #1

- Kubernetes deployment

- Openstack deployment

- Science workflow

We know these exist, but they are out of scope for this version.

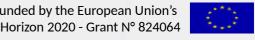Avoid design decisions that will make these harder in the future.

Jupyter notebook

- Jupyter notebook

- ESAP metadata

  - Notebook metadata

    - xxx.ipynb notebook file

  - Compute resources

  - Data resources

Docker (OCI) container

- Docker (OCI) container

- ESAP metadata

  - Container metadata

    - Binary image and/or build description

    - User interface method

    - Network mapping

  - Compute resources

  - Data resources

Binder project

- Binder project

- ESAP metadata

  - Binder metadata

    - Reproducible Execution Environment Specification (REES)

    - xxx.ipynb notebook file

  - Compute resources

  - Data resources

Kubernetes deployment

- Kubernetes deployment

- ESAP metadata

    - Kubernetes metadata

        - Kubectl deployments & Helm charts

    - Compute resources

        - Cluster description

    - Data resources

Openstack deployment

- Openstack deployment

- ESAP metadata

- Openstack metadata

- Machine configuration (Ansible, Terraform etc)

- Compute resources

- Cluster description

- Data resources

Kubernetes deployment

- Science workflow

- ESAP metadata

  - Workflow metadata

    - Workflow description (source code)

  - Execution platform

    - Kubernetes deployment

    - Openstack deployment