# Guidelines to run SoLiDaM application

## 1. Introduction

- **What is SoLiDaM?**
  SoLiDaM is a SoLiD[1] application which is concentrated on Research Data Management, particularly the storing and exposing aspect of the publishing workflow. It is an implemented prototype of the Master Thesis "DECENTRALIZED INTERDISCIPLINARY RESEARCH DATA MANAGEMENT WITH SOLID"[2]. The SoLiDaM application aims to support the Researcher store their research data in a decentralized and interdisciplinary way, and therefore can solve: (1) the issue of data privacy, and (2) improve data exchange and reuse in the interdisciplinary research project.

- **What are the main features of SoLiDaM?**
  - Transfer and manage (add, update, remove) the research data on the SoLiD server.
  - Integrate research data with its metadata
  - Control data access to the research data
  - Data versioning control
  - Exposing data.

## 2. Preparation Step:

Before you can start to use the SoLiDaM application, you need first your own POD[3] (personal online datastores) to store your data. Besides, you also need the WebID[4] to uniquely identify yourself, for authentication and authorization.

You can install your own SoLiD server. However, for smooth, you only need to create your POD from one of the public providers, e.g., solid.community, or inrupt.net. When you register the POD, you will have both POD and WebID. In case you already have your WebID, you can link it to your POD without creating a new WebID.

Besides, we highly recommend using node-solid-server version 4.x.x because the latest version (5.x.x) is under developing and there are some open issues that could cause the errors.

Therefore, for testing purpose, we suggest you use our existing account:

- SoLiD server: https://solid.openlinksw.com:8444/ (SoLiD server version 4.x.x)
- WebID: https://vsr.solid.openlinksw.com:8444/profile/card#me
- Username: vsr
- Password: @vsruser2019!

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[1] https://solid.inrupt.com/
[2] https://vsr.informatik.tu-chemnitz.de/edu/studentprojects/2019/004/
[3] https://solid.inrupt.com/get-a-solid-pod
[4] https://www.w3.org/wiki/WebID

Next, you can now access the SoLiDaM application via this link : https://dangvu1986.github.io/

There are three things you have to do in this step:

1. Log in to your POD with your WebID
- Click the "Login" button
- Enter your WebID and click the "Go" button
      https://vsr.solid.openlinksw.com:8444/profile/card#me
- Enter username (vsr) and password (@vsruser2019!) and click "Log in".
- After you login successfully, you will be redirected back to the following form

## Choose the storage location

Logged in as https://vsr.solid.openlinksw.com:8444/profile/card#me.

LOGOUT

Please enter the directory you want to open below.

Storage Location

https://vsr.solid.openlinksw.com:8444/public/

CANCEL    OPEN DIRECTORY

2. Choose storage Location:
- The "Storage Location" is the root folder to store your research data. For this reason, we highly recommend using the "Public" folder as your root "Storage Location".
https://vsr.solid.openlinksw.com:8444/public

3. Create your own folder for testing:
- Click the "Three Dot" icon in the top-right menu, choose "Add New Folder"

SoLiDaM > public                                    🔍 Search...    ⟳  ⋮

- Named your own folder, for example: vsr. Next, go into this folder.

Add new folder

Container name
vsr

CANCEL    SAVE

## 3. List of Tasks:

**Task 1: Upload and delete your file**

Step 1: Click the "Three Dot" icon in the top-right menu, choose "Upload Research Data"

Step 2: Choose any file to upload it to your POD. Does this file show in the file-list?

Step 3: Right-click to this file, choose "Remove". Does this file disappear in the file-list?
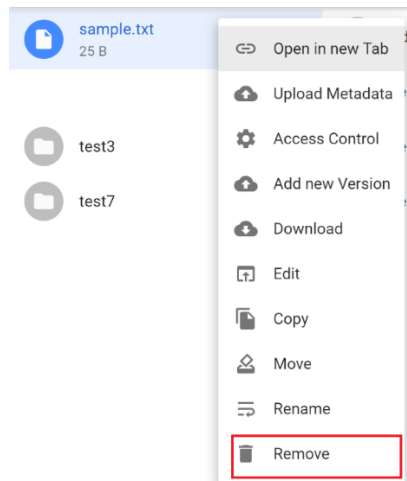


Step 4: Go to "Public" your POD on the SoLiD server to ensure this file is already removed from the server?

For example: https://vsr.solid.openlinksw.com:8444/public/vsr/
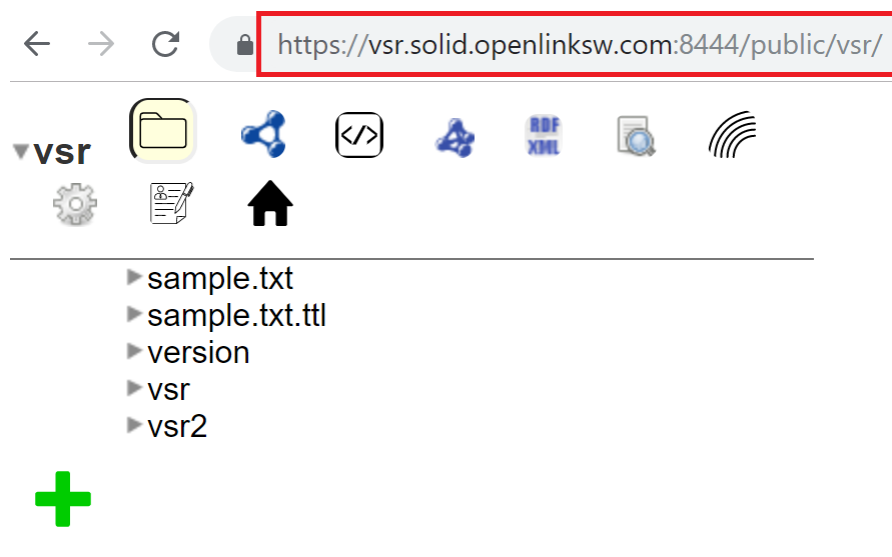
**Task 2: Upload and Link Metadata**

Step 1: Download data "*sample.txt*" from here: https://dangvu1986.github.io/sample/sample.txt

and metadata *"sample.txt.ttl"* from here https://dangvu1986.github.io/sample/sample.txt.ttl

Step 2: Upload sample.txt to your POD

Step 3: Right-click to your sample.txt, choose "Upload Metadata", upload your *"sample.txt.ttl"*
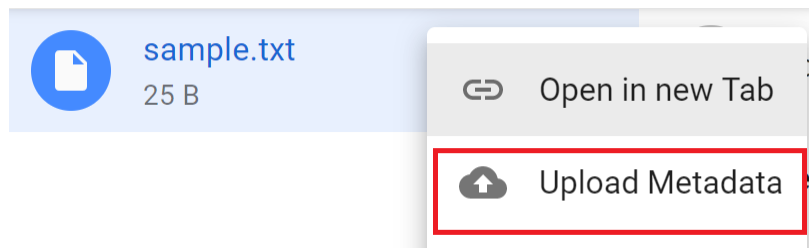


Step 4: Open the *"sample.txt.ttl"* by double click on the application. Does the content change in comparison with the one on your local machine? If yes, are there a field "contentURL" and "URL"?
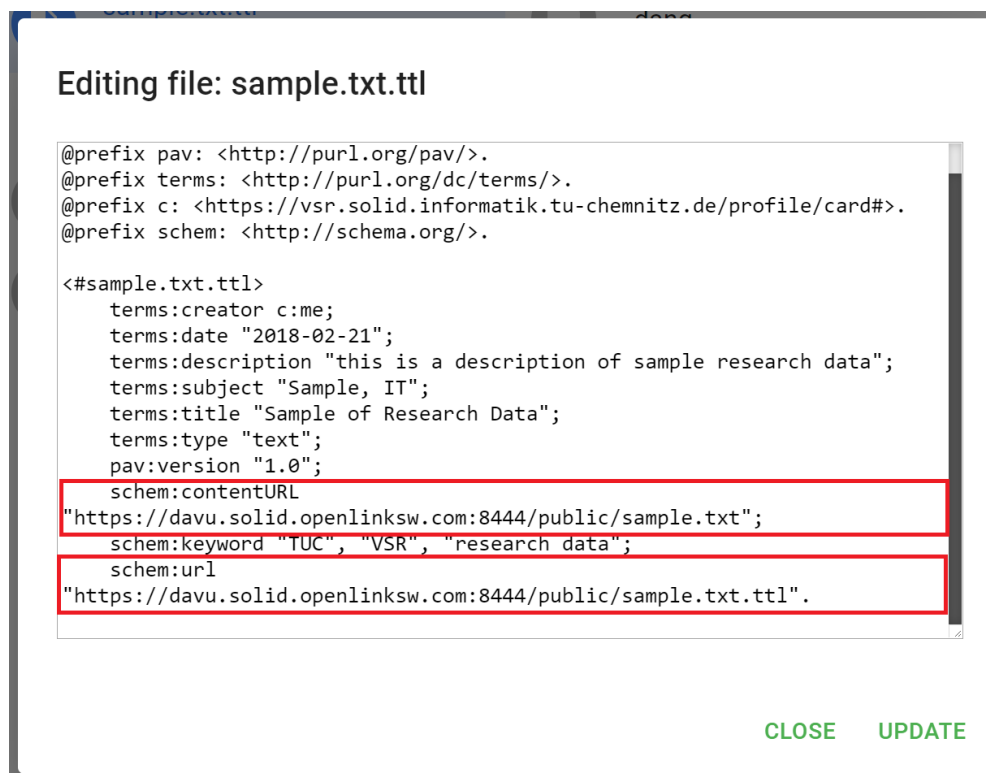
**Task 3: Upload different file types and file size**

Upload several files with different file extension (.txt, .docx, .xlsx, .csv, .jpg, .png, .wmv, .wma) and different file sizes (Byte, Kbyte, Megabyte.)

* Note: there will be an error of "exceeding quota limit" if you upload large file (25MB is a limit disk space on the public servers)

SoLiDaM > public > fileSizesAndFormat

| | | | |
|---|---|---|---|
| .gitlab-ci.yml<br>567 B | .signature.p7s<br>9.47 kB | Antlr.3.5.0.2.nupkg<br>156.22 kB | asset-manifest.json<br>967 B |
| baolixigiare.dll.config<br>5.43 kB | bio.flv<br>0 B | bioinformatics.gif<br>17.45 kB | data.docx<br>0 B |
| data.rar<br>113.47 mB | data.xlsx<br>6.19 kB | ErrorController.cs<br>394 B | favicon.ico<br>3.87 kB |
| GenerateRefreshToken.csproj<br>4.23 kB | GenerateRefreshToken.sln<br>1.14 kB | Global.asax<br>104 B | Global.asax.cs<br>505 B |
| glyphicons-halflings.eot<br>20.13 kB | glyphicons.ttf<br>45.4 kB | Google.Apis.xml<br>90.7 kB | index.html<br>2.53 kB |
| init.ps1<br>10.03 kB | install.ps1<br>10.14 kB | logo.png<br>8.5 kB | main-qimg.webp<br>7.14 kB |
| manage.py<br>542 B | PiVAT.svg<br>218.74 kB | Pologbb3.jpg<br>114.4 kB | README.md<br>44 B |
| research-data-image.jpg<br>142.21 kB | rtd.rtf<br>7 B | sample.wmv<br>9.72 mB | sample.zip<br>1.96 kB |
| service-worker.js<br>1.04 kB | slick.css<br>1.9 kB | text_data.txt<br>138 B | video1.mp4<br>11.9 mB |

**Task 4: Access Control**

Step 1: Current, the sample.txt is only accessed by the owner. Right-click on the file, the access control form is shown similarly to the following Figure



Access Control to https://davu.solid.openlinksw.com:8444/public/sample.txt

| Group | Agent | Mode | | | | Action |
|---|---|---|---|---|---|---|
| ☐ | https://davu.solid.openlinksw.com:8444/profile/card#me | ✅ Read | ✅ Write | ✅ Append | ✅ Control | 🗑 |
| ☐ | Input agent webID | ☐ Read | ☐ Write | ☐ Append | ☐ Control | ➕ |

CANCEL     SAVE

Open another browser (to ensure that you are anonymous/public user), can you access the content of the file? Or do you get an accessing error message?

Step 2: Now, we set the access control to everyone (public mode) by add group http://xmlns.com/foaf/0.1/Agent with the Read permission. The form will be similar to the following Figure. Try to access again, do you get the content of this file?

Access Control to https://davu.solid.openlinksw.com:8444/public/sample.txt

| Group | Agent | Mode | | | | Action |
|---|---|---|---|---|---|---|
| ☐ | https://davu.solid.openlinksw.com:8444/profile/card#me | ✅ Read | ✅ Write | ✅ Append | ✅ Control | 🗑 |
| ✅ | http://xmlns.com/foaf/0.1/Agent | ✅ Read | ☐ Write | ☐ Append | ☐ Control | 🗑 |
| ☐ | Input agent webID | ☐ Read | ☐ Write | ☐ Append | ☐ Control | ➕ |

CANCEL     SAVE

## Task 5: Data versioning control

Step 1: Download version 2 of the "sample.txt" from:

https://dangvu1986.github.io/sample/v2/sample.txt


Step 2: Go to the SoLiDaM app, right-click to the "sample.txt" file, choose "Add new version"


Step 3: fill-up the form with the new version, choose the file on your local computer and upload it to the server.

**Add New Version**

Current Version
1.0

New version
2.0

Choose Files  sample.txt          **CLEAR**

📄      sample.txt (25 B)


Step 4: Do you see the "Version" is created, and the subfolder "1.0"? Is there a file named "sample.txt.old" locates in this subfolder? Does the new file "sample.txt" upload to the public folder? Does the content of the metadata "sample.txt.ttl" change (version, hasPrevVersion)?

**SoLiDaM > public > version > 1.0**

📄  sample.txt.old
    25 B

### Editing file: sample.txt.ttl

```
    terms:date "2018-02-21";
    terms:description "this is a description of sample research data";
    terms:subject "Sample, IT";
    terms:title "Sample of Research Data";
    terms:type "text";
    pav:hasEarlierVersion <version/1.0/sample.txt.old>;
    pav:version "2.0";
    schem:contentURL
"https://davu.solid.openlinksw.com:8444/public/sample.txt";
    schem:keyword "TUC", "VSR", "research data";
    schem:url
"https://davu.solid.openlinksw.com:8444/public/sample.txt.ttl".

<version/1.0/sample.txt.old>
    pav:hasVersion "1.0";
    schem:url
"https://davu.solid.openlinksw.com:8444/public/version/1.0/sample.txt.old"
    .
```

## Task 6: Data exposing

Step 1:  Right-click to the "sample.txt.ttl", choose "Expose MetaData". Fill any keywords you want to the textbox and click "Expose".

### Expose Metadata

https://davu.solid.openlinksw.com:8444/public/sample.txt.ttl
Keyword
TUC, Sample, Test
Discipline
Sample, IT

CLOSE    EXPOSE

Step 2: Go to https://davu.solid.community/public/registry/index.ttl

Do you see the link of the "sample.txt.ttl" is stored there with your keywords, discipline?

▼**index.ttl**

| sample.txt.ttl | subject | Sample, IT |
|---|---|---|
| | type | Metadata |
| | keyword | TUC |
| | url | sample.txt.ttl |
| research data.txt.ttl | identifier | research data.txt.ttl |
| | subject | Biology, Statistic, Bioinformatics |
| | type | Metadata |
| | keyword | TUC, VSR, bioinformatic, research data |
| research data2.txt.ttl | identifier | research data2.txt.ttl |
| | subject | Biology, Information Engineering, Bioinformatics |
| | type | Metadata |
| | keyword | TUC, VSR, bioinformatic, research data 2 |