NFDI4BioImage
TA3 Hackathon @ UoC

3D Slicer / Neuroglancer (+OMEROzarr)

Torsten Stöter & Julia Thönnißen (Josh Moore)
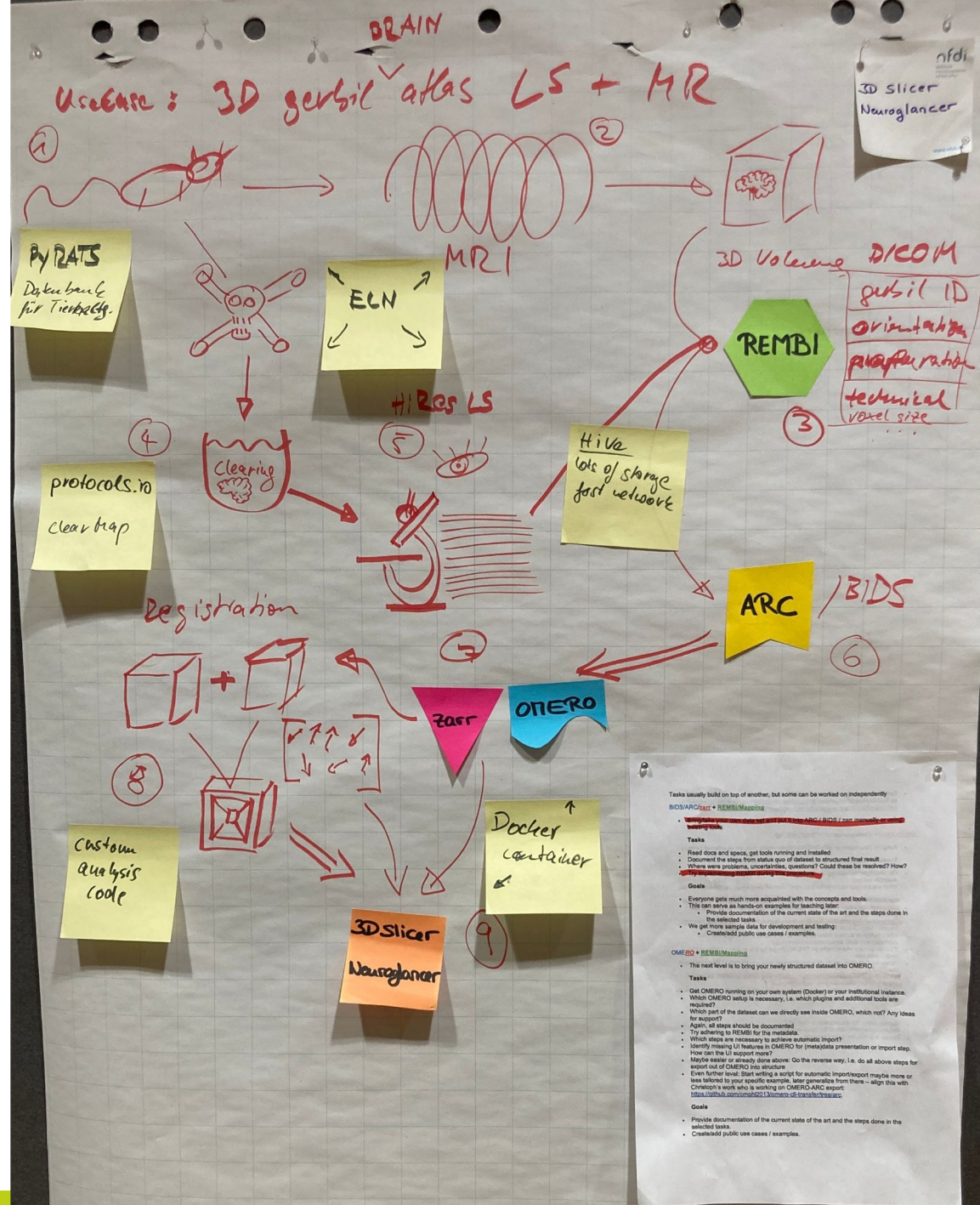
Workflow

Use case
- 3D gerbil brain atlas

Modalities
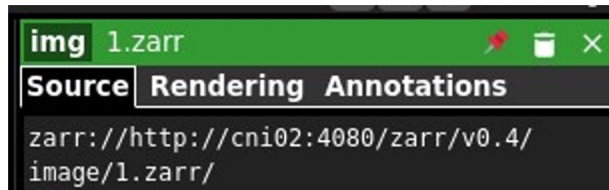- Lightsheet (LS)
- Magnetic Resonance Imaging (MRI)

Goal
- Visualize LS and MRI in neuroglancer

Setup

1. Install and start OMERO + omero-web-zarr
2. Install and start neuroglancer
3. Upload an example image to OMERO
4. Enter zarr URL as source in neuroglancer

Challenges

1. **Make dataset public**

```
CONFIG_omero_web_public_enabled: true
CONFIG_omero_web_public_user: user-1
CONFIG_omero_web_public_password: 'ome'
CONFIG_omero_web_public_url__filter: '/*'
```

Challenges

1. Make dataset public
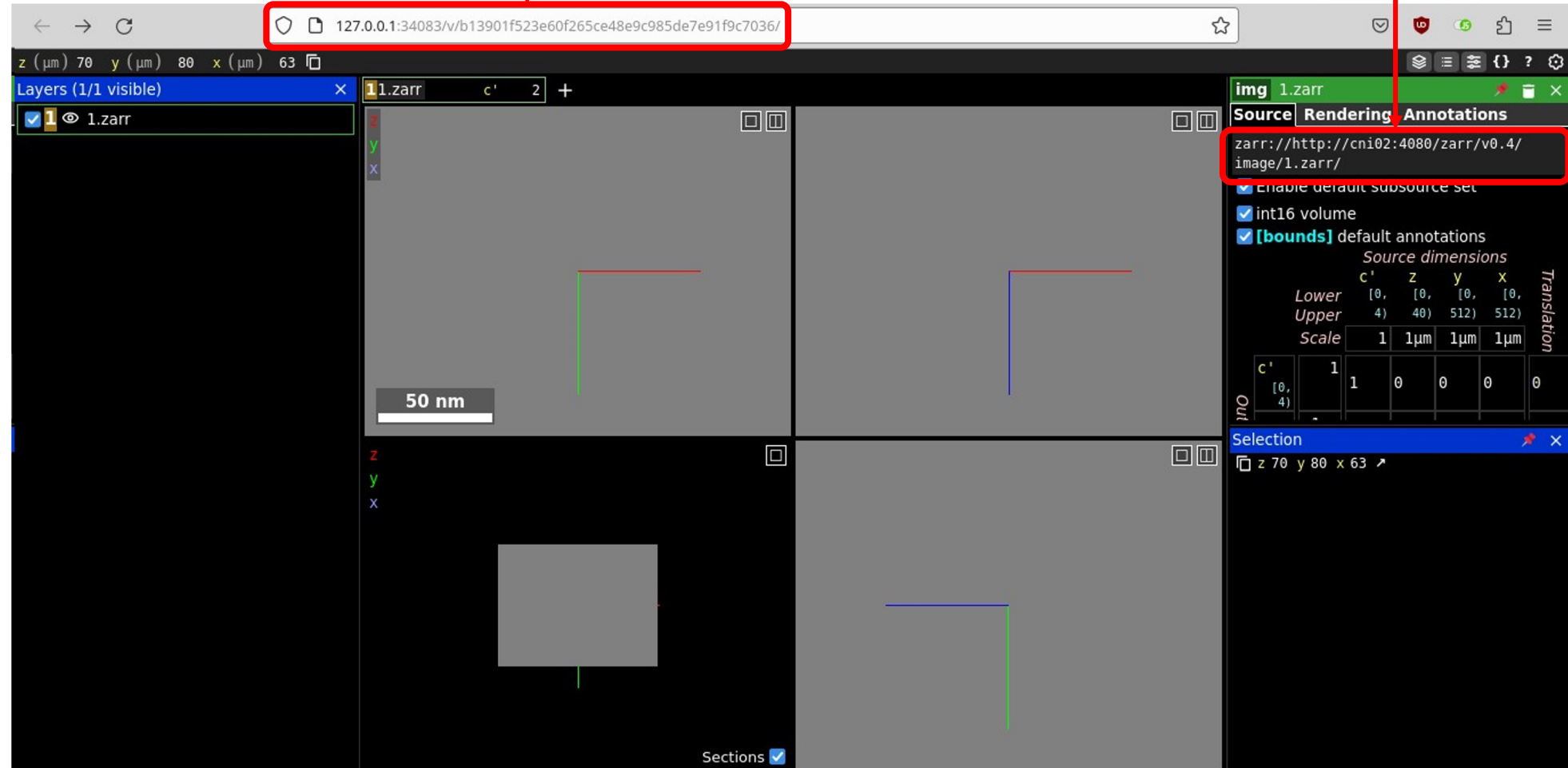2. **Cross-Origin Resource Sharing (CORS)**

```
CONFIG_omero_web_public_enabled: true
CONFIG_omero_web_public_user: user-1
CONFIG_omero_web_public_password: 'ome'
CONFIG_omero_web_public_url__filter: '/*'
CONFIG_omero_web_apps: '["omero_figure", "omero_iviewer", "omero_mapr", "omero_parade", "omero_web_zarr", "corsheaders"]'
CONFIG_omero_web_middleware: '[{"index": 1, "class": "django.middleware.common.BrokenLinkEmailsMiddleware"}, {"index": 2,
CONFIG_omero_web_cors__origin__allow__all: true
```

Challenges

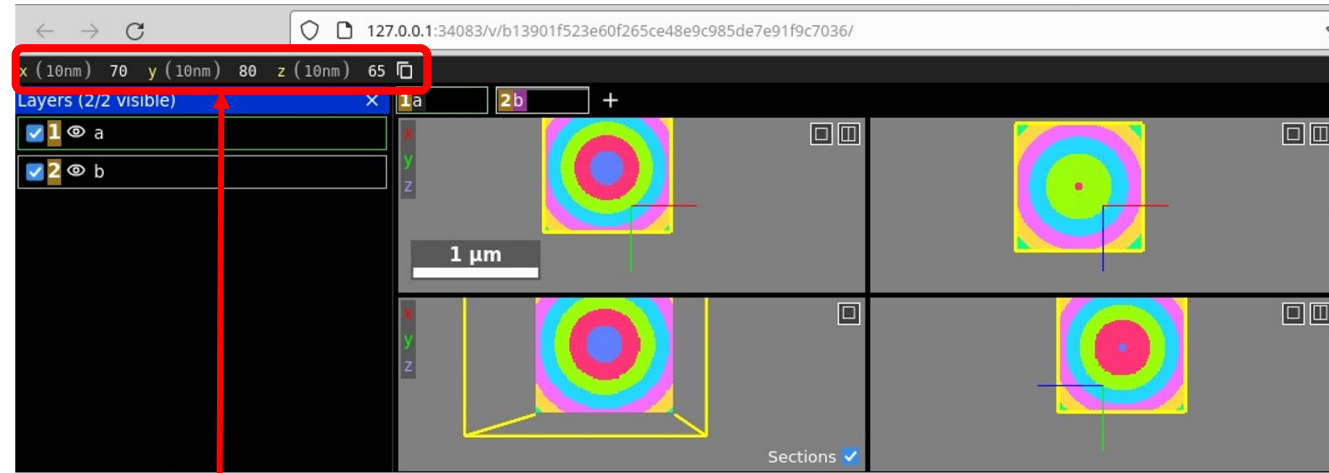1. Make dataset public
2. CORS
3. **http vs. https**

local neuroglancer on http

OMERO on http

Challenges

1. Make dataset public
2. CORS
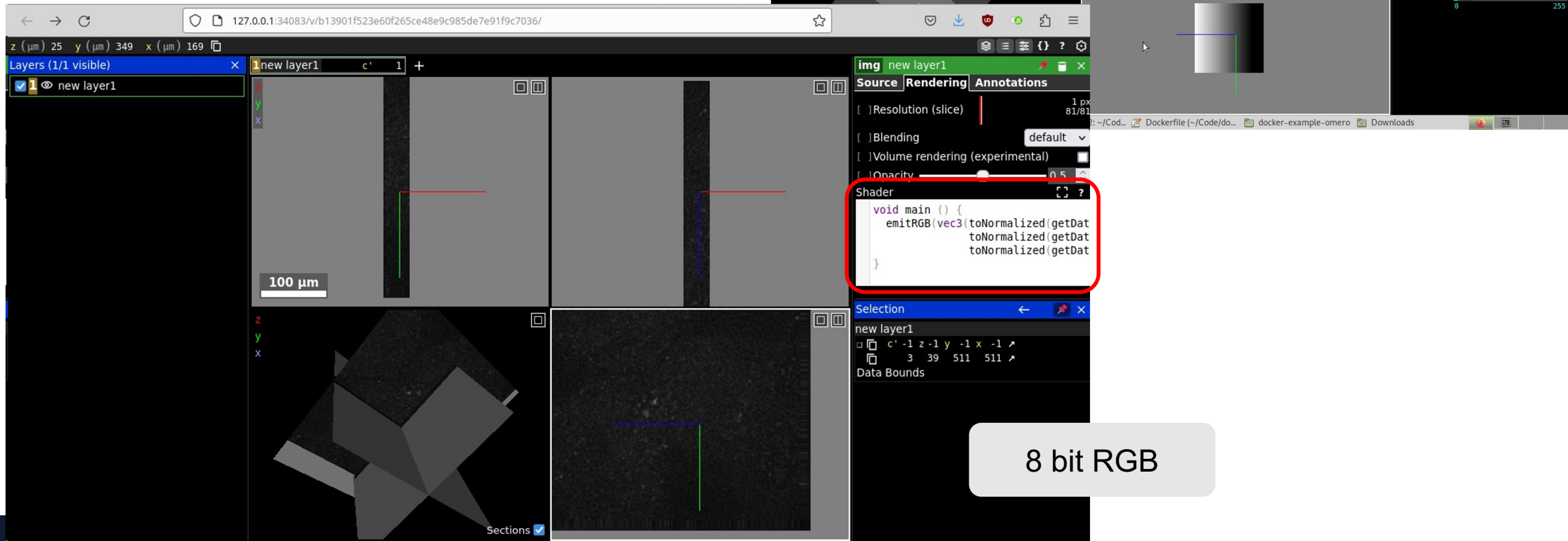3. http vs. https
4. **Viewer position**

Viewer position does not align automatically to new image
→ adjust manually or directly start neuroglancer with zarr source

Challenges

1. Make dataset public
2. CORS
3. http vs. https
4. Viewer position
5. **16 bit signed integer + Shader**

8 bit grayscale

8 bit RGB

Outlook

- Next steps are to get a production ready installation
- Automate starting the Neuroglancer web server for any image ID
- Improve shaders for 16bit and multi channel images and include sliders (documented in tutorial)
- Add an "Open in Neuroglancer" button or context menu to images in OMERO
- Test the reverse proxy approach, are logins and cookies preserved?
- Compile a separate OMERO plugin for the Neuroglancer integration