Brookhaven National Laboratory

U.S. DEPARTMENT OF ENERGY

NNDC Web Services 2024

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January 2024

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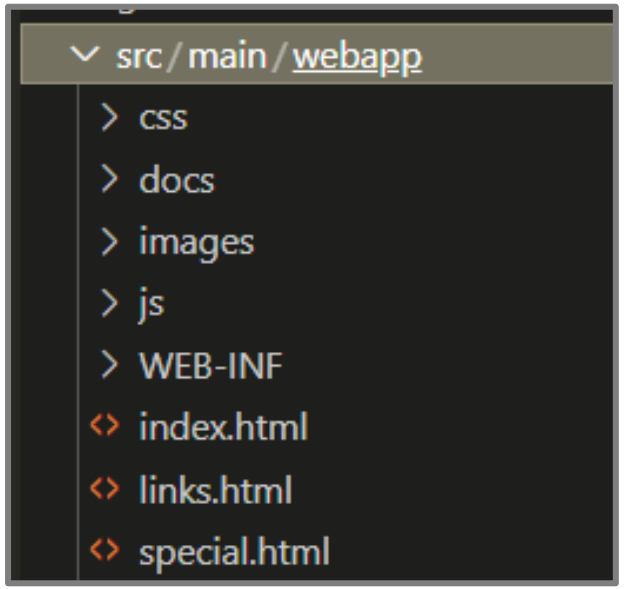
At A Glance

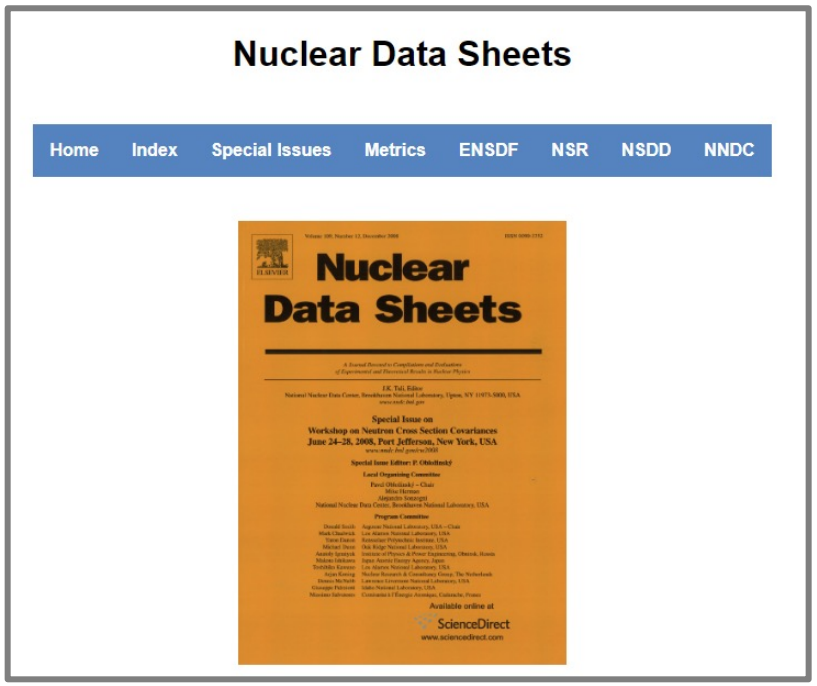
The NNDC maintains ~49 web applications

- Each “web app” dedicated to one subject/use
  - Static Content: 28
  - Utilities/Calculators: 7
  - Database Access: 14
- Source code version-controlled in NNDC GitLab
- Each web app hosted in its own Docker container

Web Apps – Simple

For static content, only HTML/CSS and JS required

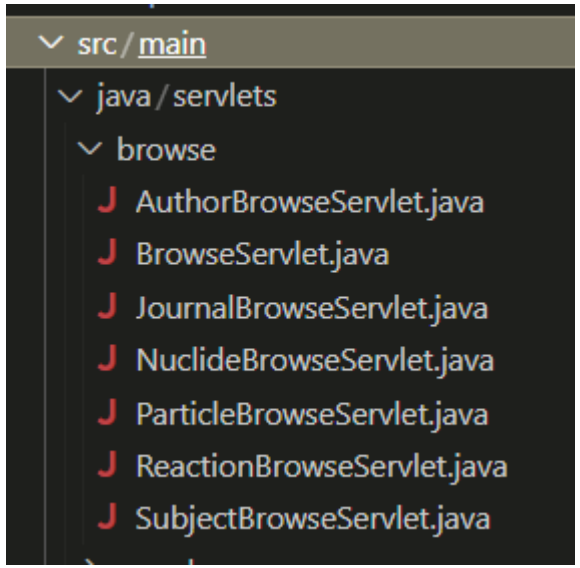


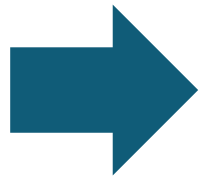


Web Apps – Complex

Java servlets used for calculations/database access

- Gradle used to compress code into **.war** archives





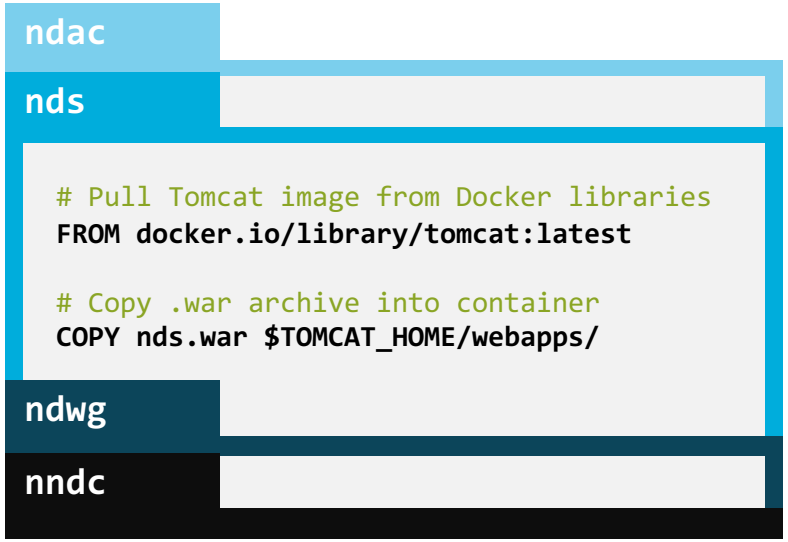
```
[bshu@development3 nsr-dev]$ jar tf build/libs/nsr-dev.war
META-INF/
META-INF/MANIFEST.MF
WEB-INF/
WEB-INF/classes/
WEB-INF/classes/servlets/
WEB-INF/classes/servlets/browse/
WEB-INF/classes/servlets/browse/AuthorBrowseServlet.class
WEB-INF/classes/servlets/browse/BrowseServlet.class
WEB-INF/classes/servlets/browse/JournalBrowseServlet.class
WEB-INF/classes/servlets/browse/NuclideBrowseServlet.class
WEB-INF/classes/servlets/browse/ParticleBrowseServlet.class
WEB-INF/classes/servlets/browse/ReactionBrowseServlet.class
WEB-INF/classes/servlets/browse/SubjectBrowseServlet.class
```

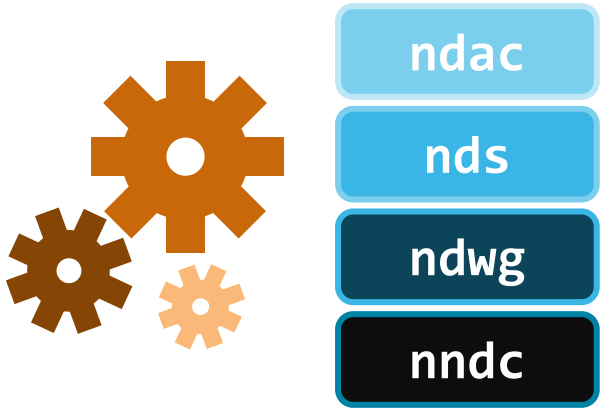
Docker Containers

Each webapp deployed in an Apache Tomcat environment

- **.war** archives copied and unpacked into container

Instructions for container assembly contained in each app's **Dockerfile**



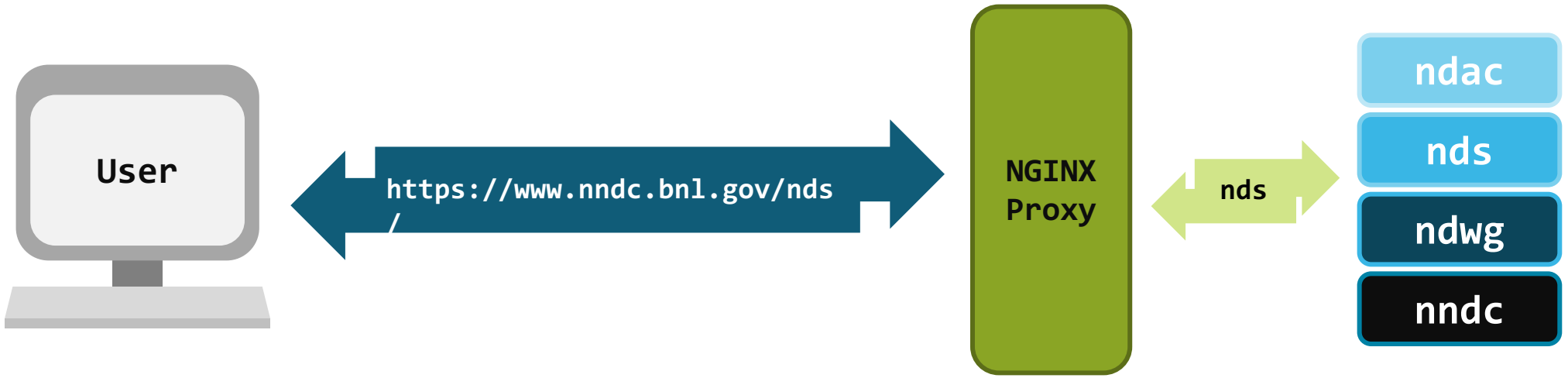


Container images saved for use in **docker-compose.**

Docker Compose

Web app containers organized/deployed under a single project

- User traffic received by NGINX proxy container
- Requests then forwarded to corresponding web application



Deployment Pipeline

- Change code
- Re-compile web app
- Commit to NNDC GitLab
- Re-build, re-deploy Docker containers