NDS: Running Dataverse 4.2.3 as Docker containers

NDS is exploring deploying data management tools under Docker (and eventually Kubernetes). We have a preliminary Docker-based installation of Dataverse 4.2.3 that includes both TwoRavens and now iRODS support, based on feedback from Odum.

The docker image files have been moved to a new repo:
https://github.com/nds-org/ndslabs-dataverse

Overview
We've broken the installation out into six separate containers:
- Dataverse webapp/Glassfish: CentOS 7 base with Glassfish, dataverse.war and dependencies.
- R/Rserve: CentOS 7 base with all dependent packages.
- Solr 4.6.0: CentOS 7 base with Solr 4.6.0 and Dataverse schema.xml
- TwoRavens: Above R/Rserve base with Apache, rApache, and TwoRavens
- Postgres 9.3 (official image)
- iRODS 4.1.3: iRODS iCAT base image with custom bitcurator and archive rules provided by Odum/RENCI.

The images contain basic installed software. Any configuration that requires linking to other services (e.g., Solr, Rserve, Postgres) are run during container creation through entrypoint.sh.

Observations
Things went generally smoothly, but changes were required:
- The current install scripts for both Dataverse and TwoRavens require human input and combine installation and configuration tasks.
- Both scripts were heavily modified to run silently (relying on environment variables).
- Installation tasks were moved to the Dockerfiles, where possible.
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Questions/problems
- eclipselink.ddl-generation: In the container environment, containers can easily be brought up and down. The current persistence.xml seems to default to "create-tables" when the webapp is deployed. If a container is restarted, resulting in redeployment of the webapp, the system fails during table creation. We've temporarily worked around this by including a different persistence.xml if we know the database has already been initialized. It's quite possible that I've misunderstood the ORM here and there's an easy solution.
- Is there a dependency on Solr 4.6.0, or will any Solr work?