

Using iRODS in Sugar deployments

Tony Anderson
Volunteer, OLPC + Sugar Labs

Kigali (Rwanda) Public Library



http://schoolserver





The screenshot shows a web browser window with the address bar displaying `http://schoolserver/xs-|`. The browser's toolbar includes icons for back, forward, home, search, and other standard functions. The website's header is a bright green bar with the text **iRODS UGM 2017**. Below the header, the page features a grid of 12 resource tiles, each with a logo, title, and description. The tiles are arranged in three rows and four columns. The background of the page is orange. At the bottom of the page, a green bar contains the text `cc-by-nc unless otherwise noted`.

























| iRODS UGM 2017 | | | |
|---|---|---|--|
| Khan Academy Lite Help with Mathematics | PhET Activities in science and mathematics | Open Street Maps Global map with 14 levels of zoom | World Literature Ebooks Annotated guide to Project Gutenberg |
| Wikipedia Full English Encyclopedia with pictures | Sugar Activities Full library of Sugar activities | Santa Monica Content for Santa Monica High School workshops | E-Paath Activities in science and English from OLE Nepal |
| Learn English Kids British Council interactive | Wiktionary Full Dictionary | Library Library Page | Resources Resources.page |




cc-by-nc unless otherwise noted



Journal View

  Anything  Anytime 

| | | | |
|--------------------------|---|--|--|
| <input type="checkbox"/> |  |  Music Keyboard Activity | Seconds ago  |
| <input type="checkbox"/> |  |  TamTamMini Activity | Seconds ago  |
| <input type="checkbox"/> |  |  Speak Activity | Seconds ago  |
| <input type="checkbox"/> |  |  make a square | 5 minutes ago  |
| <input type="checkbox"/> |  |  Record Activity | 8 minutes ago  |
| <input type="checkbox"/> |  |  selfie | 8 minutes ago  |
| <input type="checkbox"/> |  |  party | 10 minutes ago  |
| <input type="checkbox"/> |  |  square | 10 minutes ago  |

Problem

- All user's work is stored in Journal
- When unused storage is $< 50\text{MB}$, user reinstalls software to regain working storage
- And erases the Journal!

School Server

- Provides large storage capacity (1TB)
- Makes content from internet available locally
- XO laptops connect to LAN via WiFi

Proposed Solution

- Use iRODS to maintain archive of Journal on school server
- Journal object is metadata record plus optional data file
- IRODS is natural to save metadata and data file
- On connection to school server, archive.py script uploads new Journal objects to school server
- User keeps full Journal record on school server but can select data files to keep or to erase from local store
- If laptop is replaced or software is re-installed, user can restore Journal from school server

Installation

- School server installation from BERNIE – a 1TB external hard drive
- Bash script Installs iRODS on school server from BERNIE
- Must be possible without internet access

```
#!/bin/bash
#first setup db
su -c 'psql -f xc7-irods/cmds' postgres
#install irods
rpm -ivf authd-1.4.3-42.el7.x86_64.rpm
rpm -ivf postgresql-odbc-09.03.0100-2.el7.x86_64.rpm
rpm -ivf python-jsonschema-2.3.0-1.el7.noarch.rpm
rpm -ivf fuse-libs-2.9.2-7.el7.x86_64.rpm
rpm -ivf irods-icat-4.1.9-centos7-x86_64.rpm
rpm -ivf irods-database-plugin-postgres-1.10-centos7-x86_64.rpm
rpm -ivf perl-common-sense-3.0-1.el6.rf.x86_64.rpm
rpm -ivf perl-JSON-2.59-2.el7.noarch.rpm
rpm -ivf perl-Types-Serialiser-1.0-1.el7.noarch.rpm
rpm -ivf python-psutil-2.2.1-1.el7.x86_64.rpm
rpm -ivf python-requests-2.6.0-1.el7_1.noarch.rpm
rpm -ivf python-urllib3-1.10.2-2.el7_1.noarch.rpm
tar -xzf functools32-3.2.3-2.tar.gz
cd functools32-3.2.3-2
python setup.py install
cd ../
tar -xzf vcversioner-2.16.0.0.tar.gz
cd vcversioner-2.16.0.0
python setup.py install
cd ../
tar -xzf ordereddict-1.1.tar.gz
cd ordereddict-1.1
python setup.py install
```

cmds

```
DROP DATABASE ICAT;
```

```
CREATE DATABASE ICAT WITH ENCODING  
'UTF8' TEMPLATE template0;
```

```
CREATE USER irods WITH PASSWORD  
'irodsadmin';
```

```
GRANT ALL PRIVILEGES ON DATABASE  
ICAT TO irods;
```

Archive.py

- Browser (WebKit) runs archive.py upon connection with school server
- Script registers user (if needed)
- Each object in Journal (datastore class) is examined.

Logic

- If 'keep': if no local copy, download data file
- Else: delete local copy
- If object is new: upload metadata and data file

Registration

- IRODS Vault is /library/users
- New user identified by laptop serial number (one child per laptop)
- Admin user is 'olpc' (no authentication!)
- Archive.py attempts to register user – if fails, continue with archive logic