

FolderShare web services access from the command line

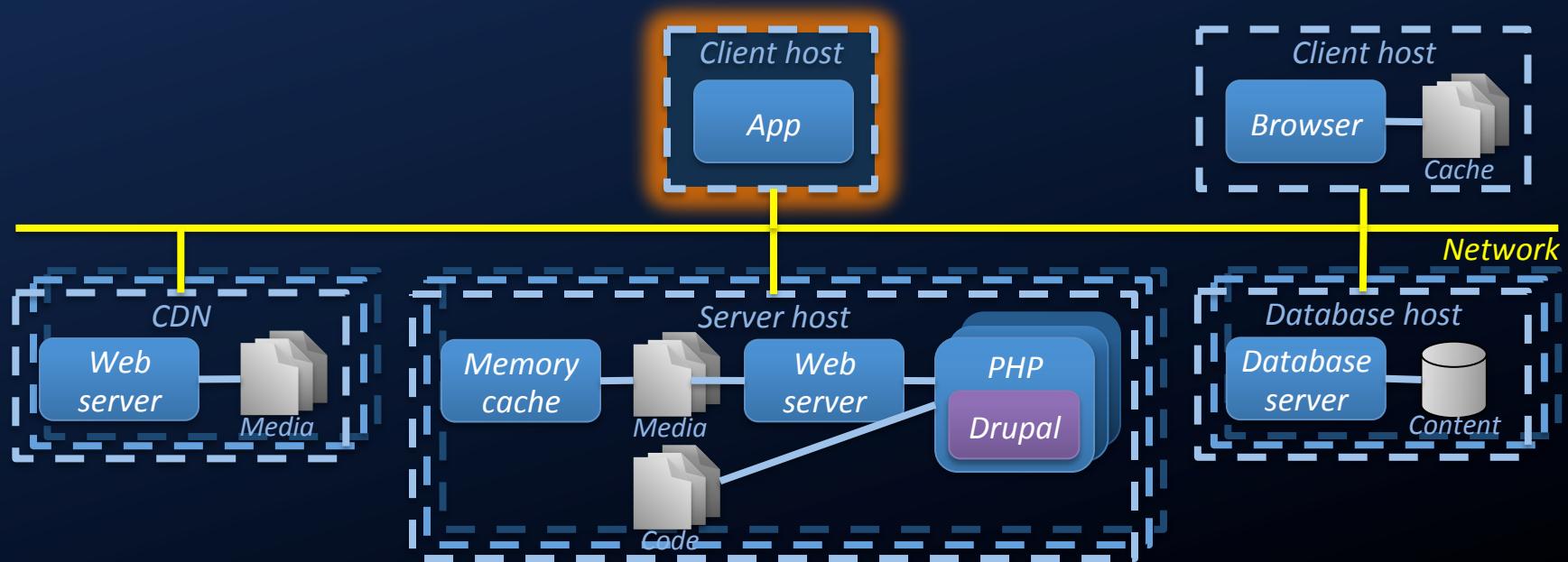
(For power users)

Foldershare command line

- Goals of this talk
 - Explain web services (and REST)
 - Illustrate use from the command line
 - Brief hands-on
- We'll only cover basics
- After workshop, try on your own
 - Download foldershare client from help page
 - If needed, install php cli as noted in help page

Web services

- A *web service* is
 - A way for an application to talk to a web server
 - Mobile apps, desktop applications, other servers, ...
 - Supports creating, deleting, and changing remote content

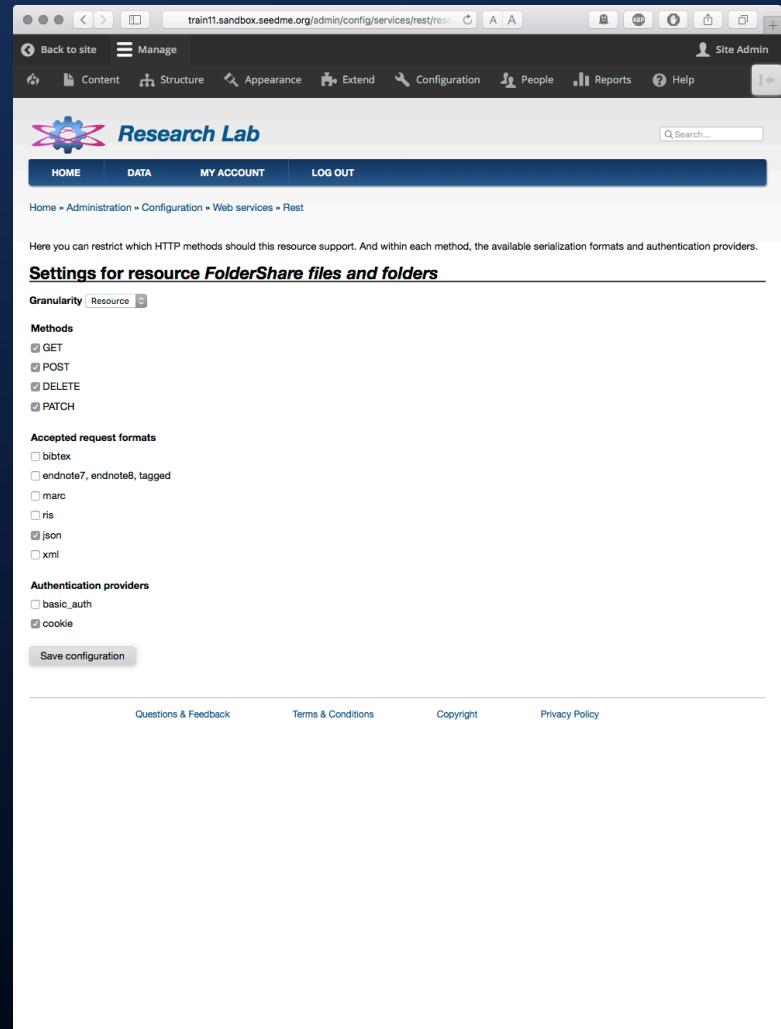


Web services

- REST is
 - *Representational State Transfer*
 - A common structure for web services
 - What every browser uses to get pages
- Drupal core supports REST web services
 - REST module provides services
 - REST UI extension module provides UI to control plugins
 - Communicates on server's port (usually 80)

Web services

- Foldershare REST plugin
 - Enabled by default
 - Methods
 - GET content (required)
 - DELETE content (optional)
 - POST new content (optional)
 - PATCH content (optional)
 - Formats
 - JSON (required)
 - Authentication
 - Cookie (required)
 - Basic auth (optional)



Web services

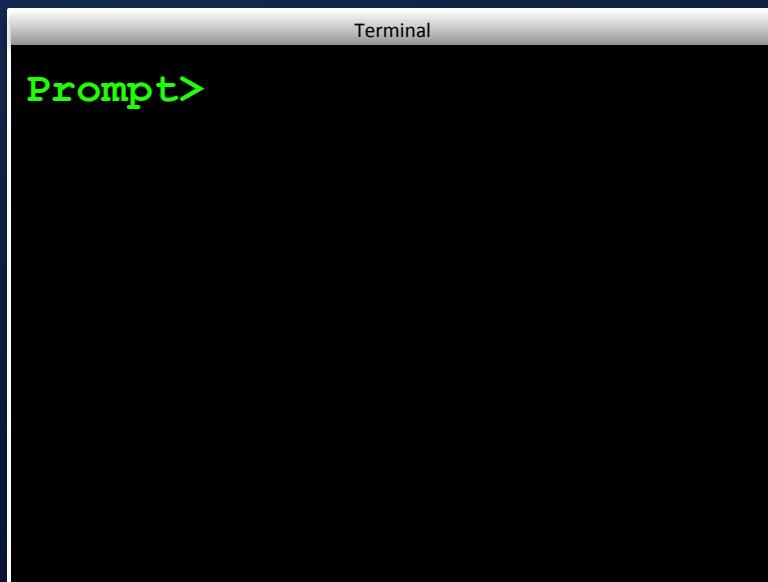
- Write your own clients
 - Curl application, curl library, or equivalents
 - Possible, but awkward
- Foldershare provides a client API
 - Nicer way to write clients
 - Uses curl library from PHP
- Foldershare provides a command-line tool
 - Uses client API
 - For interactive use or shell scripts

Web services

- Provided in the module source distribution
 - Module for Drupal
 - PHP client API
 - PHP client
-  *Download from help page*

Hands-on setup

- Open a terminal window
- Keep a browser window at hand
 - As you make changes in one window...
you can see results in the other



A screenshot of a web browser window displaying a file management interface. The address bar shows the URL "train11.sandbox.seedme.org/foldershare/personal". The page title is "Research Lab". The main content area is titled "Personal folders" and lists two items:

Name	Modified	Owner	Size
Miscellaneous images	Thu, 08/23/2018 - 14:07	Site Admin	247.17 KB
Sample data	Thu, 08/16/2018 - 14:18	Site Admin	8.32 KB

The browser interface includes a navigation bar with links like "Manage", "Content", "Structure", "Appearance", "Extend", "Configuration", "People", "Reports", "Help", and "LOG OUT". At the bottom, there are links for "Questions & Feedback", "Terms & Conditions", "Copyright", and "Privacy Policy".

Hands-on setup

- Login with `ssh` (Linux & Mac) or Putty (Windows)
 - Host: `comet.sdsc.edu`
 - Login: `train11, train12, train13, ...`
 - Password:

Terminal

```
Prompt> ssh -l train11 comet.sdsc.edu
train11@comet.sdsc.edu's password:
Last login: Fri Aug 24 14:36:48 2018 from example.com
[train11@host]$
```

Hands-on setup

- `foldershare` application is in your environment path

```
Terminal
[train11@host]$ which foldershare
/oasis/scratch/comet/amit/temp_project/seedmelab/bin/foldershare

Change dir to
/oasis/scratch/comet/amit/temp_project/seedmelab/

[train11@host]$cd /oasis/scratch/comet/amit/temp_project/seedmelab

[train11@host]$cd data

[train11@host]$ls
-rw----- 1 amit sdsc 591959 Aug  8 15:55 123.zip
-rw-r--r-- 1 amit sdsc 296937 Aug  8 15:55 cherry.jpg
drwxr-xr-x 2 amit sdsc   33280 Aug  8 15:52 child
-rw-r--r-- 1 amit sdsc 617889 Aug  8 15:55 node.png
-rw-r--r-- 1 amit sdsc     328 Aug  8 15:55 primes.py
drwxr-xr-x 2 amit sdsc   33280 Aug  8 15:54 vis
```

Hands-on setup

- `foldershare` is on your path

```
Terminal
[train11@host]$ foldershare --version
Client software
  FolderShare application, version 0.6.3 (March 2019)
  FolderShareConnect client API, version 0.6.3 (March 2019)
  PHP, version 7.2.1
  cURL library, version 7.19.7
  OpenSSL library, version NSS/3.27.1
  Z compression library, version 1.2.3
[train11@host]$
```

Help

- `foldershare --help`
 - Show how to use the command

```
Terminal
[train11@host]$      foldershare --help
Usage is: foldershare [HOST_OPTIONS] [COMMAND] [OPTIONS]

Create, delete, change, and manage files and folders on a remote web
site that uses the FolderShare module.

Commands
-----
config          Show the host administrator configuration.
cp              Copy files and folders.
get             Download files and folders.

... lots more text ...
```

Commands

- Usage is:

```
foldershare [HOST_OPTIONS] [COMMAND] [OPTIONS]
```

- Commands:

— config	Show the host administrator configuration — <i>Admin only</i>
— cp	Copy files and folders
— get	Download files and folders
— ls	List files and folders
— mkdir	Make new folders
— mv	Move files and folders
— put	Upload files and folders
— rm	Remove files or folders
— rmdir	Remove empty folders
— stat	Show the status of files and folders
— update	Update fields on files and folders
— usage	Show the user's storage use
— version	Show version numbers — <i>Admin only</i>

Host options

- Specify host, username, & password

```
--host train11.sandbox.seedmelab.org
```

- Required

```
--username demo
```

- Omit and you'll be prompted

```
--password demo
```

- Omit and you'll be prompted

Host options

- Add a command to the end
 - Such as `ls` to list your personal top-level folders

Terminal

```
[train11@host]$ foldershare --host HOST ls -l
Username: admin
Password: SeedMe2-Workshop-2018
personal  admin  253102 Aug 20 2018 16:55 Miscellaneous images
public    admin   8521 Aug 16 2018 14:18 Sample data
[train11@host]$
```

Multiple commands at once

- Omit command to get a “shell”
 - At the shell’s prompt, type commands

Terminal

```
[train11@host]$ foldershare --host HOST
Username: demo
Password: demo
Foldershare shell.
Type 'help' for a list of commands, 'quit' to exit.
foldershare> ls -l
personal admin 253102 Aug 20 2018 16:55 Miscellaneous images
public    admin    8521 Aug 16 2018 14:18 Sample data
foldershare>
```

Try a few commands

- List a folder

```
foldershare --host HOST ls PATH
```

- Make a folder

```
foldershare --host HOST mkdir NEW
```

- Move or rename a file or folder

```
foldershare --host HOST mv OLD NEW
```

- Download a file

```
foldershare --host HOST get REMOTE LOCAL
```

- Upload a file

```
foldershare --host HOST put LOCAL REMOTE
```

Slash & quotes

- Folder paths always start at “/”
- Use quotes if names have spaces

```
Terminal

foldershare> ls -l /
private      demo          - Aug  08 2019 15:03 Earth
private      demo          - Aug  08 2019 15:03 Moon
public       demo  5402936 Aug  07 2019 18:23 Sample

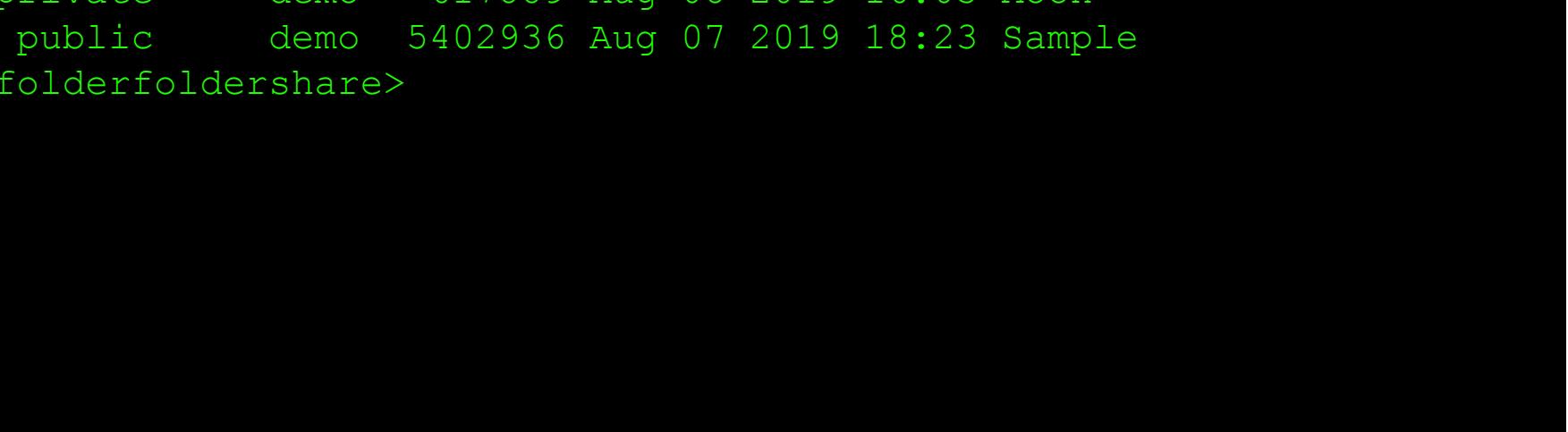
foldershare> ls -l "/Sample folder"
public      ipsum  2042433 Mar 28 2019 10:56 Presentation
public      ipsum  410202  Mar 28 2019 10:56 Publications
public      demo   68 Mar 28 2019 10:44 simple-tabular-data.csv
public      demo  2841399 Mar 28 2019 10:44 structure-6n2y.pdb
public      demo  108834 Mar 28 2019 10:44 tasty-banana.jpg
```

Create a folder

- Use `mkdir`
 - Create `123` in your home directory

Terminal

```
foldershare> mkdir /123
foldershare> ls -l /
private    demo          - Aug  08 2019 10:07  123
private    demo          - Aug  08 2019 15:03  Earth
private    demo  617889 Aug  08 2019 16:03  Moon
 public    demo  5402936 Aug  07 2019 18:23  Sample
foldershare>
```



The terminal window shows the command `mkdir /123` being run, followed by the output of the `ls -l /` command. The output lists several files and folders, including a newly created folder named `123`. This folder is circled with a large orange oval.

Upload a file

- Use `put` or `upload`
 - Upload `node.png` in your home directory

Terminal

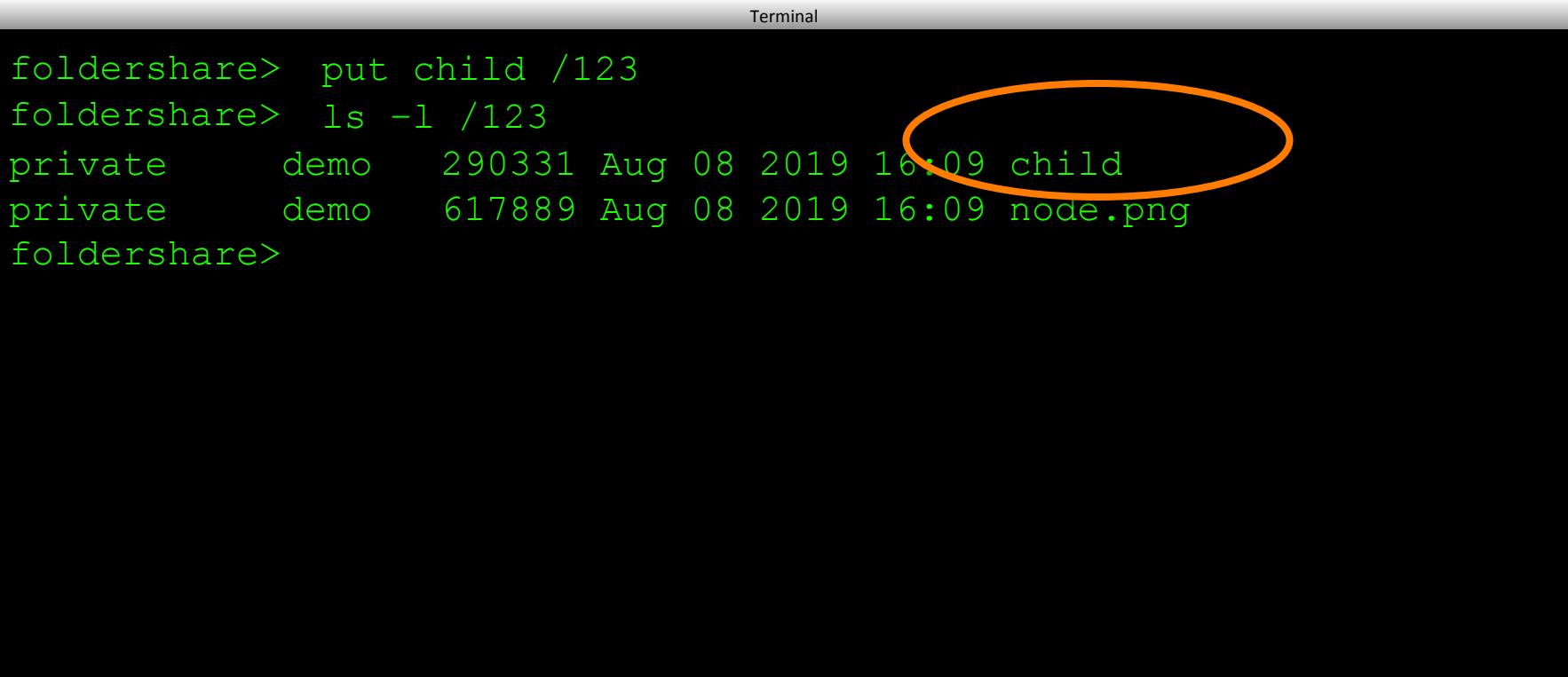
```
foldershare> put node.png /123
foldershare> ls -l "/123"
private    demo    617889 Aug  08 2019 10:03 node.png
foldershare>
```

Upload a folder

- Use `put` or `upload`
 - Upload `child` folder to the `123` in your home directory

Terminal

```
foldershare> put child /123
foldershare> ls -l /123
private    demo    290331 Aug  08 2019 16:09 child
private    demo    617889 Aug  08 2019 16:09 node.png
foldershare>
```



The terminal window shows the command `put child /123` followed by the output of `ls -l /123`. The output lists two files: `child` and `node.png`. The word `child` is circled with a red oval.

Download a file/folder

- Use `get` or `download`
 - Download `/123` to your home directory `/home/etrain110`

```
Terminal

foldershare> get /123 /home/train11
foldershare> quit

[train11@host]$ cd $HOME
[train11@host]$ ls -l 123.zip
-rw----- 1 etrain110 gue998 864262 Aug  8 16:32 123.zip

[train11@host]$ unzip 123.zip
[train11@host]$ ls -l 123
drwxrwxrwx 2 etrain110 gue998        4 Aug  8 2019 child
-rw-rw-rw- 1 etrain110 gue998 617889 Aug  8 2019 node.png

|[train11@host]$ ls -l 123/child
-rw-rw-rw- 1 etrain110 gue998 181497 Aug  8 2019 apple.jpg
-rw-rw-rw- 1 etrain110 gue998 108834 Aug  8 2019 banana.jpg
```

Other shell features

- Help on any command
 - e.g. `ls --help`
- Command history
 - Use arrow keys
- *Not* a full shell (yet?)
 - No wildcards (e.g. `*` `?` `~`)
 - No current directory (e.g. `cd`, `pwd`)
 - No relative paths
 - No local commands (e.g. `lls`, `lcd`)
 - No flow control, functions, variables, ...

Web service uses

- Primarily intended to be run from scripts

- e.g. bash, perl, PHP, python, ...

```
for i in *.png; do
    foldershare --host HOST put $i "/stuff/$i"
done
```

- Integrate into processing pipelines

- Upload files automatically as they are generated
 - Set names, descriptions, and other fields after upload
 - Re-organize and copy files and folders
 - Download to another host

Questions?
