

FolderShare: Building a data sharing cloud on Drupal 8 for researchers

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Project code: dibbs.seedme.org/downloads

or

drupal.org/projects/foldershare

drupal.org/projects/smalldata

Trial website: sandbox.seedme.org

Project website: dibbs.seedme.org

About me

Amit Chourasia

San Diego Supercomputer Center @ UC San Diego

- Visualization scholar/evangelist
- Lecturer/Instructor
- Interests
 - High performance computing
 - Data stewardship
 - Computer graphics

Drupal user since ~2006 | version 4.7.4

- Personal website (Drupal 4 - 8: 150 pages)
- Project website (Drupal 5 : 50,000+ pages)
- SeedMe2 cloud service (Drupal 7: 150,000+ pages)
- **SeedMe2 platform (Drupal 8: Anticipate 1M+ items)**

Seeking: PHP programmers

Desired: Deep knowledge of Drupal 8 core

Presentation Overview

1. Background & motivation
2. Architecture
3. SeedMe2 platform

FolderShare: Virtual file system

- » Entity data model & access control
- » File management & security
- » Views integration
- » UI & Command plugins
- » File formatters
- » Web services

Small data module and API

- Visualization

4. Target users/Use cases
5. Screenshots
6. **Demo**

SeedMe Project

SeedMe 1

a.k.a. Stream encode explore and disseminate **My** experiments

- Based on Drupal 7
- In production as Platform as a Service (PaaS)
- **Video encoding was the main focus**

SeedMe 2 : Data sharing building blocks

Evolution of the original SeedMe project (Complete rewrite)

- Based on Drupal 8
- Incorporates user feedback from original SeedMe project
- Built for distribution and extension
- **Data sharing and data management is the main focus**

SeedMe 2's focus

Enable rapid access to data

Consumable data

Can be handled by stock web browser
(Upload/Download, < 2GB per file)

Displayable on many devices (Phone to PC)

Data management stumbling blocks

Transfer

Storage

Access
control

Collaboration

Automation

But what about Presentation and Discovery?

Data management stumbling blocks

Transfer

Storage

Access
control

Collaboration

Automation

Three D's : Data, Description, Discussion

Issues due to content dispersion

Data in the Cloud

Description in
someone's mind

Discussion on emails

Related solutions

Filesystem based solutions

Tools

SCP
FTP

Middleware

Globus
IRods
NEWT

Software repositories

GitHub
SVN
CVS

File hosting

Cloud drives
(Dropbox, etc)
WebDAV

Content management system based solutions

HubZero
FigShare

Limitations of existing solutions

Lack extensibility

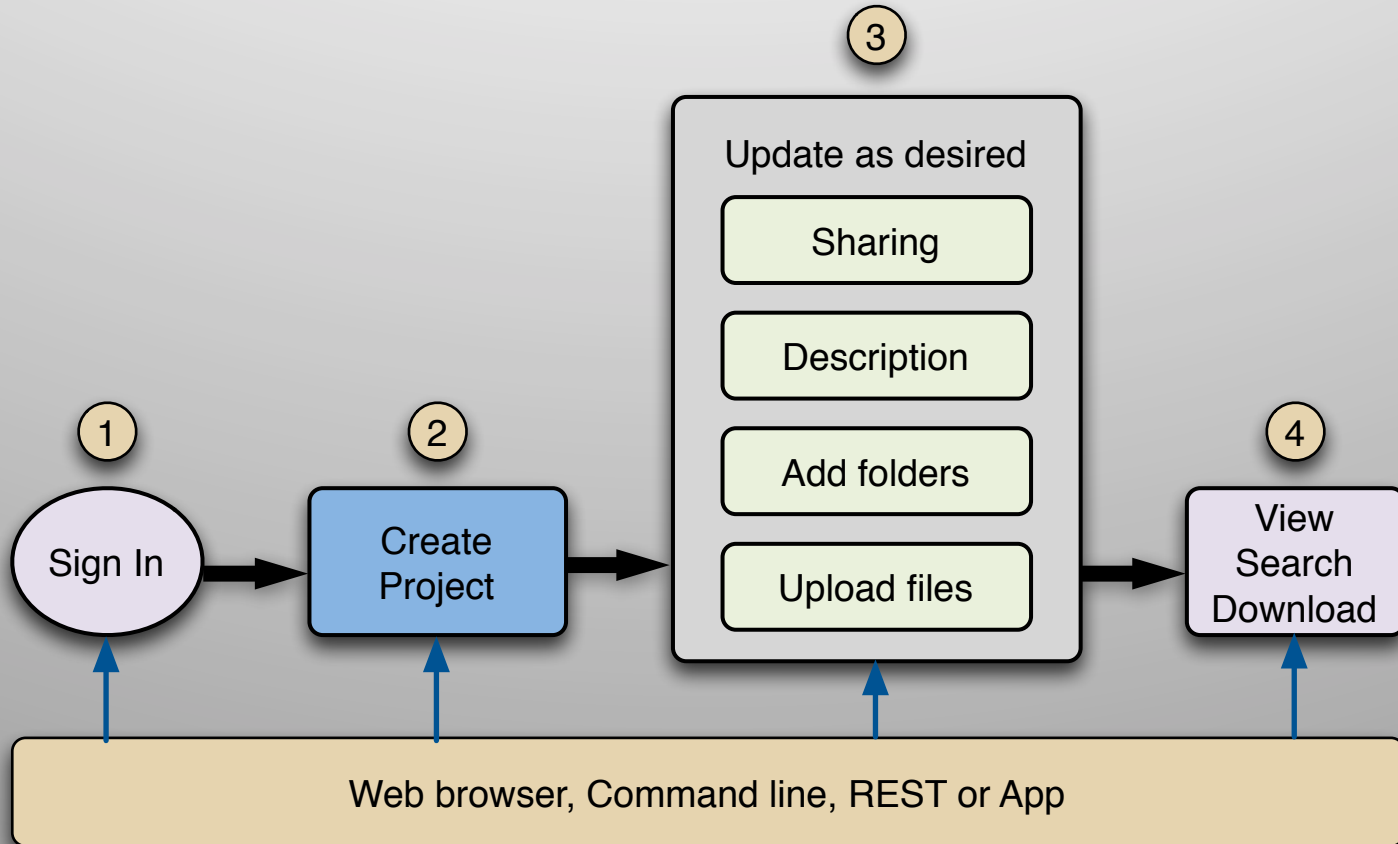
Lack support for rich content (description, discussion, etc...)

Lack independent developer support

Lack 3 way interaction via web browser & command line & API

Resource restricted

Workflow



Architecture

Small data
(PHP library)

Drupal 8
Contributed
Modules
e.g.
Federated
Authentication
via OIDC
module

Drupal 8

Modules

- Virtual file system
 - Access control
 - Hierarchical storage
 - Command plugins
 - UI and display
 - Search / index
 - Web services
- File formatters
 - Quick Visualization

Database
(MySQL)

Webserver
(Apache + PHP)

Users

Web browser

Command line

REST clients

 Project contributions

SeedMe Platform Ecosystem

Drupal (Content Management System)

- Widely used in industry, academia and government
(third most popular CMS on web after Wordpress & Joomla)
- Modular architecture with large ecosystem
(over 1,000 contributed modules)
- Large developer & support community
(4,000 contributors to core + thousands more)
- Security advisory and updates for core and stable contributed modules every month
- Versatile deployment options
(personal hosting, institutional hosting, cloud hosting)

FolderShare module



FolderShare

- **Required dependencies (11 - All in Drupal core)**
 - Datetime
 - Field
 - File
 - Image
 - Link
 - Media
 - Options
 - Text
 - Filter
 - System
 - User
 - Views
- **Optional dependencies (3 - All in Drupal core)**
 - Comment
 - Help
 - RESTful web services
 - HTTP basic authentication
 - Serialization
 - Search
- **Core modules recommended**
 - Text editor
 - Field UI (may be)
 - Views UI (may be)
- **Contributed modules recommended**
 - Real name
 - REST UI (may be)
 - **Small Data (for quick visualization of CSV, JSON files)**

FolderShare module



FolderShare

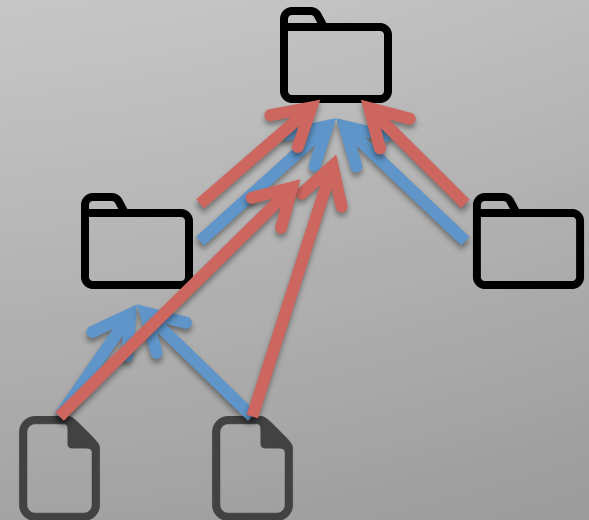
- Virtual file system (fieldable):
 - Entity type & API
 - Access controls
 - Usage tracking
 - Views, displays, breadcrumbs, forms
 - Plugins for field formatters, search, views, actions, and queue workers
- Configurable by sites
 - e.g. Keywords, comments, flags, DOIs
- Extensible by developers

Files & folders

- Children point to parents
 - Parent IDs enable fast queries for all children of a folder
 - Root IDs enable fast queries for access controls and breadcrumbs

 parentid points to immediate parent

 rootid points to top folder



Abstracted file storage

Folders exist in the database

Every uploaded file has a File ID (sequential)

Internal file organization and storage based on 16 bit pattern

Bit pattern 0000 0000 0000 0000

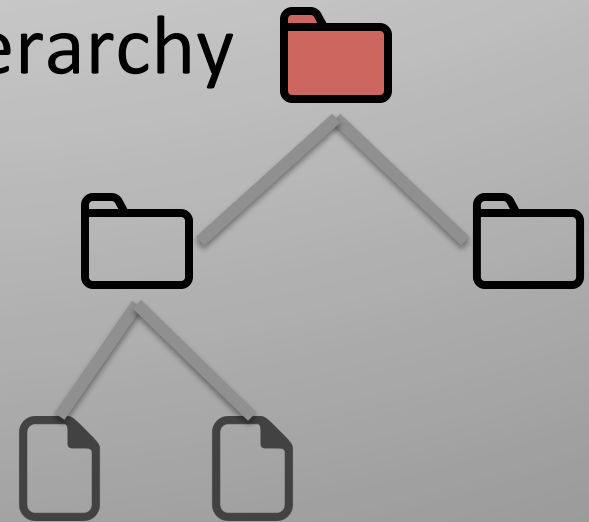
Physical hierarchy as 0000/0000/0000/0000/file_id

Each underlying folder stores 9,999 files

Total file handling: $65,535 * 9,999 = 655,284,465$ (~655 million)

Access controls

- Drupal account-based
- Permissions + access control list on top folders
 - List of users that can view and author
- Top folder controls entire hierarchy
 - Simpler than desktop OSES
 - Similar to file sharing services
 - Fast to check access



File storage

- Folders only exist in database
- Files described in database & stored on disk
- Disk directory \neq folder hierarchy
 - Better for security and load balancing
 - Files have generated names
 - Avoids character set and name length limits
 - Files have no extensions
 - Avoids accidental server execution of “.php”, etc.

Views

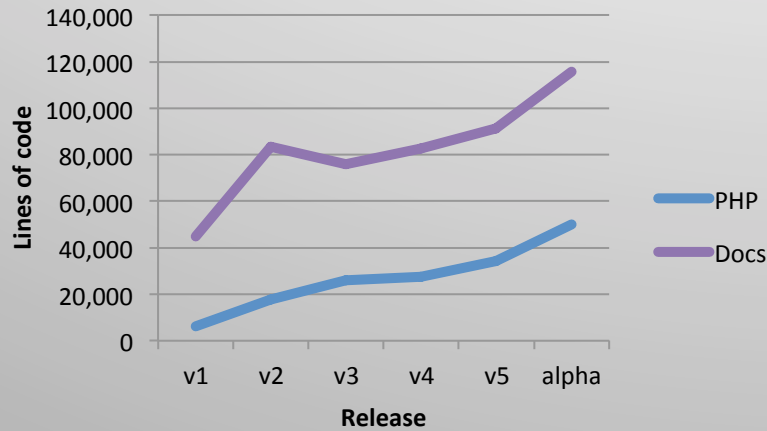
- List personal, public, and shared files & folders
 - Pages & embedded views in folder pages
- Integrated desktop-like UI
 - Select files and folders
 - Then choose menu command
- Three UI variants:
 - No scripting
 - Scripting but no AJAX
 - Scripting with AJAX

Plugins

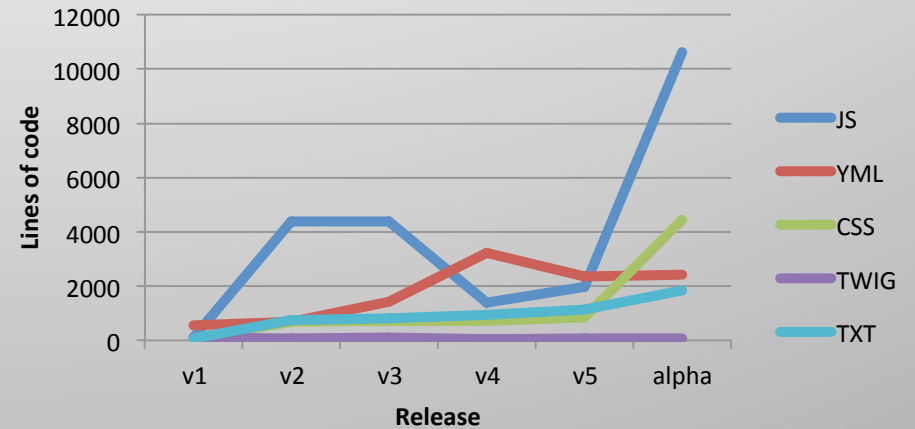
- Field formatters
 - Folder names, entity references, MIME-type icons
- Search
 - Index and present results
- Queue worker
 - Update folder hierarchy sizes in background
- Actions & custom commands
 - Menu UI items to add, delete, etc

Code trivia

Foldershare code main



Foldershare code misc



Total lines of php code

Node : 25,639 (Drupal core 8.5.0)

Foldershare: 50,156 (Alpha1 version)

Foldershare API Documentation

Home » API reference » foldershare-8.x-1.x
Classes, traits, and interfaces

- foldershare-8.x-1.x
- Name contains
- Contains filters are case sensitive
- Name
- AdminSettings
- AdminUsagePage
- ArchivelItem
- ChangeOwnerItem
- Constants
- CopyItem
- DeleteItem
- DownloadItem
- DuplicateItem
- EditCommand

Home » API reference » foldershare-8.x-1.x » FolderShare.php

class FolderShare

Manages a hierarchy of folders, subfolders, and files.

FolderShare objects represent entries in a virtual file system that includes folders and items in those folders.

Every folder or file item has a set of common fields, including:

- Entity ID.
- UUID.
- Name.
- Size.
- Creation and changed dates.
- Owner.
- Description.
- Kind.
- MIME type.
- Language code.
- Parent folder, if any.
- Root folder, if any.

The 'kind' field has one of these values:

- folder.
- rootfolder.
- file.
- image.
- media.

When 'kind' is 'folder', there are no additional fields with meaning.

When 'kind' is 'rootfolder', the root folder (top level folder) has additional fields:

- Access grants for viewing.
- Access grants for authoring.
- Access grants for users known, but currently without viewing or authoring.

When 'kind' is 'file', the entity has an additional field containing the entity ID.

When 'kind' is 'image', the entity has an additional field containing the entity ID.

Search foldershare-8.x-1.x

Function, file, or topic *

Partial match search is supported

Search

API Navigation

Home » API reference » foldershare-8.x-1.x

Functions

foldershare-8.x-1.x

Name contains

Contains filters are case sensitive

Name

- comment_foldershare_update_index
- foldershare_entity_extra_field_info
- foldershare_file_download
- foldershare_foldershare_view
- foldershare_get_user_usage_schema
- foldershare_help
- foldershare_preuninstall
- foldershare_schema
- foldershare_theme
- foldershare_token_info
- foldershare_tokens
- foldershare_uninstall
- foldershare_user_cancel
- foldershare_user_predelete
- foldershare_views_data_alter

Home » API reference » foldershare-8.x-1.x » foldershare.api.php

function hook_foldershare_access

```
hook_foldershare_access( FolderShareInterface $entity, string $op, AccountInterface $account )
```

Controls access to a file or folder.

FolderShare's access control mechanism has these steps:

- Check if the user is an admin
- Check user permissions.
- Check entity access grants.
- Invoke this hook.

Steps are executed in order and the remaining steps are skipped if there is a definitive answer for a step. For instance, if the user is an administrator, they are granted access and the remaining steps are not executed. If the user does not have permission or the entity does not grant them access, then they are denied access and the remaining steps are not executed. This means this hook is only executed if the user is not an admin and does have permission and access granted. This hook, then, can only make a final allow/deny choice.

Parameters

Drupal\Foldershare\FolderShareInterface \$entity: The entity the user wishes to access. If the entity is NULL, the user is requesting access to the root folder list.

string \$op: The operation to be performed. Access operators are one of:

- 'create'.
- 'creatoroot'.
- 'delete'.
- 'share'.
- 'update'.
- 'view'.

Drupal\Core\Session\AccountInterface \$account: The user's account.

Return value

Drupal\Core\Access\AccessResultInterface Returns the access result to allow or forbid access, or have a neutral opinion.

See also

Drupal\Core\Entity\EntityAccessControlHandler

SmallData API & Module



SmallData

- Structured data parsers & writers
 - Tables, trees, and graphs
 - JSON, CSV, TSV, TXT, etc.
- Field formatters
 - Light-weight visualization
 - Line plots, bar charts, pie charts, etc.

FolderShare configuration

Admin menu

Structure > FolderShare

FOR ADMINISTRATORS

FolderShare configuration

Fields

Manage fields, forms & display

Configuration located in admin menu
Structure > FolderShare

FolderShare

[Settings](#) [Manage fields](#) [Manage form display](#) [Manage display](#)

FolderShare manages a virtual file system with files, folders, and subfolders. Module settings control how content is stored, presented, searched, and secured. See also [Module help](#) and the module's [Usage report](#).

- Fields**
- [Files](#)
- [Interface](#)
- [Lists](#)
- [Search](#)
- [Security](#)
- [Web services](#)

Manage fields for files and folders.

Files and folders contain fields for names, dates, sizes, descriptions, and more. You may add your own fields and adjust how fields are displayed when viewed and edited.

Fields, forms, and displays

Built-in fields for files and folders include a name, description, size, and creation and modification dates. Fields may be adjusted with the optional [Field UI module](#) to add new fields and manage how fields are viewed and edited.

[Manage fields](#)

Create, delete, and modify additional fields for files and folders.

[Manage form display](#)

Manage forms to edit fields for files and folders.

[Restore original settings](#)

[Manage display](#)

Manage how fields are presented on file and folder pages.

[Restore original settings](#)

See also

Content Language (Not enabled)

Enable users to select a default language for appropriate text fields. *(Core module)*

[Comment types](#)

Configure how comments are created and shown on files and folders. See the [Comments](#) documentation. *(Core module)*

[Dates and times](#)

Configure date and time formats available when creation and modification dates are displayed. See the [Date-Time](#) documentation. *(Core module)*

Languages (Not enabled)

Enable users to provide authored translations of appropriate text fields. *(Core module)*

[Regional](#)

Configure regional formats for the display of dates and times, and select how times are mapped to the current or user time zone. *(Core module)*

[Text Editors](#)

Configure WYSIWYG text editors available on entity edit forms to assist in editing formatted text. See the [Text editor](#) documentation. *(Core module)*

[Text Formats](#)

Configure text formats available on entity edit forms to filter and process formatted text. See the [Filter](#) documentation. *(Core module)*

[Tokens](#)

Manage tokens created by this module and others. *(Third-party module)*

[Save configuration](#)

FolderShare configuration

Files

Storage location & upload restrictions

FolderShare

The file extensions list has been restored to its original values.

[Settings](#) [Manage fields](#) [Manage form display](#) [Manage display](#)

FolderShare manages a virtual file system with files, folders, and subfolders. Module settings control how content is stored, presented, searched, and secured. See also [Module help](#) and the module's [Usage report](#).

Fields

Files

Interface

Lists

Search

Security

Web service

Select how files are uploaded and stored.

Files are stored on the site's server and tracked in the site's database. Administrators may restrict uploaded files based upon their size and name extension, and limit the number of files uploaded at once.

File system

Select whether the module should use the site's *Public* or *Private* file system to store files. A *Private* file system provides better security.

This setting is disabled because there are already files under management by this module. To change this setting, you must [Delete all](#) files first.

File system: *

Default: Public

Storage location

Select the server subfolder in the *Public* or *Private* file system into which the module will save files. This is typically named after the module. The subfolder will be created automatically if necessary.

This setting is disabled because there are already files under management by this module. To change this setting, you must [Delete all](#) files first.

Location: *

Default: foldershare

File name extensions

Select whether uploaded files should be restricted to a specific set of allowed file name extensions.

Enable restrictions

Allowed file name extensions:

1st 3ds a aac accda accdb accde accdr accdt ade adn adp aiff asc ascii asp aspx au avi bash bat blend bmp bz2 c c++ cab cdb cgi cgm cmake config cp cpio cpp cs csh css csv csx cxx dae daq dat data dimg doc docb docm docx dot dotm dotx dtd dxf eps f fig fits flac gif gz h h5 hdf hdf5 hpp htm html ico inc include info ini install iso j2k jar java jp2 jpeg jpf jpg jpm jpx js json jsp laccdb ldb less ltx m m3u m4a m4p m4v maf make man man maq mar mat mat mda mdb mde mdf mdn mdt mdw mj2 mkv miv mn module mogg mov mp3 mp4 mpeg mpg mpv nc oga ogg p pbm pdf perl pgm phar php pl pm png pnm pot potm potx ppam ppm pps ppm ppsx ppt pptm pptx prl proj ps py pyc python qt r rar ras rdf readme rss rtf sass scss sh shar sit sldm sldx stl

Separate extensions with spaces and do not include dots. Changing this list does not affect files that are already on the site.

[Restore original settings](#)

Maximum file upload size

Set the maximum size allowed for each uploaded file. This size is also limited by PHP settings in your server's "php.ini" file and your site's top-level ".htaccess" file. These are currently limiting file sizes to 524288000 bytes.

Size: *

Default: 524288000 bytes

Maximum number of files per upload

Set the maximum number of files that may be uploaded in a single pload. This number is also limited by PHP settings in your server's "php.ini" file and your site's top-level ".htaccess" file. These are currently limiting file uploads to 20 files.

FolderShare configuration Interface

Command plugins

FolderShare

[Settings](#)[Manage fields](#)[Manage form display](#)[Manage display](#)

FolderShare manages a virtual file system with files, folders, and subfolders. Module settings control how content is stored, presented, searched, and secured. See also [Module help](#) and the module's [Usage report](#).

[Fields](#)[Files](#)[Interface](#)[Lists](#)[Search](#)[Security](#)[Web services](#)

Manage the user interface.

File and folder lists include a menu and toolbar for commands to create, upload, edit, and delete items. You may configure select the commands to include.

Menus

Commands are plugins provided by this module and others. By default, all available commands are included on menus. You may restrict menus to a specific set of commands.

Enable command menu restrictions

Select the commands to allow:

Upload Files

Upload files into a folder. (*foldershare module*)

Move

Move files and folders to another folder. (*foldershare module*)

Duplicate

Duplicate files and folders, and all of their contents. (*foldershare module*)

Uncompress

Uncompress an archive file and add its contents to this folder. (*foldershare module*)

Change Owner

Change the owner of files and folders, including the content of subfolders. (*foldershare module*)

Rename

Rename an item. (*foldershare module*)

Delete

Delete files and folders, and all of their content. (*foldershare module*)

Download

Download files and folders, and all of their content. (*foldershare module*)

Copy

Copy files and folders to another folder. (*foldershare module*)

New Folder

Create a new empty folder with a default name. (*foldershare module*)

Share Folder Tree

Share a folder tree and all of its contents with other users. (*foldershare module*)

Compress

Compress files and folders, and all of their contents. (*foldershare module*)

Edit

Edit the fields of a file or folder. (*foldershare module*)

Save configuration

FolderShare configuration Lists

Manage listing of file and folders

FolderShare

[Settings](#) [Manage fields](#) [Manage form display](#) [Manage display](#)

FolderShare manages a virtual file system with files, folders, and subfolders. Module settings control how content is stored, presented, searched, and secured. See also [Module help](#) and the module's [Usage report](#).

- [Fields](#)
- [Files](#)
- [Interface](#)
- [Lists](#)**
- [Search](#)
- [Security](#)
- [Web services](#)

Manage lists of files and folders.

You may configure file and folder lists to adjust which fields are displayed and how their values are presented.

Views

The layout and presentation of lists may be controlled using the optional [Views UI module](#).

FolderShare Lists

List files, folders, and subfolders.

[Restore original settings](#)

See also

Dates and times
Configure date and time formats available when creation and modification dates are displayed. See the [Date-Time](#) documentation. *(Core module)*

Regional
Configure regional formats for the display of dates and times, and select how times are mapped to the current or user time zone. *(Core module)*

[Save configuration](#)

FolderShare configuration

Search (optional)

FolderShare

[Settings](#) [Manage fields](#) [Manage form display](#) [Manage display](#)

FolderShare manages a virtual file system with files, folders, and subfolders. Module settings control how content is stored, presented, searched, and secured. See also [Module help](#) and the module's [Usage report](#).

- [Fields](#)
- [Files](#)
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- [Search](#)**
- [Security](#)
- [Web services](#)

Manage search indexing and results.

File and folder names, descriptions, and file content is indexed and shown in search results. You may configure when indexing is done, what is included, and how search results are presented.

Core search

The optional [Search module](#) provides basic support for searching content. FolderShare provides an optional search plugin to index and present search results for files and folders.

Search pages

Configure how search creates indexes of site content and presents search results.

[Restore original settings](#)

See also

[Cron](#)

Configure and run automatic administrative tasks, such as when search indexing is done. See the [System](#) and [Automated Cron](#) documentation. *(Core module)*

[Save configuration](#)

FolderShare configuration

Security

Manage sharing capabilities

FolderShare

[Settings](#) [Manage fields](#) [Manage form display](#) [Manage display](#)

FolderShare manages a virtual file system with files, folders, and subfolders. Module settings control how content is stored, presented, searched, and secured. See also [Module help](#) and the module's [Usage report](#).

- [Fields](#)
- [Files](#)
- [Interface](#)
- [Lists](#)
- [Search](#)
- Security**
- [Web services](#)

Manage how content is secured and shared.

Files and folders may be shared among users and with the public. Content may be accessed using a web browser and using optional services that work with software that runs on personal computers and mobile devices.

Sharing

Select whether to enable sharing, and whether users may publish their content for public access by anonymous site visitors. When sharing is disabled, users may only view and edit their own files and folders.

- Enable shared access
- Enable shared access with anonymous users

See also

[User permissions](#)
Grant view, author, share, and administer permissions to user roles. See the [User](#) documentation. (Core module)

FolderShare configuration

Web services (optional)

Manage REST capabilities

FolderShare

[Settings](#)[Manage fields](#)[Manage form display](#)[Manage display](#)

FolderShare manages a virtual file system with files, folders, and subfolders. Module settings control how content is stored, presented, searched, and secured. See also [Module help](#) and the module's [Usage report](#).

[Fields](#)[Files](#)[Interface](#)[Lists](#)[Search](#)[Security](#)[Web services](#)

Manage REST web services.

Files and folders are always accessible via a web browser, but additional web services may be enabled to allow client applications to access content without a browser. You may configure these services to enable or disable specific types of access.

REST web services

The [REST module](#) manages REST (Representational State Transfer) web services, such as those provided by FolderShare. While you can edit YML files to customize a configuration, the optional [REST UI module](#) provides a better user interface. Using the [REST UI module](#) you may enable and disable specific services and adjust their features.

REST module

Provide REST web services for entities and other features at the site.

[Restore original settings](#)

See also

[REST administration permissions](#)

Grant administrative permissions for REST services. See the [REST](#) documentation. *(Core module)*

[REST UI](#)

Manage the REST configuration for the site. *(Third-party module)*

[Save configuration](#)

FolderShare REST settings

Requires REST UI contributed module

Manage REST operations

Settings for resource *FolderShare files and folders*

Here you can restrict which HTTP methods should this resource support. And within each method, the available serialization formats and authentication providers.

Granularity Resource 

Methods

- GET
- POST
- DELETE
- PATCH

Accepted request formats

- json
- xml

Authentication providers

- basic_auth
- cookie

Save configuration

FolderShare Usage

Admin menu

Reports > FolderShare usage

FolderShare usage

Current usage by user

Users ▼	Top-level folders	Folders	Files	Bytes
Anonymous	0	0	0	0 bytes
Dr. Aarush Ahuja	1	2	16	0 bytes
Dr. Buena Bonita	0	1	5	1.27 KB
Dr. Chandler Charles	1	2	20	1.54 KB
Site Administrator	0	0	0	120.68 MB
demo (Data manager)	0	0	0	0 bytes
Total				

FolderShare permissions

Permission	Anonymous user	Authenticated user	Data manager	Administrator
FolderShare				
<p>Administer files and folders</p> <p><i>Warning: Give to trusted roles only; this permission has security implications.</i></p> <p>Administer public, private, and shared files and folders. Create, delete, view, download, edit, and change the ownership of content owned by any user.</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<p>Author files and folders</p> <p>Create, delete, view, upload, download, and edit files and folders owned by the user, and by other users that grant author access using folder sharing.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<p>Create and share top-level folders</p> <p>Create and adjust settings for sharable top-level folders that group content that may be made public, kept private, or shared with specific users.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<p>View files and folders</p> <p>View and download files and folders owned by the user, and by other users that grant view access using folder sharing.</p>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

FOR USERS

Top folders owned by you

Top folders shared with you

Public top folders

These lists display top level folders

Home

Folders

Personal Shared Public

Menu

Name ▲	Modified	Status	Owner	Size
Data share This project is publicly viewable. Both Mary and John have Author privileges. Integer posuere erat a ante venenatis dapibus posuere velit aliquet. Aenean...	10/18/2017 - 22:12	Public	demo	191.96 KB
Project One This project may be Authored by Mary, but can only be Viewed by John. Vivamus sagittis lacus vel augue laoreet rutrum faucibus dolor auctor. Curabitur...	10/20/2017 - 03:00	Shared	demo	1.12 MB

2 items

Folders may have a description

Folders

Personal

Shared

Public



Menu options – with no selection

- New Folder
- Upload Files
- Download
- Edit
- Rename
- Delete
- Copy
- Duplicate
- Move
- Share Folder Tree
- Compress
- Uncompress

	Modified	Status	Owner	Size
...ly viewable. Both Mary and John have Author privileges. Integer posuere erat a ante venenatis dapibus posuere	10/18/2017 - 22:12	Public	demo	191.96 KB
... Authored by Mary, but can only be Viewed by John. Vivamus sagittis lacus vel augue laoreet rutrum faucibus	10/20/2017 - 03:00	Shared	demo	1.12 MB

2 items

Folders

Personal

Shared

Public



Menu options – with selection

New Folder
Upload Files

Download Folder...

Edit Folder...

Rename Folder...

Delete Folder...

Copy Folder...

Duplicate Folder

Move Folder...

Share Folder Tree...

Compress

Uncompress

	Modified	Status	Owner	Size
...viewable. Both Mary and John have Author privileges. Integer posuere erat a ante venenatis dapibus posuere	10/18/2017 - 22:12	Public	demo	191.96 KB
...authored by Mary, but can only be Viewed by John. Vivamus sagittis lacus vel augue laoreet rutrum faucibus	10/20/2017 - 03:00	Shared	demo	1.12 MB

2 items

Sharing form to restrict access


Share "Project One" Folder Tree





Share all files and folders in this folder tree.

User	Access		
	None	View	Author
Anonymous (any web site visitor) <i>Anonymous users do not have FolderShare module author permission, so they cannot be granted author access.</i>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
john	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
mary	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

Save

Project One



Name ▲	Modified	Status	Owner	Size
 data Certain structured formats such as CSV, JSON and HTML table can be automatically visualized	10/20/2017 - 03:00	Shared	demo	6.92 KB
 doc.pdf Every file may have a description.	10/20/2017 - 03:23	Shared	demo	83.86 KB
 images Every folder may have a description in rich text.	10/20/2017 - 03:24	Shared	demo	1.03 MB
 progress_bars.ipynb Every file may have a description in rich text.	10/20/2017 - 03:25	Shared	mary	4.2 KB

4 items

Sortable listing of files and folders.

Owner: demo
Modified: 10/20/2017 - 03:00
Description: This project may be *Authored* by [Mary](#), but can only be *Viewed* by [John](#).

Different users

Vivamus sagittis lacus vel augue laoreet rutrum faucibus dolor auctor. Curabitur blandit tempus porttitor. Donec sed odio dui. Maecenas sed diam eget risus varius blandit sit amet non magna.





- Nullam id dolor id nibh ultricies vehicula ut id elit. Etiam porta sem malesuada magna mollis euismod.
- Cras justo odio, dapibus ac facilisis in, egestas eget quam.
- Praesent commodo cursus magna, vel scelerisque nisl consectetur et.
- Duis mollis, est non commodo luctus, nisi erat porttitor ligula, eget lacinia odio sem nec elit.

Hello	World
Ace	Base
Uno	Dos

Integer posuere erat a ante venenatis dapibus posuere velit aliquet. Donec sed odio dui. Vestibulum id ligula porta felis euismod semper. Maecenas sed diam eget risus varius blandit sit amet non magna. Nullam quis risus eget urna mollis ornare vel eu leo. Vivamus sagittis lacus vel augue laoreet rutrum faucibus dolor auctor.

Project One



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 data Certain structured formats such as CSV, JSON and HTML table can be automatically visualized	10/20/2017 - 03:00	Shared	demo	6.92 KB
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4 items

Owner: demo

Modified: 10/20/2017 - 03:00

Description: This project may be *Authored* by [Mary](#), but can only be *Viewed* by [John](#).


Vivamus sagittis lacus vel augue laoreet rutrum faucibus dolor auctor. Curabitur blandit tempus porttitor. Donec sed odio dui. Maecenas sed diam eget risus varius blandit sit amet non magna.





- Nullam id dolor id nibh ultricies vehicula ut id elit. Etiam porta sem malesuada magna mollis euismod.
- Cras justo odio, dapibus ac facilisis in, egestas eget quam.
- Praesent commodo cursus magna, vel scelerisque nisl consectetur et.
- Duis mollis, est non commodo luctus, nisi erat porttitor ligula, eget lacinia odio sem nec elit.

Hello	World
Ace	Base
Uno	Dos

Integer posuere erat a ante venenatis dapibus posuere velit aliquet. Donec sed odio dui. Vestibulum id ligula porta felis euismod semper. Maecenas sed diam eget risus varius blandit sit amet non magna. Nullam quis risus eget urna mollis ornare vel eu leo. Vivamus sagittis lacus vel augue laoreet rutrum faucibus dolor auctor.

Project One



Name ▲	Modified	Status	Owner	Size
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4 items

Owner: demo

Modified: 10/20/2017 - 03:00

Description: This project may be *Authored* by [Mary](#), but can only be *Viewed* by [John](#).

Vivamus sagittis lacus vel augue laoreet rutrum faucibus dolor auctor. Curabitur blandit tempus porttitor. Donec sed odio dui. Maecenas sed diam eget risus varius blandit sit amet non magna.





- Nullam id dolor id nibh ultricies vehicula ut id elit. Etiam porta sem malesuada magna mollis euismod.
- Cras justo odio, dapibus ac facilisis in, egestas eget quam.
- Praesent commodo cursus magna, vel scelerisque nisl consectetur et.
- Duis mollis, est non commodo luctus, nisi erat porttitor ligula, eget lacinia odio sem nec elit.

Hello	World
Ace	Base
Uno	Dos

Integer posuere erat a ante venenatis dapibus posuere velit aliquet. Donec sed odio dui. Vestibulum id ligula porta felis euismod semper. Maecenas sed diam eget risus varius blandit sit amet non magna. Nullam quis risus eget urna mollis ornare vel eu leo. Vivamus sagittis lacus vel augue laoreet rutrum faucibus dolor auctor.

Every folder and file may add a description. (Formatted text field aka Body field in Drupal's Node)

Project One

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 data Certain structured formats such as CSV, JSON and HTML table can be automatically visualized	10/20/2017 - 03:00	Shared	demo	6.92 KB
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4 items

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- Nullam id dolor id nibh ultricies vehicula ut id elit. Etiam porta sem malesuada magna mollis euismod.
- Cras justo odio, dapibus ac facilisis in, egestas eget quam.
- Praesent commodo cursus magna, vel scelerisque nisl consectetur et.
- Duis mollis, est non commodo luctus, nisi erat porttitor ligula, eget lacinia odio sem nec elit.

Hello	World
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FolderShare comments

demo

Wed,
10/18/2017
- 05:16
[Permalink](#)

[Duis mollis, est non commodo...](#)

Duis mollis, est non commodo luctus, nisi erat porttitor ligula, eget lacinia odio sem nec elit.

[Edit](#) [Reply](#)

mary

Wed,
10/18/2017
- 05:26
[Permalink](#)

[Nullam quis risus eget urna...](#)

Nullam quis risus eget urna mollis ornare vel eu leo. Nulla vitae elit libero, a pharetra augue. Aenean lacinia bibendum nulla sed consectetur. Etiam porta sem malesuada magna mollis euismod. Cras mattis consectetur purus sit amet fermentum.

[Reply](#)

Add new comment

Subject

Comment *

B *I* U ~~ABC~~             Source

[About text formats](#)


Save

Preview

The FolderShare entity is fieldable.

Add custom fields such as Comments to FolderShare.

Project One



Menu options change on selection

	Modified	Status	Owner	Size
Download Folder...	10/20/2017 - 03:00	Shared	demo	6.92 KB
Edit Folder... Rename Folder...	nats such as CSV, JSON and HTML table can be automatically visualized			
Delete Folder...	10/20/2017 - 03:23	Shared	demo	83.86 KB
Copy Folder... Duplicate Folder Move Folder...	10/20/2017 - 03:24	Shared	demo	1.03 MB
Share Folder Tree...	10/20/2017 - 03:25	Shared	mary	4.2 KB
Compress Folder Uncompress	4 items			

Owner: demo
Modified: 10/20/2017 - 03:00
Description: This project may be *Authored* by [Mary](#), but can only be *Viewed* by [John](#).

Vivamus sagittis lacus vel augue laoreet rutrum faucibus dolor auctor. Curabitur blandit tempus porttitor. Donec sed odio dui. Maecenas sed diam eget risus varius blandit sit amet non magna.

- Nullam id dolor id nibh ultricies vehicula ut id elit. Etiam porta sem malesuada magna mollis euismod.
- Cras justo odio, dapibus ac facilisis in, egestas eget quam.
- Praesent commodo cursus magna, vel scelerisque nisl consectetur et.
- Duis mollis, est non commodo luctus, nisi erat porttitor ligula, eget lacinia odio sem nec elit.

Hello	World
Ace	Base
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Integer posuere erat a ante venenatis dapibus posuere velit aliquet. Donec sed odio dui. Vestibulum id ligula porta felis euismod semper. Maecenas sed diam eget risus varius blandit sit amet non magna. Nullam quis risus eget urna mollis ornare vel eu leo. Vivamus sagittis lacus vel augue laoreet rutrum faucibus dolor auctor.

data

Name ▲	Modified	Status	Owner	Size
Apple assets, 2008-2009.htm Every file may have a description in rich text.	10/20/2017 - 03:25	Shared	demo	1.04 KB
Benchmark of original Matlab image preprocessing times.json Every file may have a description in rich text.	10/20/2017 - 03:26	Shared	demo	1.82 KB
Benchmark of revised image preprocessing times.json Every file may have a description in rich text.	10/20/2017 - 03:26	Shared	demo	795 bytes
Cost breakdown of Google Nexus 7.json Every file may have a description in rich text.	10/20/2017 - 03:26	Shared	demo	798 bytes
csv-table.good.simple.csv Every file may have a description in rich text.	10/20/2017 - 03:26	Shared	demo	68 bytes
Image classification work breakdown schedule.json Every file may have a description in rich text.	10/20/2017 - 03:26	Shared	demo	1.18 KB
OpenGL mesh memory use.csv Every file may have a description in rich text.	10/20/2017 - 03:27	Shared	demo	1.27 KB

7 items

Owner: demo
Modified: 10/20/2017 - 03:00
Description: Certain structured formats such as CSV, JSON and HTML table can be automatically visualized

FolderShare comments

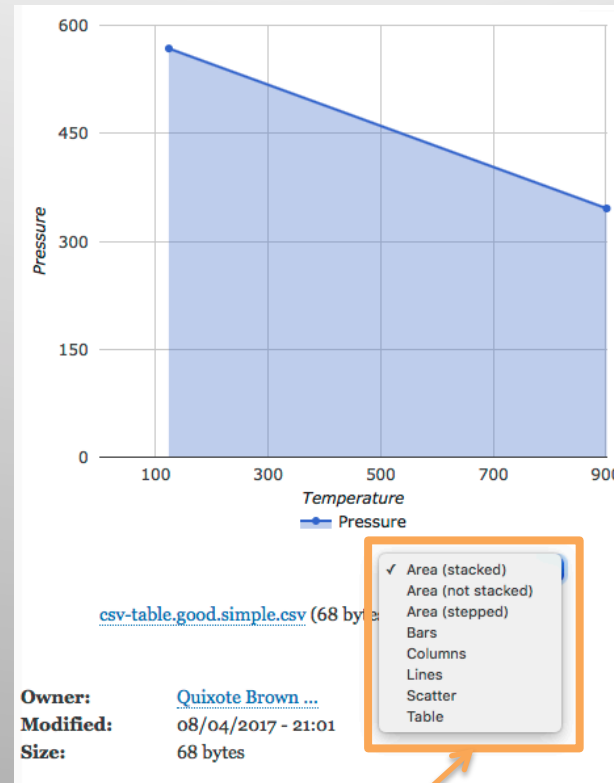
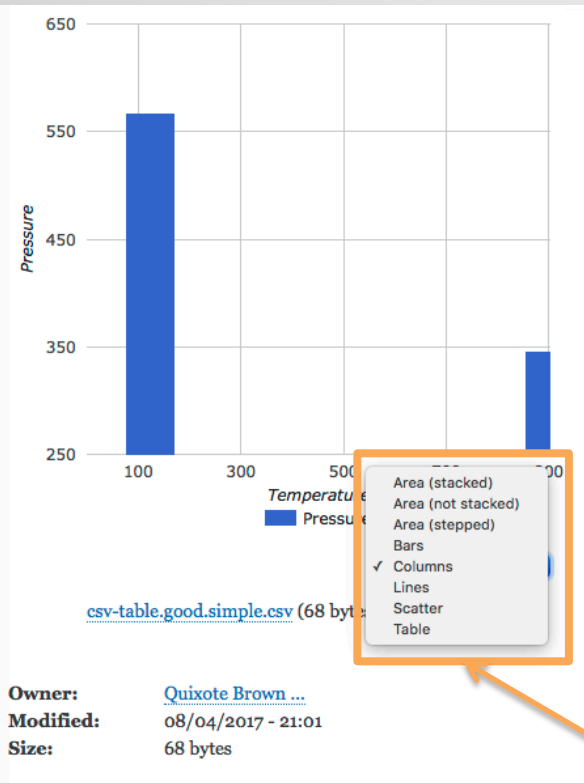
demo
Wed,
10/18/2017
- 22:50
[Permalink](#)

[Donec id elit non mi porta...](#)

Donec id elit non mi porta gravida at eget metus. Donec sed odio dui.

[Edit](#) [Reply](#)

Quick visualization of CSV & JSON files



Temperature	Pressure
123.4	567.8
901.2	345.6
1	NaN
NaN	NaN

A table visualization of CSV data. The table has two columns: 'Temperature' and 'Pressure'. The data rows are: (123.4, 567.8), (901.2, 345.6), (1, NaN), and (NaN, NaN). A dropdown menu is open, showing the option 'Table' selected. Below the table, the file name 'csv-table.good.simple.csv (68 bytes)' and metadata are visible: Owner: Quixote Brown..., Modified: 08/04/2017 - 21:01, Size: 68 bytes.

Visualizations can be switched interactively to different chart types

Sample commands

```
foldershare --help  
foldershare --host http://demo.seedme.com
```

```
help
```

```
$ 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.
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.

Add "--help" after any command to show its description and flags.

Host and account

All commands require a remote host and account:

--host HOSTNAME	Select the host (and optional port) for the site.
--username NAME	Specify the user login name on the site.
--password PASS	Specify the user password on the site.

Example:

```
foldershare --host myhost -username me --password pw ls /
```

If the username and/or password are omitted, the command will prompt for them.

Additional options

--help	Show this help information.
--verbose	Be verbose while performing the operation.
--version	Show application version numbers.
--format type	Select how information is displayed: auto (default) Use an operation-specific default full Show full-detail nested-array output keyvalue Show a table of key-value pairs linux Show a Linux-style output text Show key-value pairs as text

For Linux/macOS/BSD-style commands, the format type defaults to 'linux' and output is formatted similar to those OS commands.

Example:

```
foldershare --host myhost --format full stat /myfolder
```

Sample command line interaction

```
foldershare --help
foldershare --host http://demo.seedme.org --user dave --password 'cliRocks!'

help

ls --help
ls /
ls -l "/Classification Collection"
ls -l "/Classification Collection/Preliminary Results"

mkdir --help
mkdir "/test"
mkdir "/test/data"

upload --help
upload "plots/villi.png" "/test"
upload "plots/composite.png" "/test"

Upload "sample-small-data/OpenGL mesh memory use.csv" "/test/data"
Upload "sample-small-data/Image classification breakdown schedule.json" "/test/data"

download --help
download "/test" "/Users/amit/downloads"

rm --help
rm -rf "/test"
```

SeedMe2 – Target users/Use cases

- **Researchers**
 - Collaboration hub or personal dashboard
- **Project repositories**
 - Include project specific customization (e.g. taxonomy, keywords)
- **Developers**
 - Integrate your scientific application
- **Science gateways**
 - Data sharing
 - Data publishing
 - Data escrow service
- **CyberInfrastructure providers**
 - Offer SeedMe platform to your user base/communities

Coulomb Implosion

Real usage by physicists

View

Devel



Name ^	Modified	Status	Owner	Size
EPOCH input deck	03/13/2018 - 18:05	Shared		4.25 KB
n_e Snapshots of the electron density. The color-coding is n_e in $1/\text{m}^3$.	03/13/2018 - 18:07	Shared		6.58 MB
n_i Snapshots of the ion density. The color-coding is n_i in $1/\text{m}^3$.	03/13/2018 - 18:07	Shared		6.33 MB
Total electric field Snapshots of the total electric field $E = \sqrt{E_x^2 + E_y^2}$. The color-coding is E in volt/m.	03/13/2018 - 18:08	Shared		5.65 MB
Total electric field [zoom] Snapshots of the total electric field $E = \sqrt{E_x^2 + E_y^2}$ in the central part of the target. The color-coding is E in vol	03/13/2018 - 18:10	Shared		1.2 MB

5 items | [Image slideshow](#)

Owner:

Modified: 03/13/2018 - 17:52

PIC simulations of a rectangular plasma with a cavity irradiated by 4 laser pulses.

$\lambda = 1 \mu\text{m}$ - laser wavelength;

$I = 5 \times 10^{18}$ watt/cm² - peak intensity of each laser pulse;

$n_e = n_i = 30n_{crit}$ - initial electron and ion densities;

$R = 60$ nm - radius of the cavity;

cell size is 2 nm by 2 nm; 20 electron macro-particles and 20 ion macro-particles per cell;

Laser electric field is in the plane of the simulation;

Each pulse is $\Delta t = 20$ fs long, with the field envelope given by $(1 - \cos(2\pi t/\Delta t))/2$.

Deployment/service options

DIY - Run own instance (Your branding + your domain)

- On your own hardware
- Condo hardware

Provider/vendor runs an instance

- Your institution
- CI centers
- Commercial vendors

As a cloud service (Our branding & our domain)

- dibbs.seedme.org

Try it yourself!

Explorers welcome (web browser needed)

Trial website: sandbox.seedme.org

Developers invited

Download code: <https://dibbs.seedme.org/downloads>



Amit Chourasia, David Nadeau, Dmitry Mishin & Michael Norman
San Diego Supercomputer Center | University of California San Diego

Acknowledgements

All users and application integrators for their valuable feedback

National Science Foundation

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"Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation."

DEMO

Talk to us

amit @ sdsc.edu

- Keen to learn about potential FolderShare uses cases in your work
- **Seeking: PHP programmers**
Desired: Deep knowledge of Drupal 8 core
- Single sign-on: Checkout <http://www.cilogon.org/drupal>

Project code: dibbs.seedme.org/downloads

or

drupal.org/projects/foldershare

drupal.org/projects/smalldata

Trial website: sandbox.seedme.org

Project website: dibbs.seedme.org