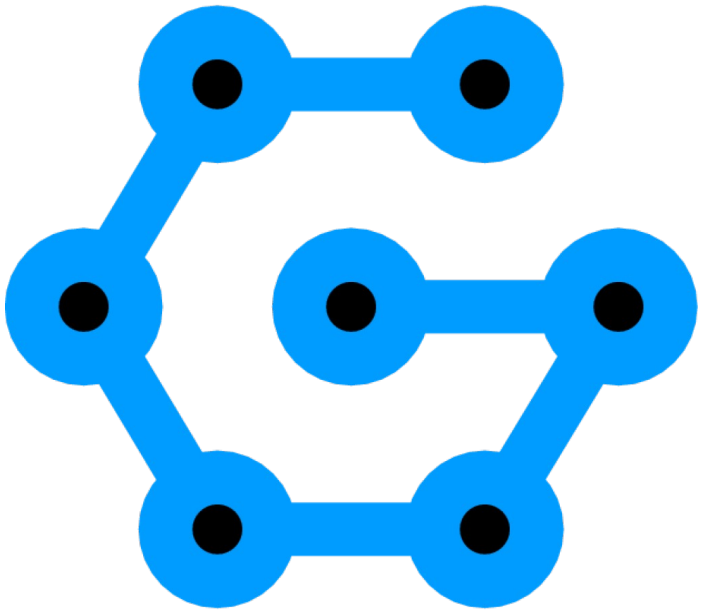
What is Gridsync?



- A cross-platform GUI for Tahoe-LAFS – the Least Authority File Store

- Goal: To make secure, distributed “cloud” storage easy and accessible for non-technical users

https://github.com/gridsync/gridsync

Tahoe-LAFS: overview

- A secure, decentralized data store
- Designed under the “Principle of Least Authority”
- Features:
  - “Provider-independent” security
  - Erasure coding for fault-tolerance
  - Cryptographic capabilities for granular access control
  - “Magic Folders” (forthcoming) – folder sync

- Typical usage: friends pooling together storage resources to form a storage “grid”

Tahoe-LAFS: overview

Usability issues:

- Command-line interface
- No native/standalone packages on OS X or Windows (user must install python, a compiler, build from source)
- Manual configuration required (i.e., hand-editing text files)
- Highly technical documentation

NOBODY READS YOUR BLOG

Communication, technology, education, and the body. I got my blog hat on, here. Expect working notes, not research.

WHY THE COMMAND LINE IS NOT USABLE

A number of FLOSS tools require users to do work at the command line in order to set them up or operate them. With Linux and its applications, this is often expected. Very few Windows, Apple, or even Android applications expect anyone to do this anymore.

Expecting this of end users is problematic (as I've explored to some extent before), and is likely to lead to very minimal spread and adoption of a piece of software.

Recently, I have been speaking with the Tahoe-LAFS project about improving the usability of their secure, decentralized file hosting system. They told me an OSX package was newly available. Oh, excellent, I thought. They can be a candidate for the expert UX review sweep we're about to do. Under the guidance of a Nielsen Norman Group researcher, we would walk through the discovery, install, setup, and basic functions of a small suite of FLOSS security tools.

The Tahoe-LAFS team gave me a link to a recent functional build. I downloaded the package, ran the standard Mac installer, and clicked on the resulting app. It gave me the error message "You can't open the application "tahoe" because it may be damaged or incomplete."

I went back to their devs. It's broken, I told them. Can I have a new package?

Oh, they said. You just have to run it at the command line.

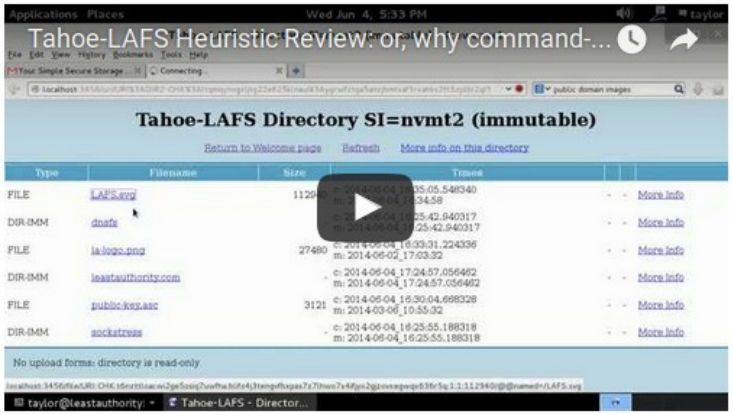
At this point, it looked like the expert review for Tahoe-LAFS was off, and I was going to have to report that the app had showstopping failures. Mac users are at least marginally used to double-clicking packages to install them (and these days, the iTunes store means they often don't even need to do that). Any user, no matter how advanced, is likely to take a system message saying an app is "damaged or incomplete" at face value. Even an expert user would be unlikely to try to work the app at the command line at that point; forget about asking your average nurse, retail clerk, or office manager to do so. All that aside, I didn't have any interface to evaluate.

A command line interface is like a door with no handles.

Then one of their developers sent me a video of the Tahoe-LAFS setup process, and I saw an opportunity to do a review comparing what I saw to standards for usability.

And as it turns out, this is may also be more generally helpful to explain to FLOSS developers why the command line isn't just "not 'shiny'" or "not dumbed down like a GUI" — it actually cognitively disables users.

Here is my annotation of the Tahoe-LAFS setup video. **NOTE: Have the YouTube "Annotations" feature active**, or you won't see the usability comments and none of this will make much sense.



Gridsync's operating principles

- ***No*** command-line; provide a GUI!
- ***No*** manual compilation; provide native packages with all dependencies included
- ***No*** hand-editing text files; guide the user through configuration
- ***No*** technical documentation; make functionality self-evident or "speak the user's language"

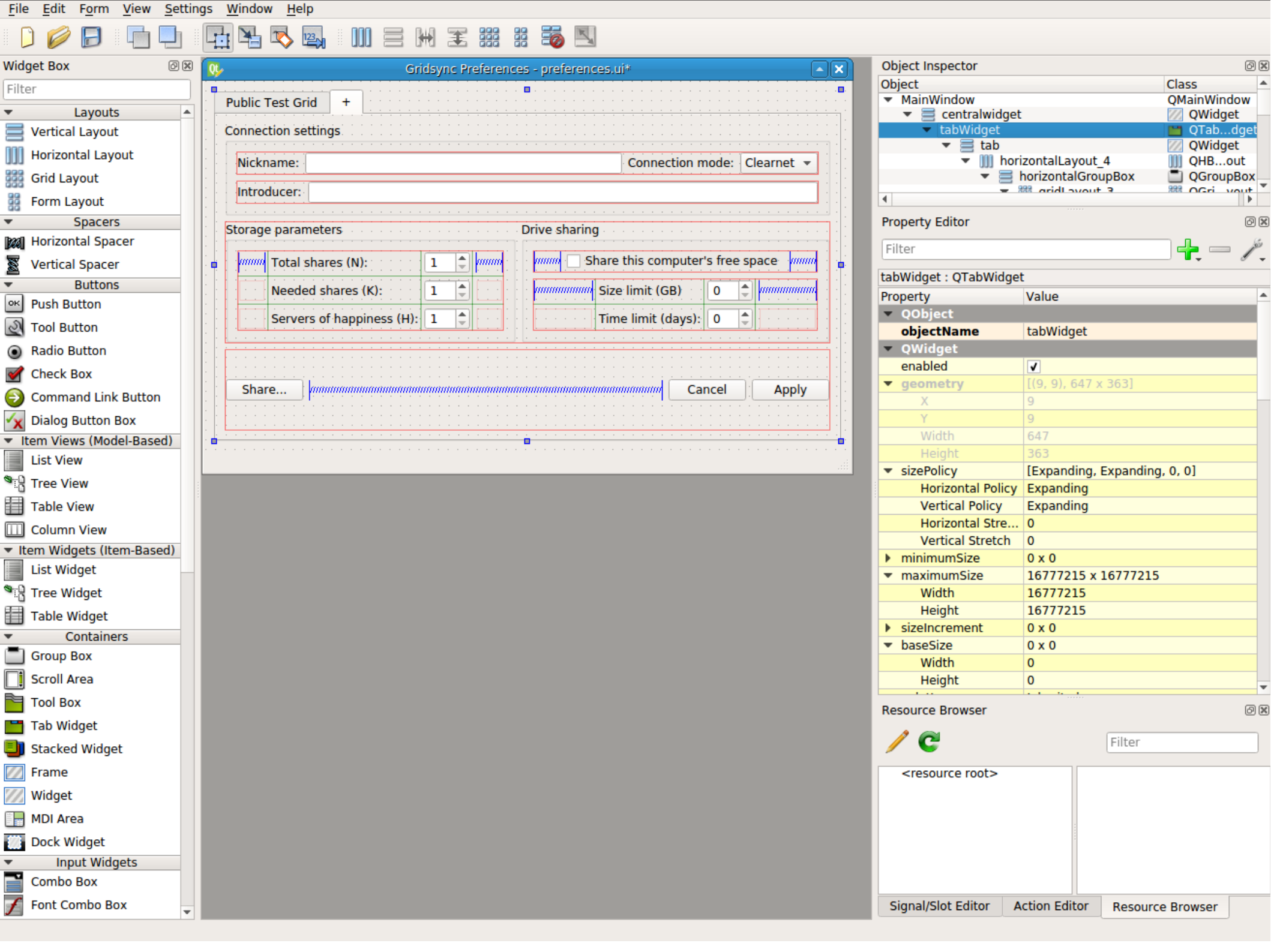
Development choices

Language: Python

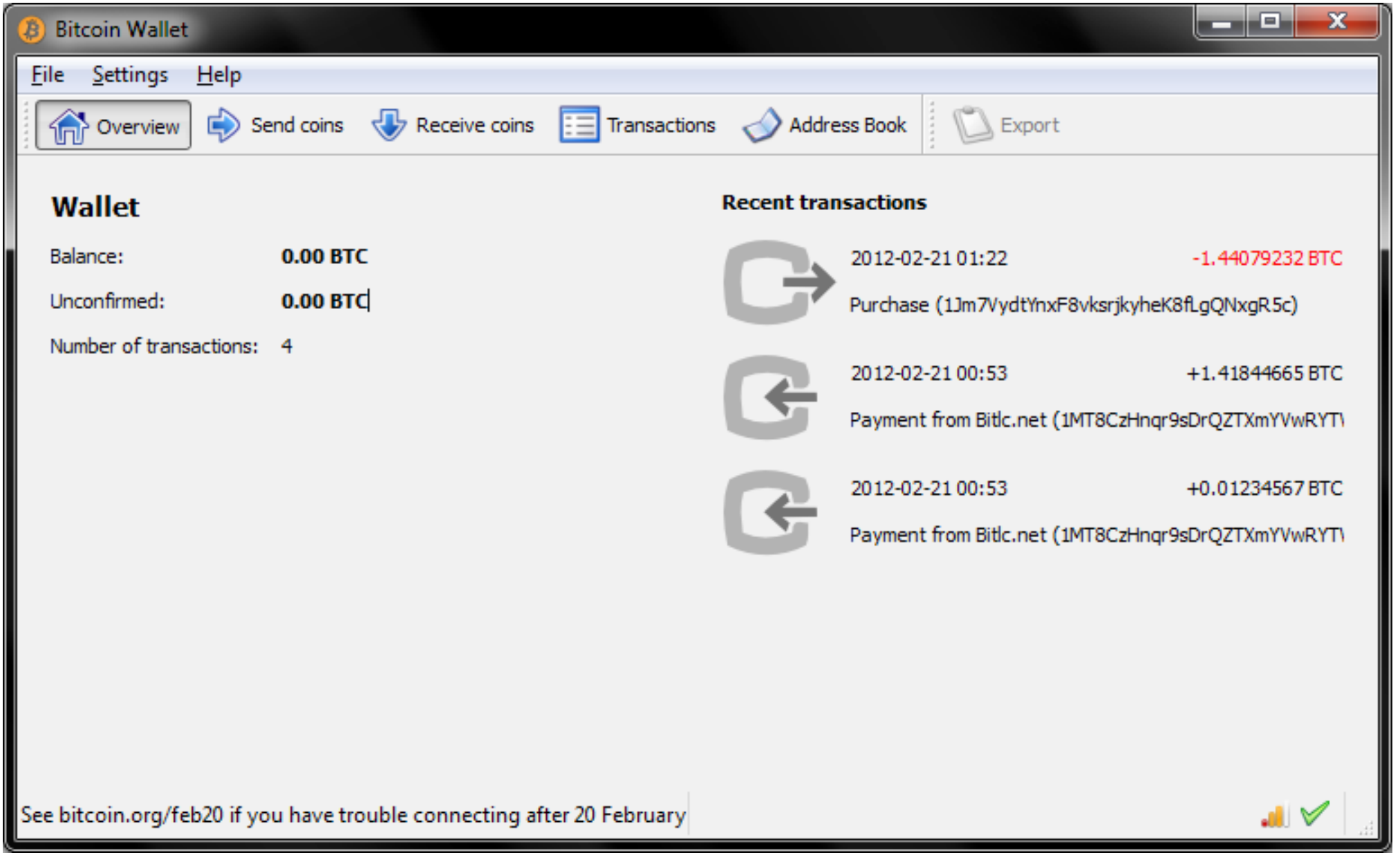
- Used by Tahoe-LAFS
- Relatively easy to learn, strong community
- Memory safe

Graphical toolkit: Qt5

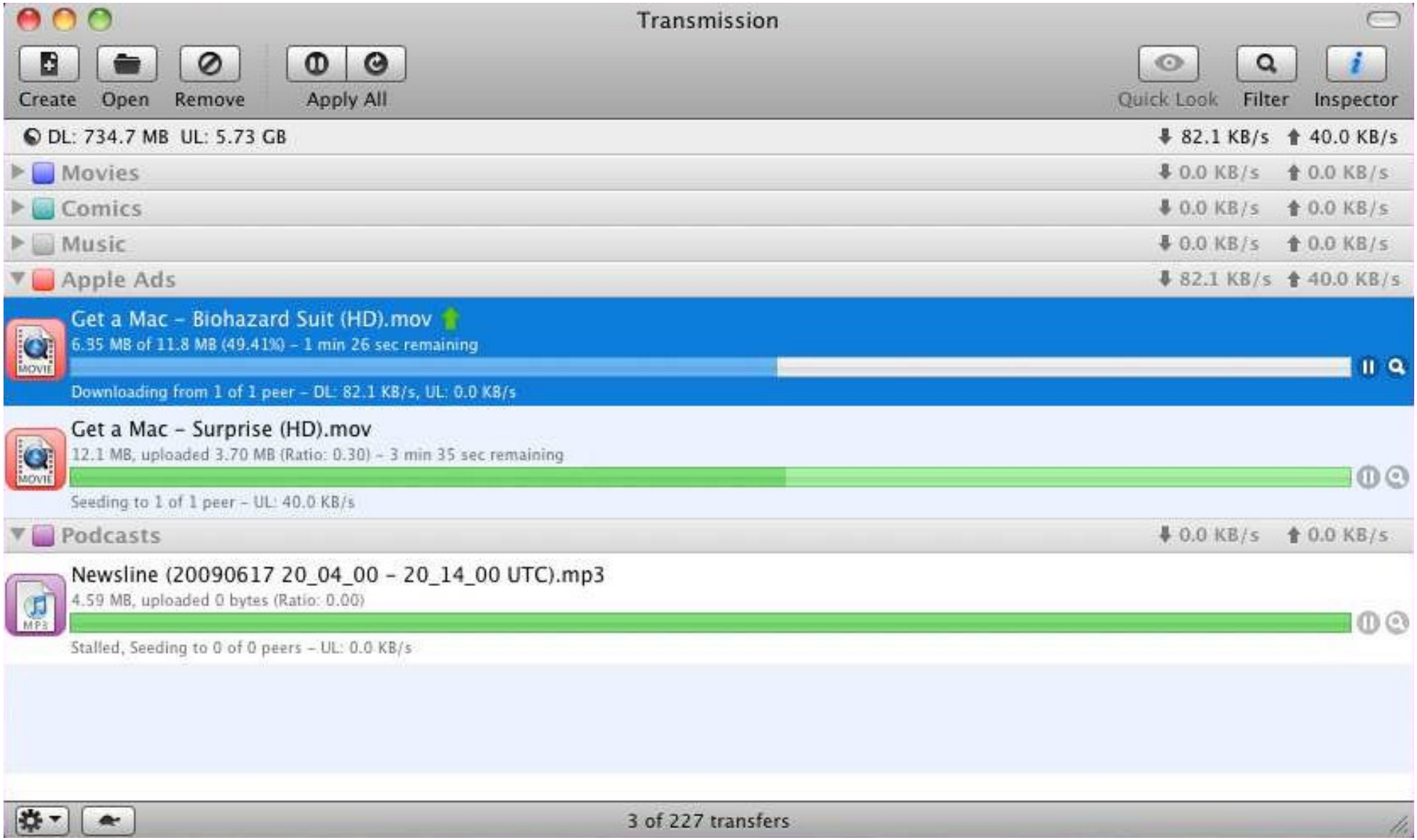
- Well-supported on all desktop platforms (incl. mobile)
- Emulates underlying platform widgets to provide “native” look & feel
- Scales with high-resolution (“retina”) displays
- Excellent documentation
- Provides drag & drop tools for prototyping interfaces (Qt Designer)


File Edit Form View Settings Window Help
Widget Box
Filter
Layouts
Vertical Layout
Horizontal Layout
Grid Layout
Form Layout
Spacers
Horizontal Spacer
Vertical Spacer
Buttons
Push Button
Tool Button
Radio Button
Check Box
Command Link Button
Dialog Button Box
Item Views (Model-Based)
List View
Tree View
Table View
Column View
Item Widgets (Item-Based)
List Widget
Tree Widget
Table Widget
Containers
Group Box
Scroll Area
Tool Box
Tab Widget
Stacked Widget
Frame
Widget
MDI Area
Dock Widget
Input Widgets
Combo Box
Font Combo Box
Gridsync Preferences - preferences.ui*
Public Test Grid
+
Connection settings
Nickname:
Connection mode:
Clearnet
Introducer:
Storage parameters
Total shares (N):
1
Needed shares (K):
1
Servers of happiness (H):
1
Drive sharing
Share this computer's free space
Size limit (GB)
0
Time limit (days):
0
Share...
Cancel
Apply
Object Inspector
Object
Class
MainWindow
QMainWindow
centralwidget
QWidget
tabWidget
QTab...dget
tab
QWidget
horizontalLayout_4
QHB...out
horizontalGroupBox
QGroupBox
Property Editor
Filter
tabWidget : QTabWidget
Property
Value
QObject
objectName
tabWidget
QWidget
enabled
geometry
[(9, 9), 647 x 363]
X
9
Y
9
Width
647
Height
363
sizePolicy
[Expanding, Expanding, 0, 0]
Horizontal Policy
Expanding
Vertical Policy
Expanding
Horizontal Stre...
0
Vertical Stretch
0
minimumSize
0 x 0
maximumSize
16777215 x 16777215
Width
16777215
Height
16777215
sizeIncrement
0 x 0
baseSize
0 x 0
Width
0
Height
0
Resource Browser
Filter
<resource root>
Signal/Slot Editor
Action Editor
Resource Browser

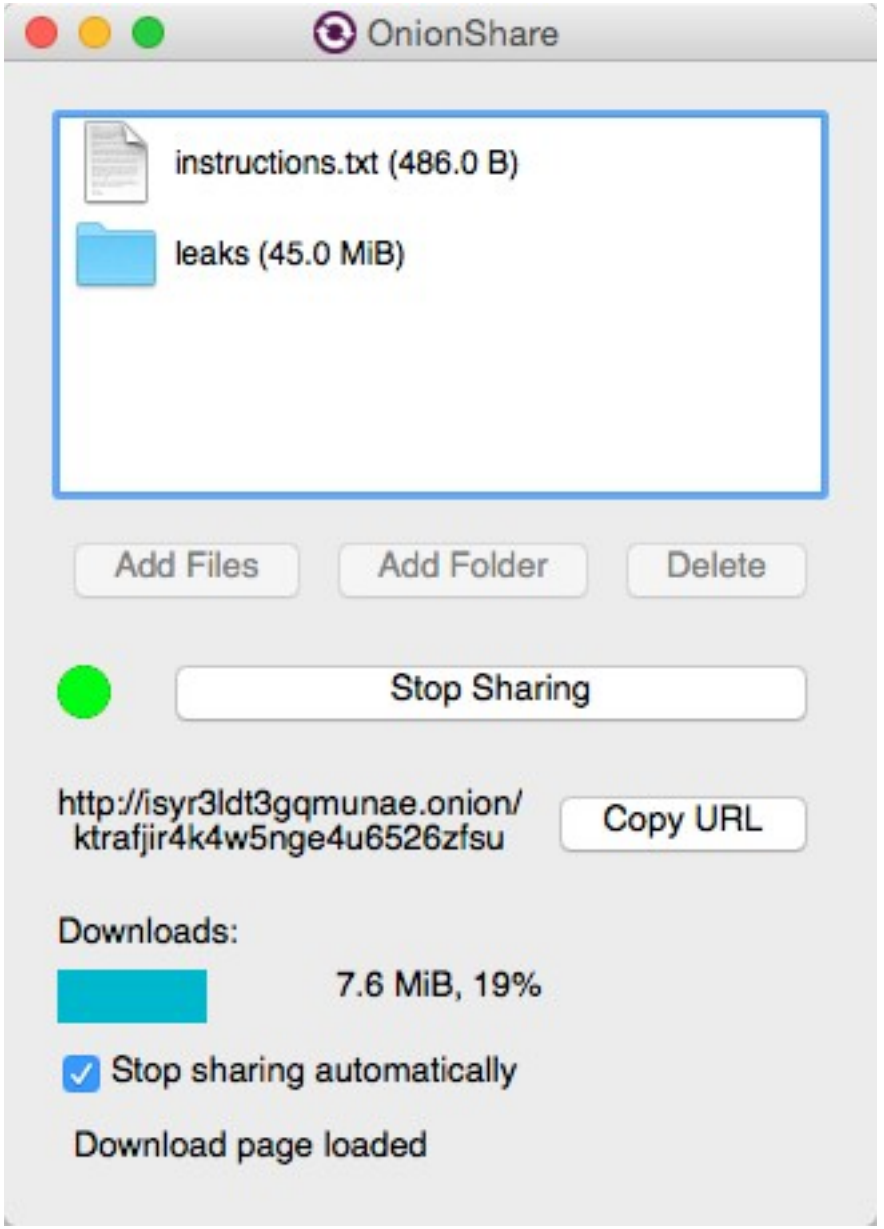
Qt apps:

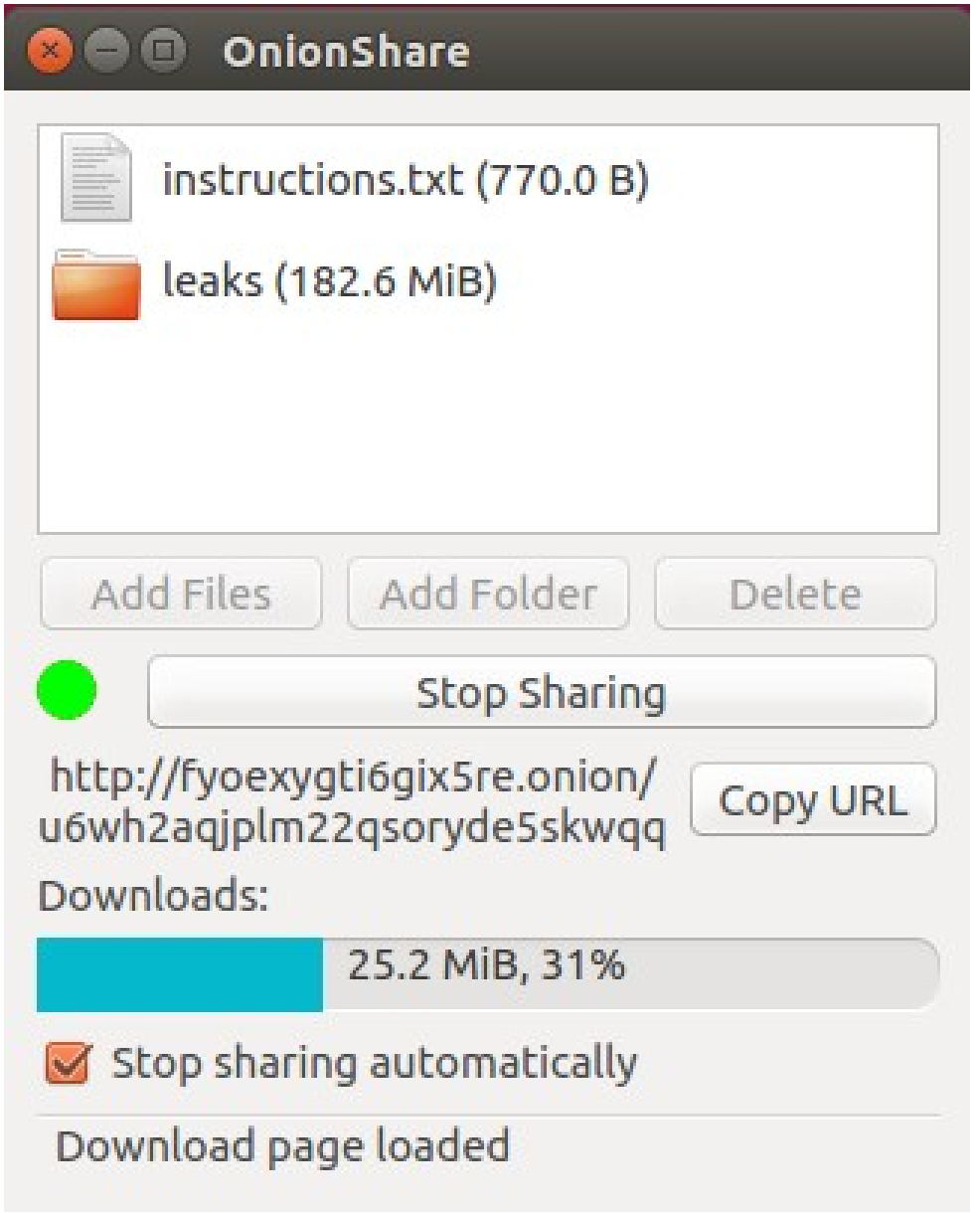

Bitcoin Wallet
File
Settings
Help
Overview
Send coins
Receive coins
Transactions
Address Book
Export
Wallet
Balance:
0.00 BTC
Unconfirmed:
0.00 BTC
Number of transactions:
4
Recent transactions
2012-02-21 01:22
-1.44079232 BTC
Purchase (1Jm7VydtYnxF8vksrjkyheK8fLgQNxgR5c)
2012-02-21 00:53
+1.41844665 BTC
Payment from Bitlc.net (1MT8CzHnqr9sDrQZTXmYVwRYT
2012-02-21 00:53
+0.01234567 BTC
Payment from Bitlc.net (1MT8CzHnqr9sDrQZTXmYVwRYT
See bitcoin.org/feb20 if you have trouble connecting after 20 February

Qt apps:


Transmission
Create
Open
Remove
Apply All
Quick Look
Filter
Inspector
DL: 734.7 MB UL: 5.73 GB
82.1 KB/s 40.0 KB/s
Movies
0.0 KB/s 0.0 KB/s
Comics
0.0 KB/s 0.0 KB/s
Music
0.0 KB/s 0.0 KB/s
Apple Ads
82.1 KB/s 40.0 KB/s
Get a Mac – Biohazard Suit (HD).mov
6.35 MB of 11.8 MB (49.41%) – 1 min 26 sec remaining
Downloading from 1 of 1 peer – DL: 82.1 KB/s, UL: 0.0 KB/s
Get a Mac – Surprise (HD).mov
12.1 MB, uploaded 3.70 MB (Ratio: 0.30) – 3 min 35 sec remaining
Seeding to 1 of 1 peer – UL: 40.0 KB/s
Podcasts
0.0 KB/s 0.0 KB/s
Newsline (20090617 20_04_00 – 20_14_00 UTC).mp3
4.59 MB, uploaded 0 bytes (Ratio: 0.00)
Stalled, Seeding to 0 of 0 peers – UL: 0.0 KB/s
3 of 227 transfers

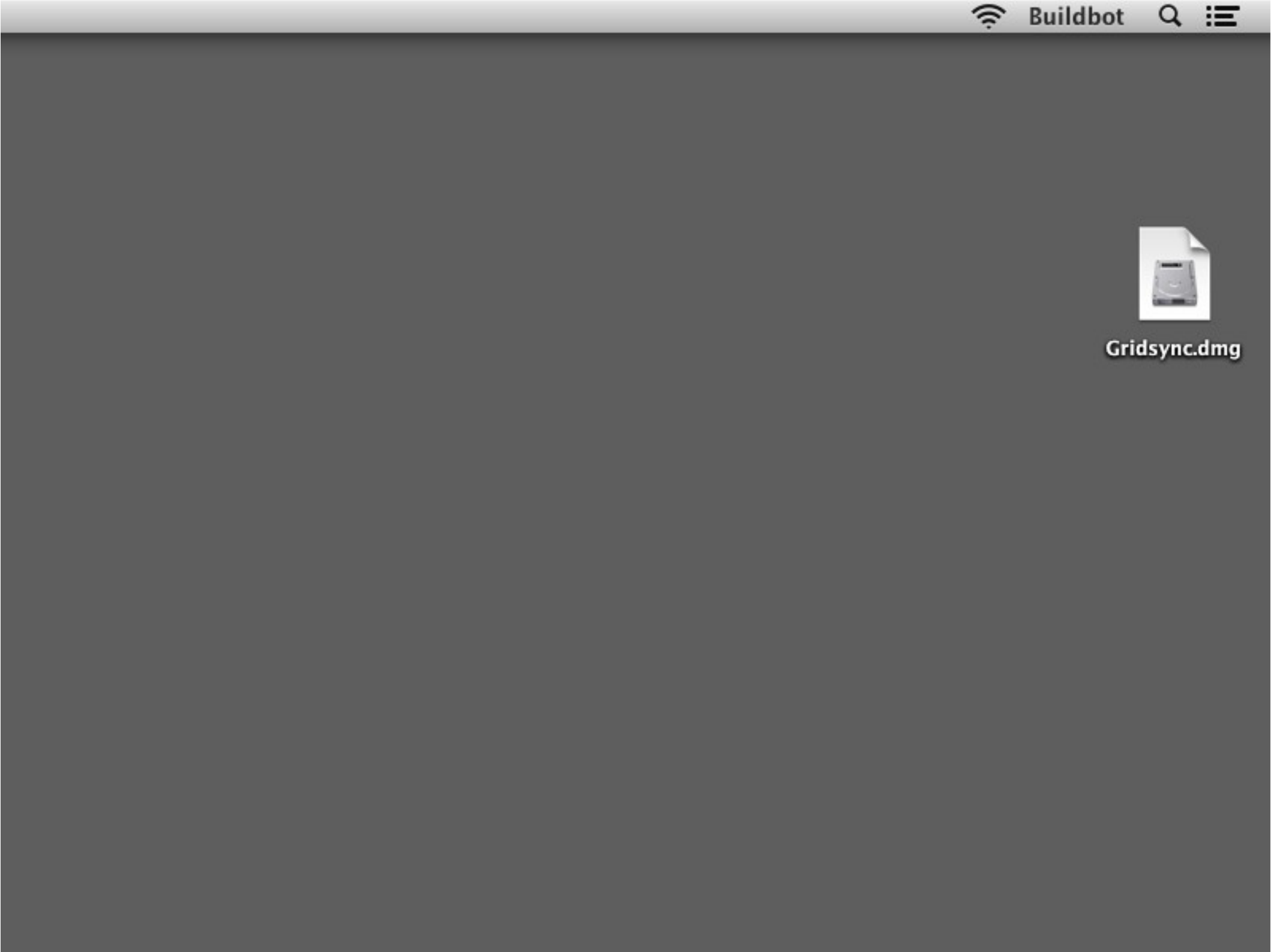
Qt apps:

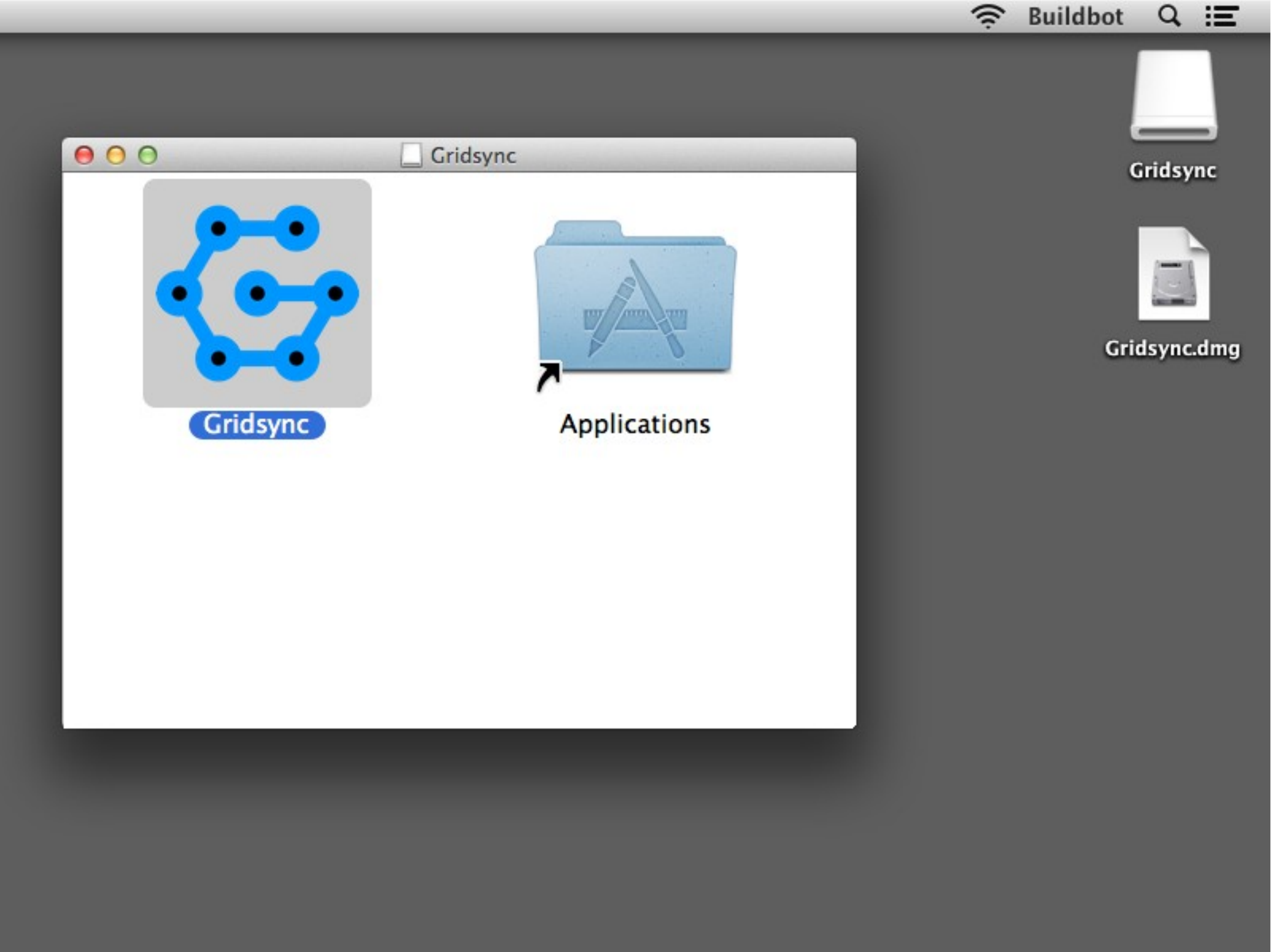

OnionShare
instructions.txt (486.0 B)
leaks (45.0 MiB)
Add Files
Add Folder
Delete
Stop Sharing
http://isyr3ldt3gqmunae.onion/
ktrafjir4k4w5nge4u6526zfsu
Copy URL
Downloads:
7.6 MiB, 19%
Stop sharing automatically
Download page loaded

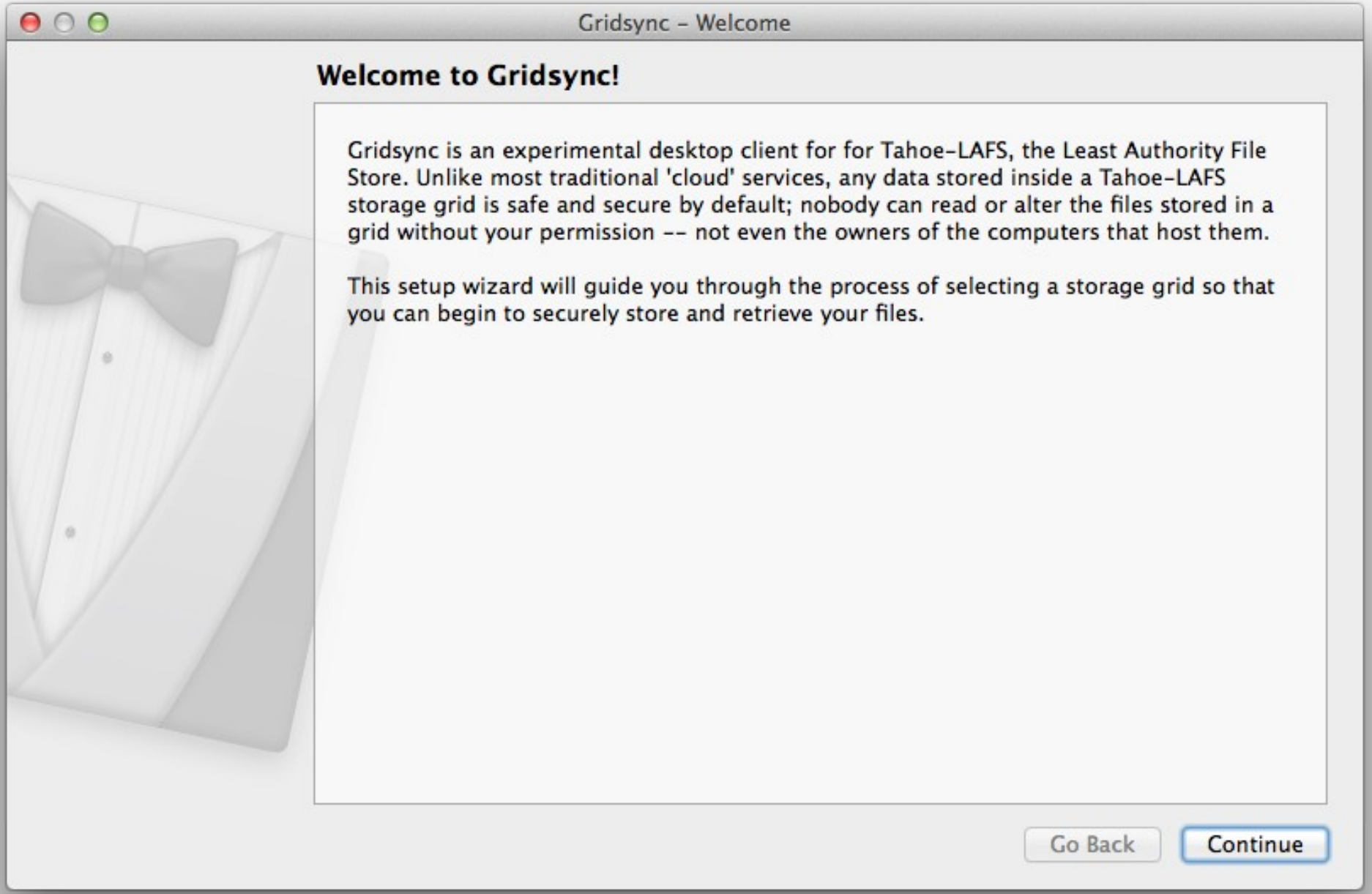

OnionShare
instructions.txt (770.0 B)
leaks (182.6 MiB)
Add Files
Add Folder
Delete
Stop Sharing
http://fyoexygti6gix5re.onion/
u6wh2aqjplm22qsoryde5skwqq
Copy URL
Downloads:
25.2 MiB, 31%
Stop sharing automatically
Download page loaded

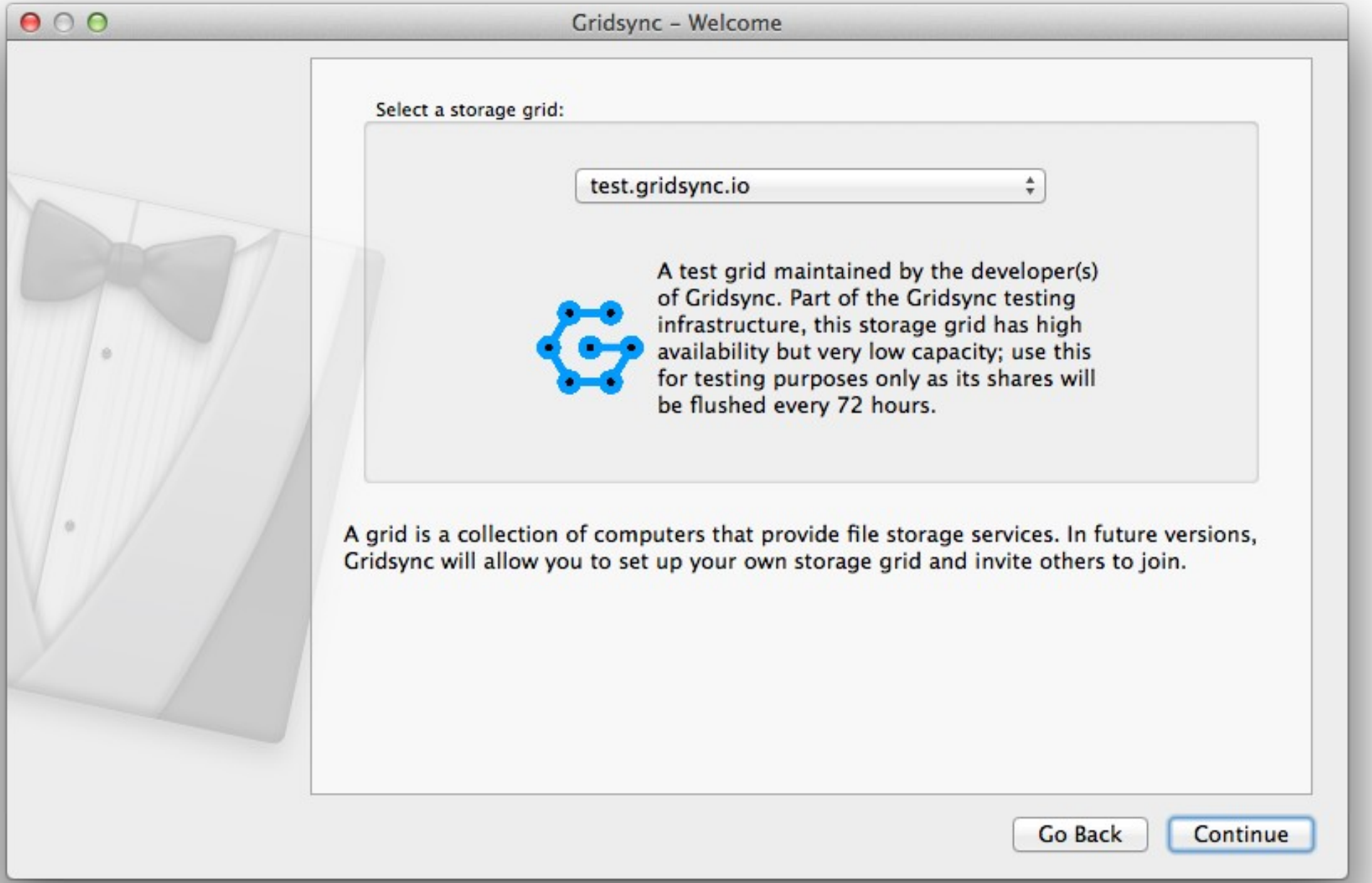
Gridsync: current status

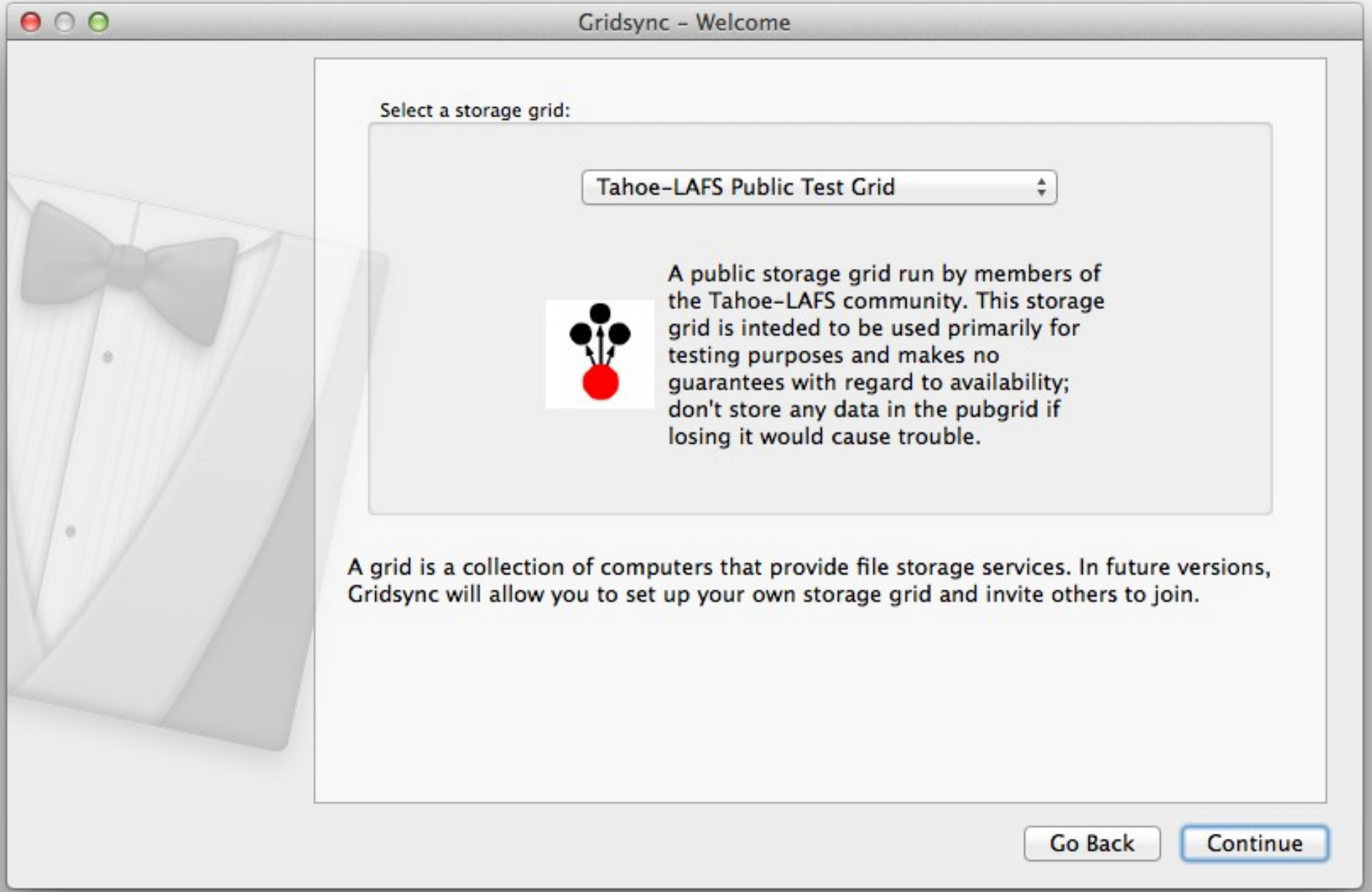
- Experimental / “Alpha” (do not use!)
- What’s done / mostly working:
  - Native packaging (.dmg/.app for OS X, .exe for Windows) with all dependencies included
  - Simple installation (“Drag Gridsync.app into your Applications folder”) and running (“Double-click Gridsync.exe”)
  - Basic setup wizard with pre-configured storage providers
  - Simple automated backups/snapshots
  - Desktop notifications
  - Semi-reproducible builds (python bits only)

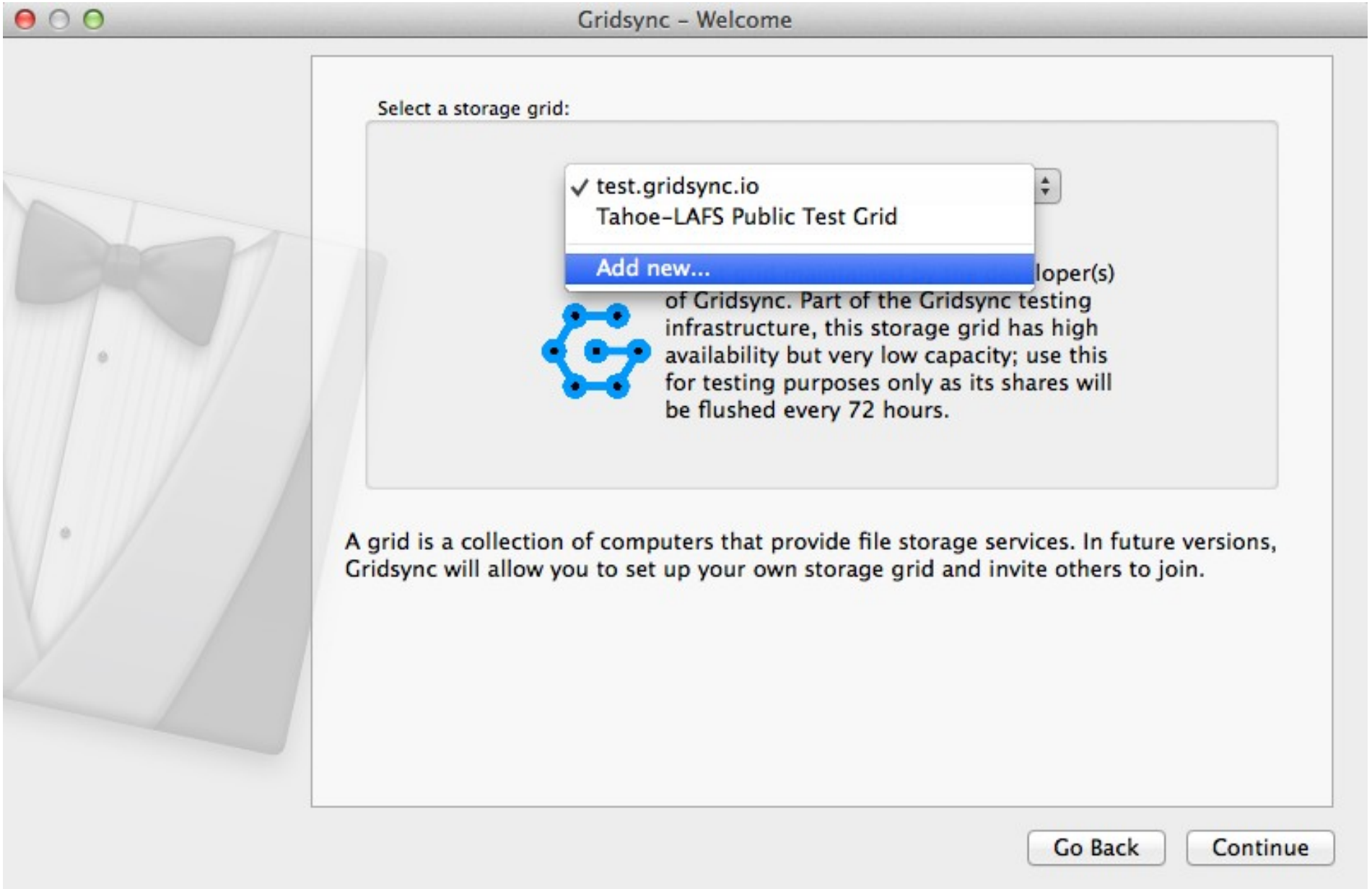

Buildbot
Gridsync.dmg

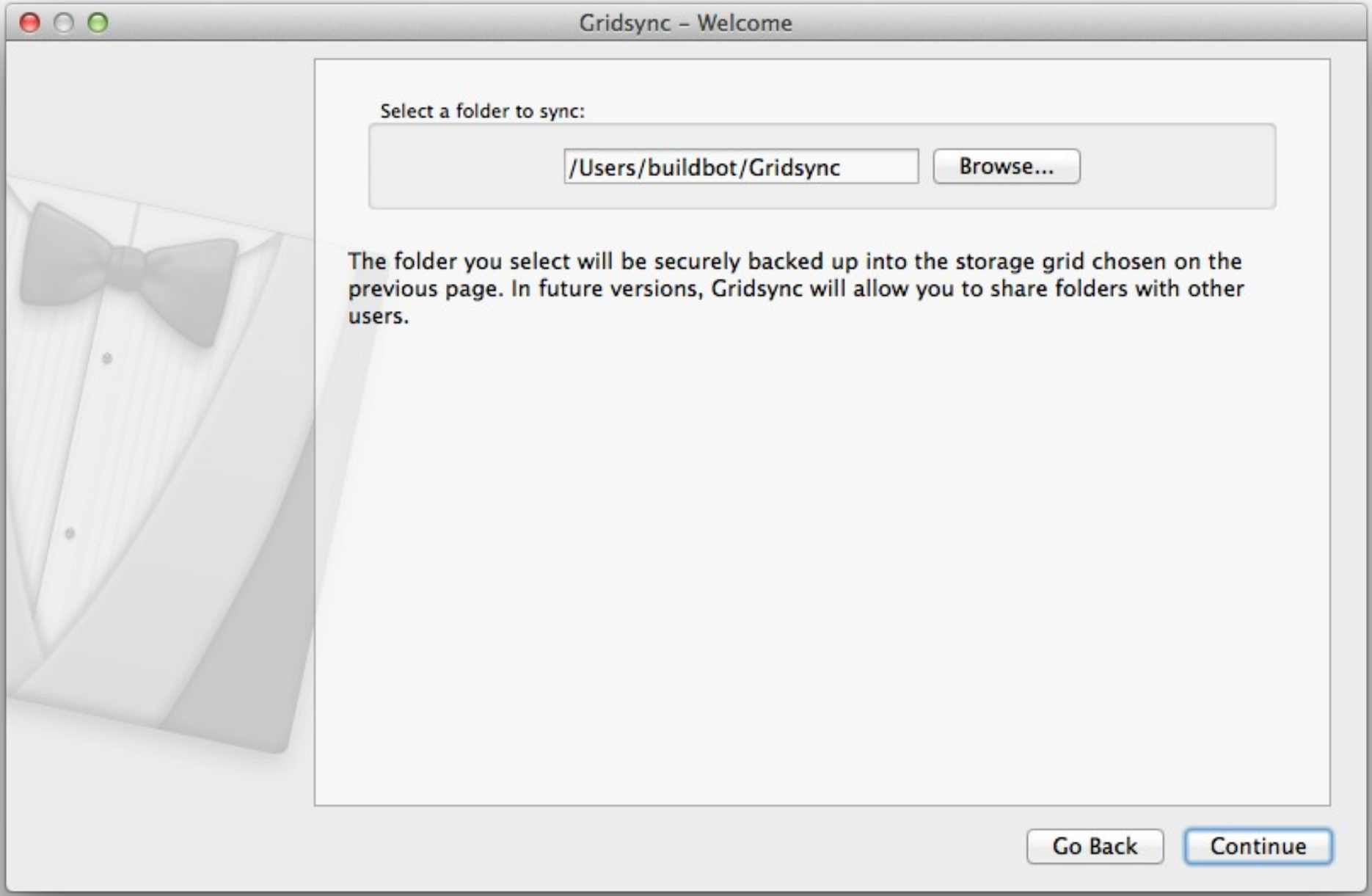

Buildbot
Gridsync
Gridsync.dmg
Gridsync
Gridsync
Applications

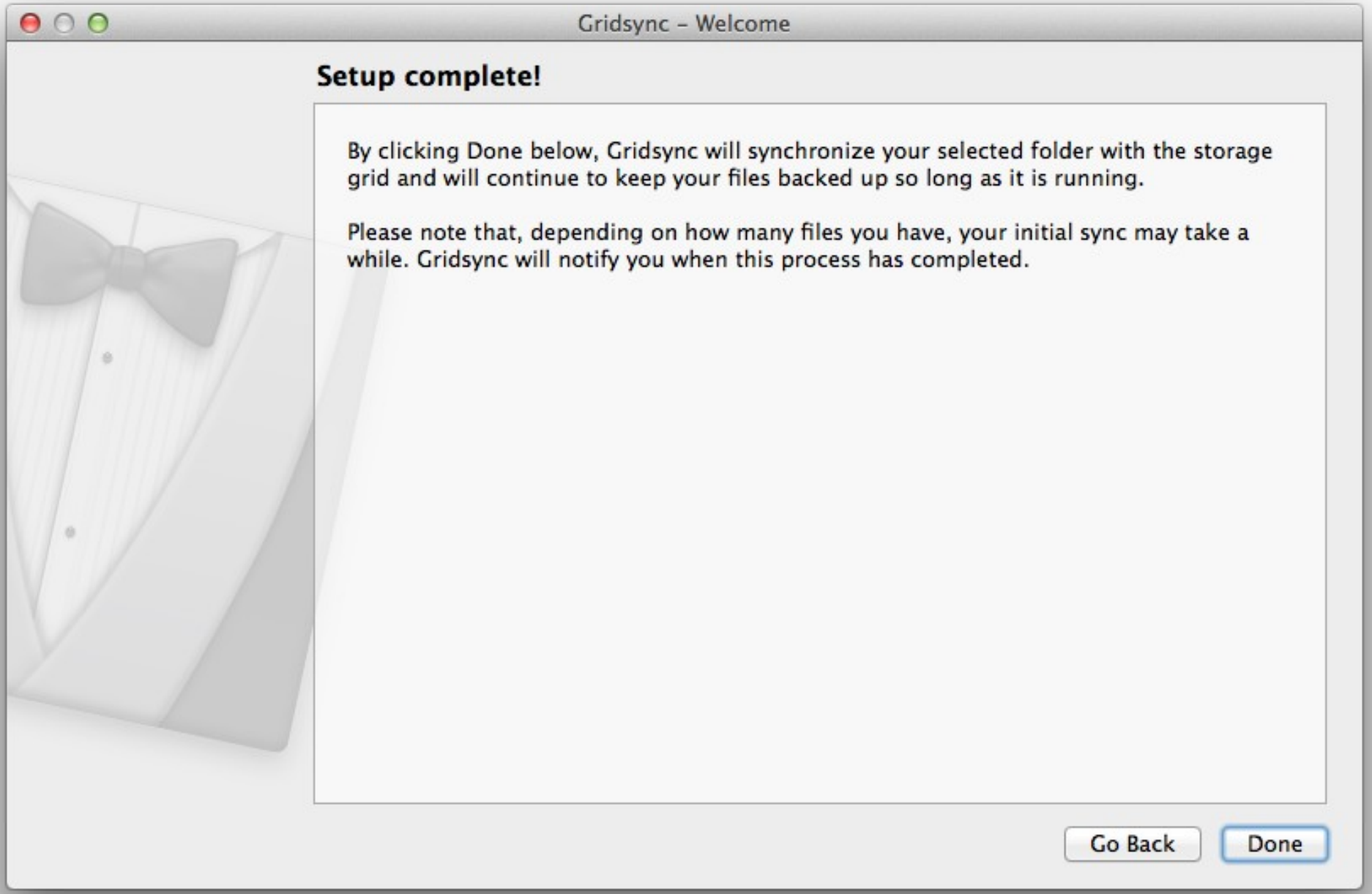

Gridsync – Welcome
Welcome to Gridsync!
Gridsync is an experimental desktop client for for Tahoe-LAFS, the Least Authority File Store. Unlike most traditional 'cloud' services, any data stored inside a Tahoe-LAFS storage grid is safe and secure by default; nobody can read or alter the files stored in a grid without your permission -- not even the owners of the computers that host them.
This setup wizard will guide you through the process of selecting a storage grid so that you can begin to securely store and retrieve your files.
Go Back
Continue

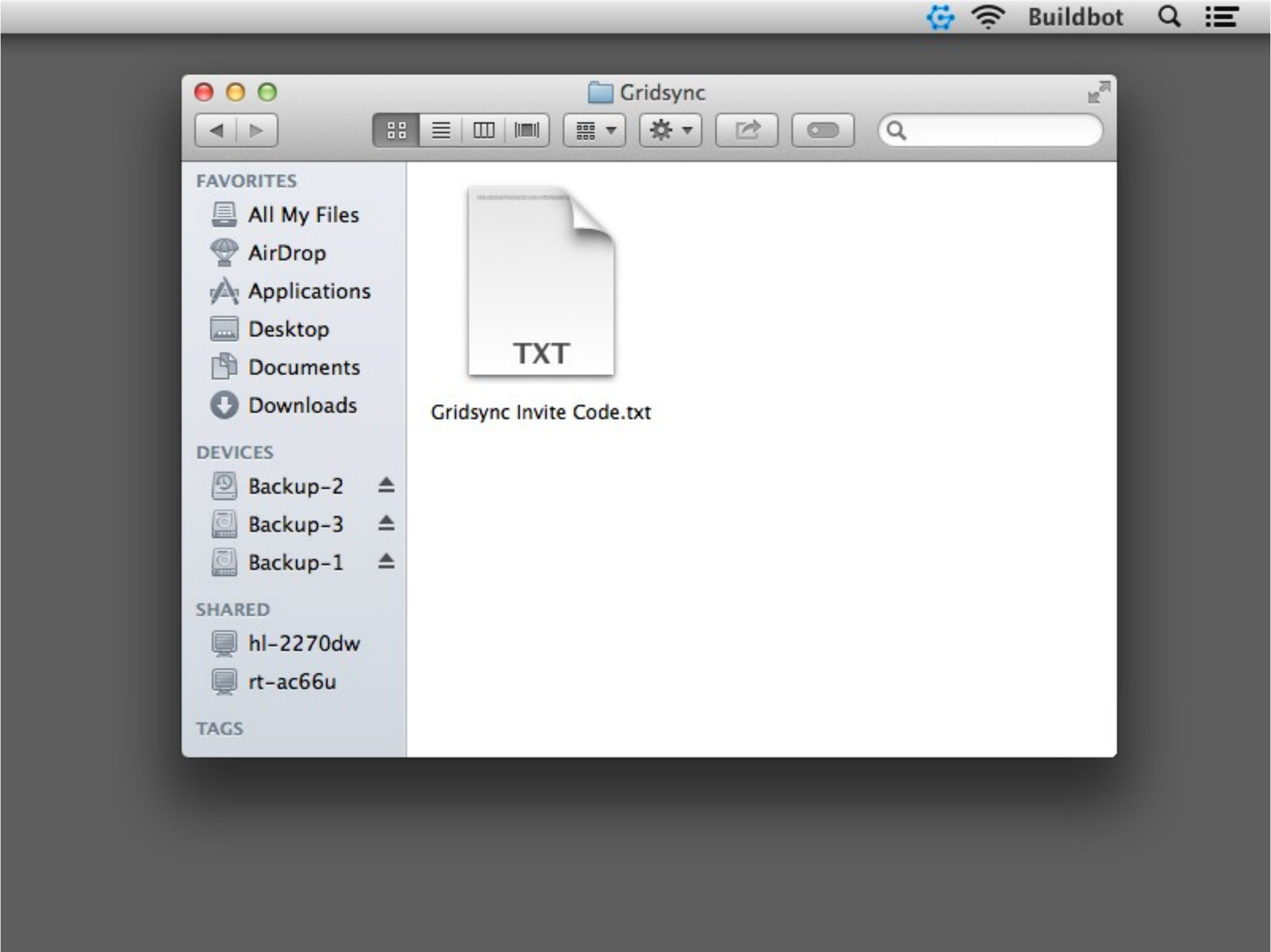

Gridsync – Welcome
Select a storage grid:
test.gridsync.io
A test grid maintained by the developer(s) of Gridsync. Part of the Gridsync testing infrastructure, this storage grid has high availability but very low capacity; use this for testing purposes only as its shares will be flushed every 72 hours.
A grid is a collection of computers that provide file storage services. In future versions, Gridsync will allow you to set up your own storage grid and invite others to join.
Go Back
Continue

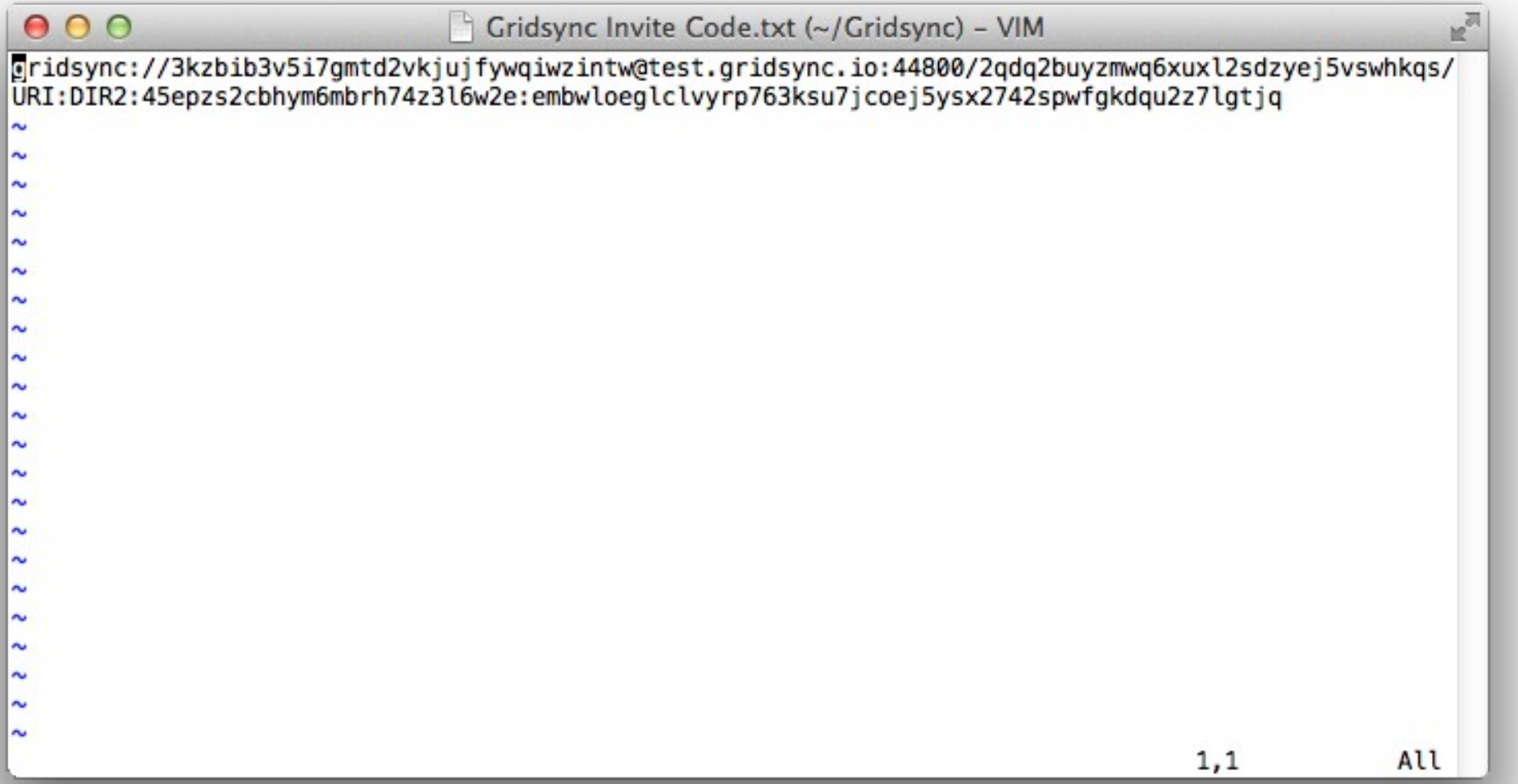

Gridsync – Welcome
Select a storage grid:
Tahoe-LAFS Public Test Grid
A public storage grid run by members of the Tahoe-LAFS community. This storage grid is inteded to be used primarily for testing purposes and makes no guarantees with regard to availability; don't store any data in the pubgrid if losing it would cause trouble.
A grid is a collection of computers that provide file storage services. In future versions, Gridsync will allow you to set up your own storage grid and invite others to join.
Go Back
Continue

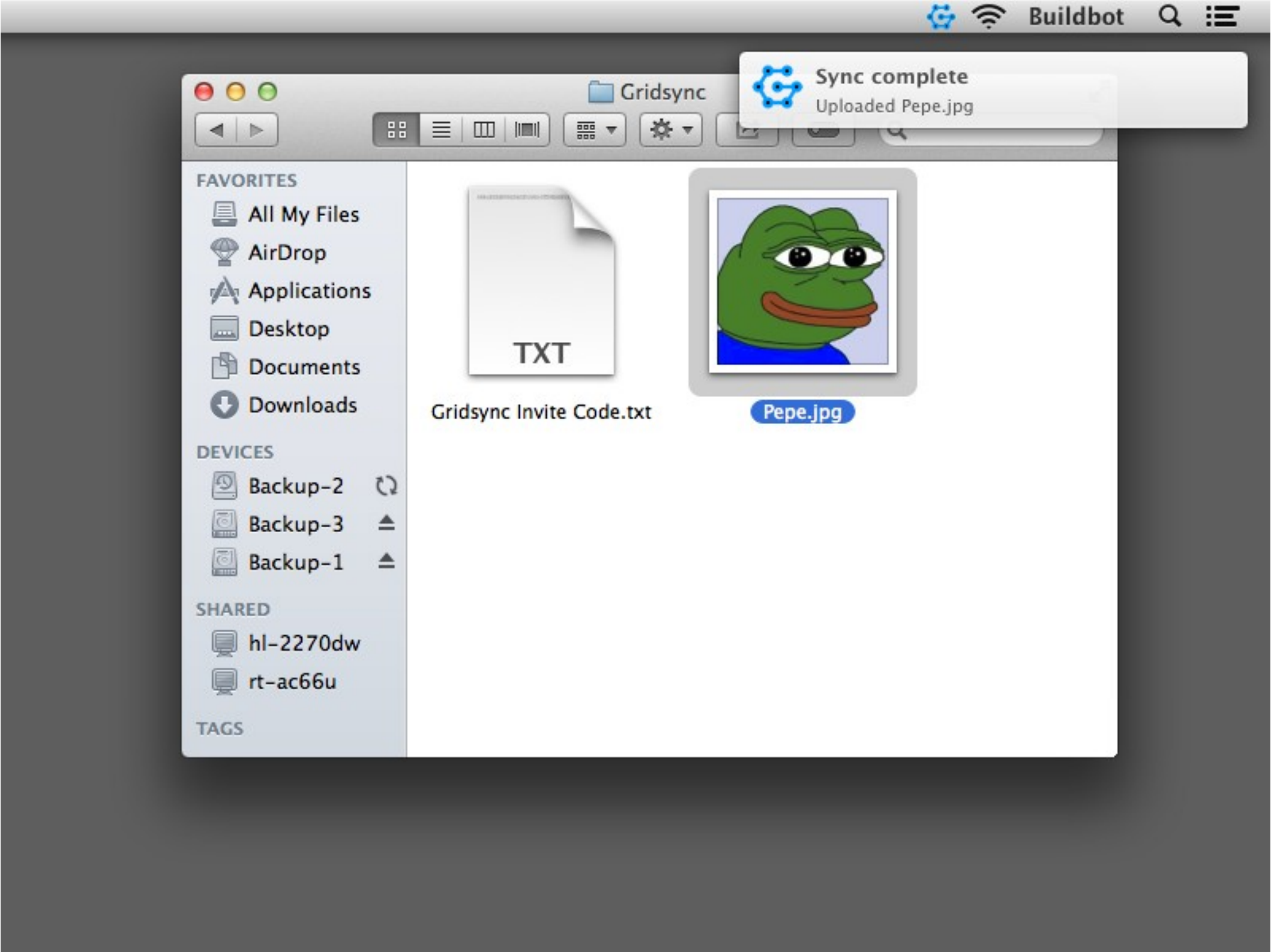

Gridsync – Welcome
Select a storage grid:
test.gridsync.io
Tahoe-LAFS Public Test Grid
Add new...
loper(s)
of Gridsync. Part of the Gridsync testing infrastructure, this storage grid has high availability but very low capacity; use this for testing purposes only as its shares will be flushed every 72 hours.
A grid is a collection of computers that provide file storage services. In future versions, Gridsync will allow you to set up your own storage grid and invite others to join.
Go Back
Continue

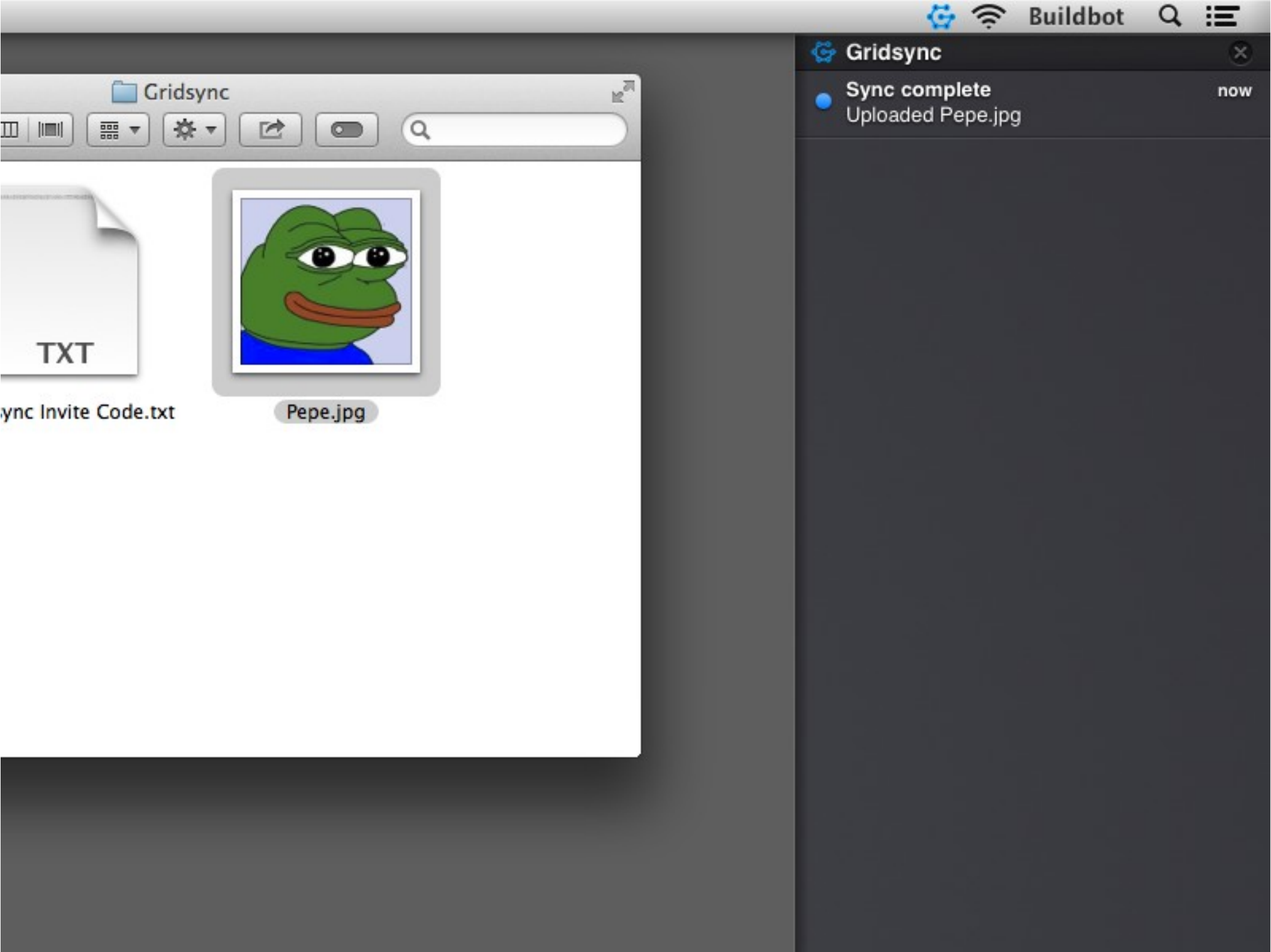

Gridsync – Welcome
Select a folder to sync:
/Users/buildbot/Gridsync
Browse...
The folder you select will be securely backed up into the storage grid chosen on the previous page. In future versions, Gridsync will allow you to share folders with other users.
Go Back
Continue


Gridsync – Welcome
Setup complete!
By clicking Done below, Gridsync will synchronize your selected folder with the storage grid and will continue to keep your files backed up so long as it is running.
Please note that, depending on how many files you have, your initial sync may take a while. Gridsync will notify you when this process has completed.
Go Back
Done

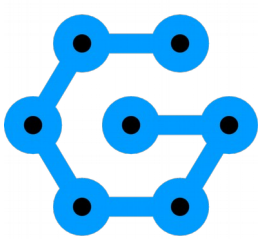

Buildbot
Gridsync
FAVORITES
All My Files
AirDrop
Applications
Desktop
Documents
Downloads
DEVICES
Backup-2
Backup-3
Backup-1
SHARED
hl-2270dw
rt-ac66u
TAGS
TXT
Gridsync Invite Code.txt

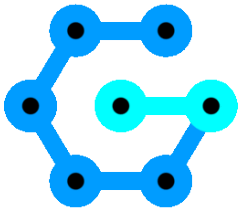

Gridsync Invite Code.txt (~/Gridsync) – VIM
gridsync://3kzbib3v5i7gmtd2vkjujfywqiwzintw@test.gridsync.io:44800/2qdq2buyzmwq6xuxl2sdzyej5vswhkqs/
URI:DIR2:45epzs2cbhym6mbrh74z3l6w2e:embwloeglclvyrp763ksu7jcoej5ysx2742spwfgkdqu2z7lgtjq
1,1 All


Buildbot
Sync complete
Uploaded Pepe.jpg
Gridsync
FAVORITES
All My Files
AirDrop
Applications
Desktop
Documents
Downloads
DEVICES
Backup-2
Backup-3
Backup-1
SHARED
hl-2270dw
rt-ac66u
TAGS
TXT
Gridsync Invite Code.txt
Pepe.jpg


Buildbot
Gridsync
Sync complete
now
Uploaded Pepe.jpg
Gridsync
TXT
ync Invite Code.txt
Pepe.jpg

Systray icon statuses

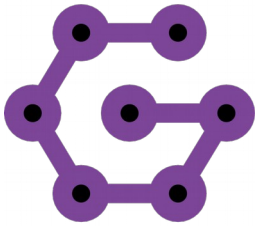
 – Idle

 – Syncing

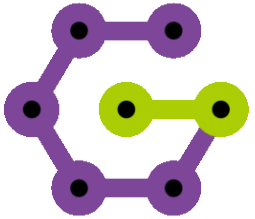
 – Up-to-date

 – Something went wrong

Systray icon statuses (NYI)

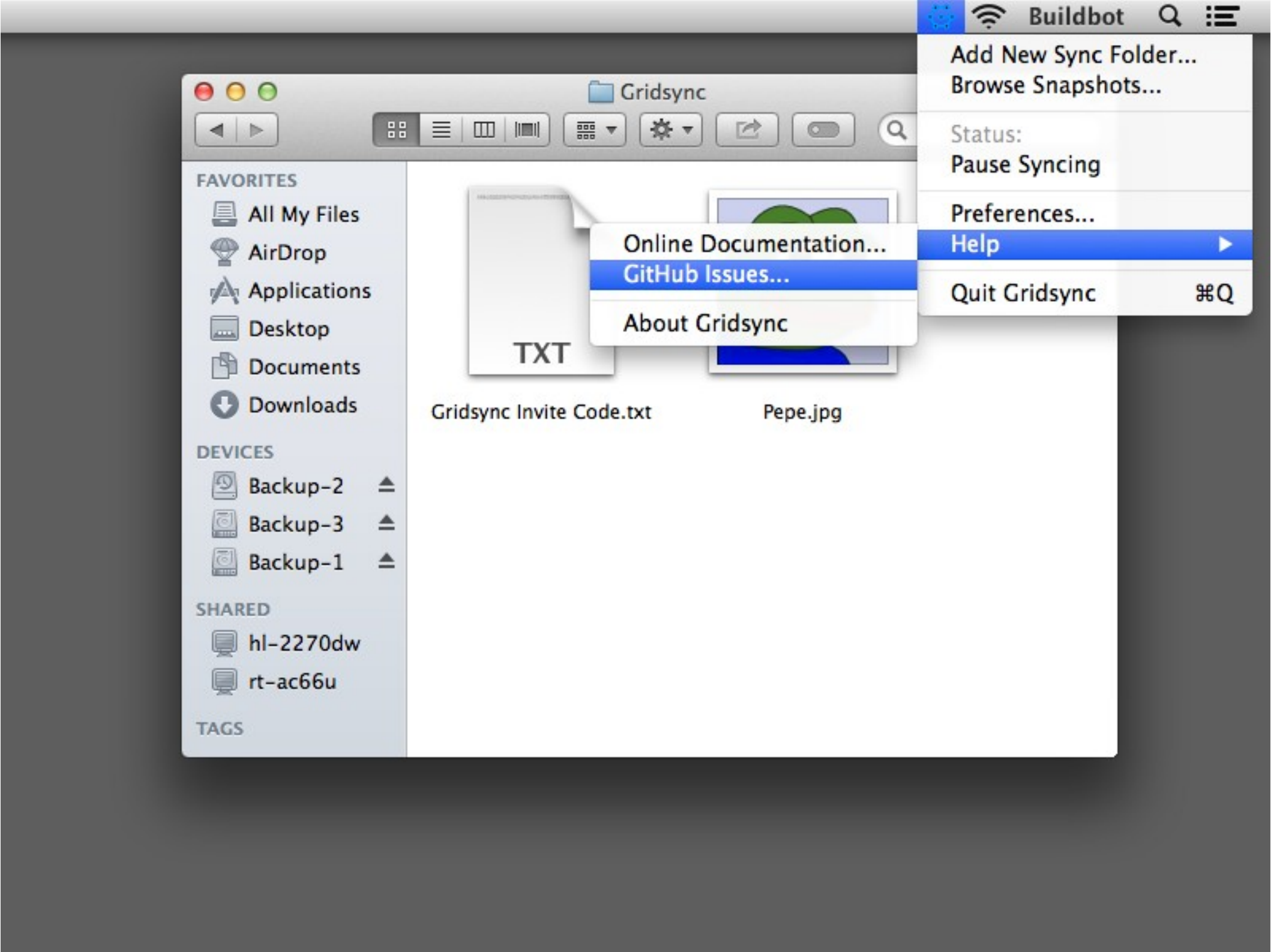


– Connected through Tor



– Syncing through Tor

– etc


Buildbot
Add New Sync Folder...
Browse Snapshots...
Status:
Pause Syncing
Preferences...
Help
Quit Gridsync ⌘Q
Online Documentation...
GitHub Issues...
About Gridsync
Gridsync
FAVORITES
All My Files
AirDrop
Applications
Desktop
Documents
Downloads
DEVICES
Backup-2
Backup-3
Backup-1
SHARED
hl-2270dw
rt-ac66u
TAGS
TXT
Gridsync Invite Code.txt
Pepe.jpg

UI/UX that’s missing / needed

- Managing (adding, removing) storage grids
- Managing (adding, removing) folders
- Sharing and accepting folder invites (incl. revocation)
- Status updates (sync progress, ‘shares’ map)
- Browsing file history/snapshots(?)

Contact

- Github: https://github.com/gridsync/gridsync
- Email: cypher@tnt.cx (PGP: 0xFFF1071F)
- XMPP/Jabber: crwood@jabber.ccc.de (OTR: F1AF5D25 B3EE49F2 15E9F5A7 5DE93D19 EC981711)
- IRC: #gridsync on freenode