SeedMe

Your results from disk to device

Continuous and Ubiquitous Sharing via SeedMe.org

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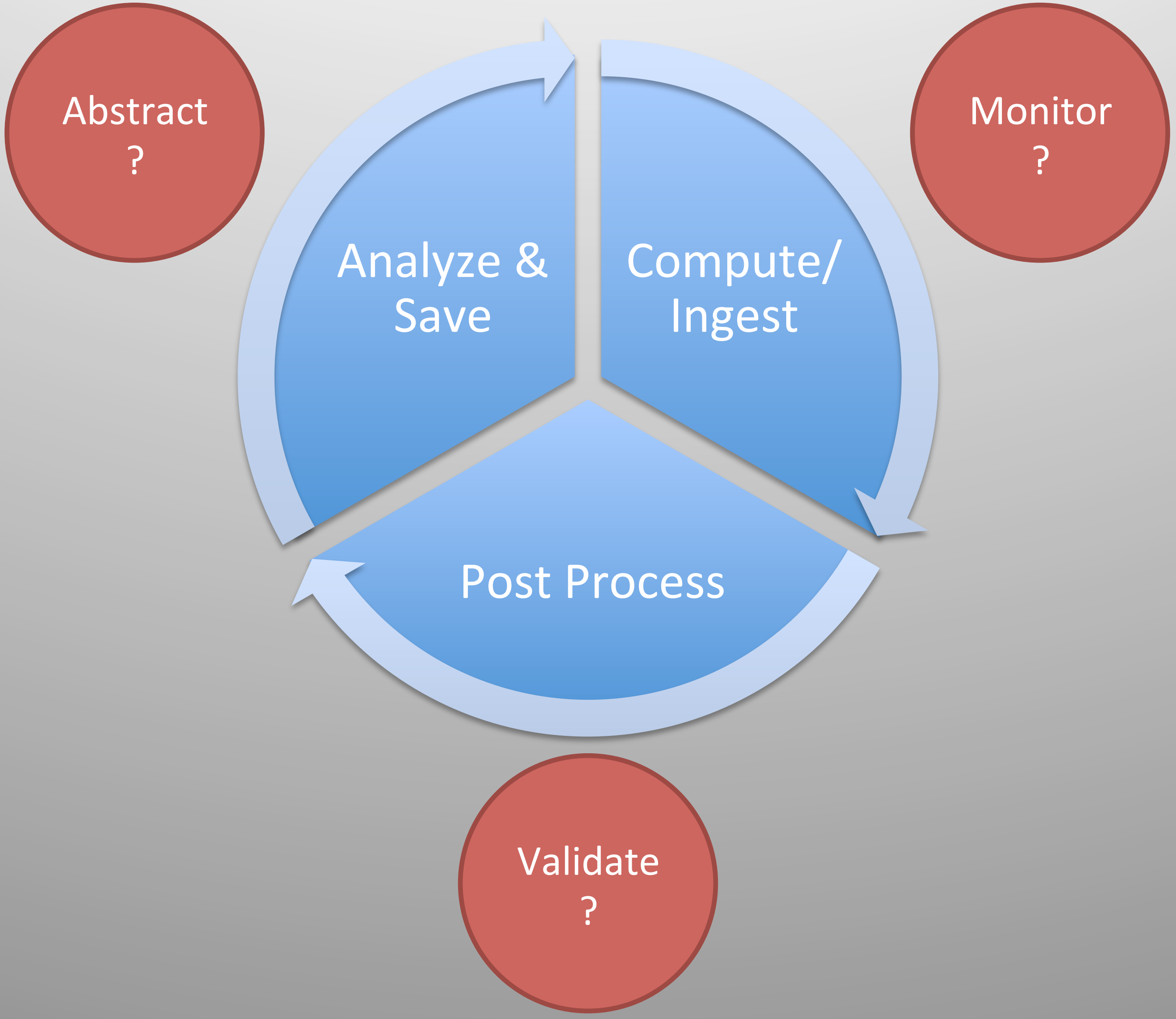
Tutorial Requirements

1. Create account on **http://www.seedme.org**
   My Account > Create new account

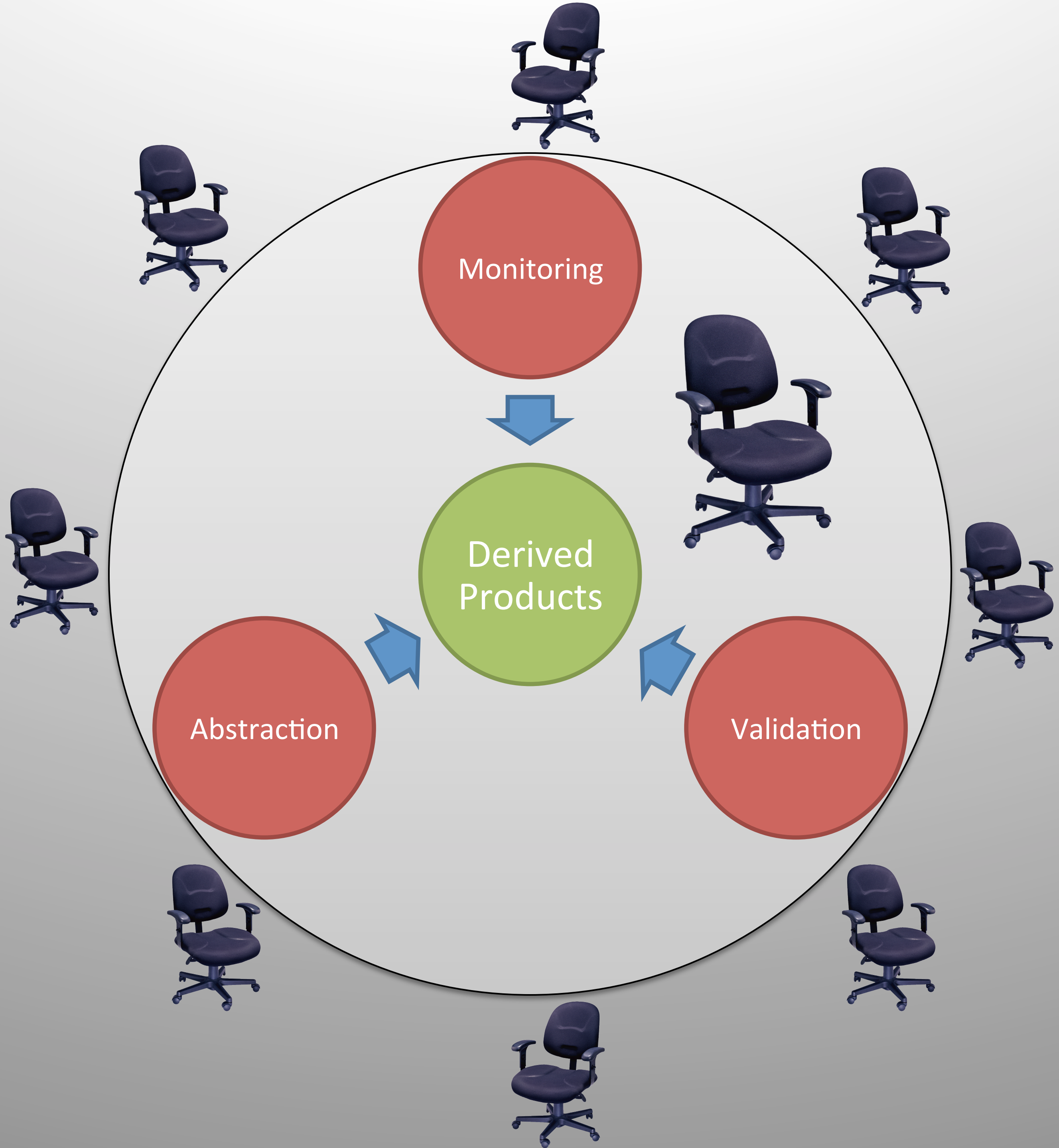
2. Python version 2.6 or 2.7 (preferably) or 3.x
   (Python knowledge not required)

3. Curl executable (Optional)

Computation Cycle



SeedMe.org



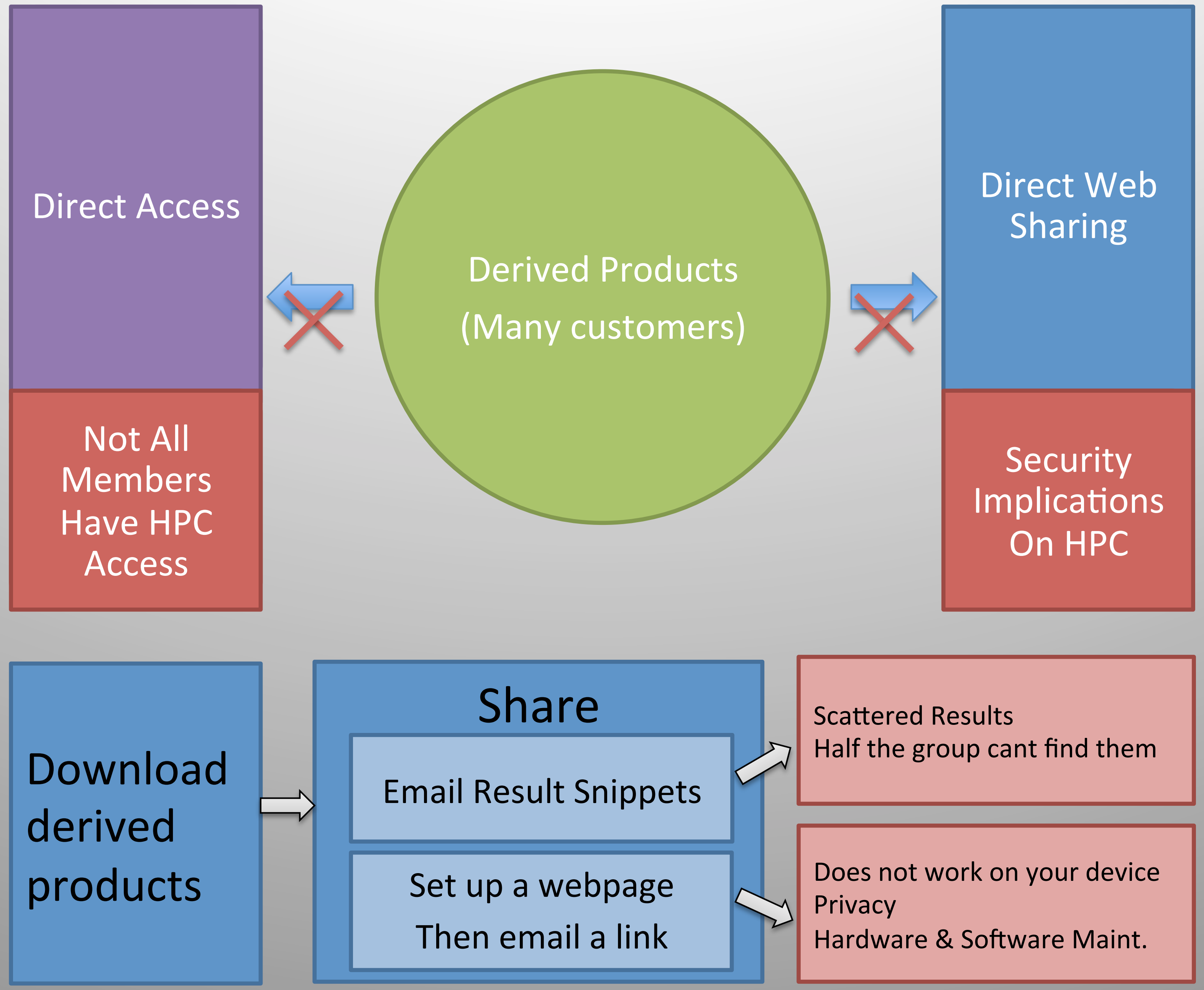
Monitoring

Derived Products

Abstraction

Validation

SeedMe.org



Direct Access

Not All Members Have HPC Access

Derived Products

(Many customers)

Direct Web Sharing

Security Implications On HPC

Download derived products

Share

Email Result Snippets

Set up a webpage

Then email a link

Scattered Results
Half the group cant find them

Does not work on your device
Privacy
Hardware & Software Maint.

Pitfalls in sharing derived content

Download
Upload
Download

(Round Trip + 1)

Video
Encoding
Complexity

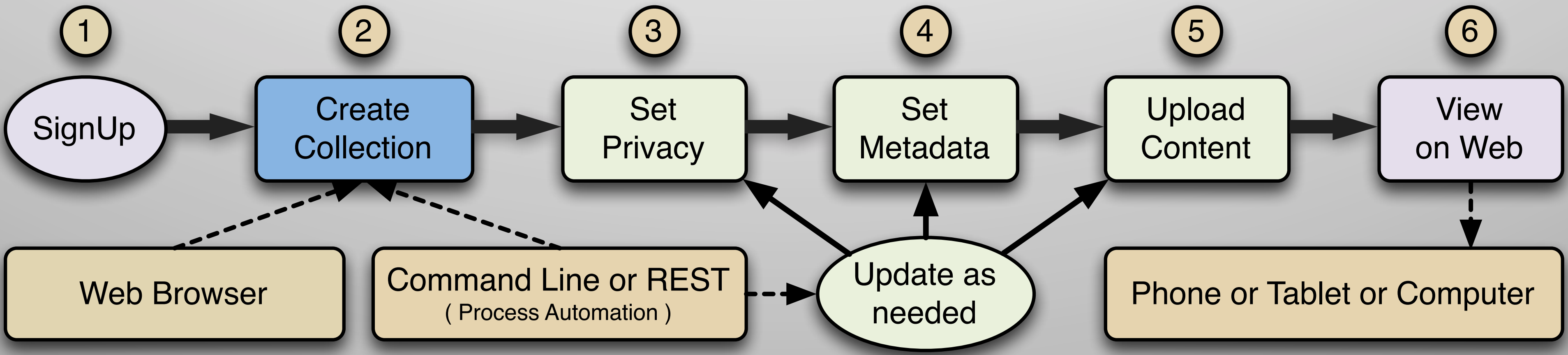
Time Delay

Web Setup

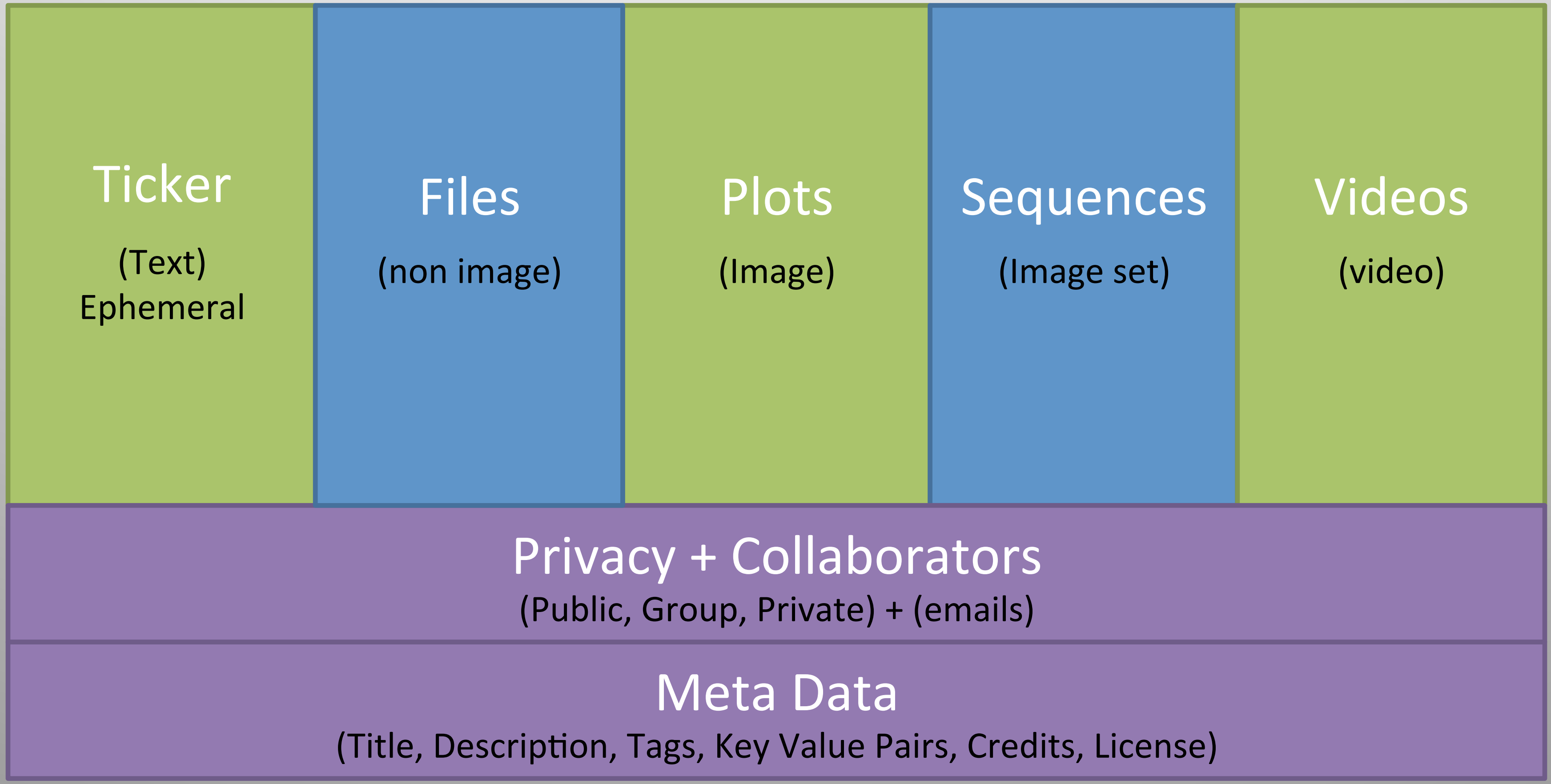
Process
Duplication

Scalability

SeedMe: How it Works



SeedMe Collection



Ticker

(Text)
Ephemeral

Files

(non image)

Plots

(Image)

Sequences

(Image set)

Videos

(video)

Privacy + Collaborators

(Public, Group, Private) + (emails)

Meta Data

(Title, Description, Tags, Key Value Pairs, Credits, License)

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Apple Inc. : Provided test hardware/software on loan during project conceptualization phase

National Science Foundation

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```
#####################################################
                     SeedMe.org
           Quick start using Command Line
#####################################################
```

# SIGN-UP at SeedMe.org

https://www.seedme.org/user/register

1. **Log in to SeedMe > My Account**
2. **Download Authorization file: seedme.txt**
   Move seedme.txt file to your home folder

Operating System	**Home Folder Location**
Windows 2000, XP and 2003	C:\Documents and Settings\<username>
Windows Vista, 7 and 8	C:\Users\<username>
Mac OS X	/Users/<username>
Unix-Based	Varies, check in terminal as follows % echo $HOME OR % cd ~ ; pwd

SeedMe Terminology

Collections are a container of any of the following elements

- **METADATA:** Title, Description, Key Value Pairs, Credits, License
- **TICKER:** Short text string (128 chars)
- **FILES:** Non image files
- **PLOTS:** Unrelated images
- **SEQUENCES:** Set of related images

Each collection is automatically assigned a numeric identifier as **collection_id**

# Download SeedMe module

a)Documentation > E.Command Line Usage > #2

OR

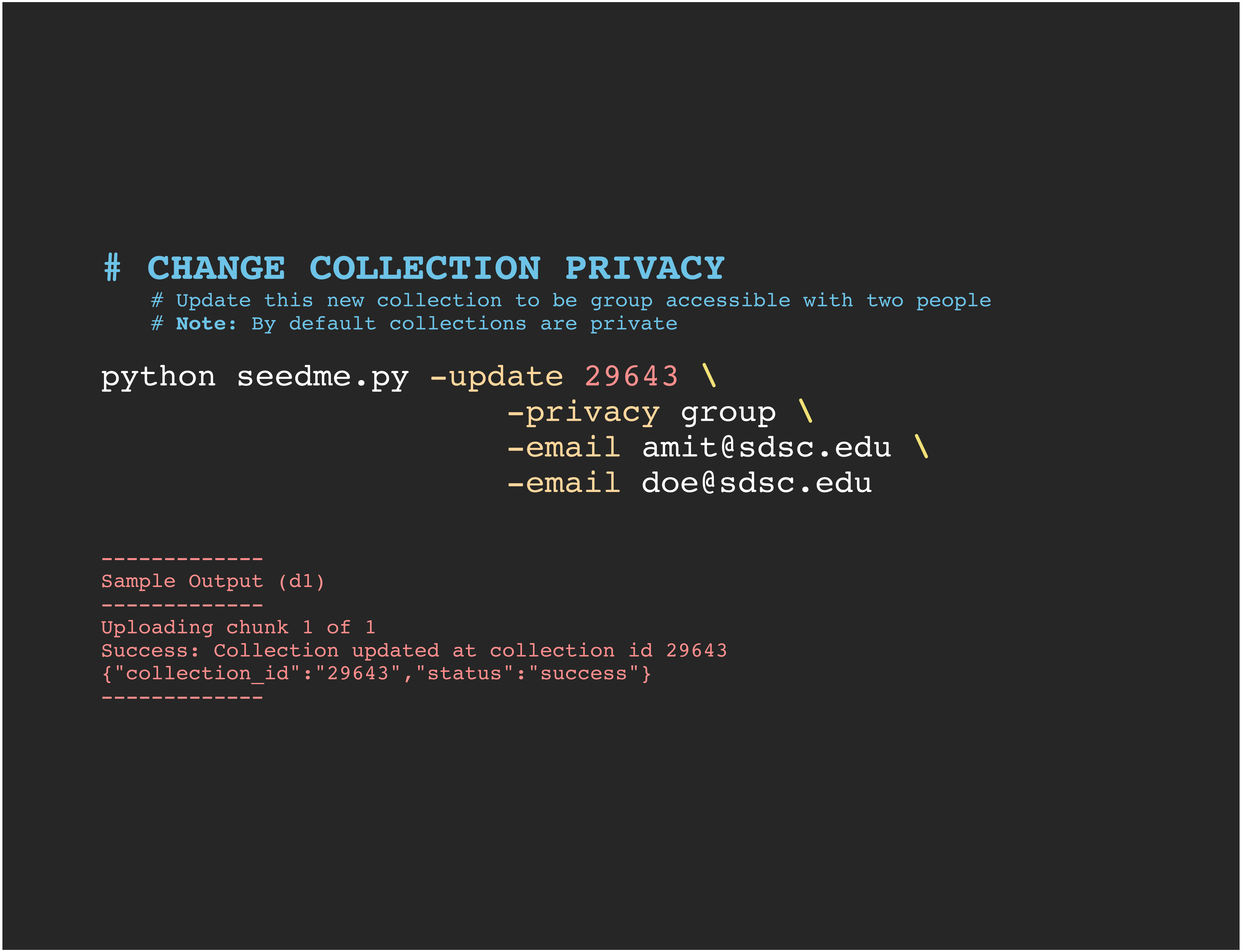
b)http://www.seedme.org/sites/seedme.org/files/seedme_module/seedme.zip

# Requirements

Python version 2.6 or 2.7 (preferably) or 3.x

(Python knowledge not required)

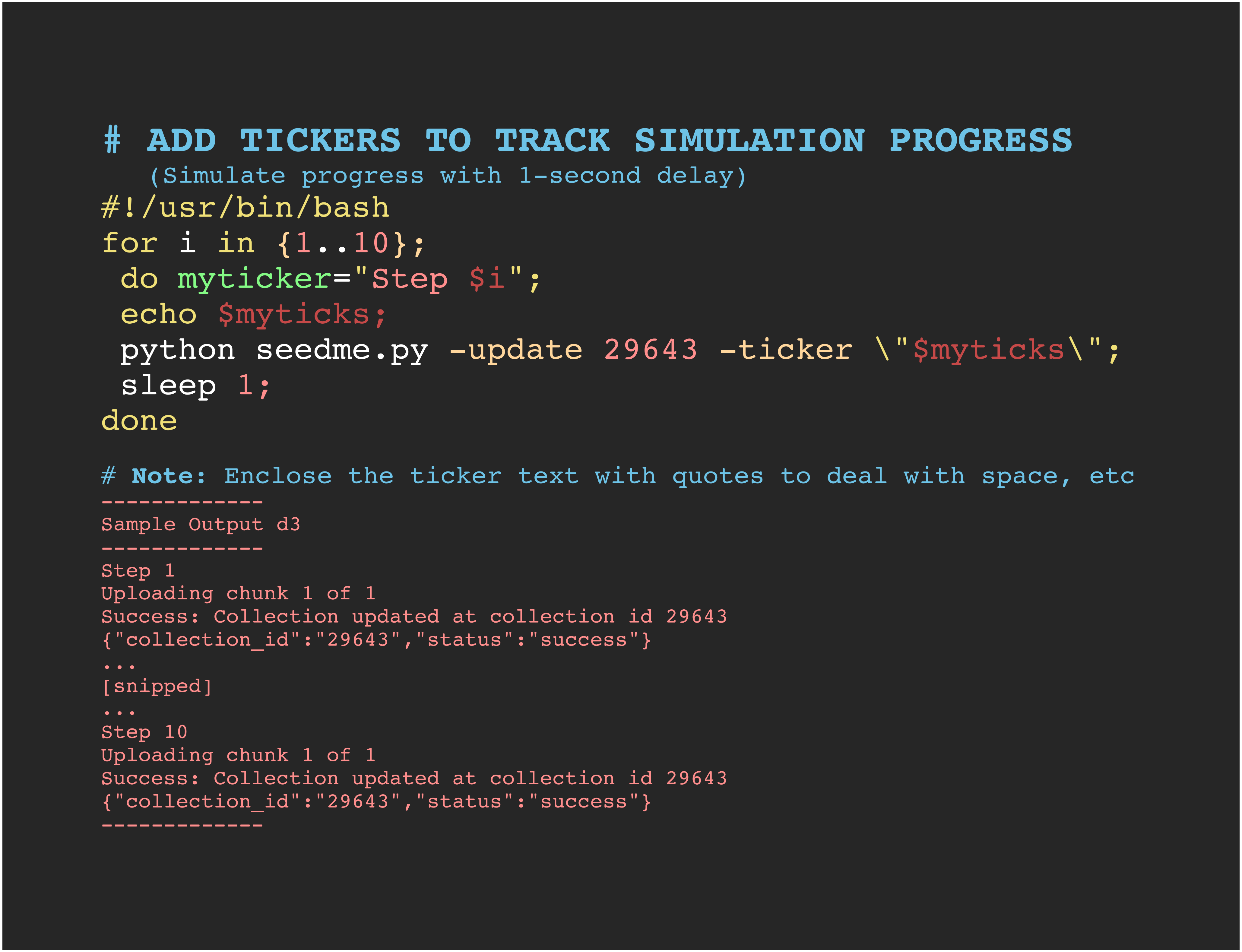
```
# CREATE A COLLECTION

python seedme.py -title "SeedMe CLI Quick Start"

-------------
Sample Output (d0)
-------------
Uploading chunk 1 of 1
Attempting to create a new collection
Success: Collection created at collection id 29643
{"collection_id":"29643","status":"success"}
--------------


# Note: "collection_id" : "29643"
# This will be needed for updating collection
```



```
# CHANGE COLLECTION PRIVACY
    # Update this new collection to be group accessible with two people
    # Note: By default collections are private

python seedme.py -update 29643 \
                    -privacy group \
                    -email amit@sdsc.edu \
                    -email doe@sdsc.edu


-------------
Sample Output (d1)
-------------
Uploading chunk 1 of 1
Success: Collection updated at collection id 29643
{"collection_id":"29643","status":"success"}
-------------
```

```
# ADD KEY VALUE PAIRS TO THIS COLLECTION

python seedme.py  -update 29643 \
                -keyvalue "system:gordon" \
                -keyvalue "exe:/scratch/enzo" \
                -keyvalue "indata:/scratch/input" \
                -keyvalue "outdata:/scratch/output" \
                -keyvalue "pressure:10pa" \
                -keyvalue "temperature:1000K"
```

```
-------------
Sample Output (d2)
-------------
Uploading chunk 1 of 1
Success: Collection updated at collection id 29643
{"collection_id":"29643","status":"success"}
-------------
```



```
# ADD TICKERS TO TRACK SIMULATION PROGRESS
   (Simulate progress with 1-second delay)
#!/usr/bin/bash
for i in {1..10};
 do myticker="Step $i";
 echo $myticks;
 python seedme.py -update 29643 -ticker \"$myticks\";
 sleep 1;
done

# Note: Enclose the ticker text with quotes to deal with space, etc
-------------
Sample Output d3
-------------
Step 1
Uploading chunk 1 of 1
Success: Collection updated at collection id 29643
{"collection_id":"29643","status":"success"}
...
[snipped]
...
Step 10
Uploading chunk 1 of 1
Success: Collection updated at collection id 29643
{"collection_id":"29643","status":"success"}
-------------
```

```
##########################################################################
# VIEW COLLECTION IN WEB BROWSER
   # Computer
   # Tablet
   # Phone

# https://www.seedme.org/collection/29643
##########################################################################
```

```
# ADD IMAGE SEQUENCE, CREATE A VIDEO FROM IT

python seedme.py -update 29643 \
          -sequence_path "sample/sequences/air/*" \
          -sequence_title "My sequence title" \
          -sequence_description "Desc. of sequence" \
          -sequence_frame_rate "5" \
          -sequence_encode
```

```
-------------
Sample Output d4
-------------
Uploading chunk 1 of 1
Success: Collection updated at collection id 29643
{"collection_id":"29643","status":"success"}
-------------
```

```
# Note: Possible to append to a sequence periodically
  Just pass collection id and sequence title
  Trigger video encoding after last append if needed
```

```
######################################################################
# VIEW COLLECTION IN WEB BROWSER
   # Computer
   # Tablet
   # Phone

# https://www.seedme.org/collection/29643
######################################################################
```

# Notify Collaborators

```
python seedme.py -update 29643 -notify
```

```
-------------
Sample Output d5
-------------
Uploading chunk 1 of 1
{"collection_id":"6994", "status":"partial",
"notify_message":"The following collaborator has been notified : amit.
The following inactive collaborator has NOT been notified: doe@sdsc.edu."}
WARNING : Partial: Incomplete Collection update at collection id 6994
-------------
```

```
# Note: Notification is not automatic.
        You decide when collection is ready for sharing

# Note: Partial success
        Currently, only active members notified at present
```

```
# OTHER OPTIONS

 # Perform dry run to validate input
   Add Option -dry or —dry_run

# Show curl commands for a given input
   Add Option -s or -show_curl_commands
```

# CURRENT LIMITATIONS

- # Cannot retrieve collections via web services (need use case to consider implementation)
- # Cannot delete collections via web services

# ENHANCEMENTS IN WORK

- # WYSIWG creation, update and deletion of collection
- # Overwrite existing files
- # Expiry Date – Automatic purge after a specified period

```
####################################################
# WHAT ABOUT AUTHENTICATION?
####################################################
# Web Browser uses username and password authentication
# Web Services uses username and api_key authorization

# Preferred method is to store authentication info to a
  text file in JSON format at ~/seedme.txt or ~/.seedme

# Note: Secure this file by making it only user readable
  on linux % chmod 600 ~/seedme.txt

cat ~/seedme.txt
{
    "username" : "YourUserName",
    "api_key" : "YourApiKey"
}

# Alternatively, authentication credentials could be passed as
arguments
python seedme.py -username "YourUserName" \
                 -api_key "YourApiKey"

# All communications are sent via https
```

```
######################################################################
# WHAT ABOUT NON-CLI USAGE?
######################################################################
# Python module currently available
  (seedme.py is a wrapper to the seedme module)
# Only two functions to interact with SeedMe.org

createCollection(view_permission='', viewer_emails='', title='',
description='', credits='', license='', tags=[], tickers=[],
key_values={}, files={}, plots={}, sequences={}, videos={})

updateCollection(collection_id, view_permission='',
viewer_emails='', title='', description='', credits='', license='',
tags=[], tickers=[], key_values={}, files={}, plots={},
sequences={}, videos={})


# SeedMe offers simplified REST service that may be
  used from other tools with relative ease
```

```
# Integration with  FORTRAN
################################################################################

# Fortran 90
CALL SYSTEM('python /path/seedme.py -dry -t "test title" &')
Note: Make sure to append the system command with "&" for non-blocking call.

Fortran 2008
CALL execute_command_line('python /path/seedme.py -dry -t "test title"', WAIT=False)
Note: The above is a non-blocking call when WAIT=False
```

# Integration with C

```
########################################################################

fork('python /path/seedme.py -dry -t "test title"')

exec('python /path/seedme.py -dry -t "test title"')
```

```
system('python /path/seedme.py -dry -t "test title" &')
```

Note: Make sure to append the system command with "&" for non-blocking call.

```
########################################################################
# WHAT CONTENT CAN BE UPLOADED?
    # Text: Tickers, title, description, etc
    # Files: pdf, ipynb
    # Plots: png, jpg
    # Sequence: png, jpg
    # Video: mp4, mov, m4v

# RESULTS ONLY, NO DATA PLEASE

########################################################################
```

Q & A

Expecting SeedMe in production by XSEDE14 (July 2014)