

SeedMe Live: Your Results from Disk to Device

Amit Chourasia, Mona Wong-Barnum, Michael L Norman

San Diego Supercomputer Center, University of California, San Diego

Nearly all scientific computation and analysis create intermediate or transient results. These results are of vital importance as they form the basis for validation and potential next steps. Timely, sharing of these results is essential for many researchers working as a team. However, current methods of sharing these results are neither straightforward nor elegant. To address this gap we introduce SeedMe (Stream encode explore disseminate My experiments), a cyberinfrastructure where users may ubiquitously access and continuously share results and reusable components of their research within and outside their community. One core focus of SeedMe is to promote accessibility of preliminary and sometimes ephemeral content, which is vital to efficient and successful work. Our goal is to foster rapid assessment, iteration, communication and dissemination of research by seamless seeding of results that is ubiquitously accessible on many devices.

This poster reports progress on work presented at XSEDE13 conference [1] and **will mark the general availability of SeedMe [2] to all XSEDE users.**

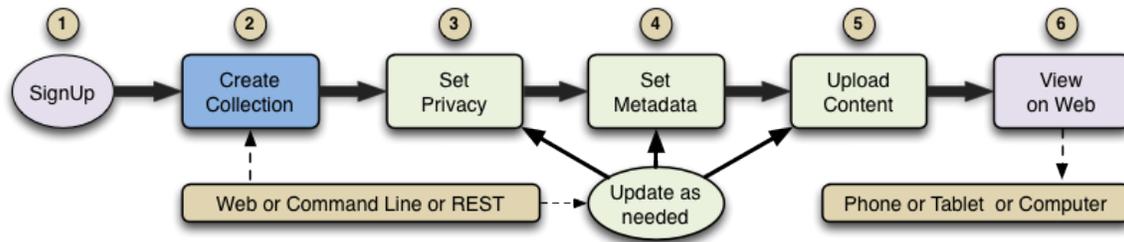


Figure 1: Illustration of how SeedMe works

I. HOW SEEDME WORKS (See figure 1)

1. [Signup](#) / [Login](#) at SeedMe.org
2. Start by creating a new collection. A collection is a set of items consisting of Metadata, Files, Plots, Image Sequences and Videos.
3. Set privacy controls and share collections with others by adding their email addresses. (Collections are private by default)
4. Add Metadata like title, description, key-value pairs, etc. (update as desired)
5. Upload content comprising of text, files, plots, image sequences and videos. (append/update as desired)
6. View and browse content in a Web Browser on multiple devices.

II. COLLECTIONS

SeedMe organizes the content uploaded by users into containers known as Collections. Each collection may be comprised of the following elements.

- **Privacy:** Collections have privacy controls to limit access, the collection permissions may be public, group or private (Default)
- **Sharing:** Collections may be shared with other users by adding their emails to a given collection. Sharing is different for each collection.
- **Collection ID:** Each collection is automatically assigned a unique identifier. This is used for subsequent updates and modifications.
- **Metadata:** Describes the contents and other relevant information for a collection. Metadata is comprised of following sub elements. (See figure 2)
 - Title: The title for the collection (Defaults to collection_id)
 - Description: The description for the collection
 - Key Value: Associated strings forming a pair, useful for describing initial conditions e.g. "Temperature": "295K"
 - Credits: The credits for the collection
 - License: The license for the collection

▼ **Meta data**

Description **Key/value pairs** **Tickers**

Key ▼	Value
Viscosity	10 Kpa
Velocity	30m/s
Temperature	300K
Pressure	1.0mpa
Density	33.33

Credits: modified credits

License: modified license

Figure 2: Screenshot of metadata for a collection

- **Ticker:** Short text strings (< 128 characters). These may be sent periodically via web service to report the state of progress of an experiment or simulation. (See figure 3)

Ticker	Timestamp▼	Interval
step 80: convergence 70%	3/17/14 - 13:17:19	0:0:4
step 90: convergence 80%	3/17/14 - 13:17:19	0:0:0
step 95: convergence 100%	3/17/14 - 13:17:19	0:0:0
step 70: convergence 50%	3/17/14 - 13:17:15	0:0:2
step 50: convergence 39%	3/17/14 - 13:17:13	0:0:1

Figure 3: Screenshot of tickers for a collection

- **File:** Non-image content is collected under Files category. File is comprised of following sub elements. (See figure 4)
 - Filepath: Location of the file on local disk
 - Title: Title for the file (Defaults to filename)
 - Description: Description or caption for the file

	Filename	Title	Description
1	how_it_works.pdf	How SeedMe Works	Schematic description of how to use
2	progressBars.ipynb	Running Code in the IPython Notebook	IPython Notebook is an interactive environment for writing and running Python code.

Figure 4: Screenshot of files for a collection

- **Plot:** Consist of unrelated images for example charts and visualizations. Plot is comprised of following sub elements. (See figure 5)
 - Filepath: Location of the plot on local disk
 - Title: Title for the plot (Defaults to plot name)
 - Description: Description or caption for the plot

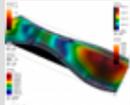
	Filename	Title	Description
1	 villi.png	Villi rendering	The villi are jutting out on the membrane
2	 node.png	Node distribution	The isosurface at -1.0
3	 composite.png	composite rendering	Volume rendering of velocity magnitude

Figure 5: Screenshot of plots for a collection

- **Sequence:** Set of related images, for example a sequence of visualization images for a time varying simulation data. Sequence is comprised of following sub elements. (See figure 6)
 - Filepath: Location of the sequence on local disk
 - Title: Title for the sequence (Defaults to system generated title)
 - Description: description or caption for the sequence
 - Encode: Create video from this sequence
 - Frame Rate: Frame rate to be used for video creation when encoding

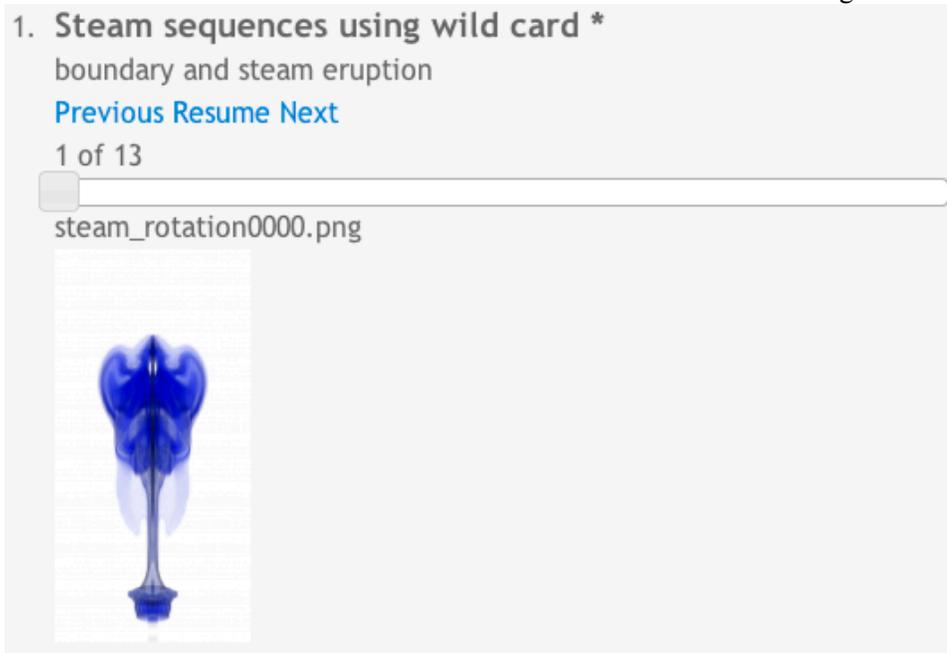


Figure 6: Screenshot of an image sequence for a collection

- **Videos:** Videos are created from the image sequences on demand. Videos are created at different quality settings and resolutions as shown in figure 7. Native resolution video corresponds to the original image resolution and encoded at very high quality for download and local playback on computer. Native, Highest and High quality for playback on a computer while Medium, Low and Lowest quality videos for playback on mobile devices.

Mandelbrot using wild card * (encoded video)

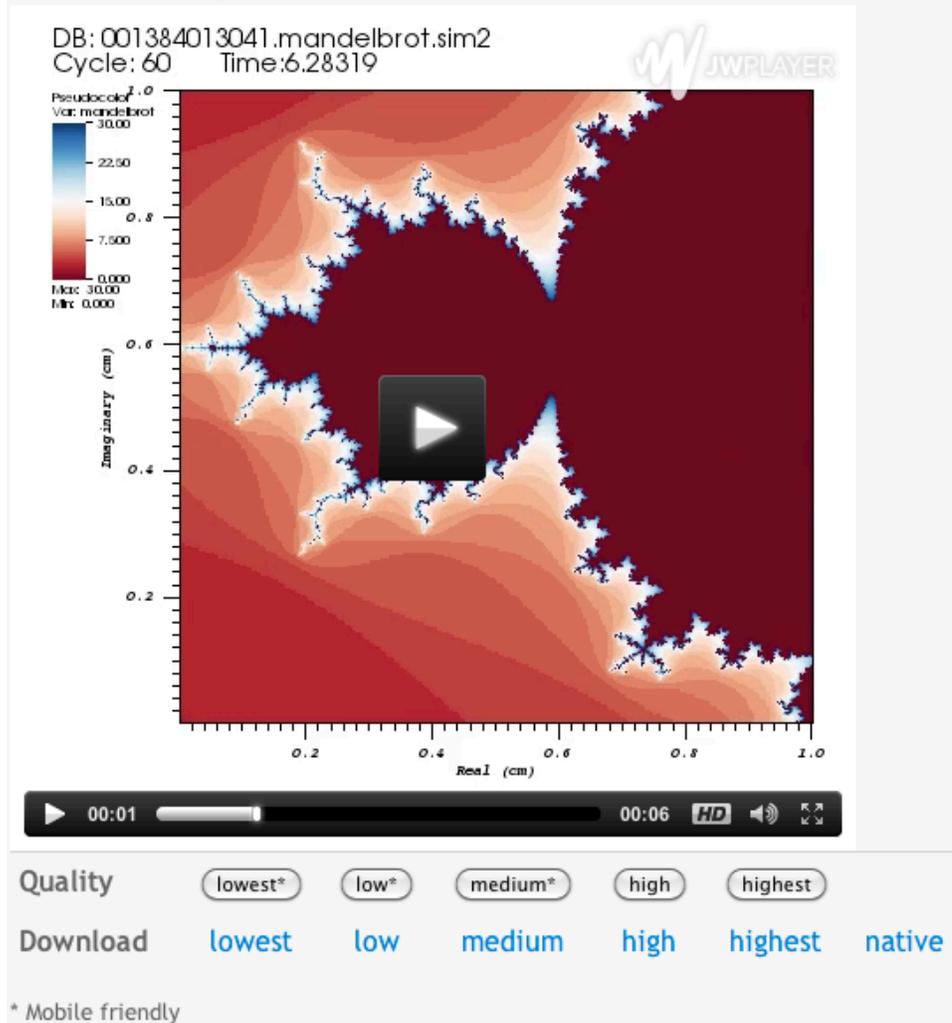


Figure 7: Screenshot of a video for a collection

References

1. Chourasia, M. Wong-Barnum, M. Norman (2013) SeedMe Preview: Your Results from Disk to Device In Proceedings of the Conference on Extreme Science and Engineering Discovery Environment: Gateway to Discovery (XSEDE '13). ACM, New York, NY, USA, , Article 35 , 4 pages.
2. SeedMe: <http://www.seedme.org>