



RESEARCH DATA MANAGEMENT: BASIC PRACTICES STORAGE & SECURITY

This guide provides some basic practices for data preservation and storage options to help your future self.



DATA PRESERVATION

Data preservation encompasses making sure the data you collect stays useful for the longer term. This includes considering how and when to backup files, appropriate places to store various kinds of data, and knowing the storage options available to you.

BACKING UP FILES

- Follow the 3-2-1 rule:
 - 3 copies
 - 2 onsite (e.g. computer and external hard drive)
 - 1 offsite (e.g. cloud backup service)
- Short-term storage options: USB drives, SD Cards, and optical media (CD/DVD)
- Automate backups if possible
- Periodically check your backups
- Copy physical materials and store safely, or scan and back up physical materials digitally

PAY ATTENTION TO FILE FORMAT

- Software and hardware change over time, making files unreadable or hard to use
- When prepping files for long-term storage, consider migrating to formats that are:
 - Non-proprietary or open
 - Use standard character sets (ASCII, Unicode)
 - Uncompressed
 - Unencrypted
- See the table below for file format and long-term storage options

CONVERTING FILE FORMATS

TYPE	WORKING FORMAT	CONVERSION	PRESERVATION FORMAT
Text	DOC(X)	MS Word/ OpenOffice Writer (File → Save As or Export)	RTF, PDF, ODT
Spreadsheet	XLS(X)	MS Excel/ OpenOffice Calc (File → Save As or Export)	CSV, TXT, ASCII
Image	JPG, GIF	SnagIt, Photoshop...	TIFF, JPEG2000
Video	Quicktime	Various	MPEG-4



STORAGE OPTIONS AT KU

SERVICE	STORAGE TYPE	ACCESS	COST	SPACE	WHO	CONFIDENTIAL OR SENSITIVE DATA
KU ScholarWorks	Archival	Web	None	500 MB / file	All KU	* No
KU OneDrive	Working	Web	None	1 TB (with limitations)	All KU	** Yes
Research File Storage	Working	Mapped network drive	Yes	250 GB free then pay by TB	KU depts, faculty, GTAs, GRAs	† Yes
Research Archive Storage	Archival	Mapped network drive, Globus	Yes	1 TB minimum	KU depts, research centers, faculty, PIs	†† No

REFERENCES

*ScholarWorks: <https://kuscholarworks.ku.edu>
 **OneDrive: <https://technology.ku.edu/services/personal-file-storage>
 † Research File Storage: <https://technology.ku.edu/services/research-file-storage>
 †† Research Archive Storage: <https://technology.ku.edu/services/research-archive-storage>
 For information on data sensitivity classifications and handling: <https://policy.ku.edu/IT/data-classification-handling>
 DaMaRO. (2013). Data management fact-sheet. Retrieved from: <http://damaro.oucs.ox.ac.uk/induction.xml>
 Brooks-Kieffer, J. (2017). *Data Management: File Storage & Backup* (Unpublished PowerPoint presentation). University of Kansas, Lawrence, KS.