Module 2: A Practical Approach to Data Management
(Part 3)
Data Storage and Backup

This last section will focus on the issues involved in storing, securing, and backing up your research data.

Regardless of the data type or format, you must ensure that all of your research data are stored securely, backed up, and maintained regularly so that you can minimize the risk of loss, theft, or unauthorised use.

Different storage options should be considered for security, protection, and longevity of your data. For instance, to many researchers personal computers and laptops are most convenient for storing data when still being actively used and updated. However, master copies of your data should not be solely stored on your personal computers or laptops.

For short-term and mid-term storage, external storage devices are very useful. However, they are not recommended for the long term storage of your data as their longevity and durability is not guaranteed. Portable storage devices also pose a security risk if you store data that is confidential or sensitive.

Even if you generate and work with data that is not confidential or sensitive, best practice is to keep at least three copies. That is, an original or master copy stored in a place that is accessible to anyone who may need to use the data, an externally stored copy in a local backup system, and an externally stored copy in a remote backup system.

It is important that confidential data never be stored on a file sharing or cloud-based service unless that service has a negotiated contract with the University.

Data that contains confidential, sensitive, or personal information needs to be treated differently. These types of data must be encrypted when sent over a network, and there may be some limitations on where these data may be stored. Assuring the protection of confidential data involves three things:

- System security
- Network security
- Physical security

When deciding which storage option to use, it is important to consider benefits and costs.

This completes Module 2: A Practical Approach to Data Management. If you have any questions about data management best practices, or if you would like to schedule a consultation session, please contact Data Services at Virginia Tech University Libraries by sending an email to: dmpreview@vt.edu