# The Three Essentials of Digital Preservation Part 3: File Access

This document provides an introduction to three essential concepts in digital preservation: **File Storage**, **File Integrity**, and **File Access,** with a detailed focus on **File Access**. The "Three Essentials of Digital Preservation Pyramid" below identifies and describes the most important pieces of digital preservation for smaller institutions. Establishing a basic understanding of file access concepts will help to identify what your institution already has in place, and areas where preservation plans and policies need to be expanded.

This document begins with an **Introduction to the Three Essentials of Digital Preservation Pyramid**, providing a brief introduction to the concepts. After that, file access is divided into an **Introduction to File Access** section, **Important Terms Related to File Access** section, and section of **Questions to Ask Your Institution About File Access**. Important related terms are in bold in each Introduction section.

For more information about digital preservation concepts, tools, and policies, view related items connected to this resource on the Sustainable Heritage Network in the "Digital Preservation" category.

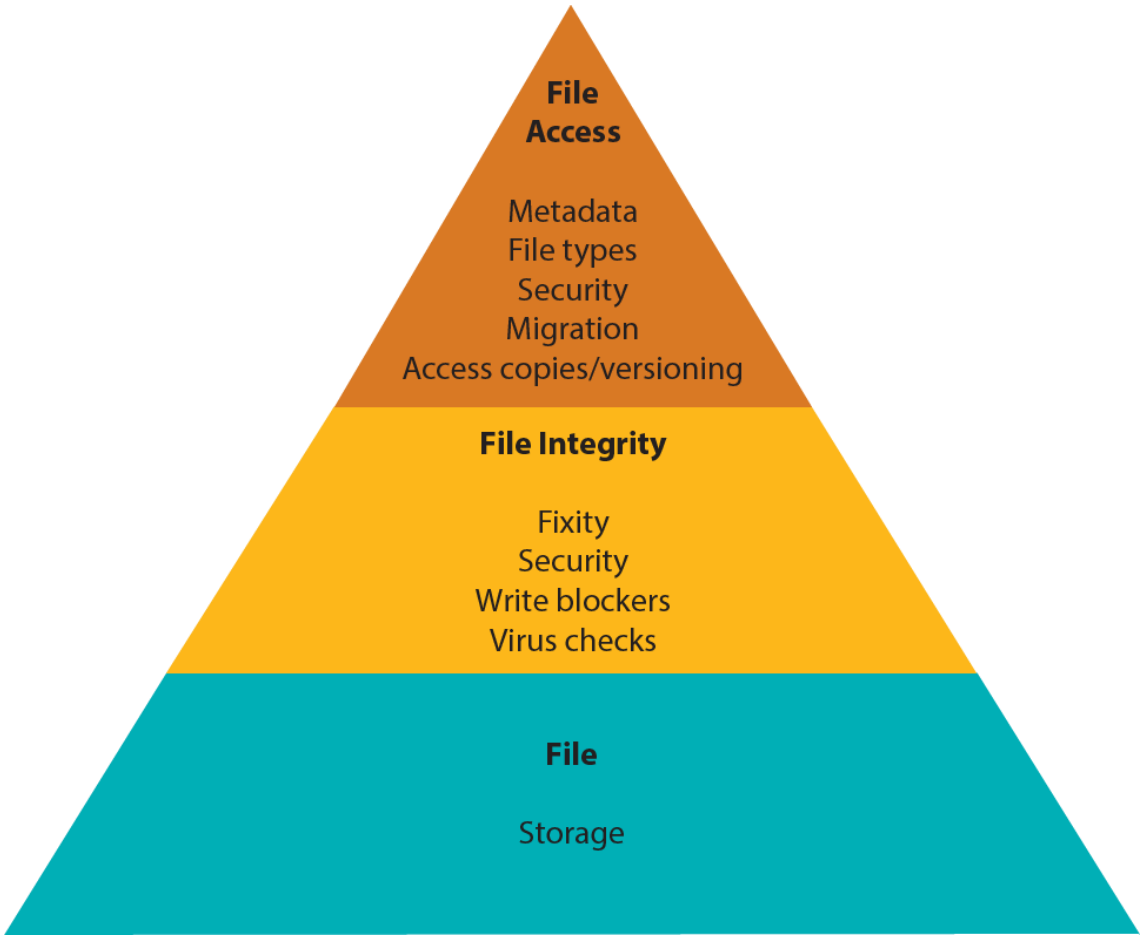
- The Three Essentials of Digital Preservation Part 1: File Storage
- The Three Essentials of Digital Preservation Part 2: File Integrity
- Levels of Digital Preservation Preparedness
- Activities to Include in a Digital Preservation Plan
- Digital Preservation Glossary
- Developing a Digital Preservation Policy

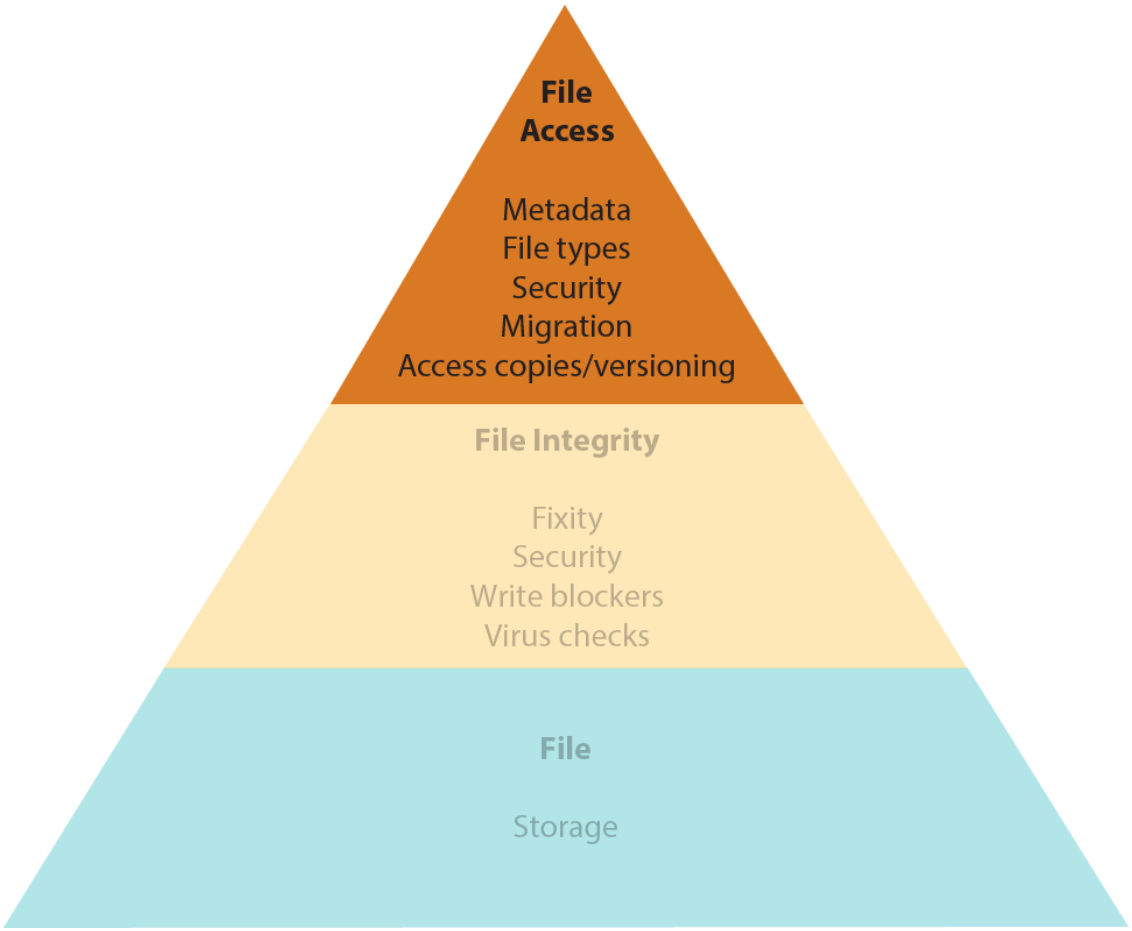
# Introduction to the Three Essentials of Digital Preservation Pyramid

**File Storage:** *Making sure that digital content chosen for long term preservation is stored safely and securely.* File storage addresses physical storage systems, location of storage, and use of multiple physical storage locations to prevent or minimize data loss due to storage device failure or natural disaster.

**File Integrity:** *Ensuring the stability of digital content over time.* File integrity addresses stability of data, concerns about data corruption and alteration, as well as prevention, detection, and recovery of changed data.

**File Access:** *Organizing and describing digital files so that all staff (now and in the future) will be able to find, access, understand, and use digital content.* File access addresses security of data, documentation of data, file formats, data structures and naming conventions.






## Introduction to File Access

File access in digital preservation is focused on the internal management of files, and information about files at your institution. It is important to describe and organize digital files so that current and future staff will be able to find, access, understand, and use digital content.

Create plans for documenting important information about digital files. Record **preservation metadata** in a spreadsheet, database, or directly attached or embedded in the file. Examples of preservation metadata include checksums, file creation dates, technical specifications and quality information. **Representation information** is a type of metadata that might include special instructions for using software, or steps needed to open a particular digital file. **File types** and formats are important in file access. Research what file types are most sustainable for your institution's digital files according to standards organizations and other institutions. File types should be converted and **migrated** to the most sustainable types chosen by your institution. A factor that will go into choosing file types is **versioning**, or creating copies of digital files for different

purposes. Specifying versions of files is important, as a **preservation master file** and an **access file** will have different purposes, technical specifications, and preservation needs. **Security** is a high priority in file access as well as file integrity. Ensure files are internally secure and accessed only by appropriate staff.

Similar to management steps within File Integrity, it is important to work with other departments such as Information Technology, Administration, or others to make sure file access steps are carried out and sustainability needs are met. After defining file access needs, add them into digital preservation plans and policies. Additionally, add file access considerations into other documentation like an access and use policy, digitization policy, or digitization workflows. For more information on writing policies, see the resources Developing an Access and Use Policy Worksheet and Strategic Digitization Goals Part 3: Digitization Policy Worksheet on the SHN.

## Important Terms Related to File Access

**Versioning:** Creating different types of files for different purposes.

**Preservation Master Files:** High quality files that are preserved in the long term. Not all files may need to be chosen for long term storage. Preservation masters are often used to make other copies including reproduction and distribution copies.

**Access Copies:** Copies of files intended for sharing with users. May be lower quality and lower file size. For example: access copies can be easily shared via email, delivered on a flash drive, or uploaded to a website. Other words used for access copies may be **derivative** files.

**File types:** A name given to a specific kind of file, tied to format and extension. Certain file types are better for preservation and others for access. This will depend on size, quality, whether the file type is compressed or uncompressed, what programs it is compatible with, and whether the file type is open or proprietary

**Migrating file types:** As technology advances, and software becomes outdated, update from one file type to another more sustainable file type.

**Representation Information:** Any information required to understand and render both the digital material and the associated metadata. This might be as simple as describing the language that a file is written in, or special software required to open a type of file. Representation information should be carefully documented.

**Preservation metadata:** Preservation metadata is information that supports and documents the process of digital preservation. For example: preservation metadata contains fields like: fixity information, rights information, software used to create the file, digital file creation date, and more.

**Security:** Techniques for ensuring that data stored in a computer cannot be read or compromised by any individuals without authorization.

## Questions to Ask Your Institution About File Access

- Do you have an inventory of digital content?
    - If you do not have metadata or any documentation for digital files, a simple inventory is the best place to start.
- What metadata scheme do you use for digital collections? How do you document metadata?
- Do you document preservation metadata?
- What file types do you use for digital collections?
    - Are the file types you use sustainable for digital preservation?
    - Are your file types consistent? Do you have a list of appropriate file types documented?
- How do you decide when you need to update and migrate file types?
- How do you use versioning at your institution?
    - Do you have a preservation master copy, access copies, or any other derivative copies? How these are organized and saved?
- Who are the people who have access to your files?
    - What actions they can take (for example: viewing, editing, deleting, etc.)
    - Do you need to restrict access? Do others need access?
- Does IT keep logs for who accesses files and what actions they take?
    - If not, is this something you can implement?

## Conclusion

Digital preservation is a unique challenge for every institution. The three concepts of the Three Essentials of Digital Preservation Pyramid: **File Storage**, **File Integrity**, and **File Access,** provide a framework and ideas for creating a structured system of digital preservation. This document provides file access background, important terminology, and questions to help with planning steps. Decide the best path forward for digital preservation based on resources available, including staff time, funding, and technology support. Consider the questions in this document, bring others into the conversation, start creating digital preservation policies and other documentation, and continue learning about the need for digital preservation through resources on the Sustainable Heritage Network.