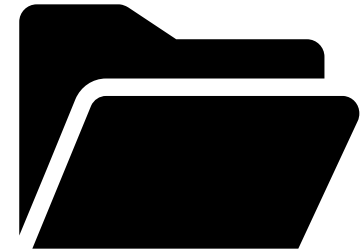


# Managing Electronic Records

Records Management Training  
January 2021

# **Electronic Records and Retention Schedules**



# What Records Need to Be on a Schedule?



**All state government records must be covered by retention schedules. This includes records that never leave the creating agency's custody.**

If you are creating and maintaining records in digital format, a retention schedule would still apply just as it would for paper records.

**Remember, a record, is a record, is a record.**

Electronic records must be managed just as paper records. This means when the record copy is in electronic format, it must follow the retention schedule; be retained and purged appropriately. (In other words, just because you CAN keep records indefinitely, doesn't mean you SHOULD.)

# Schedules Provide a Defensible Position

- Retention Schedules are your first line of defense because they tell you what to do with your records.
- Schedules provide the defense and support for any actions your agency takes regarding the records in your office.
- If there is ever any question about records being kept or destroyed or any legal issues, you have the schedules as your **justifiable defense**.
- **Make sure everything is on a schedule and that your schedules are up to date.**



# Schedules Classify Your Records

RM is knowing what you have, where you have it and how long you must keep it. Think of how a grocery store is designed. Everything has a place and there's a place for everything. Access to your records should have that same type of planning. Another practice of grocery stores is getting rid of items which are outdated or have expired. **In other words, they get rid of the ROT! Agencies need to follow this same practice by removing what is Redundant, Outdated/Obsolete and Trivial (Transitory).**



# Record Hoarders

Maine State Agencies have become digital hoarders. Either because they CAN keep everything electronically (without tripping over boxes of paper) or because they have no idea how to manage/purge what they have.

**No sound business plan includes keeping everything for an indefinite period of time.**

Records Management has been used to organize paper for hundreds of years. Why, because it works! State agencies must start applying the same principles to electronic records and information.

# How a Schedule Can Work for Your Agency



- Agency policy document
- List of work instructions
- Compliance document

**The major goal** is to provide clear guidance for agency employees on how long they should be retaining their records and to make sure everyone in the agency is retaining records in a consistent manner.



# Types of Retention Schedules

*General Record Schedules* – issued by the Maine State Archives to provide retention and disposition standards for records common to most State agencies

*Agency Schedules* – for those records unique to the office



# The State General Schedules

Most of the General Schedules currently relate to financial, personnel or correspondence records. (Look for an update coming soon!)

If you are retaining records in your office that fall under the General Schedules, an agency schedule is not necessary. If you will be sending records to the Records Center or Archives (Commissioner's Correspondence for example), you will need an agency schedule to provide unique schedule and series identifiers.

State General Schedules are intended to be for all media types.

# Basic Guidelines for Retaining Electronic Records



# Classify Electronic Records

**Classifying** is the act of analyzing and determining the subject of a document and then selecting the subject category under which it will be filed or indexed.

Users can spend up to 10% of their time looking for misplaced files. Creating a good folder structure, with clearly named files and folders, will significantly reduce that amount of time. (Think back to the grocery store.) Nobody wants to waste time looking for items because the structure doesn't make sense or because items aren't marked appropriately. This is a waste of staff time and can have a financial impact, especially considering FOAA.

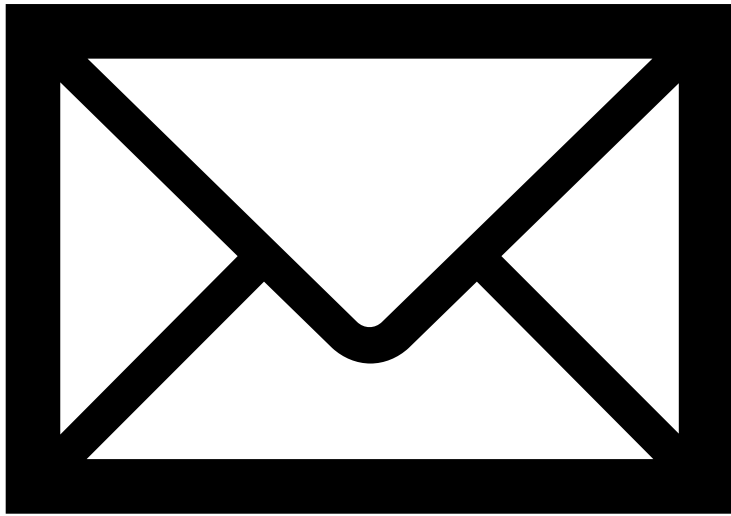
# File Naming

File naming should be brief but meaningful, giving enough information to show what the file contains. A consistently formatted date schema (yyyymmdd) as part of the file name is recommended, such as: 20200527filenaming.doc

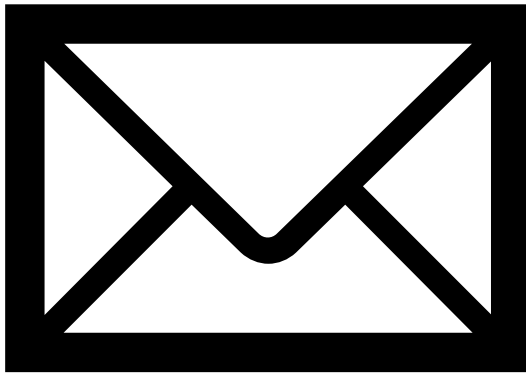
**Uniqueness:** Since files can be moved to other directories and subdirectories, they should be given names that will still be unique after this happens.

**Persistence over time:** Each file name should outlast the person who created and named that file. In other words, it should still make sense after you and your current staff members have moved on (avoid things like “Barrys” file).

**Access and ease of use:** A simple, straightforward file naming policy is more likely to be followed, and people are more likely to be able to retrieve the records easily.



# Email Records



Email is a format, not a record.  
Retention is determined by the  
content of the email.

If you are conducting government  
business in an email it is  
considered a record  
(communication sent or received in  
the transaction of government  
business.)

Email is subject to the same  
retention requirements as paper  
correspondence.

- When a message is created or received, determine if it is part of agency business. A retention decision will need to be made based on the nature of the message and scope of responsibilities of the originator or recipient. Non-record materials should be deleted immediately. Examples may include: personal messages, spam, and unsolicited email.
- All email messages do not have the same value or same retentions. Retention of email records must be assessed according to content and functions the messages perform. Just as it wouldn't make sense for an agency to retain all paper records under a single retention period (based on the fact they are paper), the same principle would apply for email.
- Most employees will have email with short term value. However, email is also used to discuss program records, policy information and other records having significant administrative, legal, or research value requiring longer retentions (including archival records).
- As public records, email messages must be retained and disposed of according to approved retention schedules.



# Main Categories of Email Records



## Correspondence

Administrative  
General  
Routine/Transitory



## Program Records

Records related to your  
specific job responsibilities

# General Schedule #13

## State Agency Correspondence

Series 1 – Commissioner/Executive Correspondence  
Retention: 2 Years (in agency) Disposition: Archival

Series 2 – Program Correspondence  
Retention: Variable Disposition: Variable

Series 3 – General Correspondence  
Retention: 2 Years Disposition: Destroy

Series 4 - Transitory Correspondence  
Retention: Retain until no longer needed (less than 30 days)  
Disposition: Destroy

Series 5 – Non-Business Related Correspondence  
Retention: Delete/destroy immediately

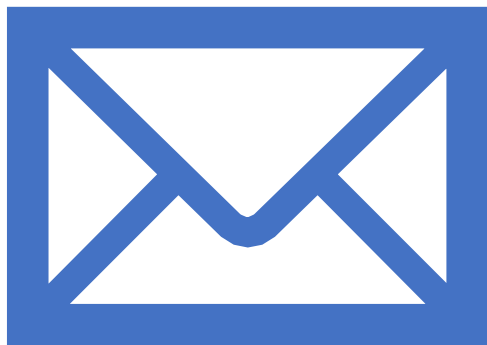
# Email Retention Periods

The vast majority of state employees will have little, if any, email requiring permanent retention. Generally, senior administrators through the division director level have a greater proportion of permanently valuable email, given its greater degree of policy content.

- *Non-archival (non-permanent) retention* is based completely on the record's value to the business functions of the agency, including audit or other statutory requirements, and reasonable access by interested parties.
- *Archival (Permanent) retention* is based on the record's value after it no longer serves the agency's business.

# Some Suggested Mailboxes...

Personal email	Delete at will
Non-record material	Delete at will
Transitory correspondence	Retain until no longer needed (should be no more than 30 days)
General/Reference Request correspondence	Retain 2 years
Commissioner correspondence	Archival
Permanent Program Records	Archival
Program Records	Retain according to agency schedule



## Email Tips

- Don't use personal email for professional business
- Don't delete emails indiscriminately
- Limit the use of "Reply All"
- Fill in/use meaningful subject lines
- Use email rules to help sort email
- Use email retention policies on folders for short retention items



# Social Media and Managing Public Records

Agencies need to consider the following factors when determining if social media posts are records:

- Are the records unique or does the information exist elsewhere in a different record or format?

Be certain the postings are not duplicates of information retained elsewhere. In other words, these would need to be considered the “record copy” of the material.

- Does the information document government business or provide evidence of an important action?

Make sure this is something you would retain if it was in another format, (such as paper) and that the information is considered official agency business.

# Retention of Social Media Records

If it has been determined posts are records, agencies should use the same retention principle as they would if the information was distributed via letter or email; retention would be dependent upon content, not format. A good guide to follow is [State General Schedule 13](#) – State Agency Correspondence:

- Transitory – when no longer needed
- General – 2 years
- Program – per specific agency schedules

## Capturing Social Media Records

Records in social media sites (including metadata) must be copied or otherwise captured and maintained with related records, unless the site has a record management application that can manage the records throughout their lifecycle. Non-record content consisting of duplicate information maintained elsewhere may be deleted when no longer needed.



# Electronic Records and FOAA



# Legal Implications

Organizing and managing email and electronic records will reduce legal exposure in discovery proceedings on records that otherwise should have been destroyed.

- If records exist and someone asks to see them, the agency must produce them.
- Records that are requested in discovery proceedings that were supposed to have been destroyed, but weren't, must be produced regardless of when they were *supposed* to have been destroyed.

Records management limits the agency's liability for deleting records indiscriminately while giving authority to delete records which have fulfilled retention requirements.



# Retention Schedule in FOAA or Discovery Proceedings

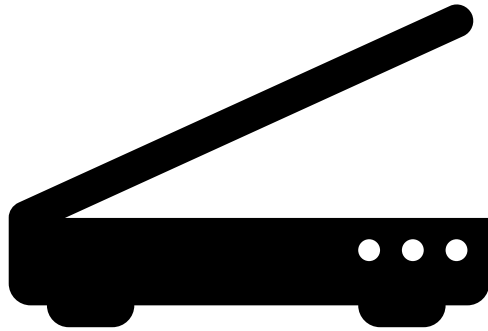


If your retention schedules have been well designed, they can help considerably when you consider this day and age of Freedom of Access.

- The retention schedule tells you what you have and don't have - If you get a 10-year request for records but your schedule states records are only kept 6 years (and if the schedule has been properly followed) this can save time because it is known what or how much to search for.
- Schedules functions as an index - The schedule provides a list of records you have, how much you have, what format they're in and where they should be stored.
- The schedule helps explain absent records - When there is a request and someone complains about the absence of records, you should be able to demonstrate the absence is entirely legitimate based on properly justified retention periods

# Things to Consider

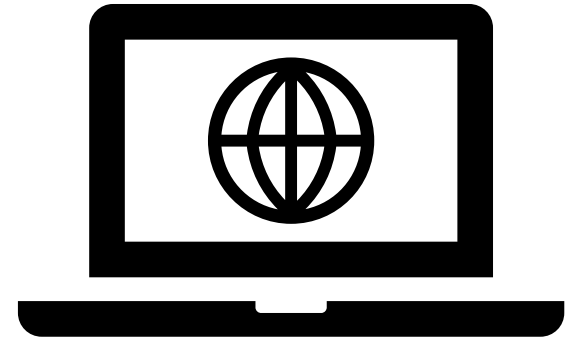
- If your retention decisions are called into question, your retention periods must comply with applicable laws, so make sure they do.
- You need to be able to justify retention periods and understand the functions of your records. If nobody in your agency can explain how the schedule was developed, this could be taken as a sign of negligence.
- The destruction of records should occur as a routine business process in accordance with the retention schedules.
- Organizing and managing records (including electronic records) limits your liability for deleting records indiscriminately and gives you authority to delete those files meeting retention.
- If you do become aware of a lawsuit or other type of discovery, any relevant records cannot be destroyed until it is determined that the matter is resolved, or the legal hold is lifted.



# Scanning Records in Your Agency

# Reasons for Establishing a Digitization Program

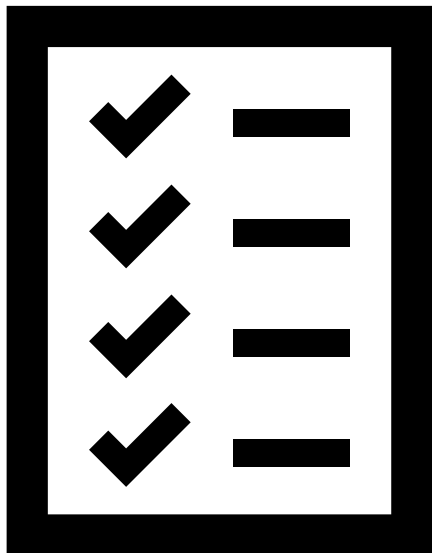
- Ease of access and sharing.
- An ongoing record series has moved to born digital so back imaging would bring past records into a similarly accessible format.
- The ability to get rid of the need for storage of physical documents (dependent upon a record retention schedule and the potential need for an archival medium).
- Cost of digital storage, enterprise information platforms, and back-up solutions.



# State Agency Responsibilities

- Contact the Maine State Archives prior to imaging any state government records.
- Comply with guidelines and standards set forth in Maine State Archives [Chapter 3 Rule: IMAGING STATE RECORDS](#).
- Identify the appropriate record retention schedules for the records involved.
- Consider whether the agency will be able to manage the imaged records for the duration of the retention period.
- Preserve original archival documents which are scanned. These records will be scanned for access only (not for “scan and toss”).

# Assessment of Materials to be Digitized



Before scanning, an agency needs to consider the following:

- Can the entirety of a record series be successfully digitized?
- Are the materials to be imaged uniform and standard (i.e. 8.5”x11” typeset paper)?
- Are there mixed materials (i.e. paper, photographs, x-rays)?
- How will oversize objects be handled, for example maps and blueprints?

# State Agencies and Electronic Management Systems





# EDMS vs. ECMS

**The main difference between document management and content management systems is the type of information they manage.**

**Document management systems** support structured documents and files like Word, PowerPoint, Excel spreadsheets, PDF, and other format types. Their purpose is primarily to track and manage documents throughout their lifecycle.

**Content management systems** are more about the logical organization and improved accessibility of various types of structured and unstructured electronic information. This includes not only the kinds of files that are managed by document management applications, but a broader range of digital assets. For example, audio, video, Flash, and multimedia files, as well as raw data collected from various third-party Internet sources.

# What is an ERMS?

An ERMS (electronic records management system) applies the retention schedule rules to execute retention and disposition decisions within electronic recordkeeping systems, so they become true “management” systems, and not a storage system. Think in terms of paper – without following retention schedules, you are keeping a back closet or basement full of potentially unnecessary stored documents (which should be destroyed).

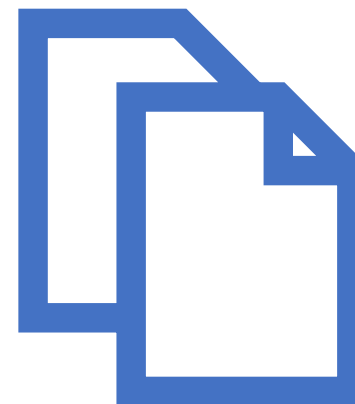
An ERMS might also help identify PII as well as tag records with their security classification. ERMS is beneficial in supporting FOAA or any audit or litigation.

# Minimum Standards for Electronic Management Indexing and Metadata

Since digitized images do not have intelligence within them indicating their contents, appropriate index information or metadata is required to properly identify, locate and retrieve stored records.

For digital images, indexing and file naming schema are essential for locating and retrieving stored imaged records. Indexing typically consists of a structured format and controlled vocabulary that allows more precise description of a record's content.

A state agency must define and document specific indexing requirements needed to access the records efficiently prior to any imaging and indexing.



# What Indexing Should Include

- Unique Identifiers - Each document must have a unique filename or other identifier. Each filename must be unique across all records series and storage media.
- Indexing Fields/Descriptive Metadata - The index of documents must consist of a number of fields to ensure adequate access to the records. Index data often includes information such as record type, creation date, record creator, disposition date, among other information.
- Indexing Structure - State agencies must have a methodology in place to transfer images and index data to intended retrieval systems.

# What Indexing Should Include

- Optical Character Recognition - Optical Character Recognition (OCR) converts digital images into electronic text.
- Directory Structure - Regardless of the image filename, files will be organized in a file directory or folder system linking to metadata stored elsewhere.
- Technical Metadata - During the imaging process, production metadata will be maintained either within the individual images or separate from but associated with each body of digitized images.

# QUALITY ASSURANCE

- Quality assurance procedures must be in place to ensure the creation of accurate and authentic images and accurate metadata, as well as meeting specific requirements of the state agency.
- Quality assurance must be conducted before the destruction of any original documents.
- Each image of every page of all digitized documents must be visually inspected for clarity, readability, and accurate representation of the original record.
- Each indexing field must be checked against the original or imaged record.



# STORAGE



- **Storage Environment:** Storage media must be kept in secure, dust-free area under the proper environmental conditions.
- **Confidential and sensitive information:** Agencies (or vendors) must take special care to ensure the protection of confidential information during storage or transfer.
- **Back ups:** A periodic backup process of all digitized records should be performed along with geographically remote offsite storage to ensure the accessibility of records in the event of a disaster.
- **Regardless of the media used, images must be accessible for the records' entire retention period.**

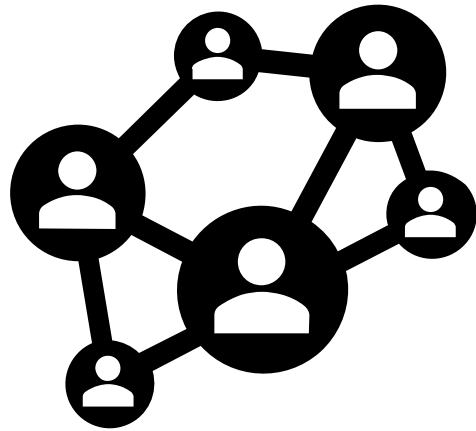
# Things to Consider

When records are kept in more than one format, identify the **official “record copy”** to which the full retention period will be applied. When the record copy is electronic, it’s important to identify the storage location so all changes are made there.

Recordkeeping systems must:

- Allow for the grouping of related records, to ensure their proper context.
- Make records accessible to authorized staff, to ensure their usefulness to the agency.
- Preserve records for their authorized retention period, to ensure their availability for agency use, to preserve the rights of the government and citizens and to make certain agencies are held accountable for their actions.





# Planning for the Future

# Planning for the Future



Records need to be kept for the duration of the retention period



How long will the current system be around



Is there a plan to move the files and metadata/indexing



How long will the file types still be readable



Are there file types that are more stable or have longer potential

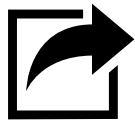
# Plan Ahead

The best time to plan for electronic records preservation is when records are (electronically) created. Don't wait until software is being replaced or a project is ending to think about how records are going to be preserved. Electronic records can help ensure the rights of the public through greater accessibility than ever before, but only if users recognize their importance and contribute resources to their preservation.



# Electronic Record Preservation

Agencies must ensure that all records in the system are retrievable and usable for as long as needed to conduct agency business and to meet approved dispositions. In order to do this, agencies must develop procedures to enable the migration of records and their associated metadata to new storage media or formats. This will avoid loss due to media decay or technology obsolescence.



# Data Migration Plan

Migration of electronic records to new file formats will maintain the readability of electronic records when computer systems or software are upgraded or replaced. Migration of electronic records to new storage media will maintain the readability of the information where the life span of the storage medium is shorter than the retention period of the information.

Data migration requirements should be considered when retention periods are determined for electronic records intended as official copies. The longer the retention period, the greater the need for data migration to maintain the future readability of electronic records.

## Something to Consider

Electronic records are generally suitable for official copies that will be retained for 10 years or less. These records can be saved with reasonable assurance they will remain readable until they have fulfilled their retention periods.

Remember...additional action is required to ensure the continued readability of electronic records with longer retention periods.

What Agencies  
Should be Doing  
Now to Preserve and  
Protect Electronic  
Records



# Data Maintenance

Any stored record must be protected against file corruption, alteration, or deletion throughout its required retention period. Adequate processes and documented procedures to ensure the integrity of the digital image should be in place.

1. **Reliability:** Controls to ensure a full and accurate representation of the transactions, activities or facts to which they attest and can be depended upon in the course of subsequent transactions or activities;
2. **Authenticity:** Controls to protect against unauthorized addition, deletion, alteration, use, and concealment;
3. **Integrity:** Controls, such as audit trails, to ensure records are complete and unaltered;
4. **Usability:** Mechanisms to ensure records can be located, retrieved, presented, and interpreted;
5. **Content:** Mechanisms to preserve the information contained within the record itself that was produced by the creator of the record;
6. **Context:** Mechanisms to implement cross-references to related records that show the organizational, functional, and operational circumstances about the record, which will vary depending upon the business, legal, and regulatory requirements of the business activity; and
7. **Structure:** Controls to ensure the maintenance of the physical and logical format of the records and the relationships between the data elements.



# Implement Migration Strategies

Digital images and their associated index data must be effectively and efficiently managed over time. Regardless of format, records must be retained until their retention requirements have been met.

Agencies must design and implement migration strategies to counteract hardware and software dependencies of electronic records whenever the records must be maintained and used beyond the life of the information system in which the records are originally created or captured. This will protect records against technological obsolescence.

- Carry out upgrades of hardware and software in such a way as to retain the functionality and integrity of the electronic records created in them;
- Any necessary conversion of storage media to provide compatibility with current hardware;
- Maintaining a link between records and their metadata through conversion or migration, including capture of all relevant associated metadata at the point of migration (for both the records and the migration process); and
- Ensure that migration strategies address non-active electronic records that are stored off-line.

# Records of Employees

When an employee leaves a position, computer files, including email, may NOT be automatically deleted!

Senior administrators should take action to ensure the electronic records of employees are maintained as required, especially if an employee leaves a position.

Maine State Archives must be notified when Commissioner/Executive level employees leave to ensure the preservation of archival records.



# Authentication

Authentication is necessary for legal, fiscal or administrative purposes to make certain imaged records acceptable as evidence. To introduce imaged records into evidence in a court or to use them in other legal or adjudicatory situations, a state agency must demonstrate that the processes and system used to produce imaged records are designed and managed to ensure the accuracy and authenticity of the records.

The trustworthiness of imaged records is dependent upon following documented procedures appropriately. Since courts may scrutinize deviations from established procedures, state agencies must follow procedures and remedy any deviations which are detected.

# Obsolescence

**Do you still have data on:**

Floppy Disk

CD

Wang Computing  
Disk

Beta



**Do you still have files in:**

Word Perfect

Apple Works

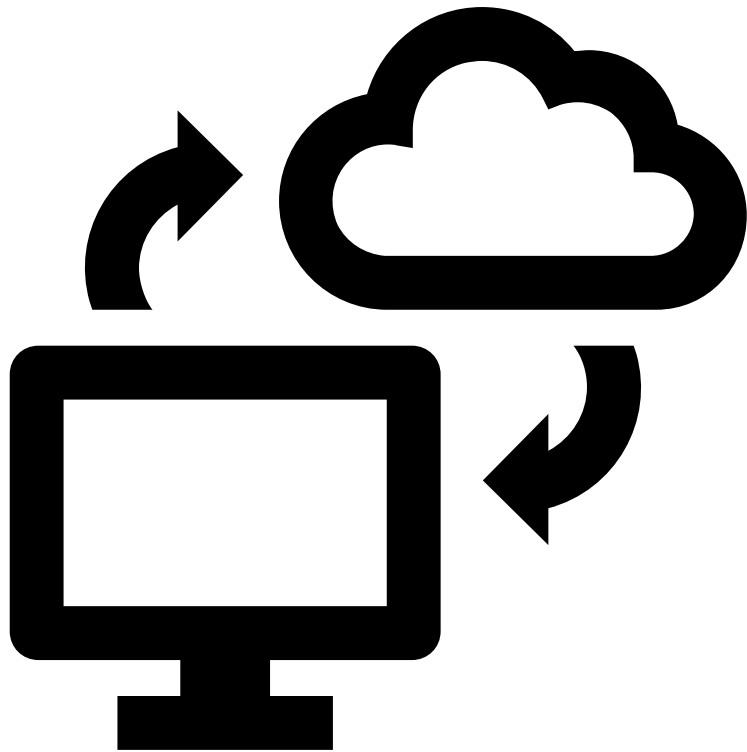
Office 95



**Now is the best time to determine if these files need to be saved**

# How to Fix the Electronic Records Problem

- Admit there's a problem
- Commit to the work
- Use the retention schedules
- Do an inventory/assessment of what you have
- Get rid of the ROT (redundant, obsolete, transitory)
- Search for common keywords to assess record types (remove or file accordingly)
- Have planned agency (office) electronic records days (monthly, quarterly or however time permits)



Maine State  
Archives  
Plan for the  
Future

# Digital Preservation

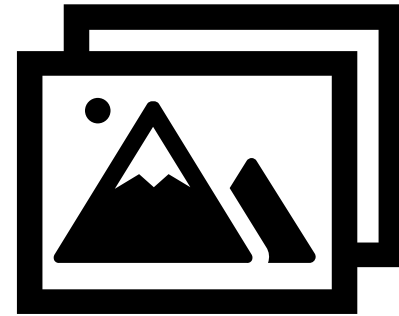
MSA is in the process of acquiring an electronic management system which will allow us to retrieve and preserve digital archival files.

Our goal is to have oversight over all agency archival records; to monitor and protect our State's important historic files from corruption and obsolescence; and to preserve the integrity and evidential value of these records.

This will also allow easy access for the public by having agency archival records coordinated in a central location instead of spread throughout many different agency websites and methods of retrieval.

Agencies should continue to retain their archival, digital records and contact the Maine State Archives for guidance on preservation.

Maine State  
Archives Digital  
Records Projects





# State Records Center Scan Lab

The Maine State Archives is currently scanning agency non-permanent paper records stored at the State Records Center and managing them electronically. Requested files are then provided digitally.

The purpose of this program is to efficiently and effectively provide documents to state agencies, reduce routing time through inter-office mail, and to increase work productivity.

MSA uses a records management system called OnBase, which is designed to maintain electronic files and purge them accordingly based on approved record retention times. (Destruction of materials would be contingent upon approved disposition notifications.)



# How to Get Started with Our Program

If you are considering a scanning program that includes your holdings at the State Records Center, your first step is to contact [Records Management](#) to review your retention schedules.

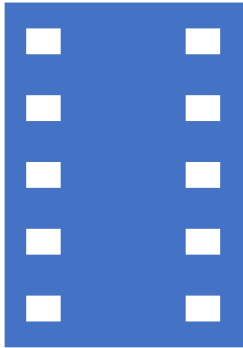
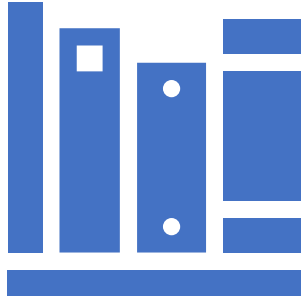
Several factors will help Records Management determine if your material is a good candidate for scanning, while also providing guidance for any necessary schedule updates.

MSA will evaluate agency records based on one or more of the following criteria:

- number of box sets stored the Records Center
- length of the retention period
- practicality of the material for scanning (ease of scanning)
- whether or not an agency is currently scanning
- whether or not schedules are up to date

# Records Center Scanning Process

- Agency records are evaluated based on specific criteria.
- Retention schedules must be up-to-date.
- Once established as a scanning candidate, Records Management provides an MOU detailing the work to be completed. This document must be signed by both parties before the scanning process begins.
- Records Center Scan Lab preps boxes, scans and indexes your paper files into our OnBase system; they will perform all quality assurance procedures associated with the scanning process.
- Records Center will request the destruction of your paper materials when the project is completed.
- Any agencies requesting electronic files will follow the same request/retrieval procedure as for physical records (boxed paper).



# Imaging of Microfilm & Historical Records

# What We Do

Imaging Services is improving the way state and local governments retrieve and share information. Using innovative digital conversion techniques, Imaging Services is converting microfilm and paper documents into digital images which are more efficiently shared and accessed.

Maine's historical records are among the most important cultural resources belonging to the people of Maine. These records allow the people of Maine to benefit from knowledge of state affairs and preserve its records of permanent value for study and research.

# Services to Agencies

To best protect and preserve our state's public records, Imaging Services incorporates microfilm services and security microfilm programs under the state's Archives and Records Management Divisions. Imaging Services offers two digital services that, together, link analog (microfilm) and digital (electronic image) technologies.

- Microfilm to Digital-- Existing microfilm images can be converted to digital images and incorporated into a new or existing document management system.
- Digital to Microfilm-- Digital images can be output directly to security microfilm for a fraction of the cost of traditional analog filming. This service provides agencies with a microfilm security copy of computer-scanned or born digital image records for permanent storage and an inexpensive “insurance policy” against technology becoming obsolete and future conversion expenses.

# Agency Responsibility for Archival Records

If the intent of the agency of record is to destroy the original documents after imaging, the digital files must be converted to a suitable archival medium (silver-based microforms are generally accepted).

If a third-party vendor or some other outside entity digitizes a record for a state agency or local government, the government must ensure the third party is compliant with these guidelines. In such cases, a properly written contract must be in place containing the basic requirements of the intended project as well as reference to these guidelines.

# Digitization Technical Aspects



# Understanding the Digital Product

The difference between vector and raster images:

Vector based text images, created in such programs as Microsoft Word, are infinitely scalable.

Scanned/digitized raster images are pixel based and depending on resolution, i.e. 300ppi, will lose clarity when enlarged because they do not have the ability to display smooth curved lines.



# Determining the Proper Equipment

This might be limited by what is available at your facility or by the cost of a chosen vendor.

- Digital reproduction camera – highest possible image quality. Depending on the system used can image both reflective and transmissive materials.
- Flatbed scanner – Very good reproduction quality. Again, depending on the system used can image both reflective and transmissive materials.
- Rotary (passthrough) scanner – Good image reproduction quality. Limited to imaging only certain material types. Generally, only reflective materials can be imaged.
- Copier/fax machine – Low to fair reproduction quality. Reflective materials only. These machines are used, generally, when the sharing of information is all that is required.


# Mode, Resolution, & File Format

All of these items combined, along with the equipment used, will determine both the quality and size (KBs, MBs or GBs) of the digital images along with a greater or lesser need for storage space.


## Mode and Bit depth are intertwined.




- 1 bit depth - Black or White

 Good for modern, clean typeset paper. Software determines whether a pixel (picture element) will be either black or white.

- 8 or 16 bit depth – Grayscale (256 or 65536 shades of gray)

 Necessary for aging paper and faded inks or pencil or where there are shades of the same value which need to be discerned or for items with color where the colors do not impart any relevant information. Also needed for photographic images whether from prints or negatives.

- 8 or 16 bit depth Color (RGB/CMYK)

 Maps with color coding, color artwork, documents with color charts and graphs, documents where color coding imparts meaning and information, & etc.

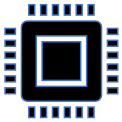
# Resolution

PPI (pixels per inch, also referred to as dpi)

The higher the resolution the finer the detail which will be retained. This will be determined by the level of detail in the original document as well as the legibility of the digital image produced. Such things to be considered:

- Are there small font footnotes in the documents
- Drawings/plans with fine detail
- Minimal separation between certain elements which need to be resolved

**File formats and file compression** – not all formats are universally readable and need specialized software to be displayed. Files are ‘compressed’ generally to save on storage space, for faster access, and greater ease of sharing. The major drawback to file compression is loss of detail. Many imaging programs entail the creation of large high detail original files which are then kept for retention. From these files, derivative or surrogate files are created for access and sharing.



# Some Examples of File Types

**TIF** (Tagged Image File Format) universally readable generally large files. The extensible feature of this format allows storage of multiple bitmap images having different pixel depths. Since it introduces no compression artifacts, the file format is preferred over others for archiving intermediate files.

**JPEG** (Joint Photographic Experts Group) Universally readable varying levels of algorithmic compression from high to low quality, manageable file sizes

**JPF** (jpeg2000) an updated version of the jpeg file type with improved algorithmic compression and image quality but not universally readable.

**PDF, PDF(A)**, (Portable Document Format) these are multi-platform/application file formats that capture a document's electronic image and formatting elements, including all fonts, text and graphics. It is a reliable and trusted file format used in the exchange of electronic data and provides color-accurate information, it allows a user to share and print data as it appears on the computer screen or monitor. It is however not universally readable.

**BTM** (bitmap) This format stores color data for each pixel in the image without any compression. For example, a 10x10 pixel BMP image will include color data for 100 pixels. This method of storing image information allows for crisp, high-quality graphics, but also produces large file sizes.

# MSA Contact Information

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