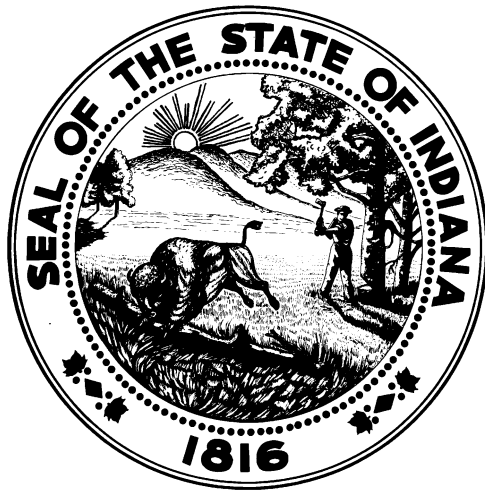


Indiana Archives and Records Administration

Indiana Government South Room W472

402 W. Washington St.

Indianapolis, IN 46204



## Imaging and public records:

### Basic questions and answers for government officials

Indiana Archives and Records Administration

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**im-age**\imij,mej\noun [ME, fr. OF. short for *imagine*, fr. L *imago*; akin to L *imitari* to imitate] 1. A reproduction of a person or thing

**im-ag-ing**\noun\ 1. Recording "human-readable" imaging - pictures, images, documents - into "machine-readable" formats

For government agencies and officials looking to answer difficult questions about records storage and access, imaging has become an increasingly attractive option, especially after the passage of SB 248 in 1995, which recognized business records stored on optical disk as legal documents. Nonetheless, imaging is not a simple business and any agency or official about to invest in it needs to understand and consider certain fundamental points.

Unfortunately, no single, specific model is available to copy. Imaging is still a new technology and its application will necessarily vary from place to place, as resources, needs and conditions differ. If you are considering imaging, this brochure describes the questions to raise and the issues to consider. It does not detail what everyone, everywhere must do to construct a successful imaging program.

Three steps you need to take to build a successful imaging program:

Examine your business processes to develop a thorough understanding of the impact an imaging system will have on your work flow.

Learn the legal and technical factors which will affect your goals.

Develop a clear and comprehensive plan through honest and substantive dialogues with your vendors and patrons.

### ***How will imaging change the way I do business?***

The most often repeated warning to those about to invest in new technology is that automating an existing system will lead only to marginal savings. As an imaging system can mean an expensive, short term investment, it will be extremely difficult to justify unless it will lead to significant, long term improvements in productivity and efficiency. That means an application analysis and implementation plan should be first and foremost. You should justify your investment by planning changes in the document workflow that lead to a more effective allocation of staff and resources.

### ***What do I look for in a vendor?***

As technology products and companies come and go with bewildering rapidity, you should assume and plan for the probability of business failure and product obsolescence. Your best protection is to insist on an open systems architecture, using non-proprietary hardware and software. If proprietary software is unavoidable, it should be licensed beyond the length of the contract. Finally, as there will inevitably be some bugs in the system, a contract should completely spell out the provisions for implementation, service, upgrades and repair.

### ***What sort of hardware is appropriate?***

As the hardware you purchase will seem antiquated soon after its installation, it is all important to adopt an open systems architecture in a design that relies on standardized equipment and that easily accepts upgrades and re-configuration.

### ***How should I plan for the future?***

After the imaging system is installed, your work is far from over. Continual monitoring and routine maintenance is the least you can expect; you will probably need to make more extensive adjustments as you can assume results will in some ways not match your expectations. Your monitoring process should also cover external factors - principally, the commercial viability of your vendor and developments in imaging technology and standards. As the technology is sure to change, you will have to budget time and money to prepare for and install hardware and software upgrades, and to convert or migrate your files to new storage media and formats. Finally, you must make provisions for breakdowns of varying forms, from minor interruptions to full-scale disasters. Both you and your patrons will be dependent on the system and the electronic records it produces. Problems will inevitably arise; when they do, you must already have plans in place to deal with them or your business activities will cease.

### ***Where can I get more information?***

#### **Indiana Archives and Records Administration**

W472 Indiana Government Center South  
402 W. Washington Street  
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Voice: 317.232.3373

Fax: 317.233.1713

Website: <http://www.in.gov/iara>

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#### **Public Access Counselor's Office**

W074, Indiana Government Center South  
402 West Washington Street  
Indianapolis, IN 46204

Voice: 317.233.9435 or 800.228.6013

Fax: 317.233.3091

Website: <http://www.in.gov/pac/>

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#### **State Court Administration, Information Management Section**

Voice: 317.232.4703

Fax: 317.233.6586

Website: <http://www.in.gov/judiciary/admin/info/index.html>

In particular, county clerks and court officials should note the details in Administrative Rule 13, Indiana Rules of court. County recorders should note the specific relevance of IC 36-2-17-17 to any electronic records projects they envision.

### ***What happens to the original records?***

Indiana Code 5-15-1-1(a) holds that records may be copied by any process "which correctly and accurately copies or reproduces, recreates or forms a medium of copying or reproducing the original record ..." Indiana Code 5-15-1-1(b), though, notes that the original records so copied may be destroyed only with the approval of the Indiana Archives and Records Administration, for state records, and the appropriate county commission of public records, for local government records. You should consult them when planning your project to ensure the most efficient and cost-effective design. This does not apply to records and offices under the supervision of the state court administration division of the supreme court.

### ***How can I insure that imaged records will be admissible as evidence in court?***

As optical disks are, by state law, a recognized and legitimate form of records storage, it is highly unlikely that any challenge to the technology itself will be successful. There is a very strong possibility, though, that all practices and procedures relating to the imaging process will be closely scrutinized. You should be prepared to demonstrate the reliability of the human aspect of your system and show that it leaves no room for manipulation of the stored records.

That will principally involve providing:

Full documentation of the system and your agency policies.

The ability to establish audit trails, from the design phase through data entry and covering any subsequent access.

Records of security measures and personnel training.

Adherence to standards established in federal and state rules of evidence. In particular, consult Administrative Rule 13 of the Indiana Rules of Court.

### ***What provisions should I make for public access?***

Indiana's public records law (IC 5-14-3 et seq.) liberally guarantees public access to government records. Unless the records in question are explicitly deemed confidential, members of the public have the right to view and receive copies of them, regardless of their format and storage medium. Further, state law notes that, upon request, agencies and officials must provide copies of electronic records in an electronic format. IARA suggests that you meet these mandates by making improved public access one of the system's priorities. The best approach would take advantage of the growth in communications capacities by making data freely available, perhaps through office websites, public terminals, kiosks, a community network or a dial-in system.

### ***What sort of software is appropriate?***

What applies to hardware applies here as well. In both instances, you should understand that the technology will change faster than you can foresee, so upgrades and improvements are inevitable. Your system should be designed to allow for these changes. If you rely on the vendors' own software, with codes written specifically for this application, then you will be tied to that vendor and its programmers for all future enhancements.

### ***Should I convert my backfiles?***

One of the most important choices you will face is whether to convert your older files to images as well. As backfile conversion will greatly increase your costs and place large demands on your staff, it needs to be carefully considered. If you conclude that it is necessary, you should examine the possibility of having it done by a service bureau rather than in house. Contractors may be able to complete the process in less time and without interrupting your normal business routine. They will not, however, be able to work without your supervision; successful document conversion demands a knowledge of the records and functions of the agency involved.

### ***How should I design an imaging system?***

Even though scanning receives the most attention in an imaging system, it is just one step in a larger process: reception, preparation, indexing, scanning and verification. Unless all the steps operate efficiently, the system will not work. You should expect to spend a great deal of time planning the document workflow and training your personnel. Because this is a complex operation, you should implement a sample or test project to see how it will work in practice before committing yourself to any particular system.

### ***What is the first step in the imaging process?***

When documents arrive at your office, they need to be identified, directed and expedited; it will do little good to install an expensive imaging system designed to improve access to records unless they quickly and efficiently enter the system. The first step, then, is to evaluate the material, record its arrival and label it for processing. A document identification number for an individual record or a bar code for a file may help to keep track of the material and guarantee access as it moves through the system.

### ***How should I prepare the documents?***

Preparation is an unavoidable, labor intensive step in the imaging process. It could involve any number of tasks. Usually, all staples, paper clips, etc., need to be removed. All documents have to be examined, with oversize, colored or damaged sheets earmarked for special attention. Some files may need to be weeded. Scanning extra pages in every file that comes through will increase storage problems and slow retrieval time. Similarly, some files may need to be sorted: you may want to ease your long term storage problems by scanning vital records on one disk and records of lesser importance on another with a shorter retention period. It is important to note that trained personnel, with a good working knowledge of your office's functions, are vital to this step.

### ***How important is indexing?***

Indexing is all important. Unless you are planning to use optical character recognition (OCR) in your scanning process, all your files will be stored as graphic files. Once scanned, the only way to find them will be through their links to an accompanying index. In order for this to work, you will first have to identify the information your patrons use to search for records; you will then need to find that data and enter it into the computer; finally, you will need to verify that the data is properly entered and correctly linked to the records. So that you can convert and communicate the data as needed, you should ensure that the retrieval software used is SQL (structured query language) compliant. Again, indexing is a labor intensive step, totally dependent on trained, dedicated and knowledgeable personnel.

### ***What do I need to know about scanning?***

As the cost of scanning equipment varies enormously, you need to analyze carefully your requirements before making any purchases. Consider:

The number of records to process, both on average and during peak periods.

The demand for the records, both as a function of time (i.e., how quickly do patrons need them? how quickly does your staff need them?) and of form (are the images used on screen, as printouts, in reports?).

The amount of time and money necessary to train your staff.

In sum, the transition from paper to image will not be simple or painless; you need to analyze all the practical implications before making the move.

Once that analytical framework is in place, you can determine the technical components of the system. The key issue is scanner resolution: the quality of the image produced will affect the legibility of the screen display and hard copy output; the potential for conversion to OCR (optical character recognition); and the demands for image storage capacity. This is crucial because, although most systems offer various enhancement techniques to improve image quality, the basic scan resolution can never be increased. Consequently, you need to examine closely the records you want to scan and the uses to which they might be put before making this decision.

Resolutions:

150 dpi (dots per inch): Minimum for a standard printed document, in good condition and with a clear, uniform typeface, to appear **only** on a screen display.

300 dpi: Minimum for any documents intended to be of archival quality, converted to Optical Character Recognition, or printed on a laser printer.

600 dpi: Minimum for documents that are not in very good shape, are handwritten, or include photos, fine lines, drawings or small details.

Only careful testing and an ongoing examination of the records can determine what you need.

File compression: In order to maximize storage capacity, image files are normally compressed to a fraction of their size. Only certain compression techniques, however, are "lossless," allowing for the reconstruction of an authentic and perfectly identical file. Others discard information as part of the compression process. For compression as for everything else, you should prefer non-proprietary techniques.

### ***How do I verify the records?***

An effective verification process is all important, as any mistake can lead to the loss of the record. Once the records are indexed and scanned, the data and images have to be verified. One person should not perform all aspects of the operation. Because of the importance of indexing, you should use a double key entry system or the independent verification of data against the scanned record. The visual quality control of the scanned images should be comparative and immediate, with the original record contrasted to its image. If you do not plan to retain the originals after their conversion, then you should plan for a comprehensive comparison of each document. In addition, data and images should be verified when transferred from the original medium to any other.

### ***How should the images be stored?***

Initially, there are two issues to consider: the file header format and the storage media. The file header "labels" an image and includes the data necessary to retrieve and use it. Relying on a proprietary format will make it harder or, conceivably, impossible to transfer or migrate image files. You should, therefore, insist on a non-proprietary file header format (such as TIFF - tagged image file format) or on a bridge to non-proprietary formats.

Storage medium: Optical disk media include CD-ROM, WORM and CD-rewritable. WORM (write once, read many) disks provide the greatest storage capacity and, as the stored records are non-reversible, the greatest security for the data. Because rewritable disks, in contrast, are designed to be re-used, data integrity is not as certain. If you use rewritable disks, you will need to demonstrate that the records on them are not altered and provide a detailed audit trail of access and rewrites.

Whether WORM or rewritable, optical disks are not adequate for long term, archival preservation of records because of their limited life expectancy. The most generous estimate of physical obsolescence is within thirty years. Technological obsolescence, though, will probably come within 5-10 years. As a result, you should assume the need to migrate all your files within a short amount of time to a new storage medium. COM (computer output microfilm) is another option.

In the meantime, you will need to protect your stored data with a comprehensive backup system. One necessary element of that is offsite storage of security copies in a controlled environment.