MANAGING COMPLEX LITIGATION:
DISCOVERY IN A LARGE CASE, AND
COMMON EVIDENCE PROBLEMS

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I. INTRODUCTION.

The large, complex business case involves a number of issues and concerns that are also present in virtually every lawsuit. To effectively try a civil case requires trial counsel to develop a persuasive theme, to analyze relevant legal claims and defenses, to secure evidence through the discovery process, to present witness testimony, and to submit documents or other tangible things that are compelling evidence of a claim or defense. What distinguishes the large, complex case is the scale of these tasks and the critical importance of managing the entire enterprise. Unlike smaller matters, the large business case involves: (I) a tremendous volume of documents that must be reviewed, evaluated and maintained in some form, (ii) a sizable contingent of fact witnesses and (iii) a proliferation of legal issues that are interwoven in a detailed fact pattern.

By way of an analogy, at the start of a large case, the trial lawyer stands at the base of a tall mountain and his success will be gauged by his ability to reach the summit promptly, safely and with his full team intact. The scaling of a tall mountain peak requires extensive planning, ongoing management and detailed coordination of the effort, all of which are similarly required to achieve a successful outcome at trial in a large, complex case.

In view of the staggering number of documents that are produced in large cases, this article focuses on issues that arise in securing and managing the documents that are produced and received during discovery. There are three central tasks relating to discovering and managing documents in discovery: (1) obtain critical information from parties and non-parties, (2) analyze and understand the information gained and (3) ensure prompt access to documents and important information at all times, but especially during trial. To accomplish these goals, it is imperative to have both a plan and the technology necessary to make the plan a success.

II. HANDLING THE LARGE DOCUMENT CASE - THE CHALLENGE.

The challenges that trial attorneys face today in a large document case are significantly greater than those that existed even as recently as ten years ago. The key difference is the enormous volume of documents that are involved in most large cases. Further, the wide use of the computer to create documents and manage information shifts the focus of production in larger cases to the electronic world. The large document case presents a wide range of issues, including the development of the case, management of various projects and admissibility of evidence. The trial team, and lead counsel in particular, must consider and address these issues at the outset of the case by focusing on the documents to be discovered, produced and managed.

For this process to work effectively, it is crucial to obtain “buy-in” from the client. What the client must appreciate is that a significant savings of thousands (if not hundreds of thousands) of dollars is possible in time and cost, but only if the required financial commitment is made up-
Imaging typically refers to the creation of a static image of an original document in a computerized ‘picture’ format, such as a TIFF image. This image is usually not text searchable and looks the same as the physical piece of paper that was the source.

A computerized system that correlates and organizes information regarding documents to allow searching and tracking by author, date, subject, hot issues, exhibit status and admissibility (among other fields).

OCR is a process by which a document is converted into a searchable format (such as a Microsoft Word or Word Perfect) through a program that recognizes images of text and converts the image into a text document. Photostatic copies of spread sheets can also be OCR’d into a spreadsheet program such as MS Excel.
9. Is sharing of production costs/databases appropriate with opposing party.

The answers to these questions will vary depending on the specific case. Typically, even relatively small cases will benefit, however, from using an electronic database system to manage documents.

B. Automated Case Management. The use of automated case management tools is a critical component in managing the large document case. What is required is the creation of a computer database and indices that include the entire case file and, in particular, all documents produced in the case. Various programs exist for this purpose, but our firm has selected Litigator’s Notebook in conjunction with the use of Lotus Notes as the software programs that aptly meets our needs.

Depending on the size and scope of the case, case materials (pleadings, written discovery responses, documents produced) can be either summarized (abstracted) or scanned to provide a full-text image that is promptly retrievable from PC’s at the office and also at remote locations, including the courtroom. The significant advantage of the computerized database is that it is readily searchable. A searchable database precludes the need to have associates and/or legal assistants spend countless hours sorting through many thousands of pages of documents to locate pertinent information. With a modest amount of time and effort, document searches can be promptly completed, copies of specific documents printed and reports generated in a variety of different formats, i.e., by author, by witness, by time period.

An important, additional advantage of the automated case database is that it allows ready access by multiple users at the same time. Therefore, rather than having a central case repository that is available to just one person at a time, the entire trial team can be working on various tasks that require access to the same exhibits, pleadings, discovery materials, case memoranda and witness information. Again, all of this information is portable on PC’s, which allows it to be accessed by trial team members during trial, in transit, in a hotel room, or during the depositions of fact and expert witnesses.

Review of documents for privilege is a critical item too often left for later consideration. Many key pretrial battles focus on privilege and an effective strategy for handling any privilege considerations should be evaluated from the outset. The automated case database system provides a good tool to assist in streamlining and expediting the review and analysis of documents for privilege.

C. The Concept of Mutually Assured Destruction. In any case, trial counsel must consider the concept that, more often than not, any document request served on an opposing party can be ‘flipped’ and returned as a mirror request. Objecting to a request that is in the same form as the one the attorney first served is difficult and hard to support to a trial court. Consequently, parties typically avoid pushing for discovery of certain categories of documents that they are not able to manage, such as electronic evidence. If counsel has developed the tools and a strategy to
handle production of electronic evidence, for example, however, this type of discovery can be sought with the expectation that a similar request will be received in return. This will afford a strategic advantage in the course of the litigation.

D. **Know Your Case Better.** All too often in cases that involve a large production of documents, the requesting party ultimately gains a better understanding of the documents than the counsel for the producing party. With larger productions, the requesting party designates for copying some portion of the documents that were produced, and omits documents or document categories that do not support the requesting party’s theory of the case. The producing party then focuses only on the documents selected for copying rather than reviewing the full universe of all documents produced. This is particularly true when one party has a significantly higher volume of documents to produce.

The point is this: it is critical to avoid allowing the opposing party to set the agenda for the documents. Instead, to secure the best chance for success, trial counsel must conduct a thorough review of the client’s documents to obtain all materials that are supportive of the client’s claims. Conversely, it is always a bad idea to rely solely on a review of documents that opposing counsel has designated from among the documents that were produced on the client’s behalf.

III. **PRIVILEGE AND ETHICS IN LARGE DOCUMENT PRODUCTIONS - INADVERTENT PRODUCTION AND DISQUALIFICATION.**

The production of a large volume of documents raises unique privilege and ethics issues. One immediate implication is that the production of massive amounts of data, including both paper and electronic, increases the potential for inadvertent production of privileged information.

The recently revised Texas Rules of Civil Procedure deal with the potential for inadvertent production of privileged materials by eliminating (or at least sharply reducing) the potential for waiver of the attorney-client privilege based on inadvertent disclosure. Under Rule 193.3(d), if privileged documents are inadvertently produced without the intent to waive a claim of privilege, the privilege is not waived if the producing party requests return of the documents within 10 days (or shorter time on court order) after the discovery of the inadvertent production.4

If the producing party amends its response to the production request and asserts a privilege over the inadvertently produced documents, the party receiving the documents must return the document in question and all copies pending the Court’s determination of privilege. This rule creates an ethical requirement that the party receiving the information take affirmative

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4 This rule reverses the Texas Supreme Court’s decision in Granada Corp. v. First Court of Appeals, 844 S.W.2d 223 (Tex. 1992), which held that inadvertent production waives the attorney client privilege if the documents were not diligently screened before production.
steps to return all versions of the document, including any electronically reproduced copies or images.

A related issue is whether an attorney who receives privileged material through no fault of his own may be subject to disqualification. The Texas Supreme Court addressed this issue in In re Meador in 1998. The court announced the factors that the trial court should consider in order to determine whether trial counsel should be disqualified after receiving privileged information:

1. Whether counsel knew or should have known that the material was privileged;
2. How promptly the attorney notifies the opposing counsel that he or she has received some potentially privileged information;
3. The extent to which the attorney reviews and digests the privileged information;
4. The significance of the privileged information; i.e., the extent to which the disclosure may prejudice the movant’s claim or defense, and the extent to which return of the documents will mitigate that prejudice;
5. The extent to which movant may be at fault for the unauthorized disclosure;
6. The extent to which the nonmovant will suffer prejudice from the disqualification of his or her attorney.

Under the standard of Meador, counsel receiving the privileged documents has a significant burden to consider how to handle the receipt of privilege documents obtained outside a normal production. The knowing use of privileged documents could result in disqualification. In the Meador case, a former employee of the defendant copied privileged documents related to the lawsuit and provided copies to counsel for the plaintiff. The Texas Supreme Court held that under the standard announced above, the trial court did not abuse its discretion in refusing to disqualify the plaintiff’s counsel.

IV. DISCOVERY IN THE ELECTRONIC AGE: DOES THE “PAPERLESS” WORLD CREATE MORE PAPER?

The world in the new millennium is a much different environment for discovery than the world that existed when the rules of evidence were drafted. The advent of a “paperless” electronic cyberworld requires new techniques to be used in the discovery process.

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5 In re Meador, 968 S.W.2d 346 (Tex. 1998).
6 Id. at 351-352.
7 Id. at 354.
The “paperless” world has become a world where more documents are generated by more people and distributed more broadly than ever before. Multiple copies of multiple versions of documents abound. Emails are distributed across the world in minutes. The widespread use of email, word processors, and spreadsheets have created novel issues in discovery. Here, we will address common evidentiary problems in the large document case, and in particular, the impact of computers, both their upside and downside.

The new age of the Internet also creates hurdles never considered 5 years ago. An example of the challenges facing litigants is the world-wide web and the production of information from a website. A website is not static: the information is changed and updated often. The ‘documents’ reflected in a website might be composed of multiple documents in separate windows. It might include HTML formatted pages that actually contain three or more different pages that are linked together to appear as one page. It may include a database engine that permits searches of underlying data in a report format. The website might also include secure pages or intranet links that are tied to a company’s mainframe or servers.

A. Questions in Addressing Electronic Evidence. The production of electronic evidence raises a number of interesting questions:

1. How to address the production of a database: Can a database effectively be produced? What if the application is proprietary? Is the underlying data all that is responsive, even if it cannot be manipulated without the link to the program?
2. Are electronic backups of email and document systems distinct and responsive? What should be done with incremental backups that are meaningless without a link to the original data? What about series of backups that contain only slight differences in the data from day to day?
3. Who is the author of an email string of messages?
4. Who owns a spreadsheet used by multiple people to create reports?
5. How can electronic evidence on laptops, hard drives, servers and removable media (floppy and cd ROMS) be effectively handled and organized?
6. How should email attachments be produced?

(See also, Section V below for a review of some of these issues and additional issues involving electronic and computer data production.)

B. Electronic Search, Review and Production Software. One common method of addressing electronic evidence is to use the traditional form of document review and discovery, by printing out the information, reviewing it for privilege and producing it to opposing counsel in a paper form. This method is ironic given the source of the original material and it is often far more expensive than the use of electronic search engines specifically designed to support the
production of electronic evidence, including emails, databases and document servers. This software allows for the on-line systematic and organized gathering of electronic data as well as the privilege review and preparation of a privilege log. The produced data is then part of a search engine that is used with the document database to support the evidence evaluation and analysis.

V. ELECTRONIC MAIL AND OTHER ELECTRONIC DATA.

The volume and availability of documents in discovery is impacted by the common use of computerized databases in modern business. The new Texas Rules specifically address the production of electronic data. Under Rule 196.4, litigants are required to produce electronic data that is “reasonably available,” if requested. One example of electronic evidence that parties will want to request is electronic mail, or “email.” Many trial attorneys realize that the key to proving their case can be found in the opposing party’s email.

Email is an efficient and cost-effective means of business communication, but it involves risks and potential liability for any company. “Like ghosts from the past, these forgotten electronic blips can come back to haunt a litigant, since computer data bases are subject to civil discovery requests.”\(^9\) Email is inordinately susceptible to revealing “smoking gun” evidence. Its salient characteristics, particularly ease of use and informality, lead to the “immortalizing” of information that normally would never be written down or distributed in an office memo.

For example, an email message in a sex discrimination case brought by a terminated employee cost one company $250,000. The company settled after the plaintiff discovered an email message from the company president to the head of personnel stating, “[g]et rid of that tight-______ ______.”\(^9\)

Email messages are just an example. A growing number of records, including insurance and accounting data, is available on computers. Multiple versions of word processing documents and spreadsheets are readily available on computers. Thus, in addition to discovery of documents in hard copy format, trial counsel must also seek discovery of electronic data or fail to

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8 See, for example, electronic discovery software developed by Kiersted Systems, Inc. of Houston, Texas, www.kiersted.com.

9 Patrick, E-Mail Data is a Ticking Time Bomb, National L J (Dec 20, 1993) at 13.


11 Patrick, E-Mail Data is a Ticking Time Bomb, National L J (Dec 20, 1993) at 13.
obtain what may be crucial information. A non-exhaustive list of documents that might be requested in a given case would include: customer lists, financial records, purchase and sales reports, personnel files, original documents such as letters, memoranda, invoices, and design specifications; drafts of original documents; databases used by individuals or local area networks; computer programs reflecting a particular process, including specific information, or demonstrating proprietary methodologies; computer operation logs containing usage information; logs and text of email, including ‘trashed’ or deleted messages, message drafts, or mailing lists; electronic messaging records for messages within a specific company’s network or across a wider network, such as the Internet; manufacturer’s specifications for the computer; source codes for computer programs; voice mail transcriptions; and scheduling systems.

VI. DISCOVERY OF ELECTRONIC INFORMATION - REQUESTS AND RESPONSES.

The first common evidence problem trial counsel typically faces in the large document case is how to collect the evidence. In addition to the more common problems faced by attorneys combing through warehouses of stored records, counsel in a case turning on electronic data must become familiar with the forensics of the recovery and reconstruction of such data. This includes a basic understanding of the terminology used by computer forensics experts, some technical knowledge of data formats and signals, and familiarity with the methods used to recover and reconstruct electronic data. Many lawyers are unfamiliar with technological issues that come up in dealing with computers, but the trial lawyer today must be ready to address these issues. At a minimum, counsel can assist business clients by advising them to gain control of their computer information and to implement information retention and e-mail policies.

Computer databases are subject to civil discovery requests. The basic rules of discovery apply to computer generation or storage of data and information that may be offered in evidence at a civil trial. For the most part, issues concerning pretrial discovery of computer evidence have been left to the trial courts to resolve according to established rules of procedure and evidence. In addition to the specific provision of the Texas Rules governing electronic discovery, the Federal Rules also permit the discovery of relevant computer-generated evidence. The 1993

12 Jessen and Shear, Plaintiffs Take Aim at Electronic Data in Trial Discovery, Legal Times (June 20, 1994).
13 Pechette, Electronic Records Are Discoverable in Litigation, National LJ (June 27, 1994) at C8.
15 Discovery of Computer Evidence, 71 Am. Jur. Trials 111, § 89
revision to the Rules requires the parties to disclose the description and location of relevant data compilations early in the litigation, before a discovery request has been submitted.\textsuperscript{16}

The discovery of computer information can be costly both for the responding party, which must analyze, organize, and submit the information, and also for the party requesting discovery, because the discovery party must convert and review the information. The magnitude of this cost can be a significant consideration.\textsuperscript{17} The requesting party may be required to “pay the reasonable expenses of any extraordinary steps required to retrieve and produce the information.”\textsuperscript{18} As a result, knowing what data to request and how to respond to these requests is critical.

In situations where the court concludes that the production of requested information without its accompanying computer analysis would result in undue hardship or burden, the court can require the producing party to use its computer system to generate the required information. The Federal Rules authorize the production of “designated documents” including “data compilations,” which clearly include electronic computer data.\textsuperscript{19} According to the Advisory Committee Notes, the burden is on the responding party to produce the data in a readable form, which typically means a computer printout.

The trial court also has the discretion, in an appropriate case, to compel the disclosure of the source codes when necessary to verify the authenticity and accuracy of the data.\textsuperscript{20} At the same time, in some states, where no adequate index of documents exists, except in an opposing party’s litigation support system, the court will not compel that party to use its litigation support system for the benefit of an adverse party.\textsuperscript{21} Therefore, a party can be compelled to produce

\textsuperscript{16} FED. R. EVID. 26 (a)


\textsuperscript{18} TEX. R. CIV. P. 196.4.

\textsuperscript{19} FED. R. CIV. P. 34(a).

\textsuperscript{20} For an excellent discussion of this entire area, see Poirier, Robb & Moser, Computer-Based Litigation Support Systems: The Discoverability Issue, 54 U Mo KC L Rev 440 (1986). See also Manual for Complex Litigation § 2.715.

relevant documents, but may not be required to sort or analyze the data. It is the nature of what is being produced that governs.

The discovery of electronic information presents challenges to the respondent, as well as to the proponent of a request for such discovery. For example, is the respondent obligated to take steps to produce all electronic records, including those that it had intended to delete? To what lengths must the respondent go to resurrect deleted documents? Will the respondent be forced to retain a technical expert to collect and/or recover electronic documents?

The following checklist for discovery of electronic evidence and other computer related documents can be tailored to meet the demands of the large document case:

A. Request that the electronic information be submitted in computer-readable form. This allows counsel to complete key word searches to locate relevant information and to reformat the information in a preferred form, such as a table or list. A trial court may order a party to produce information in computer-readable form, on a disk or a CD, even though the precise information has already been supplied in a printout.

B. Determine how the costs for obtaining and handling the electronic information will be borne. Discuss with opposing counsel the sharing of costs.

C. Identify potentially relevant electronic information and in what format it might be stored, such as e-mail, graphics files, or word processing files.

D. Discuss with a computer expert technology issues such as the framing of discovery questions, the specific computer systems involved in the litigation, and the potential need for computer forensics assistance to recover electronic information. Determine if a computer expert may be needed to assist or testify at trial.


23 See, for example, Fauteck v. Montgomery Ward & Co., Inc., 91 F.R.D. 393 (N.D. Ill. 1980) (employee records in sex discrimination case); Dunn v. Midwestern Indem., 88 F.R.D. 191 (S.D. Ohio 1980) (civil rights case where details of defendant’s computer system were ordered disclosed).

24 Pechette, Discovery Requests Should Include All Files Kept in Electronic Form, New York LJ (August 2, 1994) at 5.

E. Consider obtaining a protective order for certain electronic information, such as information that contains trade secrets or is computer source code.

F. Use discovery to obtain information on the computer system used by the opposing party, including the type of hardware, operating systems, and applications used.

G. Determine how counsel will process and use the electronic information that is discovered. Processing may involve searching through the information. Use of the information may involve the production of trial exhibits.\(^{26}\)

Finally, other aspects of the electronic information, which are not considered part of the body or context of a message or file, but can be of immense importance, include date and time stamps reflecting the date of saving or transmission and the date of receipt, and a message’s list of recipients. The computer generated “history” of a document may be important to show that the events in dispute took place in a particular sequence. Automatically generated evidence of when a computer file was edited, when a utility was last used, or when an e-mail message was transmitted by the sender or opened by the recipient may be useful tools to the litigant. The list of email recipients, for example, including those who were second and third generation recipients, can help prove motive, knowledge, malice, libel, or a waiver of a privilege, for example. In short, counsel should carefully check date and time stamps and the recipient lists, in addition to checking the body of the electronic information obtained through discovery.\(^{27}\)

Indeed, substantial information on computer-readable media may be useful to parties even though it does not appear on a printout. For example, information relating to the programs and coding used to input the data may provide valuable insight into business methods when analyzed by a qualified computer expert.\(^{28}\) In one case, where a computer utilized in a particular business had been programmed with standards that promoted racial discrimination, its information was held to be fully discoverable.\(^{29}\) One court has held that when statistical analyses are developed from more traditional records with the assistance of computer techniques, the underlying data used to compose the statistical computer input, the methods used to select, categorize, and evaluate the data for analysis, and all of the computer outputs are proper subjects for discovery. Consequently, the discovery requests which sought minute information about the defendants’ computer capabilities, “including information about their computer equipment, raw data,


\(^{28}\) Methods of Production, 71 Am. Jur. Trials 111, § 94.

programs and data management systems, in addition to the production of tapes which contained information about past and present policyholders was not per se irrelevant. Conversely, discovery of compilations and information from an automated litigation support system (ALSS) should not be allowed in situations where the source documents from which the ALSS received information are available to the requesting party in their original form.

VII. COMPUTER AIDS IN MANAGING THE LARGE DOCUMENT CASE.

In some cases, the party may find it advantageous to obtain large volumes of information in computer-readable form instead of collecting volumes of paper documents. For example, in one case, the trial court ordered disclosure of records in computer tape format instead of as hard copy. In that case, the agency maintained the requested files in computer format, the files could be reproduced on computer tapes at minimal cost and quickly, and the same information provided as printed copy would use more than 1,000,000 sheets of paper, cost more than $10,000 to print, require five to six weeks to produce and would cost the petitioner hundreds of thousands of dollars to reconvert to a computer-readable format.

In another case, a court granted writ of mandamus to require the police department to furnish the petitioner with copies of magnetic tapes and paper copy of record layout of information that was stored on tapes where the petitioner presented legitimate reasons why paper copy of records on tape would be insufficient and impracticable. In that case, the petitioner was entitled, under the Illinois Public Records Act, to either copy the computer tapes that she requested or have the agency loan her the tapes so that she could copy them.

VIII. THE ADMISSION AND USE OF VOLUMINOUS OR COMPUTER GENERATED DOCUMENTS AT TRIAL.

A key tool to utilize in the introduction of volumetric information is the business record affidavit rule that is set forth in Rule 902(10), of Tex. R. Ev. This Rule is an effective tool to facilitate the production of accounting and other detailed records that should not require live witnesses to prove up at trial. The Rule permits an affidavit to be used to secure admission of records, provided that it is filed 14 days before trial, and recites that the information is sufficient to establish that the documents are business records under Rule 803(6) or (7). Court cases have

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30 Id., (citing Fifth Recommendation, Manual for Complex Litigation § 2.715.).
upheld this procedure, notwithstanding objections that the affidavits contain hearsay.\textsuperscript{34} With the admission of the underlying documents, the trial witness can offer a summary of the information contained within this large volume of data.

The broad, generic term “computer evidence” should be divided into two specific classes: computerized business records; and computer-generated evidence.\textsuperscript{35} The first is based on the use of the computer to simply arrange or compile objective input data. The second is based on the use of the computer to analyze objective input data and generate conclusions that are based on assumptions within the program being run. The term “computerized business record” is used to refer to material, usually a printout, compiled by the computer in a preordained fashion from input data or from calculations performed by the computer based on input data. Where the litigant uses computer tools available today to develop evidentiary material based on input data and assumptions contained within the program itself, the result is computer-generated evidence, such as computer graphics and simulations.\textsuperscript{36}

“Computerized business records” should not be interpreted in a restrictive sense and limited to computer data that resides passively in an electronic database. Business records are part of a commercial process, and information put into a computer is used as well as stored. The fact that data is manipulated in some way during business operations does not disqualify it as a business record. Typically, business information is compiled, calculated, recalculated, merged, sorted, and revised during the regular course of a firm’s operations. Thus, computerized business records also include business information used in spreadsheets, data sorts, mathematical computations, and list compilations.\textsuperscript{37}

Computer-generated evidence, of which simulations and models are the most common type, is also referred to as “computer-created” evidence. The computer generates the evidence in the same sense as a camera creates a photograph, however. The scene exists in the real world and the camera produces an accurate version of it but in a different form. With computer-generated evidence, much the same process is followed. The computer must have precise data from the field on which to run a reliable program and the output must be verifiable as accurate. In the field of computer technology as it applies to experimental and demonstrative evidence, objective verification can be a complex task. Questions as to what to verify and how to verify it are mere threshold inquiries. What happens to the verification if the program is changed

\textsuperscript{34} Fullick v. City of Baytown, 820 S.W.2d 943, 944-45 (Tex. App.--Houston [1st Dist.] 1991, no writ).

\textsuperscript{35} Computer Evidence in General, 71 Am. Jur. Trials 111, § 115.

\textsuperscript{36} Id.

\textsuperscript{37} Id. at § 116.
and can the operator test all possible permutations of statements in a program are additional
questions. Even defining “accurate” is a problem in some cases.\footnote{38}

Whenever the adverse party is expected to use computer-generated evidence at trial, trial
counsel should be ready to respond with the weaknesses in this type of evidence.\footnote{39} Counsel can
challenge the admissibility of evidence by questioning to determine who prepared the evidence,
the structure and procedures used by the data processing organization, the organizational and
operational controls customarily employed, and the controls used in the production of the
evidence in question.\footnote{40} Admissibility may turn on the programs used to produce documents and
the data from which the evidence was derived.

In order to challenge the admissibility of computer generated evidence, counsel might ask
for the source listing with any explanatory documentation or obtain codes in order to perform
tests on the computer program itself. In some cases, computer experts may be needed to test
source codes, algorithms and “executable modules.” Indeed, it may even be prudent to depose
programmers or systems analysts who developed the programs.

The fundamental rules for the admission in evidence of computerized business records
and computer-generated courtroom exhibits are not changed by virtue of the fact that the
evidence was stored in or generated by a computer. The foundation for a computerized business
record is basically the same as it is for a paper business record; and whether purely demonstrative
or experimental, computer-generated evidence requires the same showing of accuracy of
depiction or similarity of conditions as a prerequisite for admission.\footnote{41}

Computerized business records are, as the name suggests, the client’s business
information and data that have been stored in electronic databases. Computer-generated
demonstrative evidence is a wider field, covering static illustrations of scenes, objects, or events
involved in litigation, and animated graphic presentations used principally to illustrate the
testimony of expert witnesses or demonstrate the output of experimental studies.\footnote{42}

A. \textbf{Admissibility of Software.} Establishing the competence of computer evidence
normally presents the greatest hurdle that must be overcome before it will be admitted. Evidence

\footnote{38}{\textit{Id.}}
\footnote{39}{As to Discovery techniques with respect to computerized business records, see
\footnote{40}{\textit{Id.}}
\footnote{41}{Discovery Plan, 71 Am. Jur. Trials 111, § 91.}
\footnote{42}{Basic Definitions of Computer Evidence, 71 Am. Jur. Trials 111, § 116.}
generated through the use of standard, generally available software is easier to admit than evidence generated with custom software. The reason lies in the fact that the capabilities of commercially marketed software packages are well known and cannot normally be manipulated to produce aberrant results. Custom software, on the other hand, must be carefully analyzed by an expert programmer to ensure that the evidence being generated by the computer is in reality what it appears to be. Nonstandard or custom software can be made to do a host of things that would be undetectable to anyone except the most highly trained programmer who can break down the program using source codes and verify that the program operates as represented.\textsuperscript{43}

B. Admissibility of Computerized Business Records. Computer printouts, like other written documents, are hearsay and cannot be admitted into evidence to prove the truth of the matters asserted in them unless they fit within a recognized exception to the hearsay rule. All jurisdictions, however, recognize some sort of exception for records maintained and relied upon in the regular course of business, on the rationale that (1) it would be impractical to summon as a witness every employee of the business necessary to establish the matters through personal knowledge and direct testimony, and (2) if the records were used in the ordinary course of business for purposes other than the litigation, there is little reason to doubt the reliability of the records.\textsuperscript{44}

Under the Federal Rules, computer generated records may be put into evidence as business records, if evidence sufficient to support a finding is introduced that the electronic computing equipment is recognized as standard, that the entries were made in the regular course of a regularly conducted business activity at or reasonably near the happening of the event recorded by or from someone within the business possessing personal knowledge, that the computer process produces an accurate result when correctly employed and properly operated, and that the computer process was so employed and operated with respect to the matter at hand, unless the court determines that the sources of information, method, or time of preparation indicate lack of trustworthiness.\textsuperscript{45}

The content of the term “standard” in reference to both the hardware and the software computer program employed is not clearly defined. Since commercial software programs are made to be modified to particular computer needs, the requirement of “standard” loses much of its utility in assuring trustworthiness. Data placed into a computer in accordance with the foregoing requirement may be admitted when presented in a different form provided a sufficient foundation is laid with respect to the mechanical equipment, program, etc. When the underlying data itself does not comply with any hearsay exception, employment of the results of computer

\textsuperscript{43} Software Considerations of Computer Evidence, 71 Am. Jur. Trials 111, § 118.

\textsuperscript{44} See, for example, United States v. DeGeorgia, 420 F2d 889 (9th Cir. 1969).

\textsuperscript{45} Rules 803(6) and (8); Computerized Business Records in General, 71 Am. Jur. Trials 111, § 119.
analysis may nevertheless be presented to the trier of fact if reasonably relied upon by an expert witness.  

In practice, testimony concerning standard hardware and software, the capacity of the computer process to produce accurate results as well as testimony as to proper employment is only required when a genuine question is raised as to the trustworthiness of the computer record. Imposition of such foundation requirements in every case would require the production of a person expert with the computer process capable of giving such answers rather than the production of someone in the nature of a custodian whose knowledge is only sufficient to lay the foundation required for the admissibility of a business record.  

Under the statutory exceptions, business records may be admitted into evidence if it is proven that (1) the record was made in the ordinary course of business, (2) it was the ordinary course of the business to make such records, and (3) the record was made at the time of the transaction or event or shortly thereafter. It is not necessary for the witness through whom the business records are entered into evidence to have made the actual recordation or to have personal knowledge of the transaction. Rather, “entries in business records must be based either on the personal knowledge of the entrant or on the information of others with personal knowledge who are under a business duty to transmit such information to the entrant.”  

C. Laying the Foundation for Admissibility of Computerized Business Records. The following facts and circumstances, among others, should be sufficient to establish the proper record maintenance, authentication, and procedures necessary to show the accuracy, reliability, and freedom from tampering to secure admission of computer-generated business records:

1. Qualification of witness;
2. Maintenance of plaintiff’s records by outside service;
3. Procedures employed to assure accuracy, reliability, and freedom from tampering;
4. Authentication of exhibits;
5. Offering of computer generated calculations.  

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