auto-notary™

Accurate Automation Corporation

A Technique for Authentication of Digital Information

The legal rules of evidence present strong challenges to the use of digital information as legally acceptable records. A technique is needed whereby digital recordings (including images) can be offered and accepted as legal evidence. The most difficult rule of evidence for digital recording to meet is *authentication*.

> **Authentication is the means to prove, first, the conditions under which the record was made, and, second, that the recording is offered in its original unaltered form.**

The conditions under which the record was made include date, time, location, people present, and other relevant conditions. The Best Evidence Rule requires that the original document (recording) be admitted into evidence if it is available.

Digital recordings are very susceptible to alteration. When the originality of a recording is questioned, often expert witnesses provide testimony as to whether or not the recording appears altered.

Accurate Automation Corporation (AAC) has developed a technique to authenticate digital recordings by automatically including authentication information in records at the time of recording that can be used later to prove the conditions in which the recording was made and to prove the originality of the recording. This technique is based on encryption processes endorsed by national security agencies using very large keys which would require centuries to defraud on the fastest available computers. Yet, this technique does not impair the use or viewing of the recording by existing tools. In fact, this technique does not impair the alteration of the digital recording, but it provides a means to detect that an alteration has occurred. This technique is called *"auto-notary™"* and is owned and has patent pending by Accurate Automation Corporation of Chattanooga, TN.

Two information elements are automatically included in the digital record at the time of recording with *auto-notary™*. One information element is the context in which the recording is made. The other information element is a digital signature of the combination of the original recording and the context information. Adding these two information elements at the time of recording is the *auto-notary™ Encode Process*. If the authenticity of a recording is questioned, the recording can undergo the *auto-notary™ Decode Process* which views the context information element and determines if the recording is unaltered. Note that *auto-notary™* does not impair viewing of digital recordings or even altering of digital recordings, but simply provides a means to determine the authenticity of the recording.

auto-notary™ is applicable to any digital recording such as photographs, motion video, audio, financial data, and personnel or equipment records. In addition, *auto-notary*™ can be applied to office automation such as email, word processing, spreadsheets, and desktop publishing.

Consider the legal evidence rules associated with digital photographs. When a photograph is introduced as evidence, the context in which the photograph was taken and the degree to which the photograph matches the original recording are both questioned. Traditionally, the person taking the photograph offers testimony as to the date, time, location, etc. of the photograph. In addition, it may be necessary to obtain testimony of people involved with the chain of custody of the photograph. It may be necessary to offer testimony from expert witnesses to attest to the fact that the photograph is unaltered. The ease with which digital photographs can be altered has deterred the use of digital photography in situations where a photograph is likely to be used as evidence. A digital photograph that has been through the *auto-notary*™ *Encode Process* can undergo the *auto-notary*™ *Decode Process* in the presence of the judge and/or jury to prove the context of the photograph and the unaltered condition of the photograph. In addition, it may be appropriate to offer altered photographs derived from the original that are zoomed or brightened or enhanced in some way. But these alterations can be offered side-by-side with the original.

A form of authentication in use today is "watermarking." The advantages of *auto-notary*™ over watermarking are:

- *auto-notary*™ leaves the recording completely unaltered, whereas watermarking embeds the authentication information within the recording (image) in a manner that is supposedly imperceptible to a user
- *auto-notary*™ includes the context of the recording within the authentication, whereas watermarking only verifies the originality but not the context of the recording

Some organizations attempt to shield recorded information from alteration by hiding the information within encrypted records or requiring passwords for access to records. These techniques limit the ease-of-use of digital records, and the security can always be questioned since alterations cannot be proven with shielded records.

With *auto-notary*™, an organization need not change how digital recordings are handled. The presence of the authentication information is invisible to the casual user of the digital recording. In addition, an organization using *auto-notary*™ can trust with complete confidence that digital recordings can be authenticated years after the original recording was made.

For questions or additional information contact Accurate Automation Corporation at (423) 894-4646 or email to marketing@accurate-automation.com.