

NDSU Lunchbytes

"Are They Really Who They Say They Are?"

Digital or Electronic Signature Information

Rick Johnson, Theresa Semmens, Lorna Olsen

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Overview

- Definitions of Electronic/Digital Signatures
- What is a Digital Certificate and what does it have in common with a Digital Signature
- How do Digital Signatures Work
- The legal perspective on Digital Signatures

Electronic/Digital Signatures

More than one definition:

1. Can be used to sign a document (i.e., contract, letter, etc) – Person's signature
2. Can be used to authenticate a secure Website or to send secure e-mail messages (<https://www.secure.org>) – Business Web site

Digital Signature

- A way to ensure whether a message was actually sent by the person who claimed to have sent it.
- The sender's private key encrypts the signature, and the recipient decrypts the signature with the sender's public key.
- Digital signatures use public key cryptography and work in conjunction with certificates

<http://www.vpsource.com/glossary.html>

Digital Certificate

- A digitally signed statement that binds the identifying information of a user, computer, or service to an encryption algorithm
- A digital certificate is commonly used in the process of authentication and for securing information on the networks
- Examples: Verisign, GeoTrust, Thawte

Digital Certificate

- Is issued by a Certificate Authority
- Certifies the person and particular Web site are connected
- Increases confidence and trust from the user

Digital Certificate

- Example: A digital certificate verifies to the shopper the online store is actually associated with a physical address and phone number – increases shopper's confidence in merchant's authenticity.
- Examples: PayPal, Barnes & Noble, Amazon

Certificate Authority

- In cryptography, a certificate authority or certification authority (CA) is an entity which issues digital certificates for use by other parties. It is an example of a trusted third party.
- Examples: GeoTrust, Verisign, Thawte

Public Key Cryptography

Some forms of public key cryptography:

- **public key encryption** — keeping a message secret from anyone that does not possess a specific private key.
- **public key digital signature** — allowing anyone to verify that a message was created with a specific private key.
- **key agreement** — generally, allowing two parties that may not initially share a secret key to agree on one.

Legal Perspective – Laws & Regs

- 1. Electronic Signatures in Global & National Commerce Act (E-Sign Act), 15 USC § 7000 et. seq. (10/1/00)

Legal Perspective – Laws & Regs

- North Dakota Electronic Transactions Act, NDCC ch. 9-16 (8/1/01), <http://www.legis.nd.gov/cencode/t09c16.pdf>
- “Electronic signature” is:
 - 1) electronic sound, symbol or process;
 - 2) attached to or logically associated with a record; and
 - 3) executed or adopted by a person with intent to sign the record

(§9-16-01(8)).

North Dakota Electronic Transactions Act

- Allows, but does not mandate use of electronic signatures (§9-16-04).
- Gives legal effect to electronic records and signatures (9-16-06).
- Even allows notarization to be electronic (9-16-10).

North Dakota Electronic Transactions Act

- Provides that the State Records Administrator (now the Chief Information Officer in OMB) can make rules and guidelines (9-16-16).
- Government agencies not mandated to permit electronic signatures (9-16-17(3)).
- No rules yet? N.D. Secretary of State has a reserved section, NDAC ch. 72-05-04, for “Digital Signatures”. University Policies??

Legal Perspective – Laws & Regs

- FERPA, 34 CFR § 99.30(d) (5/21/04)
- DOE wanted to allow electronic signatures, but give schools wide flexibility.
- (d) says that signed and dated consent can include electronic signatures if authenticates the person and shows their approval of the consent.
- Also provides that FSA (Federal Student Aid) Standards for Electronic Signatures are a Safe Harbor for implementing electronic signatures, <http://www.ifap.ed.gov/dpccletters/gen0106.html>

Legal Perspective – Laws & Regs

- Other resources:
 - South Dakota Electronic Signature Standards,
http://www.state.sd.us/standards/chapter_14.htm

Questions?

- Lorna Olsen, Trainer
 - Lorna.Olsen@ndsu.edu
- Rick Johnson, General Counsel
 - Rick.Johnson@ndsu.edu
- Theresa Semmens, IT Security Officer
 - Theresa.Semmens@ndsu.edu