

# Authenticity of Electronic Signature Under Jordanian Legislation

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## Abstract

The novelty of electronic signature and its instability in the legislation of the Jordanian electronic transactions system and this is attributed to the novelty modern electronic transaction laws as a whole; whereas the temporary Jordanian electronic transactions law no. (85) Of 2001 was the beginning of recognition of the electronic dealing, despite the passage of years after the UNCITRAL Model Law on Electronic Signatures with its last amendments in 2001. What demonstrates the instability of the electronic signature system is the introduction of the legislature for the vocabulary of the public key, private key, protected signature and signature transactions documented in Law No. (15) Of 2015. The research on the attitude of the Jordanian legislator for a system of electronic signature and its legal value and the adopted legal policy made known about it, because as we shall see in this research, the legislature established a distinction between authenticities granted by the electronic signatures to the instrument depending on the electronic documentation.

**Keywords:** Electronic Signature – IT Laws – Cyber Laws – Authentication.

## I) Introduction:

Business transactions depend on two elements; speed and secure transactions. This may have helped this type of transaction to absorb the tremendous development in the information technology, and business transactions have assimilated all-new technology, and seek to incorporate it, in a way that allows the business transactions to be done electronically ensuring the speed element and increasing trade efficiency.

As for the secure transactions and the fact that trade has become beyond the borders of states, we are no longer talking about a national transaction between individuals or dealers in one geographical area, but we are in front of the concepts of globalization and informational integration, which highlighted the need for caution and prudence in the transactions and deals concluded through electronic correspondence in light of facing a lot of obstacles that beset the digital world, and the violation of the privacy and cyber crime, as well as the appeal to the judiciary in the event of dispute as a result of betrayal of business confidence can be costly. What led the victim to lose its right, including fraud and for a reason efforts are directed towards finding an effective way to achieve secure transactions, maintaining the confidentiality and privacy of information from disclosure, so, electronic signature system has appeared which was acknowledged in many countries around the world and has been organized by their legislations.

At the level of Jordanian legislation, the Electronic Transactions Act regulated electronic signature in terms of its definition, types, conditions, and authenticity, which adds it on the associated record. In the framework of this research, we will tackle the electronic signature system from several aspects, whether legally or technically and, this will be done in two topics; the first deals with the electronic signature in terms of its concept and its advantages (the first requirement) and functions (the second requirement) and forms (the third requirement). The second topic deals with the terms of the electronic signature and its mechanism of action as this topic has been divided into the conditions of electronic signature and its impact on the electronic instrument (the first requirement) and the mechanism of electronic signature (the second requirement). We seek the help and guidance of Allah and in Allah, we trust.

## II) The Research Aims and objectives :

The lack of serious practice of the process of electronic signature within the framework of trading on Jordan consumer level revealed many dilemmas, most notably the inability to rely on the electronic signatures, especially the documented ones. In the light of the development of a documenting entity responsible for documenting the electronic signatures in Jordan under a license system and the adoption of the electronic documentation no. (11) Of 2014, issued under Article 40 of the Jordanian electronic transactions law no. (85) of 2001 and its ongoing work under Article 28 of the new law, yet, that the signs of these entities did not appear on the ground, which stand in the way of the application of the provisions of electronic documented signatures, and which are the focus of the legislator to the upgrading of the electronic transactions.

The research also raises a number of questions, the most important of which is what is meant by the electronic signature and the difference between it and the digital signature? Will the electronic signatures be of the same degree? What are the conditions that must be met? Did the legislator allow issuing formal bonds by electronic means in the article (17) of electronic transactions law, and it violated what Article (3) of the Electronic Transactions Act stipulated? Does the introduction of the legislator to the definitions of public and private keys in the amended law carry any legislative significance? Is there a difference between the electronic record and

electronic instrument? Alternatively, both have the same meaning.

### **III) The Research Methods & Limitation :**

This research is limited to the Jordanian's e-Transactions Law No. (15) Of2015, specifically for the system of electronic signature from the theoretical and practical (technical) angles. Theoretically, the research will tackle the concept of electronic signature, features, functions and forms and conditions, in addition to the authenticity granted by the electronic instrument. On a practical level, the research will tackle the techniques of electronic signature, exclusively the digital signature away from other forms of signature, with short reference to the entity of electronic authentication and its role in the dealings away from the details, as it is part of the research of our colleagues.

In our study of the subject of electronic signature, we adopted the descriptive and analytical approach, through tackling the legal texts governing the electronic signature in both the Jordanian legislation or the comparative Arab legislations and the UNCITRAL Model Law of 2001 with full analysis and criticism and present our legal opinion in this regard, whenever possible.

#### **1- The Electronic Signature**

Signature in general, and as is customary known, is considered a key element in every instrument, it is a satisfaction proof of its content and attributed to a particular person who is its only user. Perhaps the electronic signature does not come out for this hypothesis, but what sets it apart is the electronic way, which means any technology using electrical means, magnetic, optical or electromagnetic or any other similar means.<sup>1</sup> In the framework of this section will tackle the description of electronic signature as a concept and what sets it apart from traditional signature (the first requirement) and then the functions of electronic signature (second requirement) and ends in (the third requirement).

##### **1.1- The concept of electronic signature and its feature:**

As noted earlier, the electronic signature is a modern system emerged from technological developments in the field of business transactions which prompted jurisprudence writers to tackle it and indicate what is meant by it, and in that we find that the Jurisprudence did not contain a specific definition, the same with legislation, but there were many views and definitions<sup>2</sup>, this diversity revolves around one content limited to the two functions of signature, which are the identification of the signatory and his personal satisfaction to be committed to the provisions of the instrument, which is the same case in the traditional signature<sup>3</sup>, but the difference between the traditional and electronic signature, despite this convergence of the function lies in the privacy and confidentiality and safety that appear and excel in the case of traditional signature.

##### **1.1.a- The concept of electronic signature:**

Some define electronic signature as "it is based on a set of procedures and the means to be usable by symbols or numbers with an email electronically coded by using a pair of keys, one publicly available

and one private to the owner of the message.<sup>4</sup> We find that this definition focuses on the means used to create a signature symbols and numbers; also, it focused on a form of electronic signature, which is based on a pair of coded keys (public and private).

Some others defined it as "a written signature of letters, numbers, symbols or sound or a processing electronic system attached or linked logically by an electronic message with the intension of documenting it."<sup>5</sup> Others defined it as a system or sign coded for a particular person, through which a person expresses his will and emphasizes the fact the data contained in the document that was signed.<sup>6</sup>

Despite the multiplicity of definitions, we find that they are in one direction, which the focus on the means and the way in which the creation of the electronic signature of symbols and letters and numbers without consideration of the purpose and function, behind the electronic signature, again, with regard to the function performed by the electronic signature and of (identification and a personal identity of the signatory, and expressing his satisfaction with the commitment to what is stated in the instrument), and we find that the Jurisprudence tackled this function in its definition of electronic signature context as "signs or symbols or letters authorized by the competent authority and is closely linked to the legal act, and capable of distinguishing the personal owner and

<sup>1</sup> Definition of electronic means contained in Article II of the Electronic Transactions Law No. (15) of 2015 published on page 5292 of the Official Gazette No. 5341 date 17.05.2015.

<sup>2</sup> Suha Asbahin, electronic signature and its authenticity in evidence - a comparative study, Ph.D. thesis, Amman Arab University, 2005, p. 34.

<sup>3</sup> Ghassan Issa Rabadi, Rules of electronic signature -Ain Shams University, Cairo, 2006, p. 46.

<sup>4</sup> Alaa Mohammed Nuseirat, Authenticity of electronic signature in evidence, Master Thesis, Al al-Bayt University, 2003, p 10.

<sup>5</sup> Suha Yahya Asbahin, Op. Cit., P. 35.

<sup>6</sup> Ghassan Issa Rabadi, Op. Cit., P. 47.

determine his identity and express satisfaction with this legal action.<sup>1</sup>

As for the electronic signature in the Arab legislations, the Egyptian legislator defines the electronic signature in the electronic signature law as "what is placed on an electronic instrument and takes the form of letters, numbers or symbols or signs or other and have a unique character allows the identification of the signatory and makes him apart from others."<sup>2</sup>The Lebanese legislator defines it as "data in electronic form included in a data message added to or logically associated, and it may be used to identify the signatory in relation to the data message and to indicate the signatory's approval of the information contained in the data message."<sup>3</sup>

It is noted from these definitions that they did not specify a form of the electronic signature<sup>4</sup>, as they mentioned these forms, for example, but not limited to them, to give space to the introduction of other new forms in the future that may appear in the scope of the legislative definition and therefore the legal text assimilates such, as it tackled the electronic signature from a technical point of technology and as a means of safety and confidentiality without addressing the legal consequences.<sup>5</sup>

As for the attitude of the Jordanian legislator, it has cited the definition of electronic signature in the Jordanian Electronic Transactions Act No. 15 of 2015 in Article II that it is "the data in the form of letters, numbers or symbols or signs or other and is listed in electronic or any other means similar to the electronic record or It is added upon or linked to it in order to determine the identity of the signatory and lead to distinguishing him from others."<sup>6</sup>

Out of this definition, we find that the Jordanian legislator has mentioned forms and photographs signed and received, for example, and are not limited to them in terms of the words (or other), also stipulated that the data are listed electronically, which is logic as it is an electronic signature, and that such data should be of a nature that allows determining the signatory and added to him or be associated with him, with view to accepting the content.

In light of the foregoing, we find that the Jordanian legislator followed the other Arab legislations approach; first for none limiting the electronic signature to a certain form, this is out of caution for any future developments in the field of electronic transactions, which is praise worthy situation. Secondly for the included definition of the function of the electronic signature represented in the identification of the signatory and being the only user of it, this is the approach drawn from UNCITRAL Model Law on Electronic signatures of 2001<sup>7</sup>, and the law of UNCITRAL Model set a definition for the electronic signature without stating the form, that was the desire of the legislator at that time, after restricting the states with certain types<sup>8</sup>, but the Jordanian legislator did not address the issue of signature forms and this may be either a desire of him to leave the door open for what emerges from a new forms of electronic signature in the future, or it may explain his attitude that he failed to appreciate what he meant in the UNCITRAL law.

#### **1.1.b- Electronic signature features:**

The electronic signature as an independent system is based on adding confidence and security of transactions and verification of satisfaction with the content of the instruments similar to the traditional signature functionally, also the traditional signature declined in light of the emergence of electronic signature. Perhaps the reason for this is that the electronic signature exceeds many of the problematic dealing with paper as the pillar physical electronic paperless, which limits the spaces of archiving<sup>9</sup>

If we delved deeply in the electronic signature field, we find that it has many varied features that exceed the traditional signature both in terms of privacy or integrity, or reliability, or lack of denial and others, and in this section will tackle these advantages as follows:

<sup>1</sup> Suha Yahya Abbahin, Op. Cit., P. 36.

<sup>2</sup> Egyptian Signature Act no: 15 Act of 2004 Date 04/02/2004.

<sup>3</sup> Yusuf Ahmed Alnoavlh, evidence in civil and banking materials, the House of Culture for publishing and distribution, p 1.2012, p. 77.

<sup>4</sup> It should be noted that the Tunisian legislator in the private law of exchanges and e-commerce Number 83 of 2000 law used the term countersign to denote the signature.

<sup>5</sup> Abdullah Ahmad Gharaibah, Authenticity of electronic signature in Jordanian law - a comparative study, Master Thesis, University of Jordan, 2005, p. 23.

<sup>6</sup> electronic record: a message containing information on or under contract or any document or document of another kind created or stored, used or copied, sent, communicated or received using the electronic medium.

<sup>7</sup> where the UNCITRAL Model Law defined electronic signature as "means data in electronic form are included in the data message or added to or logically associated, may be used to identify the signatory in relation to the data message and indicate the signatory's approval of the information contained in the data message" may be noted in this regard that the Model law is nothing but a legislative text that is recommended to States for inclusion in their national laws it is not intended to interfere with the normal operation of the rules of private international law and therefore states can include legislative origins of electronic signature to amend or neglect some of its provisions.

<sup>8</sup> Ali Abu Marais, electronic signature and how powerful it is in evidence, Journal of Hebron University Research, Vol. 5, No. 2, 2010, p 108.

<sup>9</sup> Nicolai Schaeftgen and others, Digital signatures paving the way to a digital Europe, page 4

### **1.1.b.1: Integration (content integrity):**

With integration, we mean the absence of change or modification or alteration to the content of the message from the moment of its launch from the borders of the sender informational system until it reaches the information system for the receiver,<sup>1</sup> the receiver can reveal the existence of any tampering with the content of the electronic mail, even if not visible and therefore electronic signature is null and void, but the possibility of breaking this principle remains available in the event of any defect in the system of electronic signature for technical reasons.

### **1.1.b.2- Privacy**

It means the inadmissibility for others to the electronic message content, those who have the right to see them are both the sender and the receiver, the owners of both the public and private key – parties in the signature systems- third parties can not have access as the keys under the control of the parties of mail instrument, it is true that privacy is available in the framework of traditional signatures but it does not have a degree of privacy like that of the electronic signature especially for instruments that are certified<sup>2</sup>.

### **1.1.b.3- Non-Repudiation:**

By reference to the law of evidence, we find that the Jordanian legislator passed the denial of both normal and official documents ratified by the employee, while the official document can not be denied if organized by the notary public or the official employee, but the only way to destroy authenticity is the appeal of fraud, the denial is part of the lawsuit in the first opportunity for those who are confronted with the deed, but in the framework of electronic signatures, this dilemma has ended, as at the moment of the arrival of the electronic message to the addressee, the sender knows that the addressee has received the message, also the case is with the sender, this in turn will cause the rejection of any denial of the content of the message or the signature contained therein.<sup>3</sup>

### **1.1.b.4- Date -Time Stamping:**

The Email site cannot delete or modify the date of signature and so is the case for the receiver and this in turn will protect the instrument, and the validity of signatures and to attribute to its owner, especially in light of the fraud which marked the traditional trading for signatures and the possibility of not relying on the expertise of handwriting that can determine the age of the handwriting or the signature and whether The statements used are the same as original, or the time of the amendment, which entails a lot of effects such as prescription or eligibility.

### **1.1.b.5- Authentication:**

Through electronic signatures, we can verify the source of the message and the real sender,<sup>4</sup> we can also resort to entities to prove the authenticity of the electronic signature and to verify the identity of the public keys before contracting to indicate whether authorized the conclusion of disposition and enjoys the confidence which is considered the most important elements of e-commerce and its basic pillars.

### **1.1.b.6- Speed and accuracy in concluding the transaction**

Traditional signature depends mainly on the idea of the contract council as it is necessary to meet with the parties to the contract to do the signing of the instrument, legal authentic it and express consent to its contents, but the electronic signature overcomes this dilemma as it is not required to meet for signing regardless of the whereabouts of contractors geographically, and through steps that consider the hierarchy through e-mails through which the electronic authentication is supervised and this supports the idea of the speed and the secure transactions on which the trade depends as previously explained.

## **1.2- Functions of electronic signature**

The basic purpose of the electronic signature is to add the force of proof to the act signed electronically, and this goal can only be reached if the selected signature is clear and with explicit identity of the person owner of this signature, by signing he will accept the commitments signed on, and otherwise does not count this signature lawful.

### **1.2.a- Determining the identity of the site:**

Traditional signature is a mark that reveals the identity and character of its owner, the signature on the instrument indicates that it is attributed to a specific person in itself, becomes a paper signed attributed to him, the purpose of the signature is ascertain what is stated in the instrument by the person issuing the instrument, and for the electronically signature of the letter it does not differ much from the traditional signature, it has the same function, but the electronic signature is through the use of reliable means and measures, by the use of different systems such as electronic signature with the pen or the electronic print or the use of different kinds of encryption system, where these methods allow the identification of the people who created these documents by linking their identity, text messages they exchange<sup>5</sup>

<sup>1</sup> Salah Abdel Hakim al-Masri, the requirements of the use of electronic signature in the management of information technology centers at universities in the Gaza Strip, Master Thesis, Faculty of Commerce, the Islamic University of Gaza, 2007, p. 24

<sup>2</sup> Salah Abdel Hakim al-Masri, previous reference, P. 24

<sup>3</sup> Salah al-Masri, previous reference, P. 25.

<sup>4</sup> Salah al-Masri, previous reference, P. 25.

<sup>5</sup> Lawrence Mohammad Obeidat, proving electronic instrument- House of Culture for the publication and distribution - Oman 2009, p. 150

The electronic signing of the mail does that role by symbols, numbers, letters, or signs that show the personality of the signatory and distinguish it from the others, and thus the signature, electronically or in writing performs this function, but the difference lies in how to put a signature on the instrument. Whereas traditional signature written form originates from material nature of the instruments as paper similar to the shape that has been used in its legal act and the physical attendance of the parties of the act interviewed and met face if the face in one sitting or meeting, so it was essential that the signing also comes with paper instruments. While the conclusion of contracts and actions electronically by using modern means of communication and without seeing people for each other, the electronic signature, which is placed on the instrument using electronic equipment<sup>1</sup>, so it can be said that it is important to sign it and have a distinctive personality of the owner, and his will to abide by the instrument, and the importance of the signing form is not important, because the shape is not intended in itself.

It could be argued that the electronic signature has the ability to determine the identity of the person signing better and with more confidence in the event of strengthening the electronic signature by support means that give confidence to it, it can carry out its functions by having many advanced technologies designed to process the protection of electronic signature. The Jordanian legislator organized the electronic signature in articles ( 5, 15, 16 and 17 ) of the electronic transactions law to make electronic signature process more safe and having more impact on confidence in handling it as we will discuss late.

### **1.2.b- The expression of satisfaction:**

The normal signature states the consent of the signatory, and accepting what is included in the instrument because signing of a particular deed or a particular document means that the content of the document is approved by the signatory, the text of Article 11 of the Evidence Act denotes that the protest against a normal deed requires to deny the signature contained in it, otherwise this deed is binding him, also for those who protested such a deed, he can pay a defect of the disadvantages of satisfaction, which is according to the Jordanian legislator plan, coercion and mistake and corruption of the associated obscene injustice, so as to terminate the contract between the two parties, so the presence of the traditional signing of the document indicates the satisfaction of the signatory of the contents of the deed unless otherwise proven by ways specified by law<sup>2</sup>

What has been said about the traditional signature concerning the expression of satisfaction of the signatory applies to electronic signature, the electronic signature expresses the acceptance of the obligation by simply placing the signature electronically on data contained in the instruments, when signing the electronic signature in the form of specific, confidential or symbols of numbers kept in the possession of its owner, no one else knows it, if the use of these figures, which is in the possession of the owner, the mere signature indicates the approval of the information and data that he signed on, and his intension to abide by the contents.

The satisfaction of the signatory is subject to the eligibility which is the availability of a person's ability to conclude legal actions, the availability of satisfaction should be devoid of any defects, the signatory may demand the termination of the contract if his will is defective by one of the disadvantages of the will, which are; mistake, corruption of the associated obscene injustice and coercion.

As for the denial of the signature contained a bond, so that the protester pays writ against authenticity of the signature, and the signature contained a bond does not come back, it is, in principle, this payment is permissible and acceptable from the protestor, but to prove the lack of authenticity of the signature or not relies mainly on the technique used and the technological modernity and its ability to provide security and confidentiality.

### **1.3- Forms of electronic signature:**

Electronic signature has multiple sophisticated forms depending on the nature of electronics, also it should be noted that the electronic signature is a broad umbrella, beneath it there are different types of signatures, it is not intended to be a digital signature but the latter is one of its forms. the term electronic is used to denote the electronic signature, while the digital signature phrase (Digital). The digital signature is the most important types of electronic signatures, the forms of electronic signature are as follows:

#### **1.3.a- The signing through ending the message with the sender's name:**

This is done by printing the name, title or evidence of personal sender on any electronic document, such as printing the name and address at the end of each message or document with an electronic format such as electronic mail (E-Mail) and Word (WORD Documents) and Excel (Excel) and the HTML, text files or any other electronic files.

#### **1.3.b- The electronic signature with a pen (PEN-Op)**

This method is by using electronic pen that can be used to write on a computer screen, and through the use of a particular program, this program performs two functions, the first to capture the signature, and the second is the signature verification service, where the program first receives the customer data through the card for that it is placed in the machine used, and the message appears, then the instructions on the screen, followed by the person, and then a letter demanding his signature with a pen on a square inside the screen, and the role of this program is

<sup>1</sup> Tharwat Abdel-Hamid, electronic signature, Dar of New University of Alexandria 2007 p. 37

<sup>2</sup> Faisal strange, electronic signature and authenticity of evidence p 223.



to measure certain characteristics of the sign in terms of size, shape, points, lines and twists. The person pressing certain keys show him on the screen as OK or not OK on this signature if approved is encrypted those signed and stored by the program data, and then comes the role of the signature verification by comparison, and after that the computer gives signal whether the signature is true or not.

### **1.3.c- Signature by scanning the traditional signature (Scanning):**

Under this method (SCANNER) the signature is transferred to a file that is intended for this image, the handwritten transferred signature by the scanner gives it authenticity the signature is transferred through a network of international communication (the Internet), so the electronic form for this type of signatures is reflected in the taking of a numeric value for the signing of the traditional manual photocopy and is put on the document to be documented and used for any legal or administrative purpose. This form of electronic signature is introduced formally by placing the image of the signing of the authorization authority or personality of a legal mind to give legal value to a lot of transactions or publications and documents: as in the issuance of banknotes, passports, identity or licenses cards.

Some argue that this method of signature offer advantages that can not be denied, for the ease of use and being flexible, where traditional signature are transformed into electronic formats via the information processing systems, however, this method needs a computer with special specifications to enable it to perform the mission and capture signatures from the screen and verify the matching signature, also it needs extra documentation.

In addition, the use of this method of signature causes some problems that cannot find its way to the solution as the most important proof of the link between the signature and the message data and the instrument, there is no technology that allows verification of this association, a copy of the image of the signature may be received, and then restored and put on any document through the electronic medium claiming that it's the signature of the owner of the actual signature, which is a violation to the terms of recognizing of the authentic signature in electronic form.

### **1.3.d- The signature using self-properties (Biometric signature):**

This type of signature depends on the chemical and physical properties for individuals and include the following:  
- personal fingerprint, the human eye scan, check the level and tone of voice, the properties of the human hand, to identify the human face, personal signature, which means that, for example, a set of intrinsic to the eye is taken through an accurate picture of it and stored in the computer to prevent any use of anyone else, and so for a fingerprint or the properties of the human hand or tone of voice or signature, Profile in each case is taken precisely and specifically and stored as an image in the computer so that any ordinary person may not enter this computer and use the information and data and so on, so, by checking the identification of what is stored on the computer, whether of a fingerprint or the properties of the hand or a tone of voice or personal signature or properties of the eye, and in case there is a difference, it is not allowed to enter on this computer.

The signing of biometric-based intrinsic to humans is a reliable way to distinguish a person's identity, due to its self-correlation properties, which allows its use in approving the legal transactions concluded via an electronic medium. However, this method is criticized in terms of the high cost required to develop a secure system of information networks using the means of biometric identified from spreading on a large scale, and made it limited to developed countries, particularly on the security aspects and mostly do not extend to transactional or financial aspects.

### **1.3.e- The signing of a choice or a push of a button (click signature):**

As to choose the word "OK" or "I accept" or marking on any option in a sense of approval to accomplish something, this kind is usually used to accomplish some of the types of buying goods or business transactions or exchange of service by forcing the visiting party the choice of approval by clicking on the "OK" button or "accept" or even put a sign indicating acceptance in a box, the legal effect has been considered as a result of a work reference or pressure to approve the admission as a result of a normal sign occurrence, it seems that this act is the result occurring in place of signing a term for acceptance or satisfaction, this kind of signatures are commonly used on web applications, internet or open networks through electronic popular browsers in addition to other applications in closed or small networks.

### **1.3.f- personal discrimination number (Pin code):**

This type is considered one of the most common electronic signatures in the world, which takes the place of the normal signature due to its similarity to the traditional signature in terms of enabling the machine to verify that featured figure, is the owner's. The pin code is usually used by magnetic strips or small electronic chips built-in cards such as those used in the banking or secure transactions card withdrawals machines. In any case, it is legally and completed using the pin code and it is assumed in the financial dealings as legitimate on the ground that the cardholder has accepted upon delivery of the card to the other party (whether automatically or real) and then confirmed by the acceptance, use the number featured Profile, which can not be used by others, this proves "intent" in the acceptance of the transaction contract, however, this method is also not free from criticism as anyone gets a magnetic card or the private owner PIN and performs withdrawals or buy before alerting the owner of the card in case of loss, it is inevitable to deduct these amounts from the customer card holder account, but it must be

said that this criticism is not fair and it is not directed to the way, loss of the card is merely due to the negligence of the owner or forgetting it, this may happen in any other matter when a person loses his money or jeweler, the scientific criticism of the mechanism on which the magnetic cards work is not subjective.

### **1.3.g- Digital signature:**

It means the data system in the form of code, so that the addressee can be sure of their origin and content. The most common digital signatures are those that are based on coded keys, public keys, and private keys.

Public keys are keys that allow anyone interested to read the message to read it without being able to modify it, in case the reader wants to amend the message, he puts his signature to accept them through his private key and upon doing that, the message is sent back to the sender with the appended signature. Despite the trust of this digital signature and safety for the time being, but some fear from the evolution of a media piracy and fraud to the extent of penetration of the data message and break through the private key, so it is proposed to establish a system to archive maintained by a specialized body whose mission would be to adopt a data message by putting its signature through its own key, on condition that it is impossible to break through the key.

## **2- Terms of electronic signature and its mechanism of action**

For the purposes of Legalization of authenticity –the electronic instrument must have certain conditions in the electronic signature and it should be noted that the authenticity of the instrument varies depending on the electronic signature type. If the signature is authenticated, the authenticity is stronger than those for Instruments not signed with documented signatures. In the framework of this topic we will consider these conditions and its impact for the authenticity of the instrument (first requirement) and then move on to the techniques of electronic signature, or its mechanism (second requirement), what we mean by electronic signature is the digital signature, not the other types that were discussed in the third requirement of the first part, due to the fact that Jurisprudence researcher in the electronic signature was on giving this term to the digital signature.

### **2.1- Terms of electronic signature and its impact on electronic Instrument**

For the terms of this signature, referring to the provisions of the Electronic Transactions Act, we find that the Jordanian legislator differentiated between the two types of electronic signatures, they are the protected signature and the authenticated signature and this distinction entails a difference to the conditions of each and its authenticity, article (15) tackled the protected signature and its conditions without defining it<sup>1</sup>, and perhaps the conditions set forth in this article and the authenticity resulting from this type of signatures provided for in Article (17) is enough to have a definition of it as a set of data to be included in electronic form and that distinguish its owner from others and determine his identity and such is used in electronic contracts without the need to documentation at an electronic documentation entity.<sup>2</sup>

As for the documented signature, it is the signature that is documented through private entities responsible electronic authentication destinations intended for electronic documenting "verification of user identity<sup>3</sup> authentication mail and its authenticity and validity," and the electronic authentication entities give what is so-called provider-mail certification services and providing clients with certificates called private root electronic authentication certificates,<sup>4</sup> The aim behind its use is to add a kind of confidence to the electronic signatures if the signatures, as the documented signatures has more reliability, and other destinations of documentation can trust this certification and verify its safety and validity during dealings.

#### **2.1.a- Terms of electronic signature**

Through investigating articles (15) and (16) of the Transactions Act, we find that all notarized signature is a protected signature and not vice versa, as the terms of the authenticated signature are the same as the terms of the protected signature plus a signed certificate documenting an electronic signature as stated in Article 16 "the electronic signature is considered authenticated if it achieved the conditions mentioned in Article 15 of this law, and was associated with a certificate documenting the mail issued pursuant to the provisions of this Act and the regulations and instructions issued pursuant thereto, the time of creation of electronic signature ...", and therefore, we address the conditions for the documented signature, and when we tackle the authentication certificate requirement for the protected signature, we may have tackled the conditions for both the two types together, as

<sup>1</sup> Article 15 of the law on electronic transactions stipulates "electronic signature is protected if it, the following conditions are combined are available: - (a) if the owner himself is distinguished from others. (B) if it determines the identity of the owner of the signature c- if the private key is subject to the control of the signatory at the time of signing. d- if it was associated with an electronic record that does not allow an amendment to that electronic record after signing without a change to the signature."

<sup>2</sup> It should be noted that the protected and notary signatures were not used in the temporary Jordanian Electronic Transactions Law (85) of 2001 and that this distinction has been added under this amendment of 2015.

<sup>3</sup>Article (2) of the Jordanian electronic transactions law.

<sup>4</sup> Article II of the transactions electronic authentication certificate Act defined (root certificate) "set of elements that are interrelated and complementary contain electronic media by which the issuance of the electronic documentation root certificate and managed."

follows:

### **2.1.a.1- The Signature distinguishes its owner from others:**

This condition requires that the electronic signature is associated with the instrument, and make it distinctive and determining its character,<sup>1</sup>, as it is regarded as a spirit of the written paper, and is related clearly and specifically to the person, and it can be said that the electronic signature is regarded as determining the person alone without the other, and no matter how many pictures of electronic signature, but it achieved the same end, to distinguish the person, owner of the signature unequivocally, because when the signature is issued, we can not imagine the same signature of someone else, because by signing the form by the person, the signature is determined as well as the eligibility of its own information.

The signing of the electronic pen looks like a normal signature, in terms of its ability to distinguish the owner person, as well as its safety, so it is not ratified until after matching the stored signature on the Computer<sup>2</sup>.

The same applies to the biometric signature, which is based on personal properties, which make one person different from another, there is no similarity of fingerprints, or other qualities of biometrics properties, the same thing applies for the traditional signature, we cannot imagine having the same signature for several people, plus it is sure to match the qualities and attributes of the user of the electronic signature with the qualities that are stored on the computer.

As for the digital signature, it is special to its owner and sets it apart from other more accurately, because it is using two keys public and private, the latter is only known by the person who signed, in addition to a third party whose role is to verify the signature<sup>3</sup>.

We find that the electronic signature is different if it is created correctly, it is regarded as distinctive and private labeling of the person alone, without the other, as is the case for ordinary signing, as this condition requires permission to be his signature alone, so that no one can know the decoder of the electronic signature symbols both when used for this signature or when it is created.<sup>4</sup>

The signature distinguishes its owner him from the other in the sense that it is possible to know someone through this signature and this is another aspect of the condition that guaranteed by Article 15-B of the Transactions Act "if it determines the identity of the owner," and our opinion is that, the condition that distinguishes the signature of the owner of the other is the same condition that identifies it as it is not possible to determine the identity of a person unless his signature distinct him from the other and this requires the Jordanian legislator to amend the text of Article 15 for the first condition and the second and merge it in one condition.

This condition requires that there is no difference between signing with initials or several characters or words or other but the main condition to be signed in a way indicating the personality of the owner, it may be countersign by hand or in any form of symbols or numbers, provided that the signals are electronically, this agrees with the definition of the electronic signature stipulated in law.

### **2.1.a.2- The private key shall be under the control of the owner at the time of the signature:**

It should be noted that electronic transactions are double course actions, it is technical from one hand, and legal on the other, besides the provisions of the signature and its benefits in the deal and its authenticity as an evidence, there are technical aspects imposed by the nature of e-commerce systems, among these technical aspects what is called public key and private key.

This condition requires that the owner of the electronic signature is the only one who has it, so that no one can know his signature or decipher its symbols when used for this signature or when it was created<sup>5</sup>, this is a legislative requirement intended to ensure the independence of the signatory and prevent others from using it whenever losing control of this signature which is nature outside the physical build up of the signatory.

Article II of the Electronic Transactions Act, has defined the private key as a "symbol that is used by a person to set up an electronic signature in an electronic transaction or information message or an electronic record," while the public key is the "symbol allocated by or adopted by documentation entities to a user having authentication certificate to verify the validity of an electronic signature."

The client may wish to conclude a certain legal act electronically as buying a commodity, shopping a service from electronic providers, he opens an account with a bank that deals with electronic checks and stores electronic signature with a give special code, such code consists of a set of numbers or letters or both used to enter the system signatures, which he deals with, this secret number authorizes him to enter the system (Login), the public key is often for the documented signatures and it is the code given to the owner of a documented signature. The client gives his code to third parties to give them the opportunity to make sure that his signature is certified as

<sup>1</sup> Nidal Salim Barham, the provisions of the e-commerce contracts, the House of Culture for the publishing and distribution, t, 3.2010, p. 229.

<sup>2</sup> Lorenc Mohammad Obeidat, proof of-electronic instrument, the House of Culture for Publishing and Distribution first print 2009, p. 130.

<sup>3</sup> Ndhil Salim Barham, previous reference, P. 231.

<sup>4</sup> Lorenc Mohammad Obeidat, previous reference, P. 130

<sup>5</sup> Lawrence Mohammad Obeidat, previous reference, P. 131.



some dealers in e-commerce refuse to deal with protected signatures that are undocumented at documentation entities, and this is often the public key that appears on the electronic authentication certificate as one of the root data.

So, the saying that the electronic signature whether protected or documented, the private key to sign must have been under the control of the owner. If went out of control, he cannot say that the signature is not his, and he cannot assign legal disposition of him and the owner of the signature has to prove that the private key is not under his control at the time of the creation of any act, that is to say that the burden of proving the contrary is based on him.

#### **2.1.a.3- Electronic signature is closely linked to the electronic Instrument:**

To give the signature the proof, the signature must be connected materially with the written instrument; does this requirement apply to the electronic signature? We find that this condition is important, and necessary for the safety of the signed electronic Instrument against any change that could happen after signing, the protection of electronic signature, is not a purpose in itself, but it is to protect the signed instrument, because law considers that the documented electronic signature, documents the electronic instrument, and both of the together are constrained electronically, that is valid in the event of its safety to establish the fact that it contains.

Consequently, the verifying the link between the signature and the instrument is related to the efficiency of the techniques used to secure the signature and the content of the instrument electronically, and not separated from each other<sup>1</sup>, and if we go back to the types of electronic signatures, we find that they achieve this end. For example, if we consider the digital signature as the most important type of signature which uses secret keys, and methods of calculation through which the written signature according to which is turned to a pattern of usual writing, to a mathematical equation, and thus no one can read the content of the electronically signed instrument, except for the person who brings the hidden text to its original nature.

Out of this, one can say that the electronic Instrument is closely linked to the signature, and they both are inseparable or non modified from a third party, and that this condition, indicates the protection of the contract by requesting certain actions, so that it does not allow for his signature to be modify, except after a certain period of time, and after informing all the parties who deal with them, as well as telling the entity that issued the signature of the wish to carry out such procedure. all this is done with view to protecting the rights of others.

#### **2.1.a.4- The signature is linked to an authentication certificate issued by the authorities stipulated by the Law.**

This condition is special the documented signature, not the protected signature which the three previous conditions are sufficient for it, and as noted earlier, the authenticated signature is supposed to be issued under the certificate of an electronic authentication (Authentication certificate) and that signature is done under the validity of this certificate.

The Jordanian legislature under the transactions act decided four entities for documentation of signatures namely<sup>2</sup>:

1. Authenticated licensed electronic entity in the kingdom.
2. Certified electronic authenticate entity.
3. Any governmental entity, whether a ministry or official public institution or a public institution or a municipality agreed upon the cabinet provided that fulfilling the Telecommunications Regulatory Commission requirements.
4. The Ministry of Communications and Information Technology.
5. The Central Bank of Jordan with regard to the electronic banking or finance.

These entities shall issue documentation certificates in exchange for a commission from the applicant to issue this certificate, these certificates contain certain information; the full identity of the certificate owner, his name, occupation and place of residence, etc. In addition to the identity of the issuer entity, these entities are referred to above, and it also contains the certificate validity and cases of using it, its ceiling, the public key by which authentication entity is to make sure that the certificate holder is actually trustworthy, and that he is the owner of a certificate indicating that his electronic signature is notarized or not.<sup>3</sup>

The fact that this issue is purely technical, it must be clarified by an example; If A wanted to contract with B for the purchase of electric devices via the Internet and the entity B deals only with electronic checks bearing the signature notarized issued by a notary entity, here A has to resort to one of the approved documentation entities such as the Central bank to get a certificate of electronic authenticity with a public key after certifying of an electronic signature at the bank and get the public key, and then writes a check electronically and sign it and send it via e-mail to B accompanied by a copy of the authentication certificate where B uses the public key of the

<sup>1</sup> Bayoumi Abdel Fattah Hijazi: Introduction to the Arab e-commerce, part 1, Egypt Alexandria, Dar Al Fekr Al Gamee, 2003. 218 pp.

<sup>2</sup> See Article 16 of the law of electronic transactions.

<sup>3</sup> See alravh and tab, the ratification of the electronic transactions between regulation and liability, Morocco's magazine, Issue 22, June 2014, p. 89.

buyer and checks the documentation entity as to whether his signature is authenticated and accredited to the entity of documentation or not, if proved to him ,he signs a check and send it to the bank so it can be cashed and the amount is collected , otherwise refuses to complete the transaction or make any electronic dealings.

It is important to say that dealing with documented signatures is greater confidence and credibility than that of the protected signatures and assures the parties dealing with it better <sup>1</sup> , and more than that is that the providers of authentication services are independent and neutral parties that do not belong or working in favor of any party, and moreover they are given this task only after the availability of the terms of licensing and accreditation and they abide by the code of practices imposed by authorities being responsible before the state <sup>2</sup> .

#### **2.1.b- The impact of the conditions of electronic signature on the authenticity on electronic instruments:**

After tackling both types of electronic signatures, it is necessary to consider the rule brought by the article (17) of electronic transactions law with respect to the authenticity of electronic records according to its signatures as stated in the text between electronic records signed with authenticated signatures and those signed by protected signatures and the case of unsigned and official records.

But before going into authenticity in detail, it is noticeable that the Evidence Act organized the authenticity of some electronic instruments, where Article (13/3 / A) stipulate that "faxes and telex and e-mail shall have the force of ordinary bonds in the evidence," so, what are the applicable legal texts? What should be applied, the law of evidence or the electronic transactions law?

The Jordanian legislator did not define the electronic Instrument like the Egyptian legislator who defined it in Article (1) of the Electronic Signature Act No. 15 of 2004 which states that "a message that includes information derived from or incorporated or stored or sent or received in whole or in part by means of electronic or digital, optical, or any other similar means."However, we find that the legislator intended by the word electronic record in the second article that he refers to the electronic instrument where the electronic record is defined as" the information message containing a contract, or a document or another kind created, or stored or used or copied, sent, communicated or received using the electronic media "and this record usually includes electronic bonds as attachments <sup>3</sup> , and for the authenticity of the electronic instrument , the law of electronic transactions is a special law for the provisions of the evidence and reports that the terms of saying that the instrument is signed or not, it deserves to be first applied according to the rule , the special restricts the general, it should be noted in this regard that we do not agree with the saying that the electronic signature authenticity is in itself , but the authenticity is in the instrument with which the signature is affixed, it has no legal value without linking it to digital electronic signature which is a mathematical function integrated with the content of the message and the private key.

##### **2.1.b.1- Electronic records with a notarized signature:**

This kind of instruments which has been signed , achieves the terms of Article 16 of the Transactions Act , and has the authenticity of a normal bond as part of evidence as Article (17-b) stipulates: "An electronic record associated with the electronic notarized signature has the same authenticity prescribed for a regular bond ,and Parties of electronic transactions may invoke accordingly. "

It is noted that the legislator made the authenticity of the electronic bond and the normal one regulated in the Jordanian Evidence Act the same , which is the authenticity of the normal bond and by reference to the law of evidence, we find that the normal bond his authenticity between its parties and is not extended to third parties in terms of content , as for the date, it extends to third party if it has a fixed date <sup>4</sup> , the granted authenticity includes the certified record , and its parties and third parties may invoke accordingly ,and this is what distinguishes the bond signed with a notarized signature than that signed with a protected signature.

##### **2.1.b.2- Electronic records with protected signature:**

This kind of records is characterized by the Authenticity of the normal bond as the previous case, but this authenticity is limited to the relationship between the parties , and third parties may not stick to it or invoke accordingly , as Article (17-A) provides that "An electronic record associated with the electronic signature has protected authenticity , the same as that approved to the regular bond , and parties to the electronic transaction may invoke of such. "

##### **2.1.b.3- The records that is not associated with an electronic signature**

The electronic records that are not associated with an electronic signature does not have the authenticity of a signed Authentic record with electronic signature, and this is logic, and the authenticity is limited to the

<sup>1</sup> alravh and tab, Op. Cit., P. 75

<sup>2</sup> for more View license and the adoption of Jordanian electronic authentication No.11 of (2014), and for more on the subject of electronic authentication see Aladdin Al-Khasawneh, civil liability destinations provider Electronic Authentication Services, Sharjah University of Science and legal legitimacy Journal, Vol. 8, No. 1, Sharjah. See also Zahira Casey, the legal system of authentication, , politics, law books, the University Center Pettmnzast, No. 7, Algeria.2012.

<sup>3</sup> Jordanian legislator defined the electronic deed in the second article of the Law on the transactions that "the bond that is created and signed and traded electronically" This definition was added under the amendment of 2015

<sup>4</sup> Article (12/1) of the Evidence Act stipulates, "The normal deed evidence against others in its date, but since they have a fixed date."

authenticity of unsigned papers articles (15-19) of the Evidence Act.

#### **2.1.b.4- Official records electronically signed**

Article (17 e) of the law included, a special provision in respect to official bonds, it approved that the written instrument by public officials within the limits of their competences and in accordance with legal conditions, the official authenticity and is called in this case, the official electronic record, and the bond is considered official if written by electronic means according to the terms and conditions set forth in articles 7 and 8 of the Jordanian evidence Act. A question may arise in this regard, it is whether Article (17 / e) is against the third article of the same law, which stipulates the exception of some electronic transactions governed by the rules of law. In our opinion it is not, but it is confirming the permissibility to hold formal transactions electronically, but the transactions provided for in Article (3) may be signed and done electronically but it is not covered by electronic transactions law.

#### **Conclusion**

In the framework of this research , we tackled an issue organized in the electronic transactions Law that combines legal and technical capacity , although the artistic and technical side overshadow the legal side represented in the authenticity of instrument s associated to it , and through the above mentioned we surmise a number of findings and recommendations.

#### **Findings and Recommendations:**

1. The definition of the Jordanian legislator of electronic signature was in line with the definition contained in the UNCITRAL Model Law, where the latter did not put the many types of electronic signatures, meaning not to restrict states with certain types of electronic signature We do not know whether the legislature had intended to leave the field open for the all-new types of electronic signature.
2. The electronic signature is similar to the traditional signature in terms of function represented in the identification of the signatory and expresses satisfaction and acknowledges the content of the e-instrument, but the electronic signature has many functions and features that surpass traditional signature and removes the difficulties posed by the traditional signatures.
3. There is a difference between the electronic signature and the digital signature and the latter is covered by the methods of electronic signature based on public and private encryption keys and techniques.
4. The digital signatures are a purely technical issue that cannot be captured, but the issue is the electronic computer technology (software) and this is what justifies the confusion in dealing with this subject for officers.
5. The Jordanian legislator made a distinction between the protected signature and the documented signature, this approach is due to the documented signature having more confidence and credibility in dealings for public traders in the e-commerce field.

#### **According to the finding above, the researcher recommend that:**

1. To work on activating the electronic digital signature system to clear the mechanism of action as this type of signature is still ambiguous.
2. To work on activating the role of the Telecommunications Regulatory Commission in documenting electronic signatures as it is the concerned entity of electronic authentication system and it is the entrusted entity with the work of documentation.

#### **- Resources and references:**

- Electronic Transactions Law No. (15) Of2015 published on page 5292 of the Official Gazette No. 5341 date 05.17.2015.
- The Egyptian Electronic signature Law No. 15 of 2004, 02.04.2004.
- Tunisian law on private exchanges and e-commerce, volume 83 - 2000.
- Abdel Fattah Bayoumi Hijazi: Introduction to the Arab e-commerce, c 1, Egypt - Alexandria, Dar Al Fikr Al Jamee, 2003.
- Abdullah Ahmad Gharaibah, Authentic electronic signature in Jordanian law - a comparative study, Master Thesis, University of Jordan, 2005
- Alaa Mohammed Nuseirat, Authentic electronic signature, Master Thesis, University of Al al-Bayt, 2003.
- Ali Abu Marya, electronic signature and how powerful it is in evidence, Journal of Hebron University Research, Vol. 5, no. (2), 2010.
- Al Rafa and Tab, the ratification of the electronic transactions between regulation and liability provisions of law, Morocco Magazine, Issue 22, June 2014.
- Hanan Malika, Electronic Signature Legal system under Syrian Legislation. Comparative Study. Damascus University Economic and Legal Journal. Vol. 26. 2 (2010). Published 25-02-2009.
- Ghassan Issa Rabadi, rules for electronic signature PhD thesis, Ain Shams University, Cairo, 2006.

- Lawrence Mohammad Obeidat, electronic Instrument -House of Culture Publishing - Aman, 2009.
- Nidal Salim Barham, the provisions of the e-commerce contracts, the House of Culture for publishing and distribution,, 3,2010.
- Salah Abdel Hakim al-Masri, the use of electronic signature in the management of information technology centers at universities in the Gaza Strip, Master Thesis, Faculty of Commerce, the Islamic University of Gaza, 2007.
- Suha Asbahin, electronic signature and its authenticity - a comparative study, Ph.D. thesis, Amman Arab University -2005.
- Tharwat Abdel-Hamid, electronic signature, the New University house - Alexandria, 2007.
- Zainab Ghareeb. The Problem of Electronic Signature and its Authenticity in Approval. Master Dissertation. 2009/2010.
- Yusuf Ahmed Alnoafleh, proof in civil and banking articles, the House of Culture for publication and distribution, T 1.2012.