



24-7 Electronic Signature White Paper

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The following document describes 24-7 Box's interpretation of the current UK legislation relating to validity of electronic signatures in UK law and how the 24-7 Box can meet this. The discussion starts by looking at the problem to be solved by the delivery box. A brief summary of the current pieces of UK legislation are then discussed. This is followed by a more detailed look at what the legal requirements are for an electronic signature and a brief summary of what a signature means in the delivery context is proposed. The discussion then demonstrates how the 24-7 Box operation can meet courier and legal requirements. The discussion is summarized with the important points highlighted.

1 The Problem

In order for the 24-7 Box to be used in place of a transcribed signature it must solve the following problems:

1. The electronic signature generated by the 24-7 Box needs to be as valid legally as a transcribed signature.
2. The 24-7 Box needs to be associated with the address at which it is being used.
3. The sender of the delivery needs to know that the 24-7 Box will be used.

2 Electronic Signature Vs Transcribed signature

The following is based on research carried out by 24-7 Box and with reference to Electronic Signatures In Law Second Edition by Stephen Mason published May 07 (ISBN 978 1 84592 425 6) and Practical Cryptography Second Edition by Ferguson & Scheier published Jan 03 (ISBN 0-471-22894-X).

In the UK there are three pieces of legislation which relate directly to the legal admissibility of an electronic signature in place of a Transcribed signature and these are:

- **The Electronic Signatures Directive 1999/93/EC** (European Parliament Directive of 13th December 1999)
<http://eur-ex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31999L0093:EN:HTML>

Incorporated into UK law by

- **The Electronic Communications Act 2000 Chapter 7**
http://www.opsi.gov.uk/acts/acts2000/ukpga_20000007_en_1 &
- **The Electronic Signatures Regulation 2002**
<http://www.opsi.gov.uk/si/si2002/20020318.htm>



From an investigation of the relevant legislation both of the UK documents do mainly describe what is in the EC directive as far a description of the legal admissibility of electronic signatures is concerned. There are a large number of documents which attempt to describes these pieces of legislation in an easy to understand manner, but from what we have seen most seem to actually change the meaning of the legislation in the process! The best documents we have found so far which do a reasonable job of simplifying the legislation without actually changing the meanings are produced by the Department of Trade and Industry. All three pieces of legislation describe ways in which an 'advanced electronic signature' can be as legally binding as a handwritten signature. The European Parliament directive describes the following:

'advanced electronic signatures which are based on a qualified certificate and which are created by a secure-signature-creation device can be regarded as legally equivalent to hand written signatures only if the requirements for hand written signatures are fulfilled'

The requirements for an 'advanced electronic signature' are described as:

- It is "uniquely linked to the signatory;
- capable of identifying the signatory;
- created using a means that the signatory can maintain under his sole control; and
- linked to data to which it relates in such a manner that any subsequent change of that data is detectable."

In this particular application we believe the requirements for a handwritten signature are:

- A signature is provided on receipt of an item.
- A signature is only valid if the signatory intends to sign

The directive does also describe the following:

Member states shall ensure that an electronic signature is not denied legal effectiveness and admissibility as evidence in legal proceedings solely on the grounds that it is:

- **In electronic form, or**
- **not based upon a qualified certificate, or**
- **not based upon a qualified certificate issued by an accredited certification-service-provider, or**
- **not created by a secure signature-creation-device**

The following proposals will describe the ways in which the 24-7 Box meets the above requirements.

3 A signature in the delivery context

In the delivery context a signature is provided for the following reasons:

- A package has been received at an address.

And **NOT** for the following reasons:

- A package has been received at the address on the package (a neighbour can sign for a package or a package can be collected from a depot)
- A certain package has been received (no disclaimer is signed to this effect).
- A package and contents has been received undamaged (no disclaimer is signed to this effect).
- A package contains the correct contents (no disclaimer is signed to this effect).

In fact, given that a neighbour can sign for a package without any prior authorization of the occupant of the address on the parcel, in UK law the signature does not provide any proof at all that the parcel was delivered to the intended address. Whether a signature is electronic or transcribed it must be demonstrated there was the 'intent to sign'. Seeing as the occupant of the intended address has not given any prior authorization to the neighbour there is no way to prove that had the occupant been present they would have signed. **In this respect the 24-7 Box actually provides more proof than a neighbours signature as the occupant has previously authorized the box to sign on their behalf.**



4 The Solution

1. Every 24-7 Box will have a unique alpha numeric serial number which starts with the numbers '247'. When the 24-7 Box is purchased this serial number will be supplied to the recipient.
2. The recipient will then secure the 24-7 Box outside their property, agreeing to the 24-7 Box Ltd terms of use and liability. 24-7 Box Ltd will guarantee to reimburse the recipient up to a certain value if goods or letters go missing as a result of the 24-7 Box malfunctioning. If the recipient chooses to use the box for goods or letters who's value is more than the 24-7 Box Ltd Guarantee they will do so at their own risk.
3. **When the recipient places an order for an item or arranges delivery of goods they will ensure that this serial number forms part of their address.** This information will then be printed on the letter or parcel to be delivered, for example:

Andrew Nesling
Box: 247 9A3 22F 8CC
24-7 Box Ltd
83 Ashmead Road
Banbury
Oxfordshire
OX16 1AA

4. The courier will arrive with the package and confirm the address matches the address printed on the item to be delivered. On opening the 24-7 Box it displays its unique serial number on the LCD display. The serial number on the display can then be checked with the number printed on the delivery, for example:

**Box Serial No =
247 9A3 22F 8CC**

5. The 24-7 Box will then display its current time & and date, for example:

**Made at => 10:30 AM
MON 25/ SEP/ 2008**

6. If happy the courier can make the delivery and on locking the 24-7 Box will receive an 'advanced electronic signature', for example:

**F3—1D—DC—69—
—F5—6A—65—50**



7. The 'advanced electronic signature' is an encrypted code made up from a 'private key' a date & time stamp and a randomly generated number.
8. If a dispute over delivery arises, the 'advanced electronic signature', the date & time of the delivery and the box serial number can be entered into the 24-7 Box secure website. The website will then, use the 'private key', to decrypt the 'advanced electronic signature' and generate a page detailing the box serial number, the time and date of the delivery and whether the electronic signature is valid.
9. If there is a problem with the delivery, by not opening the clear lid the recipient can demonstrate to the courier that they have not gained access to it as the 'advanced electronic signature' is the same as the one that was recorded when the delivery was made.

The advantages of the system are:

- The signature is uniquely linked to the signatory (the 24-7 Box) by the serial number and is capable identifying the signatory.
- It is the recipient and sender that verify a particular 24-7 Box belongs to a particular address by adding the box serial number into the address for delivery.
- By adding the box serial number to the address the recipient and sender are agreeing for that delivery to be left in the 24-7 Box and authorising the box to sign for the delivery, demonstrating the 'intent to sign'.
- By securing the box outside the address the recipient is demonstrating the 'intent to sign' and also that the signature is created using a means that the signatory can maintain under their sole control.
- The proof of delivery to the location (the 24-7 Box) is an 'advanced electronic signature'.
- If the box serial number does not make up part of the address the courier knows that they cannot leave the delivery in the 24-7 Box if it requires a signature.
- If legal documents or other sensitive items are being delivered which require a signature the sender or recipient may decide not to include the box serial number in the address.
- If the recipient is having a particularly valuable item delivered they may decide not to include the box serial number in the address.
- If the courier has a valid Proof Of Delivery they can prove a delivery was made to the correct location, the correct box, at a certain time and date.
- As the unique serial number starts with '247' the courier will know that it is a 24-7 Box which will be providing, or has provided, the signature.
- By clearing the advanced electronic signature when the clear lid is opened and creating a new one if the box is subsequently re-locked the advanced electronic signature is linked to data to which it relates in such a manner that any subsequent change of that data is detectable.



5 Summary

In UK law an electronic signature can be as valid as a transcribed signature provided the requirements for a transcribed signature are met. With an electronic signature as with a transcribed signature the 'intent to sign' must be demonstrated. An advanced electronic signature provides both parties with an electronic signature that can be more secure.

The requirements for a signature in the delivery context are a great deal less onerous than signatures for other applications. It could be argued that where a signature is provided by a neighbour even the intent to sign could not be proved.

The 24-7 Box can be associated with an address by the sender and/or the recipient of the delivery adding the box serial number to the address. When the sender puts the box serial number in the address they are agreeing to the delivery being left in the box. If the sender is not happy for the item being delivered to be left in and signed for by the 24-7 Box (e.g. a court summons) then they do not include the serial number in the address.

24-7 Box Ltd are confident that the 24-7 Box can meet the legal requirements for electronic signatures.

