



Digital signature Solution for the Secure Electronic invoicing application

Contents

Contents	1
Introduction.....	1
More detail	2
Certification Status Symbols.....	4
The signature properties.....	4
The invisible/visible watermark.....	7
How to set up the signature process for your country	8

Introduction

Every day businesses publish and share information electronically as this provides rapid information access to their stakeholders and customers, which brings improved efficiency, reduces costs, and better customer satisfaction. However, online fraud and identity theft, combined with instant information dissemination via the Web, provide an easy way for fraudulent documents to be distributed. As a result, documents sent outside an organization are often left unprotected, and recipients are rarely assured of a document's integrity or author's identity.

To combat the Issue of data misuse and in a bid to provide tamperproof invoices to our customers, TNT have initiated a project to apply digital signatures to the electronic invoices that are issued by the corporate e-invoicing system.

TNT has been working with a number of leading suppliers in the industry (including Geotrust and Verisign) to provide an automated secure signing service to be applied to all the e-invoices that are handled by the e-invoicing system.

This signing service will provide digital certification on e-invoices as a standard in those countries where it is compulsory and it will be made available to countries and customers who would prefer to have the re-assurance of receiving a tamperproof invoice from TNT.

The solution chosen seamlessly integrates with existing technologies within TNT and allows the customer to clear visibility of the digital signature through the widely available Adobe products, such as Adobe Reader and Adobe Acrobat.

Many customers who receive e-invoices already have Adobe reader installed and no further software is required in order for the customer to read the digital signature.

Digital signature Solution for the



Secure Electronic invoicing application

More detail

The digital signature solution provides a public-key document validation process, and as it is embedded within existing Adobe applications, it is truly seamless and very easy to use for both TNT countries and Customers.

The solution being developed allows the e-invoicing system to publish trusted Adobe® Portable Document Format (PDF) files and issue them to their e-invoicing customers.

The secure application provides the highest level of security for certified documents which are more secure than the more usual signed PDF's signed under a standard (x.509 v3) digital certificate.

The application provides certificates that are signed by the Adobe Certificate Authority (CA) which has been issued by the Adobe trusted root and embedded in Adobe Reader and Acrobat, versions 6.0 and higher. Only certificates issued from this hierarchy will receive the certified signature validation mark automatically when opened with Adobe Reader or Acrobat.

This means that TNT's customers don't need to decide for themselves whether the issuing CA should be trusted since the Adobe Reader or Acrobat applications automatically verify the validity of the certificate and display a message to the customer that the signature and/or contents have been validated. In addition, the signing ensures the highest level of document integrity and verification because TNT's digital credentials are stored on a cryptographic hardware device and which is only issued by a WebTrust-certified CA using strict guidelines.



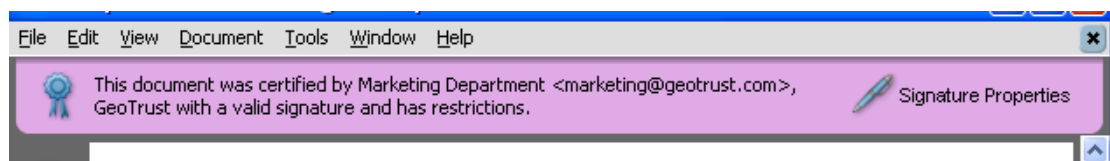
Digital signature Solution for the Secure Electronic invoicing application



How it works for the customer

TNT has been registered with GeoTrust (the Certificate Authority) so that a digital certificate can be provided for use in signing PDF documents. Invoice recipients such as TNT's customers can use the free Adobe Reader software or Adobe Acrobat to automatically validate certified invoices with no additional software or configuration.

The Customer simply opens the invoice PDF file and is presented with a document validity box at the top of the PDF. This appears as a purple banner just under the menu bar.



It includes easy-to-understand certification status symbols that indicate whether the document is certified and/or if it has been modified (see examples below). By clicking on the signature properties, the customer can view additional information, such as certificate details, signer's contact information and validation method.



Document is Valid



Validity Unknown



Document is Invalid

Digital signature Solution for the

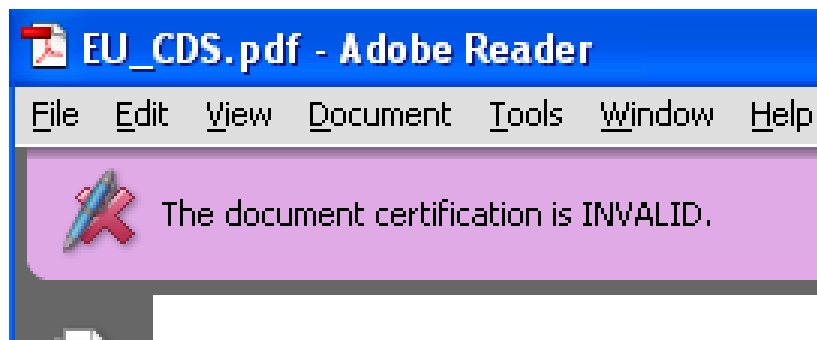
Secure Electronic invoicing application

Certification Status Symbols

A Valid Digital Signature has a blue rosette on the left of the banner along with a clear statement as to who has signed the document



An Invalid Digital Signature has a red cross in the corner with a clear statement that the certification is invalid.



While one that has been adjusted in some way or tampered with since being issued will have a similar symbol to this:



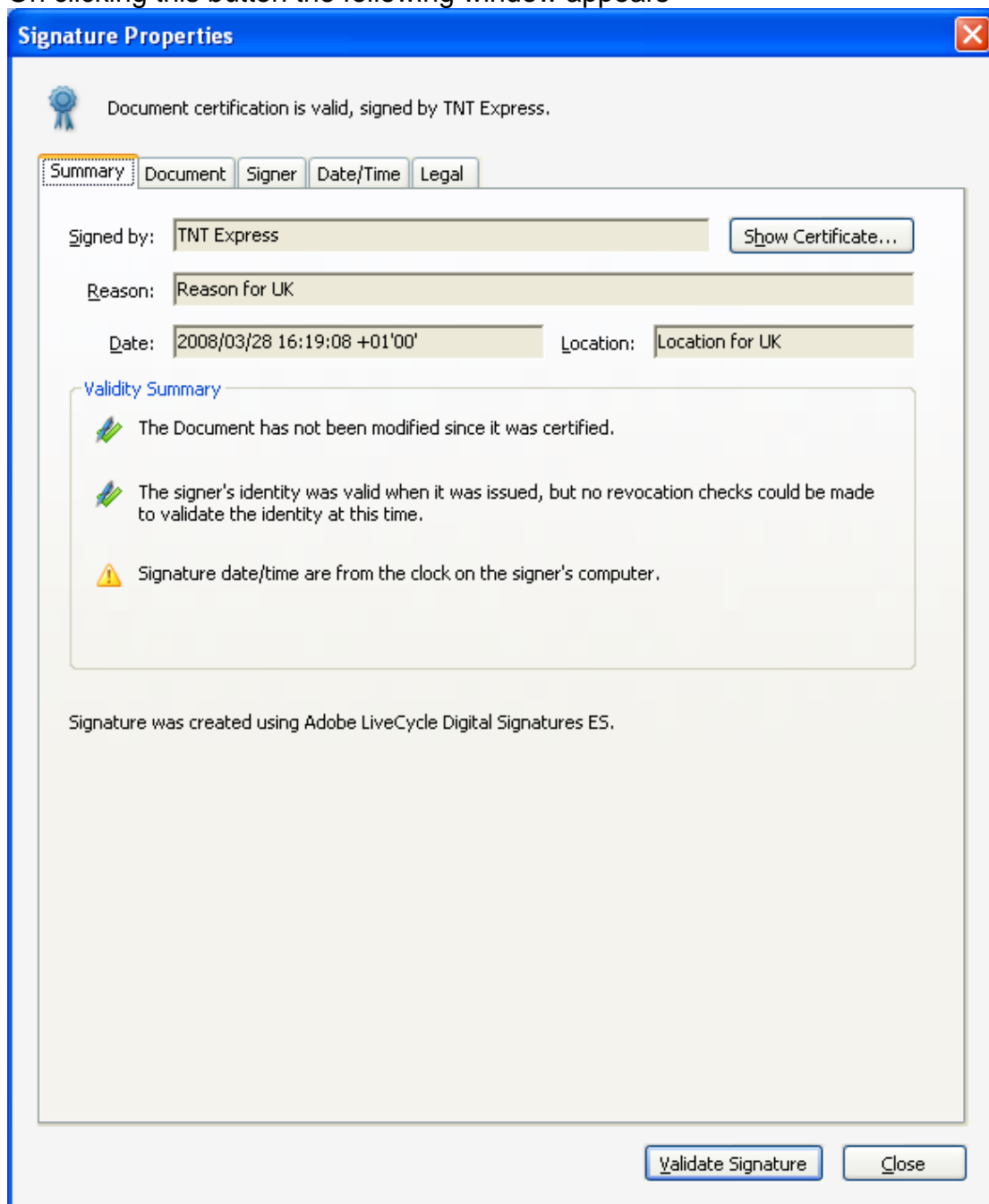
The signature properties

Each signature that is applied to the invoice will have certain attributes which explain who has signed the document, when it was signed and who the authenticated author is as well as additional useful information. The signature properties can be accessed by clicking on the button on the right hand side of the banner.

Digital signature Solution for the Secure Electronic invoicing application



On clicking this button the following window appears

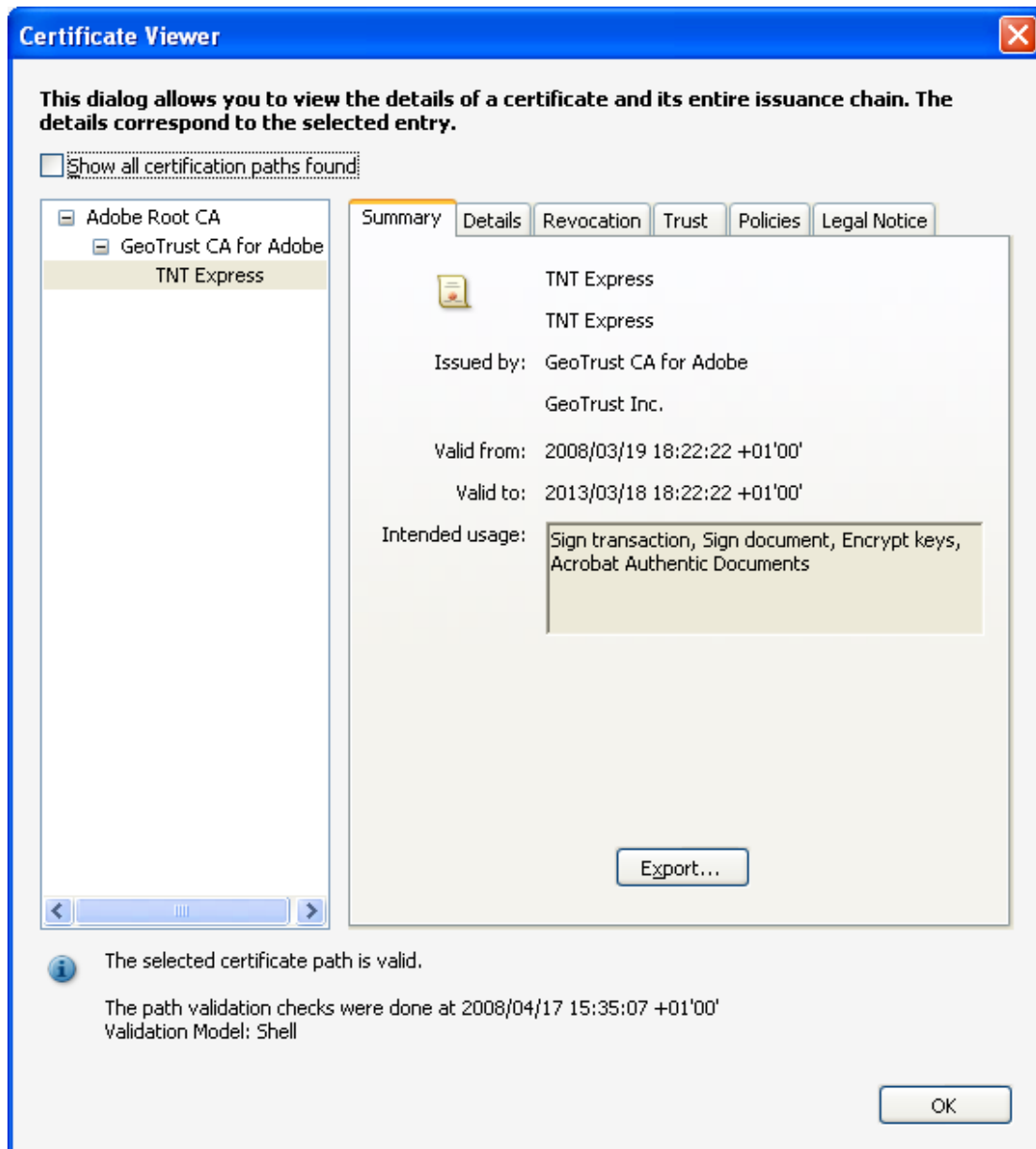


Secure Electronic invoicing application

This first tab shows the summary of the signature including a check on the validity of the signature, proof that it has not been modified and confirmation that the signature has been time-stamped.

The summary also provides detail of the person who signed the document, the reason, the date and the location.

When clicking on the 'show certificate' button a new window will open which shows more details on the certificate, such as who the certificate is issued by and the dates from when the certificate is valid from and to.



Digital signature Solution for the

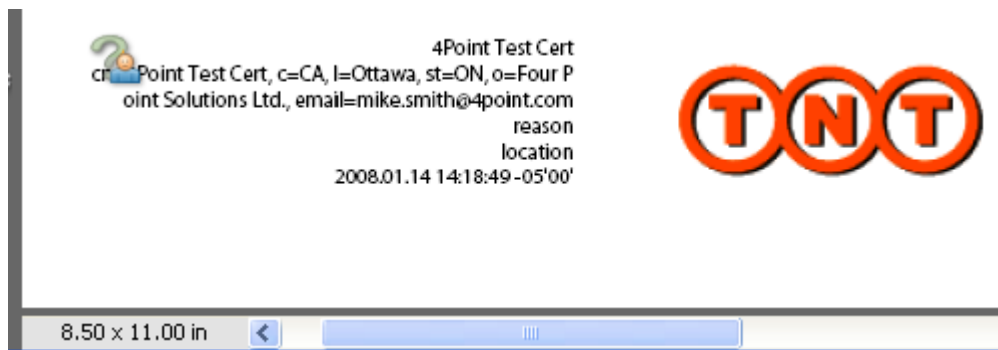


Secure Electronic invoicing application

The invisible/visible watermark

The electronic signature will be set up as 'invisible' as the default setting for all countries and this means that the digital signature is attached to the document at all times and viewable through the standard Adobe software but the details are not visibly printed on the document. This saves trying to find a suitable location on the invoice format for a signature and it's attributes to be placed.

If a visible watermark is required in certain countries to support local legislation then the country must determine where on the invoice format the signature details should be placed. A visible signature would appear something like this at the end of an invoice.



Digital signature Solution for the

Secure Electronic invoicing application

How to set up the signature process for your country

The digital signature solution will be configured so that it is automated so that the digital signature can be applied to all e-invoices automatically when they are produced and therefore requires no manual intervention. For this to occur various attributes need to be set up beforehand, which are determined by each country's legislation where they use the digital signatures.

The attributes for the standard digital signature are:

Code	Meaning	Example
DN	Distinguished Name	TNT Express
CN	Common name	TNT Express
O	Organisational unit	TNT Express
L	Location or City	Atherstone
ST	State or province	
C	Country/Region	
Email	Contact information	Contact for UK
Reason	Reason for Signing	eInvoice Signature
{Other fields may be added}		

{Some of these fields may be adjustable in order to support each country's legislation but I am waiting for confirmation as to which ones are country specific}.