



**Shipping & Logistics Division**

**White Paper**

**Exposing the Flaws in PC Postage**

**November 2017**

## Introduction

On March 31, 1998, the United States Postal Service (USPS) approved a new technology called Electronic Postage which allowed anyone to purchase and print postage using a personal computer and an internet connection. It was developed by E-Stamp, a startup company in Palo Alto, California. The digital stamp, referred to as Information-Based Indicia (IBI), appeared on envelopes and labels as human-readable text coupled with a two-dimensional barcode containing data to identify the user and the mail piece as well as a cryptographic signature. This technology became known as PC Postage.

The first generation of PC Postage systems were intended for small offices and home office businesses. They could only be used for a few domestic mail classes. International Mail and Special Services such as insurance and Certified Mail were not supported.

As the number of ecommerce Web sites grew and online shopping became more prevalent, the USPS started adding more shipping services to better compete with its rival carriers in the private sector. A new Special Service called Delivery Confirmation was launched in 1999 followed by the debut of Signature Confirmation in 2001. The Postal Accountability and Enhancement Act of 2006 (PAEA) allowed the USPS greater flexibility in crafting Negotiated Service Agreements (NSA) for high-volume shippers. In 2009, the USPS published the specifications for the Intelligent Mail Package Barcode (IMpb) to enhance its package tracking capabilities.

Over the years, the three authorized PC Postage providers, namely Stamps.com, Endicia and Pitney Bowes, have been updating their software to keep up with the technological and operational changes occurring at the USPS. Nevertheless, the restrictions and limitations behind the original design of Electronic Postage have remained the same giving rise to numerous flaws.

The objective of this white paper is to examine the flaws in PC Postage and demonstrate how they adversely impact the businesses which use PC Postage solutions for shipping, their customers and the United States Postal Service.

## Confidential Business Information Is Not Protected

“Confidential business information” is generally defined as information belonging to an entity that is not publicly available, that has an economic value to the entity or its competitors because it is private and its disclosure would result in a material financial loss to the entity or a material financial gain to its competitors.

Imagine if popular accounting software printed a company’s bank account details on the face of every check. What if the current account balance, total funds disbursed and total checks issued from that account can be readily viewed by the recipient of the check?

That is essentially what is happening every time any PC Postage software generates a shipping label. The PC Postage barcode on the label is encoded with one or more key pieces of shipper’s account information such as:

**Ascending Register:** Total value of all postage imprints generated by the PC Postage account.

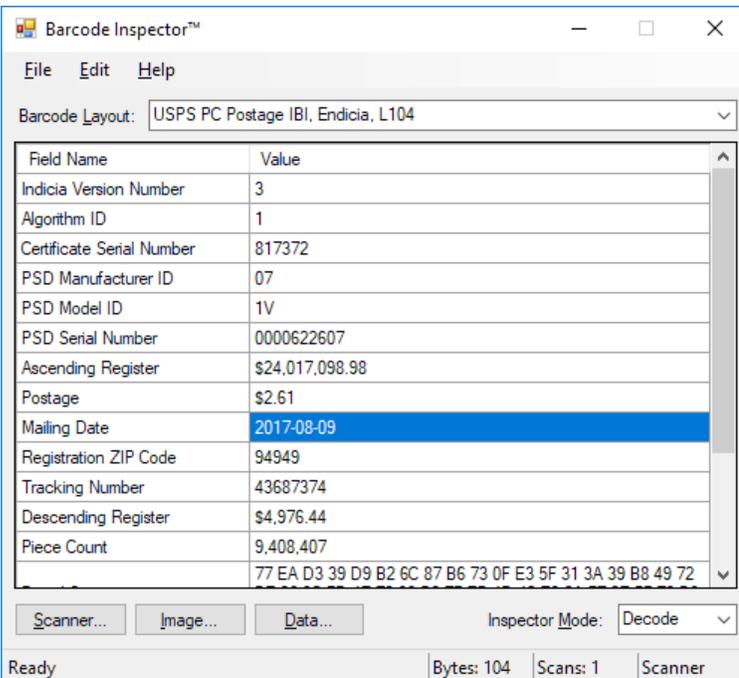
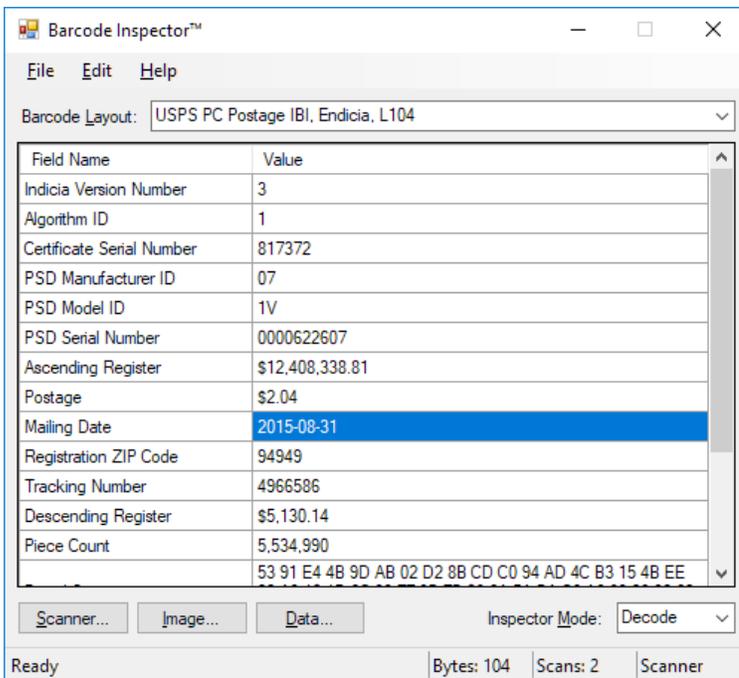
**Descending Register:** Current balance of the PC Postage account.

**Piece Count:** Total number of postage imprints generated by the PC Postage account.

**Postage:** Cost of postage and fees for the shipping label paid to the USPS.

The shipper may deem any or all of the above data to be its confidential business information. However, none of this data is protected, either through encryption or by any other means, leaving it visible to anyone who chooses to decode the PC Postage barcode.

Let's look at a nationally known e-commerce retailer which uses a PC Postage solution for its shipping. We will employ Micronite's [Barcode Inspector](#) software to decode the PC Postage barcode in two shipping labels, one from 2015 and another from 2017.



By calculating the changes in the Ascending Register and Piece Count values shown in the Barcode Inspector results, a competitor attempting to gain insight into this company's sales trend can reasonably estimate that it has shipped 3,873,417 orders from August 31, 2015 through August 9, 2017 while spending \$11,608,760.17 in postage at an average cost of \$2.99 per order.

## Customer Data Is Neither Private Nor Secure

Customers are one of the most valuable assets of any business. Disclosure of the customer list and any related data can jeopardize the success of the business and could even threaten its very existence.

Therefore, when using any software to print shipping labels, it is important to know who gets access to the shipment details which include the customer's name, address, contact and order information.

In the case of PC Postage software, the answer depends on the type of PC Postage account being used: Standard or Shared.

A Standard PC Postage account is owned and managed by the shipper for its exclusive use.

A Shared PC Postage account does not belong to the shipper. Instead, it is owned by the PC Postage provider or one of its business partners such as a multi-carrier software vendor, a postage reseller, a marketplace operator or an e-commerce platform provider.

When a PC Postage solution routes the shipping label request to the PC Postage provider through a Shared account, then one or more of its business partners, unbeknownst to the shipper, may also gain visibility to every shipment transaction along the way, thereby potentially compromising the privacy and security of the customer data.

One of the major drawbacks of PC Postage technology is that all shipment transaction data is ultimately stored on the servers of the PC Postage provider. This holds true for Standard as well as Shared accounts. In the event of a data breach, either intentional or unintentional, the customer list of a business can fall into the hands of unscrupulous third-parties including its competitors.

Micronite has found a glaring instance of such a data breach: One of the partners of the United States Postal Service in the PC Postage industry continues to expose detailed shipment data possibly for millions of transactions belonging to tens of thousands of shippers nationwide. As a precautionary measure, this white paper will not publish the specifics of the data breach.

## NSA Pricing Can Be Easily Discovered By Anyone

A Negotiated Service Agreement (NSA) is a contract between a company and the USPS which provides for customized pricing and may include changes to postal requirements to meet the unique business needs of the company. NSAs are usually meant for high-volume shippers and postage resellers.

As each NSA contract document is submitted to the Postal Regulatory Commission for review and approval, it is thoroughly redacted before publication to keep any pricing information secret. The USPS also prohibits the NSA customer from displaying the postage amount on any part of

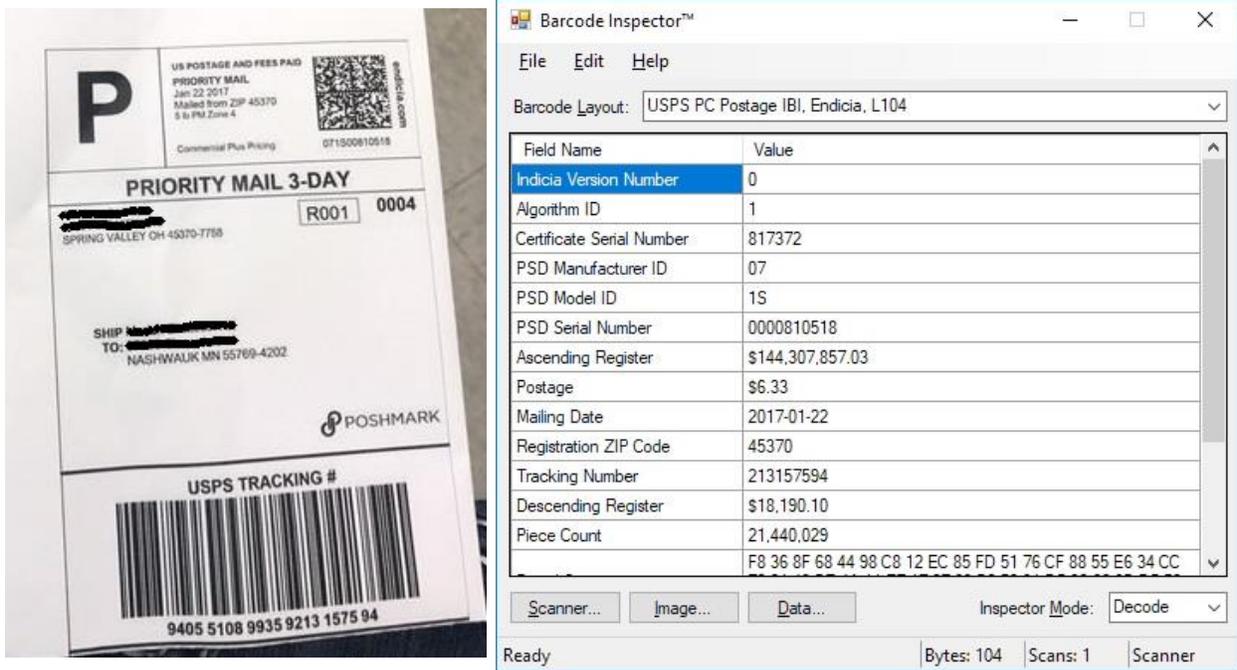
the shipping label. According to its latest [Annual Compliance Report](#), the USPS claims that such measures are necessary to prevent other customers from using “the information to their advantage in negotiating the terms of their own agreements with the Postal Service.” The USPS further argues that public disclosure of commercially sensitive data, including pricing, would allow its competitors in the transportation and delivery space to extend better pricing incentives to postal customers.

Notwithstanding the above, if a company chooses a PC Postage solution to print shipping labels with NSA pricing, then anyone can easily discover the negotiated price even though the postage is hidden. As shown earlier, that is because the PC Postage barcode contains the amount of postage paid to the USPS in addition to other confidential business information.

To illustrate, we will use the Barcode Inspector to explore the NSA pricing of two customers of the USPS: Poshmark and Parcel Partners.

Poshmark is an online marketplace for trading fashion merchandise. In 2014, Poshmark signed a deal with the USPS to allow its sellers to ship any Priority Mail package weighing up to five pounds anywhere in the United States for a flat fee.

The results of decoding the PC Postage barcode on a Poshmark shipping label reveals that the negotiated price for a 5 pound Priority Mail package going to Zone 4 is \$6.33. That price represents a discount of \$5.62, or 47%, from the rate published in [USPS Notice 123 - Price List](#).



Field Name	Value
Indicia Version Number	0
Algorithm ID	1
Certificate Serial Number	817372
PSD Manufacturer ID	07
PSD Model ID	1S
PSD Serial Number	0000810518
Ascending Register	\$144,307,857.03
Postage	\$6.33
Mailing Date	2017-01-22
Registration ZIP Code	45370
Tracking Number	213157594
Descending Register	\$18,190.10
Piece Count	21,440,029
F8 36 8F 68 44 98 C8 12 EC 85 FD 51 76 CF 88 55 E6 34 CC	

An astute competitor of either Poshmark or USPS can generate and decode Priority Mail shipping labels for the remaining seven zones and get a complete picture of the NSA discounts Poshmark gets from the USPS.

Following the above methodology, we can also learn about the special discounts the USPS offers to Parcel Partners, one of the nation’s largest postage resellers. It primarily utilizes the PC

Postage platform to reach its customers.

EasyPost, a newly authorized PC Postage provider, works with Parcel Partners to share a portion of the discounted postage with its end users. An EasyPost shipping label found on the internet gives some insight into the deep discounts Parcel Partners is receiving through its NSA program with the USPS. From the Barcode Inspector result below, a 3 pound, Zone 4 Priority Mail package is showing a postage price of \$5.69, about 44% below the published USPS rate.

Field Name	Value
Indicia Version	118
Provider ID	09
Postage	\$5.69
Mailing Date	2017-04-07

Once again, it would be an easy task to print and decode shipping labels for the weight and zone combinations applicable to Priority Mail as well as for other domestic and international mail products covered by the NSAs belonging to not only Parcel Partners, but also to other postage resellers.

## USPS Does Not Verify The Accuracy Of PC Postage Software

One of the most important features of any shipping software is to help the ecommerce seller choose the best way to send a package from point A to point B. Therefore, the calculated cost must be accurate to ensure that the shipper or its customer is not overcharged for the requested service.

The PC Postage providers are responsible for implementing their own shipping rate calculation functionality based on the rate charts and rules published by the USPS and keeping up with them as they change from time to time. However, based on numerous complaints on internet seller forums and social media outlets, it appears that the USPS does not verify the results of those rate calculations.

A [notable incident](#) at one of the PC Postage providers after a major USPS price change caused many of its customers to pay the full retail rate for Priority Mail parcels instead of the lower Commercial Base or Commercial Plus price. In another instance, after a routine software update,

PC Postage customers were getting charged the much higher Zone 9 rates for Priority Mail instead of the lower Zone 8 rates.

Neither the PC Postage provider nor the USPS has a policy of automatically auditing every shipment transaction, identifying any postage variance and crediting the price difference to the affected PC Postage accounts.

To make matters worse, the burden falls upon the shipper to detect such miscalculations and request a refund for the overpriced shipping labels within a limited time frame, usually ten days.

## **PC Postage Accounts Must Be Pre-Funded**

PC Postage technology was initially designed as a software-based alternative to the hardware-based postage meters. Consequently, they share a few common characteristics. One of them is a USPS requirement that every account must be pre-funded. That is, a PC Postage account must contain sufficient funds in order to purchase the requested postage amount. Furthermore, any balance remaining in the account cannot be withdrawn until the account is closed.

Although the pre-funding model seemed reasonable during the early days when customers used PC Postage software primarily for mailing items which had no tracking, for example, postcards and letters, the rise of the online economy presented a new challenge.

Most merchants who sell their goods online typically do not know in advance how many orders are going to be placed on a given day and which shipping option each customer will choose. When using a PC Postage solution to fulfill and ship orders as they arrive, the merchant must estimate the total funds they will need to deposit into their PC Postage account to cover the shipping costs. If the estimate is high, the funds cannot be withdrawn which ties up valuable financial resources, especially for small businesses who can put the money towards buying more inventory or for something else.

## **Shipping Label Refund Procedure Is Very Cumbersome**

Many things can go wrong while printing shipping labels in a fast-paced environment. Printers tend to jam, servers unexpectedly crash, orders get canceled, mistakes happen. Depending upon the specific scenario, the result is labels that misprinted or did not print at all and have to be reprinted or labels that printed but cannot be used.

A shipper who is left holding unused PC Postage shipping labels must follow a cumbersome refund procedure. This involves manually applying for a refund for each and every label and then waiting as long as three weeks or more for both the PC Postage provider and the USPS to process and approve the refund request. For certain types of shipments, the shipper must fill out a paper form and mail the unused labels as physical proof to the PC Postage provider in order to be eligible for a refund.

Due to USPS regulations, all PC Postage providers limit the time frame within which the refund request must be initiated. As a result, a busy ecommerce seller may miss the deadline and the postage paid for the unused labels can be lost forever.

Finally, on numerous occasions, the computer servers of the PC Postage providers have

experienced outages causing thousands of shippers to find themselves with no shipping labels but their accounts debited for the postage. Even in this situation, when the fault clearly lies with the PC Postage provider, there is no provision for an automatic and immediate refund policy and the shipper is ultimately responsible for requesting and waiting for the refund.

## Conclusion

Although PC Postage may be a convenient technology for those who want to avoid long lines at the Post Office, ecommerce merchants should be aware of the flaws in PC Postage software which can restrict their growth potential and compromise the privacy and security of their business data.

The United States Postal Service offers alternative shipping technologies which do not suffer from the limitations and restrictions of PC Postage. Two of them are Electronic Verification System and ePostage.

To learn more, call us at 916-781-6700 or visit the Web page below:

<http://www.micronite.com/en-us/solutions/shippingandlogistics>