EZ Fraud Detection

Why do I need fraud detection services?

According to the 13th annual CyberSource Online Fraud Report, U.S. merchants lost an estimated $3.4 billion to fraud in 2011. Much of this was related to payment fraud, but a significant amount could have been avoided using "pre order placement" detection techniques.

Pre order placement detection consists of a number of key factors that when combined together give a merchant a profile of the order request characteristics. This addon will automate that process and provide the results in a clear and consistent manner. Thresholds can be established to flag an order as possible fraud and/or to prevent a suspicious order from being submitted. (I.e. denying access to the user).

In online order fraud, it is the merchant who draws the short straw. The consumer (owner of a stolen credit card) is protected and the credit card companies protect themselves by doing charge-backs to the merchant to recover fraudulently used funds. Unfortunately, it is up to the merchant to recover their products (which is usually not possible) and or absorb the losses.

A typical situation might be a merchant who sells electronic equipment. Someone orders a $100 device using a stolen credit card (but the card processor is not aware of it yet). The merchant receives the authorization from the processor and ships the goods to the shipping address. Later in the month, the processor notifies the merchant that the credit card used was stolen and that they have been charged back the amount of the order. The merchant is now out the funds and the products!

The above might have been avoided by looking at various characteristics of the order to determine its validity. For example, are the billing and shipping addressed different? Are they in different countries? Is the IP location more than 50 miles from the billing address? Is the email domain used a public email domain such as yahoo, hotmail or gmail? Each of these type of characteristics is a fraud. Usually when one or two are true the order is not a fraud. But when several of these types of characteristics all occur together, then a fraudulent situation is likely.

Fraud detection services should be thought of as insurance. I.e. it may not pay out often, but when it does, it is usually well worth the cost of the insurance.

Product Features

Please note: This addon does NOT provide payment method fraud detection. Your payment providers and the major credit card providers can do a much better job of identifying payment fraud than we can. This addon is focused on "pre order fraud detection".

This is a rule based system. Rules can be edited for their value comparisons or whether they evaluate to true or false, etc. The features below assume that all rules are active and that geo-services are enabled. Geo-services are remote services that provide map information and location information for things like bill/ship addresses, IP address, etc.

Rules functionality

- Easily see results and map data related to geo-location information (bill/ship distance from IP address).

- Thresholds available that determine whether to just flag an order/user a fraud or whether to disallow the order from being created. The "score" of an order starts at 100. Each failed rule deducts its deduction from this total leaving a final score.

    o Flag threshold – final score below this amount will have the user and order flagged as fraud.

    o Abort threshold – If the final score is below this amount then the user will be flagged as fraud and the order will not be allowed to be processed. A notification message is displayed to the user with a link to the contact_us.html page.

- Priority used to establish rule execution order.

- All user-based rules can be ACTIVE or DISABLED.

- Rules can specify how to handle desktop/mobile devices:

    o Mobile only

    o Not Mobile

    o Either Mobile or Desktop

- Where appropriate rules can specify a VALUE parameter to compare. Ie. Bill Address Distance is greater than [25] from the IP Address (where 25 is the configurable distance)

- All rules are evaluated to a true/false condition. If the rule evaluates to TRUE then the "deduction" associated with the rule is applied. If a rule evaluates to TRUE, there are 4 possible actions as a result.

    o Continue to the next rule

    o Flag user/order as fraud and continue to the next rule

    o Flag user/order as fraud and DO NOT allow the order to be created.

    o Quit the fraud detection activity and resume with normal order processing.

- Currently (however this will evolve), rules are:

    - Order is from a suspected robot

    - Email domain validates to an IP address (not MX lookup)

    - Email domain is a public email domain

    - Billing country is in an excluded countries list

    - Shipping country is in an excluded countries list

    - IP address is from an excluded countries list

    - IP address does not resolve to a geo-location (separate rules for mobile or not)

    - Billing Address is more than XX from the IP Address geo-location (separate rules for mobile or not)

    - Billing/Shipping Addresses are different

    - Shipping Address is a different country than the IP Address

    - Billing Address is a different country than the IP Address

    - Total order quantity (all items) greater than XX

    - Single item quantity greater than XX

    - Order total amount greater than $XX

    - User has checked out anonymously

- In addition, there are 2 system rules that define what to do when either you have no geo-credits left and/or a communication error exists where there is no geo-location information available.

    - No geo-location data (select from standard actions or skip geo-location rules)

    - Out of geo-location credits (select from standard actions or skip geo-location rules)

General Settings Functionality

In addition to rule settings, there are several pertinent addon settings that affect the behavior of the addon. These allow you to configure the addon to show you information you want to see and to hide information you don't care about. These are:

- Display map on order – whether to show a map of the Bill/Ship -> IP locations

- Threshold to notify you when your available geo-credits reaches this level (0 means do not notify)

- When flagging an order as fraud, what order status should the order be set to

- Compute/display distance in either Miles or Kilometers

- On the order detail page, rules and their deductions can be show. You can show:

  - None (don't detail rules)

  - All rules that were run (Ie. Not excluded due to geo-information or mobile/not mobile)

  - Failed (rules that return TRUE and have a deduction) rules only

  - All rule results (including skipped rules but NOT disabled rules)

Order Statistics Functionality

Seeing various statistics about your orders will let you fine tune your fraud detection thresholds as they relate to your specific business. Similar to Google webmaster tools, the addon attempts to show you what led up to your conversion. It is not a replacement for Webmaster Tools since the information is specific about a particular customer placing a particular order. However, reviewing orders over time will give you a good idea of what your customers do BEFORE they place an order. This can be very useful in marketing and/or determining which areas of your site should be improved.

- Details about the customers navigation history before placing the order can be shown.

  - The name of each page and the number of times it was viewed.

- Referer information is shown if available (I.e. where they came to your site from) including any search words that may have been used. Currently Google, Bing and Yahoo search terms are supported (note that Google may not include this any longer if user was logged into Google at time of search – I.e. mobile devices).

- Total pages viewed during the current session

- Duration of the session (days, hours, minutes, seconds).

Order Listing Screen Shots

The following assumes the setting for backgrounds is set to 'both' (versus 'fraud_only'):

Order #22
Simtech
10:37
Doe John
$71.99

Order #21
Simtech
07/07/2014,
10:32
Doe John
$117.99

Order #20
Simtech
07/07/2014,
10:29
Doe John
$80.99

Order #19
Simtech
07/07/2014,
09:58
Doe John
$73.00

Order #18
Simtech
07/07/2014,
09:56
Doe John
$73.00

Order #17
Simtech
07/07/2014,
09:53
Doe John
$92.98

Order #16
Simtech
07/07/2014,
09:36
Doe John
$83.00

Order #15
Simtech
07/07/2014,
01:49
Doe John
$93.00

Order #14
Simtech
07/07/2014,
01:39
Doe John
$93.00

Order #13
Simtech
07/07/2014,
00:48
Doe John
$93.00

Order #12
My Store
07/03/2014,
08:12
Doe John
$32.00

Order #11
My Store
07/03/2014,
08:06
Doe John
$32.00

Order #10
My Store
07/03/2014,
07:57
Doe John
$32.00

SEARCH
Customer

Email

Issuer

Total ($)

Search   Advanced search

Fraud order statistics (21)

Duration:
  min: 0:0:0   max: 1 Days 2:12:21
  sum: 1 Days 5:32:43   avg: 1:24:24
Pages:
  min: 0   max: 71
  sum: 456   avg: 21.71
Ship distance:
  min: 0   max: 213
  sum: 422   avg: 20.1
Is fraud:
  min: 1   max: 1
  sum: 1   avg: 0.05

Order Detail Screen Shots

Fraud selector based on rule results.

Easily see results of detection rules. Can be manually overridden

General

THREAT LEVEL

Not fraud

CUSTOMER INFORMATION

John Doe, support@ez-ms.com
IP address: 71.193.197.154

SHIPPING ADDRESS

John Doe
4433 SW 40th AV
Portland, Oregon 97221
United States

BILLING ADDRESS

Product	Price	Quantity	Subtotal
Gone with The Wind: 2-Disc Special Edition CODE:E011296HKW Price in points: 450	$8.99	1	$8.99

Totals

Subtotal: $8.99
Shipping cost: $63.00
Taxes:
- VAT 10% included (1234242) $6.55
Total: $71.99

Staff only notes

Status   Open ▾

Payment information
Method   Phone ordering (Call to 5555555)

Shipping information
EZ Test
Method   Custom shipping method

New shipment   Shipments (0)

BILLING ADDRESS
John Doe
4433 SW 40th AV
Portland, Oregon 97221
United States

CUSTOMER NOTES

Summary Fields:
Delivery Date: x
Occassion: Anniversary
Gift For: Woman

User has Opt'd OUT of email.

Session environment

Refering host: Unknown
Search words: Not set
Pages viewed: 51
Session duration: 03:58:54
Referer: none

Pages viewed

/apparel/mens-clothing/: 2
image.captcha: 4
/apparel/mens-clothing/trefoil-hoodie.html: 2
/checkout: 12
checkout.complete: 8
orders.details: 4
image.barcode.draw: 4
fraud_detect.init_auth: 1
/index.php: 1
fraud_detect.show_env: 1
/music/blues/: 2
/sports-and-outdoors/golf/golf-balls/: 2
orders reorder: 2
/cart: 2
/sports-and-outdoors/camping/sleeping-bags/: 2
/electronics/mp3-players/mp3-players-en/: 2
/movies-and-tv/movies-dvd/: 1

Nice map, auto-zoomed. Double click will zoom and so will your mouse wheel

Referer information provided if available and useful user activity information for their active session.

Detection results clearly listed.

History of user's activity leading up to their order.

EZ Fraud Detection

Is fraud: False
Not a bot
Bill distance from IP: 4.23
Ship distance from IP: 4.23
IP Location: Portland, OR US
Email domain: Valid
Base score: 100
Rule results: All run rules
    GEO-location data is null/empty: 0
    No geo-lookup credits True: 0
    Anonymous user True: 0
    Billing/Shiping address Different: 0
    Ship country Excluded country: 0
    Bill country Excluded country: 0
    Email is public: 0
Final score: 100

Addon installation and setup

Currently, the addon is available for V4 only. If there is a demand for earlier versions, we will accumulate the requests and may elect to back-port this to earlier versions.

The addon can be installed via the "+" icon on the addons page. There is one distributed file that is modified to enable color coding of order listings. However, it is done dynamically so it can be re-applied after a future upgrade.

After installation, enter your license key (sent via separate email) and select our standard addon setting behaviors related to updates on the "General" tab.

| General | Behavior Settings | Rule Settings |

Addon Configuration ▾

License key (required):   123test

Frequency for upgrade checks: Every day (recommended) ▾

Automatic Installation: ☑

Silent Installation: ☐

Click the "Behavior" tab and adjust the settings to suit your needs.

Behavior Settings	Rule Settings

Display map on order: ☑

Credit notify threshold: `25`

On fraud, change order status: `Don't change status ▼`

Distance units: ◉ Miles
○ Kilometers

Show results in order detail: ○ Show none
○ All run rules
◉ Failed rules only
○ All rules (skipped and run)

Click the "Rule Settings" tab to set your system thresholds.

s	Rule Settings

Flag threshold: `50`

Abort threshold: `20`

Managing rules

To manage rules, select EZ Fraud Detection from the Add-ons menu.

This will display a screen showing all rules in the system. You can select whether a rule is active or not, set its priority, the deduction to be applied upon failure and an action to be taken upon failure. A partial screen shot of the rules management screen is:

Logic and Behavior Descriptions

There are two fraud indicators in the system. One is associated with the order and the other with the user. They are independent of each other, but it is difficult to have an order flagged as fraudulent and to not have the user flagged too. However, going to the user's profile, you can change a user who was wrongfully flagged as fraud to 'no t fraud'.

The goal of allowing an order detected as fraudulent to continue processing is to allow you to manually review it and assess the scoring to ensure that it is indeed fraudulent. The goal is to let you see orders that are suspected of being fraudulent BEFORE you ship products.

The 'abort threshold' (where an order is not able to be placed) can be seen in the Incompleted Orders area. These will be orders that fall below the 'abort threshold'.

Bot detection should not be used to solely disqualify an order. Bots (and technology to detect them) continues to change over time.

Without geo-credits what am I missing?

When you purchase the addon, you are given 100 geo-credits with your purchase. This is generally good for 100 orders (1 per order). Additional geo-credits can be purchased at a quite reasonable cost. You can purchase credits in bundles with rates between $0.10 and $0.20 per credit (per order).

The addon will run just fine without any geo-location information. However, several of the basic features and rules will not work without credits. The following features will not work without geo-credits:

- No map information will be displayed on the order.details page.

- No distance information can be obtained so rules related to distance will fail or not be executed.

- No IP address location information will be acquired so IP location can't be determined.

- No email address verification will occur for valid email domain name.

- No robot detection will occur.

Customization

In general, new rules must be added by us. If you have an intimate knowledge of cs-cart order structure and internals, we might be able to instruct you on how to add your own rules, conditions and actions. Please contact us with your needs. We are happy to add most reasonable rules free of charge and expect this to be an ongoing update. Note that as new rules are added, they will be disabled by default so as to not break any of your existing computations.

Support

Please contact us at support@ez-ms.com with any questions and we will be happy to help you. Or you can submit a ticket via our ticketing system by emailing to helpdesk@ez-ms.com.