

On SMS Phishing Tactics and Infrastructure

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What will you learn from this talk?

How to collect your own data on SMS abuse

How to go from millions of SMS messages to identify phishing campaigns and operations

Current tactics and procedures used by SMS phishing operations

Classic SMS Phishing - USPS Package Delivery

Phishing URL

USPS mail package in the process of transportation, due to damage to the outer package, address information is lost, can not be delivered. Please be sure to update the delivery address information in the link within 12 hours.

(Please reply Y, then exit the SMS, re-open the SMS activation link, or copy the link to open in Safari)

The USPS team wishes you a great day!

<https://usps.oostvk.top>



USPS.COM PHISHING WEBSITE

Sign In To Your Account

Already have an account?
Enter Your Username and Password ⓘ

* Username

* Password

Sign In

Forgot your username? ⓘ
Forgot your password? ⓘ

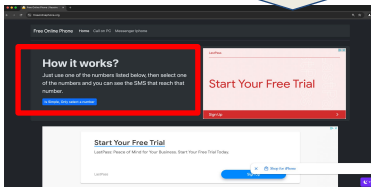
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• set a preferred language.

Sign Up Now

Where can you find public SMS data?

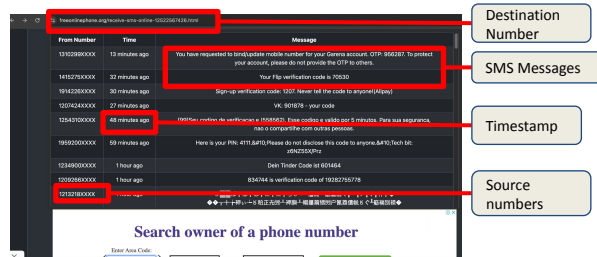
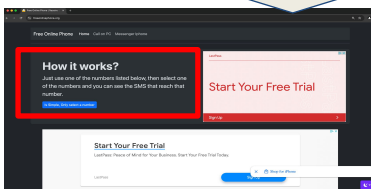
Public Disposable-Number SMS “Gateways”

“Just use one of the numbers listed below,
then select one of the numbers,
and you can see the SMS that reach that number”

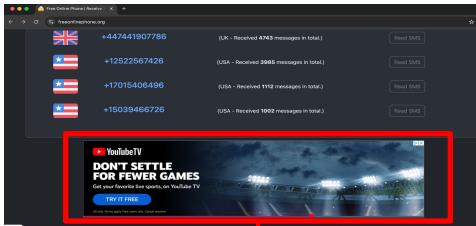


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Why do such websites (SMS gateways) exist?



Advertisements

Free phone numbers that can receive SMS and show the text on the website

Website owner serves ads to generate \$\$ when people visit the webpage

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Why do people use these SMS gateways?

Phone number verification to create online accounts

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To test SMS phishing campaigns!

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SMS Analysis vs. Web Analysis

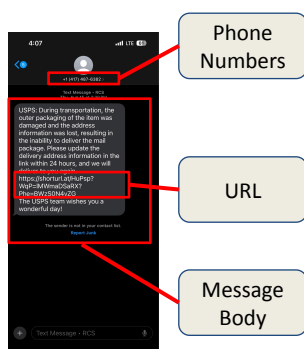
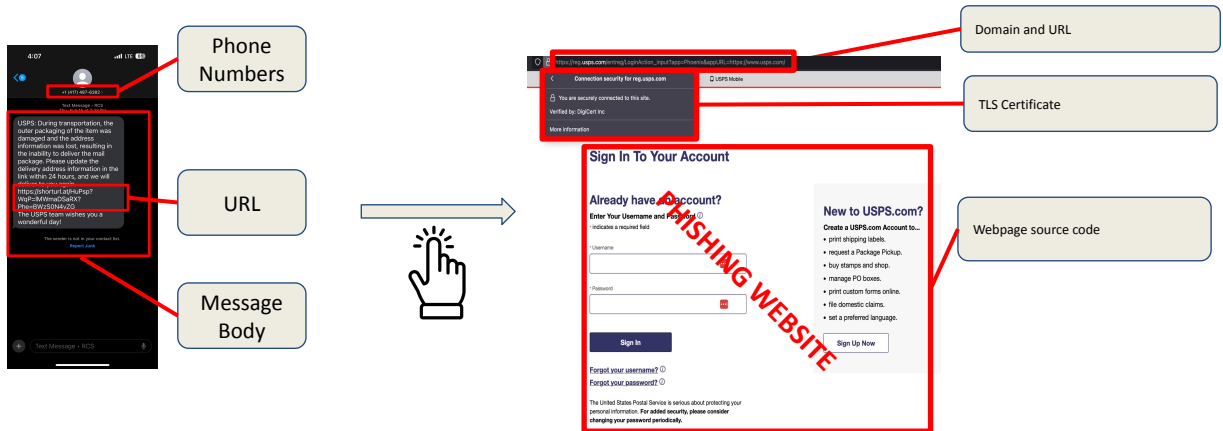


Image Source: https://www.reddit.com/r/scambait/comments/1eznw12/im_assuming_this_is_a_scam_right/

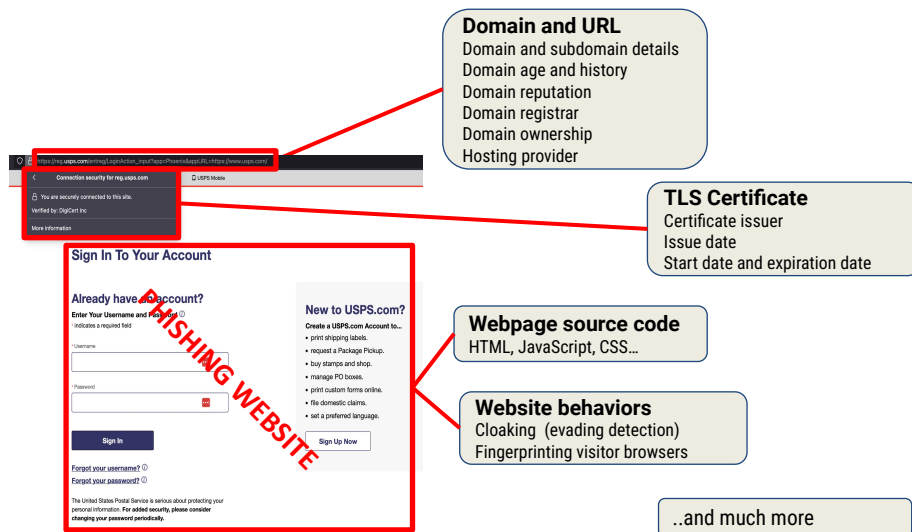
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SMS Analysis vs. Web Analysis



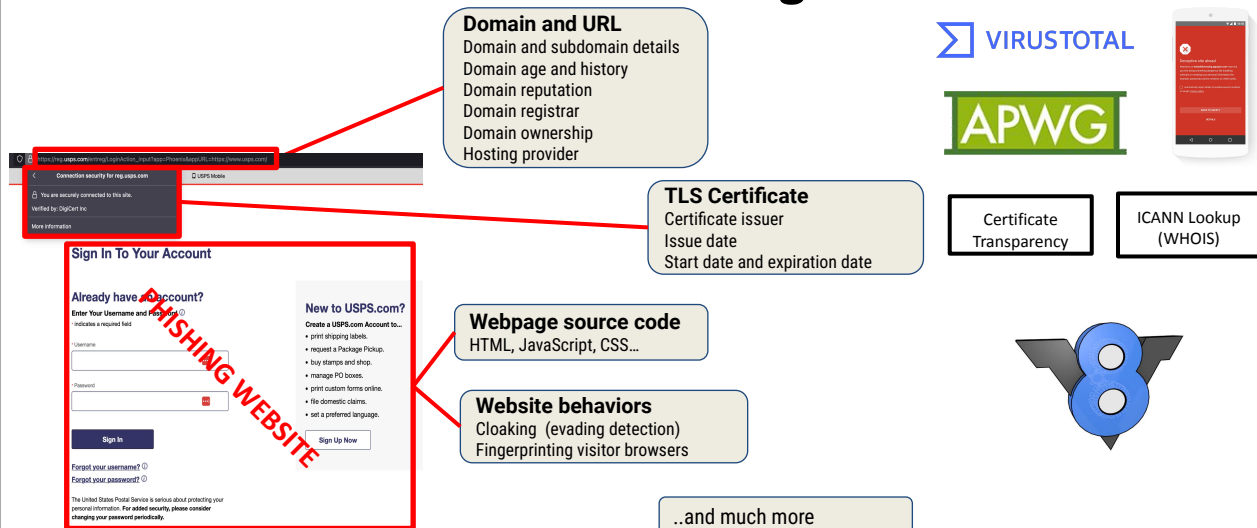
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Phishing websites contain invaluable clues!



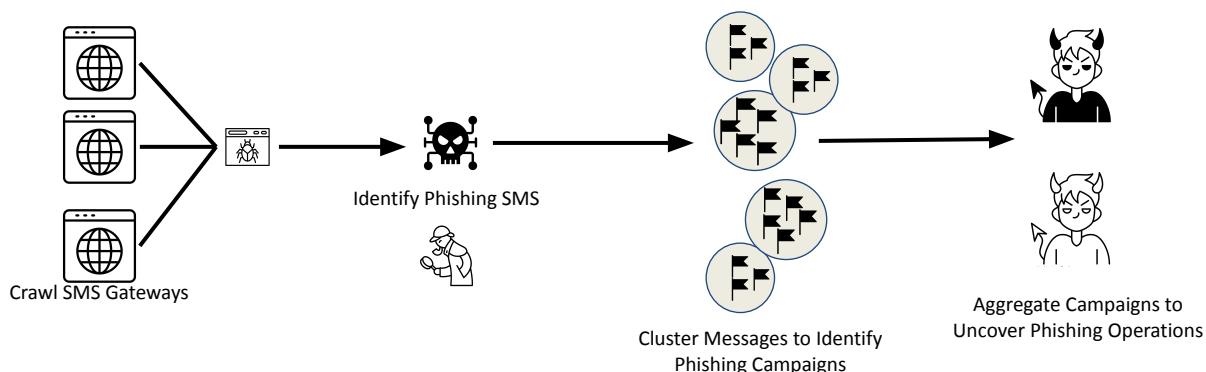
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Defenders have an advantage on the Web!



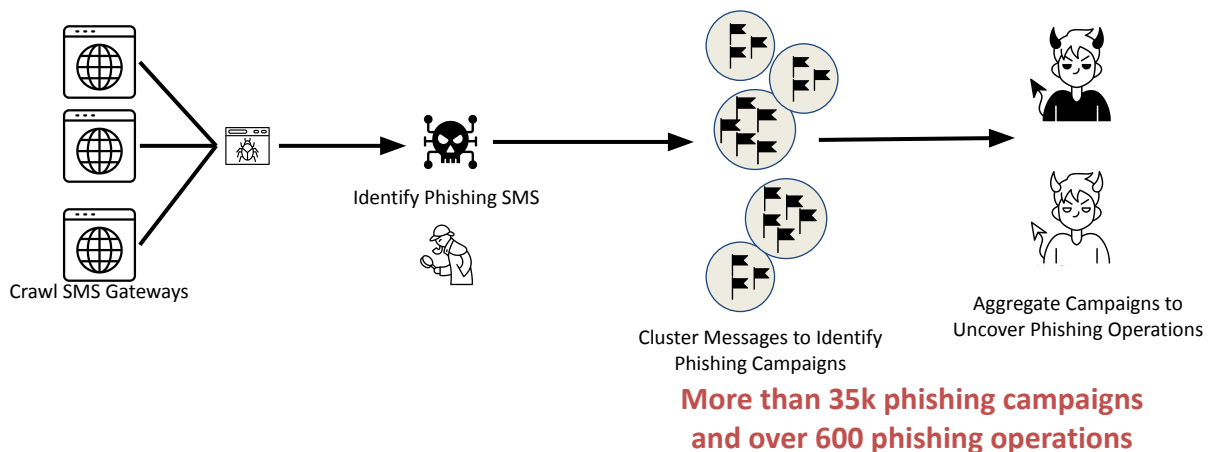
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Uncovering Phishing Operations from SMS Gateways



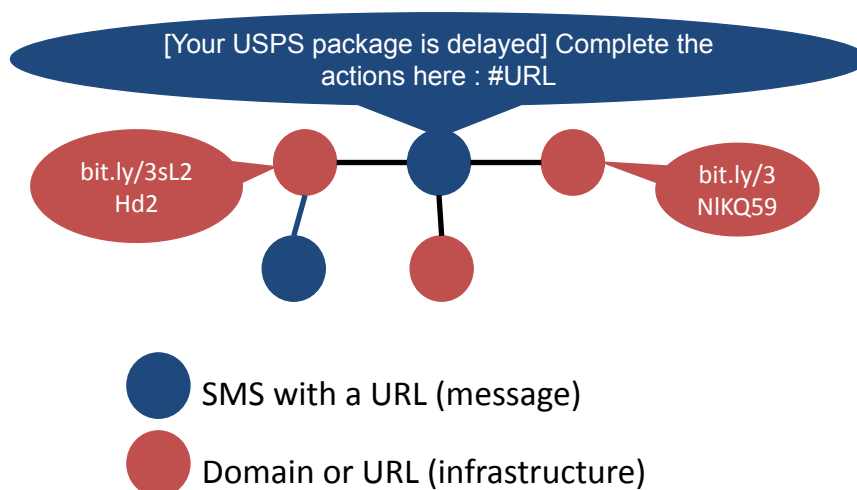
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Uncovering Phishing Operations from SMS Gateways



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From Campaigns to Operations



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Dramatic increase in abuse data on SMS Gateways

View from 2015

8 gateways, over 1.5 years of crawling



View from 2023

11 gateways, about 2 years of crawling

380k messages



200 Million messages

Only a handful of phishing SMS



Average of 170 phishing SMS messages **daily**

About 25 phishing websites



Around 2,800 unique phishing websites

2016 Study: "[Sending Out an SMS: Characterizing the Security of the SMS Ecosystem with Public Gateways](#)"

2023 Study: "[On SMS Phishing Tactics and Infrastructure](#)"

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Why do we see phishing on public SMS gateways?

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SMS Gateways as Testing Grounds for Phishers

We found 45 operations (161 campaigns) that were testing various SMS delivery routes by changing the SMS body

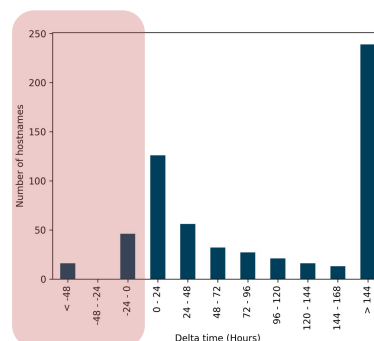
SMS Body #URL route: [0-9]

An unusual login attempt was made on 04/06 at 16:42\nlf this was NOT you, please visit:#URL	<u>route:6</u>
An unusual login attempt was made on 06/06 at 7:42\nlf this was NOT you, please visit:#URL	<u>route:6</u>
An unusual login attempt was made on 04/06 at 16:42\nlf this was NOT you, please visit:#URL	<u>route:2</u>
An unusual login attempt was made on 04/06 at 16:42\nlf this was NOT you, please visit:#URL	<u>route:3</u>

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Operations test campaigns before they generate web certificates!

We compared the timestamps of the earliest phishing message in a campaign with the issue times of TLS certificates



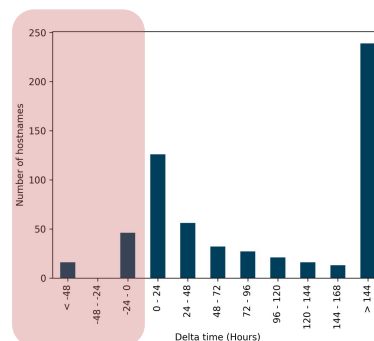
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We uncovered 16 campaigns that sent out test phishing messages to SMS gateways before they generated their TLS certificates

Takeaway: By monitoring gateways, we can see phishing **before the victims!**



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What Infrastructure do these Operations Use?

Hiding behind redirection: Over 70% of phishing URLs redirect to a different host name

Hiding behind URL shorteners: Over 600 URLs were shortened using public and private URL shortening services

Second-Level Domain	Number of URLs	Public shortener?
tx[.]vc	263	No
shrtlink[.]net	173	No
qi[.]lv	83	Yes
shor[.]td	70	Yes
kvo6[.]jio	50	No

Caution: These domains may be malicious.

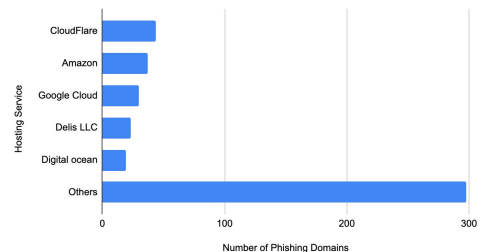
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Where are these phishing web pages hosted?

Most phishing websites we uncovered were hosted on **well-known public cloud providers**

Cloudflare, AWS and GCP were the most popular options, along with a long tail of other providers

Number of Phishing Domains vs. Hosting Service



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Brand Impersonation and Phishing

We extracted *named entities* (organization names, product names, etc.)

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The top entities mentioned were Apple, CommBank, DHL, and the Australian government, but...

87% of operations didn't mention detectable named entities



CommonwealthBank



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But wait, there's more! (in the paper)

List of SMS Gateways

Deep dive into phishing kits – tools that phishers use to easily create phishing websites

Analysis of online forums and platforms where illicit bulk SMS delivery services advertise

..and many other interesting details

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Key Takeaways

Public SMS gateways are a great resource to gather threat intelligence about phishing campaigns.

Our techniques demonstrate how you can process millions of SMS messages and reliably uncover phishing operations.

We highlight how phishing operations use SMS gateways to test their campaign, employ deception to hide behind URL shorteners and impersonate well-known brands to trick victims.

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