THE WEB’S IDENTITY CRISIS

Understanding the effectiveness of website identity indicators

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[Google Chrome -- security-enamel@chromium.org]
https://example.com[:80]

Scheme  Hostname  Port
Treatment of HTTPS pages

Old (Chrome 67)

Current (Chrome 69+)

Eventually
Treatment of HTTP pages
Deceptive site ahead

Attackers on example.com may trick you into doing something dangerous like installing software or revealing your personal information (for example, passwords, phone numbers, or credit cards). Learn more
CHECK ENGINE

versus

ENGINE OK

CHECK ENGINE

ENGINE OK
You are securely connected to this site, owned by:

**Stripe, Inc**
Richmond
Kentucky, US

Verified by: COMODO CA Limited
DO CURRENT SITE IDENTITY INDICATORS HELP USERS?
Does the absence of the EV UI affect user behavior?

**Control**
Show the EV UI.

**Treatment**
Don’t.

[PayPal webpage examples]
Does the absence of the EV UI affect user behavior? (Not really.)
Does EV help users detect cross-jurisdiction collision attacks?
Does EV help users detect cross-jurisdiction collision attacks?

The real PayPal is a US company.
Does EV help users detect cross-jurisdiction collision attacks?

Do users notice when the country code doesn’t match?
Log on to Online Banking

Online Banking

Please enter your username eg IB1234567890 or John123

Continue

Register for Online Banking

Manage your money online with our secure Online Banking service.

Register now

Business customers

• Log on to Business Internet Banking

Mobile Banking

Manage your personal accounts easily and securely with our Mobile Banking app. Set up new payments, scan cheques directly into your account and place a temporary block on your card. Mobile Banking your way.
“PayPal is well known so it makes me feel somewhat comfortable.”

“the https along with the padlock in the address bar”

“I never noticed the MX on a PayPal page, but it seems legit.”
How do users react to EV UI in other modern browsers?
How do users react to EV UI in other modern browsers?

Old UI
Org name

New UI
Hostname
Log on to Online Banking

Online Banking

Please enter your username eg IB31234567890 or John123

Continue

Remember my username

Forgot your username?

Business customers

- Log on to Business Internet Banking

Register for Online Banking

Manage your money online with our secure Online Banking service.

Register now

Mobile Banking

Manage your personal accounts easily and securely with our Mobile Banking app. Set up new payments, scan cheques directly into your account and place a temporary block on your card. Mobile Banking your way.

Download the app

Find out more about Mobile Banking

Protecting Your Money

How to stay safe online

Live Chat
Log on to Online Banking

Online Banking

Please enter your username eg 1234567890 or John123

Remember my username

Forgot your username?

Continue

Register for Online Banking

Manage your money online with our secure Online Banking service.

Register now

Business customers

- Log on to Business Internet Banking

Mobile Banking

Manage your personal accounts easily and securely with our Mobile Banking app. Set up new payments, scan cheques directly into your account and place a temporary block on your card. Mobile Banking your way.

Download the app

[App Store]

[Google Play]

Find out more about Mobile Banking
Does highlighting parts of the URL help users understand site identity?
“Because it’s familiar. I’ve seen it plenty of times.”

“Google is a secure company”

“Because the URL looks like a Google page should.”
SO WHAT NOW?
You are securely connected to this site, owned by:

**Stripe, Inc**
Richmond
Kentucky, US

Verified by: COMODO CA Limited
Negative Indicators
Continue to example.com?

The link you opened goes to a site you don't usually visit. It might be trying to confuse you.

Ignore  Continue
EV UI can take up a lot of space in the Omnibox.
User Research
Thank you!

security-enamel@chromium.org