Google Safe Browsing
Goal: Make the world's information safely accessible
Google Safe Browsing

Crawl URLs → Classify Phishing/Malware → Protect 3 Billion Devices
Google Safe Browsing

- Devices Protected: 3B+
- Warnings Shown in a day: 9M+
- Click through rate on warnings: 5%
Malware
Software specifically designed to harm a device, the software it's running, or its users.

Unwanted Software
Disguised programs that actually make unexpected changes to a user’s computer like switching homepage or other browser settings.

Social Engineering
Tricks users into performing an action that they normally would not if they knew the true identity of the attacker.
Why is this hard?
Challenges

- Cloaking (agent types, times, geo, IPs)
- Delivery channels (email, messaging, texts, ads)
- Balance of accuracy and recall false positives to create the best outcome for both webmasters and users
How to get involved
Access Our Data
Safe Browsing Lookup/Update APIs

Your Application

Is this URL Malicious?

Your Application

Check each URL for match. If partial hash matches

Safe Browsing Partial Hashes of Blacklist

Is this full hash Malicious?

Limit of 10k Queries/day

```
{
  "matches": [{
    "threatType": "MALWARE",
    "platformType": "WINDOWS",
    "threatEntryType": "URL",
    "threat": {"url": "http://www.urltocheck1.org"},
    "threatEntryMetadata": {
      "entries": [{
        "key": "malware_threat_type",
        "value": "landing"
      }]
    },
    "cacheDuration": "300.000s"
  }, {
    "threatType": "MALWARE",
    "platformType": "WINDOWS",
    "threatEntryType": "URL",
    "threat": {"url": "http://www.urltocheck2.org"},
    "threatEntryMetadata": {
      "entries": [{
        "key": "malware_threat_type",
        "value": "landing"
      }]
    },
    "cacheDuration": "300.000s"
  }
}
```
Submit Data
Safe Browsing Submission API

Single Incident Reports: https://safebrowsing.google.com/safebrowsing/report_phish/

Programmatic Access for Submitters with more than 1k URLs/month

```json
threat_report: {
  threat_entry_type: "URL",
},
client_info: {
  client_id: "initialTest",
  client_version: "1"
}
```
Summary

Safe Browsing Protects Devices and Infrastructures from Phishing, Malware, and UwS

A combination of multiple approaches is the only way to succeed

ML helps us cover our defense-in-depth strategy.

You can let us know about phishing via the Submission API and you can access our verdicts via the Lookup/Update APIs