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How does Windows decide whether your computer has limited or full Internet access?

Raymond Chen

November 15th, 2022 | 💬 4 | ♡ 1

Windows lets you know when your computer's Internet connection is limited or absent entirely. What is this sorcery?

Windows attempts to download a file from a dedicated Web server. Depending on which version of Windows, it's `http://www.msftncsi.com/ncsi.txt` or `http://www.msftconnecttest.com/connecttest.txt`. If the download is successful and contains the correct contents, then Windows concludes that you have full Internet access.

If something goes wrong, Windows will report either limited or no Internet access, depending on what exactly went wrong.

You can [read more details on docs.microsoft.com](#).

Raymond Chen

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Isn't this heuristic really easy to spoof?

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So what if somebody spoofs it? Congratulations, you tricked Windows into showing a "full internet access" icon, and then when the user tries to go to a web site, they get an error. All you're doing is adding more support costs to deal with customers complaining "Your internet is broken."

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Linux distros do something similar... e.g. on a current Fedora version, it's http://fedoraproject.org/static/hotspot.txt.

Note that as with the Windows version, the protocol is HTTP, not HTTPS – because captive portals completely break TLS, but plaintext HTTP will result in a clean redirect to the portal, allowing the network service to detect the presence of the portal and to bring up a browser window to let the user authenticate.

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Similarly, Android and ChromeOS devices expect a HTTP 204 response from http://connectivitycheck.gstatic.com/generate_204 (also HTTP, for the same reason).

It's possibly the only time I've seen a HTTP 204 in the real world 🙂

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