Should I avoid web sites not showing the locked padlock icon?

Not necessarily. The locked padlock means the website has a secure certificate.

What is a secure certificate?

A secure certificate is a digital "document" that is applied to an internet domain name, the address of a web. You may encounter references to an **SSL certificate**, same thing.

What does it actually do?

The effect of having a certificate installed is that data transferred between the end user and the web site is encrypted.

In theory a determined third party could read unencrypted traffic (it's not easy unless you work for GCHQ or the CIA).

In most web browsers a secured site will show a green padlock icon. Without a certificate most show an unlocked padlock. Google Chrome now shows the locked padlock icon in grey and the text "Not secure" instead of the unlocked padlock.

How does a certificate benefit me as a web site visitor?

It depends on the nature of your visit to the web site and the subject matter of the site. The primary concern in respect of an unsecured site is whether anything you type in can be seen by a third party. That does include the names of web sites and web pages you view. On an unsecured site someone might be able to

- Capture your log-in credentials.
- See any messages between you and the web site
- Identify which web sites you visit. Just knowing that might tell them something about you like: *this guy keeps going to chocolate related web sites so we can infer he's interested in confectionary*! I understand there are websites out there that may have less innocent content and users may be more concerned about any conclusions drawn.

It's important to understand that a certificate does nothing to protect the data once it's reached the web server.

Instead of the unlocked or locked padlock icon you may see some other symbol (e.g. a padlock in a yellow triangle). That indicates that a certificate has been applied but there is still a potential problem with the page.

Why aren't all web sites secured?

In brief – it's just a matter of time. For some sites there may be a problem with the technology behind the site requiring a significant rebuild. It's very likely that within a couple of years only old and poorly maintained web sites will remain insecure.

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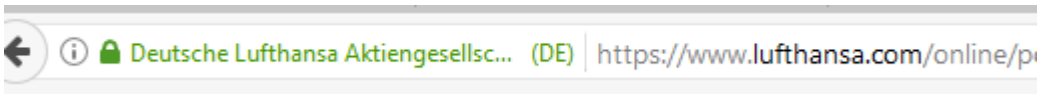
Should I trust a site that has a locked padlock icon?

Not necessarily, it means that data transferred between the user and the web site is encrypted, what the web site owner then does with that data is a different issue. The data may be misused or stored in an unencrypted format so it is at potential risk of unauthorised disclosure.

A more positive view is that the owner has some awareness of security issues so you may be a little safer here than elsewhere.

We see press coverage of web site security leaks from "household names" seemingly on a daily basis. These are seldom because of unsecured web site traffic having been intercepted.

If you may be disclosing confidential/payment data you should look for additional reassurance, ideally enhanced certification something like:



The presence or absence of the standard lock symbol is not a reliable indicator, you still need to be on the alert and rely on experience, caution, common sense.

It's not difficult for fraudulent sites to get a certificate so AMAZ0N.COM could get one (the **letter** O is replaced with the **number** 0 which users might not notice).

How dangerous is an unsecured site?

It depends what information you are disclosing. If the answer is "none" the risks are trivial. At time of writing nearly one in five internet passwords are 123456. That's orders of magnitude greater risk than accessing an unsecured site.

If you're going to be making an on-line payment then look for additional reassurance.

This document should not be regarded as definitive, there are some simplifications.

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