

1001010 1010010 0101010 1010101 0001010 0011001 0101100 0101010 0101010 1010101 1010101 1001000  
1010000 1010110 0001010 0100101 0011110 0100101 1010101 1001010 0100010 1000101 0100101 1010010  
1010000 1010101 0101010 0010100 0101000 0101001 1010001 1010100 0001010 0101000 1011001  
0101010 1010101 0001010 0101000 0101000 0101001 1010101 1010101 1010101 0101010  
1001010 0010000 0101010 1010101 1010101 1010000 0100101 0101001 0010100 1010101  
1010000 0101010 0101010 0001010 0101000 0101001 0101000 0101011 0010100 0010010  
0101010 0101010 0101010 0101001 0101010 0101010 1110001 0101000 0010101 1111000 1010001  
1010000 1010101 0001010 0011001 1010101 0101001 0010101 0100101 1010101 0101010 1010010 0101010  
1010001 0010101 0011110 0010101 0100101 0101010 0101001 0010101 0100101 1010010 1010100  
1110001 0101001 0010100 0100001 0101100 0010101 0001010 0110001 0101000 0101010 1010101  
0100101 0001010 1010010 0100010 1010010 0101010 1001001 0100010 1010101 0010101 1010001 0100100  
0010101 0100010 1010101 0100010 0100010 1001010 1010101 0101000 0101010 0101010 0101010  
0110001 1001010 0101010 1001010 0101010 0101010 0101010 0101000 1001010 1010101 1000101  
0100010 0101010 0101010 1110001 0101010 0101010 1111000 1010100 0010101 0010101  
1010101 0101010 1010101 1010101 1100101 1010010 1000101 0110010 0010011  
0101010 0101010 0101010 1010100 1010101 0010100 0101010 1001010 0101000 1010101 0010100  
0101010 0100001 0101100 0100011 1001010 0010100 1010001 1010100 1011000 1010010 0010101 1010101  
1100101 0100010 1010101 1100010 1000101 0101010 0101010 1010101 1010001 1010010 0100101 0010101  
0101010 1010101 0101010 1001010 0101010 1010010 1001010 0100101 0101010 0110010 0100010 0010101  
1010100 0010101 1001001 0101010 1010010 1010101 1010001 0101010 1010101 1001010 1010101 0100001  
1001010 0100010 0101000 1100010 1010101 0101010 0101010 0100010 0010101 1010010 0101001 0100010  
1000101 1010101 1000101 0010001 0100101 1010000 1010100 0110010 1010010 0101010 1010101  
0101010 0001010 0101010 0101010 0100010 1010001 0101001 1010101 1010100 1001000 0010101  
1010010 0101010 1010100 0010100 1010101 1110001 0101001 0101010 0010100 1010101 0010001  
1010101 0001010 1010101 1010100 0101001 0100101 0011001 0100101 0101010 0010101 0100101  
0010001 1010101 1001010 1001100 0101010 0010101 0100101 0100010 1010010 0101010 0110010  
0101010 0101010 0100010 1010101 1010010 1001000 0110001 0101001 1010101 1010100 0100110 1010101  
0010100 1100010 1001010 0101001 1010100 1010101 0100010 0101001 0101001 0101010 0101001 0101010  
1010100 1000101 1001001 0010101 1010100 0001010 1010101 0101010 0101010 1010100 0101010 0100101  
1001100 0101010 1001010 0001010 1010101 0101010 0101100 0001010 1001000 0010100 0101010 0100010  
1010010 1010100 0101010 1010101 0000101 0100110 1010101 0010101 1010101 0111100 0101010 1010101  
1010101 1000101 0100101 0001010 1000101 0101010 0100101 0001010 0101001 1000101 0101001  
1010101 0101010 0101010 1010100 0010101 1001001 0100010 0101010 0100101 1000101 0101010  
1010101 1010101 0001000 0101000 0101000 0101000 0101000 0101000 0101000 0101000 1001000  
0000101 0100101 0001000 0001000 0101000 0101000 0101000 0101001 0101000 0101000 0101010  
0001010 0101010 0101010 0101010 0101010 0101010 0101010 0101010 0101010 1001010 0001010  
1010100 0001010 1001010 0101001 1001010 0101000 0101000 0101010 0101010 0100010 0101010 0101010  
1010101 1010101 1010001 0011001 1010101 1010101 0010101 0101010 1010101 1000010 0100110  
0001010 0100101 0101010 0100101 0101001 1010101 0010101 0101010 1000010 0101001 1000101 0101001  
1010101 0101010 1010000 0101001 0010101 0101000 0100010 1010010 1000101 0101010 1000101 0101010  
0000101 0100010 1010001 0101001 0001010 0101000 1001010 1010110 0101010 1001000 0010100 0101010  
0001010 0101000 1001010 1010101 1010101 1010101 0101010 0101010 1010101 1010101 0101010  
0001010 1010101 0001010 0001010 1010101 1010101 1000101 0001010 1010101 1000010  
0101001 0101010 0001010 0101010 1010101 0100100 0101010 0101010 0001010 1000101  
0101010 0101010 0101010 1010100 1010101 1000010 0100110 1010101 0101010  
0001010 0101010 0101010 1010101 1010101 1010101 0101010 0101010 0101010 0101010  
0010101 0101001 1010101 0010101 0101001 0101010 1010000 1010101 1000101 0101000 0101011 1000101  
0101010 0101001 0001010 0101010 0101001 1010101 1010001 0010101 0010100 0101000 0010100 0101010

**DARK WEB**  
**and**  
**DEEP WEB**

*PLACE OF ANONYMITY AND FREEDOM OF  
EXPRESSION*

By

**SMIN OIENEN**



# Copyright

© Smin Oienen, 2021

Published by TBS

---

Published in eBook format

ALL RIGHTS RESERVED. THIS BOOK, OR PARTS THEREOF MAY  
NOT BE REPRODUCED IN ANY FORM WITHOUT WRITTEN  
PERMISSION OF THE COPYRIGHT HOLDER.



## INTRODUCTION

The Internet is a worldwide network of many individual computer networks.

Numerous services bring this infrastructure to life in the first place - for example e-mail, chat, file transfer or even internet telephony.

*One of the most popular internet services is the **World Wide Web**.*

Here the user can view websites with the help of a **browser**.

The development of the average daily usage time of the Internet has been increasing for years.

Be it for writing e-mails, online shopping, gathering information or getting involved in social networks.

Obtaining unfiltered information is impossible nowadays.

*The World Wide Web is being **censored** by governments, and entire websites are being taken offline.*

However, there are networks on the World Wide Web in which there is free speech, unhindered communication, and no fear of persecution and espionage.

*We are talking about the **DEEP WEB** or **DARK WEB**.*

While it is difficult to get accurate data from the Deep Web, this range is 400-500 times larger than the **Surface Web**.

That covers **96%** of the World Wide Web.

Security politicians are calling for ever more stringent network monitoring and controls.

The privacy of each individual is therefore at risk.

*Is the Deep Web no longer becoming the Internet as one would actually want it to be?*





## SURFACE WEB

The Surface Web, or Clear Web, is the part of the World Wide Web that most people are most familiar with.

Search engines such as Google, Yahoo or Bing index well over a billion pages on the World Wide Web, such as shopping sites, blogs, social networks, news portals, etc.

*Publicly available websites are searched for with the help of software called **web crawlers**, also known as **search robots**.*

The search robots visit the websites and follow the links published on them.

In particular, the software looks for changed information, new websites and outdated links.

Some search engines offer tools that allow the website owner to precisely define the crawling information for their own site.

This makes it possible to provide detailed information on the individual pages or to completely prevent the website from being crawled.

*Despite these powerful search robots, which consist of software and hardware, not all information can and should not be found.*

On the one hand, this can be due to the fact that search engines do not consider all hierarchical levels and sub-pages of a website.

In this case, websites without hyperlinks or navigation systems are particularly relevant.

On the other hand, many websites are only accessible by confirming the terms of use or entering a password.

Those websites can only be accessed after identification.

So, it is not possible for search engine robots to add the page to the search engine index.

All these websites, which cannot be indexed by common search engines such as Google and Co., are hidden a little deeper on the Internet - in the so-called deep web.



## DEEP WEB

The Deep Web is the exact opposite of the Surface Web.

*All content that cannot be indexed by common search engines such as Google and Co. belongs to the deep web.*

The majority of this data is in databases, which are often protected with a login, as they should not be directly accessible to everyone.

These can be subject-specific databases from companies and universities, catalogues or libraries.

Access to these non-indexed pages can be obtained either through common search engines such as [www.science.gov](http://www.science.gov) or [www.beaucoup.com](http://www.beaucoup.com).

These search databases for information by entering a search term.

However, the information cannot be accessed via a link, which means that it cannot be traced by most search engines and therefore belongs to the deep web.

*It is also possible to carry out subject-specific searches for databases in the deep web.*

Sites like "The Internet Public Library", "Direct Search" and "Infomine" maintain collections of links to databases and other high quality information sources.



There are a number of hidden networks in the deep web.

*One of these networks is **TOR**, a world of anonymity in which people can communicate securely without fear of persecution and espionage.*



## DARK WEB

The beginnings of the dark web go back to 2000, when students at Cambridge University began working on the TOR project.

It was supported by the American government in the 1990s.

*The goal was to connect different government centres, like the Internet, but anonymously.*

A non-profit association of well-known network activists has been working on it since 2006.

The dark web is part of the deep web and has been described in the press as an evil, secret place ever since.

*They offer illegal services and sell drugs, hire hackers and steal credit cards.*

There are virtual black markets like **Silk Road** where drugs and illicit goods can be purchased and valued.

*Such illegal services are usually paid for using **cryptocurrencies**.*

**Bitcoin** is one of the most famous digital currencies and uses **blockchain** technology.

This means that the processing of transactions and the issuing of bitcoins

are collectively taken over by the **peer-to-peer** network.

*This technology therefore works without central authority.*

The dark web is accessible via a peer-to-peer network such as the TOR network.

Access to the dark web can be obtained through the free Tor browser.

Tor stands for "**The Onion Router**" and can be downloaded for free from the Surface Web.



## HOW ONION ROUTING WORKS?

A certain anonymization technique is hidden behind the term onion routing.

Onion for onions, data transmission is just as complex as with onion skins.

*The data to be sent by a user is not sent directly to the recipient, but rather via constantly changing routes of several mixes.*

**Mixes**, also known as **nodes** in this context, are so-called intermediate stations through which the data to be switched are routed.

An intermediate station can be compared to a **proxy server** - data is received and forwarded.

*An encryption step is used within each node, depending on whether the data is being sent or received.*

So, a user sends a request via an **entry node**.

The request is then redirected via a route from TOR servers until it can finally be routed back to the desired website via an output node.

This procedure guarantees that only the last node can see the data in clear text.

*Due to the data transfer via several intermediate stations (nodes), however, a page view takes much **longer** than in the Surface Web.*

In addition, it is difficult to find your way around without good search engines.

The Hidden Wiki provides a remedy at the beginning.

This is a collection of links to various onion routing pages.



## WHO USES THE DARK WEB?

The dark web is often condemned across the board as a place of evil crime.

*Drug trafficking, arms deals, child pornography, forged passports, contract killers - all of this should take place on the dark web.*

Of course, this anonymity architecture also attracts criminals. However, what place doesn't? Criminal individuals frolic on the Surface Web and even in normal life.

The proportion of criminals is many times smaller than the proportion of people who use the TOR network with good intentions.

In many countries around the world, governments are censoring websites and messengers to restrict freedom of expression and prevent protests.

A violation can have life-threatening consequences. In crisis areas, the dark web is the most important means of communication.

In China, for example, journalists use TOR to report on social change and political reform.

Human rights activists and whistle-blowers use TOR to report from dangerous areas, expose corruption, make media accessible to everyone, etc.

In the media industry, this anonymous communication platform is used by the "New York Times" or the "taz" to provide information and protect whistle-blowers.



Field workers in the military hide their Internet activities and access to the servers from outside.

