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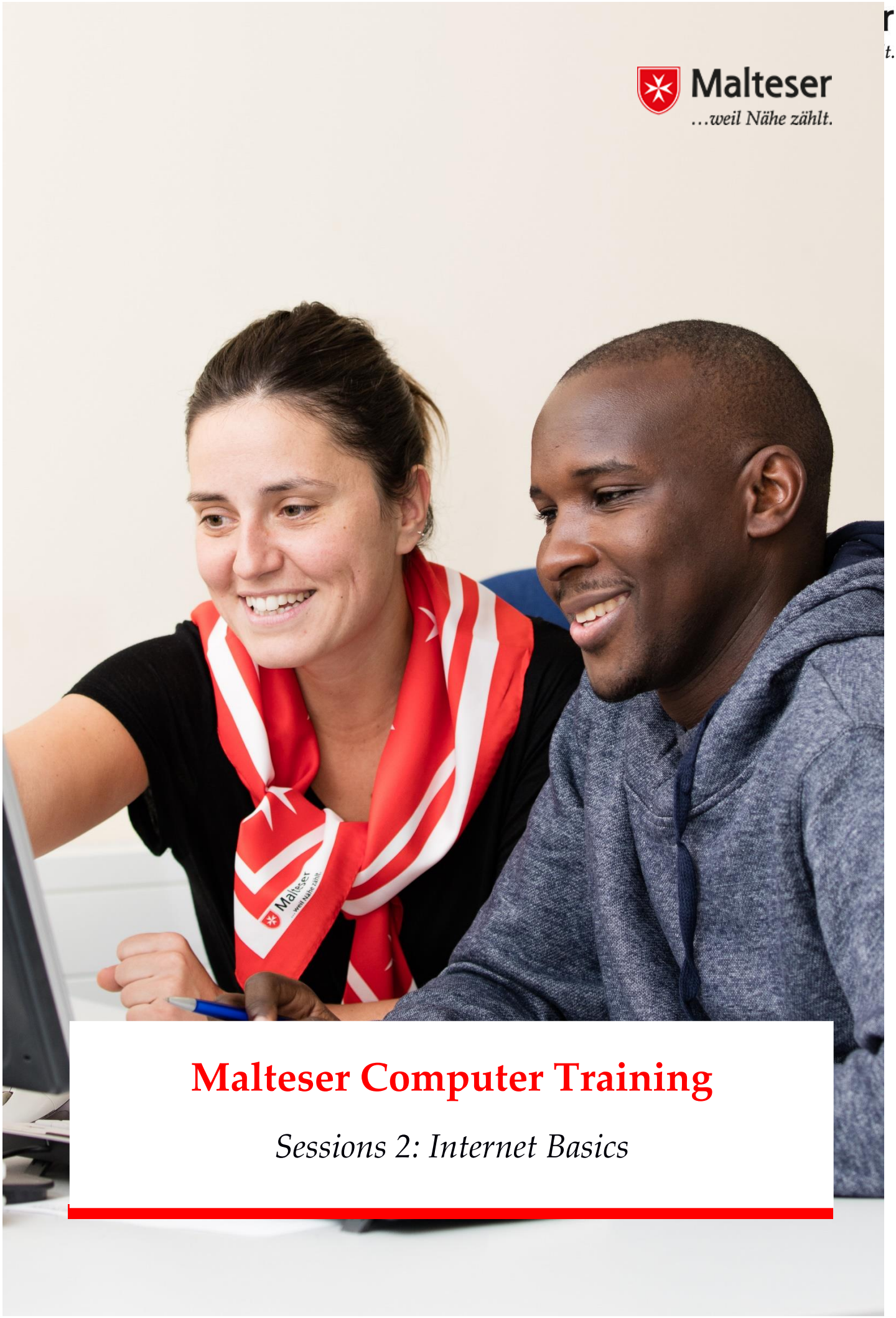

Malteser Computer Training

Sessions 2: Internet Basics

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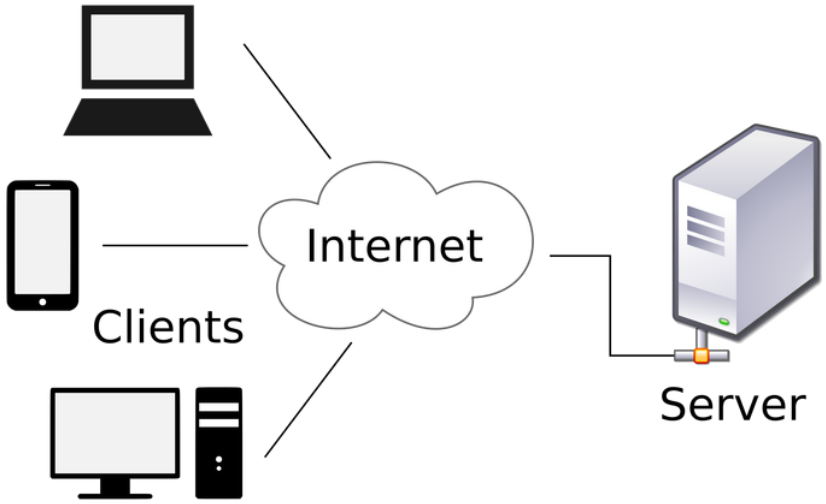
Introducing Global Network: What is Internet? or *the Web*?

The **Internet** is a global system of interconnected computer networks that consists of private, public, academic, business, and government networks on the local and global scope. These computer networks are linked together through the **Internet protocol suite (TCP/IP)** and by a broad array of electronic, wireless, and optical networking technologies.

The architecture of the Internet network is built on **client-server model.** The *client* initiates a request to the *server,* and a server responds by providing a service (e.g. data, application, playing games etc) to the client. In most implementations of the client-server architecture, the server is one or a *few,* and the clients are many. A client can make requests from more than one server at a time.



Servers are the so called computer programs or devices that provide functionality for other programs or devices, the **clients -** any other computer or device (PC, mobile phones, printers etc)**.** Typical **servers** are *database servers, file servers, mail servers, print servers, web servers, game servers, and application servers*.

Internet is not to be confused with the **World Wide Web (W.W.W.)** or ***the Web,*** which is only one of a large number of Internet services. In this course, we will concentrate on learning how to establish internet connection on a computer or a mobile device and how to use the Web.

The Web is a collection of interconnected documents (web pages) and other web resources, linked by hyperlinks and URLs. The Web is the place where you ***access any kind of information***, textual, visual or audible, e.g. websites with various content, internet television, online music and videos etc. Thanks to the W.W.W. it is possible to access

library archives across the world and today many universities, organisations and companies offer online courses and trainings. Therefore, it is easy to research, learn and study using the Web .

Another Internet service is the *fast* ***communication*** with people across the world in many ways, e.g. emails, telephony, instant messaging, audio and video conferencing, internet forums, social and business networks, that also includes file sharing.

Today you have an opportunity to shop online and make ***money transactions*** (e.g. online banking, paypal etc) either privately or across entire industries without the necessity of leaving home, wait for long periods of time or travel far distances. (This also refers to stock markets and card payments).

Also, it has become easy to connect many smart devices, e.g. tablets and smartphones, to the Internet and go online at home or in public without the need of using a laptop or PC.

Maybe, it is a bit difficult for you to understand the Internet at the moment, but you should keep in mind that the Internet is a very complex system of interconnected computers and computer networks and one or more systems can be part of some other system or systems, e.g. Telecommunication services, financial institutions (e.g. banks) and markets, business networks (companies and corporations), governments, social and educational networks etc. All these entities, as well as each person who has a computer, have the opportunity to connect and access the information on The Web, communicate and share different kinds of data with each other.

*** No one controls the Internet or has any centralized power over it in either technological implementation or policies for access and usage. And since the Internet is a system of computer networks, each constituent network sets its own policies (*It's something similar to political map of the world - countries have different laws and the laws of one country are not similar to the ones of another country. And also, the Internet is* Not The Matrix)[2].

3. Connecting to the Internet: Hardware, ISP and Types of Internet Connection (Dial Up, Cable, DSL and Satellite)

In order to be able to access The Web, you need to establish the connection to the Internet first.

Computers and smart devices usually connect to the Internet via **Modems** and through Ethernet cables. Today it has also become possible to connect to the internet via so called **Routers and Wireless Adaptors - a Wi-Fi connection,** in this case your internet connection is broadbanded as radio waves within a certain range and you can move around with your laptop or another smart device within certain range maintaining the internet access. Some wireless adaptors can be built

[2] There is though a maintainer organisation - The Internet Corporation for Assigned Names and Numbers (ICANN) that directs the overreaching definitions the *Internet Protocol address* (IP address) space and the *Domain Name System* (DNS) - the two principal *name spaces* in the Internet - let's not go into too much detail just yet!

into a computer's or device's hardware.

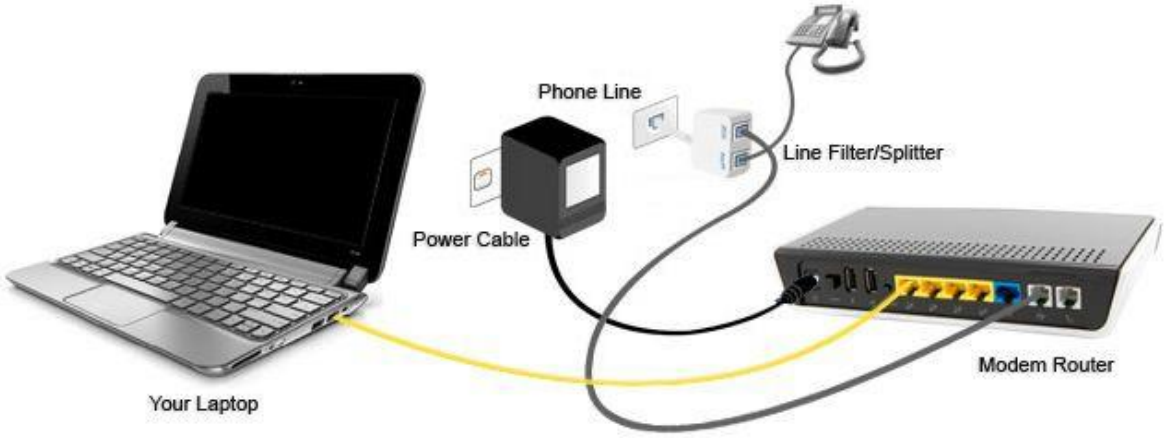
To establish an Internet connection, you will need these pieces of hardware:

Modem **Router/Wireless Adaptor (WiFi)**

A **Modem** is a primary piece of hardware you need to connect your computer to the Internet. A **Router** is a hardware device that allows to broadband the Internet connection, therefore, this kind of connection is called a **wireless network**.

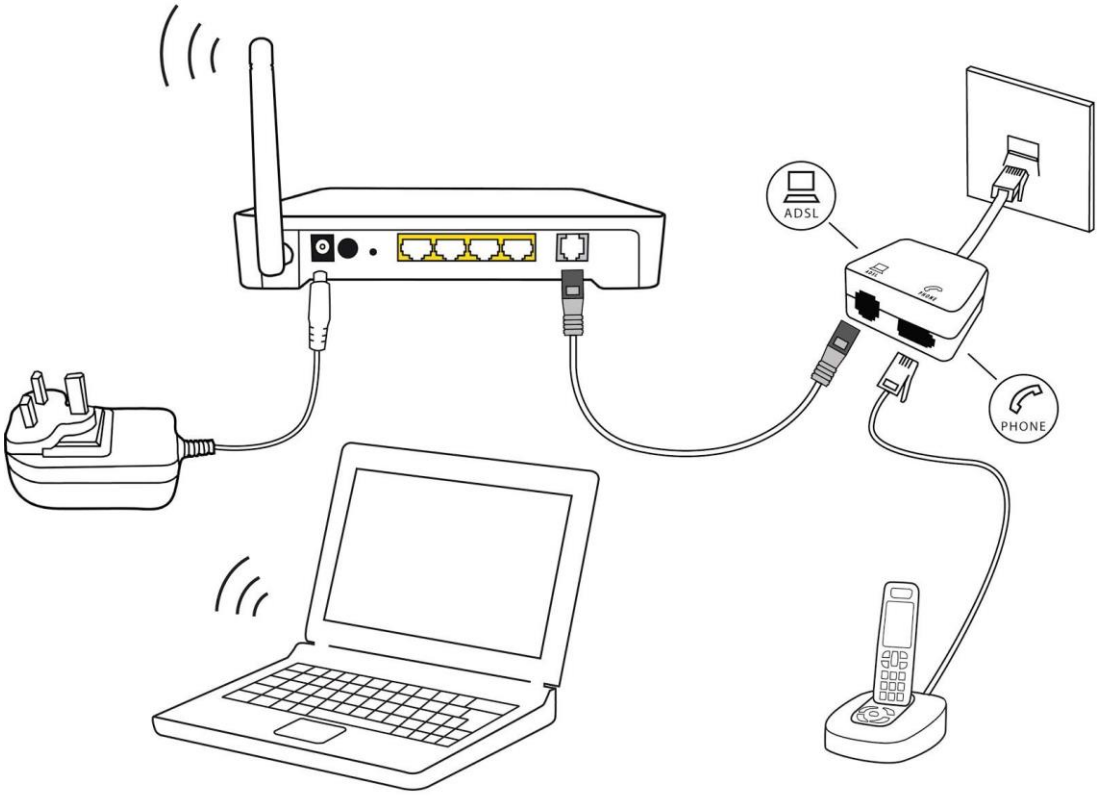
Two ways to establish the Internet connection:

OPTION 1: directly via Ethernet cables



1. Use Ethernet cable to connect Modem directly to your PC or laptop

OPTION 2: via Router



1. Use the Ethernet cable to connect your Modem to the Router that will broadband the Internet connection within certain range.

It is also possible to connect several computers to the Internet by using one modem. This kind of connection works great locally, for example, in a single home, company office or department that have several computers in one place. By using additional Ethernet cables several computers will have Internet access - thus, the **wired network** will be established.

When establishing the Internet connection using router, you create a **home wireless network**, commonly known as a **home Wi-Fi network**. Just as wired network, you can also connect other computers and devices, e.g. tablet, smartphone, also printers and scanners, cameras etc. to the Internet. But no additional cables are needed.

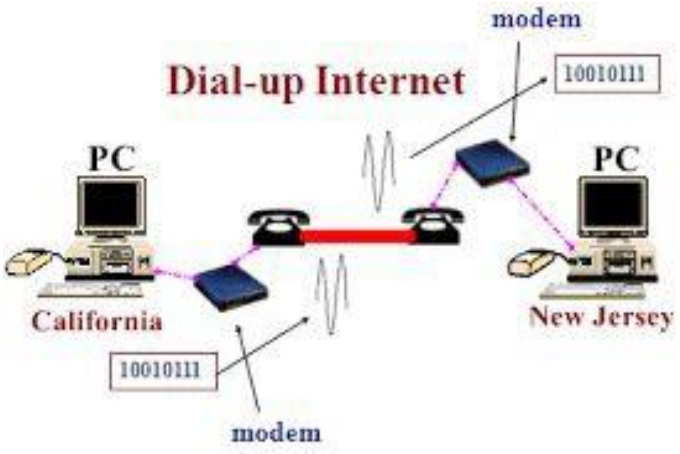
Today many modems already include **a built-in router**, so you have the option of creating a Wi-Fi network without buying extra hardware.

Internet access is provided by so called **Internet Service Providers (ISP).** You cannot establish Internet connection without requesting internet access from your local ISP. Your Internet service provider (ISP) will most likely provide you with a modem—often for a fee as a part of the price for the Internet access. Usually, you'd *sign a contract with ISP* of your choice. You can use the modem during the whole period of your contract but you have to return the modem if you decide to stop

using the Internet connection from this particular ISP. Using the ISP's modem helps ensure that you have the right type of modem for the **type of Internet connection provided by ISP (***see below***)**. However, if you would prefer to shop for a better or less expensive modem, you can choose to buy one separately. Once you've chosen an ISP, most providers will send a **technician** to your house to turn on the connection. If not, you should be able to use the instructions provided by your ISP—or included with the modem—to set up your Internet connection. After you have everything set up, you can open your web browser and begin using the Internet. If you have any problems with your Internet connection, you can call your ISP's technical support number.

ISPs can offer these **types of Internet connections**:

1. **Dial-up**: This is generally the slowest type of Internet connection, and you should probably avoid it unless it is the only service available in your area. Dial-up Internet uses your **phone line**, so unless you have multiple phone lines you will not be able to use your landline and the Internet at the same time.



2. **DSL**: DSL service uses a **broadband connection**, which makes it much faster than dial-up. DSL connects to the Internet **via a phone line** but does not require you to have a landline at home. And unlike dial-up, you'll be able to use the Internet and your phone line at the same time (*usually in combination with a router, but using Ethernet cables would also remain an option*).

3. **Cable**: Cable service connects to the Internet **via cable TV**, although you do not necessarily need to have cable TV in order to get it. It uses a broadband connection and can be faster than both dial-up and DSL service; however, it is only available where cable TV is available (*usually in combination with a router, but using Ethernet cables would also remain an option*).

4. **Satellite**: A satellite connection uses broadband but does not require cable or phone lines; it connects to the Internet **through satellites orbiting the Earth**. As a result, it can be used almost anywhere in the world, but the connection may be affected by weather patterns. Satellite connections are also usually slower than DSL or cable.

These types of internet access will determine the type of modem you need. For example, **Dial-up** access uses a **telephone modem**, **DSL** service uses a **DSL modem**, **cable access** uses a **cable modem**, and **satellite** service uses **a satellite adapter**.

The type of Internet service you choose will largely depend on which ISPs serve your area, along with the types of service they offer. You can do some research online to find out which ISPs are available in your area. If you're having trouble getting started, we recommend talking to local people, friends, family members, and neighbors about the ISPs they use.

Most ISPs offer several tiers of service with different Internet speeds, usually measured in **Mbps** (short for **megabits per second**). If you mainly want to use the Internet for **email** and **social networking**, a slower connection (around 2 to 5 Mbps) might be all you need. However, if you want to **download music** or **stream videos**, you'll want a faster connection (at least 5 Mbps or higher).

You'll also want to **consider the cost** of the service, including installation charges and monthly fees. Generally speaking, the faster the connection, the more expensive it will be per month.

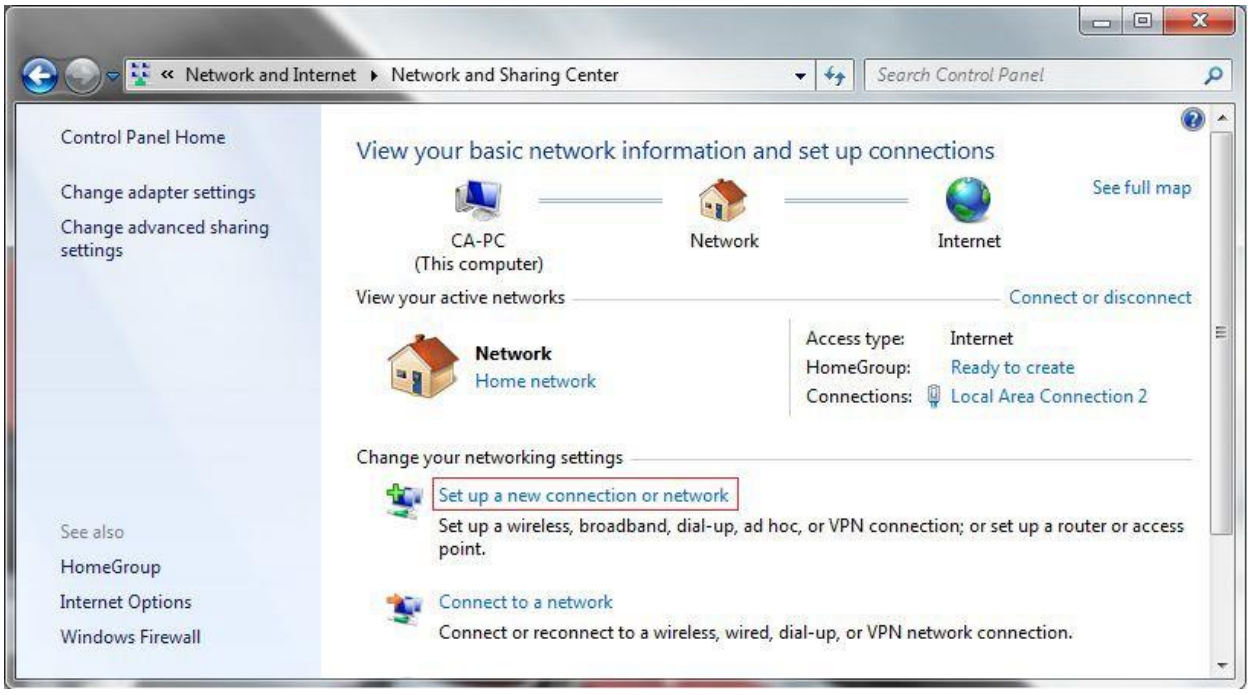
6.1. Secure connecting to the Internet via Wi Fi Technology

Wi Fi is not a type of Internet access but a **technology** that uses radio waves (through a router) to connect computer devices to the Internet — *wirelessly*. The benefit of wifi is obvious: a wireless internet connection means our devices are not tied to a fixed location inside a home or an office. Thanks to router that transmits a property's internet connection via special radio signals, allowing us to move around from one room to another, with no interruption to our internet connection.

This is obviously super handy for users of laptops, tablets and mobile devices. Once we're connected to wifi, access to the internet is suddenly so much more convenient and flexible.

If you have **multiple computers or smart devices at home** and want to use all of them to access the Internet, you may want to create **a home Wi Fi network**. In a home network, all of your devices connect to your router, which is connected to the modem. No one else should be able to connect to your network without your permission. Your ISP technician may be able to set up a home Wi-Fi network and give it a unique *name* and *password*, when installing your Internet service. Your home WiFi network will be protected by a strong password. Every time you need to reconnect to your home network or allow your family and guests to use your home WiFi, they will require to enter the name of your network and the password to establish the internet connection.

Below are the steps of **connecting your computer to a home WiFi network**:



By using Network and Internet Settings on your computer (in Windows - Control Panel) you can set up your new connection or network via modem or a router. After purchasing Internet access from your local ISP, you will receive the list of step by step instructions on how to setup your modem, router and a home WiFi network. Follow the instructions step by step. Make sure you choose the WPA 2 privacy protection option, create the name of your home WiFi network and a strong password.

You can also connect to another WiFi network without losing your home network connection. You will need the name of the network you want to connect to and a password! E.g. if you are at your friend's house or out of town it is very handy using local networks.

The process for connecting to a Wi-Fi network will vary slightly depending on what type of computer or device you're using, but any system will require these basic steps.

1. Locate your computer's network settings, and search for nearby Wi-Fi networks. (You can also find a WiFi icon in your Notifications Area in your Taskbar)
2. Select your network, and enter your password.
3. If the connection is successful, open your web browser and try navigating to a webpage like www.google.com. If the page loads, it means your Wi-Fi connection is working correctly.

Congratulations!

If you are in public, e.g. libraries, cafes, and schools, you can easily connect to the internet that these places offer by requesting information about the **WiFi** from a member of staff. Educational institutions, cafes and city governments usually offer a free Wi-Fi for their patrons, customers, and students.

6.2. Connecting to the Internet via Mobile: cellular and WiFi connection (incl HotSpot)

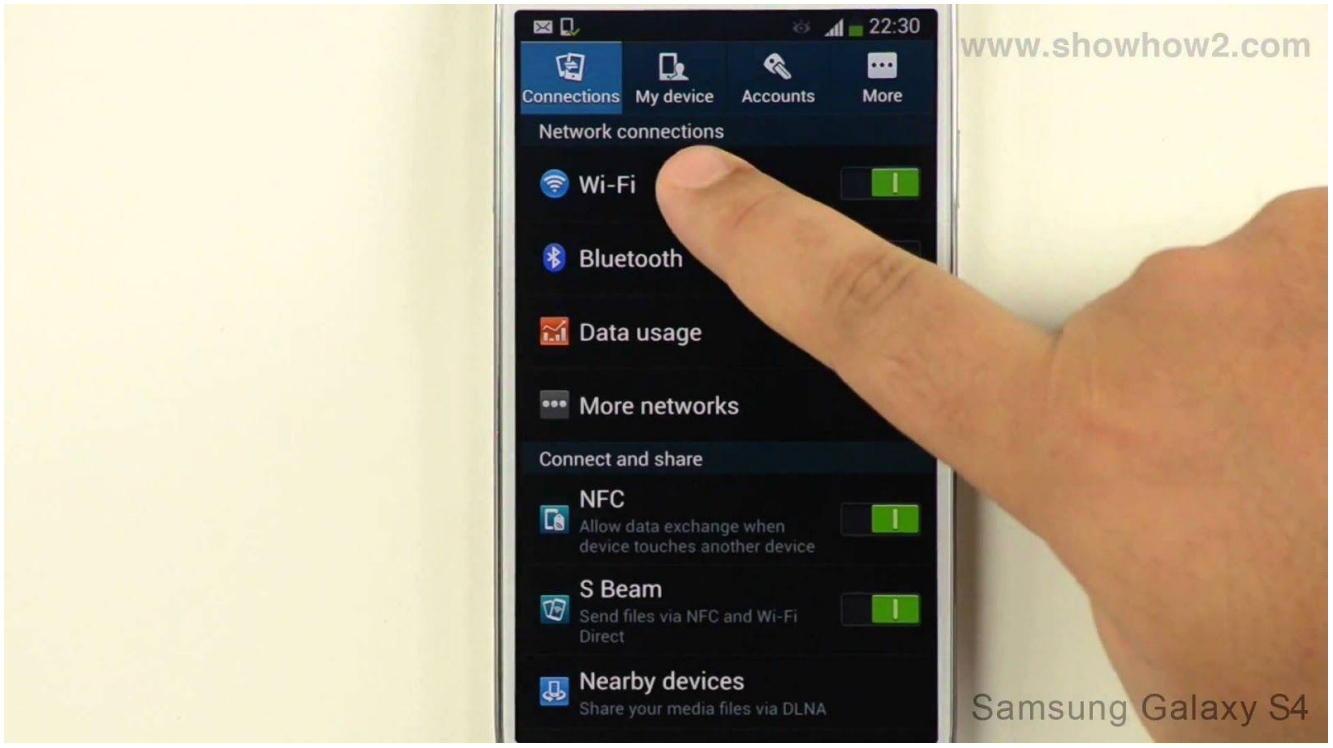
Mobile phone operators provide access to this alternative method of internet usage. When you sign up to a mobile phone operator's services — either on a contract or pay-as-you-go basis (Prepaid) — you can include access to a certain amount of data (measured in megabytes), allowing you to use your mobile device to connect to the internet within that capped usage limit.

Mobile internet is currently offered at two different speeds and capability levels:

- **3G mobile internet**: has been around for many years and typically offers basic access and download speeds that allow users to complete basic tasks such as load a web page or access an email. 3G mobile internet is gradually being replaced by 4G services.
- **4G mobile internet:** is the more recently available level of mobile internet available, offering much higher speeds than 3G. In fact, due to excellent connection and download speeds, 4G might eventually replace fixed internet connections in more rural parts of the country that may struggle to get access to quicker connections.
- **5G mobile internet:** is the proposed next telecommunications standard beyond the current 4G advanced standards.

LTE stands for **Long Term Evolution** of the Universal Mobile Telecommunications System (**UMTS**). It is a faster **network technology** and is short for a very technical process for high-speed data for phones and other mobile devices. Nearly all cellular-enabled devices sold today support LTE for 4G service — sometimes even without 2G or 3G technologies supported. Together, they make 4G LTE–the fastest 4G service available today.

You can also connect to your home WiFi network via your mobile phone. Same principles of connecting to WiFi via mobile apply as of connecting to WiFi via PC or Laptop: by **finding the WiFi Settings, choosing your home WiFi network (the name of your home WiFi)** and **entering the password to the chosen network**.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My device
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More
Network connections
Wi-Fi
Bluetooth
Data usage
More networks
Connect and share
NFC
Allow data exchange when device touches another device
S Beam
Send files via NFC and Wi-Fi Direct
Nearby devices
Share your media files via DLNA
Samsung Galaxy S4

6.3. CONNECTING to WIFI IN MUNICH

Sometimes libraries, cafes, and schools offer free Wi-Fi for their patrons, customers, and students. *Ask your friend or a local person to help you find an internet cafe or a library where you can connect to the Internet. Munich City offers free WiFi in such places as:*

- *free hotspot called M-WLAN (City Centre: Marienpl. Odeonspl, Karlspl, Harras etc) . Look for this sign!*
- *Bars and restaurants that offer free wi-fi hotspots:*
  1. *Zoozie'z*
  2. *McDonald's*
  3. *Ziegelhaus*
  4. *Starbucks*
  5. *Coffee Fellows*
  6. *Burger King*
  7. *frooteria juice & bagels*

If you buy a cup of coffee or a burger, ask the staff to give you a WiFi password!

Munich Public Libraries

- Gasteig (no library card needed, available working space)
- Stadtbibliothek (different locations)
- Bayerische StaatsBibliothek (BSB)

You may need to be a registered user to use WLAN services! Ask the library staff for more information!

Make note of the libraries' opening hours!

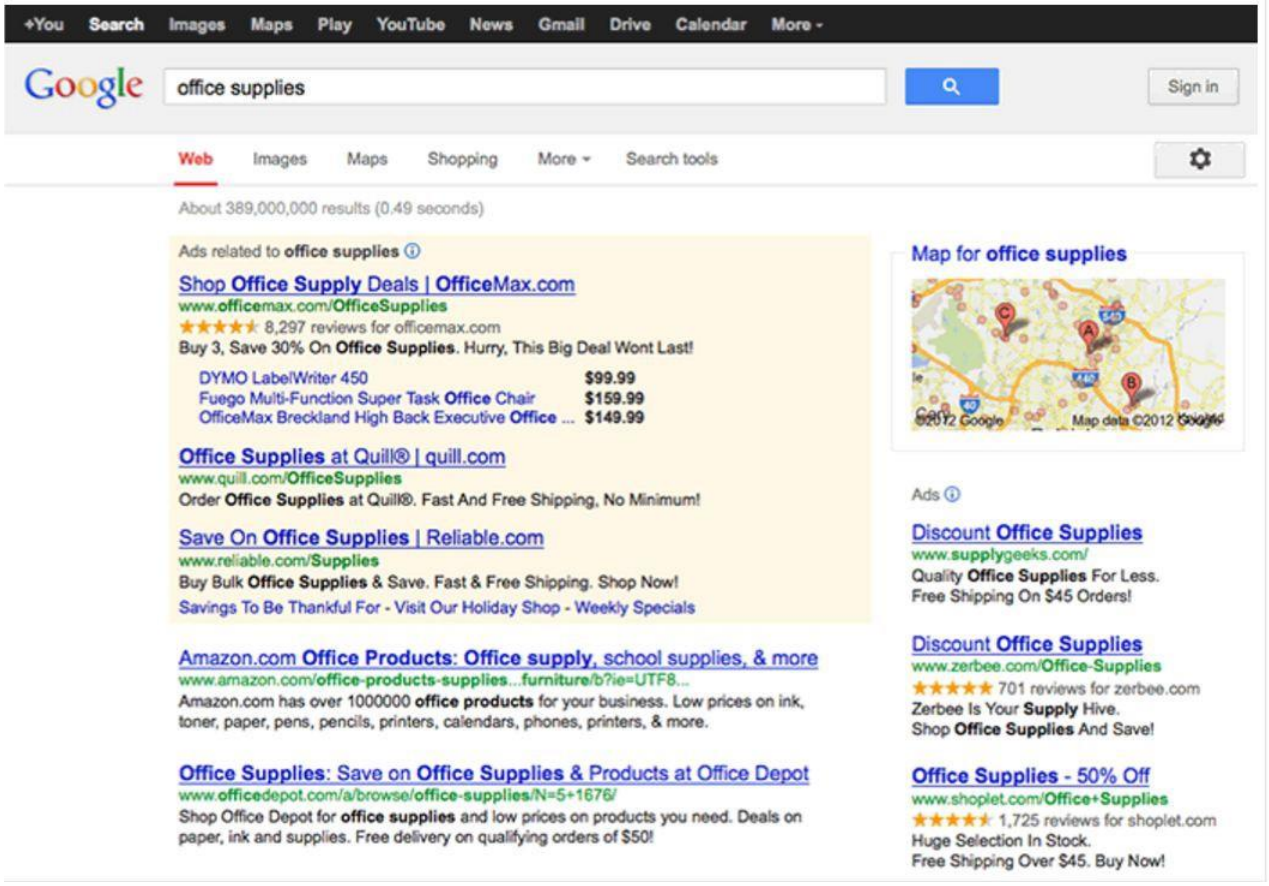
*Many **internet cafes** offer reliable wi-fi, but charge for it. Prices will usually be around 5 to 15 EUR per hour.*

Please note that with time places of access points can change. Update yourself by asking local people.

(**Gasteig**: Rosenheimer Str. 5, 81667 München, S-Bahn Rosenheimerplatz

4. Finding information on the web

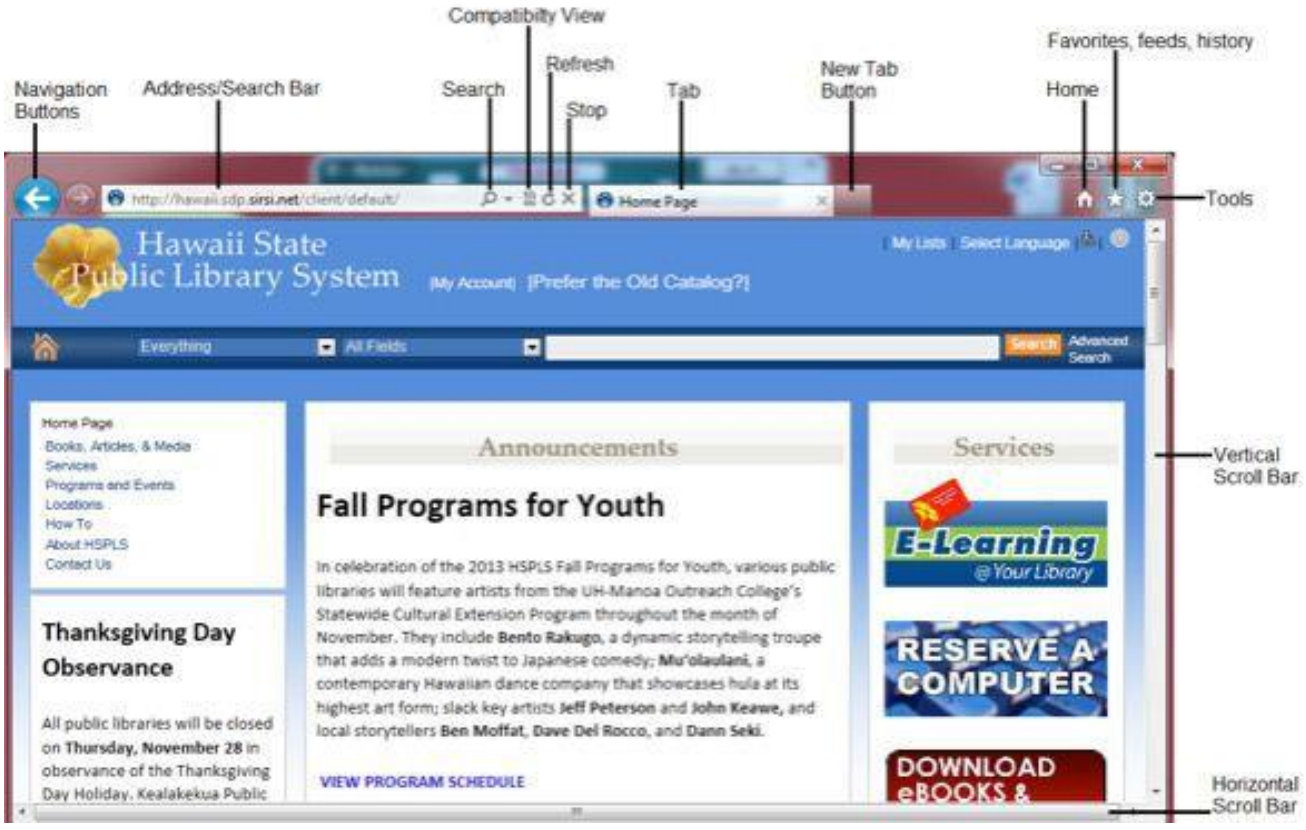
The most common way to find information online is with a search engine. All you have to do is type in a few words, and the search engine will give you a list of results you can further explore by clicking on the suggested links. There are many different search engines you can use, but **Google, Yahoo!, Yandex, MSN, Search.com** are the most popular.



7.1. Using Browsers: Chrome, Mozilla Firefox, Internet Explorer, Safari

A **web browser** is the tool you use to access the World Wide Web (*The Web*). Today, **Google Chrome** and **Mozilla Firefox** are the most popular web browsers. Other browsers include **Internet Explorer, Microsoft Edge, Safari,** and **Opera.**

7.2. How to google?

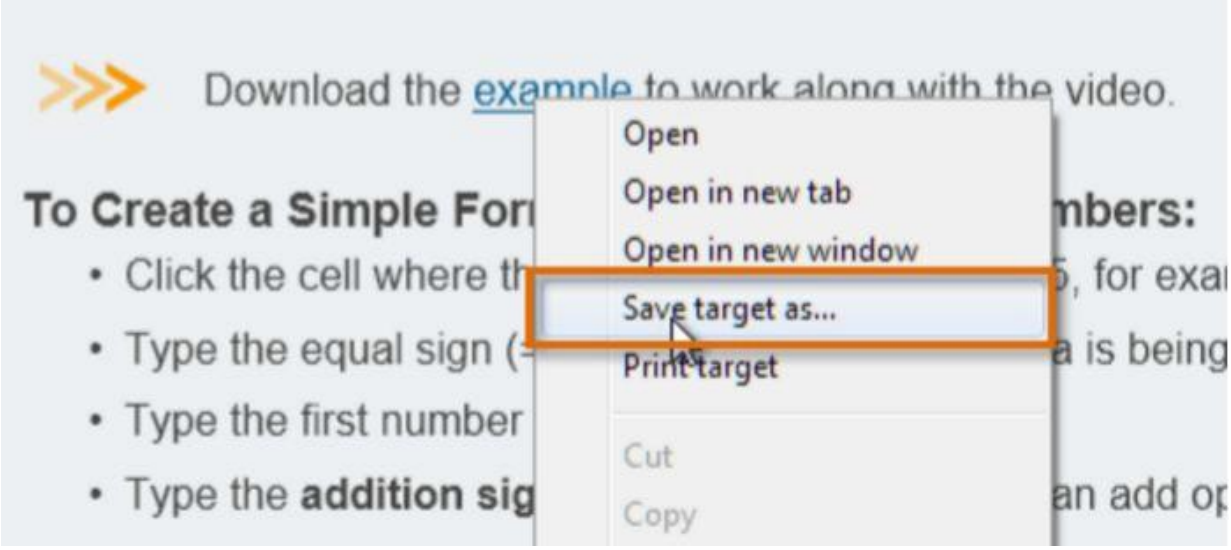


- There's a simple **Search Bar** into which you can type your query. A search engine examines websites and their content to find the '*keywords*' of your search enquiry.
- Answers are provided almost instantly in the form of **hyperlinks** to the websites where the information you're looking for is placed. By clicking on a hyperlink, you will be redirected to a website of your choice. You will also see the website in an opened page placed in a **Tab.** It is very useful to open websites in a new tab by right-clicking and choosing the option "Open in a new tab....". This way you can easily keep track of your search.

- You can choose to search for websites, images, news, maps and much more.
- It will make suggestions for alternative search terms if you misspell a word or name.
- You can do searches not just in the country where you find yourself currently, but all over the world.

Your browser can display many different types of documents, media, and other files. **Downloading enables** you to do this by putting the file on your computer so you can access it.

You can **right-click the link** and select **Save Target As**. You'll be able to choose the folder where the file is saved.

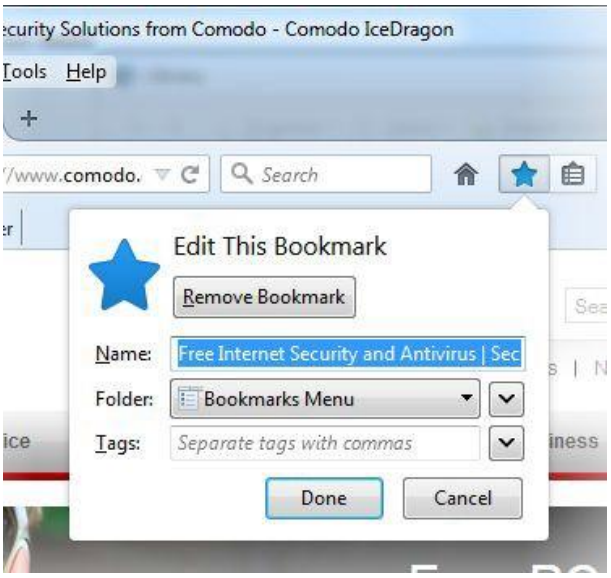


*You must be very careful when downloading anything from the internet! Pages or files can contain **Malware** that can damage the software on your computer! Make sure that the website is secure! (see §8. Basic Internet Security below!)*

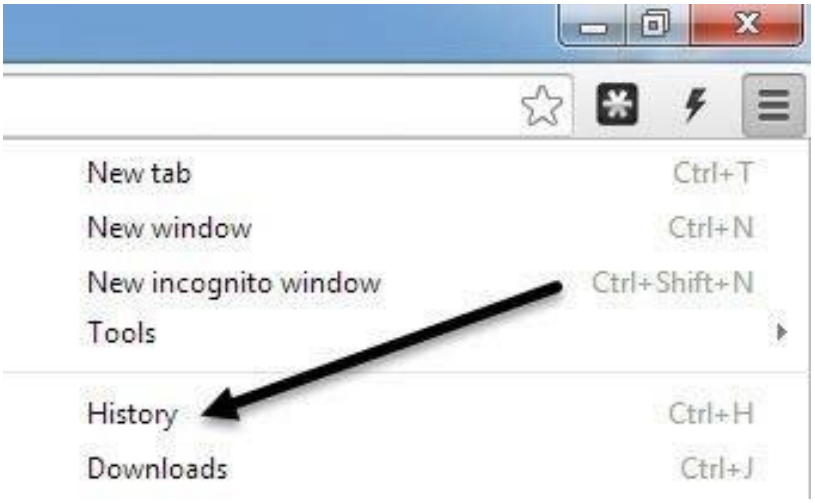
7.3. Bookmarks

To be able to quickly return to a website, you can also create a **bookmark** ⭐. Bookmarks are the links to the visited websites saved in your browser which you can re-enter without the need of saving the whole HTML page or downloading much content.

Just add/save a bookmark of the website you like to your browser! You can edit or remove bookmarks at any time:



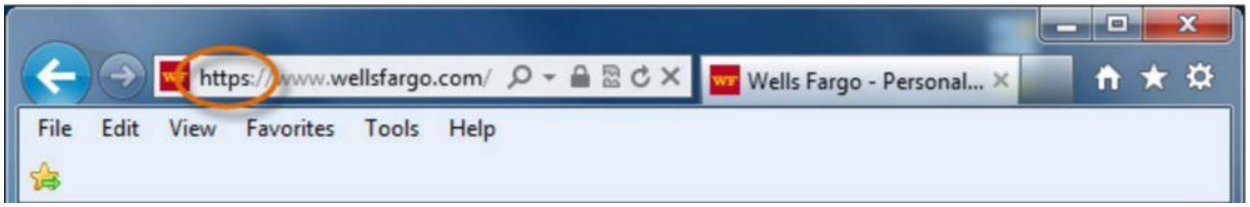
You can also check your **browsing history** in your Browser Settings to find the links to the earlier visited websites. Follow the **three parallel bricks** in the right corner of a browser and click on the *History* option:



5. Basic Web Security: SSL, Cookies, Passwords, Virus Protection

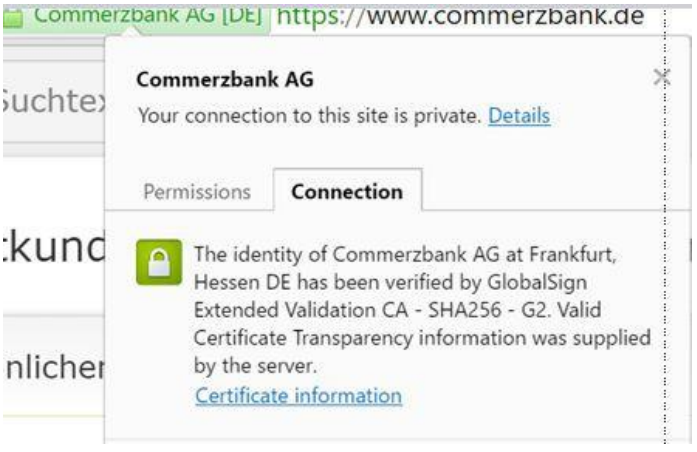
When browsing:

1. Make sure a website is **secure**, including checking the **SSL certificate** e.g., when you are using banking websites
2. Check the following:
    - Web addresses either begin **with http or https**:



- The browser will use a security **symbol or lock**:

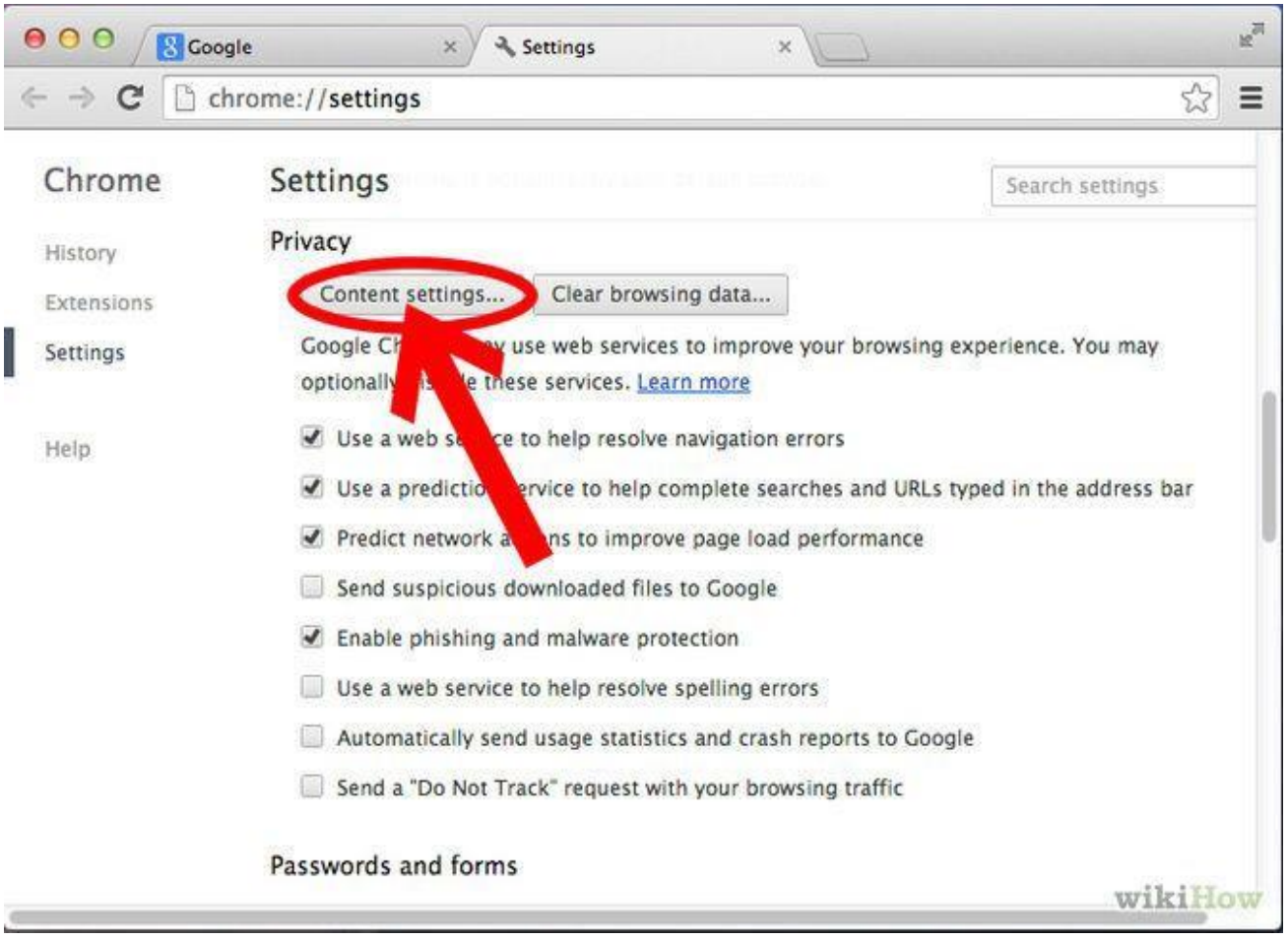
- Click on the lock icon of the website and make sure the identity of the website is **verified**:

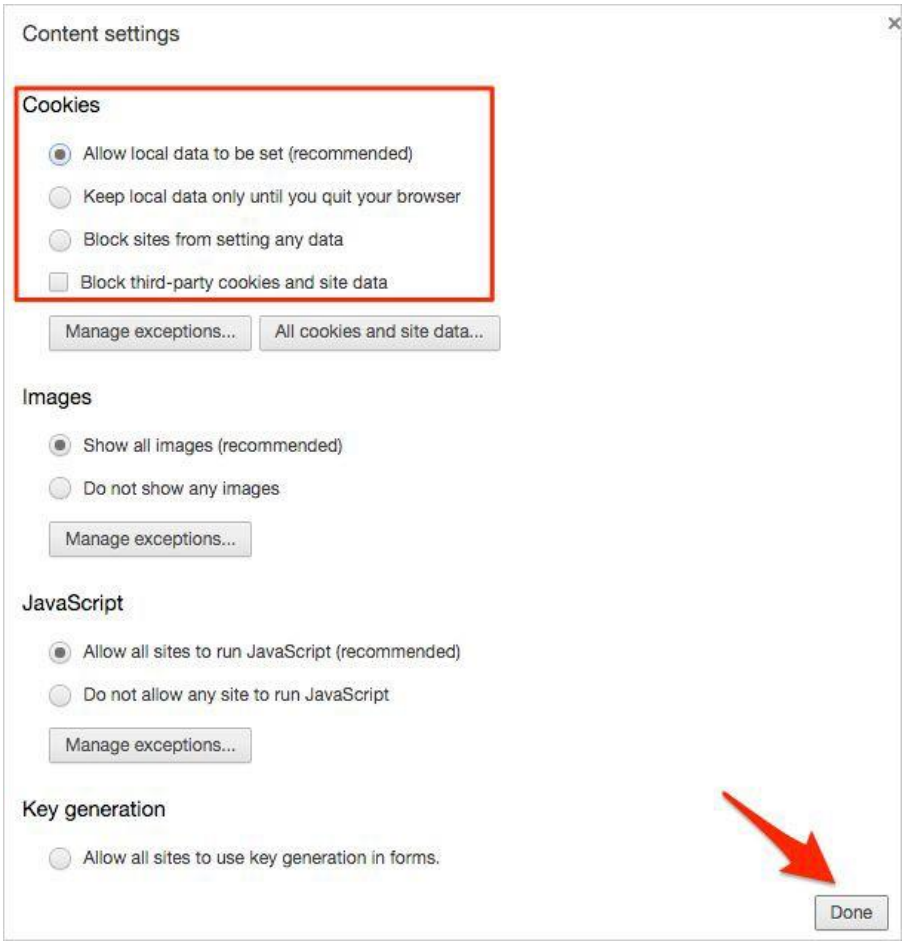


Many websites add small text files to your computer called **cookies**. Cookies can help your computer communicate with a **web server** and **your web browser**, which means it helps to identify who's using a certain computer and certain web browser. In this way the information about you is stored in your browser for later use, e.g. log in to your email or facebook accounts.

Also cookies help to prepare customized Web pages according to your browsing history. Cookies can also be used to **track your browsing activity**.

Make sure you allow cookies in your **Browser Settings/Privacy/Content Settings/Cookies**:

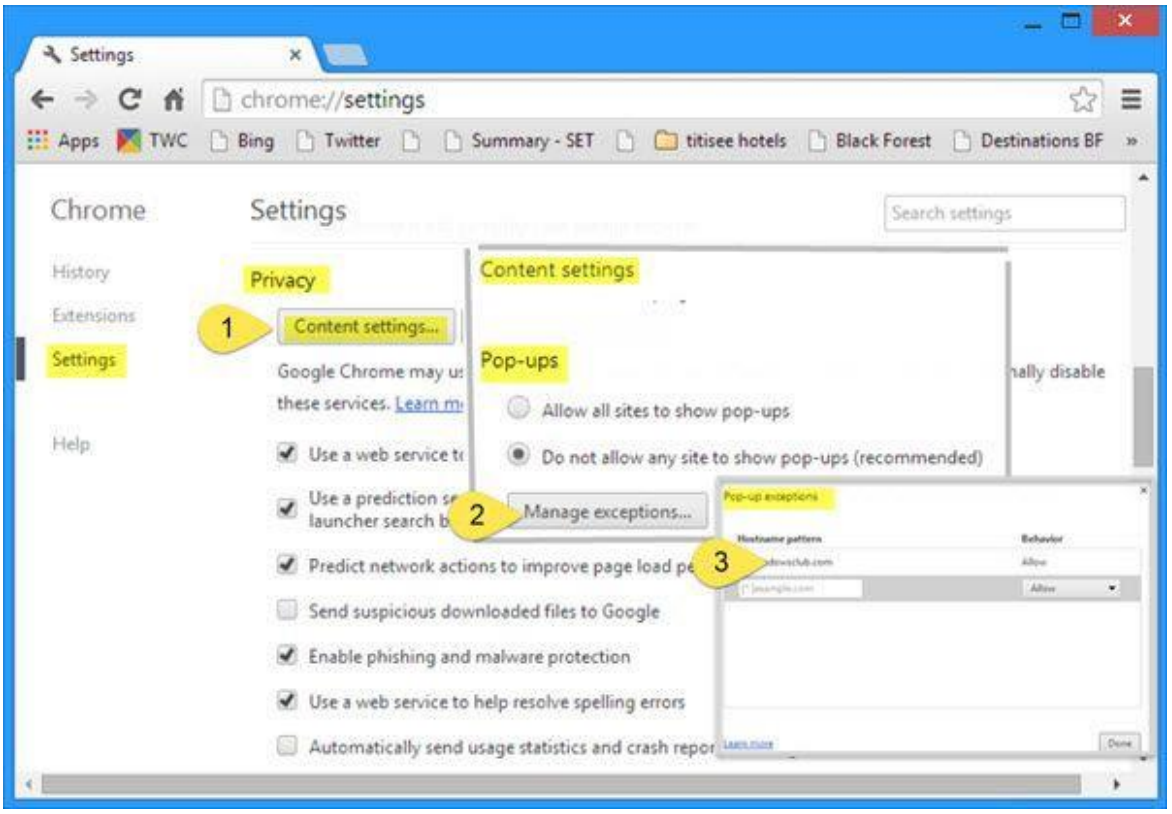




By choosing "Clear Browsing Data" in your **Browser Settings**, cookies will be deleted.Be aware that completely blocking cookies may negatively impact your experience on certain websites.

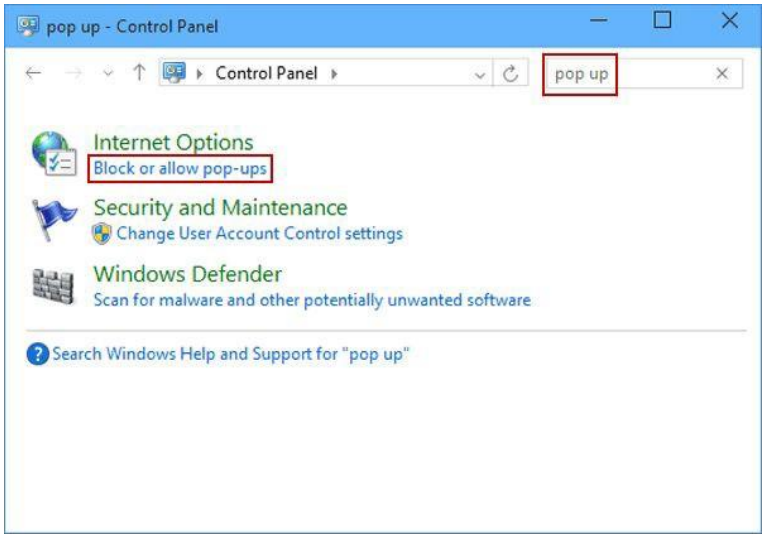
Pop-ups are small browser windows that automatically pop up when you visit certain sites. They may sometimes be part of the legitimate functioning of a site, or they may contain **advertisements** that can be annoying or objectionable. However, some pop-ups may contain **malware** (a program that is aimed to destroy your data or software on your computer); therefore, it's a good idea to make sure your browser's **pop-up blocker** is turned on.

1. To turn on Pop-up Blocker, Go to your browser settings/options (or extensions) → content settings → find Pop-up Blocker → enable Pop-up Blocker : "Do not allow any website to show pop-ups"

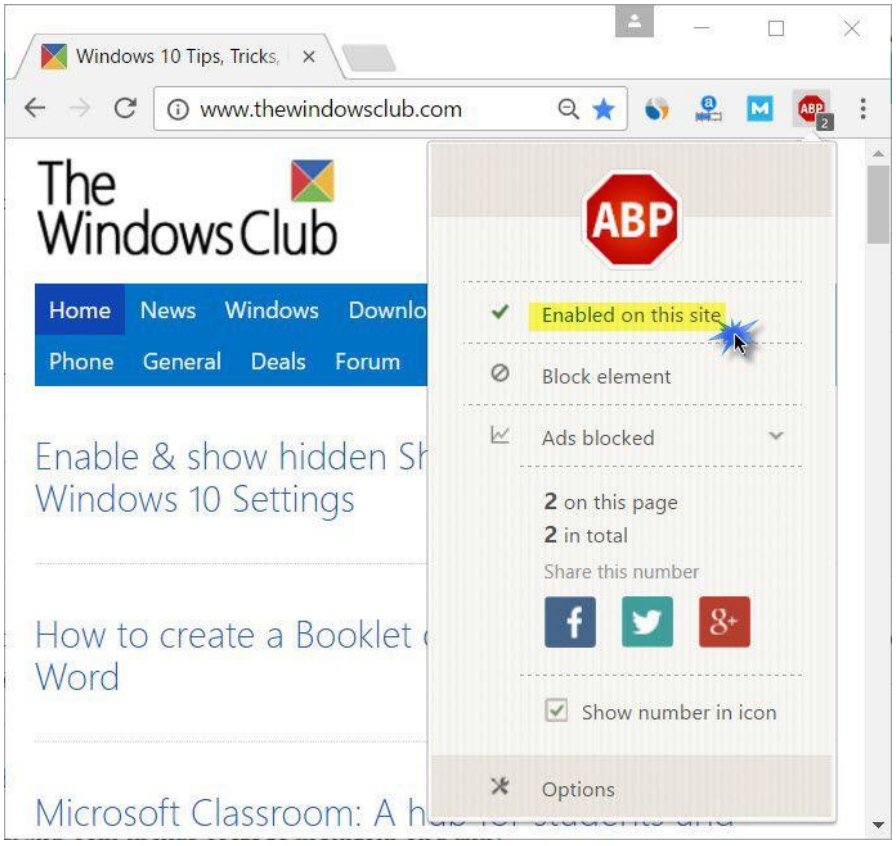


If you are certain about the security of certain websites, you can make exceptions for them and turn off the pop-up blocker while browsing them. To achieve this, use "Manage exceptions" in your **Browser Settings/Content Settings/Pop-ups** to allow the website be browsed without the active pop-ups blocker.

2. You can also turn on Pop-up blocker via Control Panel on your computer



AdBlock is another good **extension for your browser** to block damaging advertisements while searching the web. It also prevents access to insecure websites. It is very recommended to have AdBlock in your browser installed!



IT IS VERY IMPORTANT TO PROTECT ANY PERSONAL INFORMATION!!!

Using internet sometimes requires sharing personal information if using:

- email accounts;
- social networks, e.g. facebook;
- professional networks, e.g. LinkedIn, XING;
- shopping, e.g. Amazon, eBay and other online shops;
- cloud services for businesses;
- financial operations, e.g. online banking;
- etc.

Most people don't know that internet browsers store user's **personal records** such as **addresses**, **phone numbers**, and sometimes even **pictures**. Therefore, all this information can be easily accessible to anyone online. While this information may not be harmful, in some situations you could put yourself at risk.

Google yourself and your name and check which information about you is easily available online!!!

By creating **strong passwords**, you can greatly reduce the chance that your personal or financial information will be stolen.

Many people create passwords based on their spouse's names, a hobby, or a simple pattern. To create a strong password, you will need to avoid these types of common mistakes.

Strong passwords:

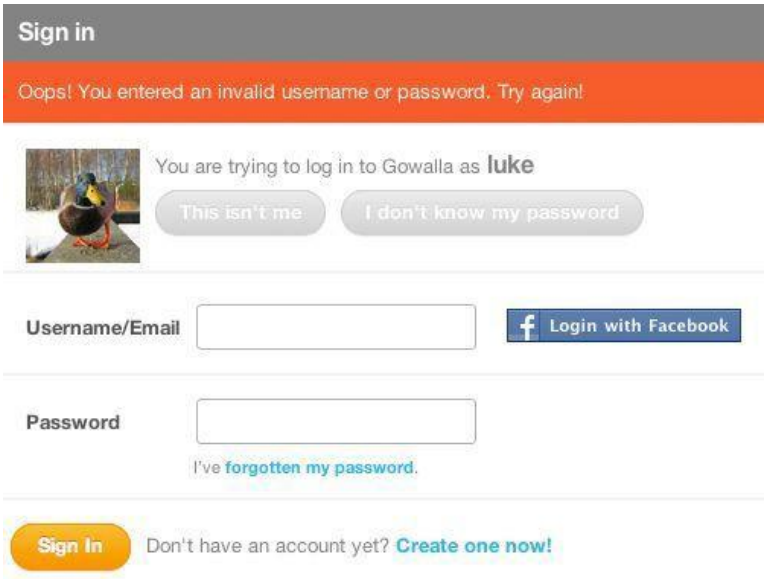
- Never use personal information, e.g. date of birth, parents' or spouses' names, pets' names etc;
- Use a longer password;
- If you need to write down your passwords, keep them in a secure place; NEVER share your passwords with anyone!
- Don't use the same password for each account;
- Try to include numbers, symbols, and both uppercase and lowercase letters if the site allows it;
- Avoid using commonly used words, e.g. "save the planet", "happy Tom" or similar;
- Random passwords are strong e.g., H=jNp2#

You can ask a website to **remove your information**. Keep in mind that websites are not always obligated to comply with your request. If the information posted about you is a direct threat to your safety and you need help negotiating with a website to remove the content, you can contact

WiredSafety.org.

You can **reset** or **change** your passwords anytime **by using the corresponding account settings, as well as your mobile phone or your email** as restoration account by following the instructions of the website. It is highly recommended to change passwords **frequently** for better protection of your data. Use **Account Settings:**

Send a request to **Reset** your password by using your another alternative account (usually **email**) if you have forgotten your password! Click "**Forgotten my password**" and follow the instructions on the screen.



Practical Exercise

1. Navigate the website: http://www.gcflearnfree.org/topics
2. Verify that the website is secure!
3. Ask your question by typing it into the Search Bar of the website
4. *Did you find your answer?* ⇒ **YES! ⇒ Congratulations!**

⇩

No!

⇓

Open your browser and put your question into the Search Bar of Google search engine (*type "google" into the Address Bar)*. You should see many links that will help you find the answer.

Don't forget to visit ONLY secure websites!

⇓

CONGRATULATIONS!

You know how to google!

OPTIONAL: Create a bookmark of the website in your browser and reopen the link to ask another questions.