

How to do research on the Internet

What should I do before I start?

Before you begin searching the internet you should consider the following:

- Think about the information you are searching for. Is it likely to be available for free?
- Would a print or other electronic source be more appropriate, e.g. an encyclopedia or a database of refereed journal articles that are available in the library?
- Would it be better to use a search engine or a subject directory?
- What words would best describe your subject? Try to be as precise as possible.

To search effectively it is important that you consider exactly what question you are trying to answer. This is called developing a search strategy.

Following the steps below will help you to simplify your question:

1. What is your topic?
2. What are the key concepts in your question? List them.
3. Are there other ways in which you can express these key concepts?

When you have completed these steps you will have a list of terms with which to commence your search.

If you do not understand all the terms involved in your topic consult an encyclopedia or dictionary, or ask a tutor or a librarian.

What are my searching options?

Search Engines: enable you to search using keywords that describe the subject you are researching. Examples: AltaVista, Google, Excite.

Metasearch Engines: enable you to search across many search engines at once. Examples: Dogpile, Search.com, Metacrawler.

Subject Gateways: organized lists of web pages, divided into subject areas. Also known as **Directories**. Some gateways are general and cover material on as many subjects as possible. Examples: Yahoo, LookSmart. Others are specifically designed to cover a particular subject area in depth, or are specialized in providing academic information.

Search engines

How do they work?

A computer program (a "bot" or "spider") is constantly searching the Web. Information found is sent to a central database. When you enter a search term, you are retrieving information from this central database.

Use a search engine when you are looking for less common words, narrow topics, and to return a large number of pages.

Examples:

Google <http://www.google.com/>

AltaVista <http://www.altavista.com/>

Advantages of a search engine:

- Very wide coverage of the Web, therefore you should find more material.
- Many try to sort material by how relevant it is to your query.
- Offer the opportunity to refine and enhance your search.
- Many offer links to useful related material.
- Many offer a directory listing of popular sites.

Disadvantages of a search engine:

- Can often return too much material.
- Minimal sorting of material returned, particularly of similar material at the same address.
- Different engines cover different pages, so you need to search in more than one.
- All engines have slightly different rules for refining a search.
- Some engines have been found to include paid listings in search results that are not clearly labeled as advertisements.

Metasearch engines

How do they work?

Rather than searching the Web, a search request is sent to several other search engines simultaneously. The results are then compiled into the metasearch engine.

Use a metasearch engine as a starting point when you are looking for a unique word or name, or an overview of what is available.

Examples:

Dogpile <http://www.dogpile.com/>
search.com <http://www.search.com>

Advantages of a metasearch engine:

- Searches in many different search engines.
- Some are able to eliminate duplicate records, or pages on similar topics at the same address.
- Some will sort your pages into topics, or will eliminate duplicate pages.

Disadvantages of a metasearch engine:

- Can often return too much material
- Because they are searching in many different search engines, all with different rules, complex-searching techniques may not be possible.
- Some don't sort the records very well, or will only show some of the search results.

Subject gateways

How do they work?

Subject specific pages have been compiled into one site to help you locate useful web pages. These pages have been sorted into categories to make them easier to find.

Use a subject gateway when you are looking for well defined topics, less material, or access to databases or journal articles.

Examples:

Yahoo <http://www.yahoo.com.au>

BUBL <http://bubl.ac.uk/>

lii.org <http://lii.org>

Advantages of subject gateways:

- Less likely to find sites that are no longer available.
- Organization of gateway makes finding material on a topic easier.
- Information is likely to be substantial and relevant.

Disadvantages of subject gateways:

- Smaller coverage of the web.
- May not list very new sites.
- Subject organization and categories not always clear.
- Maintenance is dependent on the amount of human input available.

What is a simple search strategy for Internet searching?

After each step you should evaluate what you have found to see if it is relevant and useful. Remember, in many cases you will find the information you need in a book or electronic database more quickly than using the web.

1. Check the [subject guides](#) for relevant links, and subject gateways for your area.
2. Try a metasearch engine, using phrase searching if possible. Don't use too many words. This may find some introductory pages to help you build your search, or it may even find exactly the material you require.
3. Note any alternative terms that seem useful for further searching, such as synonyms, different spellings and variations in names.
4. Refine your search by using the facilities built into a search engine, for example [Boolean operators](#). Try and eliminate as much irrelevant material as possible at this stage.
5. If you can't find anything that answers your question, seek help by contacting experts in the field, or by joining a mailing list or discussion group on the topic.

What do my results mean?

Once you have done a search in a search engine, you will retrieve a list of web pages.

- The most relevant pages should appear at the top of the list.
- There is often some information to help you decide which pages to look at in detail.
- You can always refine your search to reduce the amount of material you retrieve.

Each web page you find will display the following information:

1. Australian Commonwealth Games Association	Title of the page
... ABOUT US Go to this section for information on the Australian Commonwealth Games Association, its main functions and structure. ...	Description of the page, taken from within the page itself
URL: www.commonwealthgames.org.au/	Address of the page
8k - 6 Nov 2004 - Cached - Similar pages]	Date the page was last changed (so you can see how up to date it is) and some other details

How can I improve my search results?

Your initial searches may not be successful, or might return too much information. Some ways of refining or improving your search include:

- Use more search terms to get fewer, more relevant records.
- Use fewer search terms to get more records.
- Search for phrases (i.e. words next to each other in the order you specified) by enclosing search terms in inverted commas (e.g. "Robert menses").
- Choose search engines that allow you to refine your search results (e.g. AltaVista).
- Use [Boolean operators](#) or '+' (an essential term) and '-' symbol (for a term that should be excluded) to refine your search.

What are URLs?

Every page on the web has an individual address or **URL** (Universal Resource Locator). A URL can be very helpful when you are deciding whether or not a page is useful. It can show you the name of the organization hosting the site (the **domain**) and can sometimes give you clues to where you can find more information within the site.

These elements make up the URL

<http://www.melbourne2006.com.au/sports/athletics1.asp>

Protocol	Domain	Directory	Filename
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Organization types	Some countries
com or co - Commercial edu or ac - Educational org - Non-profit Organizations net - Networking Providers mil - Military gov - Government int - International Organizations <i>And from Nov. 2000, 7 new ones:</i> aero - Air transport industry biz - Business coop - Cooperatives info - Unrestricted use museum - Museums name - Individuals pro - Accountants, lawyers, and physicians	au - Australia cn - China de - Germany fr - France hk - Hong Kong my - Malaysia nl - Netherlands tv - Tuvalu uk - United Kingdom za - South Africa

Most US pages do not include a country code. Remember that many organizations host personal pages that may not express the opinions of, or be endorsed by that organization. Personal pages often have a ~ (tilde) in the URL. To get the tilde, look at the top of your keyboard. Do you see the #1? Well, look to the left of that key. You will see the ~. All you do is press that key and the shift key at the same time.

Understanding domain name and URLs can help you to make an educated guess about where you might find some information, especially about companies and institutions. Type your guess into the location or address box in your browser.

Most companies, especially large ones, use their name as the domain. For example: Microsoft is **www.microsoft.com**.

Much the same applies to universities and other higher education institutions, although they sometimes use acronyms. For example Melbourne University is **www.unimelb.edu.au**. UK based institutions use .ac.uk , e.g. London School of Economics is **www.lse.ac.uk**.

How do I move around within a site?

When you find a webpage using a search engine, it does not always deliver you to the main (or **home**) page in that site. A well-designed site will offer you an option for going to the home page. These are not always obvious, so move your mouse around looking for links. When there is a link the arrow will turn into a hand.

In some sites this will be a link or button that is labeled "Home", in others you might need to look for a logo or company name. For instance, in this site clicking on the words **Library online tutorials** in the top bar will take you to the first page of the Monash University Library online tutorials. At many Monash sites the University logo will take you to the Monash homepage.

Sometimes you can achieve the same effect by deleting all the information after the domain name in the URL, and clicking "Enter".

How can I tell if this web page is any good?

Anyone with access to a server can put material on the web; there are no controls on what people choose to write. As a result, web pages should be viewed with even more caution than most print material. In particular you should look for:

- who is responsible for the site - is there a name and contact address?
- what is the rationale for the site - is it endorsing a particular viewpoint to the exclusion of other views?
- is there a list or bibliography of corroborative evidence?
- is there a date when the site was last updated - how long ago did this happen?
- does the site seem to be permanent or part of a permanent organization?

Checklist

The more marks in the 'Yes' column, the more likely the website is to be credible,

Analyze the sites you locate	Yes	No
<i>Check for:</i>		
Name/s and contact address? Is physical contact detail provided? Are there more ways of making contact than just a single email address?		
Presents a balanced viewpoint? Content is comprehensive, focused and non-emotively presented?		
Evidence of recent updating of content? Is content up-to-date and covering current developments or issues?		
Archive? Earlier content can be accessed? Is there a site search engine?		
Site seems to be permanent or part of a permanent organization? Is the site stable? Are internal links and external links reliable?		
Domain appropriate? edu, gov, org, com, etc? Domain address clearly identifies site's origin.		
Offline evidence? The sites sponsors, arguments and ideas can be verified with other sources of information, e.g. phone books, street directories, encyclopedias, published research		
Privacy statement present? Important on sites that seek registration of users. Would you feel secure providing your contact information to them?		
Does the "look" of the site suggest a professional effort? Loads quickly? Looks reasonable in a variety of browsers e.g. IE, Netscape etc.		

Are the databases on the Internet?

Search engines and directories do not search in every part of the internet. There is much useful information that is only available by searching in online databases, including reference materials and journal articles.

Many free databases of reference material exist on the internet. A useful directory to them is the [Librarians index to the internet](#). This is a well-organized, annotated directory to more than 14,000 internet resources. Monash Library subscribes to many databases that are accessible via the internet. Use of most databases is restricted to Monash students and staff. A list of the databases available is at: <http://www.lib.monash.edu.au/databases/>.

What are discussion lists?

A useful resource on the internet for researchers are email discussion lists. They enable you to communicate with, and ask questions of other people who are interested in similar topics. When you send an email message to an email discussion list it is forwarded to all of the people who are members of that particular list.

There are different types of discussion lists:

- **Open list:** open to anyone and the messages are forwarded automatically without human intervention.
- **Closed list:** available only to certain people, e.g. employees of a company.
- **Moderated list:** messages are looked at by a person, often known as the list owner, who decides whether or not to forward the messages to other members.

Many lists maintain archives of past discussions. You can use these to find the answers to common questions, or to keep up with issues on the list whilst not actually becoming a member.

Finding discussion lists

To find appropriate lists you can use directories. Once you have identified a suitable discussion group you will need to join by sending a special message to a given email address.
