

The World Wide Web

STARTER

1

Study this URL (Uniform Resource Locator).

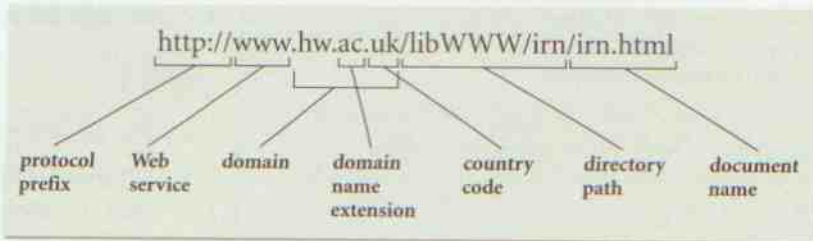


Fig 1

Uniform Resource Locator

Which part of the address tells you:

- 1 the company is in the UK
- 2 this is the webpage
- 3 the type of transmission standard your browser must use to access the data
- 4 this points to the computer where the webpage is stored
- 5 this is where the webpage is stored in the computer
- 6 this is a company
- 7 this is a Web file

2

Study these approved domain name extensions and their meanings. Then match these suggestions for new extensions to their meanings.

Extension	Meaning
.aero	aviation industry
.biz	businesses
.com (.co in UK)	commercial
.coop	cooperatives
.edu (.ac in UK)	educational and research
.gov	government
.info	general use
.int	international organisation
.mil	military agency
.museum	museums
.name	individuals
.net	gateway or host
.org	non-profit organisation
.pro	professionals

LISTEN

Fig 2
How your browser

Suggested extension	Meaning
1 .firm	a informative
2 .store	b cultural or entertainment
3 .web	c personal
4 .arts	d firm or agency
5 .rec	e online retail shop
6 .info	f Web-related
7 .nom	g recreational

LISTENING

3 Study this diagram which illustrates how your browser finds the webpage you want. Label these items:

- a Router
- b Domain Name System (DNS) server
- c Remote Web server
- d Browser PC
- e URL
- f Internet Protocol address

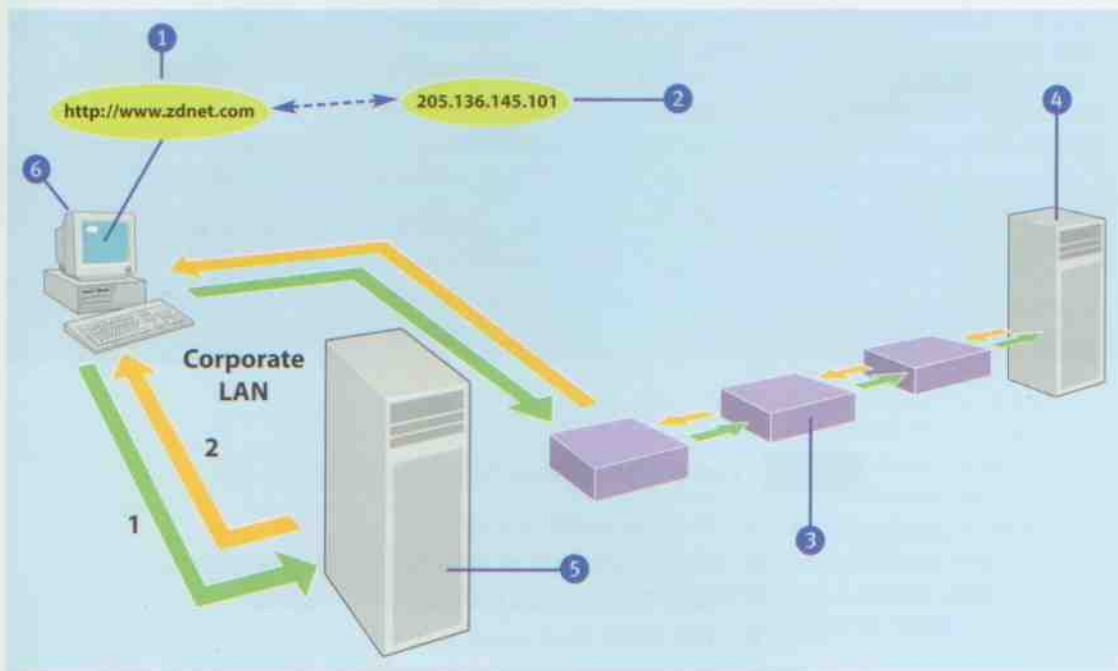



Fig 2
How your browser finds the page you want

4  Now listen to this recording which explains how the process works and take brief notes on each stage. For example:

Stage 1

Click on a webpage hyperlink or URL.

The browser sends the URL to a DNS server.

LANGUAGE WORK Time clauses

What is the relationship between each of these pairs of actions?

- 1 a You click on a URL.
b Your browser sends it to a DNS server.
- 2 a The packets are passed from router to router.
b They reach the Web server.
- 3 a The packets may travel by different routes.
b They reach the Web server.
- 4 a The individual packets reach the Web server.
b They are put back together again.

Each pair of actions is linked in time. We can show how actions are linked in time by using time clauses. For example:

We can use *when* to show that one action happens immediately after another action:

- 1 *When* you click on a URL, your browser sends it to a DNS server.

We can use *once* in place of *when* to emphasise the completion of the first action. It often occurs with the Present perfect. For example:

Once the DNS server has found the IP address, it sends the address back to the browser.

We can use *until* to link an action and the limit of that action:

- 2 The packets are passed from router to router *until* they reach the Web server.

We can use *before* to show that one action precedes another:

- 3 The packets may travel by different routes *before* they reach the Web server.

If the subjects are the same in both actions, we can use a participle:

The packets may travel by different routes *before* reaching the Web server.

We can use *as* to link two connected actions happening at the same time:

- 4 *As* the individual packets reach the Web server, they are put back together again.

5 Link each pair of actions using a time clause.

- 1 a You use a search engine.
b It provides a set of links related to your search.
- 2 a With POP3, email is stored on the server.
b You check your email account.
- 3 a You have clicked on a hyperlink.
b You have to wait for the webpage to be copied to your computer.

1001

The player buffers audio or video data into the buffer.

Fig 3
Video buffering

- 4 a You listen to the first part of a streamed audio file.
- b The next part is downloading.
- 5 a The graphics can be displayed gradually.
- b The webpage is downloaded.
- 6 a You receive an email message.
- b You can forward it to another address.
- 7 a You click on a hyperlink.
- b The browser checks to see if the linked webpage is stored in the cache.
- 8 a You can bookmark a webpage to make it easier to find in the future.
- b You find a webpage you like.
- 9 a You type in a Web address.
- b You should press the Enter key.
- 10 a You click on the Home button.
- b The browser displays your starting webpage.

6 Fill in the gaps in this description of buffering, a way of ensuring that Web video runs smoothly.

The player feeds audio or video data into the buffer.

When connection slowdowns or interruptions occur, the amount of data in the buffer decreases, but as long as some remains, playback is uninterrupted.

Data goes out to the player's decompression and playback routines.

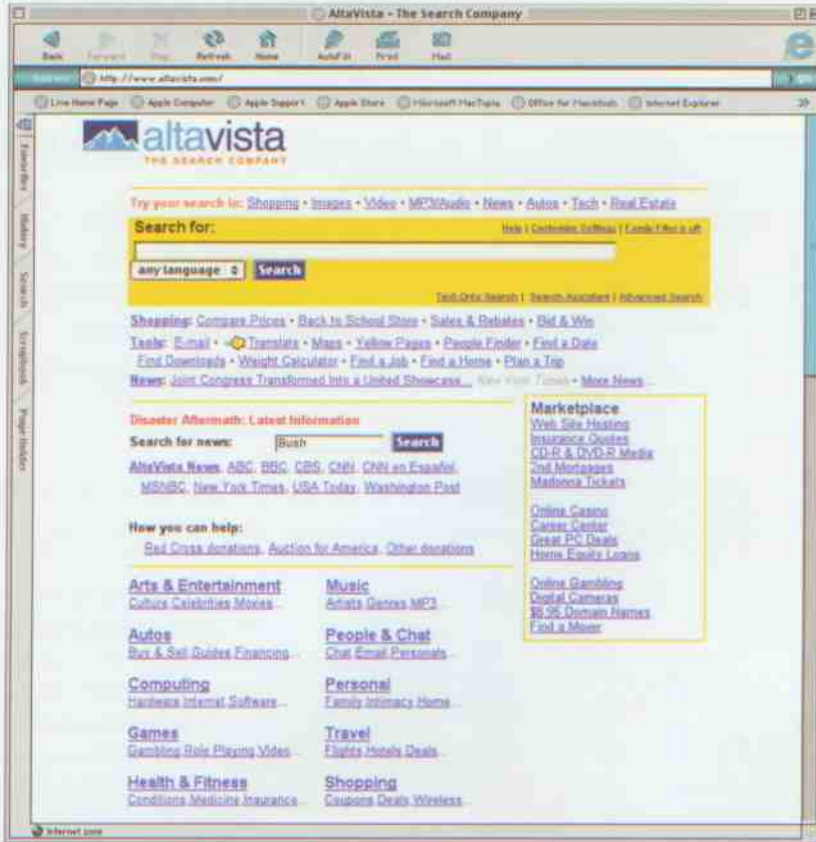
Streaming is a way of dealing with bandwidth problems¹ you download video from the Internet. One key to successful streaming is the process of buffering.² you download a movie, the video player stores part of the movie in memory³ playing it. Imagine the buffer as a container filled from the top as shown in Fig 3.⁴ the container is full, the player sends data on for playback from the bottom. Data keeps coming in⁵ a clip plays. The user can view the beginning of the movie⁶ the rest of the clip downloads.⁷ connection slowdowns or interruptions occur, the amount of data in the buffer decreases but as long as some remains, playback is uninterrupted. Playback continues at a steady rate⁸ the buffer is empty.

Fig 3
Video buffering

PROBLEM-SOLVING

7

Search engines Study these tips for conducting searches using AltaVista. Then decide what you would type into the search box to find this data. Compare your answers with others in your group and together decide what would be the best search. Restrict sites to English language.



Tip 1

Don't use simple keywords. Typing in the word football is unlikely to help you to find information on your favourite football team. Unless special operators are included, AltaVista assumes the default operator is OR. If, for example, the search query is *American football*, AltaVista will look for documents containing either *American* or *football* although it will list higher those documents which contain both.

Tip 2

AltaVista is specifically case sensitive. If you specify *apple* as your search term, AltaVista will return matches for *apple*, *Apple* and *APPLE*. However, if you use

Apple or *apPle*, AltaVista will only match *Apple* and *apPle* respectively.

Tip 3

AltaVista supports natural language queries. If you really aren't sure where to start looking, try typing a natural language query in the search box. The question *Where can I find pages about digital cameras?* will find a number of answers but at least it will give you some idea of where to start.

Tip 4

*alternative me documents w phrase.

Tip 5

search. For en information o +research in

Tip 6

following the science NOT sites in which

Tip 7

will find pag chocolate of

Tip 4 Try using phrase searching. This is where you place quotation marks around your search term, e.g. 'alternative medicine'. This will search for all documents where these two words appear as a phrase.

Tip 5 Attaching a + to a word is a way of narrowing your search. It means that word must be included in your search. For example, if you were looking for information on cancer research, use +cancer +research instead of just cancer.

Tip 6 Attaching a - to a word or using NOT is another way of narrowing your search. This excludes the search item following the word NOT or the - sign. For example, science NOT fiction or science -fiction will exclude sites in which these two words occur together.

Tip 7 Use brackets to group complex searches, for example: (cakes AND recipes) AND (chocolate OR ginger) will find pages including cakes and recipes and either chocolate or ginger or both.

Tip 8 You can refine your search by doing a field search. Put the field, then a colon and then what you are looking for.

For example, URL:UK +universities will find only British universities.
title: 'English language' will find only sites which contain this phrase in their titles.

Tip 9 AltaVista supports the use of wildcard searches. If you insert a * to the right of a partial word, say hydro*, it will find matches for all words beginning with hydro such as hydrocarbon and hydrofoil. Wildcards can also be used to search for pages containing plurals of the search terms as well as to catch possible spelling variations, for example alumin*m will catch both aluminium (UK) and aluminum (US).

Tip 10 If you are looking for multimedia files then save yourself time by selecting images, audio or video with the radio buttons on AltaVista's search box and then entering your search.

- 1 a street map of Edinburgh, Scotland
- 2 train times between London and Paris
- 3 the exchange rate of your currency against the US dollar
- 4 a recipe for chocolate chip or hazelnut brownies
- 5 video clips of the Beatles
- 6 sumo wrestler competitions in Japan this year
- 7 the weather in New York city tomorrow
- 8 heart disease amongst women
- 9 New Zealand universities which offer courses in computing
- 10 Sir Isaac Newton's laws of motion

8 Test your answers using AltaVista.

WRITING

- 9** Write your own description of how your browser finds the page you want. Use Fig 2 to help you. When you have finished, compare your answer with the listening script to Task 4 on page 198.

SPECIALIST READING

A Find the answers to these questions in the following text.

- 1 Name three different email protocols mentioned in the text.
- 2 Which email protocol is used to transfer messages between server computers?
- 3 Why is SMTP unsuitable for delivering messages to desktop PCs?
- 4 Name two host-based mail systems mentioned in the text.
- 5 Where are email messages stored in an SMTP system?
- 6 What happens when you use your Web mail account to access a POP3 mailbox?
- 7 Give an advantage and a disadvantage of having an option to leave POP3 messages on the server.
- 8 What are the advantages of using the IMAP4 protocol?

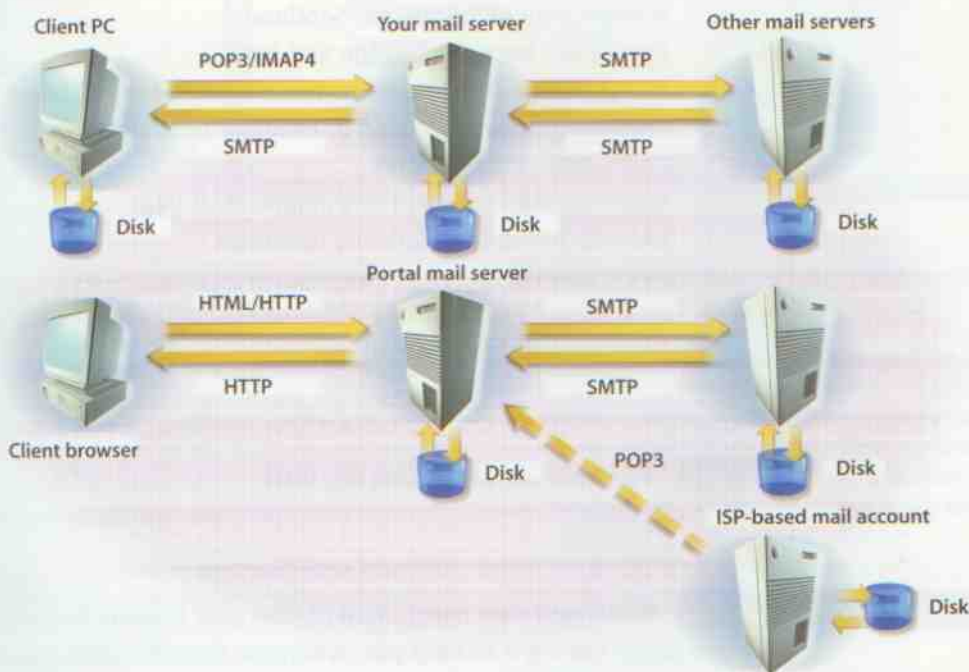
Web mail systems use some of the same protocols as client/server mail. Some can access an ISP-based POP3 mailbox, allowing you to read your mail anywhere you can find a browser.

Email Protocols

Although the format of a mail message, as transmitted from one machine to another, is rigidly defined, different mail protocols transfer and store messages in slightly different ways. The mail system you're probably used to employs a combination of SMTP and POP3 to send and receive mail respectively. Others may use IMAP4 to retrieve mail, especially where bandwidth is limited or expensive.

10 Simple Mail Transfer Protocol

SMTP is used to transfer messages between one mail server and another. It's also used by email programs on PCs to send mail to the server. SMTP is very straightforward, providing only facilities to deliver messages to one or more recipients in batch mode. Once a message has been delivered, it can't be recalled or cancelled. It's also deleted from the sending server once it's been delivered. SMTP uses 'push' operation, meaning that the connection is initiated by the sending server rather than the receiver. This makes it unsuitable for delivering messages to desktop PCs, which aren't guaranteed to be switched on at all times.



In host-based mail, SMTP is used to send messages from the server to the client. In the case of POP3, the client's browser translates the messages into a format that can be stored on the client's hard drive.

Post Office

POP is a protocol used by PC mail clients to download messages from the server. It works in the same way as SMTP, but the connection is initiated by the client. To do this, you use your browser to access the mailbox. The POP3 server would then deliver the messages. The Web mail system would then delete the messages from the server.

Since POP3 is a 'push' operation, the server would deliver the messages to the client's mailbox. This means that you have to check your mailbox every time you want to read your mail. It's also possible to clean out your mailbox, which means you have to long download to retrieve the messages. This means you have to check your inbox every time you want to recognise new messages. You'll get a message when you check your mailbox.

60 Internet Mail
IMAP is similar to POP3, but you can download messages without retrieving them. You can also retrieve messages without downloading them. You can also retrieve individual messages without downloading them. IMAP4 servers have folders. This means there's no need to download the entire mailbox.

[Adapted from Bennett, PC Mail]

In host-based mail systems, such as Unix and Web
 25 mail, SMTP is the only protocol the server uses.
 Received messages are stored locally and retrieved
 from the local file system by the mail program. In
 the case of Web mail, the message is then
 30 translated into HTML and transmitted to your
 browser. SMTP is the only protocol for transferring
 messages between servers. How they're then
 stored varies from system to system.

Post Office Protocol

POP is a message-retrieval protocol used by many
 35 PC mail clients to get messages from a server,
 typically your ISP's mail server. It only allows you
 to download all messages in your mailbox at once.
 It works in 'pull' mode, the receiving PC initiating
 the connection. PC-based POP3 mail clients can
 40 do this automatically at a preset interval. When
 you use your Web mail account to access a POP3
 mailbox, the mail server opens a connection to
 the POP3 server just as a PC-based application
 would. The messages are then copied into your
 45 Web mailbox and read via a browser.

Since POP3 downloads all the messages in your
 mailbox, there's an option to leave messages on
 the server, so that they can be picked up from
 different machines without losing any. This does
 50 mean that you'll get every message downloaded
 every time you connect to the server. If you don't
 clean out your mailbox regularly, this could mean
 long downloads. When using a Web mail account
 to retrieve POP3 mail, be careful about leaving
 55 messages on the server – if too many build up,
 each download will take a long time and fill up
 your inbox. Many Web mail systems won't
 recognise messages you've already downloaded, so
 you'll get duplicates of ones you haven't deleted.

Internet Mail Access Protocol

IMAP is similar in operation to POP, but allows
 you more choice over what messages you
 download. Initially, only message headers are
 retrieved, giving information about the sender and
 65 subject. You can then download just those
 messages you want to read. You can also delete
 individual messages from the server, and some
 IMAP4 servers let you organise your mail into
 folders. This makes download times shorter and
 70 there's no danger of losing messages.

B Re-read the text to find the answers to these questions.

1 Mark the following statements as True or False:

- Different mail systems transfer emails in different ways.
- IMAP4 requires more bandwidth than the other email protocols.
- SMTP is used for sending emails from a PC to a server.
- SMTP delivers messages one at a time.
- SMTP does not allow a delivered message to be cancelled.
- SMTP is only one of many protocols used to send mail between servers.
- POP protocol allows the user to download one message at a time.

2 Match the terms in Table A with the statements in Table B.

Table A

- SMTP
- 'Push' operation
- POP
- 'Pull' operation
- IMAP

Table B

- An email transfer process in which the connection is initiated by the sending computer rather than the receiving computer.
- A mail transfer protocol that initially only retrieves the message headers.
- An email transfer process in which the receiving computer initiates the connection.
- A simple mail transfer protocol that is used to send messages between servers.
- A message-retrieval protocol that downloads all email messages at the same time.