SURFnet Guide 1993

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Colophon

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This guide can be obtained free of charge from the Institute Contact Person (ICP) of your institute (see Annex B.1). If institute (still) has no agreement with SURFnet bv, you can obtain a copy only by written request from the above address.

Electronic version

An electronic version of the SURFnet Guide is available via e-mail or FTP, in WP, ASCII or PostScript formats, at the following addresses:

E-mail: **mailserv@file.nic.SURFnet.nl**
command: **send user-support/gids/READ.ME**

FTP: **ftp.nic.SURFnet.nl**
directory: **user-support/gids**

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Introduction

The SURFnet Guide is meant to serve as a reference guide for network users. We assume you know how to operate your computer/terminal and how to contact SURFnet. If not, please contact the person charged with worksite support at your institute, or your Institute Contact Person (ICP). The latter is entrusted with user support concerning SURFnet (see Annex B.1 for a list of ICPs).

The Structure of This Guide

In the first chapter, we describe the Dutch SURFnet network and its audience. Next, we describe the capabilities of the network, and the circumstances involving extra costs. The first chapter co~2000~ncludes with a brief description of other networks in the Netherlands and abroad.

After a short introduction of the different types of network information services, Chapter 2 presents a number of common information services available via networks.
When dealing with large quantities of information, having a structure is of crucial importance. It offers the means to clearly formulate questions, allowing fast and to-the-point responses. This chapter's structure, therefore, is based on the following three information questions:

- How do I get there?
- Which information is important to me?
- Which is the service's address?

As a consequence, the first survey of services in Chapter 2 shows via which network(s) a particular service can be accessed. Next, you find a survey of services ordered by subject, followed by an alphabetical survey of services with address data. Finally, all services are reviewed in detail in alphabetical order.

Chapter 3 contains a survey of international (research) networks, which can be accessed through SURFnet.

Chapter 4 anticipates questions which may arise when actually using the network. These questions often require prompt answers, and are usually caused by unexpected network behaviour. This chapter contains a number of clues, hints and tricks you can use to immediately tackle network problems.

The annexes are divided in two parts. Part A describes different aspects of network use, which have only been dealt with summarily in previous chapters. Part B contains lists of names and addresses of institutes, contact persons and services in the Netherlands, as they were known to the editorial staff at the time of publishing.
Annexes A and B are followed by a bibliography, a glossary of network terms and abbreviations, a survey of electronic documents and an index.

t h i s

Ease of Use

Due attention has been paid to the ease of use of SURFnet Guide. Its layout and typography have undergone improvements in order to enhance its readability, while its reference function has also been optimized. For example, each chapter is now preceded by a title page with a table of contents. At the end of this guide, you find a glossary of network terms and abbreviations, a comprehensive bibliography and a list of relevant electronic documents for each chapter. And finally, this guide is also provided with an index.

The Session Models

The purpose of the session models in Annex C. is to show you some examples of what you can expect on your screen when performing common network operations. The session models concern the following operations:

1 FTP
2 Telnet (including Gopher)
3 Searching a keyword in a discussion list
4 Searching in the archive of a discussion list
5 PAD session for remote login

Note: The text printed in bold indicates user input.

ad.1
This model shows how to obtain the electronic version of the SURFnet Guide via FTP from the following address:

ftp.nic.surfnet.nl

The final steps of this session model show how to select one of the three available file formats: ASCII, PostScript or WordPerfect (for PC environments).

ad.2
Some universities have set up a so-called Campus-Wide Information System (CWIS). A CWIS gives access to several information sources. This session model accesses the CWIS of the Washington and Lee Law Library Guest Site. The option 'Gophers -Throughout the World' not only provides you with the requested information, but also immediately establishes the desired connection. This model accesses the library catalogue of the Dutch Catholic University of Brabant, involving a small detour, though.

ad.3
In order to search a keyword in a discussion you have to send a mail message to:

listserv@vm1.nodak.edu

Type the command **search** in the mail message as indicated by this session model. In this example we will search for the keywords AIDS and SIDA. After a few moments, Listserv displays a survey of the discussion lists in which the keywords occur. In order to display a description of a list on your screen, you have to

repeat the command **search** and replace the command **INDEX** by **PRINT number** (this number can be found in the leftmost column):

ad.4
Contributions to a discussion list on EARN/CREN are usually stored in archives. These archives are often freely accessible via electronic mail. You just have to use a fixed question pattern in the mail message, a so-called job. You send the mail message to the Listserv in which the list resides. In this example, we will search for the keyword 'greenhouse' in the discussion list for environmental studies, 'ENVST-L'.

ad.5
If you want to know the electronic address of a library catalogue in Great Britain, you can consult the bulletin board NISS which contains information about services available in Great Britain via the X.25 network. This bulletin board can be accessed by means of the command **pad** or **set host/x29** followed by the X.25 address of the information service concerned (the UK Library Catalog List). In this example, we are looking for the X.25 address of the library catalogue of the University of Cambridge. The X.25 address is printed in bold.

Shelf Life of This Guide

The information presented in this guide has a limited shelf life. At the publication of this guide some of the information about the network is already dated. Developments in the field of network technology are very rapid, not only in the technical sense, but also concerning the number of network participants (suppliers and users).

SURFnet bv publishes 'SURFnet Bulletin' to keep you up-to-date with information about the growing number of SURFnet capabilities. In addition to background information, this Bulletin contains a lot of practical information about how to use SURFnet. A free subscription to the SURFnet Bulletin can be applied for by (electronic) mail at the SURFnet address mentioned in the colophon.

To conclude, the editors would like to thank all network users who contributed to this guide by commenting on previous releases of the SURFnet Guide.

The editorial committee
Utrecht, September 1992

1 The Domestic Network: SURFnet

1.1 SURFnet Users
1.2 Network Infrastructure
1.3 SURFnet Capabilities
1.3.1 Electronic Communication
1.3.2 Exchanging Files and Documents
1.3.3 Access to Databases or Library Catalogues
1.4 The Costs
1.5 SURFnet and Other Networks
1.5.1 Other (Dutch) Networks
1.5.1.1 NLnet
1.5.1.2 Datanet 1
1.5.2 Other (International) Networks

This chapter discusses a number of issues such as: Can I make use of SURFnet, What can I use SURFnet for, and What are the costs? The chapter concludes with some general information on other networks in the Netherlands and abroad which are accessible "2000" through SURFnet.

1.1 SURFnet Users

The Dutch computer network SURFnet has been set up for staff and students in research and higher education in the Netherlands. This research and higher education comprises the following institutes:

- Universities
- Higher vocational training colleges/Polytechnic schools
- Documentary information centres (Pica system, libraries)
- Academic research institutes (partly government-subsidized)
- Business research centres
- University hospitals

If you are employed or studying at one of these institutes (and if your institute is connected to SURFnet) you are entitled to make use of SURFnet.

1.2 Network Infrastructure

The physical network consists of a number of cables which are interconnected by means of various switching devices. Figure 1 shows a schematic representation of such a cable structure. It should be added that this is merely a random situation and that the underlying capillary structure is not shown. The network is subject to daily changes.

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Figure 1 SURFnet backbone (status October 1992)

1.3 SURFnet Capabilities

One of the advantages of a network is that it allows the users to communicate electronically. They can exchange texts, messages, data and files. They may also leaf through various documents sitting at their desk. This network function is being increasingly used to consult library catalogues and databases. Another network capability is to make use of remotely stored programs (when using a mainframe computer, for example). Distances do not affect the range of options. SURFnet offers all capabilities on a worldwide scale.

1.3.1 Elec ronic Communication

One of the SURFnet capabilities is electronic communication. By means of electronic mail (e-mail) you may correspond worldwide with other network users about subjects of common interest. Traditional correspondence usually involves two communication partners. Electronic mail offers some extra facilities:

- You may send a single message to one or more users;
- You can partake - either actively or passively - in so-called discussion lists;
- You can order files (such as application software) and retrieve information;
- You can consult discussion list archives.

Chapter 2 contains a detailed description of discussion lists.

1.3.2 Exchanging Files and Documents

If you want to send or retrieve large quantities of data, the network offers you another facility: file transfer. It differs from e-mail in some respects: with e-mail you order a file electronically from a remote computer, whereas with file transfer you actually go, as it were, to the computer containing the file you want. Next, you retrieve the file at that computer or you put a file on it.

These files may be text files, such as descriptions of databases and library catalogues, or freely obtainable computer programmes ('public domain software' -see Chapter 2 for more information).

1.3.3 Access to Databases or Library Catalogues

Several information services in the Netherlands and abroad, such as databases and library catalogues, reside on computers that are connected to the network. In principle, therefore, it is possible to consult these information services through SURFnet. This facility is referred to as remote login. We use the phrase 'in principle', not only because the service should actually be accessible, but also because some services can only be accessed by users who have a subscription.
So, it is possible to consult catalogues all over the world from your own desk, or to browse through databases. A more specialist application is using software that is stored elsewhere, not on your own worksite. Using a mainframe computer is an example of this.

1.4 The Costs

When your institute is connected to SURFnet, the use of the network has been paid for; no extra costs are involved for your actually making use of it. However, when using national or international public networks (such as Datanet 1 in the Netherlands) SURFnet will charge the costs to your institute. It is up to the institute whether these costs are charged on to the end-user. Or it may be that to avoid these very costs your institute has blocked access to public networks. Consult your ICP for more information.

It is also possible that the use of certain information sources (databases) has to be paid for, either in the form of a subscription or based on the time you are connected to that particular service. In most cases, the service itself will inform you about this.

1.5 SURFnet and Other Networks

As a national network, SURFnet interconnects the local networks of the affiliated institutes. In addition, SURFnet provides links with other domestic and international networks, both research networks (such as Internet, EARN/CREN, IXI and EUnet) and public networks (such as Datanet 1).

Networks can be distinguished from each other by the services (or network protocols) they offer. The network service on Datanet 1, for instance, is X.25, Internet uses IP, while EARN/CREN uses NJE (usually layered on IP). SURFnet supports two protocols: X.25 and IP.

As a rule, the available 'communication services' (e-mail, file transfer and remote login) depend on the network protocol used. In the Netherlands, only electronic mail can claim a substantial level of 'protocol independence', end-users perceiving the delivery of e-mail messages as being almost transparently. (See Annex A.1 for address information.)

SURFnet offers both protocols (X.25 and IP) to all affiliated institutes, but these may not always offer both protocols to their users. SURFnet also offers the institutes all services which are based on these protocols, but again, not all institutes will make these available to the end-users. Therefore, consult your ICP for the facilities provided by your institute.

1.5.1 Other (Dutch) Networks

At the moment, SURFnet is connected to two domestic networks: NLnet en Datanet 1.

1.5.1.1 NLnet

NLnet is the Dutch branch of EUnet, the European (and former Unix) network running the so-called UUCP protocol, in addition to IP. NLnet currently offers two facilities: e-mail and News. The latter is a facility for making non-commercial information widely available to users. NLnet and SURFnet have concluded an agreement for e-mail traffic and News provision.

1.5.1.2 Datanet 1

Datanet 1 is the public data communication network in the Netherlands. It is owned by PTT Telecom and only has an X.25-based transport function. Through Datanet 1, access can be obtained to other national and international X.25 networks, and to the information services which are connected to Datanet 1

(such as commercial databanks).

1.5.2 Other (International) Networks

SURFnet is also connected to the major international (research) networks. These networks each have their specific characteristics, and, just like the domestic networks, their specific functions and limitations. The number of functions available on such a network depends to a large extent on the network protocol used. The European IXI (International X.25 Infrastructure), for instance, is clearly an X.25 network, comparable with Datanet 1. Internet allows e-mail, file transfer and remote login. Computers which are only connected to EARN/CREN cannot be approached interactively. In a word, an increasing package of services is available through SURFnet, but not all networks offer the same facilities. Chapter 3 contains further information on international networks and their capabilities.

2 INFORMATION SERVICES

2.1 Services Offered
2.1.1 File Servers
2.1.2 Interactive Services
2.1.3 Name and Address Services
2.1.4 Discussion Lists
2.1.5 Electronic Publications
2.1.6 Navigation Services
2.2 The Rules of the Game
2.3 Survey of Services and Their Accessibility
2.4 Survey of Services per Category
2.5 Survey of Services with Address Data
2.6 Alphabetical Survey and Full Description of Services

A computer network is not a goal in itself, it is a means of exchanging information. One way to achieved this is by addressing information services which make data and/or applications available through the network. For example, consulting a databank or library catalogue, or retrieving software for your workstation at a publicly accessible service. Also taking part in international discussions by means of discussion lists and retrieving electronic addresses of colleagues are the domain of communication and information services. Due to the application of telecommunication, the information no longer has to be stored locally - instead your workplace has expanded to cover the whole world.

This chapter sets out to give descriptions of the services which are discussed further on. You are especially advised to read the 'Rules of the Game' (section 2.2) in order to make optimal use of the various service surveys. The other sections contain four surveys of the services described.

2.1 Services Offered

In this guide you can find the following services:

- File servers
- Interactive services - a collective term for databanks, library catalogues, campus information systems and network information systems
- Name and address services, also called Directory Services
- Discussion lists and their archives
- Electronic publications, both books and journals
- Navigation services - a collective term for such services as Gopher, WAIS, World Wide Web and Hytelnet

2.1.1 File Servers

A file server is an electronic archive with an ordering service for software and text files. A text file may be a manual, a literature list, but also an electronic version of the SURFnet Guide or a copy of an electronic journal. In brief, all kind of information which has been brought together in a 'file'. The network allows you to view the contents of the file server, that is, you can read the names of the stored files. To retrieve a file, you issue commands to the file server via the network. The file server then sends the file to your computer. It is also possible to load files to the file server, if you are authorized to do so. In this context, however, only file-retrieval services are discussed.

File servers can be approached in two ways:

- Via mail messages: the file server will send you the required file by means of electronic mail.
- Via a program which directly picks up the information from the file server by means of commands: FTP is an example of such a program.

Section 4.6 explains how files can be retrieved from a file

server.

Files often sit on a file server in an encoded or compressed form. Annex A.2 looks into this matter in more detail.

Usually the files and software you order from a file server are 'public domain', which basically means that the material can be obtained publicly and free of charge; it is not copyright-protected. Apart from public domain, two other categories can be distinguished:

- Freeware: software which can be freely used, but which is copyright-protected;
- Shareware: software which the author requires a (small) fee for if you like the program. It is up to you whether you actually pay or not, but you will often benefit if you do since you will be registered as a user, which may have the additional advantage of receiving detailed manuals and updates.

It is hard to comment on the quality of public domain software - sometimes it is first-rate (for example, Procomm and Kermit), sometimes it is rubbish. However, in view of virus infections it is essential that you only use software from a reliable source, and even then make sure to check the software for viruses before using it (also see Annex A.3).

2.1.2 Interactive Services

If you want to search a file on another computer (a databank, for example) for information, you first have to connect to that computer and log in to it. This requires special software that should be resident on your own computer. Now, there are two options to access other systems:

1. Via 'Telnet': if your system supports TCP/IP, you can use the Telnet program to contact other public systems on Internet which allow you to consult information services. Ask your ICP if you are in doubt about your system supporting TCP/IP.

2. Via your local PAD service, a log-in facility allowing you to contact other computers connected either to SURFnet, to a research network elsewhere in the world, or to a public network (such as Datanet 1). Your ICP can inform you about the availability of PAD facilities on your computer.

Before connecting to another system, you should make sure that you are authorized to access it. Many services on the network allow free access, but especially commercial databanks require user validation in order to get access. In addition, these services often have to be paid for.

The following interactive services have been included in the survey:

- Library catalogues in the Netherlands and some abroad. In 1991/1992 numerous library catalogues available in the

Netherlands were interconnected in the context of the Open Library Network project, which was initiated by the SURF Foundation. The new system allows switching from one library catalogue to the catalogue of another library. In the course of 1993, this switch facility will be extended to many new libraries;
- Some examples of campus information systems (also called CWIS: Campus-Wide Information System);
- Databanks, whether or not in large host organizations, such as Dialog, Datastar, ESA/IRS, et cetera;
- Network Information Systems (also referred to as Network Information Center: NIC).

2.1.3 Name and Address Services

Name and address services (directory services) can be used to obtain electronic addresses of other network users. The conventional way of obtaining other users' addresses is asking for them by telephone or letter, or by copying them from printed publications. Of course, it is much more convenient to use the computers on the network to find out electronic addresses of other users.

Information supply in this area is increasing. In view of the frequent changes in address information, name and address services which are based on one type of name (such as the EARN name server) are becoming obsolete.

The name and address services on Internet are very useful but do by no means give a complete picture. However, this route enables you to secure the address of a local system manager. If requested to, he or she will usually perform a local search for the required address. Addresses on CREN (former Bitnet) and EARN, for example, can easily be retrieved from the BITEARN database. Consult the survey of integrated services for more details.

For the first time in the (short) history of this guide, we can refer you to actual directory services, based on the international X.500 standard: the COSINE Paradise service, a service in English which allows you to search for addresses based on name, organization or country. The service is still in a pilot phase, though.

SURFnet also provides an X.500-based directory service with addresses in the Netherlands. Via Paradise, this service provides switching to the address services of other countries. The SURFnet service is in Dutch. Both services are described in the survey of services.

2.1.4 Discussion Lists

Right from the start, the various research networks occupied themselves with the maintenance of products for 'group communication': individuals can hold worldwide discussions on a wide variety of subjects through various applications: discussion lists and bulletin boards.

With bulletin boards, participants usually have to log in to a system and see whether a new contribution has been added in their field of interest. Generally, no archive of the contributions is kept. The survey of services contains some examples of bulletin boards.

Netnews is a kind of hybrid of bulletin board and discussion list. The news groups are installed at system level on a local computer, and are updated on a daily basis. A subscriber has to start a program to view the new contributions within the news groups selected from the available information on the local machine. Contributions can be added to a news group in the same manner.
The system is demanding in terms of storage space, therefore, the system manager will remove contributions from the system at regular intervals; this procedure may vary per site.

A discussion list usually treats one specific subject. A list is no more than an electronic address with a distribution function and an archive. Network users may have themselves registered at this electronic address (take a subscription), which entitles them to receive contributions of other subscribers on this specific subject. They can also exchange relevant information with other subscribers.

With discussion lists, contributions are automatically dropped in the subscriber's mailbox. In an archive is often kept of contributions to the discussion list. This archive can be searched per item (see also the session models in Annex C).

The networks which are accessible through SURFnet already contain thousands of discussion lists; this chapter discusses some methods to find out which lists are available. Of course, not all lists will be of interest to you, but it might be useful to subscribe to some lists which provide an appropriate discussion platform for your field of research.

The lists may also serve as an expertise centre. If you have a problem, you may send your question to the appropriate list (you usually don't have to be a subscriber) and you will probably receive the answer you were looking for. Do emphasize that the answer be directly sent to you personally (which is a necessity if you are not a subscriber, since the answers are often sent to the list). If appropriate, you can later send a summary of the answers to the list in order to inform the other subscribers. In this way, all will benefit.

We would like to emphasize the possibility of setting up and managing your own discussion lists. If, for example, you want to discuss a subject with fellow researchers at national or international level, contact info@SURFnet.nl for an application or for further information.

2.1.5 Electronic Publications

The survey of services contains a special category: the various forms of electronic publications. At the moment, projects are underway to produce electronic versions of existing (printed)

books. Classic bestsellers such as the Dante's Divine Comedy and the complete works of Shakespeare are being prepared, but also novels, children's books, poetry, et cetera.

More and more journals are being published electronically, whether with a printed counterpart or not. Electronic journals are usually distributed in a manner similar to that of discussion lists, though contributions are usually coordinated by one person and sent as a bundle to the subscribers rather than separately. Surveys of electronic journals and discussion lists can be consulted on the network in the same manner. However, there is a special journal list, which has been incorporated in the service survey.

2.1.6 Navigation Services

Recent years saw the development of a new type of service under the name Networked Information Retrieval, also known as navigation services. These services help you to find your way in the overwhelming supply of information. Several programs have been developed:

- Gopher
- WAIS
- World Wide Web
- Hytelnet

Gopher has been developed at the University of Minnesota and was devised as a campus information system. It has developed, however, to an Internet-wide information system, versions being now available for IBM-compatibles, Macs and Unix workstations, allowing individual users to 'gopher' or root through the network. During starting-up, the user is connected to a 'gopher server' and is presented with a menu containing a survey of the information available on the server: library catalogues, databanks, university data, et cetera. It is easy to let Gopher make a connection with either of these services, but it is also possible to search particular services based on a key subject.

WAIS (Wide Area Information Server) is an initiative of Thinking Machines, Apple and Dow Jones to search personal information files, business data and global info˝2000˝rmation files simultaneously. Also here, programs are available for PCs, Macs and Unix workstations. The system scans all available sources (or a selection of these) for user-defined search words. If the result is satisfactory, the query's search pattern can be saved for later use.

World Wide Web (WWW) has been set up by a team of researchers with Swiss CERN. The system is based on hypertext, interrelating various pieces of information. A word in one document refers to another document, which can be retrieved by simply pushing a button. Program versions are available for NeXT and Unix workstations; Macintosh and X-Windows versions are being developed.

Hytelnet, finally, is a menu system based on hypertext providing direct access to information systems on Internet. The information

services have been grouped into categories, each of the services being accessible through Hytelnet, simply by selecting the service from the Hytelnet menu. You then proceed by using the search facility offered by the service. Hytelnet versions are available for Unix and VMS systems, PCs and Macs.

you
The survey of services refers to network locations which allow you to acquire some hands-on experience with these navigation services. Here you are also informed about where to retrieve the software, should you decide to install the services on your own workstation.

SURFnet Bulletin 92.2 contains an article describing these services and gives some examples.

2.2 Rules of the Game

Some basic knowledge can be of great help in consulting the surveys. Below some information is given on the way these surveys are organized and used.

Several surveys have been made of all services available:

- An alphabetical survey of services, with a matrix of access methods. This allows to see at a glance whether a service can be accessed via e-mail, Telnet, FTP or X.25 - see section 2.3.
- A survey of services based on category: libraries grouped together, campus information services grouped together, but also a classification based on services geared to the needs of researchers in either the humanities, the exact sciences or the social sciences - see section 2.4.
- An alphabetical survey of services, followed by the access addresses. Useful to quickly check the address of a particular service - see section 2.5.
- Finally, again an alphabetical survey of services, now with all data that could be of interest to you - see section 2.6.

Services can be approached in a variety of ways. Annex C. contains model sessions for each of these approaches:

- Via a PAD-session, in which you log in to a service on SURFnet, IXI or the public Datanet. This can be done by using the X.25 address mentioned with the service. This address refers to either SURFnet or IXI services, which does not entail any extra network costs. The address may also refer to a service on the public national or international data network. In that case, the 'Cost' field in the service record in section 2.6 will mention this. These costs are charged to the end-user or institute via SURFnet.
  Note: Some SURFnet-affiliated institutes have locked access to the public network; if you try to connect to such a service, you will be informed that access has been 'barred'. In 1.5.2 you will find the term IXI explained.
- Via Telnet: In order to use Telnet, your system should

support TCP/IP. Consult your local ICP if you have doubts about this.
To prevent confusion: the service survey often contains both a Telnet address and a Telnet number; only one has to be selected to set up a connection.
Note: Always use lower case letters when entering log-in names!

- Via FTP: Here, the same applies as with Telnet. In addition, you may sometimes be referred to the directory and file name when these are explicitly required to quickly find information in the service concerned. For all FTP services in this guide, you ALWAYS have to log in under the user name 'anonymous' (lower case, no quotation marks) and enter your own electronic address as a password.
- Via e-mail: The best policy here usually is to retrieve a help file from the address mentioned, which will provide you with information on how to use the system.
- Via Gopher: A number of campus information systems (most of them Dutch) have been included to view with the help of Gopher. For a description of Gopher, see 2.1.6, Navigation Services.

Some services can be accessed in two or more of the ways described above. This also implies that the service has multiple addresses, which will be listed with the service.

The services listed in this survey are all free of charge, unless mentioned otherwise.

Finally, this survey has been updated to September 10th, 1992. Any subsequent changes or new services will be reported in SURFnet Bulletin.

2.3 Survey of Services and Their Accessibility

	SN X.25	Pub X.25	Telnet	FTP	E-mail	Other
ABF			x			
aconvert	x		x			
Agrali	x					
Agricultural Resources List				x		
Amiga Software				x		
ANUI	x					
APA Bulletin Board			x			
Appalachian State University VideoText System			x			
Archie			x		x	
ASK-SISY	x		x			
ASTRA					x	
Atari Software				x	x	
Bibliotheek Rijksuniversiteit Limburg (University of Limburg Library)	x		x			
Bibliotheek Open Universiteit (Open University Library)	x		x			
Bibliotheek Rijksuniversiteit Leiden (University of Leiden Lib ary)	x					
Bibliotheek Erasmus Universiteit (Erasmus University Library)	x		x			
BIMEG	x		x			
BITEARN					x	
BITFTP					x	
BRS			x			
Brunet	x		x			
CADANS					x	
CAN	x		x			
CAOS/CAMM Center	x		x			
CARL			x			
CELEX	x					
Comserve					x	
Concise	x		x		x	
CPET			x			
CSRI reports				x	x	
CUINFO			x			
Current Cites				x		
Dante			x			
Datastar	x		x			
DFN Infosystem	x		x			
Dialog Information Services		x	x			
DIMDI	x					
Discussion ists - survey				x	x	
Discussion Lists - survey				x	x	
Discussion Lists - survey					x	
DUBBS (Delft University BBS)	x		x			
E-Math			x			
ECHO	x		x			
Electronic Journals - surveys				x	x	
Enterprise			x			
EPA		r	x			
ERIC			x			
ESA/IRS	x		x			
European Weather Service				x		
Excerpta Informatica	x		x			
FDA			x			
Finding Addresses			x	x		
Frequently Asked Questions (news.answers)				x	x	
FTP archives				x	x	
ftpmail					x	
G enbank					x	
Gene-server					x	
Gopher			x	x		
Handicap				x		
Health Science Resource List				x	x	
HELP-NET					x	
History News			x			
HUMBUL			x			
Hytelnet			x	x		
INFO University of East Anglia	x		x			
INFONETS					x	
INFOsystem University of Maryland			x			
Internet Library Catalog List				x	x	
Internet Resource Guide				x	x	
ISAAC			x			
JANET News	x		x			
Kermit Software				x	x	
Koninklijke Bibliotheek (Dutch Royal Library)	x					
KUBCAT	x		x			
KUBGIDS (Catholic University of Brabant CWIS)	x		x			
KUNOPC (Catholic University of Nijmegen Library)	x					
Lancaster Public Domain Software Archive	x			x		
Law Library			x	x		

	Library of Congress (subcatalog)			x				
	Listsof Lists					x		
	Lunar and Planetary Institute			x				
	Lyric/Music Server				x			
	MaasInfo	x		x	x	x		
	Macserve					x		
	Meeman Archive			x				
	Melvyl Online Catalog							
	Memocom400		x					
	META		x					
	Nederlandse Pers Databank (Dutch Press Databank)		x					
	NEON		x					
	NESTOR	x						
	Netfind User Lookup			x				
	Netlib Mathematical Software Distribution System					x		
	New York University Medical Center			x				
	NEW-LIST					x		
	NexpRI	x		x				
	nic.ddn.mil			x	x	x		
	NICOL			x				
	NISS	x		x				
	NNSC Info-server				x	x		
	NOD		x					
	NODIS			x				
	Nuclear Data Center					x		
	OASIS					x		
	Oceanic Information Center			x				
	Online Database for Distance Educatio			x				
	Online Book Initiative				x			
	Orbit			x				
	Paradise Pilot Project	x		x				
	PennInfo			x				
	PENpages			x				
	PICA ORS	x						
	PREX	x		x				
	Project Gutenberg				x			
	QSPIRES					x		
	RCC-IVEV Information Services	x	x					
	RIPE NCC	x		x				
	RUG-CIS (University of Groningen CWIS)			x			x	
	RUGOPC (University of Groningen OPC)	x						
	SIByl			x				
	SIMBAD			x				
	Social Sciences Data Archive			x				
	Software Reviews	x		x				
	SpaceMet			x				
	SRM - Documentation Centre	x		x				
	STIS			x				
	STN International	x						
	SUMEX - Mac Software Archive				x			
	SURFnet Directory Service	x		x				
	SURFnet Fileserver				x	x		
	TRICKLE					x		
	U.S. Weather Service				x			
	UBA (University of Amsterdam Library)	x		x				
	UBVUCAT (Free University of Amsterdam Library)			x				
	UDEMATIK			x				
	UK Library Catalog List	x		x				
	USENET addresses					x		
S	UTBBS (University of Twente BB)	x		x				
	UUCP maps			x	x			
	Videotex Nederland	x						
	VMSSERV					x		
	VUCIS (Free University of Amsterdam CWIS)						x	
	WAIS			x	x			
	Washington University Public Domain Archives				x			
	WHOIS servers	x		x	x	x		
	Windows 3 software				x			
	World Bank Socio-Economic Data			x				
	WWW			x	x			

2.4 Survey of Services Per Category

Liberal Arts

APA Bulletin Board
- Telnet eis.calstate.edu

BIMEG
- X.25 12911000099
- Telnet ts1.sara.nl

CELEX
- X.25 18802007380

Dante
- Telnet library.dartmouth.edu

Excerpta Informatica
- X.25 18802026917
- Telnet kublib.kub.nl

History News
- Telnet sun.nsf.ac.uk
  login: janet
  host: uk.ac.gla.hist.new

HUMBUL
- Telnet sun.nsf.ac.uk
  login: janet
  host: uk.ac.humbul

Law Library
- Telnet liberty.uc.wlu.edu
- FTP sulaw.law.su.oz.au

Lyric/Music Server
- FTP ftp.uwp.edu

Sciences

ABF
- Telnet rzmvx4.nfra.nl

Agricultural Resources List
- FTP ftp.unt.edu

CADANS
- E-mail for information: cadans@cadansrt1.icin.nl

CAN
- X.25 12911001322
- Telnet canb.can.nl

CAOS/CAMM Center
- X.25 18802008099
- Telnet caos1.caos.kun.nl or caos2.caos.kun.nl

CSRI reports
- FTP csri.toronto.edu
- E-mail tr-mailserver@csri.toronto.edu

DIMDI
- X.25 02043626010003

E-Math
- Telnet 130.44.1.100

EPA
- Telnet epaibm.rtpnc.epa.gov

European Weather Service
- FTP cumulus.met.ed.ac.uk

FDA

Telnet fdabbs.fda.gov

Genbank
E-mail blast@ncbi.nlm.nih.gov
retrieve@ncbi.nlm.nih.gov

Gene-server
E-mail gene-server@bchs.uh.edu

Health Science Resource List
FTP ftp.sura.net
E-mail listserv@vm.temple.edu

Lunar and Planetary Institute
Telnet lpi.jsc.nasa.gov

Meeman Archive
Telnet hermes.merit.edu

Netlib Mathematical Software Distribution System
E-mail netlib@nac.no

New York University Medical Center
Telnet mcclb0.med.nyu.edu

NODIS
Telnet nssdc.gsfc.nasa.gov

Nuclear Data Center
Telnet bnlnd2.dne.bnl.gov

Oceanic Information Center
Telnet delocn.udel.edu

PennInfo
Telnet penninfo.upenn.edu

PENpages
Telnet psupen.psu.edu

PREX
X.25 12911028099
Telnet ruut.cc.ruu.nl

QSPIRES
E-mail qspires@slacvm.bitnet

SIMBAD
Telnet simbad.u-strasbg.fr

SpaceMet
Telnet spacemet.phast.umass.edu

U.S. Weather Service
FTP vmd.cso.uiuc.edu

Social Sciences

Comserve
E-mail comserve@vm.ecs.rpi.edu

Excerpta Informatica
X.25 18802026917
Telnet kublib.kub.nl

FDA
Telnet fdabbs.fda.gov

NexpRI
X.25 12911028099
Telnet ruut.cc.ruu.nl

SIByl
Telnet suniec.gamma.rug.nl

Social Sciences Data Archive
Telnet har1.huji.ac.il

SRM - Documentation Centre

```
          X.25      12911023099
          Telnet    srm-gw.eur.nl
World Bank Socio-Economic Data
          Telnet    sun.nsf.ac.uk
                    login: janet
                    host: uk.ac.swurcc
```

File Servers: Software and Text Files

```
Amiga Software
          FTP       nic.funet.fi
Archie
          Telnet    archie.funet.fi
          E-mail    archie@archie.funet.fi
ASK-SISY
          X.25      02043623365010
          Telnet    askhp.ask.uni-karlsruhe.de
Atari Software
          FTP       nic.funet.fi
          E-mail    atari@atari.archive.umich.edu
BITFTP
          E-mail    bitftp@pucc.bitnet
FTP Archives
          FTP       ftp.cs.ruu.nl
          E-mail    mail-server@cs.ruu.nl
ftpmail
          E-mail    ftpmail@decwrl.dec.com
ISAAC
          Telnet    isaac.engr.washington.edu
Kermit Software
          FTP       watsun.cc.columbia.edu
          E-mail    listserv@nic.surfnet.nl
Lancaster Public Domain Software Archive
          X.25      0204334501400
          FTP       micros.hensa.ac.uk
Macserve
          E-mail    fileserv@irlearn.ucd.ie
OASIS
          E-mail    astradb@icnucevm.cnuce.˝2000˝cnr.it
Software Reviews
          X.25      18802026917
          Telnet    kublib.kub.nl
SUMEX - Mac Software Archive
          FTP       sumex-aim.stanford.edu
TRICKLE
          E-mail    trickle@nic.surfnet.nl
VMSSERV
          E-mail    vmsserv@ubvms.cc.buffalo.edu
Washington University Public Domain Archives
          FTP       wuarchive.wustl.edu
Windows 3 software
          FTP       ftp.cica.indiana.edu
```

Services Providing Information about Services (Meta-information)

```
Concise
          X.25      020433450399915
```

```
          Telnet    concise.ixi.ch
          E-mail    concise@concise.level-7.co.uk
DFN Infosystem
          X.25      old: 02043625130015 / new: 02043623335015
          Telnet    old: cadmus2.dfn.de / new: rigel.dfn.de
Frequently Asked Questions (news.answers)
          FTP       ftp.cs.ruu.nl
          E-mail    mail-server@cs.ruu.nl
Internet Resource Guide
          FTP       nnsc.nsf.net
          E-mail    info-server@nnsc.nsf.net
JANET News
          X.25      0204334505002
          Telnet    sun.nsf.ac.uk
                    login: janet
                    host: uk.ac.janet.news
MaasInfo
          X.25      020433450710511
          Telnet    sun.nsf.ac.uk
                    login: janet
                    host: uk.ac.glasgow.bubl
          FTP       niord.shsu.edu
          E-mail    fileserv@shsu.edu
NIC Internet
          Telnet    nic.ddn.mil
          FTP       nic.ddn.mil
          E-mail    service@nic.ddn.mil
NISS
          X.25      0204334506201
          Telnet    sun.nsf.ac.uk
                    login: janet
                    host: uk.ac.niss
NNSC Info-server
          FTP       nnsc.nsf.net
          E-mail    info-server@nnsc.nsf.net
STIS
          Telnet    stis.nsf.gov
SURFnet Fileserver
          FTP       ftp.nic.surfnet.nl
          E-mail    mailserv@file.nic.surfnet.nl
```

Databanks

```
ASTRA
          E-mail    astradb@icnucevm.cnuce.cnr.it
BRS
          Telnet    brs.com
Datastar
          X.25      020432830000644
          Telnet    rserv.rs.ch
Dialog Information Services
          X.25      023421230012011
          Telnet    dialog.com
ECHO
          X.25      02043703004
          Telnet    echo.ixi.ch
ERIC
```

Telnet pac.carl.org

ESA/IRS

X.25 02043224000800

Telnet esrin.esa.it

META

X.25 1290340

Nederlandse Pers Databank (Dutch Press Databank)

X.25 1170614

NEON

X.25 11820231111

NESTOR

X.25 12911033001

NOD

X.25 1290340

Online Database for Distance Education

Telnet sun.nsf.ac.uk
login: janet
host: uk.ac.open.acs.vax

Orbit

Telnet orbit.com

PICA ORS

X.25 12911033001

RCC-IVEV Information Services

X.25 188020316 or 1576056

STN International

X.25 02043625160241

Videotex Nederland

X.25 12911030101

Libraries

Agralin

X.25 18802032110

Bibliotheek Rijksuniversiteit Limburg (University of Limburg Library)

X.25 18802021934

Telnet ihol02.rulimburg.nl

Bibiotheek Open Universiteit Heerlen (Open University Library)

X.25 12911028099

Telnet ruut.cc.ruu.nl

Bibliotheek Rijksuniversiteit Leiden (University of Leiden Library)

X.25 12911019939

Bibliotheek Erasmus Universiteit (Erasmus University Library)

X.25 12911023099

Telnet eurbib.eur.nl

Brunet (University of Utrecht Library)

X.25 12911028099

Telnet ruut.cc.ruu.nl

CARL

Telnet pac.carl.org

Internet Library Catalog List

FTP ftp.nic.surfnet.nl

E-mail mailserv@file.nic.surfnet.nl

Koninklijke Bibliotheek (Dutch Royal Library)

X.25 129110639

KUBCAT (Catholic University of Brabant Library)

```
          X.25      18802026992
          Telnet    cat.kub.nl
KUNOPC (Catholic University of Nijmegen Library)
          X.25      18802007099
Library of Congress (subcatalog)
          Telnet    dra.com
Melvyl Online Catalog
          Telnet    melvyl.ucop.edu
RUGOPC (University of Groningen Library)
          X.25      129110159
UBA (University of Amsterdam Library)
          X.25      12911000099
          Telnet    ts1.sara.nl
UBVUCAT (Free University of Amsterdam Library)
          Telnet    ubvucat.vu.nl
UK Library Catalog List
          X.25      0204334506201
          Telnet    sun.nsf.ac.uk
                    login: janet
                    host: uk.ac.niss
```

Campus-Wide Information Systems (CWIS)

```
Appalachian State University VideoText System
          Telnet    conrad.appstate.edu
CUINFO
          Telnet    cuinfo.cornell.edu 300
DUBBS (Delft University BBS)
          X.25      12911004099
          Telnet    bbs.tudelft.nl
Enterprise
          Telnet    yalevm.ycc.yale.edu 300
INFO University of East Anglia
          X.25      0204334508600
          Telnet    sun.nsf.ac.uk
                    login: janet
                    host: uk.ac.uea.info
INFOsystem University of Maryland
          Telnet    info.umd.edu
KUBGIDS (Catholic University of Brabant CWIS)
          X.25      18802026917
          Telnet    kublib.kub.nl
New York University Medical Center
          Telnet    mcclb0.med.nyu.edu
PennInfo
          Telnet    penninfo.upenn.edu
RUG-CIS (University of Groningen CWIS)
          Telnet    rugcis.rug.nl
          Gopher    rugcis.rug.nl
UDEMATIK
          Telnet    udematik.umontreal.ca
UTBBS (University of Twente BBS)
          X.25      18802012099
          Telnet    utbbs.civ.utwente.nl
VUCIS (Free University of Amsterdam CWIS)
          Gopher    gopherhost.cca.vu.nl
```

Network Information

aconvert
- X.25 12911004545
- Telnet relay.surfnet.nl

ANUI
- X.25 188020085

JANET News
- X.25 0204334505002
- Telnet sun.nsf.ac.uk
  login: janet
  host: uk.ac.janet.news

NICOL
- Telnet nisc.jvnc.net

NISS
- X.25 0204334506201
- Telnet sun.nsf.ac.uk
  login: janet
  host: uk.ac.niss

RIPE NCC
- X.25 020430459300031
- Telnet wais.ripe.net

o **Name and Address Informati n**

BITEARN
- E-mail listserv@bitnic.educom.edu

Finding Addresses
- see Frequently Asked Questions

INFONETS
- E-mail listserv@bitnic.educom.edu

Netfind User Lookup
- Telnet bruno.cs.colorado.edu

NIC Internet
- Telnet nic.ddn.mil
- FTP nic.ddn.mil
- E-mail service@nic.ddn.mil

Paradise Pilot Project
- X.25 020433450400253
- Telnet paradise.ulcc.ac.uk

SURFnet Directory Service
- X.25 as yet unknown
- Telnet master.surfnet.nl

USENET addresses
- E-mail mail-server@pit-manager.mit.edu

UUCP maps
- Telnet netinfo.berkeley.edu 117
- FTP nic.funet.fi

WHOIS servers
- X.25 020430459300031
- Telnet whois.ripe.net
- FTP sipb.mit.edu
- E-mail service@nic.ddn.mil

Discussion Lists and Archives

Discussion Lists - survey
FTP ftp.nisc.sri.com
E-mail listserv@vm1.nodak.edu
Discussion Lists - survey
FTP ksuvxa.kent.edu
E-mail listserv@kentvm.bitnet
Discussion Lists - survey
E-mail listserv@nic.surfnet.nl
HELP-NET
E-mail listserv@vm.temple.edu
Listsof Lists
E-mail listserv@vm1.nodak.edu
NEW-LIST
E-mail listserv@vm1.nodak.edu

Electronic Publishing

CPET
Telnet guvax3.georgetown.edu
Current Cites
FTP a.cni.org
Dante
Telnet library.darthmouth.edu
Electronic Journals - surveys
FTP ftp.eff.org
E-mail listserv@acadvm1.uottawa.ca
Online Book Initiative
FTP world.std.com
Project Gutenberg
FTP mrcnext.cso.uiuc.edu

Navigation Services

Gopher
Telnet sunic.sunet.se
FTP boombox.micro.umn.edu
Hytelnet
Telnet access.usask.ca
FTP access.usask.ca
WAIS
Telnet quake.think.com
FTP think.com
WWW
Telnet info.cern.ch
FTP info.cern.ch

Other Services

Handicap
FTP handicap.shel.isc-br.com
Memocom400
X.25 1170627

2.5 Survey of Services with Address Data

ABF
Telnet rzmvx4.nfra.nl
aconvert
X.25 12911004545
Telnet relay.surfnet.nl
Agralin
X.25 18802032110
Agricultural Resources List
FTP ftp.unt.edu
Amiga Software
FTP nic.funet.fi
ANUI
X.25
APA Bulletin Board
Telnet eis.calstate.edu
Appalachian State University VideoText System
Telnet conrad.appstate.edu
Archie
Telnet archie.funet.fi
E-mail archie@archie.funet.fi
ASK-SISY
X.25 02043623365010
Telnet askhp.ask.uni-karlsruhe.de
ASTRA
E-mail astradb@icnucevm.cnuce.cnr.it
Atari software
FTP nic.funet.fi
E-mail atari@atari.archive.umich.edu
Bibliotheek Rijksuniversiteit Limburg (University of Limburg Library)
X.25 18802021934
Telnet ihol02.rulimburg.nl
Bibliotheek Open Universiteit Heerlen (Open University Library)
X.25 12911028099
Telnet ruut.cc.ruu.nl
Bibliotheek Rijksuniversiteit Leiden (University of Leiden Library)
X.25 12911019936
Bibliotheek Erasmus Universiteit (Erasmus University Library)
X.25 12911023099
Telnet eurbib.eur.nl
BIMEG
X.25 12911000099
Telnet ts1.sara.nl
BITEARN
E-mail listserv@bitnic.educom.edu
BITFTP
E-mail bitftp@pucc.bitnet
BRS
Telnet brs.com
Brunet (University of Utrecht Library)
X.25 12911028099
Telnet ruut.cc.ruu.nl
CADANS
E-mail for information:

		cadans@cadansrt1.icin.nl
CAN		
	X.25	12911001322
	Telnet	canb.can.nl
CAOS/CAMM Center		
	X.25	18802008099
	Telnet	caos1.caos.kun.nl or caos2.caos.kun.nl
CARL		
	Telnet	pac.carl.org
CELEX		
	X.25	18802007380
Comserve		
	E-mail	comserve@vm.ecs.rpi.edu
Concise		
	X.25	020433450399915
	Telnet	concise.ixi.ch
	E-mail	concise@concise.level-7.co.uk
CPET		
	Telnet	guvax3.georgetown.edu
CSRI Reports		
	FTP	csri.toronto.edu
	E-mail	tr-mailserver@csri.toronto.edu
CUINFO		
	Telnet	cuinfo.cornell.edu 300
Current Cites		
	FTP	a.cni.org
Dante		
	Telnet	library.dartmouth.edu
Datastar		
	X.25	020432830000644
	Telnet	rserv.rs.ch
DFN Infosystem		
	X.25	old: 02043625130015
		new: 02043623335015
	Telnet	old: cadmus2.dfn.de
		new: rigel.dfn.de
Dialog Information Services		
	X.25	023421230012011
	Telnet	dialog.com
DIMDI		
	X.25	02043626010003
Discussion Lists - survey		
	FTP	ftp.nisc.sri.com
	E-mail	listserv@vm1.nodak.edu
Discussion Lists - survey		
	FTP	ksuvxa.kent.edu
	E-mail	listserv@kentvm.bitnet
Discussion Lists - survey		
	E-mail	listserv@nic.surfnet.nl
DUBBS (Delft University BBS)		
	X.25	12911004099
	Telnet	bbs.tudelft.nl
E-Math		
	Telnet	130.44.1.100
ECHO		
	X.25	02043703004
	Telnet	echo.ixi.ch
Electronic Journals - surveys		

```
          FTP       ftp.eff.org
          E-mail    listserv@acadvm1.uottawa.ca
Enterprise
          Telnet    yalevm.ycc.yale.edu 300
EPA
          Telnet    epaibm.rtpnc.epa.gov
ERIC
          Telnet    pac.carl.org
ESA/IRS
          X.25      02043224000800
          Telnet    esrin.esa.it
European Weather Service
          FTP       cumulus.met.ed.ac.uk
Excerpta Informatica
          X.25      18802026917
          Telnet    kublib.kub.nl
FDA
          Telnet    fdabbs.fda.gov
Finding Addresses (see Frequently Asked Questions)
Frequently Asked Questions (news.answers)
          FTP       ftp.cs.ruu.nl
          E-mail    mail-server@cs.ruu.nl
FTP Archives
          FTP       ftp.cs.ruu.nl
          E-mail    mail-server@cs.ruu.nl
ftpmail
          E-mail    ftpmail@decwrl.dec.com
Genbank
          E-mail    blast@ncbi.nlm.nih.gov

Gene-server
          E-mail    gene-server@bchs.uh.edu
Gopher
          Telnet    sunic.sunet.se
          FTP       boombox.micro.umn.edu
Handicap
          FTP       handicap.shel.isc-br.com
Health Science Resource List
          FTP       ftp.sura.net
          E-mail    listserv@vm.temple.edu
HELP-NET
          E-mail    listserv@vm.temple.edu
History News
          Telnet    sun.nsf.ac.uk
                    Login: janet
                    host: uk.ac.gla.hist.new
HUMBUL
          Telnet    sun.nsf.ac.uk
                    Login: janet
                    host: uk.ac.humbul
Hytelnet
          Telnet    access.usask.ca
          FTP       access.usask.ca
INFO University of East Anglia
          X.25      0204334508600
          Telnet    sun.nsf.ac.uk
                    Login: janet
                    host: uk.ac.uea.info
```

INFONETS
E-mail listserv@bitnic.educom.edu
INFOsystem University of Maryland
Telnet info.umd.edu
Internet Library Catalog List
FTP ftp.nic.surfnet.nl
E-mail mailserv@file.nic.surfnet.nl
Internet Resource Guide
FTP nnsc.nsf.net
E-mail info-server@nnsc.nsf.net
ISAAC
Telnet isaac.engr.washington.edu
JANET News
X.25 0204334505002
Telnet sun.nsf.ac.uk
Login: janet
host: uk.ac.janet.news
Kermit Software
FTP watsun.cc.columbia.edu
E-mail listserv@nic.surfnet.nl
Koninklijke Bibliotheek (Dutch Royal Library)
X.25 129110639
KUBCAT (Catholic University of Brabant Library)
X.25 18802026992
Telnet cat.kub.nl
KUBGIDS (Catholic University of Brabant CWIS)
X.25 18802026917
Telnet kublib.kub.nl
KUNOPC (Catholic University of Nijmegen Library)
X.25 18802007099
Lancaster Public Domain Software Archive
X.25 02043345014 00
FTP micros.hensa.ac.uk
Law Library
Telnet liberty.uc.wlu.edu
FTP sulaw.law.su.oz.au
Library of Congress (subcatalogue)
Telnet dra.com
Listsof Lists
E-mail listserv@vm1.nodak.edu
Lunar and Planetary Institute
Telnet lpi.jsc.nasa.gov
Lyric/Music Server
FTP ftp.uwp.edu
MaasInfo
X.25 020433450710511
Telnet sun.nsf.ac.uk
Login: janet
host: uk.ac.glasgow.bubl
FTP niord.shsu.edu
E-mail fileserv@shsu.edu
Macserve
E-mail fileserv@irlearn.ucd.ie
Meeman Archive
Telnet hermes.merit.edu
Melvyl Online Catalog
Telnet melvyl.ucop.edu
Memocom400

```
          X.25      1170627
META
          X.25      1290340
Nederlandse Pers Databank (Dutch Press Databank)
          X.25      1170614
NEON
          X.25      11820231111
NESTOR
          X.25      12911033001
Netfind User Lookup
          Telnet    bruno.cs.colorado.edu
Netlib Mathematical Software Distribution System
          E-mail    netlib@nac.no
New York University Medical Center
          Telnet    mcclb0.med.nyu.edu
NEW-LIST
          E-mail    listserv@vm1.nodak.edu
NexpRI
          X.25      12911028099
          Telnet    ruut.cc.ruu.nl
NIC Internet
          Telnet    nic.ddn.mil
          FTP       nic.ddn.mil
          E-mail    service@nic.ddn.mil
NICOL
          Telnet    nisc.jvnc.net
NISS
          X.25      0204334506201
          Telnet    sun.nsf.ac.uk
                    Login: janet
                    host: uk.ac.niss
NNSC Info-server
          FTP       nnsc.nsf.net
          E-mail    info-server@nnsc.nsf.net
NOD
          X.25      1290340
NODIS
          Telnet    nssdc.gsfc.nasa.gov
Nuclear Data Center
          Telnet    bnlnd2.dne.bnl.gov
OASIS
          E-mail    astradb@icnucevm.cnuce.cnr.it
Oceanic Information Center
          Telnet    delocn.udel.edu
Online Database for Distance Education
          Telnet    sun.nsf.ac.uk
                    Login: janet
                    host: uk.ac.open.acs.vax
Online Book Initiative
          FTP       world.std.com
Orbit
          Telnet    orbit.com
Paradise Pilot Project
          X.25      020433450400253
          Telnet    paradise.ulcc.ac.uk
PennInfo
          Telnet    penninfo"2000".upenn.edu
PENpages
```

Telnet psupen.psu.edu
PICA ORS
X.25 12911033001
PREX
X.25 12911028099
Telnet ruut.cc.ruu.nl
Project Gutenberg
FTP mrcnext.cso.uiuc.edu
QSPIRES
E-mail qspires@slacvm.bitnet
RCC-IVEV Information Services
X.25 188020316 or 1576056
RIPE NCC
X.25 020430459300031
Telnet wais.ripe.net
RUG-CIS (University of Groningen CWIS)
Telnet rugcis.rug.nl
Gopher rugcis.rug.nl
RUGOPC
X.25 129110159
SIByl
Telnet suniec.gamma.rug.nl
SIMBAD
Telnet simbad.u-strasbg.fr
Social Sciences Data Archive
Telnet har1.huji.ac.il
Software Reviews
X.25 18802026917
Telnet kublib.kub.nl
SpaceMet
Telnet spacemet.phast.umass.edu
SRM - Documentation Centre
X.25 12911023099
Telnet srm-gw.eur.nl
STIS
Telnet stis.nsf.gov
STN International
X.25 02043625160241
SUMEX - Mac Software Archive
FTP sumex-aim.stanford.edu
SURFnet Directory Service
X.25 as yet unknown
Telnet master.surfnet.nl
SURFnet Fileserver
FTP ftp.nic.surfnet.nl
E-mail mailserv@file.nic.surfnet.nl
TRICKLE
E-mail trickle@nic.surfnet.nl
U.S. Weather Service
FTP vmd.cso.uiuc.edu
UBA (University of Amsterdam Library)
X.25 12911000099
Telnet ts1.sara.nl
UBVUCAT (Free University of Amsterdam Library)
Telnet ubvucat.vu.nl
UDEMATIK
Telnet udematik.umontreal.ca
UK Library Catalog List

```
          X.25      0204334506201
          Telnet    sun.nsf.ac.uk
                    Login: janet
                    host: uk.ac.niss
USENET Addresses
          E-mail    mail-server@pit-manager.mit.edu
UTBBS (University of Twente BBS)
          X.25      18802012099
          Telnet    utbbs.civ.utwente.nl
UUCP Maps
          Telnet    netinfo.berkeley.edu 117
          FTP       nic.funet.fi
Videotex Nederland
          X.25      12911030101
VMSSERV
          E-mail    vmsserv@ubvms.cc.buffalo.edu
VUCIS (Free University of Amsterdam CWIS)
          Gopher    gopherhost.cca.vu.nl
WAIS
          Telnet    quake.think.com
          FTP       think.com
Washington University Public Domain Archives
          FTP       wuarchive.wustl.edu
WHOIS Servers
          X.25      020430459300031
          Telnet    whois.ripe.net
          FTP       sipb.mit.edu
          E-mail    service@nic.ddn.mil
Windows 3 Software
          FTP       ftp.cica.indiana.edu
World Bank Socio-Economic Data
          Telnet    sun.nsf.ac.uk
                    Login: janet
                    host: uk.ac.swurcc
WWW
          Telnet    info.cern.ch
          FTP       info.cern.ch
```

2.6 Alphabetical Survey and Full Description of Services

ABF

Description
The expertise centre ABF (Astronomic Image Processing Facility) provides access to databases in the field of image processing; ARCQUERY, in this example, is a Dutch database. See Information for information about other databases.
Domicile
Leiden Observatory, Foundation for Astronomic Research, Dwingeloo, the Netherlands
Information
E. Raimond
E-mail: exr@nfra.nl

Telnet address
rzmvx4.nfra.nl
Number
192.87.1.104
Login
arcquery

aconvert

Description
You can use aconvert to convert an RFC-822 address to an X.400 address and vice versa.
Information
E-mail: info@surfnet.nl
Remarks
Also see 4.1 and Annex A.1.1.

X.25 address used
12911004545
Mnemonic
aconvert

Telnet address
relay.surfnet.nl
Number
130.161.180.100
Login
aconvert
Instructions
If you use the address relay.surfnet.nl 4545, you will directly access the program without having to follow further log-in procedures. This type of address differs from other Telnet addresses and cannot be used for every Telnet program. When in doubt, consult your local support desk.

Agralin

Description

Library catalogue of the Agricultural University of Wageningen.
Domicile
Agricultural University, Wageningen, the Netherlands
Information
Telephone: +31 8370 83602/82006
Remarks
As Agralin is not freely accessible, you have to get an access code from the automation department represented by Jan Kopshuis (see Information).

X.25 address
18802032110
Mnemonic
agralin
Login
On request.

Agricultural Resources List

Description
Survey of agricultural information sources on Internet, compiled by W. Drew and named "Not just Cows".
Domicile
State University New York, USA
Information
E-mail: drewwe@snymorva.cs.snymor.edu

FTP address
ftp.unt.edu
Number
129.1.1
Directory
pub/library
File name
agguide.dos

Amiga Software

Description
Public domain software for Amiga computers.

Remarks
Amiga software can be obtained from many sources. In this example a Finnish FTP archive is addressed.

FTP address
nic.funet.fi
Number
128.214.6.100
Di ectory
pub/amiga
Instructions
Retrieve the file README for more information.

ANUI

Description
Most users can only access X.25 network services by means of a Network User Identification (NUI). ANUI (Administrative system NUI) can be used to change the password which is linked to the NUI.
Remarks
Consult your ICP for more information. Also see Annex A.3.1.

X.25 address
188020085
Mnemonic
anui

APA Bulletin Board

Description
Contains information about APA (American Philosophical Association), such as APA activities or a list of e-mail addresses of APA members.
Domicile
California State University, USA

Telnet address
eis.calstate.edu
Number
130.150.102.33
Login
apa

Appalachian State University VideoText System

Description
Campus-Wide Information System with information about and for the Appalachian State University. Contains an 'Ask Uncle Sigmund' section.
Domicile
Appalachian State University, USA

Telnet address
conrad.appstate.edu
Number
152.10.1.1
Login
info
Instructions
Your computer must support VT100 emulation.

Archie

Description
Archie is a program which searches for software on the basis of (parts of) file names in all available public domain software archives.
Remarks
Archie can be accessed through various network addresses. In this

example a Finnish network address is used.

Telnet address
archie.funet.fi
Number
128.214.6.100
Login
archie

E-mail address
archie@archie.funet.fi
Instructions
Send a message with the command **help.**

ASK-SISY

Description
ASK-SISY (Akademische Software Kooperation-Software Informations SYstem) is a German university information system with information about available software.
Domicile
Universität Karlsruhe, Germany

X.25 address
02043623365010
Login
ask
Password
ask

Telnet a dress
askhp.ask.uni-karlsruhe.de
Number
192.67.194.33
Login
ask
Password
ask

ASTRA

Description
ASTRA (Application Software and Technical Reports for Academia) is an Italian host organization with databanks on a great number of subject areas. A lot of the information is in Italian.
Domicile
Pisa, Italy
Information
E-mail: astra@icnucevm.cnuce.cnr.it

E-mail-adres
astradb@icnucevm.cnuce.cnr.it
Instructions
Send a message with the command **help.**

Atari Software

Description
Public domain software for Atari computers.
Remarks
In this example two addresses are given from which Atari software can be obtained: a Finnish FTP archive and a US archive which can be consulted via e-mail.

FTP address
nic.funet.fi
Number
128.214.6.100
Directory
pub/atari
Instructions
Retrieve the file HELP for more information.

E-mail address
atari@atari.archive.umich.edu
Instructions
Send a message with the command help.

Bibliotheek Rijksuniversiteit Limburg (University of Limburg Library)

Description
Library catalogue of the University of Limburg. Part of OBN (Open Library Network, see 2.1.2).
Domicile
University of Limburg, Maastricht, the Netherlands

X.25 address
18802021934
Login
opc

Telnet address
ihol02.rulimburg.nl
Number
137.120.1.34
Login
opc

Bibliotheek Open Universiteit (Open University Library)

Description
Library catalogue of the Dutch Open University.
Domicile
Open University, Heerlen, the Netherlands
Remarks
The catalogue of the Open University is accessible via the catalogue of the University of Utrecht.

X.25 address
12911028099

Mnemonic
ruut

Type **brunet** in the field Request.

Telnet address
ruut.cc.ruu.nl
Number
131.211.18.16
Instructions
Type **brunet** in the field Request.

Bibliotheek Rijksuniversiteit Leiden (University of Leiden Library)

Description
Library catalogue of the University of Leiden. Part of OBN (Open Library Network, see 2.1.2).
Domicile
University of Leiden, Leiden, the Netherlands

X.25 address
12911019936
Mnemonic
rulub
Login
opc3

Bibliotheek Erasmus Universiteit (Erasmus University Library)

Description
Library catalogue of the Erasmus University of Rotterdam. It also contains a thesis databank. Will be part of OBN (Open Library Network, see 2.1.2).
Domici e
Erasmus University, Rotterdam, the Netherlands

X.25 address
12911023099
Mnemonic
eurt
Login
Menu-driven
Instructions
Log off by disconnecting (generally by pressing **Ctrl-P** followed by typing **CLEAR**). The catalogue can be accessed from abroad via the X.25 address 020430440141.

Telnet address
eurbib.eur.nl
Number
130.115.1.106
Instructions
Log off by ending the Telnet session. Follow the instructions of your Telnet program.

BIMEG

Description
BIMEG (Bibliografie voor Moderne Europese Geschiedenis) is a bibliography for modern European history.
Domicile
University of Amsterdam, the Netherlands
Information
Telephone: +31 20 5254425

X.25 address
12911000099
Mnemonic
sart
Login
On request.
Instructions
Type **vm** in the field Request, followed by your access code.

Telnet address
ts1.sara.nl
Number
192.16.188.50
L gin
On request.
Instructions
Type **vm** in the field Request, followed by your access code.

BITEARN

Description
BITEARN is a Listserv database with information about computers connected to EARN/CREN.
Remarks
This database is often used to find contact persons.

E-mail address
listserv@bitnic.educom.edu
Instructions
Send a message with the following contents:
//Bitearn JOB Echo=No
Database Search DD=Rules
//Rules DD *
search <your key word> in BITEARN
index
print contact
/*

BITFTP

Description
BITFTP can be used to access FTP archives via e-mail. Especially intended for users without TCP/IP facilities. This service can only be used by institutes with a direct connection to EARN. When

in doubt, use the service ftpmail (see 'ftpmail' in this survey).
Domicile
Princeton University, USA

E-mail address
bitftp@pucc.bi
Instructions
Send a message with the command **help.**

BRS

Description
American host organization with survey of available scientific databanks.
Domicile
USA
Information
Telephone: +44 81 992 3456 (in Great Britain)
Costs
Tariff per databank.

Telnet address
brs.com
Number
192.188.13.253
Login
On request.
Costs
BRS bills $6 per hour for using this service.

Brunet (University of Utrecht Library)

Description
Library catalogue of the University of Utrecht.
Domicile
University of Utrecht, the Netherlands
Information
C. Nijsen
E-mail: abrunys@cc.ruu.nl

X.25 address
12911028099
Mnemonic
ruut
Instructions
Type **brunet** in the field Request.

Telnet address
ruut.cc.ruu.nl
Number
131.211.18.16
Password
brunet

CADANS

Description
CADANS (CArdiological DAta Network Structure) promotes the combination of information technology and cardiology. A data network has been compiled for joint research.
Domicile
Interuniversitair Cardiologisch Instituut Nederland (ICIN), Utrecht, the Netherlands
Information
M. Gerritsen
E-mail: cadans@cadansrt1.icin.nl
Remarks
On request, researchers may access the available facilities.

E-mail address
cadans@cadansrt1.icin.nl

CAN

Description
The expertise centre CAN (Computer Algebra Nederland) is intended for researchers and teachers who want to use computer algebra for research or teaching purposes. The centre offers computing facilities, on-line information and documentation, distribution of computer algebra systems, and classes and seminars.
Domicile
Amsterdam, the Netherlands
Information
E. Willems
E-mail: can@can.nl or help@can.nl

X.25 address
12911001322
Login
On request.

Telnet address
canb.can.nl
Number
192.16.184.250
Login
On request.

CAOS/CAMM Center

Description
Expertise centre for Computer Assisted Chemistry: national research-supporting facility for chemical rese"2000"arch. On-line access to chemical data files. The services are divided into four packages of related chemical research areas: CAOS (Computer Assisted Organic Synthesis), CAMM (Computer Assisted Molecular Modeling), CompChem (Computational Chemistry) and CAMMSA (Computer Assisted Macromolecular Sequence Analysis).
Domicile
Faculty of Natural Sciences of the Catholic University of Nijmegen, Nijmegen, the Netherlands
Information

J.H. Noordik
E-mail: noordik@caos.caos.kun.nl
Costs
Subscription per package, with special arrangements for industrial laboratories.

X.25 address
18802008099
Mnemonic
caos
Login
On request.
Instructions
CAOS can be accessed from abroad via the X.25 address 02043044008699.

Telnet address
caos1.caos.kun.nl or caos2.caos.kun.nl
Number
131.174.82.227 or 131.174.82.228
Login
On request.

CARL

Description
CARL (Colorado Alliance of Research Libraries) provides library catalogues of various libraries in the USA, a number of databases such as ERIC, and a databank of articles in periodicals, Uncover (which requires a personal access code).
Domicile
Denver, Colorado, USA
Information
E-mail: help@carl.org

Telnet address
pac.carl.org
Number
192.54.81.128

CELEX

Description
Dutch expertise centre CELEX (CEntre for LEXical Information). Dutch, English and German lexical databases can be used for language and voice research in the widest sense and for the development of all kinds of language and speech related software systems.
Domicile
Catholic University of Nijmegen, the Netherlands
Information
R.J. Piepenbrock
E-mail: celex@celex.kun.nl
Remarks
Use an info account for an introduction to CELEX.

X.25 address
18802007380
Mnemonic
celex
Login
info
Instructions
CELEX can be accessed from abroad via the X.25 address 02043044000180.

Comserve

Description
Information service for communication studies. Contains news, journals, bibliographies, conference agenda, discussion lists.
Domicile
Rensselaer Polytechnic, Troy, New York, USA
Information
E-mail: support@vm.ecs.rpi.edu

E-mail address
comserve@vm.ecs.rpi.edu
Instructions
Send a message with the command **send comserve helpfile.**

Conci e

Description
Survey of European networks and services.
Domicile
Level 7, Bracknell, Great Britain
Information
CONCISE helpdesk
E-mail: helpdesk@concise.level-7.co.uk

X.25 address
020433450399915
Mnemonic
concise
Login
concise
Password
concise

Telnet address
concise.ixi.ch
Number
130.59.2.16
Login
concise
Password
concise
Instructions
This service is accessed via SWITCH in Switzerland.

E-mail address

concise@concise.level-7.co.uk
Instructions
For more information send a message with the following commands in two consecutive lines:
start
help user-guide

CPET

Description
CPET (Catalogue of Projects in Electronic Text) is a survey of projects aimed at producing electronic versions of existing books.
Domicile Georgetown University, Washington DC, USA

Telnet address
guvax3.georgetown.edu
Number
141.161.1.3
Login
cpet

CSRI Reports

Description
CSRI (Computer Systems Research Institute) provides complete texts of technical reports/dissertations in the field of Computer Systems Research from 1985 to date.
Domicile
University of Toronto, Canada

FTP address
csri.toronto.edu
Number
128.100.2.30
Directory
csri-technical-reports
File name
INDEX
Instructions
The file INDEX contains a (comprehensive) survey of available titles.

E-mail address
tr-mailserver@csri.toronto.edu
Instructions
Send a message with the command **help.**

CUINFO

Description
CUINFO (Cornell University's Electronic Information Source) is an extensive Campus-Wide Information System. The categories 'dialogs' and 'services' are useful.
Domicile

Cornell University, USA

Telnet address
cuinfo.cornell.edu 300
Number
128.253.1.19 300
Instructions
This Telnet address differs from other Telnet addresses. It cannot be used for every Telnet program. If is the case for you, consult your local support desk.

Current Cites

Description
Electronic journal with bibliographical information and annotations (cites) of articles published in 30 (also non-electronic) journals in the field of network and information technology.

FTP address
a.cni.org
Number
192.100.21.1
Directory
current.cites

Dante

Description
Dartmouth Dante Project: electronic version of Dante's La Divina Comedia.
Domicile
Dartmouth College, USA
Information this
E-mail: dante@dartmouth.edu
Remarks
Also see Project Gutenberg and Online Book Initiative for similar services.

Telnet address
library.dartmouth.edu
Number
129.170.16.11
Instructions
After having accessed the library catalogue of Dartmouth College, type **connect dante** at the prompt in the first screen.

Datastar

Description
Host organization with databanks in the field of science and industry.
Domicile
Switzerland
Information

Telephone: +31 20 6531209 (in the Netherlands)
Costs
Tariff per databank.
Remarks
You can apply for a demo account which does not generate databank-related costs.

X.25 address
020432830000644
Login
On request.

Telnet address
rserv.rs.ch
Number
192.82.124.34
Login
On request.

DFN Infosystem

Description
Information concerning the Deutsches Forschungs Netz (DFN) and affiliated institutes and services.
Domicile
DFN, Berlin, Germany
Information
E-mail: dfn-verein@dfn.dbp.de
Remarks
Temporarily, DFN can be accessed in two ways (old and new). In a later stage, only the new addresses will be valid.

X.25 address
old: 02043625130015 / new: 02043623335015
Login
infosys

Telnet address
old: cadmus2.dfn.de / new: rigel.dfn.de
Number
old: 192.76.176.2 / new: 192.76.176.15
Login
infosys

Dialog Information Services

Description
Host organization with databanks in a number of subject areas.
Costs
Tariff per databank.

X.25 address
023421230012011
Mnemonic
dialnet (this is a European access to Dialog)
Costs

Datanet abroad
Login
On request.

Telnet address
dialog.com
Number
192.132.3.254
Login
On request.
Costs
Dialog charges a small amount for this access.

DIMDI

Description
DIMDI (Deutsches Institut für Medizinische Dokumentation und Information) is a databank with (bio)medical scientific literature.
Domicile
Cologne, Germany
Information
Telephone: +49 221 4724 248
Costs
DIMDI tariff

X.25 address
02043626010003
Mnemonic
dimdi
Login
On request.

Discussion Lists - survey

Description
Survey of discussion lists and interest groups on CREN/EARN and Internet. This survey is available at various locations.

FTP address
ftp.nisc.sri.com
Number
192.33.33.22
Directory
netinfo
File
interest-groups

E-mail address
listserv@vm1.nodak.edu
Instructions
Send a message with the command **get interest package**. You will receive a package of 19 files as an overall survey. You can also order subsurveys with commands like:
get interest groups01 new-list
get interest groups02 new-list

et cetera.

Discussion Lists – survey

Description
ACADLIST: surveys of discussion lists ordered according to subject:
Anthropology – Education – Futurology – Latin American Studies – Library and Information Science – Music
Political Science – Writing
Biological Sciences
Physical sciences
Business and General Academia
Information
E-mail: dkovacs@kentvm.bitnet

FTP address
ksuvxa.kent.edu
Number
131.123.1.1
Directory
library
File name
acadlist.readme

E-mail address
listserv@kentvm.bitnet
Instruction **s**
Send a message with the command **get acadlist readme** for a survey of retrievable files.

Discussion Lists – survey

Description
Listserv provides you with a survey of all (over two thousand) discussion lists on CREN and EARN.

E-mail address
listserv@nic.surfnet.nl
Instructions
Send a message with the command **list global** for a general survey of all lists on CREN and EARN. If you add subject specifications to the command, you will only receive a survey of lists concerning that subject. For example, if you use **list global education** you will receive a survey of all lists with the word 'education' in the title or description of the list.

DUBBS (Delft University BBS)

Description
Delft University Bulletin Board System
Domicile
Technical University of Delft, the Netherlands
Information
Telephone: +31 15 782753

X.25 address
12911004099
Mn monic
tudt
Login
connect bbs
Instructions
DUBBS is accessed via the terminal network DUneT.

Telnet address
bbs.tudelft.nl
Number
130.161.180.68
Login
bbs

E-Math

Description
Bulletin board of the American Mathematical Society concerning, among other things, software and software reviews.
Domicile
American Mathematical Society, USA

Telnet address
130.44.1.100
Login
e-math
Password
e-math

ECHO

Description
ECHO (European Commission Host Organization) is a host organization for databanks focusing on the European Communities (I'M GUIDE).
Domicile
Luxembourg
Information
Telephone: 06 0223356 (in the Netherlands)
Remarks
It is possible to consult part of the services supplied, such as the databank of databanks. Other databanks can be accessed by means of access codes obtainable on request (generally free of cost).

X.25 address
02043703004
Mnemonic
echo
Login
echo

Telne address
echo.ixi.ch

Number
130.59.2.15
Login
echo
Instructions
ECHO is accessed via SWITCH in Switzerland. This route may cause terminal emulation problems, which are currently being looked into. Also see Chapter 4.

Electronic Journals - surveys

Description
Titles and descriptions of electronic journals.
Remarks
Also see Dante, Project Gutenberg and Online Book Initiative for electronic versions of books.

FTP address
ftp.eff.org
Number
192.88.144.4
Directory
pub/journals

E-mail address
listserv@acadvm1.uottawa.ca
Instructions
Send a message with the following commands in consecutive lines:
get ejournl1 directry
get ejournl2 directry

Enterprise

Description
Yale University Campus Information System containing, among other things, information about Government Documents, biomedical and behavioural sciences.
Domicile
Yale University, USA

yalevm.ycc.yale.edu 300
Number
130.132.1.4 300
Instructions
Press <Return> after the message 'no data to write to network'. Use the command /CANCEL to quit. This Telnet address differs from other Telnet addresses. This type of address cannot be used for every Telnet program. If this is the case for you, consult your local support desk.

EPA

Description
EPA (Environmental Protection Agency) information system with the

EPA National Online Library System.

Telnet address
epaibm.rtpnc.epa.gov
Number
134.67.208.25
Instructions
Select menu option 6 /PUBLIC.

ERIC

Description
Education Resources databank, accessible via the public catalogue of CARL (also see CARL).

Telnet address
pac.carl.org
Number
192.54.81.128
Instructions
Select menu option 5.

ESA/IRS

Description
ESA/IRS (European Space Agency/Information Retrieval Service) is a host organization for databanks in the field of science and technology, and space technology in particular. The Dutch databank Excerpta Informatica can also be accessed via ESA/IRS.
Do icile
Cobidoc, Amsterdam, the Netherlands
Information
Telephone: +31 20 6223955
Fax: +31 20 6222556
Costs
Tariff per databank

X.25 address
02043224000800
Mnemonic
esairs
Login
On request.

Telnet address
esrin.esa.it
Number
192.106.252.1
Login
On request.

European Weather Service

Description
Databank with Meteosat pictures of European weather conditions.

Domicile
University of Edinburgh, Dept. of Meteorology, Great Britain

FTP address
cumulus.met.ed.ac.uk
Number
129.215.168.19
Directory
images
Instructions
Retrieve the file README and read the instructions.

Excerpta Informatica

Description
Literature information on (applied) informatics in the fields of the humanities and social sciences.
Domicile
Catholic University of Brabant, the Netherlands
Information
Telephone: +31 13 662637
Costs
Subscription o
Remarks
The files can also be accessed via the host organization ESA/IRS.

X.25 address
18802026917
Mnemonic
kublib
Login
kubis, followed by access code

Telnet address
kublib.kub.nl
Number
137.56.0.56
Login
kubis, followed by access code

FDA

Description
FDA (Food and Drug Administration) has a bulletin board with American information on foodstuffs and drugs.

Telnet address
fdabbs.fda.gov
Number
150.148.8.48
Login
bbs

Finding Addresses

Description
Survey of services related to finding addresses of persons and institutes on the network.
Remarks
Finding Addresses is a netnews FAQ (Frequently Asked Questions) service. News users can consult the news group news.answers. The document can also be retrieved from the archive news.answers under the name finding-addresses (see Frequently Asked Questions for access information).

Frequently Asked Questions (news.answers)

Desc iption
Documents with answers to frequently asked questions (FAQs) about a variety of subjects.
Remarks
FAQs are distributed via netnews (see netnews). Many FAQs are stored in the news group news.answers. Archives of this news group are kept at various locations. In this example, an archive in Utrecht, the Netherlands, is consulted via ftp and e-mail. Other archives can be found under ftp.win.tue.nl and pit-manager.mit.edu. The documents from the news group news.answers can also be accessed via Gopher and WAIS (see Gopher and WAIS).

FTP address
ftp.cs.ruu.nl
Number
131.211.80.17
Directory
/pub/NEWS.ANSWERS
File name
INDEX
Instructions
The file contains a survey of FAQs. The directory /pub also contains the file INDEX with a survey of other information supplied by this ftp archive.

E-mail address
mail-server@cs.ruu.nl
Instructions
Send a message with the command **help** for more information. The index of the archive news.answers can be obtained by sending a message with the following command:
send NEWS.ANSWERS/INDEX

FTP archives

Description
Computers with retrievable i˝2000˝nformation and software.
Remarks
If you are looking for a specific file you can use Archie to find the FTP archive where that particular file can be retrieved (also see Archie). More general information about worldwide available FTP archives can be found via the FAQ about Anonymous FTP (also see FAQ).

FTP address
ftp.cs.ruu.nl
Number
131.211.80.17
Directory
/pub/NEWS.ANSWERS/ftp-list
File name
faq

E-mail address
mail-server@cs.ruu.nl
Instructions
Send a message with the command **send NEWS.ANSWERS/ftp-list/faq.**

ftpmail

Description
Service for accessing FTP archives via e-mail. Intended for users without TCP/IP facilities.

E-mail address
ftpmail@decwrl.dec.com
Instructions
Send a message with the command **help.**

Genbank

Description
Databank with genetic information: GenBank of Lister Hill National Center for Biomedical Communications.

E-mail address

retrieve@ncbi.nlm.nih.gov blast@ncbi.nlm.n
Instructions
Send a message with the command help.

Gene-server

Description
Databank with genetic information from the University of Houston.

E-mail address
gene-server@bchs.uh.edu
Instructions
Send a message with the command **help.**

Gopher

Description
Gopher can be used to access all kinds of worldwide information services, such as the Dutch services VUCIS and RUG-CIS. You can retrieve Gopher software from the FTP address mentioned below, and install the program on your workstation. You can also get an

introduction to Gopher at the Telnet address.
Remarks
Gopher software is available for various systems (see 2.1.6).

Telnet address
sunic.sunet.se
Number
192.36.125.2
Login
gopher
Instructions
Your computer must support VT100 emulation.

FTP address
boombox.micro.umn.edu
Number
134.84.132.2
Directory
pub/gopher

Handicap

Description
Information and software for disabled persons.
Information
E-mail: wtm@bunker.shel.isc-br.com

FTP address
handicap.shel.isc-br.com
Number
129.189.4.184

Health Science Resource List

Description
Survey of all kinds of discussion lists, archives, databanks and other information in the field of medical and health sciences.

FTP address
ftp.sura.net
Number
128.167.254.179
Directory
pub/nic
File name
medical.resources.6-12

E-mail address
listserv@vm.temple.edu
Instructions
Send a message with the command **get medical rscrs help-net**.

HELP-NET

Description

Distribution list about subjects concerning CREN and Internet. New users in particular may benefit from this service.

E-mail address
listserv@vm.temple.edu
Instructions
Send a message with the command **subscribe help-net 'your name'.** A number of interesting resort under this list, such as the Health Science Resource List. You can retrieve a survey of these files by sending a message with the command **index help-net.**

History News

Description
Bulletin board for computer-aided teaching and research in the field of History, Archeology and History of Art.
Domicile
Glasgow, Great Britain

Telnet address
sun.nsf.ac.uk
Number
128.86.8.7
Login
janet
Instructions
Type **uk.ac.gla.hist.new** in the field Hostname.

HUMBUL (HUManities BULletin)

Description
Database/bulletin board in the field of liberal arts.
Domicile
Leicester University, Great Britain
Information
Stuart Lee
E-mail: stuart@vax.ox.ac.uk

Telnet address
sun.nsf.ac.uk
Number
128.86.8.7
Login
janet
Instructions
Type **uk.ac.humbul** in the field Hostname.

Hytelnet

Description
Program based on Hypertext, which can be used for simple access to all kinds of freely accessible information sources on Internet (also see 2.1.6).
Domicile
Canada

Information
Peter Scott, e-mail: scott@sklib.usask.ca
Remarks
Hytelnet is available for PC, Mac, Unix and VMS.

Telnet address
access.usask.ca
Number
128.233.3.1
Login
hytelnet
Instructions
Apply to the Telnet address for a Hytelnet demo.

FTP address
access.usask.ca
Number
128.233.3.1
Directory
pub/hytelnet

INFO University of East Anglia

Description
Campus-Wide Information System of the University of East Anglia.
Domicile
University of East Anglia, Great Britain

X.25 address
0204334508600
Login
info

Telnet address
sun.nsf.ac.uk
Number
128.86.8.7
Login
janet
Instructi ns
Type **uk.ac.uea.info** in the field Hostname.

INFONETS

Description
INFONETS is a (Listserv) distribution list in the field of networks and network connectivity.
Remarks
An archive of this list is kept at various Listserv computers. You can access this archive for information about various networks, addresses or ways of converting e-mail addresses.

E-mail address
listserv@bitnic.educom.edu
Instructions
Send a message with the following commands to this address (also

see the model sessions in Annex C):

```
//InfoNets JOB Echo=No
Database Search DD=Rules
//Rules DD *
search <your keyword> in INFONETS
index
/*
```

INFOsystem University of Maryland

Description
The INFOsystem provides access to the CIA factbook and Supreme Court Decisions.
Domicile
University of Maryland, USA

Telnet address

Number
128.8.10.29
Login
info

Internet Library Catalog List

Description
Survey of worldwide on-line accessible library catalogues on Internet, with electronic addresses.
Remarks
This list is kept up-to-date at various locations in the network. Also see Hytelnet. SURFnet maintains the file on file.nic.surfnet.nl.

FTP address
ftp.nic.surfnet.nl
Number
192.87.46.2
Directory
user-support/library
File name
library.catalog

E-mail address
mailserv@file.nic.surfnet.nl
Instructions
Send a message with the command **send user-support/library/library.catalog.**

Internet Resource Guide

Description
Survey of available services on Internet.
Information
E-mail: nnsc@nnsc.nsf.net

Remarks
The guide can be obtained from various network locations.

FTP address
nnsc.nsf.net
Number
128.89.1.78
Directory
resource-guide

E-mail address
info-server@nnsc.nsf.net
Instructions
Send a message with the following contents:
Request: resource-guide
Topic: resource-guide-help
Request: end

ISAAC

Description
ISAAC (Information System for Advanced Academic Computing) provides information about IBM computers and compatible software.
Domicile
University of Washington, USA
Information
E-mail: isaac@isaac.engr.washington.edu
Remarks
New users have to be registered.

Telnet address
isaac.engr.washington.edu
Number
128.95.32.61

JANET News

Description
Information about connected institutes/services on JANET (the Joint Academic NETwork) in Great Britain.

X.25 address
0204334505002
Login
news

Telnet address
sun.nsf.ac.uk
Numbe
128.86.8.7
Login
janet
Instructions
Type **uk.ac.janet.news** in the field Hostname.

Kermit Software

Description
Kermit software for various systems.

FTP address
watsun.cc.columbia.edu
Number
128.59.39.2
Directory
kermit
File name
READ.ME
Instructions
Retrieve the file READ.ME for more information.

E-mail address
listserv@nic.surfnet.nl
Instructions
Send a message with the command **get aaaread me.**

Koninklijke Bibliotheek (Dutch Royal Library)

Description
Library catalogue of the Dutch Royal Library. Part of OBN (see 2.1.2).
Domicile
Koninklijke Bibliotheek, The Hague, the Netherlands

X.25 address
129110639
Mnemonic
kb
Login
opc

KUBCAT (Catholic University of Brabant Library)

Description
Library catalogue of the Catholic University of Brabant. Part of OBN (see 2.1.2).
Domicile
Catholic University of Brabant, the Netherlands

X.25 address
18802026992
Login
cat

Telnet address
cat.kub.nl
Number
137.56.0.87
Login
cat

KUBGIDS (Catholic University of Brabant CWIS)

Description
Campus-Wide Information System of the Catholic University of Brabant. Also provides access to the library catalogue and other databases, which sometimes require registration.
Domicile
Catholic University of Brabant, the Netherlands

X.25 address
18802026917
Mnemonic
kublib
Login
kubgids

Telnet address
kublib.kub.nl
Number
137.56.0.56
Login
kubgids

KUNOPC (Catholic University of Nijmegen Library)

Description
Library catalogue of the Catholic University of Nijmegen and Polytechnic School of Gelderland.
Domicile
Catholic University of Nijmegen, the Netherlands
Remarks
In the beginning of 1993 a new catalogue will be released, which may cause some access problems (new access addresses).

X.25 address
18802007099
Mnemonic
kunt
Login
c kunopc
Instructions
Press **<Return>** after the message "session ... established". Press **Ctrl-C** to log off. The catalogue can be accessed from abroad via the X.25 address 02043044008499.

Lancaster Public Domain Software Archive

Description
Archive with public domain PC software.
Domicile
Lancaster University, Great Britain
Information
E-mail: hensa@micros.hensa.ac.uk

X.25 addres **s**
0204334501400
Login
hensa
Password
hensa

FTP address
micros.hensa.ac.uk
Number
148.88.8.84

Law Library

Description
Survey of American legal information sources on the network. Also serves as switching service to services like Gopher and Hytelnet. In Australia, files can be accessed via FTP.

Telnet address
liberty.uc.wlu.edu
Number
137.113.10.35
Login
lawlib

FTP address
sulaw.law.su.oz.au
Number
129.78.136.1
Directory
pub/law

Library of Congress (subcatalogue)

Description
Subcatalogue of the USA Library of Congress.
Domicile
Data Research Associates, Missouri, USA
Information
E-mail: catalog@dra.com

Telnet address
dra.com
Number
192.65.218.43
Instructions
Your computer must support VT100 emulation.

Listsof Lists

De cription
Listsof Lists is a list with instructions for obtaining surveys of discussion lists on CREN and Internet (also see Discussion

Lists - surveys).
Domicile
University of North Dakota, USA
Information
Marty Hoag
E-mail: nu021172@vm1.nodak.edu

E-mail address
listserv@vm1.nodak.edu
Instructions
Send a message with the command **get listsof lists.**

Lunar and Planetary Institute

Description
Databank with information in the field of Geology, Geophysics, Astronomy and Astrophysics. Also contains an index of maps of the universe.
Domicile
NASA - LPI Center for Information and Research Services, USA
Information
E-mail: bigwood@lpi.jsc.nasa.gov

Telnet address
lpi.jsc.nasa.gov
Number
192.101.147.11
Login
lpi

Lyric/Music Server

Description
Archive with musical compositions, discography and song texts.
Domicile
University of Wisconsin-Parkside, Wisconsin, USA
Information

FTP address
ftp.uwp.edu
Number
131.210.1.4
Directory
pub/music

MaasInfo

Description
Survey of services on CREN and Internet, composed by Robert Maas.
Information
E-mail: rem@darkside.com
Remarks
In Great Britain, MaasInfo can be accessed via Telnet. In the

USA, via FTP and e-mail (and also via Gopher and WAIS).

X.25 adress
020433450710511
Instruction
Select option D: directories

Telnet address
sun.nsf.ac.uk
Number
128.86.8.7
Login
janet
Instructions
Type **uk.ac.glasgow.bubl** in the field Hostname and select option D:directories in the main menu.

FTP address
niord.shsu.edu
Number
192.92.115.8
Directory
maasinfo

E-mail address
fileserv@shsu.edu
Instructions
Send a message with the command **send e maasinfo.topindex.**

Macserve

Description
All kinds of (information about) Macintosh software.
Domicile
Ireland **m**
Information
E-mail: Brian@irlearn.ucd.ie
E-mail address
fileserv@irlearn.ucd.ie
Instructions
Send a message with the command **get macfile listing.**

Meeman Archive

Description
Archive with environmental journalism from 1980 up to the present.
Domicile
University of Michigan School of Natural Resources, USA

Telnet address
hermes.merit.edu
Number
35.1.48.159 of 35.1.48.160
Login
mirlyn

Instructions
Your computer must support VT100 emulation. Select MEEM in the field Database selection.

Melvyl Online Catalog

Description
Library catalogue of the University of California. Also provides access to other catalogues.
Domicile
University of California, Oakland, California, USA

elnet address
melvyl.ucop.edu
Number
31.1.0.1

Memocom400

Description
Dutch PTT Telecom - Memocom400 service. In order to send or read messages you have to log in as Memocom400 subscriber.
Domicile
PTT Telecom, the Netherlands
Information
Helpdesk Memocom, telephone: +31 70 3434248

X.25 address
1170627
Mnemonic
memocom400
Costs
Datanet in the Netherlands.

META

Description
Databank of Dutch databanks.
Domicile
RCC-IVEV Information Services, Amsterdam, the Netherlands
Information
Telephone: +31 20 6157771
Costs
Tariff databank.
Remarks
Use userid INFO for more information about access to this databank. META can also be reached from Videotex Nederland.

X.25 address
1290340
Costs
Datanet in the Netherlands.
Login
info

Nederlandse Pers Databank (Dutch Press Databank)

Access to

Description

Domicile
The Hague, the Netherlands
Information
Telephone: +31 70 3653308
Costs
Subscription + tariff per search action

X.25 address
1170614
Costs
Datanet in the Netherlands.
Login
On request.

NEON

Description
NEON is the host service of the Dutch Library Centre (NBLC) and provides all kinds of databanks which are useful to the Dutch Public Libraries and their customers.
Domicile
Almere, the Netherlands
Information
Telephone: +31 36 5390790
Costs
Subscription or tariff per databank.

X.25 address
11820231111
Costs
Datanet in the Netherlands
Login
On request.
Instructions
The network address may be changed in the course of 1993.

NESTOR

Description
NESTOR (Netherlands Educational and Scientific Titles for Online Retrieval) provides on-line access to publisher's lists of Dutch scientific, educational and specialized publishers.
Domicile
Foundation NESTOR, The Hague, The Netherlands
Information
P. Aertsma
Telephone: +31 70 3617070
Remarks
Consult your ICP or the above mentioned telephone number for password NUI. The database forms part of the PICA Online Retrieval System.

X.25 address
12911033001
Mnemonic
PICA
Login
On request.

Netfind User Lookup

Description
Netfind User Lookup can be consulted for e-mail addresses via the name of an organization or individual.
Domicile
Colorado University, USA

Telnet address
bruno.cs.colorado.edu
Number
128.138.243.151
Login
netfind
Instructions
It is recommended to use the help function of Netfind first.

Netlib Mathematical Software Distribution System

Description
Distribution of mathematical software.
Domicile
Murray Hill, N.J., USA
Information
E-mail: netlib@ornl.gov
Remarks
In this example, a European Netlib is accessed.

E-mail address
netlib@nac.no
Instructions
Send a message with the command **send index**.

NETNEWS

Description
Also known as Usenet NEWS. Netnews is a worldwide collection of news groups allowing participants to exchange information about a wide range of subjects.
Remarks
In order to access Netnews, you should have special software installed on your computer. Furthermore, news groups should be available at your institute or department. Consult your local support desk for more information.

New York University Medical Center

Description
Campus-Wide Information System, especially for (sources on) medical information.
Domicile
New York University, USA

Telnet address
mcclb0.med.nyu.edu
Number
128.122.135.4
Login
information

NEW-LIST

Description
Distribution list which announces new distribution lists.
Remarks
Also see session model in Annex C.

E-mail address
listserv@vm1.nodak.edu
Instructions
For a subscription, send a message with the command
subscribe new-list 'Your name'.

NexpRI

Description
NexpRI (Netherlands Centre of Expertise for Geographical Information Processing) aims at supporting advanced applications of geographical information systems (GIS) and manages the NexpRI databank.
Domicile
University of Utrecht, the Netherlands
Information
Telephone: +31 30 534261

X.25 address
12911028099
Mnemonic
ruut
Login
infobank
Password
infobank
Instructions
Type **nexpri** in the field Request, followed by your own access code.

Telnet address
ruut.cc.ruu.nl
Number
131.211.18.16
Login
infobank

Password
infobank
Instructions
Type nexpri in the field Request, followed by your access code.

NIC Internet

Description
NIC Internet contains network information, name/address information (also see WHOIS servers) and an archive with RFC-documents (standards).
Information
E-mail: action@nic.ddn.mil

Telnet address
nic.ddn.mil
Number
192.112.36.5

FTP address
nic.ddn.mil
Number
192.112.36.5

E-mail address
service@nic.ddn.mil
Instructions
Send a message with the command **help.**

NICOL

Description
NICOL (JvNCnet Network Information Center On-Line) provides network information and Internet Resources; an Electronic Publishing Service is also available.
Information
E-mail: nisc@jvnc.net

Telnet address
nisc.jvnc.net
Number
128.121.50.7
Login
nicol

NISS

Description
NISS (National Information on Software and Services) provides information about services on JANET (GB) and other networks.
Information
E-mail: niss@swurcc.ac.uk

X.25 address
0204334506201

Instructions
Select menu option A or B.

Telnet address
sun.nsf.ac.uk
Number
128.86.8.7
Login
janet
Instructions
Type **uk.ac@niss** in the field Hostname and select menu option A or B.

NNSC Info-server

Description
NNSC (National Science Foundation Network Service Center) Info-Server is an archive with important Internet documents which can be retrieved via e-mail or ftp.
Information
E-mail: nnsc@nnsc.nsf.net

FTP address
nnsc.nsf.net
Number
128.89.1.178

E-mail address
info-server@nnsc.nsf.net
Instructions
Send a message with the command **help**.

NOD

Description
NOD (Netherlands Research Databank) provides project descriptions of current research in the Netherlands.
Domicile
Nederlands Bureau voor Onderzoek Informatie (NBOI), Amsterdam, the Netherlands
Information
Telephone: +31 20 6626101
Costs
Subscription NOD.
Remarks
The databank can be accessed via host organization RCC-IVEV.

X.25 address
1290340
Mnemonic
nod
Costs
Datanet in the Netherlands.
Login
On request.

NODIS

Description
NODIS (NASA Online Data & Information Service) is a catalogue with information available about NASA.
Domicile
National Space Science Data Center, USA

Telnet address
nssdc.gsfc.nasa.gov
Number
128.183.36.25
Login
nodis

Nuclear Data Center

Description
USA nuclear data.
Domicile
National Nuclear Data Center, Brookhaven National Laboratory, USA

Telnet address
bnlnd2.dne.bnl.gov
Number
130.199.112.132
Login
nndc

OASIS

Description
OASIS (Online Academic Software Information System) provides information about PC software, to be used for higher vocational education.
Domicile
Educational Computing Network, Illinois, USA
Remarks
Access via ASTRA host organization (also see ASTRA).

E-mail address
astradb@icnucevm.cnuce.cnr.it
Instructions
Send a message with the command **help**.

Oceanic Information Center

Description
Provides oceanographic information and information about people active in this field.
Domicile

University of Delaware, USA

Telnet address
delocn.udel.edu

Number
128.175.24.1
Login
info
Instructions
If your terminal supports Tektronix 4010 graphics, this databank is able to display graphics. Terminal emulators such as MS-Kermit, NCSA Telnet and xterm support Tektronix 4010 graphics.

Online Database for Distance Education

Description
Databank of the International Centre for Distance Learning (ICDL) with information about courses, institutes and literature.
Domicile
Open University, Great Britain
Information
E-mail: n_ismail@vax.acs.open.ac.uk
Costs
Tariff for the databank.

X.25 address
0204334504891
Login
ICDL

Telnet address
sun.nsf.ac.uk
Number
128.86.8.7
Login
janet
Instructions
Type **uk.ac.open.acs.vax** in the field Hostname and ICDL in the field Username.

Online Book I itiative

Description
Electronic versions of novels, children's books, fairy tales, poetry.
Remarks
Also see Dante and Project Gutenberg.

FTP address
world.std.com
Number
192.74.1.37.5

Orbit

Description
American host organization providing access to scientific databanks.
Domicile

USA
Information
Telephone: +44 81 992 3456 (in Great Britain)
Costs
Tariff databank

Telnet address
orbit.com
Number
192.188.13.254
Login
On request.
Instructions
Orbit charges $6 per hour.

Paradise Pilot Project

Description
X.500 Directory Service where you can find e-mail and other addresses based on the name of an individual, an organization or a country.
Domicile
University of London Computer Centre, ULCC, Great Britain
Information
PARADISE HelpDesk
Telephone: +44 71 405 8400 Ext. 432
Fax: +44 71 242 1845
E-mail: helpdesk@paradise.ulcc.ac.uk
Remarks
This is an experimental service of COSINE at the University of London. A service with a Dutch language access will be available by the end of 1992. See SURFnet Directory Service for more information.

X.25 address
020433450400253
Login
dua

Telnet address
paradise.ulcc.ac.uk
Number
128.86.8.56
Login
dua

PennInfo

Description
Campus-Wide Information System of the University of Pennsylvania School of Medicine with information about medical information services.
Domicile
University of Pennsylvania, USA

Telnet address

penninfo.upenn.edu
Number
128.91.254.116

PENpages

Description
Information for agricultural research. Also serves as Campus-Wide Information System.
Domicile
Pennsylvania State University, USA
Information
E-mail: support@psupen.psu.edu

Telnet address
psupen.psu.edu
Number
128.118.36.5
Login
world

PICA ORS

Description
PICA Online Retrieval Systeem (ORS) is a host organization especially for bibliographical files such TACO, GLIN, Nestor, Swidoc and BNTL.
Domicile
Pica, Leiden, the Netherlands
Information
Telephone: +31 71 257257
Costs
Tariff per database
Remarks
Access code on request. Special rules apply to NESTOR (see NESTOR).

X.25 address
12911033001
Mnemonic
pica
Login
On request.

PREX (Laboratory-Animal Expertise Centre)

Description
PREX (**Laboratory-Animal Expertise Centre)**) aims at supporting the preparation, planning and execution of animal experiments by providing laboratory-animal research information and general biomedical information. The main purpose is to contribute to conscientious use of laboratory animals for research and education.
Domicile
Faculty of Veterinary Science, University of Utrecht, the

Netherlands
Information
L.F.M. van Zutphen
E-mail: tjb@diva.dgk.ruu.nl
Remarks
Access code on request.

X.25 address
12911028099
Mnem nic **o**
ruut
Login
On request.
Instructions
Type **prex** in the field Request, followed by your access code.

Telnet address
ruut.cc.ruu.nl
Number
131.211.18.16
Login
On request.
Instructions
Type **prex** in the field Request, followed by your access code.

Project Gutenberg

Description
Project for the production of electronic versions of classic books.
Information
E-mail: hart@vmd.cso.uiuc.edu
Remarks
Also see Dante and Online Book Initiative.

FTP address
mrcnext.cso.uiuc.edu
Number
128.174.201.12
Instructions
Files should be retrieved binarily.

QSPIRES

Description
Database with information about Stanford Linear Accelerator Center (SLAC) and High Energy Physics Preprints of articles on this subject.
Domicile
Stanford Linear Accelerator Center (SLAC), USA
Remarks
This is an example of a service which is also accessible through World Wide Web (see WWW).

E-mail address

Instructions
Send a message with the command **help.**

RCC-IVEV Information Services

Description
Host organization for databanks containing documentation files of various Dutch ministries, Parliamentary writings, Dutch law, Dutch press, et cetera.
Domicile
Amsterdam, the Netherlands
Information
Telephone: +31 20 6157771
Costs
Tariff per databank.

X.25 address
188020316 or 1576056
Costs
Datanet in the Netherlands when using the X.25 address 1576056.
Instructions
The address 188020316 may be changed in the course of 1993.

RIPE NCC

Description
RIPE Network Coordination Centre is the network information centre of RIPE (Réseaux IP Européens).
Domicile
Amsterdam, the Netherlands
Information
E-mail: ncc@ripe.net

X.25 address
020430459300031

Telnet address
wais.ripe.net
Number
192.87.45.1

Gopher address
gopher.ripe.net
Numbe
192.87.45.1

RUG-CIS

Description
Campus-Wide Information System of the University of Groningen.
Domicile
University of Groningen, the Netherlands

Telnet address

rugcis.rug.nl
Number
192.125.4.15
Login
rugcis

Gopher address
rugcis.rug.nl
Number
192.125.4.15

RUGOPC (University of Groningen Library)

Description
Library catalogue of the University of Groningen. Part of OBN (see 2.1.2).
Domicile
University of Groningen, the Netherlands

X.25 address
129110159
Login
opc

SIByl

Description
A freely accessible software information databank in the field of behavioural and social studies hosted by the inter-university expertise centre ProGAMMA.
Domicile
Groningen, the Netherlands
Information
A.J. Hoogland or M.J. van der Vlugt
E-mail: gamma.post@gamma.rug.nl

Telnet address
suniec.gamma.rug.nl
Number
129.125.130.3
sibyl

SIMBAD

Description
The European archive of astronomic objects. Also contains a bibliography.
Domicile
Centre Donnees Stellaire, Strasbourg, France

Telnet address
simbad.u-strasbg.fr
Number

130.79.128.4
Login
Obtainable from ABF service (see ABF).

Social Sciences Data Archive

Description
Catalogues of data sets in the Social Sciences Data Archive.
Domicile
Hebrew University, Israel
Information
E-mail: magar1@hujivms.bitnet

Telnet address
har1.huji.ac.il
Number
132.64.176.2
Login
ssda
Instructions
Select menu option 2 (Online Aleph).

Software Reviews

Description
Microcomputer software reviews of software available in the Netherlands.
Domicile
Catholic University of Brabant, the Netherlands
Information
Telephone: +31 13 662637
Costs
Tariff Software Reviews
Remarks

X.25 address
18802026917
Mnemonic
kublib
Login
kubis, followed by access code.

Telnet address
kublib.kub.nl
Number
137.56.0.56
Login
kubis, followed by access code.

SpaceMet

Description
Bulletin Board System in the field of space travel.
Domicile

University of Massachusetts, USA

Telnet address
spacemet.phast.umass.edu
Number
128.119.50.48

SRM – Documentation Centre

Description
SRM – Documentation Centre registers and documents current publications in the field of methods and techniques used in social science research. A database is maintained with information about publications in English, French, German and Dutch.
Domicile
Erasmus University, Rotterdam, the Netherlands
Information
G.W. Kantebeen
E-mail: info@srm.eur.nl
Costs
Subscription or tariff for individual search actions.

X.25 address
12911023099
Mnemonic
eurt
Login
On request.
Instruct ons
This access is menu-controlled. SRM can be accessed from abroad via the X.25 address 020430440141.

Telnet address
srm-gw.eur.nl
Number
130.115.1.98
Login
On request.

STIS

Description
STIS (Science & Technology Information System) provides information about activities of the National Science Foundation.

Telnet address
stis.nsf.gov
Number
128.150.195.40
Login
public

STN International

Description
Host organization for databanks on scientific literature.
Domicile
FachInformations Zentrum (FIZ), Karlsruhe, Germany
Information
Telephone: +49 7247 808 555
Fax: +49 7247 808 660
Costs
Tariff per databank.

X.25 address
02043625160241
Mnemonic
stn
Login
On request.

SUMEX - Mac Software Archive

Description
Archive with software for Macintosh computers.
Domicile
Stanford University, USA

FTP address

Number
36.44.0.6
Directory
info-mac

SURFnet Directory Service

Description
Public access to the worldwide electronic address list (X.500 directory services).
Information
E-mail: info@surfnet.nl
Remarks
This service will be available by the end of 1992. Also see Paradise for a comparable service in Great Britain.

X.25 address
as yet unknown.
Mnemonic
MASTER
Login
zoek
Instructions
The X.25 address will be known by the end of 1992. Once the service is available, the mnemonic MASTER can be used.

Telnet address
master.surfnet.nl
Login

zoek

SURFnet Fileserver

Description
SURFnet Fileserver is used by SURFnet to store all kinds of information which might be of interest for users.
Domicile
SURFnet, Utrecht, the Netherlands
Information
E-mail: info@surfnet.nl

FTP address
ftp.nic.surfnet.nl
Number

E-mail address
le.nic.surfnet.nl
s
Send a message with the command **help.** In order to receive a survey of the contents, send the command **send index.**

TRICKLE

Description
Public domain software, largely originating from the archive SIMTEL20 on Internet.
Remarks
TRICKLE is a distributed server network in Europe. The requested software is either made available by SURFnet (at the below address) or by another network. In the latter case, you will be notified that your request has been sent on, and you may have to wait some time (12 days at most) for an answer.

E-mail address
trickle@nic.surfnet.nl
Instructions
Send a message with the command **help.**

U.S. Weather Service

Description
Databank with pictures of weather conditions in the United States.
Domicile
University of Illinois, USA
Remarks
Pictures in .gif format.

FTP address
vmd.cso.uiuc.edu
Number
128.174.5.98 of 192.17.13.1
Directory

wx
Instructions
Retrieve files binarily.

UBA (University of Amsterdam Library)

Description
Library catalogue of the University of Amsterdam.
Domicile
University of Amsterdam, the Netherlands

X.25 address
12911000099
Mnemonic
sart
Login
uba

Telnet address
ts1.sara.nl
Number
192.16.188.50
Login
uba

UBVUCAT (Free University of Amsterdam Library)

Description
Library catalogue of the Free University of Amsterdam.
Domicile
Free University of Amsterdam, the Netherlands

Telnet address
ubvucat.vu.nl
Number
130.37.128.201

UDEMATIK

Description
A French telematics service of the University of Montreal (Service télématique de l'Université de Montreal).
Domicile
Montreal, Canada

Telnet address
udematik.umontreal.ca
Number
132.204.2.102
Instructions
Your computer should support VT100 emulation. Type **N**o in the field Iso-Latin.

UK Library Catalog List

Description
Survey of on-line library catalogues in Great Britain.
Remarks
This survey is part of the information service NISS (Network Information and Software Services).

X.25 address
0204334506201
Instructions
Select menu option A (NISS Bulletin Board), followed by Category E (Library Services).

Telnet address
sun.nsf.ac.uk
Number
128.86.8.7
Login
janet
Instructions
Type **uk.ac.niss** in the field Hostname. Select menu option A (NISS Bulletin Board), followed by Category E (Library Services).

USENET addresses

Description
Database with e-mail addresses of active USENET users. USENET contains all Netnews users (also see Netnews).
Remarks
The database can be accessed via e-mail, Gopher or WAIS (also see Gopher and WAIS).

E-ma l address **i**
mail-server@pit-manager.mit.edu
Instructions
Send a message with the command **send usenet-addresses/name.** Replace 'name' by one ore more key words such as first name or surname, or part of a mail address.

UTBBS (University of Twente BBS)

Description
University of Twente Bulletin Board System.
Domicile
University of Twente, Enschede, the Netherlands

X.25 address
18802012099
Mnemonic
utrt
Login
bbs
Password
Type **UTBBS** at the prompt, followed by the login code **bbs.**

Telnet address
utbbs.civ.utwente.nl

Number
130.89.1.29
Login
bbs

UUCP maps

Description
The UUCP-maps can be used to find (mail) addresses of institutes and companies which are accessible via the worldwide UUCP network.
Remarks
UUCP-maps can be retrieved as files from various locations by means of FTP. In this example a Finnish FTP archive is accessed. At the university of Berkeley, UUCP-maps can be consulted via Telnet. UUCP maps can also be consulted by means of Gopher and WAIS (also see Gopher and WAIS).

Telnet address
netinfo.berkeley.edu 117
Number
128.32.136.12 117
Instructions
Press **<Return>** after the connection has been established. Use the command **UHOST <key word>** to search in the maps. This Telnet address differs from other Telnet addresses. This type of address cannot be used for every Telnet program. When in doubt, consult your local support desk.

FTP address
nic.funet.fi
Number
128.214.6.100
Directory
/pub/netinfo/UUCP/uumap
File name
README
Instructions
The maps are arranged by country. For every country various maps may be available, arranged by region, district or state. Read the file README for more information on using the maps.

Videotex Nederland

Description
A large selection of Videotex Nederland services (categories 06-7100 through 06-7900) are available through six access numbers.
Costs
Costs per databank.
emarks
The services are made available to users registered with SURFnet. Call info@surfnet.nl for more information.

X.25 addresses
12911030101 (for category 06-7100)

12911030103 (for category 06-7300)
12911030104 (for category 06-7400)
...
12911030109 (for category 06-7900)

Mnemonics

vtx1
vtx3
vtx4
...
vtx9

VMSSERV

Description

Files with (information about) software for a variety of systems and VMS systems in particular.

Domicile

University at Buffalo, USA

Information

Jim Gerland
E-mail: gerland@ubvms.cc.buffalo.edu

E-mail address

vmsserv@ubvms.cc.buffalo.edu

Instructions

Send a message with the command **dir**.

VUCIS

Description

Campus-Wide Information System of the Free University of Amsterdam.

Domicile

Free University of Amsterdam, the Netherlands

Remarks

This is a Dutch service available via Gopher. In order to use this service, Gopher should be installed at your workstation (also see Gopher).

Gopher address

gopherhost.cca.vu.nl

Number

130.37.128.4

WAIS

Description

Wide Area Information System software enables access to information services. You can experiment with a WAIS session at the below Telnet address. The software can be obtained from the FTP address.

Telnet address

quake.think.com

Number

192.31.181.1
Login
wais

FTP address
think.com
Number
131.239.2.1
Directory
wais
Instructions
Retrieve the file README for more instructions.

Washington University Public Domain Archives

Description
Archives with public domain software for PCs, Macs and other systems. Also functioning as shadow archive for SIMTEL20 archives.
Domicile
Washington University, Missouri, USA
Information
E-mail: archives@wugate.wustl.edu

FTP address
wuarchive.wustl.edu
Number
128.252.135.4
Instructions
First retrieve the file README for more instructions.

WHOIS servers

Description
WHOIS servers can be used to find information about individuals and organizations connected to the worldwide Internet.
Remarks
The WHOIS program is required, although a number of WHOIS servers can also be accessed without this program. In this example, a European server with information about individuals and institutes in Europe is accessed via an X.25 address and a Telnet address. You can retrieve a survey of WHOIS servers via the below FTP address. At NIC Internet, a WHOIS server can also be accessed via e-mail.

X.25 address
020430459300031

Telnet address
whois.ripe.net
Number
192.87.45.1
Instructions
Select menu option 4 (whois). This service is part of the RIPE Network Coordination Centre (also see RIPE NCC).

FTP address
sipb.mit.edu
Number
18.70.0.224
Directory
/pub/whois
File name
whois-servers.list
Instructions
This is a survey of WHOIS servers available via the WHOIS program.

E-mail address
service@nic.ddn.mil
Instructions
Send a message with the command **whois help** for more information.

Windows 3 Software

De cription
150 Mb of MS-Windows software.

FTP address
ftp.cica.indiana.edu
Number
129.79.20.84
Directory
pub/pc/win3
Instructions
First retrieve the file README for more instructions.

World Bank Socio-Economic Data
s
Description
Access to socio-economic data available through the World Bank (1960-1986).
Domicile
Great Britain

Telnet address
sun.nsf.ac.uk
Number
128.86.8.7
Login
janet
Instructions
Type **uk.ac.swurcc** in the field Hostname. Press <Return> in the field Username. Type **PMAC** in the field Which service. Select menu option 2 (search_wb).

WWW

Description
WWW (World Wide Web) provides access to all kinds of inter-

related information sources. These relations are user-defined.

Domicile
CERN, Geneva, Switzerland

Remarks
Via CERN in Geneva (publicly accessible), you can experiment with
install WWW or retrieve WWW software in order to the program at
your own workstation.

Telnet address
info.cern.ch
Number
128.141.201.74
Login
Follow the instructions.

FTP address
info.cern.ch
Number
128.141.201.74
Directory
pub/www

3 Other Networks

3.1 Pan-European Networks
3.1.1 Ebone
3.1.2 IXI
3.1.3 EARN
3.1.4 EUnet
3.1.5 Y-net
3.2 National Networks
3.3 Regional Networks
3.4 Global Networks
3.4.1 Internet
3.4.2 CREN (incl. Bitnet)
3.4.3 HEPnet
3.4.4 NSFnet
3.4.5 SPAN
3.4.6 USEnet

As mentioned in 1.5.2, SURFnet enables you to make use of services available on other networks, worldwide. This chapter takes a closer look at some of these networks. Section 3.1 discusses networks catering to the needs of the European continent, followed by a survey of national and regional networks in 3.2. Finally, section 3.3 describes the best-known global networks.

3.1 Pan-European Networks

3.1.1 Ebone

Ebone was implemented in 1992. It is a Pan-European network offering IP services to other European networks (such as SURFnet). In addition, CLNS protocol Pilot SERVICES are offered (network services based on new network technologies).

The Ebone network interconnects IP networks in Europe en has high-speed connections with the USA.

3.1.2 IXI

In order to fully exploit network capabilities on a European scale, the RARE association (Réseaux Associés pour la Européenne) was founded in 1986. National research networks of 22 countries (many of which you find listed below) are RARE members. The association is the executor of the specification phase of the EUREKA project COSINE, meant to interconnect national research networks on the basis of common specifications. In the Netherlands, SURFnet bv is implementing these agreements.

One of this project's objectives has been realized in 1990: a European X.25 network, the IXI network (International X.25 Infrastructure), to which research networks and public networks are connected. Through IXI, computer services offered in Europe can be made available to all network users over Europe. The IXI services constitute an intrinsic element of the overall SURFnet package of services, which means that SURFnet users can use IXI at no extra cost. As per 1 October 1992 IXI has migrated to EMPB (European Multiprotocol Backbone).

3.1.3 EARN

EARN (European Academic and Research Network) is a computer network interconnecting computers of European scientific institutes. EARN started in 1985 and is the European part of a larger network which also covers the USA, Japan and Canada. In the USA, the network is known as CREN (the old name being Bitnet, which you may still come across, particularly in electronic addresses), and in Canada it is NETNORTH. All these networks use the same technology, that is the NJE network protocol and a homogenous addressing structure.

All in all, EARN comprises more than 2350 computers, called nodes. In the meantime, nodes in several East European countries have been added, such as Poland, Russia, Hungary, Czechoslovakia and Bulgaria. Each country partaking in the EARN network has an

international node. Together, these nodes and the connections between them form the backbone of EARN.

In the Netherlands, the central node is at Nijmegen. The EARN services as a whole have been integrated into the SURFnet network, which means that all EARN functions (such as Listserv – see Chapter 2) have been made available for all SURFnet users.

The node's name in the Netherlands is NIC.SURFnet.nl (or HEARN in terms of EARN; Annex A.1 provides more information about the EARN addressing structure).

3.1.4 EUnet

EUnet (European Unix Network) became operational as early as 1982, which makes it the oldest network for education and research in Europe. EUnet is a PAN-European network of Unix systems with more than 1300 nodes in about twenty countries (a node usually comprises several systems).

EUnet has a decentralized organization, managed by the national central nodes. EUnet as a whole is represented by the former Unix User Group (EUUG), an organization which recently changed its name to EurOpen, the European Forum for Open Systems, in which the national Unix user groups are represented. Users in the Netherlands are associated in the NLUUG, which operates the NLnet network.

EUnet has gateways to several other networks, such as ARPA Internet, EARN/CREN, JANET, and, of course, USENET. The network protocol that forms the basis for the Unix networks is Unix-to-Unix CoPy, or UUCP. The central European node to link the European EUnet with USENET and other networks elsewhere in the world is based in Amsterdam.

E-mail contact address: **postmaster@nic.eu.net.**

3.1.5 Y-net

Y-net is a network ″2000″ initiative of the European Commission and a number of IT industries, specifically aimed at the needs of small- and medium-scaled businesses involved in EC projects. As yet, Y-net only offers X.400 services. The Dutch service point will be managed by SURFnet bv. The implementation has been entrusted to the University of Groningen. More information about Y-net can be obtained from SURFnet bv (see the address in the colophon).

3.2 National Research Networks in Europe

In almost all European countries projects have been launched to set up research networks. Below, the various European research networks for higher education and research that have already been set up are listed per country, in alphabetical order.

Note: We do not claim to give an exhaustive survey, as the network situation in Europe is subject to frequent changes. This

survey only attempts to acquaint the reader with names and situations in other countries as known to SURFnet when this guide went to the press. E-mail contact addresses are given where known.

AUSTRIA
Network name ACONET (Austrian Scientific Data Network)
Contact address ACONET-Verein
Contact person Florian Schnabel
Postal address Gusshausstrasse 25, A-1040 Wien
Telephone +43 222 58801 3605
E-mail address
RFC-822 schnabel@edvz.tu-graz.ada.at
schnabel@fstgss01.tu-graz.ac.at
X.400 C=at; ADMD=ada; PRMD=tugraz; O=edvz; S=schnabel;

BELGIUM
Network name --
Contact person P. Van Binst
R. Vandenbroucke
Postal address ULB, CP 230, Bd du Triomphe
B-1050 Bruxelles
Telephone +32 2 641 32 11
E-mail address
RFC-822 vanbinst@helios.iihe.rtt.be
X.400 C=be; ADMD=rtt; PRMD=iihe; O=helios; S = vanbinst;

DENMARK
Network name DENet
Contact person Jan P. Sorensen
Postal address Building 305, DTH, DK-2800 Lyngby
Telephone +45 45 93 83 55
E-mail address
RFC-822 Jan.P.Sorensen@uni-c.dk
X.400 C=dk; ADMD=DENET; O=UNI-C; OU=NET; S=SORENSEN;

ENGLAND
Network name JANET (Joint Academic NETwork)
Contactaddress JANET Liaison Desk
Postal address JANET Liaison Desk, c/o Rutherford Appleton Laboratory, Chilton Didcot, GB-Oxon OX11OQX
Telephone +44 235 5517
E-mail address
RFC-822 JANET-LIAISON-DESK@jnt.ac.uk
X.400 C=GB; ADMD= ; PRMD=uk.ac; O=jnt; G=JANET-LIAISON-DESK;

FINLAND
Network name FUNET
Contactaddress info@funet.fi
Contact person Markus Sadeniemi
Postal address P.O.Box 40, F-02101 Espoo
Telephone +358 04572711
E-mail address

RFC-822 SADENIEMI@funet.fi
X.400 C=FI; O=FUNET; ADMD=fumail; S=Sadeniemi; G=Markus;

FRANCE/1
Network name EARN-France
Contact person Dominique Dumas
Postal address CNUSC, 950 rue de St.Priest, F-34000 Montpellier
Telephone +33 67 14 14 14

E-mail address BRUCH@FRMOP11.BITNET
BRUCH@FRMOP53.CNUSC.FR

FRANCE/2
Network name RED400
Contact person Serge Aumont
Postal address CICB, Campus de Beaulieu, F-35042 Rennes
Telephone +33 99 84 71 47

Contact person Paul-André Pays
Postal address INRIA, Domaine De Voluceau, Rocquencourt, BP105, F-78150 Le Chesnay Cedex
Telephone +33 1 39 63 54 58
E-mail address
RFC-822 contact-red@cicb.fr
X.400 C=FR; ADMD=atlas; PRMD=cicb; S=contact-red;

GERMANY
Network name DFN/WIN
Contact address DFN-Verein
Postal address Pariser Str. 44, D-1000 Berlin 15
Telephone +49 30 88429920
E-mail address
RFC-822 dfn-verein@dfn.dbp.de
X.400 C=de; ADMD=dbp; PRMD=dfn; S=dfn-verein;

GREECE
Network name ARIADNE
Contact person Yannis Corovesis
Postal address NRCPS DEMOKRITOS, 15310, GR-ATHENS
Telephone +30 1 6513392 (9619932)
E-mail address
RFC-822 ycor@isosun.ariadne-t.gr
X.400 C=gr; ADMD= ; PRMD=ariadnet; OU=isosun; S=corovesis; G=yannis;

HUNGARY
Network name Hungary-NET
Contact person Geza Turchanyi
E-mail address h2064tur@ella.hu

ICELAND
Contact person Marius Olafsson
Postal address University of Iceland, Computing Services, Taeknigardi, Dunhaga 5, 107 Reykjavik, Iceland
Telephone 354 1 694747
E-mail address marius@rhi.hi.is

IRELAND
Network name HEANET (Higher Education Authority Network)
Contact person Peter Flynn
Postal address Computer Centre, University College, Cork, Ireland
Telephone +353 21 276871 tst.2609
E-mail address cbts8001@iruccvax.ucc.ie

ITALY
Network name GARR
Contact person Giovanni Turso
Postal address Tecnopolis CSATA Novus Ortus, SP. Casamassima Km.3, I-70010 Valenzano (BA)
Telephone +39 80 8770111
+39 80 8770312
E-mail address TURSO@VM.CSATA.IT

NORWAY
Network name UNINETT
Contact person Petter Kongshaug
Postal address SINTEF DELAB, N-7034 Trondheim
Telephone +47 7 592980
E-mail address
RFC-822 Petter.Kongshaug@delab.sintef.no
X.400 C=no; ADMD= ; PRMD=uninett; O=sintef; OU=delab; S=kongshaug; G=petter;

PORTUGAL
Network name RCCN
Contact person Vasco Freitas
Postal address CCES, Universidade do Minho, Largo do Paco, P-4719 Braga Codex
E-mail address
RFC-822 vf@ce.fccn.pt
X.400 C=pt; ADMD= ; O=ce; S=Freitas; G=Vasco;

RUSSIA
Below is one of the contacts for the network situation as it existed in the former Soviet Union.

Contact person Dmitry V. Volodin
Postal address DEMOS Plus Co Ltd., Ovchinnikovskaya nab, 6, 1, pod., SU-113035, Moscow, Russia
Telephone +7 095 231 2129
E-mail address dvv@hq.demos.su

SPAIN
Network name RedIRIS
Postal address Fundesco/RedIRIS, Alcala, 61, E-28014 Madrid
Telephone +34 1 4351214
E-mail address
RFC-822 info@iris-dcp.es
X.400 C=ES; ADMD=mensatex; PRMD=iris; O=iris-dcp; S=info;

SWEDEN
Network name SUNET

Contact person Anders Gillner
Postal address KTH, 100 44, Stockholm
Telephone +46 8 7906502
E-mail address postmaster@sunic.sunet.se

SWITZERLAND
Network name SWITCH
Contact person Thomas Lenggenhager
Postal address SWITCH Head Office, Limmatquai 138, CH-8001 Zürich
Telephone +41 1 261 8178
E-mail address
RFC-822 postmaster@switch.ch
X.400 C=CH; ADMD=arCom; PRMD=SWITCH; O=SWITCH; S=postmaster;

3.3 Regional Networks

Network name NORDUnet
Contact person Peter Villemoes
Postal address UNI-C, Build. 305, DTH, DK-2800 Lyngby
Telephone +45 45 938355
E-mail address
RFC-822 Peter.Villemoes@uni-c.dk

Network name YUNAC
Contact person Avgust Jauk
Postal address Jozef Stefan Institute, Jamova 39, Ljubljana, Slovenia
Telephone +38 61 159199
E-mail address
RFC-822 postmaster@ijs.ac.mail.yu
X.400 C=yu; ADMD=mail; PRMD=ac; O=ijs; S=postmaster;

3.4 Global Networks

As for the other non-European research networks, the best-known/most used have been included in this survey, but it is almost impossible to produce an exhaustive list of existing networks. Consult your own ICP for information about networks and their accessibility through SURFnet. Another method is to consult written sources, such as the latest handbooks. Some books have been included in the literature list.

3.4.1 Internet

Internet is a network consisting of numerous smaller networks, all the same TCP/IP communication protocols and sharing a common addressing structure (see Annex A.1 for addressing information). Internet is spread over the USA, Europe, Asia and Australia, with countless network ramifications and links to heterogenous networks (such as EARN/CREN). It has been estimated that more than one million people (!) are using Internet.

Internet is also known by other names, which you may come across now and then. We shall briefly discuss some of them. ARPA

Internet is the full original name. ARPA is the US Defense Department's Advanced Research Projects Agency. When this agency changed its name to DARPA, the network changed its name in the process.

The Network Information Center (NIC) is managed by Government Systems Inc. in Chantilly, Virginia (e-mail nic@nic.ddn.mil). Another well-known information centre is SRI International in California, accessible through the Network Information Systems Center (e-mail nisc@nisc.sri.com).
Within SURFnet, the name Internet is used. Through SURFnet, all Internet services are available. Your institute should only dispose of certain software and hardware to process the TCP/IP protocols used in Internet. You should also be registered with the Internet administration, which for the Netherlands is done by SURFnet bv. The use of Internet services involves no extra costs.

3.4.2 CREN (Corporation for Research and Educational Networking)

Founded in October 1989, CREN is based on two former networks: Bitnet (Because It's Time Network) and CSNET (Computer Science Network). Sometimes the services of in particular still reflect their original character. We shall briefly discuss them.

In 1981, Bitnet started as a small network of IBM computers at the City University of New York (CUNY). At present, Bitnet comprises 2400 computers worldwide - in the USA, Europe, Canada, Japan, Central and South America, Israel, Taiwan and Singapore. Bitnet set out to promote the exchange of information between academic institutes, on a non-profit basis. EARN is the European part of Bitnet (see above), while NETNORTH represents the Canadian branch.

Contact Address: Bitnet Network Information Center (BITNIC).
E-mail address: Listserv@BITNIC.BITnet
Instructions: Send a message saying: INDEX NETINFO. This index contains a list of all information obtainable through the information centre. The file Bitnet Userhelp provides useful information about BITNIC access.

3.4.3 HEPnet

HEPnet (High Energy Physics network) is a global network which was developed over the last decade by the US High Energy Physics Program. Besides large US laboratories, a number of European research centres such as Swiss CERN and Dutch Nikhef are affiliated. SURFnet sees after the Dutch part of HEPnet.

3.4.4 NSFnet

NSFnet was started in 1986 as a communication network providing access to the national supercomputer centres sponsored by the NSF (National Science Foundation). About 350 networks are linked to NSFnet.

E-mail address: nncs@nnsc.nsf.net
Instructions: Send a mail message saying:
REQUEST: INFO
TOPIC: HELP
REQUEST: END

Send the command **help** in the first line of an e-mail message for more information.

3.4.5 SPAN

SPAN (Space Physics Analysis Network) is a DECnet-based network funded by NASA. Operational since 1981, it now has more than 2000 hosts spread over the USA, Europe, Canada and Japan.
SPAN can be accessed through SURFnet via e-mail. Consult your ICP for more information.

Contact address: SPAN Network Information Center
Telnet address: nssdca.gsfc.nasa.gov or 128.183.10.4
Instructions: Login with user name NODIS / no password;
you are required to give name information,
upon which a menu is displayed.

3.4.6 USENET

USEnet has been superimposed on a number of other networks: UUCP (Unix-to-Unix Copy), X.25 and Internet. It consists of a set of programs offering access to NETNEWS and enabling transfer of contributions within NETNEWS from one computer to another.

4 Hints For Network Use; How to Solve Problems

4.1 Address Conversion
4.2 Address Unknown
4.2.1 Failing e-mail Address
4.2.2 Remote Login Addresses
4.2.3 File Transfer Addresses
4.3 Terminals and Terminal Emulations
4.3.1 Screen Formatting Problems
4.3.2 Key Definition Problems
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4.5.1 Unable to Set Up a Connection
4.5.2 Service Does Not Accept Connection or Breaks It Off
4.5.3 Instructions for Using a NUI (Only for SURFnet PAD Use)
4.6 File Transfer Instructions
4.6.1 FTP
4.6.2 E-mail

If problems occur when using the network, the cause will not always be easy to identify. There are many links in the communication chain which may hide the problem:

- The local computer
- The institute network you are connected to
- The SURFnet network
- One of the SURFnet-connected networks
- The computer you are trying to access
- User errors

This chapter provides some hints and instructions to help you identify the cause of a problem. In case of failures or network problems which you cannot figure out yourself, the best thing to do is contact your local support desk. If necessary, the desk will contact the Institute Contact Person (ICP - see Annex B.1). The ICP can directly address SURFnet bv in case of network failures.

This chapter discusses the following problems which may occur when using the network.

Address conversion
This concerns the conversion of one address type to another, X.400 to RFC-822 and vice versa. The network offers a useful tool for this: aconvert.

Unknown addresses when using e-mail, file transfer and remote login
You are using a network address and are told that the message cannot be delivered or that the connection cannot be established.

Terminal emulation problems
Your terminal displays funny characters or 'confetti', or your keyboard is out of tune.

Connection is failing
The network is slow or not functioning properly, or the connection cannot be broken off.

Network connection cannot be established
You are unable to make any network connections.

Instructions for file transfer
After transferring a file it appears to contain nonsensical data, or it turns out to be unusable.

Instructions for using a NUI
Use of the NUI, changing a password and monitoring the use.

4.1 Address Conversion

From X.400 to RFC-822 and back

Those possessing an e-mail address compliant with the X.400 or RFC-822 standard can send messages all over the world. Sometimes, though, this is not as straightforward as you might think it was:

you may have been given a business card which contains a peculiar X.400 address, or you are given an RFC-822 address which is unintelligible to X.400 users. In those cases, SURFnet allows you to use an address converter (aconvert), which turns an RFC-822 address to an X.400 address, or the other way round.
The procedure is as follows:

1: You connect to the address converter
2: You enter an address
3: The program returns the translated address

Both Telnet and X.25 can be used to gain access to the address converter in either of the following ways:

1: **telnet relay.surfnet.nl 4545** (TCP/IP) or
pad aconvert (X.25 on VAX/VMS) or
.aconvert (SURFnet PAD)
You will be directly connected to the aconvert program; continue to read at 'Once the connection has been made'

2: **telnet relay.surfnet.nl**
You will be shown the following log-in screen:

SunOSUNIX(relay)

login:

Type **aconvert** at the login prompt
The connection has now been made.

Once the connection has been made to the address converter, the actual conversion may start. The introduction screen looks like this:

```
**********************************************************************
                Welcome to the RFC-822/X.400 Address Converter

This system allows you to convert RFC-822 addresses to X.400
addresses and vice versa. Both address types are used for
electronic mail purposes.
**********************************************************************
```

You may start typing the address once the "c=" prompt appears.
If you want an RFC-822 address converted, type it directly after "c=".
If you want an X.400 address converted, first enter a country code at the "c=" prompt, after which the other fields can be typed. Below are two examples.

From X.400 to RFC-822

```
c=nl
admd=ibmx400
prmd=ibmmail
o=
ou=
s=brandsen
i=
```

g=jaap

Input is a convertible X.400 address
The corresponding RFC-822 address is:
jaap.brandsen@ibmmail.ibmx400.nl

From RFC-822 to X.400

c=Jan.deKater@convex.nl
Input is a convertible RFC-822 address
The corresponding X.400 address is:
c=nl;admd=400net;prmd=surf;o=convex;s=dekater;g=jan;

You can leave aconvert by p˝2000˝ressing **<Return>** at the "c=" prompt. You will then be disconnected.

4.2 Address Unknown

If the network address you are using does not seem to be correct, the solution depends on the service you are using, as an e-mail address differs from a remote login address or file transfer address.
Before looking for a solution, always check first whether you typed the address correctly. Pay special attention to the difference between 0 (zero) and o (lower case letter O), or between 1 (one), I (capital i) and l (lower case L). And remember that business cards and other printed material may contain printing errors.

If no apparent technical cause can be identified as responsible for the address's not working, contact the source or the person responsible for the address information.

4.2.1 Failing E-mail Address

If you are using an e-mail address and you are informed at a certain point that the address is incorrect, this may be due to a number of causes.

First of all, the mailing program may not accept or recognize the address. In this case, an error message will be given immediately upon entering the address or sending the message. Apart from typing errors, this may be due to an addressing format which cannot be processed by your local mailing program. This occasionally happens when you took the address from a colleague's business card, the address format differing from the standard RFC-822 or X.400 address conventions used within SURFnet (see also section 4.1 and Annex A.1). If suspect this to be the cause, your local support desk or ICP will probably be able to tell you whether or not such an address can be converted to a workable address. In addition, you may consult the archives of the INFONETS discussion list to find out whether the address might be converted, or you may try and use the aconvert program. Chapter 2 contains more information on these archives.

It may happen that, after your local mail program has correctly processed a message, you are sent a message by a 'Postmaster' or

'Mail delivery system' saying that your message could not be delivered. Usually the reason is given, and sometimes you are informed that the problem was only temporary or that the address you gave appeared to be incorrect after all.

Mail addresses usually have the following structure:

name@dept.institute.country code

For example:

Weber@geophysics.UnivAms.nl

It can be deduced from the error messages whether the mistake was in the name part (Weber) or in the domain part (geophysics.UnivAms.nl). Mistakes in the domain part are usually typing errors or have to do with the institute's being temporarily inaccessible.

If the error was in the name part and you are convinced that the address posed no problems with previous sessions, you may contact the person responsible for the domain geophysics.UnivAms.nl. These contacts can nearly always (and in any case within SURFnet) be approached under the name Postmaster. So if you want to obtain information about user addresses a specific domain, you could send a message to:

postmaster@geophysics.UnivAms.nl

asking for more information about Weber's e-mail address. If the Postmaster does not reply, the institute's ICP (see Annex B.1) will probably be able to help you track down the user.

If, after some time has elapsed, your message has still not been answered and no error message has been received, this will probably be due to the addressee's failure or refusal to read his or her mail. You may send another message, kindly requesting a reply. Adding your telephone or fax number and (non-e-mail) postal address may be useful in such cases, as it enables the addressee to use another communication channel.

4.2.2 Remote Login Addresses

X.25 addresses always involve a series of digits or a mnemonic, a word replacing the digits. Of course, something may go wrong when typing long series of digits. Therefore, mnemonics may be used for frequently used X.25 addresses (see Annex B.2). On your ICP's request, SURFnet provides mnemonics for frequently used destinations. In spite of extensive checks, some published X.25 addresses still appear to be inaccurate, most of them being obsolete. If you suspect an X.25 number to be incorrect, contact your ICP. He may then inform SURFnet about the inaccurate address.

If you are confident about the address, it is possible that you are using a Datanet extension. Connection may be denied in such an instance as network traffic with domestic or international public data networks (such as Datanet 1) is not always

sanctioned. Public networks involve extra costs, and your institute may have decided to bar network addresses on such a public data network. Of course, this will not be the case if you were able to reach the destination only the day before. However, if it is your first attempt to connect to an X.25 number, the above reason may be the cause. Your ICP can inform you as to whether network traffic to public data networks has been barred.

Some numbers can always be accessed at no extra costs; they usually start with the following digits:

129110, 188020, 2043, 02043 or 3

X.25 addresses starting with these 'prefixes' are accessible at no extra charge for all SURFnet users. It sometimes happens, though, that addresses starting with 2043 or 02043 won't work. This problem can be overcome by leaving out the digits 204 or 0204 so that the address starts with 3.

If this does not work either, the destination may not be accessible to every user. For security reasons, some destinations only allow traffic originating from specific sources. You may verify this with the system managers or contact persons at the destination concerned.

Another explanation may be that the line is engaged (like a telephone number). Try again some time later.

If this explanation is also to be discarded, then you are probably dealing with a network breakdown. In that case, notify your local support desk or ICP, who can take measures to have the breakdown remedied.

Telnet addresses always appear as a name (words separated by full stops) or a number (always four series of digits, also separated by full stops). With name goes a number. If you are using the name, a special program will look up the network number corresponding to that name. The actual connection is established through this number. For a variety of reasons, it may sometimes be difficult to trace the number; this, however, does not mean that the destination itself is inaccessible.

If you try again after some time, the connection may be set up without any problems. If not, you may try to use the number rather than the name (provided you know the number, of course). In stead of typing

telnet relay.surfnet.nl

you then enter:

telnet 130.161.180.100

If you succeed in establishing the connection, you can inform your local support desk or ICP that something is wrong with the name server.

Of course, when using X.25 or Telnet addresses, connections,

either national or international, may be disturbed. Usually, these disturbances will be very short and sometimes a bypass route will be provided, so that the disturbance will go unnoticed.

Finally, there is always a possibility that, when using X.25 or Telnet, the other side does not answer, which may be due to a hardware failure or to maintenance activities being performed at the receiving end.

4.2.3 File Transfer Addresses

In using FTP you may come across the same problems as with Telnet. In 4.2.2 you are told how to act in such a situation.

Sources and publications listing files which can be retrieved with FTP do not always clear how the address is composed. You may be told, for instance, to retrieve a file at the following address:

wuarchive.wustl.edu:pub/doc/rfc/rfc1347.ps.Z

This cryptic formula contains a machine name, a directory name and a filename, and should be dissected as follows:

wuarchive.wustl.edu (the machine)
pub/doc/rfc (the directory)
rfc1347.ps.Z (the filename)

Start the procedure by typing:

ftp wuarchive.wustl.edu

(Then log in with the user name **anonymous** and type your e-mail address as a password.)

cd pub/doc/rfc (go to the appropriate directory)
bin (.Z files are always binary)
get rfc1347.ps.Z (retrieve the file)
quit (disconnect)

If an FTP address works but the file cannot be found, you may use ARCHIE to search other FTP addresses for the file. Section 2.6 contains a description of ARCHIE.

Annex C contains a detailed example of an FTP session.

4.3 Terminals and Terminal Emulations

Remote login involves the use of computers: your desktop machine and the computer you are connecting to (the remote host or host computer). In this situation, your own computer acts as a terminal (a monitor and a keyboard) of the host machine. The network links both computers.

During a session with a computer elsewhere on the network, you

may come across some terminal problems. Strange characters may appear on your screen, or incomprehensible error messages flash up after pressing a function key. In most of these instances, the settings of terminal and host machine do not match. Different kinds of terminals exist, each with their own way to display characters on the screen and to interpret the keyboard commands. If a terminal-host mismatch occurs, the host computer wrongly assumes that you are working with a specific terminal type.

These problems can usually be solved by making your own terminal function the way the host computer expects it to. On the other hand, the host may also be told what terminal type you are using, so that data will be sent from the host to your computer in the appropriate format.
Most terminal problems can be avoided by using a VT100 terminal or a terminal which behaves like a VT100 terminal (which 'emulates' it). In addition, you should see to it that the host computer is also informed. Many host computers ask for your terminal type; if you enter VT100, things should run smoothly.

If you might still run into problems, the technical overview below provides you with a large number of terminal problems and hints for solving them. In view of the vast quantity of terminals and terminal software it is not possible to offer tailor-made solutions. The suggestions, however, will help you to find answers in either your manuals or by addressing your local help desk.

4 3.1 Screen Formatting Problems

Your monitor screen is being formatted incorrectly. Lines are truncated in the middle, menus are jumbled up, or text seems to continue beyond the screen limits. In these cases, you should check the wrap settings of your screen. Some host computers expect your terminal to automatically reformat lines which are too long to fit on the screen. Other hosts, however, assume that word wrap is not supported on your monitor. Your terminal manual or terminal software manual explains how you can define the wrap setting. You can also consult local support.

If your screen seems to be 'too short' to accommodate all lines (text disappearing at the top of your screen) the host computer assumes your terminal to be larger than it actually is. Most hosts allow this setting to be changed. By default, 24 lines are set. When working with a terminal allowing the number of characters (or columns) per line and the number of lines per screen (or page) to be defined, opt for 24 lines and 80 characters.

Sometimes the host computer takes it that you see after interrupting (or 'freezing') your own screen output. In that case pressing **Ctrl-S** will interrupt the scrolling; you can resume scrolling by pressing **Ctrl-Q**.

If funny characters appear on the screen (confetti), a 7/8-bits problem may be causing this. Your terminal interprets 7-bit host data as being 8-bit characters. You can remedy this by instructing your computer to ignore each eighth character bit

4.3.2 Key Definition Problems

Menu-controlled host computers in particular involve the use of certain function keys. You may be required, for example, to press the PF2 key to obtain help information. But what if there is no such thing as a PF2 key on your keyboard? Or the key which you assume to be the PF2 key is not functioning accordingly? In that case, consult your terminal emulation documentation to find out how certain keystrokes should be performed on your own terminal. This keystroke translation is known as keyboard mapping. It is useful to have a mapping template at hand for host sessions.

4.3.3 3270 Terminals

Terminals can be roughly divided in two categories: 3270 terminals and VT100 terminals. 3270 terminals are used to operate large IBM computers whereas VT100-like terminals can be used for VAX/VMS and Unix computers. A host computer set for a 3270 terminal will not automatically communicate with a VT100 terminal or vice versa.

If you want to use a VT100 terminal to connect to a computer requiring a 3270 terminal, the communication codes have to be translated or converted. This translation is performed with special software (often known as tn3270) or by special protocol converters located between your terminal and the host computer. This conversion will often go unnoticed.

If, however, problems arise with these connections, the cause can often be traced back to the conversion. Especially the keyboard problem mentioned earlier (which key is what) often plays a role. In such cases, you should reckon with two mappings. The first mapping will translate your own keyboard into a VT100 keyboard, whereas the second mapping redefines VT100 keys as 3270 keys. This double mapping only occurs if a third computer is involved in the communication between your terminal and the host computer, the third being either a protocol convertor or a computer loaded with tn3270 software.

4.4 Connection Slow or Broken Down, or Hang-up Unsuccessful

Sometimes network response is slow. Mail takes too long, a keystroke fails to produce a character on your screen, or it takes ages for a file to come in.
In these cases, you should realize that a network is as strong as its weakest chain:

- If the processing of mail has been delayed at a certain point, it may take some time before you get an answer;
- If many file transfers are attempted simultaneously, the network (or rather, the weakest chain) may become congested.

If problems occur in a connection with the United States or Australia, the time difference may be playing up. A US connection will usually be fastest during morning hours and tends to get slower in the course of the afternoon and the night. Time differences with respect to Central European Time range from -6 hours for the East Coast to -9 for the West Coast.

If a connection cannot be broken off, several measures can be taken. An X.25 session can often be interrupted with **Ctrl-P** R followed by typing **CLEA** or **CLR.** For a Telnet session, **Ctrl-]** followed by **QUIT.** The Telnet manual can also provide further information; usually a question mark **'?'** will make things clear. In rare cases - but these are emergency situations - turning off your computer may do the trick.

4.5 No Network Access

4.5.1 Unable to Set Up a Connection

In rare cases, the connection that links your institute with the outside world may be disturbed or broken off. As a result, you will not be able to connect to any destination. In such cases, consult your local help desk or ICP.
A similar problem may be caused by local circumstances. Your network server which contains the required software may be temporarily down for maintenance. As a rule of thumb, when enquiring into connection problems, it is advisable to start looking in the direct environment, working your way further up the network in the process.

4.5.2 Service Does Not Accept Connection or Breaks It Off

You probably know the maintenance schedule of most services you are regularly using. With a new service, however, you may find yourself trying to access the network during maintenance hours. If these problems "2000" occur at widely differing times, you may try to solve the access problem by changing hardware or software settings.

4.5.3 Instructions for Using a NUI (Only for SURFnet PAD Use)

Using a NUI
You only need a NUI (Network User Identification) when using a SURFnet PAD (Packet Assembler Disassembler). This is indicated by the following prompt:

```
SURFNET: 12911 000011    (or: 18802...)
*
```

In these cases, a NUI is required to operate SURFnet. Contact your ICP for this.

Note: Some institutes require a NUI when addressing services from your computer system. Consult your documentation or ICP.
A NUI consists of an eight-digit code followed by a password.

These are typed at the network prompt (an asterisk) in the following manner:

ID NUIstringNUIpassword

Example: your NUI is **01236543** (NUIstring)
your NUI password is **akdtge** (NUIpassword)

So you type: **id 01236543akdtge**

If your NUI is found to be correct, the answer is:

```
*
SURFNET: network user identifier 01236543 active
*
```

You may now enter the destination at the asterisk, for example: **.ANUI**

Changing your NUI password and checking the use of the NUI
If you dispose of a NUI, you may monitor its use and change the password.
In order to do this, first connect to SURFnet and then to the ANUI service (see also Chapter 2). After the connection has been established, you will be shown the ˝2000˝following screen:

```
**************************************************************
*
*   WELCOME TO THE SURFnet "Administration system for NUIs"
*
*  In case of trouble please contact your ICP (SURFnet Guide,
Annex *  B.)
**************************************************************
*  Please note that:
*  - you can type HELP for a list of available commands
*  - the displayed commands may not be abbreviated;
*  - NUI-passwords should have a length of 6 (no alternatives are
*    allowed);
*  - this user interface is a non-friendly, temporary user
*    interface;
*      SURFnet will try to provide a better, more friendly
interface *    as soon as possible.
**************************************************************

>> ENTER NUI: 01236543
>> ENTER NUI PASSWORD:
********

ACCESS GRANTED
>>
```

So you have to re-enter your NUI and NUI password to be allowed access to the ANUI service. Once you get the message ACCESS GRANTED, you may access the system.
The HELP command offers the following information:

```
**************************************************0**************
```

```
*    CHGPSW            This command is used to change the NUI
*                 password which was  used to access the ANUI.
*     DISPLAY_STATS    This command is used to display the *
 date/time of the last  10 successful validations,
*                 the number of unsuccessful  validation attempts
*                 since the last time this command was specified
*                 and the number of days since the password was
*                 last  changed,  for  the  NUI  used  to  access  the
ANUI. *
*     HELP            This command is used to display this text.
*      EXIT               This command is used to exit from the
ANUI.
*
*****************************************************************
>>
```

You can change the password with the command **CHGPSW ,** after which you have to type the password twice. The screen should look like this:

```
>> chgpsw
>> ENTER NEW NUI PASSWORD:
********
>> ENTER NEW NUI PASSWORD AGAIN FOR VERIFICATION:
********
NUI password changed
>>
```

The command **DISPLAY_STATS** enables you to check the dates and times at which your NUI was used.

```
>> display_stats

The number of days since the NUI password was last changed = 775

The validation dates for this NUI are as follows:
18.08.92/21.14
24.07.92/14.46
24.07.92/13.33
23.07.92/19.07
22.07.92/22.49
20.07.92/22.57
19.07.92/22.03
16.07.92/22.17
15.07.92/22.42
13.07.92/22.12
The number of invalid validation attempts for this NUI is 0
>>
```

Other NUI-related problems:

You forgot your password
The only remedy is to consult the person who issued your NUI. He or she may provide you with a new password.

Your NUI has been used by non-authorized users
Consult the person who issued your NUI.

The NUI does not work
Consult the person who issued your NUI. He or she can check your NUI, install a new password or inform SURFnet of any problems.

Your screen reads: 'Network user identifier error'

This indicates a typing error in your NUI or NUI password.

4.6 File Transfer Problems

SURFnet uses several methods to send or retrieve files over the network. The most important are FTP and e-mail. There is also an OSI version, FTAM, yet only few products are available for this version. Existing programs are tested by SURFnet in special projects.

In file transfer, a number of 'standard problems' do occur. The following are discussed below:

with FTP
- The difference between ASCII and binary
- filenames and file extensions

with e-mail
- lines with more than 80 characters
- the Listserv-punch (lpunch) format

Annex A.2 contains a detailed discussion of the ins and outs of file transfer. It provides you with information about sending binary files with e-mail and about file encoding, compression and archiving.

4.6.1 FTP

FTP has two methods (or 'modes') to transfer files: ASCII or text mode and binary or image mode. ASCII mode only allows transfer of regular text (no codes or special characters). Binary mode is intended for files which contain more than mere text. When transferring files it is essential that you always use ASCII mode for regular-text files and binary mode for binary files.

If a file appears to be illegible or unusable after transfer, this may be due to the transfer mode. A WordPerfect document sent in ASCII mode, for example, will be no longer recognized by the WordPerfect program, as the WP file always contains formatting codes which can only be transferred in binary mode.

It may also be that you used binary mode to transfer an ASCII text. However, not all systems store regular (ASCII) text in the manner. ASCII mode guarantees a correct conversion of text files from one system to the other. Binary mode does not.
It is not always obvious whether a file is ASCII or binary. Documents created in word processors, databases or spreadsheets will usually have a binary format and therefore have to be transferred in binary mode. In addition, the filename, or the file extension, often indicates whether a file is ASCII or

binary. Below you find some frequently found filenames and file extensions and their transfer mode.

readme	ascii	text file, to be read first
index	ascii	index file
.txt	ascii	standard text file
.doc	ascii	standard text file
.ps	ascii	PostScript file
.uu or .uue	ascii	'uuencoded' file
.arc	binary	archive file
.zip	binary	"
.lzh	binary	"
.zoo	binary	"
.tar	binary	Unix 'Tape ARchive'
.Z	binary	Unix compressed file
.shar	ascii	Unix 'SHell ARchive'
.exe	binary	executable program
.com	binary	DOS program

When retrieving a file, you may be told, after typing the filename, that the file is non-existent. If so, check whether you typed the filename correctly, exactly as it appears on your screen in the directory listing. Many computers are 'case-sensitive', distinguishing between upper and lower case type.

If you typed the filename correctly and the file can still not be retrieved, it may be that the filename does not comply with the naming rules of your own system. Filenames containing two full stops (".") are not allowed on VAX/VMS and DOS systems. In addition, DOS system filenames are restricted to 8 characters for the filename and 3 for the extension. You may solve this name problem by transferring the file under another name. Most FTP programs enable you to do this by commands such as:

get Chapter.1.txt chapter1.txt

Here, type two names: the name of the file to be retrieved (the remote filename) and the name under which you want the file to be stored on your own computer (local filename).

4.6.2 E-mail

If you use e-mail to send files or to order them from file servers such as Listserv or TRICKLE (see also Chapter 2) you should reckon with some e-mail limitations.

One restriction is that you cannot simply send binary files via e-mail. Binary files first have to be encoded with programs like UUEncode or Binhex. This is why software and other binary files ordered by e-mail are always encoded. In order to get the original file, you must save the mail as a file and decode it. Annex A.2 contains more information about file encoding and decoding.

Another limitation is the number of characters per line in a mail message. Although most mail programs can handle lines of any

length, some computers and networks (such as CREN/EARN) impose an 80-characters limit on line length. Longer lines may be wrapped, but this may still pose problems when a certain line length is emphatically required. Therefore, files containing lines with more than 80 characters can best be encoded before mailing them.

The 80-characters limit also explains why many mail messages open with the following lines:

```
* File "LISTSERV SITES" contains records larger than 80 characters.
* It is consequently being sent to you in "Listserv-Punch" format.
*
* You can get information about that format by sending the following
* command to LISTSERV@BITNIC.BITNET: "Info LPunch"
*
```

In the example, you have ordered a file containing lines longer than 80 characters from a Listserv computer. After the explanatory text, the file is sent, each line preceded by some extra codes. For example:

```
ID/LISTSERV SITES    V 00087
80/2/**************************************************************
80/2/* LDS@BITNIC                                        MAKEINFO V2.8
```

files These are in the Listserv-punch format. These files are still legible, but their lay-out may not be satisfactorily.

If you send the command **Info lpunch** to a Listserv computer, you will immediately be given a rather technical explanation about this format (this explanatory text is not sent in Listserv-punch format). With the explanatory text comes a program to convert 'punched' files to their original format. However, you do not have to operate this program yourself. Depunching programs are now available for a wide variety of computer systems. Some can be retrieved from the SURFnet file server and are located in the user-support/software directory. Chapter 2 tells you how to operate this service.

Annex A.1 A Closer Look at Addressing

A.1.1 E-mail Addressing
1.1.1 Flat Addressing
1.1.2 Domain Addressing
1.1.3 X.400 Standard
1.1.4 Converting E-mail Addresses
1.1.4.1 Standard Conversions
1.1.4.2 From Internet to X.400 Address Format
1.1.4.3 From X.400 to Internet Address Format
1.1.5 Mailers
A.1.2 Addressing for File Transfer
1.2.1 FTP (TCP/IP)
1.2.2 EARN/CREN
1.2.3 DECnet
1.2.4 File Transfer via Electronic Mail
A.1.3 Addressing for Remote Login
1.3.1 X.121 Address
1.3.2 Telnet Network Address

This Annex describes the phenomenon of electronic addresses. The text has been organized as follows: the first section discusses e-mail addressing, the two addressing formats supported by SURFnet and their mutual conversion. Next, addressing for file transfer is looked into. Finally, the last section discusses remote login addressing.

In order to send a message or a file, or to connect to another computer, one should dispose of exact address information. Electronic addresses may vary per network and per communication service, while the way in which addresses are to be typed depends on the programs installed on the computer. At the same time, worldwide supporting facilities, such as an electronic version of the Yellow Pages, are sadly lacking.

Ideally, a user could do without knowledge about the network he is connected to, or about the network he wants to connect to. There should be an addressing method for every service that should be intelligible to any network. However, in practice things are more complex.

A.1.1 E-mail Addressing

At the moment, users in the Netherlands and elsewhere in Europe are using various forms of electronic mail, each with its distinct addressing format. Of course, this may lead to confusion. Nevertheless, e-mail can be said to be more standardized than other communication services, such as file transfer or remote login (see below). This means that a relatively low level of addressing knowledge should enable you to use e-mail.
In order to give some insight into these aspects of network communication, the following section will cover the two most common addressing conventions: flat addressing and domain addressing.

A.1.1.1 Flat Addressing

Flat addressing is directed in the first instance to the registration of the machine (the computer) in the network and, in the second instance, to the user of this machine. Especially within EARN/CREN this form of addressing is still common, so you will come across it frequently. Such an address may look like this:

userid@nodeid

For example:
straaafd@heithe57

From left to right, this address reads: a user with userid 'straaafd', located on a computer in the ("h") in the city of Eindhoven ("ei"). The machine is located at the Eindhoven Polytechnic ("the") and is coded as VAX ("5"), the seventh to be exact ("7").

This explanation seems rather straightforward, but what if you

have to figure out a foreign node? And what would the addressing consequences be when the hardware were replaced?
SURFnet therefore opposes flat addressing. Domain addressing, on the other hand, characteristic for RFC-822 and X.400 (see below), offers so many opportunities, that SURFnet provides full support only for e-mail programs which comply to either of these standards.

A.1.1.2 Domain Addressing

This e-mail address (or RFC-822 address) has a hierarchical structure and consists of various organizational elements (domains) such as: country (top level domain), organization name (primary subdomain), department name (secondary subdomain) and addressee's name. RFC-822 stands for 'Request for Comment 822' and has been developed as a standard for the format of ARPA-Internet messages. That is why it is sometimes referred to as 'Internet addressing'. RFC-822 is being widely used, especially in the United States. An electronic mail address according to RFC-822 looks like this:

name@subdomain2.subdomain1.domain

Let's examine this address from right to left:

- The domain ('top level domain') is the two-letter country code (NL for the Netherlands) for countries other than the United States. Within the US, this domain is used for a three-letter code indicating the kind of organization (for example, EDU for educational, GOV for government, COM for commercial, et cetera).

- Subdomain1 ('primary subdomain') usually contains the name of the organization or institute. Next, more subdomains may follow, indicating the faculty or department, et cetera. For example, the address of a member of the Measurement and Control Engineering department of the Mechanical Engineering faculty of the Delft University of Technology could look like this:

jansen@meascon.men.tudelft.nl

One advantage of this form of addressing (compared with flat addressing) is that a user no longer has to know on which system or which computer the addressee is located. In this way, the addressing assumes a more 'human' character; it is no longer merely network-/hardware-/system-oriented.

It should be noted that sometimes a large number of machines may hide behind the domain part of an address. E-mail aims to prevent the user from being concerned with this very problem. For instance, some of the machines behind the domain SURFnet.NL (the office of SURFnet bv) are:

SURVIS.SURFnet.NL
SURVER.SURFnet.NL
SURPRICE.SURFnet.NL

Still, you can reach every employee of SURFnet bv by using **name@SURFnet.NL.** This 'generic mail address' is linked to the SURVIS.SURFnet.NL which keeps a table that knows where each user's mail has to be delivered. It is pleasant for a user that the computer system can be changed without this having consequences for the network address for electronic mail.

A.1.1.3 X.400 Standard

The exchange of messages via electronic mail can be improved when the communication protocols of the various systems are standardized. The introduction of the X.400 standard plays an important role in this process. X.400 is a standard for 'Message Handling Systems'. The format in which messages between various systems can be exchanged is standardized, as are the addresses through which this is achieved. Moreover, the X.400 standard offers such useful options as 'message received' and 'message beginning'. X.400 will also provide a link with a directory (an electronic address list) based on the X.500 standard. This will enable the user to address the other end with a user-friendly directory name rather than the full address.

X.400 was developed by the CCITT, the international organization of public telephone companies. SURFnet started implementing X.400 in January 1991.

Like an RFC-822, an X.400 address consists of organizational elements (attributes) and looks as follows:

C=NL; ADMD=400net; PRMD=SURF; O=TUDELFT; OU=MEASCON; S=PETERS; I=PMJ; G=PETE;

C stands for country, ADMD is Administrative Management Domain, PRMD is Private Management Domain, O is Organization, OU is Organizational Unit, S is Surname, I is Initials and, finally, G stands for GivenName (first name).

The introduction of domain addressing (RFC-822 and X.400) in SURFnet

The introduction of this addressing convention requires some organizational measures to be taken by the affiliated institutes. For instance, 'Naming Authorities' (NAs) have been appointed at the institutes (usually the ICPs), who have been made responsible for setting up the unique naming structure required to introduce RFC-822 and X.400 addressing. The NAs coordinate naming procedures for your institute and your unit and register these names with SURFnet bv. SURFnet then sees to it that this registration can be used worldwide.

In order to enable the institutes to anticipate this development at an early stage and to facilitate a smooth transition to X.400, SURFnet decided to use RFC-822 addressing as an intermediate step for everything that is not X.400. In addition, ample RFC-822 software has always been available for various computer systems, whereas this is still not the case for X.400. SURFnet bv has already realized a link between X.400 and RFC-822.

With the introduction of X.400, only two e-mail addressing

formats will remain supported by SURFnet: X.400 and the RFC-822 standard.

A.1.1.4 Converting E-mail Addresses

Although RFC-822 and X.400 have more or less similar addressing structures, addressing an RFC-822 user from X.400 (and vice versa) is no sinecure. Below you find a detailed discussion of converting e-mail addresses.

In Annex A.1.1.4.1, the standard conversion of RFC-822 into X.400 addresses (and vice versa) will be discussed. These standard conversions apply to all RFC-822 and X.400 addresses, but they involve a number of disadvantages:

- The resulting addresses are complex and unsightly;
- Not all X.400 and RFC-822 programs allow this complex addressing format.

Therefore, various networks in several introduced their own 'neat' conversion protocol for RFC-822 and X.400 addresses. SURFnet did so for all e-mail addresses, so that every SURFnet user can now be reached with one e-mail address, incorporating both an X.400 and an RFC-822 format, allowing unequivocal conversion. The way these conversions are enacted is described in Annex A.1.1.4.2 and Annex A.1.1.4.3.

If the information below might not be adequate, SURFnet provides another practical and up-to-date tool for converting X.400 to RFC-822 addresses (and the other way round): aconvert. Section 4.1 tells you how this service can be accessed.

A.1.1.4.1 Standard Conversions

If you want to convert an address from a network that offers no X.400-to-RFC-822 link, the neat conversion described below cannot be applied. For these addresses, the standard conversion will have to be used. These standard conversions will always work, for every address. The result, however, is a complex and unsightly address that will not always be accepted by the e-mail program of the receiver or sender.

An X.400 address in RFC-822 format
Here the X.400 address, with all its attributes, is entered to the left of the @ character, separated by slashes (/). At the right of the @, the address of the SURFnet gateway is typed.

Examples:

The X.400 address

C=nz; ADMD=starnet; PRMD=kiwi; O=treetop; S=Smith

is converted to the following RFC-822 address:

/S=smith/O=treetop/PRMD=kiwi/ADMD=starnet/C=nz/@relay.surfnet.nl

If the X.400 address contains a space in one or more attributes,

then RFC-822 requires all text to the left of the @ sign to be put between double quotes ("):

X.400:

C=sg; ADMD=telebox; PRMD=cheap; O=watches; OU=for sale; S=smith

will be RFC-822:

" / S = s m i t h / O U = f o r sale/O=watches/PRMD=cheap/ADMD=telebox/C=sg/"@relay.surfnet.nl

Note: Unfortunately, not all RFC-822 programs will accommodate double quotes.

As you see, aesthetics don't come in here.

An RFC-822 address in X.400 format
In X.400, a special attribute has been reserved for non-X.400 addresses: a domain-defined attribute, or simply DD. Not all X.400 software, though, can handle these attributes. Again, the conversion can always be applied, but the resulting address won't be eligible for a beauty prize. Still, it is the only method for X.400 users to access addresses on networks which do not dispose of a 'neat' conversion protocol. Examples are .uucp, .bitnet, .edu and .com addresses, and addresses in countries which offer RFC-822 but not X.400, to be identified by their country suffix, such as .ar (Argentina) or .in (India).

For RFC-822 addresses, X.400 users must use a DD.RFC-822 as an attribute. The other attributes depend on the address itself, a matter which is too complex to be discussed here. However, SURFnet users can always add one of the following attributes to a DD.RFC-822:

PRMD=surf; ADMD=400net; C=nl;
(Note that no O and no OU attributes may be used!)
Moreover, X.400 will not accept @ signs, so in a DD.RFC-822 this character has to be replaced by (a), including the parenthesis.

Example:

RFC-822 address:

user@azvax51.bitnet

becomes the following X.400 address:

DD.RFC-822=user(a)azvax51.bitnet; PRMD=surf; ADMD=400net; C=nl

And RFC-822 address:

user@domain.ar

is converted into the following X.400 address:

DD.RFC-822=user(a)domain.ar; PRMD=surf; ADMD=400net; C=nl

Note: The way in which a DD.RFC-822 is entered depends on the X.400 program.

Again it should be noted that this default conversion can always be applied, but the result looks a bit cluttered. Therefore, the following is of importance.

A.1.1.4.2 From Internet to X.400 Address Fo mat

The local part
The conversion of the local part of the Internet address format into X.400 attributes has been defined in the RFC-987 document. The local part of an Internet address is the part to the left of the @ sign. This may consist of a first name, initials and a surname (or userid), separated by full stops.

- If the local part contains no full stop, the entire local part is put in the X.400 attribute S (SurName), for example:

piet@cwi.nl

The local part is 'piet'; in X.400 this will become:

S=piet;

- If the local part does contain full stops, the element to the immediate left of the @ sign is put in the X.400 attribute S (SurName). All elements consisting of only one character are considered to be initials and are grouped together (without any full stops) in the X.400 attribute I (Initials).
  If the far left element of the local part contains more than one character, it is placed in the X.400 attribute G (GivenName, or first name).

r

Examples:

Arie.W.Jansen@cwi.nl

The local part is 'Arie.W.Jansen' which will read in X.400:

G=Arie; I=W; S=Jansen;

A.W.Jansen@cwi.nl

The local part is 'A.W.Jansen', which becomes in X.400:

I=AW; S=Jansen; (no G attribute)

Arie.Jansen@cwi.nl

The local part is 'Arie.Jansen', in X.400 terms:

G=Arie; S=Jans n; (no I attribute)

Arie.W.L.Jansen@cwi.nl

The local part is 'Arie.W.L.Jansen', which reads in X.400:

G=Arie; I=WL; S=Jansen;

Note: The S attribute is obligatory in X.400, I and G attributes are optional.

The domain part
Regretfully, though, each PRMD has its own protocol for conversion of the domain part of an Internet address format to an X.400 address format. First, the most common cases are dealt with:

- *SURFnet addresses (PRMD=surf)*
The Internet address format in SURFnet (PRMD=surf) always ends with .nl as top-level domain. Conversion into an X.400 address leads to the following results:

C=nl; ADMD=400net; PRMD=surf;
O= {primary subdomain} always included
OU={secondary subdomain} if included
OU={third subdomain} if included
et cetera

Examples:

peters@SURFnet.nl
C=nl; ADMD=400net; PRMD=surf; O=SURFnet; S=peters;

D kken@eantest.urc.kun.nl
C=nl; ADMD=400net; PRMD=surf; O=kun; OU=urc; OU=eantest; S=Dikken;

Arie.W.L.Jansen@rc.rug.nl
C=nl; ADMD=400net; PRMD=surf; O=rug; OU=rc; S=Jansen; G=Arie;
i **I=WL;**

- *Internet addresses of Memocom400 users (memocom400.400net.nl)*
The Internet format of addresses of Memocom400 users is characterized by their ending in: .memocom400.400net.nl. These addresses can be converted into X.400 addresses in the following manner:

C=nl; ADMD=400net;
PRMD=; or NO prmd
O={third subdomain} always included
OU={fourth subdomain} if included
OU={fifth subdomain} if included
et cetera

- *Internet addresses of ADMD=400net users (non-SURFnet PRMD)*
The I˝2000˝nternet format of an address not forming part of the P:RMD=surf always ends in 400net.nl. This should be converted into an X.400 address in the following manner:

C=nl; ADMD=400net;
PRMD={secondary subdomain} always included

O={third subdomain} always included
OU={fourth subdomain} if included
OU={fifth subdomain} if included
et cetera

Examples:

Herman.Visser@eur.sales.Digital.Digital.400net.nl
C=nl; ADMD=400net; PRMD=Digital; O=Digital; OU=sales; OU=eur; S=Visser; G=Herman;

Jaap.Roos@enka.akzo.akzo.400net.nl
C=nl; ADMD=400net; PRMD=akzo; O akzo; OU=enka; S=Roos; G=Jaap;

Note: The elements of an Internet address should not contain spaces or other special characters. The SURFnet gateway translates X.400 addresses containing such characters into a legal Internet address format, but not according to the rules discussed here. Quotes are used in the Internet address format, the result of which is a Internet which serves its purposes, but which will hardly be intelligible for the user. If you come across such an Internet address, you cannot convert it into a usable X.400 address by means of any of the methods described above. The appropriate method will be described below, however.

- *Internet addresses without a country code*
Conversion is achieved according to the standard method described in Annex A.1.1.4.1.

- *Bitnet and UUCP addresses*
Conversion according to the standard method described in Annex A.1.1.4.1.

- *Internet addresses in other countries*
Unfortunately, each country has its own way of turning an Internet address into an X.400 address. Therefore, it is impossible to give a single and straightforward conversion for all possible addresses. If you have an Internet address (the top-level domain of which ends in a two-letter ISO country code), use the SURFnet aconvert service (see 4.1).
Examples:

Foest@zpl.dfn.dbp.de
C=de; ADMD=dbp; PRMD=dfn; OU=zpl; S=Foest;

Steve Kille@cs.ucl.ac.uk
C=gb; ADMD=; PRMD=uk.ac; O=ucl; OU=cs; S=Kille; G=Steve;

Martinez@iris-dcp.es
C=es; ADMD=; PRMD=Iris; O=iris-dcp; S=Martinez;

vf@uminho.pt
C=pt; ADMD= ; PRMD=uminho; S=vf;

A.1.1.4.3 From X.400 to Internet Address Format

- *SurName, Initials and GivenName*
SurName, Initials and GivenName are converted to the local part

of the Internet address according to RFC-987, that is the element to the left of the @ sign. In the Internet address, the various parts (if any) are separated by full stops. The GivenName attribute is at the far left of the local part, followed by the Initials attribute, multiple initials being separated by full stops. At the far right of the local part (which is to the immediate left of the @ sign), value of the SurName attribute is located.

Note: SurName (S) is an obligatory field in an X.400 address, whereas GivenName (G) and Initials (I) are optional.

Examples:

X.400:	Internet:
G=Arie; I=W; S=Jansen;	**Arie.W.Jansen@domain**
I=AW; S=Jansen; (no G attrib.)	**A.W.Jansen@domain**
G=Arie; S=Jansen; (no I attrib.)	**Arie.Jansen@domain**
G=Arie; I=WL; S=Jansen;	**Arie.W.L.Jansen@domain**
S=Jansen; (no G and I attribs.)	**Jansen@domain**

Other attributes
Again, it is not possible to offer one single rule according to which X.400 addresses of all countries can be converted. Therefore, only the most common cases are treated here:

- *C=nl; ADMD=400net; PRMD=surf; (SURFnet users)*

X.400 addresses containing C=nl; ADMD=400net; PRMD=surf; in the address (in other words: addresses of SURFnet users) are converted to Internet format as follows:
Leave out the attributes PRMD and ADMD and paste the values of the other attributes (C, O and possibly OUs) in hierarchical order, using the full stops as separators. This should put the C (C=nl) at the far right, and the lowest OU (or the O value, if there is no OU) at the left. This produces the domain part of the Internet address.

The local part is made up of the G, I and S attributes, as described above.

Examples:

C=nl; ADMD=400net; PRMD=surf; O=SURFnet; S=huizer;
huizer@SURFnet.nl

C=nl; ADMD=400net; PRMD=surf; O=kun; OU=urc; OU=eantest; S=Dikken; G=Jan;
Jan.Dikken@eantest.urc.kun.nl

Or if you have a reverse X.400 address:

S=vanOorschot; OU=dnpap; OU=et; O=TUDelft; PRMD=surf; ADMD=400net; C=nl;
vanOorschot@dnpap.et.TUDelft.nl

- *Memocom400 addresses*

Memocom400 user addresses in X.400 typically lack a PRMD value. Therefore, these addresses will always contain C=nl; ADMD=400net; the PRMD value being absent (PRMD will either not be mentioned at all or will occur as PRMD=;). These addresses sometimes also include X.400 attributes starting with DDA. In Memocom400, these attributes can be dispensed with for addressing purposes. (Of course, in other than Memocom400 cases they may definitely be required!) Conversion of a Memocom400 address to an Internet address format is enacted as follows:

The domain part of the Internet address is formed by pasting the OU values (if any) in hierarchical order, using full stops as separators. Next, put the value of the O attribute to the right (again using a full stop as a separator) and, finally, to the far right: .memocom400.400net.nl

The local part of the Internet address format is made up of the G, I and S attributes, as described above.

Examples:

C=nl; ADMD=400net; PRMD=; O=PTT-telecom; OU=TSD; S=Jansen; G=Harry;
Harry.Jansen@TSD.PTT-telecom.memocom400.400net.nl

C=nl; ADMD=400net; O=PTT; S=helpdesk;
helpdesk@PTT.memocom400.400net.nl

Other ADMD=400

To convert the other (non-SURFnet) addresses containing C=nl; ADMD=400net; to the Internet address format, do the following:

Paste the values of the C, ADMD, PRMD, O and any OU attributes in hierarchical order, separated by full stops. This will form the domain part of the Internet address, which always has 400net.nl as the uttermost right hand part. The local part of the Internet Address is made up of the G, I and S attributes.

Note: The elements of an Internet address should not contain spaces or other special characters. The SURFnet gateway translates X.400 addresses containing such characters into a legal Internet address format, but not according to the rules discussed in this context. Consult section 4.1 to find out what an X.400 address containing spaces and special characters does look like in an Internet address format.

Examples:

C=nl; ADMD=400net; PRMD=Digital; O=Digital; OU=sales; OU=eur; S=Visser; G=Herman;
Herman.Visser@eur.sales.Digital.Digital.400net.nl

C=nl; ADMD=400net; PRMD=akzo; O=akzo; OU=enka; S=Roos; G=Jaap;
aap.Roos@enka.akzo.akzo.400net.nl

- *X.400 addresses in other countries*

Again, each country has its own way of turning an X.400 address into an Internet address. Therefore, it is impossible to give a single and straightforward conversion for all possible addresses. If you have an X.400 address, use the SURFnet aconvert service to turn it into an Internet address (see 4.1).

Examples:

C=de; ADMD=dbp; PRMD=dfn; OU=zpl; S=Foest;
Foest@zpl.dfn.dbp.de

C=gb; ADMD= ; PRMD=uk.ac; O=ucl; OU=cs; S=Kille; G=Steve;
Steve.Kille@cs.ucl.ac.uk

C=es; ADMD= ; PRMD=Iris; O=iris-dcp; S=Martinez;
Martinez@iris-dcp.es

C=pt; ADMD= ; PRMD=uminho; S=vf;
vf@um nho.pt

A.1.1.5 Mailers

It is evident that computers must be able to interpret such e-mail addresses in order to transfer them via the network. This is achieved by mail-handling programs, simply called 'mailers'. Not all computer systems or operating systems are accommodated to handle RFC-822 mail as a standard feature, but usually mailer-programs are available (many of the even public domain) to solve this problem.

Some examples:

VAX/VMS:	PMDF
IBM/MVS:	UCLA mailer
IBM/VM:	Crosswell mailer
UNIX:	Sendmail or PP
PRIME/Primos:	PDN mailer

Correctly installed computer systems which have been equipped with one of the above mailers should be able to send and receive RFC-822 mail.

SURFnet bv provides the facilities required to prepare the numerous SURFnet-connected systems for RFC-822 addressing. As can be seen from the list above, a VAX/VMS system requires the introduction of the PMDF mailer. Like the other programs, PMDF accepts all non-Internet addressing formats, in addition to RFC-822. For users this means an improvement of the SURFnet mail service, as all existing mail functions are maintained. Users working with PMDF or any of the other mailers will find that all addressing formats are possible, making the entire world e-mail-accessible.

Generally, your system manager will announce migration to a new form of sending electronic mail with domain addressing.

A domain list is available from Listserv.

A.1.2 Addressing for File Transfer

Unfortunately, developments in file transfer did not keep track with e-mail developments. You still have to know the addressee's exact network and machine name in order to send any files. Therefore, we will briefly sum up the situation regarding TCP/IP, EARN and DECnet.

A.1.2.1 FTP (TCP/IP)

Due to the fact that since 1989 the TCP/IP functions have become available to SURFnet users, a large area for file transfer has been opened up. You can use the File Transfer Protocol (FTP) to exchange files with other network users.

Sometimes the FTP address is the same as the mail address, but it may also be slightly different. This is because FTP requires the exact machine name and will not accept the generic mail address (see A.1.1, E-mail Addressing). For example, a user who has CC.RUU.NL as the domain part in the mail address, will have ACCUCX.CC.RUU.NL as the FTP machine name. So you have to make special inquiries when using FTP. Actually, you should know the machine's IP number, though a name server will usually be on the network which links the name to the number used by the network protocol. If such a name server is not available, you must use the number 131.211.16.36 to address ACCUCX.CC.RUU.NL. You need a user code and a password to use FTP for sending files.

FTP is very often used for 'anonymous' file transfer. This facility can be used to log into a computer by using the user name 'anonymous' and your e-mail address as a password. With anonymous file transfer a vast amount of public domain software has become available for SURFnet users. Correct addressing poses no problem, as publications citing anonymous file transfer usually mention the addresses to retrieve the software from.

A.1.2.2 EARN/CREN

EARN/CREN uses flat addressing (see A.1.1). An address appears as follows:

serid@nodeid

Examples:

U654321@HNYKUN11
DEWINTER@HHEOUH51
NETSERV@HEARN

Note: Do not use a .BITNET suffix after the node name as with e-mail.

This addressing format is mostly used combined with the command **SENDFILE** (VM/CMS) or **SENDFILE** (VAX/VMS). Consult your ICP for using this facility.

A.1.2.3 DECnet

DECnet also uses flat addressing. The electronic address of a user consists of the computer's name in the DECnet network and the name by which the user of this computer is known, separated by :: , in this way:

node::user

Examples:

KUNSUR::INFO
KULVGZ::DEMO

You generally use this addressing format in combination with the command **COPY** on a VAX/VMS system. Consult your ICP for more details.

A.1.2.4 File Transfer via Electronic Mail

Finally, files are often sent via electronic mail. Of course, the addressing rules for electronic mail apply as described in

A.1.3 Addressing for Remote Login

Remote login addressing, like file transfer addressing, may take various forms. You can use it to set up a connection, the method depending on the way the machine is connected to the network.

Addressing for remote login through SURFnet can be done either with an X.25 network address or with a Telnet network address. Of course, you should have access to the destination computer when setting up an X.25 or Telnet session.

A.1.3.1 X.121 Network Address

You are dealing with an X.121 address if your destination has a numeric format, such as:

20412911028470

Such a number code is referred to as an X.121 address or NUA (network user address). Your computer system should enable the use of these destinations (it should dispose of an X.25 connection). In SURFnet that will usually be the case. Especially interesting are so-called IXI numbers, particularly for international destinations. Education and research networks in Europe, and a number of public networks are linked by means of a European X.25 network: IXI. SURFnet charges no extra costs for traffic to these destinations. IXI numbers typically start with:

(0)2043

the 0 being required for foreign addresses.

A.1.3.2 Telnet Network Address

A Telnet network address strongly resembles the domain part of

an RFC-822 a

survis.surfm

Here, the sa
number (192.
to use the m
you are work
network addr
local helpde
system.

Annex A.2 Pack and Go; The Ins and Outs of File Transfer Via the Network

A.2.1 Sending Files Via E-mail
A.2.2 Regular Text Versus Documents
A.2.3 Encoding Binary Files
A.2.4 Coding Procedure
A.2.5 Decoding
A.2.6 Large Files
A.2.7 Splitting Large Files
A.2.8 Combination Programs
A.2.9 Compressing Large Files
A.2.10 Archiving Files
A.2.11 File Extensions

Networks offer a wide variety of possibilities for sending information from one computer to another. By means of file transfer (such as FTP) you can quickly retrieve or send large quantities of data, which may combine to form either simple text files or even complete databases, or images. Sending data via e-mail is not always without problems however. This is largely caused by the diversity of standards used by computer and network suppliers. Information which can be processed without problems by one computer, may be discarded as useless rubbish by another. And different networks may 'speak' different languages. In addition, there are also differences between programs. It will be obvious that it is not always easy to directly exchange files with other users via e-mail.

This section deals with a number of peculiarities of file transfer via e-mail, which you should take into account when retrieving or sending files. The following matters will be looked into:

- Encoding binary files, such as WordPerfect documents or complete programs.
- Splitting up (breaking down) large files into manageable packages.
- Compressing large files.
- Packing or archiving several files in one archive file.

A.2.1 Sending Files Via E-mail

Suppose you have created and formatted a document in WordPerfect 5.1 and you want to send it to a colleague in another part of the country in order to have him add commentary or corrections. It would be nice if you could send this document by electronic mail and have it returned to you some days later. You would not have to type the corrections yourself, nor spend time reformatting it. With your colleague responding promptly, you might even have the corrected version back on your desk within hours.

Network transfer of formatted documents is usually relatively simple over local networks. But beyond the local network the transfer of formatted files may be problematic. The X.400 standard for e-mail, which is slowly but surely gaining ground, will enable transfer of all kinds of files all over the world. For the moment, however, sending formatted WordPerfect documents (or in other words binary files) can only be achieved after performing a thorough study into the character and structure of the various networks which separate you from your colleague.

A.2.2 Regular Text Versus Documents

Transfer problems are caused by the method used for storing text documents and other documents which contain more than just words. A document created a word processor contains text but also special codes which ensure that the printed version of your text will have an orderly lay out and appropriate font. Lay out codes are stored binarily, which means that formatted documents are considered to be binary files. A second difference is the absence

of explicit line separators in the file as saved on disk (unlike the text you see displayed on your screen).

As e-mail was primarily meant for the exchange of very simple text messages, files with regular text only contain characters of a limited character set (with 128 different characters). The so-called diacritic characters (with diaresis, umlaut, cedilla), for example, are not included in this set. The simplicity of the available character set is also partly caused by the absence of diacritic characters in English.

If you send a WordPerfect document by e-mail, characters which do not belong to the limited character set will be lost during the transfer. The absence of line separators in binary WordPerfect documents also causes problems.

Fortunately, you do not have to wait for the arrival of X.400 to send your formatted WordPerfect document via e-mail to your colleague as there are several methods for converting the formatted document into a text file, which is again converted to a binary file after transfer. This is not only possible for WordPerfect documents, but also for other binary files such as programs, and spreadsheet and database files.

A.2.3 Encoding Binary Files

Binary files are converted into regular text by means of encoding programs. There are different encoding programs, each of which requiring a specific decoding program. Therefore, before you use an encoding program, you must make sure that the receiver has the correct decoding program available and you have to notify him how you encoded the file.

One of the most popular encoding programs is UUENCODE. A file encoded by UUENCODE must be decoded by means of the UUDECODE program. (UU stands for Unix-to-Unix and this program was developed initially for the exchange of binary files via e-mail on Unix computers.) In the encoding process three binary characters are converted into four 'simple' characters. These characters, which are part of the limited character set, can be transferred via e-mail without losing information.

UUENCODE can be used on virtually every system. This also goes for comparable programs such as BINHEX (BINary -> HEXadecimal) and BTOA (Binary TO Ascii). BINHEX is chiefly used on Apple MacIntosh computers, however, and BTOA usually on Unix systems. There are also a number of system-dependent encoding programs, which come with certain software packages. For example, you can use the WordPerfect program CONVERT to translate WordPerfect documents into the so-called 7-bits transfer format, a format which can be used to send files via e-mail without a hitch.

In spite of the fact that most encoding and decoding programs can be used on most computer systems, you have to take into account that binary files are usually computer-dependent. A program made for a MacIntosh computer will not function on an MS-DOS computer. But files created with word processors or database programs are

more and more program-dependent and can therefore be read into different computer systems (provided that the program is installed on that system). In general, a WP 5.1 document created on an MS-DOS computer can easily be transferred to and processed by WordPerfect installed on a MacIntosh computer. Just make sure that the (binary) document is not damaged during transfer.

A.2.4 Coding Procedure

The above seems complex, but the procedure to be followed for encoding and decoding files is rather simple. We use MS-DOS computers in our example, but with slight adaptations the rules also apply for other systems.

In the first place, as a sender, you must have an encoding program, while the receiver should dispose of the appropriate decoding program. UUencoders are available in many kinds and sizes. From simple encoders to very elaborate ones with a host of extra options. And as said before, there is a different encoding program for virtually every system (even Windows has its own UUen/decoding program). Most of these programs are available as public domain software, freeware or shareware. This means that you can obtain them for little or no money.

You can usually obtain an encoding program from your ICP or local computer support desk. If this is not the case, you or your local network expert can 'pick' the program from the network. See elsewhere in this Annex for instructions.

Once you have an encoding program, you start the program at the DOS prompt, usually by entering the name UUENCODE followed by the name of the file you want to encode. The program creates a new file with the same name but with the extension .UUE. For example, if you have created a document under the name JOURNAL.WP5, type UUENCODE JOURNAL.WP5 at the DOS prompt. The encoding program then creates the file JOURNAL.UUE. You will notice that this file is considerably larger than the original file, which is caused by the conversion of every sequence of three characters into a sequence of four characters.

If you were to display an encoded file on your screen (with the command **TYPE**, for instance), you would see something like this:

```
begin 644 journal.wp5
M_U=00S@0```!"@`!`````/O_!0`R`.L#```&`!````!"````!P`G````6P``
M`/__6@```+$````"`KT!```+`0``""-\`%4````'`````````#)C<&D@*$0I
M`%1I;65S(%)O;6%N`%1I;65S(%)O;6%N($)O;&0`2&5L=F5T:6-A``4`/G!1
.
.
.M:6YG96X@9&EE(&)I:B!D92!I;G-T96QL:6YG96X@8F5S=&%A;B!Z:6IN(&1A
M87)V;V]R('1E(&=R;V]T+B!5=PUL;VMA;&4@26YF;W)M871I96-E;G1R=6T@
H:V%N(%4@:&EE<B!E8VAT97(@86QL97,@;W9E<B!V97)T96QL96XN(&XN
`
end
```

The first line with 'begin' indicates the beginning of the encoded file. Most UUdecoders ignore everything preceding this line and stop at the line with 'end'. When sending a file you can insert text before the line with 'begin' to provide information

about the decoding procedure or a short summary of the contents. The signature which may be automatically added to outgoing mail by your mail program does not interfere with the contents either.

You also see the original name of the file displayed on the first line. This name is automatically adopted by the decoding program. If, for example, the name '\wp\document\journal.wp5' is found here, the sender included the entire path name in the encoding command. When decoding such a file, most programs will assume that the directory '\wp\document\' exists. If this is not the case, an error message will be displayed. To prevent this you can use a simple ASCII text editor (or WordPerfect as long as you save the file as DOS text) to remove the directory specification before decoding the file. The best policy is, however, to encode files in the directory in which they reside.

The exact method for transferring encoded files via e-mail differs for each institute and system. Generally, you must first send your encoded file to the computer with mail facilities, or see to it that it can be reached from that computer. With most networks, sending files from your PC or workstation to a central computer is simple and fast. At this central computer, your encoded file is incorporated in an e-mail message. Consult your local support desk or ICP for more information.

A.2.5 Decoding

Decoding is the reverse of encoding. After you have saved a mail message as a file and transferred it to your own PC or workstation, you start the appropriate decoding program by entering its name, UUDECODE, for example, followed by the file name at the DOS prompt. The file name is not subject to special rules, but for your own benefit it might be wise to use the extension .UUE. If you have received an encoded file by e-mail, you could save the file under the name DOCUMENT.UUE, for example. In that case the decoding command would be **UUDECODE DOCUMENT.UUE.** The decoding program recreates the original file and uses the name mentioned in the line reading 'begin 644'. In our example, this would be JOURNAL.WP5. This file is identical to the original file and can be read directly by WordPerfect.

A.2.6 Large Files

Large files may cause problems when sent via e-mail. Mail is usually transferred via a number of intermediary stations. Mail containing large files has a low priority at these stations, resulting in long delivery times. In addition, some computers and networks simply refuse to forward large files, although it differs from case to case what is considered to be large. One computer will easily process a message of 200 kB kB equals 1024 characters), while another may grumble with files of 20 kB.

Fortunately, the generally accepted file size is increasing. 100 kB is usually considered to be a safe maximum file size. Therefore, you must see to it that your encoded files do not exceed 100 kB. If you use a 10 point font and your document does not contain pictures, a file of 20 pages of text will not exceed

the maximum of 100 kB after encoding.

In connection with the delay in delivery caused by sending large files, it is sensible to send even smaller files, even though several methods are available for sending large files via e-mail. You can for example split very large encoded files into manageable packages. Or you can compress large files. These subjects are dealt with in the following sections.

A.2.7 Splitting Large Files

An encoded file can be considered as a normal text file without formatting codes, consisting of lines of a fixed length. You could manually split a large file into several smaller files by cutting the text into blocks of, for instance, 500 lines and save these blocks as files (as DOS files, in the case of WordPerfect), using names such as JOURNAL1.UUE, JOURNAL2.UUE, et cetera.

It is easier, however, to use a program which performs this task for you. Several types of these so-called splitters are available. If you are using or planning to use such a program you should take care that the program splits files on entire lines and not on a random character (which can occur in the middle of a line).

When sending split files by e-mail you should mention which subfile is being in the Subject field of your message. For instance:

Subject: Encoded WP document JOURNAL.UUE, Part 2 of 5

The receiver has to put the subfiles together in the correct order before decoding the file. There is a snag in this, however. When a file is transferred by e-mail, several lines with (address) information are added to it. If the receiver pastes subfiles together, including the extra lines, uncoded as well as encoded information will occur in the file. Most decoding programs will break off when encountering uncoded characters and display an error message.

The receiver will have to remove (manually, by means of an ASCII editor) extra lines preceding or following the encoded information. In order to make things easier for the receiver, you may indicate in each subfile where the encoded information starts and ends by adding lines such as:

--------------< Cut here >-------------

A.2.8 Combination Programs

It appears that sending large files is very laborious. First the file has to be encoded by program 1, then it has to be split by program 2, subfiles have to be manually adapted, and pasted together and decoded. What's so easy about that? A number of programmers decided there should be an easier way to transfer large files by e-mail, and they wrote programs which will do

(almost) everything for you. Such a combination program encodes and automatically splits large files into subfiles 200 with sequential numbers), while the corresponding decoding program automatically pastes the subfiles together and is also able to distinguish encoded and uncoded information. The only thing you have to do is send the subfiles by e-mail, while the receiver has to use the names with the sequential numbers. One example of such a combination program is Richard Mark's UUENCODE program for DOS which is available in various software archives under the name UUEXE515.ZIP (the number 515 may be changed in the course of this year).

There are also more e-mail programs becoming available which take part of the work out of your hands. In local networks especially, e-mail programs are frequently equipped with a function to add an 'attachment' or message to a file. Such e-mail programs also take care of encoding files, although large attachments are not split. In that case you have to reduce the size of the file yourself, either by splitting it or by compressing it (see below).

A.2.9 Compressing Large Files

The way data is stored in files is not always very efficient. A document or program can easily be stored in a smaller file without loosing any information. For example, a sequence of 20 spaces is stored as 20 characters in a regular file. After compression, 20 spaces, for example, are represented by three characters of which the first indicates that the next two have a special meaning, the second contains a repeat value (a character meaning 20 in computer language) and the third is the character to be repeated (a space). In this case, a space saving of 85% is possible. In other in the sequence of 20 spaces 85% of the information is redundant. In the course of time, many techniques have been developed to compress redundant information in an intelligent way.

The degree to which a file can be compressed not only depends on the compression technique but also on the type of information in the file. Database files and texts can usually be compressed quite well, while computer programs resist compression. One compression technique is adequate for texts, while another should be used for compressing graphic information, such as graphs and images. It can be said in general that compressing files can result in space savings of 10 to 80%.

In order to send a large binary file by e-mail, it first has to be encoded. As said before, encoding will increase the file size. You can prevent this problem by first compressing a large file. Even after encoding it for e-mail, the file will still be relatively small. The sequence of first compressing and then encoding is very important as compressed files always contain binary information which cannot directly be sent via e-mail.

When you have sent a compressed and encoded file to a colleague, he has to decode and decompress it (the reverse sequence). The technique he uses naturally has to correspond to the one you

used. Therefore, before sending a compressed file, you have to agree on the technique to be used, or mention the technique in the Subject field of your e-mail message.

A large number of compression/decompression programs are available, some of which, and especially the more popular ones, can be obtained via the network. The choice for a specific program is based on its speed and on the resulting degree of space saving. Another important criterium is the popularity of the program. Some compression "2000" programs, despite their quality, are relatively unknown and therefore not widely used. And finally, some compression techniques have become computer system-dependent. The compression program StuffIt, for instance, is inseparable from Apple MacIntosh computers, whereas PKZIP (with PKUNZIP as partner) is frequently used on DOS computers. Unix files are usually compressed by means of the Unix program 'compress'.

A.2.10 Archiving Files

Most compression programs will also archive files. In this context, archiving means packing several files into one single file. Software available via the network is usually distributed as archive files into which all compressed program, documentation and help files are bundled.

Archiving can also be useful if you want to send a number of related files via e-mail. With one single command you can compress and pack a series of documents into a single archive file, which you can then simply encode and transfer. This method does not only save space, but will also save a considerable amount of time.

A special type of achive file is the so-called 'Self eXtracting archive', or simply SFX or SEA file. SFX files are stored and distributed as executable files. If you start such a file as a program, the contents of the archive are automatically unpacked and, if necessary, decompressed. As a result, you do not need special de-archiving or decompression programs to unpack such files. This type of archive file is used in particular for the distribution of archiving and compression programs, the fact being that when you receive a packed archiving or compression program you usually do not have the appropriate software available to unpack it. That is why the makers of such software have invented the self-extracting archive file to make their product available to everyone.

A.2.11 Extensions

In the above all sorts of programs were discussed. Because of the different techniques employed, these programs are usually not compatible with each other. A file which was compressed and packed using a particular technique, also has to be unpacked and decompressed using that technique. The same can be said for a file which was encoded by the program UUENCODE; it cannot be decoded by a random decoding program. Regretfully, this means

that when looking for information and software, you will frequently encounter files which can only be unpacked, decompressed or decoded by a program you do not have available at that time. The truth is that there is no universal program for all techniques.

How do you know which program to use to unpack an archive file? The only indication you really have is the file name extension. This is the last part of the file name, usually separated from the main part by a full stop. The file DOCUMENT.ZIP, for example, should be unpacked by means of PKUNZIP. And files with the extension .SIT should be unpacked by means of the program StuffIt. The extension is usually the mnemonic of the name of the program or the technique by which the file was created. Below you find a survey of frequently used encoding, compressing and archiving programs with accompanying extensions.

.arc	ARC or PKPAK/PKUNPAK archive
.arj	ARJ archive
.boo	BOO encoded (for Kermit software)
.cpt	Compactor or Compactor Pro archive (Mac)
.hqx	BinHex encoded
.lzh	LHA or LHARC archive
.shar	shell archive (Unix Bourne shell)
.sit	StuffIt archive (Mac)
.tar	Unix Tape ARchive
.tar.Z	compressed Tape ARchive
.taz	compressed Tape ARchive (DOS)
.uu	UUencode encoded file
.uue	
.xxe	XXencode encoded file
.Z	compressed file (Unix compress)
.zip	PKZIP/PKUNZIP archive
.zoo	ZOO archive

The above survey is based on a more comprehensive survey which may be obtained via 'anonymous FTP' from the FTP host **ftp.cso.uiuc.edu** in the directory **/doc/pcnet** under the name 'compression'. This survey, which was compiled by David Lemson, shows the accompanying program for virtually every possible extension. This survey also indicates which computer systems the programs can be used for and where you can find them. If you do not have FTP facilities available, you can retrieve this file with 'ftpmail' (see Chapter 2 for a description of ftpmail). You can also find software for the most popular systems and file formats via the SURFnet Fileserver (**ftp.nic.surfnet.nl**) in the directory **user-support/software**. (Also see Chapter 2 for more information about the SURFnet Fileserver.)

Some other obstacles

After having retrieved a file, you only have to install the software. Most software is distributed as archive files. Archive files with the extension .EXE can be started as a program on a DOS computer, after which the software and documentation files are automatically unpacked. Apple software is usually distributed as HQX files. These files have to be unpacked by means of the program BINHEX. The installation of software on Unix and VAX/VMS

computers requires specific system knowledge. Before installing software on Unix or VAX/VMS computers you should always consult your system manager.

If you order software via e-mail (ftpmail, TRICKLE or the SURFnet mailserver), you may encounter the so-called 'bootstrap' problem. For example, a UUdecode program is a binary file which is encoded for transfer via e-mail. When you order this program via ftpmail or TRICKLE, you will receive an encoded decoding program which you cannot decode. You can solve this problem by ordering the *program text* instead of the program itself.

If you have a compiler available which can convert source code into an executable program, you can order the source code for various programming languages to make a simple UUdecoder. For DOS computers the file UUDECODE.DBG exists which uses the program DEBUG (which resides on every DOS computer) to make a simple UUdecoder. In this file (UUDECODE.DBG) you have to remove everything preceding (and including) the line reading 'cut here', after which you can use the command **DEBUG < UUDECODE.DBG** to extract your UUdecoder.

You can order this file via the SURFnet Fileserver (**mailserv@file.nic.surfnet.nl**) with the command **send user-support/software/msdos/uudecode.dbg** in a mail message.

Annex A.3 Security

A.3.1 Access Security
A.3.1.1 Network User Identification (NUI)
A.3.1.2
A.3.1.3 Access Report
A.3.2 Hackers
A.3.3 Viruses
A.3.4 Other Security Measures

SURFnet is an open network for many thousands of users. This means that no attempt has been made to achieve watertight screening from the world beyond your institute, as rigid security hinders ease of use. And it is this ease of use that is considered of prime importance by SURFnet bv. On the other hand, in practice we see that certain security measures cannot be avoided in order to sufficiently protect data. In this section a number of security aspects will be dealt with.

A.3.1 Access Security

The route via SURFnet to the computers on the network can be compared to a public road. Just like a bank building on a public road must have its own access arrangements for reasons of security, the computers connected to SURFnet must themselves be protected. This means that the system managers must take security measures. In practice, the system managers consult each other regularly regarding security matters, gratefully using the network itself (via e-mail). SURFnet bv is pleased to participate whenever possible, because the network can only function optimally when the linked systems are reasonably secured. Therefore, SURFnet bv makes considerable investments in provisions which prevent eavesdropping and loss of data.

A.3.1.1 Network User Identification (NUI)

Network User Identification (NUI) is a user validation on the X.25 network, which can be compared to a combination of 'user identification' and 'password' on a host computer. In terms of public roads, it can be as a kind of license plate for using SURFnet. One of the advantages of NUIs is that problems with establishing links can be analyzed down to the end-user's level. Abuse can therefore also be combatted without causing other users inconvenience (it is no longer necessary for example to close off the network for a group of users). The NUI system also enables extra costs for network use to be billed to the end-user. This does not involve traffic on SURFnet, which has already been paid for, but rather costs incurred when destinations beyond SURFnet (either Datanet 1 or a foreign public network) are being addressed. This facility is of importance for institutes (and consequently also for you).

A NUI allows you to log in, as it were, on the X.25 network. When establishing such a link, you have to enter your NUI and

password. The network (the network software) then registers your session (length and packets sent) and consequently determines the extra costs incurred. A NUI with password enables you to check the last ten links you have established and thus allows you to detect any possible abuse of your NUI. It is also possible to change your NUI password (see ANUI). You can obtain a NUI from your ICP). You do not need a NUI for TCP/IP (Telnet and FTP).

A.3.1.2 Passwords

Local computer systems or networks often have security policies relating to the use of SURFnet - who may go where? - likewise you must have a password to use a (tele)PAD. Regulations for this vary per institute. Furthermore, there are measures which you yourself can take in order to make SURFnet safe, such as changing your password regularly (which is a requirement for many computers). Your ICP can give you more information on how to deal with passwords; there are a number of methods for selecting passwords, some of which are dealt with in the articles about passwords listed in the bibliography.

A.3.1.3 Access Report

When logging in, some computer systems display a message showing the date and time of your previous session. Take note whether it was really you who logged in. Another security feature is the reporting of unsuccessful access attempts. If you suspect that someone has tried to log in using your personal user name, then this should be reported to the system manager immediately.

A.3.2 Hackers

Security of computer systems is a hot topic. There are many people who make a sport out of illegally forcing their way into computer systems. This hacking must be regarded as delinquency, or vandalism to be exact. Suppose someone breaks into a laboratory wielding a hammer. This is comparable to breaking into a computer system where a great deal of damage can be done by means of certain commands. While hackers do not need SURFnet to obtain their objective, SURFnet bv is actively trying, together with the system managers, to track them down. If a hacker is caught, evidence is given to the injured institute to enable them to take the appropriate legal action.

In the Netherlands, the so-called CERT-NL team is on the alert for 24 hours a day and 7 days a week. This team deals with security problems on SURFnet. Such a security problem may sometimes be caused by a hacker. In addition to this, CERT-NL also provides general information about computer security. You can obtain more information about CERT-NL via the e-mail address **cert-nl@surfnet.nl.**

SURFnet bv reserves the right to disconnect institutes who repeatedly have engaged in questionable activities in the area of safety, or appear to show tolerance towards hackers (or, even worse, encourage hacking).

A.3.3 Viruses

Viruses are a form of computer vandalism which is also often publicly debated. Anyone who uses public software, also called freeware, shareware or public domain software, runs the risk of acquiring a program containing a virus, although public domain software (also see Chapter 2), provided it is from a reliable source, is generally not a source of contamination. In most instances a virus is found on the diskette with the program that was infected during copying.

A virus is a preferably small program which attaches itself to other programs and can then be automatically started as soon as the carrier program is started. In principle a virus can force its way into every system, provided that it has been written for that system. A virus which is written for a PC can never work on a VAX. However, it can easily be spread via the VAX! In principle, it is possible to spread programs for any computer system via electronic mail.

As with other virus infections, abstinence is the best policy. Only use programs which you have purchased yourself. However, many people do not keep to this rule, thus giving viruses a chance. Games especially easily fall prey to a virus. arises Consequently, the question regularly about what can be done to prevent viruses. At the moment there is little to combat them, even though there are virus scanners and virus killers. Absolute safety cannot be granted, however, as long as programs are being copied from third parties.

A.3.4 Other Security Measures

Up to now we have only been concerned with security in terms of access control and viruses. Equally important for you is whether communication via the network has the intended result. You will be caused relatively little inconvenience as a result of the open character of the network, although you must be aware of it. In some cases it is advisable to send confidential information by regular mail.

Furthermore, you should realize that you cannot simply reply to one of the messages from a distribution list by means of the command **REPLY**, because if you do so your reply may be forwarded to all participants on the list. And they may be numerous, many of them probably not conversant in the language you have written your reply in.

Nevertheless, getting a good connection will be your primary interest in most cases. SURFnet functions well, but still something can go wrong with your message. It is essential that you observe the following rules:

- Make a copy of important information/messages;
- Ask for a confirmation if it is important that the message arrives on time;
- Archive essential messages well, so that you can send or read them again.

The information above has already made it clear, but we would like to repeat that embedding SURFnet in your work environment may cost some time and energy, but ultimately the rewards will be considerable.

Annex A.4 Network Etiquette: How to Behave With Networks

A.4.1 With Electronic Mail
A.4.2 With Remote Login
A.4.3 With File Transfer

Communication naturally makes demands on the participants and the media used. In the case of communication via SURFnet, these demands are partially caused by the capacity of the network. This section pays attention to several general rules of conduct which should be observed with electronic mail, with remote login and with file transfer.

Via SURFnet you have access to other networks and to computer systems on those networks. For every network and every computer system you have to observe a different set of rules and procedures. It is your own responsibility to respect the rules and procedures of every network and computer system, including your own.

A.4.1 With Electronic Mail

The use of e-mail requires some self-discipline. Not only concerning the maintenance of you own electronic mail box, but also concerning the structure of your messages.

- Check your mailbox daily;
- Remove undesired messages immediately;
- Limit the number of messages in your mailbox as much as possible;
- Save messages in files.

This will help you to efficiently manage the available disk space.

In the case of e-mail messages, keep to the following rules:

- Reveal your identity;
- Start your message with a proper introduction;
- Give a clear description of the subject;
- Give a receipt acknowledgement if requested;
- Do not send unnecessary messages (network contamination can be a plague);
- When you base your reply on the e-mail message which was sent to you, you should remove text which is no longer relevant;
- In some cases it is preferable to use the telephone (in practice conflicts are not always easily settled via electronic mail).

With discussion lists you should adhere to the following rules:

- Save the confirmation of a su˝2000ˆbscription; a subscription can simply be cancelled by sending a message with the appropriate unsubscribe command;
- When sending questions or answers you should limit yourself to the field of interest of the discussion group;
- When you are absent for longer periods of time (such as

vacations), you should cancel your subscription, or use the suspend function by sending a message to the Listserv concerned with the command **set listname nomail;**
- Never use a mailbox you share with other people to subscribe to a discussion list;
- Be aware that a reply is usually forwarded to all subscribers, which is not always what you want.

Below are some general Listserv commands for administrative purposes. Never send these commands to the discussion list itself. These commands should be addressed to: **Listserv@...**

Command	Description
subscribe listname 'your name'	subscribe to a discussion list
signoff listname	cancel your subscription
set listname nomail	temporarily suspend delivery of mail
set listname mail	resume delivery of mail

A.4.2 With Remote Login

- Try to find the most efficient procedure for remote login; the network load and network costs, if any, should be kept as low as possible.
- As soon as you have finished you should end your session

- Most information services have on-line help files available. Retrieve the help file and read the instructions carefully before starting a search procedure.
- If you want to search information in a databank, it may be useful to store the displayed information in a local file. This way you limit the connection time to the database and thus the network load. An additional advantage is that you can reread the information at a later stage.

With some services it is possible that you are unable to disconnect in the usual manner. This problem is usually caused by the local network used by the service. Possible solutions are:

- If you established the connection via an X.25 session (PAD or otherwise), pressing **Ctrl-P** once or **Ctrl-Y** twice will almost always return you to the command mode, where you can break off the connection directly by typing **CLR** or **CLEAR.**
- With a telePAD session a rather unsophisticated solution is turning the modem off and then on again, or making the modem disconnect.
- With a Telnet session sometimes the only solution is to press **Ctrl-]** followed by the command **QUIT.**

In international X.25 links which may sometimes be unsuccessful or repeatedly interrupted, international standardization plays an important role. An important aim of the Pan-European network IXI is to offer compensation for the poor interconnectivity of national public networks and in so doing simplify the establishing of international links.

A.4.3 With File Transfer

- If you want to make changes in a file which is located on another computer on the network you should retrieve the file to your own computer, make the changes and return the file. But if the file is very large, it is preferable to make the changes remotely.

- When sending files to another user you should generally notify him by e-mail that he is about to receive one or more files. This is especially important in the case of large files which take up a lot of disk space.

- When sending encoded files you should mention how the file is to be decoded. See 4.5 and Annex A.2 for more information about encoding and decoding files. An example of an encoded file, which may simply be decoded if the proper method is known, is shown below:

```
begin 644 gids.asc
M06%N(`@(`@(#H@(`@4VEM;VX@96X@4&5T97(-E9A;B`@(@    (`Z(`@
M($)E<G0@4W1A;,-D)E=)E9G0@(`Z(`@($=I9,@9&]O
<B!355)&;F5TM+!T97(@8F5S<)E:VEN9R`Q,B!A=6=U<W1U<    PT*1&%T=
6T@(`@(#H@(`@M,3$@875G=7-T=7,@,3DX.`T*#0H-C`N(`@5F]O <G=O;WD(&5N (&EN;&5I)
```

  In short, never send large or encoded files without notice.

- You should remember that with FTP you are on your own computer and not on the host;

- With 'anonymous FTP' you can enter your e-mail address when asked for a password (also see section 2.2). When this causes problems you can enter the password **guest**.

- Very large files (of over 1 Mb) should preferably be transferred by night in order to limit the network load. See your local support desk or ICP for more information.

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Telephone : +31 70 - 344 06 52
E-mail : surf374@kub.nl

Institute : Nijenrode University
Domicile : Breukelen
ICP : mrs. A. van Hulst
Telephone : +31 3462 - 912 83
E-mail : vanhulst@nijenrode.nl
IC : H. Kroodsma
Telephone : +31 3462 - 912 83
E-mail : kroodsma@nijenrode.nl

Institute : Open Universiteit
Domicile : Heerlen
ICP : mrs. S. Meerschaert
Telephone : +31 45 - 76 22 22
E-mail : kansym@ouh.nl
IC : E. Grouwels
Telephone : +31 45 - 76 25 12
E-mail : appegw@ouh.nl

Institute : Openbare Bibliotheek Amsterdam
Domicile : Amsterdam
ICP : J. van Dijk
Telephone : +31 20 - 523 08 99
E-mail : -
IC : H. Utlu
Telephone : +31 20 - 523 09 79
E-mail : -

Institute : Openbare Bibliotheek Tilburg
Domicile : Tilburg
ICP/ICP : K. van Poppel
Telephone : +31 13 - 35 50 55
E-mail : poppel@obtilburg.nl

Institute : PICA
Domicile : Leiden
ICP/IC : M.Dekkers

Telephone : +31 71 - 25 72 57
E-mail : dekkers@pica.nl

Institute : Provinciale Bibliotheek Centrale Utrecht
Domicile : Houten
ICP : J. Crajé
Telephone : +31 3403 - 529 00
E-mail : -
IC : C. van der Gouw
Telephone : +31 3403 - 529 00
E-mail : -

Institute : Provinciale Bibliotheek Friesland
Domicile : Leeuwarden
IC/ICP : H. Schaap
Telephone : +31 58 - 13 32 85
E-mail : schaap@pbf.nl

Institute : Provincie Noord-Holland
Domicile : Haarlem
ICP : P. Alleman
Telephone : +31 23 - 14 30 20
E-mail : -
IC : D. Boxman
Telephone : +31 23 - 14 30 23
E-mail : -

Institute : PTT Research
Domicile : Leidschendam
ICP : R. Sonneveld
Telephone : +31 70 - 332 53 62
E-mail : icp@research.ptt.nl
IC : W.L. Bast
Telephone : +31 70 - 332 62 65
E-mail : ic@research.ptt.nl

Institute : PTT Telecom-Bedrijfsnetwerken
Domicile : Den Haag
IC/ICP : H. van der Linden
Telephone : +31 70 - 343 18 08
E-mail : -

Institute : RARE Secretariaat
Domicile : Amsterdam
IC/ICP : M. Varsakis
Telephone : +31 20 - 639 11 31
E-mail : varsakis@rare.nl
IC : P. Heijmens-Visser
Telephone : +31 20 - 639 11 31
E-mail : heijmens-visser@rare.nl

Institute : Research Instituut voor Bedrijfswetenschappen (RVB)
Domicile : Maastricht
ICP : mrs. I. Hamelers-Weijenberg
Telephone : +31 43 - 61 83 18
E-mail : library@rvb.nl

Institute : Rijksdienst voor Oudheidkundig Bodemonderzoek
Domicile : Amersfoort
IC/ICP : A. Lange
Telephone : +31 33 - 63 42 33
E-mail : -

Institute : Rijkshogeschool IJsselland
Domicile : Deventer
ICP/IC : J. van Ginkel
Telephone : +31 5700 - 209 17
E-mail : jaap.vanginkel@hto.rhij.nl

Institute : Rijksuniversiteit Groningen
Domicile : Groningen
ICP : R.F. Janz
Telephone : +31 50 - 63 34 02 / 80 80
E-mail : rugmail@rc.rug.nl
IC : S. Rozema
Telephone : +31 50 - 63 34 28 / 80 80
E-mail : rozema@rug.nl

Institute : Rijksuniversiteit Leiden
Domicile : Leiden
ICP : mrs. E. van Wijk
Telephone : +31 71 - 27 70 19
E-mail : icp@leidenuniv.nl
IC : R. Prins
Telephone : +31 71 - 27 69 12
E-mail : ic@leidenuniv.nl

Institute : Rijksuniversiteit Limburg
Domicile : Maastricht
ICP : M. de Lyon
Telephone : +31 43 - 88 23 46
E-mail : m.delyon@ica.rulimburg.nl
IC : L.C. v.d. Heuvel
Telephone : +31 43 - 88 23 50
E-mail : bart.vandenheuvel@ica.rulimburg.nl

Institute : Rijksuniversiteit Utrecht
Domicile : Utrecht
ICP : mrs. M. Hagenaars
Telephone : +31 30 - 53 44 03
E-mail : marja@cc.ruu.nl
IC : R. Ritzen
Telephone : +31 30 - 53 37 85
E-mail : ic@cc.ruu.nl

Institute : Rijksinstituut voor Visserijonderzoek (RIVO)
Domicile : IJmuiden
ICP/IC : F. Storbeck
Telephone : +31 2250 - 646 46
E-mail : -

Institute : SARA
Domicile : Amsterdam
ICP : mrs. J. Dorrepaal
Telephone : +31 20 - 592 3020 bgg 592 30 00

E-mail : dorrepaal@sara.nl
IC : H. Sennema
Telephone : +31 20 - 592 30 75 bgg 592 30 00
E-mail : sennema@sara.nl

Institute : Sociaal Cultureel Planbureau (SCP)
Domicile : Rijswijk
ICP : mrs. P. Adelaar
Telephone : +31 70 - 319 87 00
E-mail : info@scp.nl
IC : F. Jansen
Telephone : +31 70 - 319 87 54
E-mail : -

Institute : Stadsbibliotheek Haarlem
Domicile : Haarlem
ICPs/ICs : S. Roestenburg and L. van Heereveld
Telephone : +31 23 - 15 76 00
E-mail : -
Telephone : +31 23 - 15 76 00
E-mail : -

Institute : Stads- of Athenaeum bibliotheek Deventer
Domicile : Deventer
IC/ICP : D. Webbink
Telephone : +31 5700 - 937 46
E-mail : surf456@kub.nl

Institute : Stichting ICODO
Domicile : Utrecht
ICP/IC : mrs. M. Mertens
Telephone : +31 30 - 34 34 36
E-mail : allmail@icodo.nl

Institute : Stichting Astronomisch Onderzoek in Nederland (ASTRON) / Netherlands Foundation for Research in Astronomy (NFRA)
Domicile : Dwingelo
ICP/IC : mrs. H. Lem
Telephone : +31 5219 - 72 44
E-mail : astron@nfra.nl

Institute : Stichting Film en Wetenschap
Domicile : Amsterdam
ICP/IC : A.T.P. Oosterbaan
Telephone : +31 20 - 665 29 66
E-mail : -

Institute : Stichting voor Fundamenteel Onderzoek der Materie (FOM)
Domicile : Utrecht
ICP : mrs. M. Sauer
Telephone : +31 30 - 92 32 11
E-mail : sauer@fom.nl
IC : M. de Vries
Telephone : +31 30 - 92 32 11
E-mail : -

Institute : Stichting Nederlandse Bibliotheek Dienst
Domicile : Leidschendam
ICP : A. van Mullem
Telephone : +31 70 - 337 77 33
E-mail : clavaux@nbd.nl
IC : N. Clavaux
Telephone : +31 70 - 337 77 33
E-mail : clavaux@nbd.nl

Institute : Stichting SURF
Domicile : Utrecht
ICP : P. Kokosky Deforchaux
Telephone : +31 30 - 31 12 34
E-mail : kokosky@surfbureau.nl
IC : J. Bakker
Telephone : +31 30 - 31 12 34
E-mail : bakker@surfbureau.nl

Institute : Stichting voor de Technische Wetenschappen
Domicile : Utrecht
ICP/IC : J. Veen
Telephone : +31 30 - 92 32 86
E-mail : -

Institute : Stichting Universitaire Administratieve Automatisering (˝2000˝SUAA)
Domicile : Amsterdam
ICP : D. Udo
Telephone : +31 20 - 548 70 71
E-mail : dirk@suaa.nl
IC : C. Schellingerhout
Telephone : +31 20 - 548 54 33
E-mail : buro@suaa.nl

Institute : Stichting Wetenschappelijk Onderzoek Verkeersveiligheid (SWOV)
Domicile : Leidschendam
ICP : F. Poppe
Telephone : +31 70 - 320 93 23
E-mail : poppe@swov.nl
IC : mrs. Th.van der Tas
Telephone : +31 70 - 320 93 23
E-mail : tas@swov.nl

Institute : Swets & Zeitlinger bv
Domicile : Lisse
ICP/IC : J. Nouwen
Telephone : +31 2521 - 352 16
E-mail : -

Institute : SWIDOC
Domicile : Amsterdam
IC/ICP : R. Bronmans
Telephone : +31 20 - 622 50 61
E-mail : -

Institute : Technische Universiteit Delft
Domicile : Delft

ICP : E. Mulder
Telephone : +31 15 - 78 49 90
E-mail : icp@tudelft.nl
IC : F. de Kruijf
Telephone : +31 15 - 78 32 26
E-mail : f.dekruijf@rc.tudelft.nl

Institute : Technische Universiteit Eindhoven
Domicile : Eindhoven
ICP : W. Kortsmit
Telephone : +31 40 - 47 45 87
E-mail : icp@urc.tue.nl
IC : G. Scherpenzeel
Telephone : +31 40 - 47 45 83
E-mail : rcgj@urc.tue.nl

Institute : Telematica Research Centrum
Domicile : Enschede
IC/ICP : T. van Schaik
Telephone : +31 53 - 89 41 37
E-mail : -

Institute : Theologische Universiteit
Domicile : Kampen
ICP/IC : E.van Wijnen
Telephone : +31 5202 - 926 66
E-mail : curat1@thu-k.nl

Institute : TNO
Domicile : Delft
ICP/IC : L. Nieuwenhout
Telephone : +31 15 - 69 47 09
E-mail : nieuwenhout@tno.nl

Institute : Universiteit van Amsterdam
Domicile : Amsterdam
ICP : E. Kappner
Telephone : +31 20 - 525 22 99
E-mail : disc_uva@sara.nl
IC : H. Knops
Telephone : +31 20 - 525 22 14
E-mail : huub@tdc.uva.nl

Institute : Universiteit voor Humanistiek
Domicile : Utrecht
ICP/IC : Th. de Groot
Telephone : +31 30 - 31 26 74
E-mail : library@univforhuman.nl

Institute : Universiteit Twente
Domicile : Enschede
ICP : G. Bakx
Telephone : +31 53 - 89 23 22
E-mail : icp@utwente.nl
IC : A.M. Kluitenberg
Telephone : +31 53 - 89 23 06 / 23 32
E-mail : rcbert@utwente.nl

Institute : Vredespaleis Bibliotheek
Domicile : Den Haag
ICP/IC : mrs. E. Biezeveld
Telephone : +31 70 - 346 96 80
E-mail : -

Institute : Vrije Universiteit
Domicile : Amsterdam
ICP : P. Valkenburg
Telephone : +31 20 - 548 26 63
E-mail : valke@cca.vu.nl
IC : J. Schuurman
Telephone : +31 20 - 548 26 63
E-mail : sjaak@cca.vu.nl

Institute : VSNU
Domicile : Utrecht
ICP/IC : A. Schutgens
Telephone : +31 30 - 31 41 93
E-mail : beheer@vsnu.nl

Institute : Waterloopkundig Laboratorium
Domicile : Delft
ICP : A. Duijndam
Telephone : +31 15 - 56 93 53
E-mail : arno.duijndam@wldelft.nl
IC : A. Bloem
Telephone : +31 5274 - 29 22
E-mail : arie.bloem@wldelft.nl

Institute : Wolters Kluwer Academic Publishers
Domicile : Dordrecht
ICP : mrs. A. Schouten
Telephone : +31 78 - 33 42 71
E-mail : vdzon@wkap.nl
IC : H. Bremer
Telephone : +31 78 - 52 44 21
E-mail

Institute : WSF Bureau
Domicile : Deventer
ICP/IC : C. Elderink
Telephone : +31 5700 - 937 27
E-mail : elderink@wsf.nl

Annex B.2 Mnemonics & Network Addresses

A survey of network addresses and services. The mnemonics can be used from the SURFnet PADs. Differences may occur locally; see your ICP or IC if necessary.
A more comprehensive and up-to-date list can be obtained via the address **ftp.nic.surfnet.nl** in the directory **netman/mgmt-x.25/**

Mnemonic	**Network address**	**Service**
International		
CONCISE	020433450399915	Concise information service
DIALNET	023421230012011	Host organization databanks
DIMDI	02043626010003	(Bio-)medical literature, Cologne
ECHO	02043703004	European Commission Host Organisation
ESAIRS	02043224000800	ESA/IRS
STN	02043625160241	Scientific literature, Karlsruhe
In the Netherlands		
ACONVERT	12911004545	aconvert (address conversion)
ANUI	188020085	Administrative system for NUIs
CANA	18802008600	Expertise centre CAN
CAOS	18802008099	CAOS/CAMM Center
CELEX	18802007380	Expertise centre CELEX
Energieonderzoek Centrum Nederland, Petten (Dutch Energy Research Centre)		
ECNICE	129110426	Communication VAX
Erasmus Universiteit Rotterdam (Erasmus University of Rotterdam)		
EURT	12911023099	Terminal network, SRM Documentation Centre
EURSUR	12911023900	uVAX II
Hogeschool Eindhoven (Polytechnic School Eindhoven)		
	18802010801	Prime computer
Hogeschool Utrecht, Hilversum (Polytechnic School of Utrecht, Hilversum)		
HUTT	*12100100200*	*Terminal network*
HUTSUR	*12100100600*	*uVAX II*
Hogeschool Rotterdam en Omstreken, Rotterdam (Polytechnic School of Rotterdam)		
HROT	12911062000	Terminal network
Katholieke Universiteit Brabant, Tilburg (Catholic University of Brabant)		
KUBVX1	18802026910	VAX 8700 Computer centre
KUBLIB	18802026917	KUBgids, Excerpta Informatica, Software Reviews
Katholieke Universiteit Nijmegen (Catholic University of		

Nijmegen)

KUNT	18802007099	Terminal network
KUNRC1	18802007301	VAX 6000-410 URC
KUNHEF	18802007360	High Energy Physics
KUNPV1	18802007340	PsychoLab-VAX cluster
KB	129110639	Koninklijke Bibliotheek (Dutch Royal Library)
KLUWER	1570020	Wolters Kluwer Deventer

Landbouw Universiteit Wageningen (Agricultural University of Wageningen)

AGRALIN	18802032110	Library
LUWT	18802031099	Terminal network
LUWSUR	18802031900	uVAX II
LUWRVA	18802031935	VAX cluster

MARIN, Wageningen

MARSUR	188020320	uVAX II Maritime Research Centre
MEMOCOM400	1170627	PTT Telecom Memocom400
NBOI	12911000433	Nederlands Bureau voor Onderzoek Informatie (Netherlands Agency for Information Research)

Nationaal Lucht- en Ruimtevaart Laboratorium (Dutch National Aviation and Space Laboratory)

NLRSUR	129110341	uVAX II

Noordelijke Hogeschool Leeuwarden (Polytechnic School of Leeuwarden)

	129110392	Port selector
	12911039300	Prime computer
NOD	1290340	Nederlandse Onderzoek Databank (Dutch Research Databank)

Open Universiteit Heerlen (Open University, Heerlen)

OUHT	18802017003	Terminal network
OUHSUR	188020187	uVAX II
PICA	12911033001	PICA ORS Leiden, NESTOR
RCC	188020316	Dutch host organization

Rijksuniversiteit Groningen (University of Groningen)

RUGT	12911014099	Terminal network
RUGSUR	12911015700	uVAX II

Rijksuniversiteit Leiden (University of Leiden)

RULT	12911019099	Terminal network
RULSUR	12911019900	uVAX
RULCR1	12911019901	VAX mainframe CRI
RULHL1	12911019903	Huygens lab. VAX
RULLF2	12911019905	Physiology lab. VAX
RULSFB	12911019908	Biology VAX 11/750
RULGL	12911019910	Gorleaus lab. VAX
RULFSW	12911019924	VAX Social Sciences
RULUB	12911019936	University Library VAX
RULBR2	12911019947	University Bureau Leiden

Rijksuniversiteit Limburg (University of Limburg)

RLMT	18802021099	RL terminal server (2 lines)
RLMSUR	18802021900	SURFnet uVAX
RLMVX1	18802021920	VAX-8650 Education and˝2000˝ Research
RLMVX2	18802021921	VAX-785

Rijksuniversiteit Utrecht (University of Utrecht)

RUUT	12911028099	Terminal network; Brunet; PREX; NexpRi
RUUSUR	12911028100	uVAX II
RUUNSC	12911028110	VAX 11/785 Physics
RUUNM2	12911028112	uVAX II Department of Nuclear Physics
RUUNM3	12911028113	uVAX II Department of Nuclear Physics
RUULIF	12911028120	VAX 11/750 Department of Phonetics, speech technology
RUULET	12911028121	VAXstation 2000 Faculty of Arts mail server
RUUMFU	12911028130	VAXstation II/RC Faculty of Medicine

ASTRON (Foundation for Studies of Solar and Galactic Radio Radiation)

RZMSUR	15210070600	uVAX II

SARA (Academic Computer Centre Amsterdam)

SART	12911000099	Terminal network
SARSUR	129110004	SURFnet level II router

TNO, Delft (Dutch Organization for Applied Scientific Research)

TNOSUR	12911052300	uVAX II

Technische Universiteit Delft (Technical University of Delft)

TUDT	12911004099	DUneT
TUDRWA	130.161.180.2	BBS
DUTREX	130.161.180.2	Convex
TUDRNV	12911004100	Network VAX
TUDRVA	12911004117	VAX computer centre

Technische Universiteit Eindhoven (Technical University of Eindhoven)

TUET	18802010099	Terminal network
TUESUR	18802010900	uVAX II
TUERC5	18802010904	VAX 8530

Universiteit Twente (University of Twente)

UTRT	18802012099	UTnet
UTRSUR	18802012900	uVAX II
UTRCV1	18802012914	VAX 8650

VTX1 (.. 9)	12911030101	Videotex Nederland

Annex C. Session models

C.1. FTP SESSION

```
ftp ftp.nic.surfnet.nl
Connected to file.nic.surfnet.nl.
220 file.nic.surfnet.nl FTP server (Version 4.172 Mon May 25
13:19:55 MET DST 1992) ready.
Name (file.nic.surfnet.nl:deVries): anonymous
Guest login ok, send ident as password.
Password: (enter your mail address)
ftp> cd /user0support/guide
250 CWD command successful.
ftp> dir
200 PORT command successful.
150 Opening ASCII mode data connection for /bin/ls.
total 3
drwxr-xr-x   2 7003       6060              512 Oct 06   1992
ascii-format
drwxr-xr-x  2 7003     6060          512 Oct 06  1992 ps-format
drwxr-xr-x  2 7003     6060          512 Oct 06  1992 wp-format
226 Transfer complete.
207 bytes received in 0.01 seconds (20 Kbytes/s)
ftp> cd wp-format
250 CWD command successful.
ftp> dir
200 PORT command successful.
150 Opening ASCII mode data connection for /bin/ls.
total 1114
-rw-r--r--  1 7003     6060  300000  Oct 06  1992  gids93.wp
-rw-r--r--  1 7003     6060  210013  Dec 13  1991  gids91.wp
-rw-r--r--  1 7003     6060  251593  Dec 13  1991  guide91.wp
-rw-r--r--  1 7003     6060  352481  Dec 09  1992  guide93.wp
-rw-r--r--  1 7003     6060     158  Jan 28  1992  index.wp
-rw-r--r--  1 7003     6060  124672  Dec 13  1991  unix91.wp
-rw-r--r--  1 7003     6060   94759  Dec 13  1991  vax-vms91.wp
...
226 Transfer complete.
885 bytes received in 0.39 seconds (2.2 Kbytes/s)
ftp> binary
200 Type set to I.
ftp> get guide93.wp
200 PORT command successful.
150 Opening BINARY mode data connection for guide93.wp (210013
bytes).
226 Transfer complete.
local: guide93.wp remote: guide93.wp
210013 bytes received in 29 seconds (7 Kbytes/s)
ftp> quit
Goodbye.
```

C.2. TELNET SESSION

```
telnet liberty.uc.wlu.edu
Trying 137.113.10.35 ...
Connected to liberty.uc.wlu.edu.
Escape character is '^]'.
HP-UX liberty A.08.07 A 9000/720 (ttys0)

login: lawlib

         WASHINGTON & LEE UNIVERSITY

         LAW LIBRARY GUEST SITE


    FILES KEPT LOCALLY    ACCESS TO SERVICES AND REMOTE FILES
A  All textfiles          M Set user options
B Computer program textfiles
C Legal research
D E-mail & Listserver textfiles
E Documents research
F  Internet  textfiles/Library  Info             R   Connect  to
Databases,           Sites      and Files
G Bibliographies                              S
                                  T  Archie
I W&L site--Instructions   U  WWW (World Wide Web)
J W&L site--File descriptions              V  Gopher
                                  W  WAIS (Wide Area Information
                                             Servers)
L Mail files kept locally                 X  LOGOUT OF SYSTEM
                                  Y  Message to System Operator
                                    John Doyle doylej@liberty.uc.wlu.edu
                                  Z  RECENT ENHANCEMENTS & FILE
                                             ADDITIONS
                                       Hytelnet

v


                    Internet Gopher Information Client v1.02
                     Root gopher server: liberty.uc.wlu.edu

          1.    Census (1990) Information/
          2.    FTP & Other Internet File Searching/
          3.    Gopher  -- Cornell Law School /
-->       4.    Gophers -- Throughout the World /
          5.    Internet Libraries/


                          Gophers -- Throughout the World

          44.   National Science Foundation Gopher (STIS)/
-->       45.   Nederland/
          46.   Neu-Technikum Buchs, Switzerland/

               Internet Gopher Information Client v1.02
```

Nederland

1. RUG-CIS (Campusinformatiesysteem RU Groningen)/
2. VUCIS (Campusinformatiesysteem VU Amsterdam)/
--> 3. KUBgids (Campusinformatiesysteem KU Brabant) <TEL>
4. KUN-CIS (Campusinformatiesysteem KU Nijmegen)/
5. BRUNET (Universiteitsbibliotheek Utrecht) <TEL>

Warning!!!!!, you are about to leave the Internet Gopher program and connect to another host.
If you get stuck press the control key and the] key,
and then type quit

Now connecting to kublib.kub.nl

Use the account name "kubgids" to log in

Press return to connect, q to cancel:

Trying...
Connected to kublib.kub.nl.
Escape character is '^]'.

This is KUBLIB
Library of Tilburg University
Public access to databases: username is KUBGIDS

C.3. SEARCH KEYWORD IN DISCUSSION LIST

Mail message to:

listserv@vm1.nodak.edu

Start on first line of mail message:

```
//DBlook JOB Ec o=No
Database Search DD=Rules
//Rules DD *
select AIDS or SIDA in lists
index
select AIDS or SIDA in intgroup
index
select AIDS or SIDA in new-list
index
```

Answer of listserv:

```
From: Revised List Processor (1.7c) <LISTSERV@VM1.NoDak.EDU>
Subject: File: "DATABASE OUTPUT" being sent to you

> select aids or sida in lists
--> Database LISTS, 14 hits.

> index
Ref#     Listname    Nodename  #    Sub List title
---      --------    --------- ---  ---------
0748     AIDS     USCVM     123  Sci.Med.AIDS Newsgroup
0749     AIDS     EB0UB011  ???  Sci.Med.AIDS Newsgroup
0750     AIDS     RUTVM1     39  Sci.Med.AIDS Newsgroup
0998     ICECA       RUTVM1      7  Intl Committee for Elec
                                    Comm on AIDS
h    1377     AIDS     WUVMD      67  Sci.Med.AIDS Newsgroup
3040     EIEI-L      UTFSM      26  Encuentro Iberoamericano de
                                    Estudiantes de Ingenier+
...

> select aids or sida in intgroup
--> Database INTGROUP, 11 hits.

> index
Item #   Date   Time  Recs   Subject
------   ----   ----  ----   -------
000142 91/10/15 12:04   19   CONS-L%MCGILL1.BITNET@CORNELL.CCS.CORNELL.EDU
000230 91/10/15 12:04   17   FDDI@List.Kean.EDU
000283 91/10/15 12:04   85   Human-ome-Program@genbank.bio.net
000456 91/10/15 12:04   24   MEDNEWS%ASUACAD.BITNET@CUNYVM.CUNY.EDU
000666 91/10/15 12:04   56   technology-transfer-list@sei.cmu.edu
...

> select aids or sida in new-list
--> Database NEW-LIST, 16 hits.

> index
Item #   Date   Time  Recs   Subject
```

C.4. SEARCH IN DISCUSSION LIST ARCHIVES

Mail message to:

listserv@brownvm.bitnet

Start on first line of mail message (keyword and discussion list in italic).

```
// JOB Echo=NO
Database Search DD=Rules
//Rules DD *
Search greenhouse in ENVST-L since 1992
index
/*
```

Answer of listserv:

```
From: Revised List Processor (1.7c) <LISTSERV@VM1.NoDak.EDU>
Subject: File: "DATABASE OUTPUT" being sent to you

> search greenhouse in envst-l since 1992
--> Database ENVST-L, 2 hits.

> index
Item #   Date   Time  Recs   Subject
------   ----   ----  ----   -------
000104 92/02/05 19:35   57   Re: NUCLEAR ENERGY
000146 92/03/18 17:45  102   styrofoam
```

In order to receive the desired message repeat the mail message and replace the command INDEX by PRINT number (in the leftmost column): **a**

```
// JOB Echo=NO
Datab se Search DD=Rules
//Rules DD *
Search greenhouse in ENVST-L since 1992
print 146
/*
```

C.5. PAD SESSION FOR REMOTE LOGIN

pad 0204334506201

```
 The     NISS  Gateway

           A :) NISSBB  - The NISS Bulletin Board

           B :) NISSPAC - The NISS Public Access Collections

           U :) Information Services in the UK

           E :) Information Services in Europe

           S :) Information Services in the USA

           T :) Information Services on Trial

           H :) Help Information / NEWS

          X,Q :) Logoff the Gateway

     Please select your option (A, B, U, E, S, T, H, X or Q)

          a


            The Gateway is now calling the NISS Bulletin Board ...
                   Please wait until a connection is made


:::::::::::::: _____________________Welcome to the_____________________
::  |
::  |     National Information on Software and Service
::  |
::  |                NISS Bulletin Board
::  |_____________________________________________________________________
::  |
::  |  The Information provided on this Bulletin Board is freely
::  |  available to the Higher Education and Research community.

::  |  It should not be made available outside the community
without ::  |  permission, and its use for commercial gain is
expressly
::  |  forbidden.
::  |
::  |  The copyright for the information is held either by NISS
or
::  |  by the individual authors.  Neither NISS nor the individual
::  |  authors can take responsibility for the accuracy of the
::  |  information provided.
::  |  The software is the copyright of NISS and Leicester
::  |  University.
::  |
::  |  Operation of the NISS Bulletin Board is supported by DEC
```

and
:: | by ICL.
:: |_____
::

Press the <RETURN> key to proceed to the main menu.

Section M
Page 1 of 1

::::: N I S S B U L L E T I N B O A R D ::::::: M A I N M E N U ::::::

A INTRO. for New Users & Contributors
.....
.....
.....
.....
E Library Services
.....

::::: We are sorry that NISS Services will be unavailable as
::::: follows:
::::: NISSBB: 25/08/92, 1800 - 2100 (approx) }See Section A7
::::: NISSBB & NISS Gateway: 01/09/92, 0800 - 1800 }for further
::::: details
Options: HELP HINTS SEARCH MAIL POST QUIT M (Main Menu) or <RETURN> (Next Page)
Please select section name, page number, or option: **e**

Section E Page 1 of 1

LIBRARY SERVICES

E1	Introduction	(02-OCT-90)
E2	Online Library Catalogues	(26-MAR-92)
E3	Library Contacts	
E4	Project JUPITER	
E5	JUGL Committee and AGM Report	(23-NOV-90)
E6	UK Office for Library Networking	(09-JUN-92)
E7	BUBL - Bulletin Board for Libraries	(10-OCT-91)
E8	JUGL Subscriptions	(12-SEP-91)
E10	JUGL Policy Statement	(30-AUG-91)

(See also D3B12 ISI Data Service
F3G1 Various Libraries Mailing and Discussion lists
K3A,B Any Library Conferences)

Options: HELP HINTS SEARCH MAIL POST QUIT M (Main Menu) or <RETURN> (Next Page)
Please select section name, page number, or option: **e2**

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- *Answers*Malkin G., Marine A., *FYI on Questions and Answers to Commonly asked 'New Internet User' Questions*, Request for Comment 1325

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Annex A.3

Most information concerning security is available on the networks itself. Servers which make information freely available are generally maintained properly. Some file servers are:

- ftp.nic.surfnet.nl (directory: netman/cert-nl)
- cert.org
- csrc.ncsl.nist.gov

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Information Technology Security Evaluation Criteria (ITSEC), European Commission, June 1991

Site Security Handbook, RFC1244

Glossary

3270 Popular IBM terminal type.

Aconvert Program used for the conversion of X.400 addresses into RFC-822 addresses and vice versa.

ADMD ADministrative Management Domain: attribute of an X.400 address. The ADMD for SURFnet is 400net.

Anonymous FTP It is possible to login anonymously on a computer in the network, after which files can be transferred.

ANUI The administrative system for NUIs (also see NUI).

Archie Program used to search for software in public domain software archives. When the software has been located, it can be retrieved by means of 'anonymous FTP'.

ARPA Advanced Research Project Agency. Bureau of the USA Defense Department which, among other things, is responsible for the realization of Internet.

ASCII (American Standard Code for Information Interchange) International, standardized method for converting alpha-numeric characters into digital codes.

ATOB Technique for the conversion of binary files into ASCII files for file transfer via the network.

Binary Bi-numeric system, containing only two digits: '1' '0'. A binary character set may contain alphanumeric and graphic information. The information is sometimes exclusively meant for the program by which the information was generated.

BINHEX Technique for the conversion of binary files into ASCII files.

Bitnet See CREN.

Bulletin board A computer on which electronic bulletins, e-mail messages and files can be stored an from which they can be retrieved. Bulletin boards are very popular in hobby networks such as Fidonet.

Case-sensitive A case-sensitive system distinguishes between upper and lower case letters.

CERT Computer Emergency Response Team. A national team for remedying network calamities.

Charityware Public domain software which requires you to

pay
: your contribution to a charity institution.

Compress
: Data are compressed to save storage space.

COSINE
: (Cooperation for Open Systems Interconnecting Networking in Europe) Project of the European Commission in the context of Eureka. The project aims to stimulate and set up connections between OSI networks.

CREN
: Worldwide non-profit computer network, set up for information exchange between academic institutes (former Bitnet).

CWIS
: Campus-Wide Information System. An information system set up for the provision of local information, such as study programs, university restaurant menus, lecture schedules, deans' office hours, et cetera.

Datanet 1
: Public X.25 network of PPT Telecom.

DECnet
: Network service for VAX and other computers running on SURFnet; set up by Digital Equipment Corp.

Decode
: Translate encoded messages into the original format.

Directory service
: Electronic name/address service which provides information about individuals and institutes.

Discussion list
: Type of e-mail list; messages sent to a discussion list are automatically forwarded to all subscribers of the list.

DoD
: Department of Defense of the USA (also see ARPA)

EARN
: European Academic and Research Network, in the Netherlands represented by SURFnet.

Ebone
: Organization of European IP-suppliers aimed at providing adequate pan-European IP-services.

EMPB
: European Multi Protocol Backbone.

Encode
: Translate a file into another format by means of an encoding key. In this context, files have to be encoded in order to enable file transfer via the network.

EUnet
: European Unix Network.

File transfer
: Transfer of files via the network.

File server
: A computer in the network which supplies files, usually via 'anonymous FTP'.

Freeware
: Public domain software, free of charge.

FTP File Transfer Protocol: communication service for file transfer based on TCP/IP (also see TCP/IP).

Gopher A program for browsing through freely accessible information.

HEXBIN Method for decoding files which have been encoded with BINHEX.

Hytelnet Program for accessing libraries and information services on Internet via Telnet.

Internet Worldwide network which mainly uses the IP network protocol.

IP Internet Protocol: a network service for sending data via the network. For the moment this remains the basic network service in SURFnet in addition to X.25.

Login Gain access to a computer system by entering a user name and password.

Mailer Post office for e-mail. A mailer determines where your e-mail message is sent to.

NIC Network Information Centre. Used to indicate the location where you can find information about a particular network.

NJE Network service used in EARN/CREN.

NLnet This Dutch network is part of the European Unix Network (EUnet).

NUI Network User Identification. You can only access SURFnet via a PAD if you have been given a NUI (also see PAD). It is a kind of licence plate for network transport.

PAD Packet Assembler Disassembler. A network service which enables direct connection of a terminal or PC to an X.25 network.

Paradise Initiative of the European Commission to promote X.500 services in Europe.

PKZIP File compression program.

Postmaster The person(s) responsible for correct e-mail transactions at an institute.

PRMD PRivate Management Domain: attribute of an X.400 address. The SURFnet PRMD is SURF.

Protocol convertor
A program which enables communication between, say,

a VT100 terminal and a computer supporting 3270 emulation.

Public domain software
: Freely available non-profit software. Also see Freeware and Shareware.

Rare
: Réseaux Associés pour la Recherche Européenne. The joint European network suppliers (such as SURFnet), responsible for the implementation of part of the COSINE plans, for example. Rare stimulates network use.

Remote login
: Log-in on a computer at another location in the network.

standard RFC
: Request For Comment. Internet set up after a number of public discussions (which explains the name).

RFC-822
: Standard addressing method for e-mail.

Set host
: Method for setting up a session between a DECnet VAX computer and another VAX computer.

Shareware
: Public domain software which requires a small contribution to the author to enable further program development.

StuffIt
: MacIntosh program for compressing files.

TCP/IP
: Transmission Control Protocol/Internet Protocol: TCP is a method for making a reliable link by means of IP.

Telnet
: Program for remote login based on TCP/IP (also see Remote login).

Terminal emulation
: With a PC and an appropriate program you can make a terminal behave like another terminal type.

Trickle
: Network software server

UUCP
: Unix to Unix CoPy; program for Unix systems to enable the exchange of data between Unix systems.

UUDECODE
: The opposite of UUENCODE.

UUENCODE
: Popular PC program for translating binary files into ASCII files.

VT100
: Popular terminal type.

WAIS
: Network navigation program for searching information via the network.

World Wide Web
: Network navigation program for searching

information via the network.

X.121 Type of address used by X.25. 020412911000099, for example, is an X.121 address, also called a NUA (Network User Address).

X.25 X.25 is a network protocol used for sending data via the network.

X.400 OSI-standard addressing convention for e-mail.

X.500 OSI-standard for directory services (also see Directory service).