

GLB3.TXT

people. (If nothing else I guess it's nice to be appreciated.)

With all these things going on, we had to take some security precautions like encryption of all data, splitting the realm into sections and running each at a different location etc. This is the major reason for the delay.

I guess if you read volume #4 things will still be going great. If not, you can pretty well guess the reason for the compulsory retirement. (Hehehe Is that possible??)

May your lines be untraceable.

CATCH YA LATER

-----} THE FORCE {-----

I N D E X

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R E G U L A R F E A T U R E S

- 
- Outdial Systems:            There is great demand and no supply, so only a little something to wet your appetite.
  
  - Unusual Systems:            You all know about the 03106 Tymnet Gateway, well, there are others you can t5ry.
  
  - System Passwords:         It's been a bonanza as far as VAX and PRIME accounts go, so it's been an ordinary month I guess. You again get the sour cream of the hacks that were made this month.
  
  - Trix of The Trade            A run in with sys 09 operator and strange OTC tactics to catch hackers.
  
  - Hack Of The Month            A Super User VAX account.
  
  - Network Profile:            This month we feature DATAPAC nad I have the first part of DATAPAC NUA's.

N O T S O R E G U L A R F E A T U R E S

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- Bt Gold Hacked                   The greatest defeat in hacking a system ever, which I didn't even hack boooo.
  
- X.xx Info                         A nice file explaining the workings of X.xx Protocols, thanx to NOM.
  
- JANET User Docs #1               Part one of the JANET (UK Academic Network) User Documentations.

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OUTDIAL SYSTEMS

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Nope, as a matter of policy, no more outdials. This is the second last Issue, where you can pick up some outdials, (not so flash). They die to quickly and there are only 2 more international I know off. I suggest for your outdial needs, use either Unix, Primes or VAX's with an outdial modem. There is a lot of them out there.

3106072912 HOUSTON OUTDIAL
3106007376 HOUSTON OUTDIAL

This one used to be a very good, but due to obuse once again the old NUA has been changed. An additional complication is a password protection they have added.

3106002046 MITEL/CANATA

This one has been used long time ago, and like the houston O/D it has password protection. I didn't get this one, and I am not sure who did, so I don't know who to give credit to. Sorry.

UNUSUAL SYSTEMS

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You all know the 03106 gateway. To connect to it, you just use that NUA. Here are some more interesting ones you may not have.

- 03104 - MCII IMPACS
- 03132 - Compuserve
- 03113 - RCA-LSDS
- 03119 - TRT-DATAPAK
- 03740 - TEXTEL Trinidad

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04542 - C & W INTELPAK Hong Kong  
04877 - ITA UDAS Taiwan

I'll have some more for you, possibly next month. One thing to note, is that I have connected to these from DATEX-P, so some may not work from AUSTPAC or MIDAS.

-----  
SYSTEM PASSWORDS  
~~~~~

I am very sorry about this, but due to my obsession with Primes, you will just have to put up with them for a little longer.

31106030002015	Primos 18.2.1	DPC1	This is the DARTMOUTH PRIME I have Listed previously, but try logging is as DOS/DOS instead of GAMES/GAMES
26245890090831	Primos 19.3.4-Z	GRAF	LOGIN TEST
26245221040595	Primos 20.2.4v	TWF_K	LOGIN PRIME/PRIME

This leaves me with 3 more primes to go, but don't be afraid, in the next issue I promis I will have something slightly better, like a VAX or two in ISRAEL.

TRIX OF THE TRADE
~~~~~

Minerva Now has some very claver ways as far as detecting hackers. They have learned that there are certain systems frequently visited by hackers, like Altos for example. If you connect to altos directly from minerva, you can say bye bye to your account. This has been known for a while, but here is a slightly new one.

I have been on altos late one evening, (Going via a PAD in GERMANY), when an operator breaks in. We had a short chat, but I failed to get him going in any sort of a decent conversation. You can usually pick up some usefull information. In a situation like this, there is really no need to hang up or be paranoid about getting traced, since if they wanted to, they could

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have traced any time. Even if it was their intention to trace you, they would have done it before revealing themselves to you. I managed to capture the last bits of the convo (Remembered to Turn on My Buffer. A little late, but still)

THE ACTUAL CONVO: (Operator is in lower case)

.....

HELLO OPERATOR

\* OPERATOR user 10 \*

you realise i am going to kill this account

I KNOW, AND I WILL GET A NEW ONE. WE HAVE PLAYED THIS GAME FOR UHH 3 YEARS NOW OR SO

not when i am finished with you

A WELL, IT'S LIKE A SPORT TO ME. IT GETS RATHER ADDICTIVE. HOW LONG WERE YOU AN OPERATOR HERE?

bye bye

Bye at 20:22  
HANG ON

\*\*\*From PRIMOS: Forced off.  
Off At 20:22 24/02/88 AEST  
Time used: 04h 42m connect, 04m 01s CPU, 00m 28s I/O.

Mail call (6 Unread)

CLR PAD

.....

This is nothing dramatic, since anyone who ever used minerva for a while would have had a simmilar experience. The account, naturally, died the minute I was forced off, but surely the next day, it was back up working as usual under the old password?? A hah, it's enough for anyone to smell a trap. This is all leading up to the point I am making and that is, don't use minerva accounts given to you by other people and don't give out accounts you use. I gave the ID do an italian hacker, and he would have had no knowldge of this event and anything he would have done on the ID would have most probably been recorded. I actually went on the account and changed the pw myself so he couldn't use it before I had the chance to contact him. I think the reason OTC does that is to see what addresses are being used, so that they can more easilly determine a hacker on another ID, just by the

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address used from it. This is not an isolated incident, because it has happened on several occasions in the past. What I don't understand, is why they kill the account and then bring it back up?

Another, even more likely explanation, is simply the real user finds his account not working, dials Minerva gets the password changed, and restores it to his old one. In that case, it would mean Minerva is trying to cover up something shocking. I would imagine they wipe the bill off, and don't tell the user that a hacker has been on the account, but who knows??

This is all bad enough, but minerva actually goes one step further. There are regular hackers of minerva, who have actually been given their own ID's to use, which they can check on. Now, if that isn't low, I don't know what is.

An interesting solution to the problem would be to mail all the real users and tell them the NUA for altos. If someone does that, they will think twice before killing off the real users. (if anyone is game enuff, please check with the altos sysops first)

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HACK OF THE MONTH

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System: Micro VMS
Location: USA
Network: TYMNET
Date: 07/03/1988
Hacked By: -----} THE FORCE {-----

Sample Login:

.....

@ c :03106xxxxxx -fcty
Circuit #1
03106xxxxxx Connected

[2J[H(0
#3meeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeem
#4meeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeem
#4x x
#3x x
#4x x
#3x S I A M E x
#4x x

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#6x M I C R O V A X x
#3x x
#4x x
#3meeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeem
#4meeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeem(B

Username: xxxxxxxxx

Password:

Welcome to MicroVMS V4.4

Last interactive login on Tuesday, 29-DEC-1987 21:13

Last non-interactive login on Thursday, 6-FEB-1986 20:41

Z[c[0c

%SET-W-NOTSET, error modifying NVA8:

-SET-I-UNKTERM, unknown terminal type

```
|||||  
|| 7-MAR-1988 16:36:48.08||  
|||||
```

\$ SET PROC/PRIV=(all)

\$ SET DEF SYS\$SYSTEM

\$ RUN AUTHORIZE

UAF> EXIT

UAF-I-NOMODS, no modifications made to system authorization file

%UAF-I-RDBNOMODS, no modifications made to rights database

\$ LOG

xxxxxxx logged out at 7-MAR-1988 16:37:45.52

03106xxxxxxx Disconnected

@

.....

NOTES: I know there are more exiting hacks out there, like NASA, ESA etc, so please, edit your sample logins so they can't be recognised and send them in. If you can, please include any sort of a proof of the hack, I will not put it in here unless I am sure it is genuine. I have had a fantasized file of someone being one <CR> away from starting the third world war. I mean really!

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BT GOLD

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I have spent so much time hacking BT GOLD, that it really isn't funny. I didn't actually spend a lot of time on it, just small bits extended over the past few years. Some of you may recall the good ole days when minerva was actually minerva not keyling (a Dominant system) and Telememo was Telememo not keylink a (Shitty system). Keylink is now a shitty system and Telememo has improved a bit, but on the whole it still sux. Good after this rambling, I referring to late 1984-1985 where there was no such thing as security on Minerva. Them were the days where one could spend 24 hrs Sprinting and not worry about the account dying. It was the time where every second password was the users first name and everyone had a supply of at least 200+ accounts at the one time.

Ahh what a flashback. Would be nice to have a time machine. Anyway, as you all know, minerva is only one system, a part of the entire DIALCOM Network. (Ok, 3 systems if you want to be picky 07,08 and 09). A lot of countries have a dialcom system of their own, and there is no reason why there can't be one at the stage of minerva 4 years ago. Somehow I don't see the operators worried about hackers in countries like Singapore, HONG-KONG etc (The list goes on and on). I hope you can now appreciate the potential to find a nice ripe system, ready for the taking.

In order to be usefull, a dialcom must have the NETLINK Facility, and it must have an ONLINE USERLISTING. Without a Netlink, you can't use it as a pad, and you can't use it for sprinting. Without a User Directory, it is very difficult indeed to hack another account once the ones that you have information on are exhausted.

PRIMECON NETWORK - Us Dialcoms systems are useless, since they don't have an online user list. I have only chacked system 41 and systems in the same cluster namelly in the high thirties and fifties. There could still be hope for SYSTEMS 90-99 including the inhouse dialcom system 98.

BT GOLD - A fantastic system. The user directory is more  
- Comprehensive than that on Minerva. Only problem is that there is no NETLINK, which makes it rather useless. There is however a netlink on system 80, which is used by BT GOLD Staff.

As you can see, BT GOLD was an incredible waist of time, but because there is hope of finding an unripe dialcom ready for raping dialcoms are all go. The BT GOLD account I got, came from an italian hacker and has been passed around for some time before that.



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in Volume #2, which relates their codes to the PTSN ones. There are lot more areas then given in the outdial list, but usually there is some indication as to where the NUA's are.

.....

D A T A P A C 302029500xxx Sprint, By: ----== } THE FORCE {==----

From The depths of - THE REALM - Last Updated: 09/06/1987

```

-----
302029500057 -
302029500059 VAX/VMS -
302029500060 VAX/VMS -
302029500070 - KARDGARD 300-C Motor Fuel Mngmnt. Site 1
302029500089 Port Select -
302029500092 HP-3000 -
302029500098 -
302029500900 Outdial Port - 300 Baud
302029500901 Outdial Port - 1200 Baud

```

D A T A P A C 302033400xxx Sprint, By: ----== } THE FORCE {==----

From the depths of - THE REALM - 28/12/1987

```

-----
302033400012 Honewell - Waterloo Datanet 8
302033400018 - "CHANELLS BUSY"
302033400048 -
302033400069 Port Select - "SERVICE ID="
302033400115 Port Select - "SERVICE ID="
302033400131 - "CHANELLS BUSY"
302033400140 -
302033400153 - Conttrell Transport/Kitchener
302033400161 -
302033400171 -
302033400193 -
302033400219 Primos 20.1.2 - PRIMENET 20.1.2 SYSF
302033400236 -
302033400257 VAX/VMS -
302033400258 - (needs input filename)
302033400276 - (needs Input filename)
302033400333 Primos 20.1.2 - PRIMENET 20.1.2 SYSF
302033400344 Outdial Port -
302033400345 Outdial Port -
302033400346 Outdial Port -
302033400347 Outdial Port -

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302033400348 Outdial Port -  
302033400349 Outdial Port -  
302033400376 fax -  
302033400383 -  
302033400462 - "CHANELLS BUSY"  
302033400485 -  
302033400486 -  
302033400492 -  
302033400900 Outdial Port - 300 Baud  
302033400900 Outdial Port - 1200 Baud

D A T A P A C 302035600xxx Sprint, By: -----} THE FORCE {-----

~~~~~  
From the depths of - THE REALM - 28/12/1987
=====

302035600110 Outdial Port -
302035600111 Outdial Port -
302035600113 Outdial Port -
302035600114 Outdial Port -
302035600115 Outdial Port -
302035600116 Outdial Port -
302035600273 Port Select - University Hospital Develnet Network
302035600279 -
302035600280 -
302035600298 -
302035600318 -
302035600329 -
302035600330 VAX/VMS -
302035600900 Outdial Port - 300 Baud
302035600901 Outdial Port - 1200 Baud

D A T A P A C 302036700xxx Sprint, By: -----} THE FORCE {-----

~~~~~  
From the depths of - THE REALM - 31/12/1987  
=====

302036700010 fax -  
302036700017 VAX/VMS - "Enter if you Dare"  
302036700021 - "User Number--"  
302036700024 Gateway - "International, Datapac,Memotec,Telenet"  
302036700026 VAX/VMS -  
302036700027 VAX/VMS 8530 V4.5 - COMVAX  
302036700029 Gateway - "International, Datapac,Memotec,Telenet"  
302036700030 - "User Number--"  
302036700042 VAX/VMS -

```

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302036700045  IBM VM/370      -
302036700047  Port Select      - "enter class"
302036700049  VAX/VMS         -
302036700050  -               -
302036700052  VAX/VMS         -
302036700053  -               -
302036700075  -               -
302036700087  -               -
302036700095  Port Select      - Network Control
VAX 11/780      - VAX - Bryker
302036700118  Unix            - gnt-1
302036700122  -               - University Library GEAC System
302036700129  -               - TTSCANDAR
302036700162  -               -
302036700169  IBM             - Ultramar
302036700170  IBM             - Ultramar
302036700172  -               - "TACL1> "
302036700178  VAX/VMS 85300 V4.6 - Magna's VAX
302036700183  -               - "Password> "
302036700184  -               - "Password> "
302036700185  -               - "PORT BUSY"
302036700900  Outdial Port    - 300 Baud
302036700901  Outdial Port    - 1200 Baud

```

D A T A P A C 302038500xxx Sprint, By: -----} THE FORCE {-----

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From The depths of - THE REALM - Last Updated: 21/02/1988
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```

302038500055  -
302038500122  HP-3000         - CC INFOLINE
302038500198  -               - 'HM"
302038500216  VAX/VMS         -
302038500226  -               - "CHANNELS BUSY"
302038500245  -               -
302038500251  -               -
302038500274  -               -
302038500287  -               -
302038500288  -               -
302038500312  VAX/VMS V4.5   - Ault Fodds Hamilton
302038500333  -               - "CLS BUSY"
302038500355  -               -
302038500356  HP-3000         - CC INFOLINE
302038500375  -               -
302038500399  Port Select      - "SERVICE ID= "
302038500412  Port Select      - "SERVICE ID= "
302038500445  -               -

```

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302038500444		-	
302038500559		-	
302038500561	Outdial	-	
302038500562	Outdial	-	
302038500563	Outdial	-	
302038500564	Outdial	-	
302038500565	Outdial	-	
302038500566	Outdial	-	
302038500586	VAX/VMS V4.3	-	MicroVms
302038500640	Port Select	-	"SERVICE ID= "
302038500641		-	
302038500643		-	
302038500645		-	
302038500652		-	
302038500654		-	
302038500655		-	
302038500669		-	
302038500723		-	
302038500725		-	
302038500726		-	
302038500738	IBM	-	System: Hamilton, Subsystem: Quinte
302038500739	IBM	-	System: Hamilton, Subsystem: Quinte
302038500740	IBM	-	System: Hamilton, Subsystem: Quinte
302038500741	IBM	-	System: Hamilton, Subsystem: Quinte
302038500746	IBM	-	System: Hamilton, Subsystem: Quinte
302038500771	Port Select	-	Gandalf PACXS "Password> "
302038500783		-	
302038500787		-	
302038500900	Outdial	-	300 Baud
302038500901	Outdial	-	1200 Baud
302038500902	IBM	-	System: Hamilton, Subsystem: Quinte

D A T A P A C 302048400xxx Sprint, By: -----} THE FORCE {-----

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From the depths of - THE REALM - 28/12/1987  
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|              |              |   |                    |
|--------------|--------------|---|--------------------|
| 302048400040 |              | - |                    |
| 302048400153 |              | - |                    |
| 302048400177 |              | - |                    |
| 302048400209 | Port Select  | - | "CODE DE SERVICE=" |
| 302048400224 |              | - |                    |
| 302048400234 |              | - |                    |
| 302048400279 | Port Select  | - | "CODE DE SERVICE=" |
| 302048400322 |              | - | "V21>"             |
| 302048400348 | Port Select  | - | "SERVICE ID="      |
| 302048400398 | Outdial Port | - |                    |

```

                                GLB3.TXT
302048400399  Outdial Port      -
302048400410  Outdial Port      -
302048400411  Outdial Port      -
302048400412  Outdial Port      -
302048400413  Outdial Port      -
302048400430  -
302048400431  VAX/VMS  V4.3    -   Micro VMS
302048400492  -
302048400493  -
302048400494  -
302048400495  -
302048400496  -
302048400497  -
302048400498  -
302048400499  -
302048400527  -
302048400529  DG AOS/VS        -   CANFOR Quebec
302048400547  -                 -   "Channels Busy"
302048400553  HP-3000          -
302048400900  Outdial Port     -   300 Baud  Quebec
302048400901  Outdial Port     -   1200 Baud Quebec

```

```

D A T A P A C  302056300xxx Sprint,  By:      -----} THE FORCE {-----
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From The depths of - THE REALM - Date: 09/02/1988
=====

```

```

302056300012 Port Select - "Enter Select Character"
302056300014 Port Select - "Enter Select Character"
302056300015 Port Select - "Enter Select Character"
302056300019 Port Select - "Enter Select Character"
302056300020 Gateway - "Internatinl, Datapac, Telenet, Memotec"
302056300040 - - "enter appropriate code for access"
302056300041 Port Select - "Enter Select Character"
302056300042 Port Select - "Enter Select Character"
302056300045 Port Select - Gandalf PACXS "Password> "
302056300046 Port Select - "Enter Select Character"
302056300047 Port Select - "SYSTEM ID="
302056300049 IBM - "Line #24"
302056300215 - - Levitt Security Montreal
302056300216 -
302056300235 IBM VM/370 - TSASLC Information System
302056300900 Port Select - "enter appropriate code for access"
302056300901 Port Select - "enter appropriate code for access"

```

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D A T A P A C 302058700xxx Sprint, By: -----} THE FORCE {-----

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From the depths of - THE REALM - 10/01/1987  
=====

302058700010 HP-3000 -  
302058700015 - Outdial PortL  
302058700016 - Outdial Port  
302058700017 - Outdial Port  
302058700018 - Outdial Port  
302058700900 - Outdial Port 300 Baud  
302058700901 - Outdial Port 1200 BAUD

D A T A P A C 302063300xxx Sprint, By: -----} THE FORCE {-----  
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From the depths of - THE REALM - 102/01/1987  
=====

302063300131 host  
302063300141  
302063300142  
302063300200  
302063300260  
302063300261 PRIMENET 19.4.3 PRECL7  
302063300298 PRIMENET 19.4.9 PEPPER  
302063300313  
302063300314  
302063300319  
302063300334  
302063300339  
302063300344 host  
302063300352  
302063300359  
302063300371  
302063300374  
302063300431 OUTDIAL  
302063300432 OUTDIAL  
302063300433 OUTDIAL  
302063300434 OUTDIAL  
302063300439  
302063300453  
302063300457  
302063300466  
302063300483 THE UNIVERSITY OF CALGARY EDUVAX  
302063300900 OUTDIAL 300 BAUD  
302063300901 OUTDIAL 1200 BAUD

D A T A P A C 302067100xxx Sprint, By: -----} THE FORCE {-----



```

`='='`
`='='` Written By: N O M Date: 01/03/1988 `='='`
`='='`
`='='` - From The Depths Of The realm - `='='`
`='='`
`='='`
`='='`

```

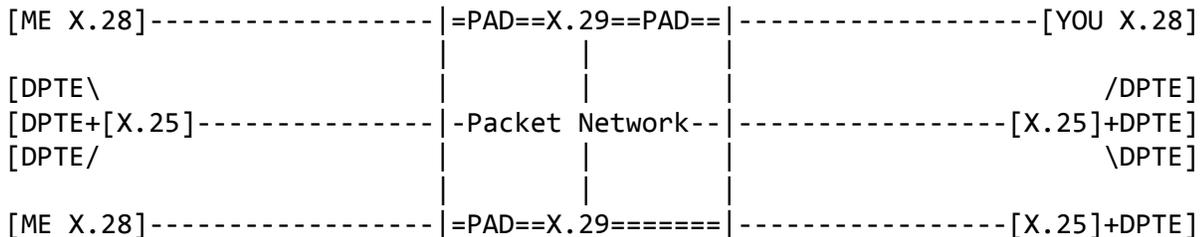
In light of the recent excellent articles emerging from the REALM, I feel a contribution on a more specific topic may be needed.

After a time the superficial aspects of hacking tend to erode and while the important aspects still remain IE. An outdial is an outdial, an NUI is an NUI etc bits and pieces tend to be forgotten or not passed from one "generation" of hacker to the next, or are just plain not bothered with. If asked what is the difference between X.25 and X.29 or Async and Sync I assume that a good percentage of hackers would be able to tell me, BUT only after looking in something like the Hackers Handbook. Now what I hope to do is explain a LOT deeper what various terminologies mean, this will not of course help people hack but I think it will help people to undeyrstand just what sort of technology and complexity the equipment that Austpac, Midas etc use.

Lets start with the X series of protocols. As there are approx. 199 different X categories, and as only 4 are really relevant to us, we'll concentrate on the 2 most well known but misunderstood they being of course X.25 & X.28 and 2 others, X.3. and X.29.

Put simply X.25 deals specifically with the interface between a Dedicated Terminal and the PAD they may be using, while X.29 deals with the transmission of data between two or more PADS. Now to connect directly up to an X.25 with a non (Start/Stop terminal, what we all use) would be very nice, but unfortunately this can not be accomplished without the intervention of the X.3. As an aid follow the picture

3 Separate Examples of Communication



Confused?? Well let's clarify things according to the above diagram. On the top line we see that we are assigned as needing an X.28 (simply the asynch character transmission mode that we mainly use because we have no

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built in packet switching capabilities IE. we are not connected to an X.25 DTE (my own definition of Dedicated Packet-switching Terminal Equipment There must be two X.3's (PADS) when connecting non DTE's. What the X.25 Protocol really does is allow many terminals to be accessed individually from a PAD. And what is the PADS' purpose? Simply to allow us to communicate to X.25 equipment.

On the second line we have a DTE (X.25 the physical link/protocol connected straight through without the need for either X.28, X.29 or X.3 protocols) this is the most straightforward connection as both DTE's have inbuilt packetising information.

The third line shows the connection of a standard terminal through the PAD as you can see only one side needs packetising and protocol conversion straight through. This example is mostly what we are concerned with for we are the X.28 we reach the PAD (Austpac for example) and depending on our NUA connect to the X.25 gateway, then the host terminal or destination. An example of this would be the DNIC 3106 this would establish which gateway you want to access in this case Tymnet. The rest of the NUA (actually when calling international X.25 another X category is used X.121 or simply Data Network Identification Code) lets say NUA 03106+[000636]<-- would select which computer on the X.25 gateway you want to connect with.

At this point you may have noticed that your whole concept of a PAD has changed, a PAD merely Disassembles Data, shoots it into the Packet Network and then Assembles the data back so that it can be received depending on what the X.25 has to say. The whole point of the X.29 is so that two PADS' can communicate. X.25 serve to generally control packet flow as well as doing protocol conversions and speed conversions, allowing you at 300 baud to connect to virtually any system. Part of this packet flow concerns where the information is being sent... This introduces the next part

### ESTABLISHING THE CALL

-----

There are two ways of establishing calls on a packetised network. These are VC (Virtual Calls) and PVC (Permanent Virtual Circuits).

A VC is the non-physical link between the calling Date Terminal Equipment (us..DTE) to the called DTE (them..the computer we are calling). It is the exact equivalent to a telephone call except that no PHYSICAL link is established. Instead a logical channel number (LCN) is set up from then on data (packets) are sent to a channel rather than physically down a wire as in the telephone. Hence it is called virtual due to it not actually existing.

PVC is the same except that a permanent number is assigned as being the logical channel. This is the equivalent to a direct line but all non

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physical. The actual "conversation" which takes place when a DTE wishes to call another is explained thus:

| DTE to DTE             | DCE to DTE         |
|------------------------|--------------------|
| -----                  | -----              |
| Call Request ----->    | Incoming Call      |
| Call Accepted<-----    | Call Connected     |
| Data----->             | Data               |
| Data<-----             | Data               |
| Clear Request ----->   | Clear Indication   |
| DTE - initiated<-----  | Network Initiated  |
| Clear Confirmation---- | Clear Confirmation |

What this table represents is the procedures that must occur during a connection. As you can see its all logical with a Calls being requested by us and Calls being notified by them. This is based on the Telephone system whereby we take over in some aspects IE I might say GOODBYE (Clear Request) then the person I'm talking to would as well (Clear Indication) and so on.

The most up to date explanation to the inner workings of all things X is the OSI/RM (Open Systems Interconnection Reference Model). OSI/RM are a collection of different "layers" within the network which offer developers a generalized outline of what a data network must handle. It is not law that people must follow these procedures but it is a concerted effort to bring about a standard way to exchange information. The X.25 system follow this architecture very closely and though OS/RM contains 7 layers and X.25 contains but three (packet, link and physical) the following explanation may serve to explain how a network operates.

7. Application Layer Concerns - Am I talking to the right person? Who is paying for this call? Is this the best time to talk, or should I call back.

6. Presentation Layer Concerns - Are we talking the same language and/or dialect.

5. Session Layer Concerns - Can this situation be handled in one call or several? Will other people need to be brought in at different times? Who will control the discussion in a multi party conversation? Who will re-establish the call if we are cut off?

4. Transport Layer Concerns - What is the most cost effective way to handle this call (or calls) consistent with priorities? What long distance carrier should be used?

3. Network Layer Concerns - Dial the number and listen for call progress

signals. Redial if you get a busy signal or get cut off. Disconnect when the conversation is completed.

2. Link Layer Concerns - Talk when you are supposed to and listen when you are supposed to. Ask for a repeat if there is something you don't understand. Tell the other party to slow down if they are talking to fast.

1. Physical Layer Concerns - These are the actual sounds being made into the mouth piece from the receiver.

Well that's as far as I'm prepared to go depth wise into packet systems. This hasn't even scratched the surface of what's to be known. If anyone would like to know more about a specific topic please E-MAIL me and I'll try to help.

JANET Part #1

~~~~~

```

=====
==== H O W T O U S E J A N E T Date: 23/02/88 ====
====
==== Brought To You By: -====} THE FORCE {====----- ====
====
==== - From The Depths of The Realm - ====
=====

```

NOTE: This file has been supplied by Janet.

How to Use the U.K. Academic Network - Packet SwitchStream (PSS) Gateway

Issued by  
S.A. Wood  
6 January 1987

Issue 1

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1. Warning

BETWEEN 8.00 am and 9.00 am every Tuesday, network development and service work is carried out on JANET. This means that if you make a call during these hours there is an increased danger of the system going down which may result in loss of data.

---

2. Introduction

GLB3.TXT

The Gateway is a two-way link between the U.K. Academic Network (JANET) and PSS. At present there are two Gateways between JANET and PSS, one at Rutherford and another at ULCC in London.

The Gateway consists of a computer which holds a communications program and sits between two networks (JANET and PSS in this case). This allows the user to bridge the gap between the networks and access target computers on the other network. It is important to realise that there are two ways of communicating with the Gateway - you can make calls TO the Gateway computer to access its limited user facilities or you can make calls THROUGH it to a target computer on the other network.

The Gateway operates as a Transport Level Gateway in accordance with the 'Yellow Book' Transport Service. However the present implementation does not have a full Transport Service and therefore, there are some limitations in the service provided. For X29 which is incompatible with the Yellow Book Transport Service, special facilities are provided for the input of user identification and addresses.

The Gateway is a protocol transparent link. This means that the Gateway cannot be used for protocol conversion; to do this a third party machine must be used.

---

2.1 Your Contacts

If you have any problems, or if you want additional information contact the JANET Network Executive. You can reach them at the following address:-

- \* By Post at . . . . . Network Executive,  
c/o Rutherford Appleton Laboratory,  
Chilton,  
Didcot,  
OXON.  
OX11 0QX
- \* By Electronic MAIL to . . W.Jenkins@RL.GB  
The network address for RL.GB is 0000000210
- \* By Telephone on . . . . . Abingdon (0235) 446748

---

3. Summary of Facilities Available across the Network

The network offers a number of facilities. These are listed below for your

information.

- \* Facilities Provided by the Gateway Machine
  - Help Facility
  - Accounting Facility
- \* Facilities Available on the Way Through the Gateway
  - Demonstration Facility
  - Addresses and Mnemonics
- \* Facilities Available on PSS
  - Fast Select Facility
  - Reverse Charge Facility
  - Access to IPSS (International Packet Switch Stream)
  - Calls to Other, Non-Transport Service Networks
- \* Protocols Available if Supported by Both Local and Remote Host Machines
  - Network Independent File Transfer Protocol (FTP)
  - JNT MAIL Protocol
  - Job Transfer and Manipulation Protocol (JTMP)

---

Permission to Use the Gateway

---

#### 4.1 Authentication and Authorisation

No unauthenticated use of the Gateway from JANET is allowed regardless of whether charges are incurred at the Gateway or not. Therefore to use the Gateway you have to obtain authentication (a userid and password) and authorisation (a call allocation) from the JANET Network Executive. This consists of:

- a. USERID
- b. PASSWORD
- c. USAGE ALLOCATION

Note that the authorisation for PSS and IPSS is managed separately, although a single USERID may have authorisation for both.

---

## 4.2 Charging and Accounting

There are 4 separate charging rates, which are:

|                    |                                 |
|--------------------|---------------------------------|
| PSS full rate:     | PSS (FULL)                      |
| PSS discount rate: | PSS (DISC)                      |
| TLXN:              | Telex access via Interstream 1. |
| IPSS full rate:    | IPSS (FULL)                     |

Note that the TELEX access is expensive, as the cost includes the use of PSS, Interstream 1 and TELEX. Anyone who is interested in TELEX access should first discuss it with the Network Executive.

To be able to make chargeable calls you must request a call allocation to cover the charging rates you want to use when you ask for your authentication. For calls that are free e.g. calls within JANET or normal charge calls from PSS you do not need an allocation.

The PSS discount rate applies from 1800 to 0800 each night and all day on weekends, Christmas Day and New Year's Day. The PSS full rate applies at ALL OTHER times. The IPSS full rate applies at ALL times for international calls. For details of the international rates to various countries consult Network User Note 2.

If your allocation runs out during an active call, then that call will be cleared and all further calls at that rate will be refused.

---

## 5. How to Make Terminal Calls to the Gateway

It is possible to make calls to the Gateway to access the HELP and ACCOUNT facilities.

The HELP facility contains the whole of this user guide in its most up to date form. The facility allows random scans of the document and searches for text within the document.

The Account facility allows the user to inspect the state of his account and to change the password for that account.

---

How to make contact with the Gateway.

## GLB3.TXT

If you are calling the RAL Gateway from PSS use the DTE address 234223519191.

If you are calling the RAL Gateway from JANET use the DTE address 000000000040.

If you are calling the London Gateway from PSS use the DTE address 234219200148 or 234219200100.

If you are calling the London Gateway from JANET use the DTE address 000040000040.

Make a terminal call to the Gateway.

A title message will appear on the terminal announcing the Gateway, followed by the lines:

```
OS4000+Rlix V30 PSS Gateway
Logging in
user
```

If nothing appears, keep pressing <CARRIAGE RETURN> until the above message appears.

It is now possible to log in and use the Help or Account facilities. For details of these facilities see section 7 of this document.

---

## 6. How to Make Terminal Calls Through the Gateway

The method used to make a call through the Gateway depends on the type of PAD being used. If your PAD supports TS29 the procedure is simplified as this protocol allows you to make calls that can cross several networks via several Gateways. If your PAD supports X29 then if you wish to cross several Gateways you normally have to stop at each one before you can pass through it. However a special facility is provided using the Call User Data Field to allow X29 calls non-stop through the JANET PSS Gateway.

Whichever protocol your PAD supports, you must have some way of generating a Transport Service Called Address for onward routing by the Gateway.

---

### 6.1 The Transport Service Called Address

To make a call through the Gateway you have to supply the following information in the form of a Transport Service Called Address to your local PAD.

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- a. Netname: the name of the network you are calling.
- b. Authentication: consisting of Userid and Password in that order.  
This can be omitted for free calls.
- c. Host address: the network address of the remote host.

The format of the Transport Service Called Address is as follows:

<Netname>( <Authentication> ). <Host Address>

These are explained below.

---

Netname

This is one of the following:

- JANET to connect to JANET
- PSS to connect to PSS
- J an alias for JANET.

---

Authentication

This consists of 3 fields which must be entered in the order shown.

- a. user id,
- b. password,
- c. A request for the call to be reverse charged.

The last field is optional.

Note that the whole authentication string must be enclosed in parentheses.

---

Example

- (FRED,XYZ,R) Requests a reverse charge call
- (FRED,XYZ) Requests a chargeable call.

---

Host Address

This is the numeric address of the machine being called. However to make things easier the numeric address can be replaced with an alphanumeric mnemonic if one has been set up on the Gateway.

---

Example

### GLB3.TXT

use RLGB instead of 00000002105 to call the Rutherford GEC 'B' machine  
use SALF instead of 234261643210 to call Salford on PSS.

For a list of these mnemonics see JANET User Notes 5 and 6.

Host addresses can be complex and it is possible to specify several Gateways that you must pass through to reach a specific remote host and/or the service required. Note that a point (.) must be used to separate the numeric addresses or mnemonics from the service names.

---

#### Example

SVPA - this calls the Sussex SERC Prime on Janet.  
SVPA.FTP - this calls FTP on the Sussex SERC Prime on Janet.

To connect to some machines, an X25 sub-address is required, which consists of a number of extra digits added on to the machine address. This can be easily entered on the Gateway by using the delimiter '-' at the end of the mnemonic address and then typing the sub-address. When the mnemonic is translated the delimiter is ignored and the whole address is converted into a continuous string.

---

For a list of these mnemonics see JANET User Notes 5 and 6.

Host addresses can be complex and it is possible to specify several Gateways that you must pass through to reach a specific remote host and/or the service required. Note that a point (.) must be used to separate the numeric addresses or mnemonics from the service names.

---

#### Example

SVPA - this calls the Sussex SERC Prime on Janet.  
SVPA.FTP - this calls FTP on the Sussex SERC Prime on Janet.

To connect to some machines, an X25 sub-address is required, which consists of a number of extra digits added on to the machine address. This can be easily entered on the Gateway by using the delimiter '-' at the end of the mnemonic address and then typing the sub-address. When the mnemonic is translated the delimiter is ignored and the whole address is converted into a continuous string.

---

#### Example

Janet-69 is translated to 23422351919169

How to Use the U.K. Academic Network - Packet SwitchStream (PSS) Gateway

---

## 6.2 Making Calls Using TS29 Protocol

TS29 is the ideal protocol to use through the Gateway, since there should be no problem entering the Transport Service Called Address. However, first make sure that the machine you are calling will support TS29. When using this protocol for network terminal calls the service name of the TS29 server should be entered explicitly.

---

## 6.3 The Full Address

Combining all these factors a full address might look like this.

J(FRED,XYZ).RLGB.TS29

---

## 6.4 Making Calls Using X29 Protocol

X29 is incompatible with the 'Yellow Book' Transport Service and some PADS are unable to generate the Transport Service Called Address. When making an X29 call, the onward Called Address may be entered into the Call User Data Field of the Call. Some PADS, e.g. the British Telecom PAD are unable to generate a Call User Data Field longer than 12 characters and so there may not be enough space to hold all the information required. In this case, a Call must be established only as far as the Gateway, and a dialogue held with the Gateway to establish the next part of the connection.

If your PAD can generate a CallUser Data Field, then the first character of the text is treated as a delimiter, and should be entered as the character '@' followed by the onward Called address.

---

### Example

On a CAMTEC PAD one might enter:-

CALL 00004000004096 D=@(FRED,XYZ).SOMEWHERE

to make a call through the London Gateway to SOMEWHERE on PSS.

---

Overcoming Call User Data Field Problems

With X29 PADs the onward Called Address can be supplied interactively at the Gateway without having to set up a Call User Data field. To do this the Gateway must be called with the correct X25 sub-address. This involves adding an extra 2 digits onto the normal 12 digit address of the Gateway. The sub-address for JANET is 69 and 96 for PSS. The Gateway will then prompt for the onward Called Address.

The procedure is as follows: Call the Gateway using the correct sub-address:

|                |                                                                             |
|----------------|-----------------------------------------------------------------------------|
| 23422351919169 | to call JANET from PSS via the RAL Gateway                                  |
| 00000000004096 | (or the mnemonic RL.PSS) to call PSS from JANET<br>via the RAL Gateway.     |
| 23421920014869 | to call JANET from PSS via the London Gateway                               |
| 00004000004096 | (or the mnemonic LON.PSS) to call PSS from<br>JANET via the London Gateway. |

The response from the Gateway will be the following message:

```
Please enter your authorisation and address required in form:
(user,password).address
>
```

Reply with the appropriate response.

---

Example

```
(FRED,XYZ).SOMEWHERE
```

As the X29 protocol is being used there is no need to include the service name X29.

Authentication is not required when calls are free, e.g. for incoming calls to JANET. In this case the string (FRED,XYZ) can be omitted, note however that the address should still be preceded with a point.

---

Example

```
.RLGB
```

There is a timeout of between 3 and 4 minutes for this response after which the call will be cleared, however there is no limit to the number of

## GLB3.TXT

attempts which can be made within this time limit. If the authorisation or address entered is invalid the Gateway will request it again. To abandon the attempt clear the call from the PAD. For further details of how to do this see Network User Note 11.

You will find that on some PADs a 'call connected' message will appear on the terminal as soon as the call has been connected to the Gateway. This does not mean that you have made contact with your ultimate destination. When you have contacted the remote host the Gateway will show a 'Call connected to remote address' message.

---

## 7. Facilities Provided by the Gateway Machine

---

### 7.1 HELP Facility

A HELP Facility is available which contains the whole of this guide in its most up-to-date form. The utility which is used to view the guide allows the text to be searched for strings as well as allowing random movement about the document.

There is also additional up-to-the-minute information and details of forthcoming changes. Use the HELP system from time to time to find out about changes which may affect your access to the machine.

To connect to the HELP system, simply make a terminal call to the Gateway as described in section 5 above. When the Logging in / User prompt appears type HELP. The following message will then be displayed.

```
OS4000+Rlix V30 PSS Gateway
Logging in
user HELP
ID last used Wednesday, 10 December 1986 06:11
Started - Wed 10 Dec 1986 11:15:55
Please enter your name and establishment.
```

Enter your name and establishment. You will then be presented with the following message.

The following options are available:

```
NOTES GUIDE TITLES ERRORS TARRIF HELP QUIT
```

Which option do you require?

The following list describes each command briefly.

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NOTES replies to user queries and any other useful information.  
GUIDE the complete Gateway user guide.  
TITLES list of JANET and PSS addresses and mnemonics  
ERRORS list of error codes that you may receive.  
TARRIF list of the PSS and IPSS charges.  
HELP is the HELP option.  
QUIT exits from the session.

When you exit from the HELP facility by typing QUIT, the following message will appear.

If you have any comments, please type them now, terminate with E on a line on its own. Otherwise just type <cr>

CPU used: 1 ieu, Elapsed: 2 mins, IO: 1583 units, Breaks: 14  
Budgets: this period = 10.00 AUs, used = 0.010 AUs, left = 9.51 AUs  
User HELP terminal 2 logged out

W10 Dec 1986 09:20:12

The above prompt gives the user an opportunity to type in any queries or Comments that he has about the Gateway. These comments are vieely by the support staff at RAL.

-----  
That's it, The end of another GLOBE TROTTER. I'll be off and do some TROTTING myself. Time to start on the next volume.

In the next issue, there will be the second part of the NUA scans on DATAPAC. Hopefully it will all fit and we can get DATAPAC over and done with. In the months to come, you will see some of the following:

- JANET User Docs Part #2
- Dialcom Systems Directory, A comprehensive guide to Dialcoms
- Merit systems and Node Names
- Scans of networks, in EUROPE, JAPAN, USA, ISRAEL, BRAZIL and lot more.

-----  
Till Next time

Catch Ya Later

-----} THE FORCE {-----

ENDlows the password to be changed. The new password should be typed in twice on the following two

GLB3.TXT  
lines when prompted. It is not echoed  
END Terminates the session.

Note that each command may be abbreviated to a minimum of 2 characters.

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