DECNIS V2.3

DECNIS® V2.3 Release Notes for OpenVMS® VAX

27–March–1994

Digital Equipment Corporation
Maynard, Massachusetts

While Digital believes the information included in this publication is correct as of the date of publication, it is subject to change without notice.

Possession, use, or copying of the software described in this documentation is authorized only pursuant to a valid written license from Digital or an authorized sublicensor.

Digital Equipment Corporation makes no representations that the use of its products in the manner described in this publication will not infringe on existing or future patent rights, nor do the descriptions contained in this publication imply the granting of licenses to make, use, or sell equipment or software in accordance with the description.

© Digital Equipment Corporation 1994.

All Rights Reserved.

The postpaid Reader's Comments form at the end of this document requests your critical evaluation to assist in preparing future documentation.

The following are trademarks of Digital Equipment Corporation:

Bookreader	DECwindows	VAX
DDCMP	Digital	VAXcluster
DEC	DNA	VAXELN
DECbrouter	OpenVMS	VMS
DECmcc	Packetnet	VT
DECnet	PATHWORKS	
DECNIS	POLYCENTER	
DECrouter	ULTRIX	digital™

AppleTalk is a registered trademark of Apple Computer, Inc.

IBM is a registered trademark of International Business Machines Corporation.

MS–DOS is a registered trademark of Microsoft Corporation.

NetWare is a registered trademark of Novell, Inc.

OSF and OSF/1 are registered trademarks of the Open Software Foundation, Inc.

Vitalink is a registered trademark of Vitalink Communications Corporation.

All other trademarks and registered trademarks are the property of their respective holders.

The Digital implementation of OSPF is an adaptation of the OSPF implementation developed by the University of Maryland, College Park, Maryland. Copyright ~ 1989, 1990, 1991, 1992, University of Maryland.

Permission to use, copy and modify the software and its documentation is granted provided that this copyright notice and these terms shall appear in all copies of the software and its supporting documentation. The origin of this software may not be misrepresented, either by explicit claim or by omission.

The Software is provided "AS IS" and without any express or implied warranties, including but not limited to, the implied warranties of merchantability and fitness for a particular purpose.

This document was prepared using VAX DOCUMENT, Version 2.1.

CONTENTS

1 Functionality Added for This Release 1

2 Functionality Restrictions for This Release 1
2.1 OSPF Network sizes supported 1
2.2 Serial Line Restrictions 2
2.3 IP Subnet Masks Longer than 28 Bits 2
2.4 Using HDLC Links 2
2.5 Setting values for T1 over LAPB X.25 links 2
2.6 Disabling X.25 security. 2
2.7 FDDI links sticking in the ‘‘Off-Ready’’ state 3
2.8 Disabling MOP Load Requester & IP Load Requester 3
2.9 MOP cannot initiate loopback packets on DDCMP links 3
2.10 NetWare® IPX Routing: Events 3
2.11 AppleTalk® Routing: Events 3
2.12 CSMA-CD Events 3
2.13 Event Filtering 4
2.14 Disabled Netware IPX from Routing Circuits in the DECNIS configurator 4

3 General Information 4
3.1 ACTUAL SPEED Characteristic 4
3.2 MAC Addresses 4
3.3 W618 and W614 Connector Cable 5
3.4 MOP node name 5
3.5 NSP defaults may affect performance of Routing Convergence 5
3.6 Replacement of the "Metric" attribute for IP Destination Address Entity 5
3.7 BOOTP operation with old Management Processor ROMs 5

4 Interoperability Information 6
4.1 DECNIS IPX interoperability with Novell NE2000T+ ethernet card 6
4.2 Designated Router election against DECbrouter 90 6
4.3 Network ‘‘probe’’ of Vitalink® Bridges 6
4.4 DECmcc - SNMP ARP entry table deletion 6
4.5 DECmcc - restrictions with objects defined as type FddiTime 7
4.6 Asynchronous DDCMP from DECnet/OSI for OpenVMS for VAX - need fix kit 7

5 Configuration Information 7
5.1 NCL script error with LLC2 on FDDI circuits 7
5.2 Incorrect error messages when modifying load-type 8
5.3 DECNIS system time when loaded using BOOTP 8

6 NCL Problems 8
6.1 NCL Syntax used in the DECNIS script compiler. 8
6.2 Event Block, Pass and Ignore directives 8
6.3 Reachable Addresses 9
6.4 On-line HELP for NCL: HDLC LINK Entity 9
6.5 DELETE AND DISABLE Commands 9

6.6 Displaying Ports 9
6.7 Using the 50-Way Loopback Connector 10
6.8 Loopback With Assistance 10
6.9 NCL Abbreviation of 'Protocol' Keyword 10
6.10 CONNECT Command 10
6.11 Managing Bridging on a Running DECNIS 10

7 Documentation Information 11
7.1 Error in Installation Guide, Ultrix Prerequisite software 11
7.2 Configuring OSPF over X25-DA Circuits 11
7.3 LOOP MOP Command 12
7.4 Missing Information in DECNIS 500 Manual 12

8 Management from DECnet–VAX Extensions Systems 13
8.1 Node Implementation Syntax on DECnet–VAX Extensions 13
8.2 Towerset Syntax on DECnet–VAX Extensions 13
8.3 Logging Events to DECmcc on DECnet–VAX Extensions 14
8.4 Event Logging on DECnet–VAX Extensions 14
8.5 Use of ‘‘BY’’ Clause in NCL 14
8.6 Use of ‘‘WITH’’ Clause 15
8.7 MOP Service Password When Loading from a DECnet–VAX Extensions System . . . 15
8.8 Problem Solving when Loading from a DECnet–VAX Extensions System 15

DECNIS® V2.3 Release Notes for OpenVMS® VAX

This document contains information not included elsewhere in the DEC Network Integration Server (DECNIS®) documentation. This information includes information about using the DECNIS, software changes and/or documentation changes.

This document is intended for use with Version V2.3 of the DECNIS.

PLEASE READ THESE NOTES BEFORE INSTALLING OR USING THE SOFTWARE.

1 Functionality Added for This Release

The following software functions are included in this release:

1. Management of DECNIS systems from IBM® Compatible Personal Computers running MS–DOS®.
2. OSPF Routing support.
3. Fast IPX routing support for the (F621 and L601/L602) LAN line cards.
4. SNMP Get and SET support for MIB-II, BRIDGE MIB, and FDDI MIB (RFC's 1213, 1493, and 1512 respectively)
5. Bridging operation over Frame Relay networks.
6. Inter-operation with DECbrouter 90 (and Cisco AGS+ router) systems over the CHDLC datalink.

Common Trace Facility (CTF) also provides support for SNMP with the following routing trace filters:

— ''sntx'' display SNMP packets transmitted

— ''snrx'' display SNMP packets received

2 Functionality Restrictions for This Release

The following section describes known restrictions with this software release.

2.1 OSPF Network sizes supported

For this release, due to the processing overhead caused when large numbers of routes change state in an OSPF network there are restrictions on the number of ROUTES that the DECNIS can support in an OSPF network.

If running OSPF over a LAN circuit then Digital does not recommend the use of more than 1000 routes, ie. IP Maximum External Adjacencies and IP Maximum External Destinations should not be greater than 1000.

If running OSPF over a WAN circuit, or running OSPF at the same time as other processor bound protocols (such as X.25 or IPX tunnel circuits) then no more than 500 routes can be supported by the DECNIS.

If you need to extend the number of OSPF routes used beyond the above size then changing the following parameters will allow an OSPF only router to support more routes.

```
NCL>SET   {nodename}  ROUTING CONTROL PROTOCOL {cproname} LOGICAL CIRCUIT {circuit} OSPF HELLO INTERVAL 20
NCL>SET   {nodename}  ROUTING CONTROL PROTOCOL {cproname} LOGICAL CIRCUIT {circuit} OSPF DEAD INTERVAL 80

 Note: default values for these parameters are 10 and 40 respectively
```

If you need to operate with larger OSPF networks then contact Digital for details of maintenance fixes.

2.2 Serial Line Restrictions

For this release, do not reconfigure the serial data-link on a running system. If you need to change the data-link type (for example from HDLC to PPP), then you must change the configuration files and reboot the system.

2.3 IP Subnet Masks Longer than 28 Bits

IP subnet masks longer than 28 bits are not supported. Such subnet masks cannot be configured on the DECNIS. If such a subnet mask is received in an IS-IS LSP, then the DECNIS will discard the LSP and all routes in the LSP will not be learnt.

2.4 Using HDLC Links

Occasionally the DECNIS may not correctly bring up an adjacency over an HDLC circuit when the HDLC link is established. This situation can be recognised by noticing that the HDLC link is "Running" and one side has a Routing Circuit Adjacency in state "Initializing" but the other side has no Adjacency for that circuit at all.

If this occurs, the HDLC link should be disabled and then re-enabled.

2.5 Setting values for T1 over LAPB X.25 links

For operation of X.25 over LAPB links the values for the timer ‘‘T1’’ should not be set below the default values specified in the network profile, on either the DECNIS system (DTE) or the network system (DCE).

Digital recommends that this value is not set below 2 second, values below 1 second may result in datalink disconnections if the DECNIS Management processor is heavily overloaded.

2.6 Disabling X.25 security.

When running the DECNIS configurator if the X.25 security option is disabled it should not subsequently be re-enabled. Doing so will cause information on outgoing security to be lost.

2.7 FDDI links sticking in the “Off-Ready” state

If the following sequence of commands is supplied to the FDDI station LINK entity the link may remain in the ‘‘Off-Ready’’ state.

```
NCL>  disable node x fddi station f621-{n} link 1
NCL>  disable node x fddi station f621-{n} phy port 1
NCL>  disable node x fddi station f621-{n} phy port 2
NCL>  enable node x fddi station f621-{n} link 1
NCL>  enable node x fddi station f621-{n} phy port 1
NCL>  enable node x fddi station f621-{n} phy port 2
NCL>  disable node x fddi station f621-{n} link 1
NCL>  enable node x fddi station f621-{n} link 1

      (where x is the node name, and f621-{n} is the F621 FDDI card name)
```

Should this happen issue the following commands to return the link to the ‘‘On-Ring Run’’ state.

```
NCL>  disable node x fddi station f621-{n} link 1
 NCL>  disable node x fddi station f621-{n} phy port 1
 NCL>  disable node x fddi station f621-{n} phy port 2
 NCL>  enable node x fddi station f621-{n} phy port 1
 NCL>  enable node x fddi station f621-{n} phy port 2
 NCL>  enable node x fddi station f621-{n} link 1
```

2.8 Disabling MOP Load Requester & IP Load Requester

If MOP Load Requester or IP Load Requester is disabled for a particular interface then this will also disable the receipt of boot or load requests over that interface even if the target load host is on another, enabled interface.

2.9 MOP cannot initiate loopback packets on DDCMP links

Although MOP circuits can be set up for DDCMP links, the MOP LOOP directive will always fail with a datalink error. MOP LOOP directives (Phase IV via NCP or Phase V via NCL with DECnet/OSI) from the remote station will be responded to correctly.

2.10 NetWare® IPX Routing: Events

The following event is not logged by the NetWare® IPX routing software:

- State Change

2.11 AppleTalk® Routing: Events

The following event is not logged by the AppleTalk® routing software:

- State Change

2.12 CSMA-CD Events

These are not generated for either station transmit or receive errors.

2.13 Event Filtering

The following conditions apply to event filters for this release.

1. A node name must be included in the specific filter argument of Pass, Block or Ignore directives and in the Event argument of the TestEvent directive. However, the name is not checked or acted upon by the DECNIS.

   For example, in the following command, the node xyzzy is not checked or used by the DECNIS:

   NCL> PASS NODE decnis EVENT DISPATCHER OUTBOUND STREAM - stream-name SPECIFIC FILTER (NODE xyzzy ROUTING CIRCUIT - csmacd-0, CIRCUIT CHANGE)

2. The "All Events" event group is not supported in the filtering commands. For example, the following will be rejected with an invalid argument value error:

   NCL> PASS NODE decnis EVENT DISPATCHER OUTBOUND STREAM - stream-name SPECIFIC FILTER (NODE xyzzy ROUTING CIRCUIT - csmacd-0, ALL)

2.14 Disabled Netware IPX from Routing Circuits in the DECNIS configurator

In this release, once a Netware IPX routing circuit has been entered (in the lines and DTE section) it can not be disabled. Disabled IPX circuits will prevent a clean NCL script compilation and should be removed by deleting and re-adding the line.

3 General Information

This section provides information about using DECNIS and the V2.3 software in your network.

3.1 ACTUAL SPEED Characteristic

The value of the ACTUAL SPEED characteristic is only an estimate and at high speeds the value may be inaccurate. For example: a line running at 2Mbps may report as running at 2.5Mbps.

3.2 MAC Addresses

When transmitting frames on an 802.3 LAN (Ethernet), the DECNIS may use different source addresses for different protocols:

- OSI, DECnet Phase IV or IP traffic: SA = Logical Address
- All other frames: SA = Physical Address of NIC.

where Logical Address is the Phase IV style Ethernet address of the system if Phase IV address is enabled on the particular routing circuit; otherwise it is the Physical Address of the Network Interface Card.

3.3 W618 and W614 Connector Cable

This cable must not be unplugged (at either end) when power is applied to the Network Interface Card.

3.4 MOP node name

If you manually configure the file name for the load file in the MOP CLIENT profile it is important to use the correct syntax:-

System Image = {:.Node::mom$system:nis023.sys}

The leading colon is required for successful operation

3.5 NSP defaults may affect performance of Routing Convergence

If you operate a large network you may experience problems in the performance of Routing Convergence, and possible loss of transport connections during topology changes in the network. This is due to inappropriate NSP defaults when running Phase V routing. The following defaults are recommended:

- Delay Factor = 5
- Delay Weight = 3
- Retransmit Factor = 10

3.6 Replacement of the "Metric" attribute for IP Destination Address Entity

The "Metric" status attribute associated with the ROUTING IP DESTINATION ADDRESS entity is nolonger supported by the DECNIS software. Instead it uses the new "Path Metric" attribute which has the same meaning but allows the larger range of metric values required for OSPF.

3.7 BOOTP operation with old Management Processor ROMs

There is a problem with full dumps of the DECNIS taken by BOOTP/TFTP if the MPC has ROMs prior to V7-07. The dump slows down and has excessive retransmissions after the first 8M-10M bytes.

The ROM version number can be found by using the following NCL command. Any pre-1993 DECNIS will probably require upgrading if dumps are required and this problem is found.

```
NCL> SHOW NODE node-name DEVICE UNIT MP8M-1 FIRMWARE IDENTIFIER
Show Node DEC:.node-name Device Unit MP8M-1
 at 1993-12-10-11:49:12.60000 + 00:00 I 28147497.67107

Status
 Firmware Identifier "0 2-3.6 V7-07 5.1"
                              ~~~~~
```

Setting the DECNIS to only dump the management processor will in most circumstances provide a workaround. However upgraded ROMs will be necessary where dumps are required for all other cards in the system. The NCL command to limit the size of the dump file is:

```
NCL> SET NODE node-name HARD DUMP CONTROL SYSTEM PROCESSOR DUMP
To return to a full system dump issue the following command:
NCL> SET NODE node-name HARD DUMP CONTROL FULL DUMP
```

4 Interoperability Information

This section provides information about other products that interact with the DECNIS V2.3 software.

4.1 DECNIS IPX interoperability with Novell NE2000T+ ethernet card

This release will not inter-work correctly with PC systems using the the Novell NE2000T+ card, or any other cards using drivers that require IPX packets to be generated with an even number of bytes within 802.3 frames.

This problem can be avoided by using alternative ethernet cards, or using ETHERNET_II IPX encapsulation formats.

Contact Digital for details of maintenance fixes.

4.2 Designated Router election against DECbrouter 90

When the DECbrouter 90 (or Cisco routers) are configured to conduct DNA Phase IV to V conversion, the DECbrouter 90 (or Cisco routers) must have equal settings for both DNA IV & V router priorities. Failure to do so may result in a designated router not being elected if the DECNIS router priority is between the two values set in the DECbrouter 90.

4.3 Network “probe” of Vitalink® Bridges

In order to use Vitalink® network ‘‘probe’’ features over VCP links the following ethernet types should be selected for forwarding.

```
DVS -> Display Vitalink Systems Type 80-80
CON -> Connect                  Type 06-00  (XNS_IDP)
```

4.4 DECmcc - SNMP ARP entry table deletion

It is not possible to to delete ARP cache entries using the address translation table of MIB II if using the DECmcc management agent. This is because DECmcc does not allow a zero length string to be entered.
The workaround is to set the ipNetToMediaType object in the ipNetToMediaTable to ’invalid’ for the entry which you wish to deleted.

4.5 DECmcc - restrictions with objects defined as type FddiTime

DECmcc incorrectly handles the type Unsigned32 are encoded incorrectly in ASN.1 as the SNMP application type 'TimeTicks' rather than plain integer (0..2147483647).
The consequence being that it is not be possible to set from DECmcc the following variables in the FDDI MIB (RFC1285).

- snmpFddiMACTReq
- snmpFddiPORTMACLoopTime
- snmpFddiPORTTBMax

The following will not be setable from DECmcc in the BRIDGE MIB (RFC1286):

- dot1dStpBridgeMaxAge
- dot1dStpBridgeHelloTime
- dot1dStpBridgeForwardDelay

Note that if any other management station is used these variables will behave as expected.

4.6 Asynchronous DDCMP from DECnet/OSI for OpenVMS for VAX - need fix kit

Asynchronous DDCMP in DECnet/OSI for OpenVMS for VAX requires the presence of PAD characters before all frames. The DDCMP architecture indicates these are OPTIONAL and the WAN controller 614/8 does not supply them. There is a FIX kit for DECnet/OSI for OpenVMS for VAX which corrects this problem.

5 Configuration Information

This section provides information associated with installation and configuration of the DEC-NIS V2.3 software..

5.1 NCL script error with LLC2 on FDDI circuits

If you use the the DECNIS configurator to set up LLC2 operation over an FDDI circuit the NCL generated will be incorrect, due to the addition of the wrong LAN type.

To correctly compile the NCL script the main .NCL file must be edited to reset the LAN type back to FDDI, For example:

```
Change:      set llc2 sap sap-0 lan station    csma-cd    station f621-9-0
To:          SET LLC2 SAP SAP-0 LAN STATION    FDDI       STATION F621-9-0
                                               _________
```

5.2 Incorrect error messages when modifying load-type

When modifying the host configurator load type from Partial-Flash to Full Network or vice versa, two incorrect error messages may be generated.

```
FAILED to update DECNIS Management scripts.
and
The management script for this DECNIS could not be compiled.
```

If these messages are seen the contents of the .NCL script files should be checked to make sure that the scrips have been modified and the log file examined to ensure that the CMIP file was compiled successfully.

5.3 DECNIS system time when loaded using BOOTP

If a DECNIS is configured and loaded using BOOTP (on PC or ULTRIX/OSF® systems), the clock on the DECNIS will not be set. Once the system has loaded the system time needs to be set after initial load using the following command.

```
NCL> UPDATE NODE {node-name} DTSS TIME yyyy-mmm-dd-hh:mm:ss  +a:b
```

Where ‘‘yyyy-mmm-dd-hh:mm:ss’’ is the current time and ‘‘a:b’’ is the differential time in Hours and Minutes

6 NCL Problems

This section describes provides information about possible problems with NCL.

6.1 NCL Syntax used in the DECNIS script compiler.

The NCL syntax used in the script compiler on OpenVMS® VAX (all versions) is that accepted by the DECnet–VAX Extensions NCL. Therefore the restrictions noted in this document for DECnet–VAX Extensions systems also apply to the syntax used in the ‘‘EXTRA’’ NCL configuration files, see Section 8.

6.2 Event Block, Pass and Ignore directives

If Block, Pass or Ignore directives are specified in the ‘‘EXTRA’’ configuration files to control the DECNIS event dispatcher they must be added to the ‘‘_EXTRA_SET’’ file and NOT the ‘‘_EXTRA_ENABLE’’ file.

6.3 Reachable Addresses

OpenVMS NCL currently will not allow you to specify an X.25 or OSI reachable address that includes the system-id in the address prefix characteristic.

For example the format:

create x25 access reachable address john address prefix
49::00-01:aa-00-04-00-38-04

does not work, but the format:

create x25 access reachable address john address prefix
49::00-01

does. DECnet–ULTRIX NCL allows you to include the system-id. In either case, if you enter the address prefix in HRPF (Hexadecimal Reference Published Format) format, you can include the system-id.

6.4 On-line HELP for NCL: HDLC LINK Entity

The PREFERRED CRC TYPE characteristic attribute of the HDLC LINK entity has the following three possible values:

- 16 bit
- 32 bit
- EITHER

The NCL HELP text incorrectly includes a hyphen in the first two values.

6.5 DELETE AND DISABLE Commands

The following directives are not supported:

DELETE CSMA-CD

DELETE CSMA-CD STATION

DELETE MODEM CONNECT LINE

DISABLE CSMA-CD STATION

The following directive returns an incorrect error message:

DISABLE ROUTING

The error message returned is "No such entity". This should be "Directive not supported".

6.6 Displaying Ports

If your DECNIS system has both L601 and L602 NICs, the NCL command:

NCL> SHOW NODE name DEVICE ALL

displays all the L602/L601 port 0 information, followed by the L602 port 1 information.

6.7 Using the 50-Way Loopback Connector

You cannot use the STOPLOOP command on a MODEM CONNECT LINE, if the W622 or W614 Network Interface Card associated with that line has a 50-way loopback connector installed. Issuing the STOPLOOP command in this circumstance will have no effect.

6.8 Loopback With Assistance

MOP loopback with assistance is not supported.

6.9 NCL Abbreviation of 'Protocol' Keyword

When issuing NCL commands to a ROUTING CIRCUIT NETWORK PROTOCOL entity, you must not abbreviate the keyword PROTOCOL.

6.10 CONNECT Command

If a command of the following type fails, OpenVMS NCL incorrectly formats the error response:

CONNECT EVENT DISPATCHER OUTBOUND STREAM stream-name

The reason codes displayed have the following meanings:

- Reason = %X088000 or Reason = 32776

  The sink node name has been specified, and the name is not present in Session Control's Known Towers database.

6.11 Managing Bridging on a Running DECNIS

You cannot use OpenVMS NCL to manage the bridging functions of the DECNIS. Instead you must use a bridge management version of NCL.

To manage the bridging functions of the DECNIS, enter the following command:

$ RUN SYS$SYSTEM:NIS$BRIDGE_MGMT.EXE

When specifying NCL access control information to NIS$BRIDGE_MGMT.EXE use one of the following syntaxes.

1. If you include the DECNIS node name in the command then specify the node name as:

   decnis/username/password

   where decnis is the nodename, username is the username and password is the password.

   For example:

   NCL> DISABLE NODE decnis/SYSTEM/system BRIDGE PORT L601-3-0
2. If you specify the node using "set ncl default entity", then you should specify the access control using:

   NCL> SET NCL DEFAULT ACCESS BY USER uuuu, PASSWORD pppp

   where uuuu is the username and pppp is the password.

Then enter the NCL commands described in the documentation. For example:

```
NCL> SET NCL DEFAULT ENTITY NODE decnis
NCL> SET NCL DEFAULT ACCESS BY USER system, PASSWORD system
NCL> DISABLE BRIDGE PORT L601-3-0
```

Note that you should only use this version of NCL to manage the BRIDGE module. Run OpenVMS NCL to manage the other DECNIS modules.

7 Documentation Information

The following sections describe documentation changes.

7.1 Error in Installation Guide, Ultrix Prerequisite software

The Installation and configuration manual for OpenVMS, ULTRIX and DEC OSF/1 contains an error in section 5.1 (ULTRIX Background Information). The reference to DEC OSF/1 in the first sentance of Prerequisite software is incorrect. The first sentance should be ‘‘ULTRIX V4.2 (or later)’’.

7.2 Configuring OSPF over X25-DA Circuits

To configure OSPF to run over an X25-DA circuit requires some additional setup by the user which is not currently documented in the Management Guide and is not performed by the Configurator. The following steps describe the actions necessary to configure an OSPF NBMA network over X25-DA circuits.

1. Use the Configurator to create an X.25-DA routing circuit, specifying any security options you require and the DTE information. Note that the router must be configured as a ISIS L2 router in order to create an X.25-DA circuit (although you can still disable IP information from being propagated by the ISIS routing protocol if necessary).
2. Also in the Configurator, create an IP Reachable Address for every OSPF Neighbor which is accessible over the X.25-DA Routing circuit. You must specify 255.255.255.255 as the mask for the reachable address (i.e. a host mask) and the address of the Neighbor’s interface.
3. In the NIS_name_EXTRA_SET.NCL file you must setup a subnet address and mask for the X.25-DA Routing Circuit (this is not done by the Configurator). The subnet address is the subnet of the OSPF NBMA network, i.e.

```
SET ROUTING CIRCUIT x25-da-1 -
     SUBNET ADDRESS [ADDRESS=92.1.1.0, MASK=55.255.255.0 ]
```

4. Now create and setup the OSPF entities (CONTROL PROTOCOL, LOGICAL CIRCUIT and ADJACENCY) in the NIS_name_EXTRA_.NCL files as described in section 8.8.7 in the DECNIS Management Guide. Specifically you must create a manual adjacency for every OSPF Neighbor on the X.25-DA network e.g.

```
CREATE ROUTING CONTROL PROTOCOL ospf-area-0 LOGICAL CIRCUIT rx25-da-1 -
     ADJACENCY node OSPF NEIGHBOR ADDRESS 192.1.1.5, OSPF PRIORITY 1
```

   Note you should have an adjacency for every IP Reachable Address you created in the Configurator).

7.3 LOOP MOP Command

The DECNIS Problem Solving manual describes using the following command to test HDLC, DDCMP and LAPB circuits:

NCL> LOOP MOP CIRCUIT circuit-name

In this release, this command is not supported for DDCMP and LAPB circuits, see Section 2.9.

7.4 Missing Information in DECNIS 500 Manual

The following information applies to the 7-segment display as described in the DECNIS 500 Installation and Service Manual.

7-Segment displays for DECNIS systems while loading/dumping:

0

No Load Circuits. The system cannot issue a load request since all the possible load circuits are either broken or have been disabled.

1

Load Request. The system is requesting a load from a specific load host. This would normally be the first display since the load is always tried from the last load host first.

2

Loading. The system has located a load host and is loading the image. This display remains until the load completes or is aborted.

3

Load Request Backoff. The system has backed off the load request to avoid congestion on any load hosts. The load request will be re-issued when the backoff timer expires (a few seconds).

4

Load Complete, flash update or decompression in progress.

5

Dump Request. The system is requesting a dump to a specific dump host. This would normally be the first display since the dump is always tried from the last load host first.

6

Dumping. The system has located a dump host and is dumping the system context. This display remains until the dump completes or is aborted.

7

Broadcast Load Request. The system is requesting a load on all circuits (using the dump /load assistance multicast address on LAN circuits).

8

not-used

9

Broadcast Dump Request. The system is looping around all the circuits sending a dump request on each in turn trying to locate a dump host (using the dump/load assistance multicast address on LAN circuits).

8 Management from DECnet–VAX Extensions Systems

The DECNIS documentation in general describes management of DECNIS from a DECnet /OSI system. Management of DECNIS from a DECnet–VAX Extensions system is in some cases different from management from a DECnet/OSI system. This section describes those differences.

8.1 Node Implementation Syntax on DECnet–VAX Extensions

The Node 'IMPLEMENTATION' attribute information is not formatted correctly by NCL on a DECnet–VAX Extensions system. On these systems the product name is displayed as a hexadecimal number: %X12 means the DECNIS 500, %X0D means the DECNIS 600.

8.2 Towerset Syntax on DECnet–VAX Extensions

The syntax used for towersets on DECnet–VAX Extensions systems is different from that given in the DECNIS documentation.

To take an example from Section 1.10 of the DECNIS Management manual:

```
([DNA_CMIP-MICE], [DNA_SESSIONCONTROLV3, NUMBER=19],
[DNA_NSP],  [DNA_OSINETWORK, NSAP-address])
```

becomes

```
([%X0113], [DNA$ProtID$SessCtlV3 NUMBER=19],
 [DNA$ProtID$NSP], [DNA$ProtID$RoutingV3 NSAP-address])
```

This also applies to Section 3.2 of the DECNIS Management manual and to Sections 1.5.1 and 10.3.2 in the DECNIS Problem Solving manual.

8.3 Logging Events to DECmcc on DECnet–VAX Extensions

The syntax for setting up an outbound event stream to DECmcc on a DECnet–VAX Extensions system is different from that specified in Section 3.3 of the DECNIS Management manual.

For example, use the following command to log events to DECmcc running on a DECnet–VAX Extensions system with an NSAP address of 37:12345:02-00:AA-02-14-78-66-11:20.

```
NCL> SET NODE decnis EVENT DISPATCHER -
_NCL> OUTBOUND STREAM stream-name SINK ADDRESS -
_NCL> { ([%X0152], [DNA$ProtID$SessCtlV2 NAME = MCC_EVL_SINK ], -
_NCL> [DNA$ProtID$NSP], -
_NCL> [DNA$ProtID$RoutingV3 37:12345:02-00:AA-02-14-78-66-11:20]) }
```

Note that a space is required between "MCC_EVL_SINK" and "]" to prevent a syntax error being reported.

8.4 Event Logging on DECnet–VAX Extensions

DECnet–VAX Extensions NCL does not implement the event logging commands described in Section 3.13 of the DECNIS Management manual in quite the way described.

1. The TEST directive, when used with an Outbound Stream, must be specified as TESTEVENT. When used with the Event Dispatcher module it must be specified as TEST.
2. In TESTEVENT, PASS, BLOCK and IGNORE directives, the comma between the entity name and the event name must be omitted.

8.5 Use of “BY” Clause in NCL

DECnet–VAX extensions NCL does not support the ‘‘BY’’ clause for specifying access control information. You may specify the username and password for NCL in the NCL command using the following syntax:

nodename"username password"

For example:

NCL> ENABLE NODE RTR1"system insecure" ROUTING CIRCUIT L601-3-0

You can also use the SET DEFAULT ENTITY command as described in Section 5.2 of these notes.

8.6 Use of "WITH" Clause

Commands such as those below work on ULTRIX systems, but on DECnet–VAX Extensions systems you need to omit the comma, and add an = after PORT:

```
NCL> SHOW CSMA-CD STATION * ALL IDENTIFIERS, -
WITH COMMUNICATION PORT <port-name>
```

Correct syntax for a DECnet–VAX Extensions system would be:

```
NCL> SHOW CSMA-CD STATION * ALL IDENTIFIERS -
WITH COMMUNICATION PORT = <port-name>
```

8.7 MOP Service Password When Loading from a DECnet–VAX Extensions System

The MOP Service Password in NCP is equivalent to the MOP Verification in NCL. However the MOP Service Password has a different format to the MOP Verification value; the MOP Service Password is an 8-byte hexadecimal integer while the MOP Verification is an 8-byte hexadecimal string.

The MOP Service Password is translated into a MOP Verification value by padding the hexadecimal integer with 0s on the left until it contains 16 digits. The 8 bytes are then moved from the low-order into a hexadecimal string. So a MOP Service Password of 1234567890ABCDEF becomes a MOP Verification value of %XEFCDAB9078563412 and a MOP Service Password of DDD becomes a MOP Verification value of %XDD0D000000000000. To translate from MOP Verification value to MOP Service Password reverse the operation.

Digital recommends that you choose a value for the NCL MOP Verification which contains all 16 digits (to reduce the confusion that can arise from padding) and then set the MOP Verication attribute on the DECNIS. This value should be translated to a NCP MOP Service Password and tested using the following command,

```
NCP> LOAD NODE decnis SERVICE PASSWORD value.
```

8.8 Problem Solving when Loading from a DECnet–VAX Extensions System

When using a DECnet–VAX Extensions system as a load host, you cannot use NCL commands to perform MOP functions such as loading and dumping.

If you want to force a load of the DECNIS from a DECnet–VAX Extensions load host, use the following NCP command:

NCP> LOAD NODE decnis

NOTE When you power up the DECNIS it automatically sends out a request for a load host to load the software. This request reaches both DECnet/OSI load hosts and DECnet–VAX Extensions load hosts.

If you have problems loading the DECNIS from a DECnet–VAX Extensions load host, follow the procedures in Section 2.1 of the DEC Network Integration Server Problem Solving guide. NOTE HOWEVER that Steps 1,2,3,4 and 5 in Section 2.1.1 do not apply to DECnet–VAX Extensions load hosts. Replace Steps 1,2,3,4 and 5 with the following steps:

Step 1

Enter the following command on the load host:

NCP> SHOW NODE decnis CHARACTERISTICS

where decnis is the name of the DECNIS.

This should display the following characteristics:

- Service Circuit
- Hardware Address
- Load File
- Management File
- Dump File

The following steps check that the listed characteristics are correct.

Go to Step 2.

Step 2

The Service Circuit characteristic displays the Ethernet circuit over which the loading takes place. Check that the Service characteristic of the circuit is set to Enabled by entering the following command:

NCP> SHOW CIRCUIT circuit-name CHARACTERISTICS

Is the Service set to Enabled ? —> NO

Then enable the Service by entering the following commands:

NCP> SET CIRCUIT circuit-name STATE OFF
NCP> SET CIRCUIT circuit-name SERVICE ENABLED
NCP> SET CIRCUIT circuit-name STATE ON
|
V
YES

Step 3

Check that the Hardware Address is that of the DECNIS you want to load. The first 11 digits of the hardware address should match the first 11 digits of the hardware address printed on the processor card. This address can also be found on the Configuration Card for your hardware system.

The final digit of the hardware address must be the same as the number of the slot in which the LANcontroller 601 NIC is positioned.

Is the hardware address correct? —> NO

Then rerun the load-host configurator and enter the correct address. Refer to the DEC Network Integration Server Configuration manual for details.

|
V
YES

Step 4

The Load File characteristic should display the file specification of the system image. During installation the system image is copied to
SYS$COMMON:[MOM$SYSTEM]NIS022.SYS

Does the system image file exist? —> NO

The software has not been installed correctly. Reinstall the software as described on the DEC Network Integration Server Installation and Configuration manual.

|
V
YES

Is the file specification correct? —> NO

The MOP Client entity has not been set up correctly. Rerun the load-host configurator as described in the DECNIS Installation and Configuration manual.

|
V
YES

Step 5

The Management File characteristic should display the file specification of the CMIP script. The script should be listed as:
SYS$COMMON:[MOM$SYSTEM]NIS_mop-client-name.CMIP

Does the file exist? —> NO

If the CMIP script file does not exist, there are problems with the configuration of the DECNIS. Try to determine what caused the script compilation to fail by either:

- Looking at the log file:
  SYS$COMMON:[MOM$SYSTEM]NIS_mop-client-name.LOG
- Executing the compilation command:
  $ @SYS$MANAGER:NIS$SCRIPT_COMPILE NIS_mop-client-name.NCL

If the cause of the error is not apparent, then check the user NCL script files for errors. If there are no apparent errors in the user files, rerun the DECNIS configurator in modify mode and check for errors in the configuration information. Correct any errors you find and create a new CMIP script file using either the DECNIS configurator or the compilation command above.

For more details about running the configurator and creating CMIP scripts, refer to the DEC Network Integration Server Configuration manual.

If the CMIP script is still not created, delete all the commands in the user NCL files and then create a new CMIP script file.

If you still have a problem, submit an SPR.

|

V

YES

Is the file specification for the CMIP file correct? —> NO

Check the configuration of the load host by rerunning the load-host configurator, as described in the DEC Network Integration Server Configuration manual.