

DECNIS V4.0

DECNIS® V4.0 Release Notes for Digital Unix®

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**Digital Equipment Corporation**  
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## DECNIS® V4.0 Release Notes for Digital Unix®

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 V4.0 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:

MPC-III only

- MPC-III hardware
- Flash Areas

MPC-II and MPC-III only

- Flow Master
- DS3 MIB
- Dynamic flash loading
- Secure Connections

MPC-I, MPC-II and MPC-III

- IP Helper functions
- IP-centric operation
- clearVISN DECNIS configurator

Please note that with V4.0 only one system image is supplied (NIS040.SYS). This image will load and run on all MPC hardware. This is what's referred to in the manuals as the "Double Image". The hardware will select the correct system image from the Double Image file. MPC-I users may want to remove the larger system image from the Double Image file to make distribution easier. The `mod_flash` utility has been updated to allow this to be done.

Also note that any references to the "configurator" in these release notes is referring to the textual configurators and not the clearVISN DECNIS Configurator. Release notes for the clearVISN DECNIS Configurator, along with the kit can be found at the following public Web sites:

- Americas Network Product Business Home Page  
<http://www.networks.digital.com/dr/cdc>
- Europe Network Product Business Home Page  
<http://www.networks.europe.digital.com/dr/cdc>

- Australia Network Product Business Home Page  
<http://www.digital.com.au/networks/dr/cdc>

or from our internal Web site:

- <http://www-engreo.reo.dec.com/ipeg/cdc/home.html>

or from the Easynet:

- MARVIN::ROOT\$DOCS:[CDC.REL\_V01001]

## 2 Functionality Restrictions for This Release

The following section describes known restrictions with this software release.

### 2.1 32M dumps

The MPC-III hardware comes in two variants - 16M and 32M. The 32M MPC produces dump files which are more than 32M in size. Digital Unix TFTP implementations do not support files bigger than 32M. Digital Unix are fixing this and a patch will be available shortly. MOP dumping of large dump files will work, although not currently with V4.0 of Digital Unix. Again this is being fixed and a patch should be available soon.

### 2.2 Frame Relay counters

In this release the Frame Relay counters are inaccurate and can't be used to determine network performance. This problem is under investigation and for a future version the code is being rewritten to provide per DLCI counters.

### 2.3 Line-card buffers

In this release a DECNIS 500 with an LANController 602 line-card or a DECNIS 600 with 7 LANController 602 line-cards can't be supported in the default configuration. There are not enough buffers in the system for these configurations. The result is that one or more device units (not necessarily the L602 units) fail to load (denoted by a status of LoadFailed for the DEVICE UNIT). The following lines can be added to the EXTRA\_SET NCL file to solve this problem:-

```
SET DEVICE UNIT nnnn-X-X NUMBER OF BUFFERS 1900  
SET DEVICE UNIT mmmm-Y-Y NUMBER OF BUFFERS 1900
```

### 2.4 DECNIS default path split is 2

For this release the configurator program will assign a default path split of 2, without questioning the user. This can lead to poor performance in certain configurations. When one of the paths is particularly slow packets can arrive out of sequence causing performance issues. Other customers want path splitting and therefore the default will not be changed.

It is possible to change the default in the "extra\_set" NCL files:

```
set routing maximum path splits 1
```

## **2.5 Prioritisation on F621/W631**

In this software version packet prioritisation is not supported on the FDDI Controller 621 or the ATM Controller 631, even though, the management does not prevent the user configuring it.

## **2.6 Failover on W631**

In this software version ATM Controller 631 circuits can not be used for fail-over, since there is no support for Multiplexed Interface/ATM modules in the supervisor entity.

## **2.7 W631 PVC Rate attributes**

In this software version the minimum value for the Peak Rate and Minimum Guaranteed Rate of the ATM Connection Manager Line PVC entity is 1. Since the sum of the Minimum Guaranteed Rate attributes of all PVCs can not exceed 100 (100%), the maximum number of configured PVCs (and therefore the number of Routing Circuits) per ATM option is 100.

## **2.8 IP Packet filtering on W614/8**

In this software version the interface filters attribute on the priority interface sub-entity behaves differently on WAN Controller 614 and 618 cards. On these cards the filter resources are shared by all of their lines. The interface filters attribute on every interface located on a single card reflects the TOTAL number of interface filters on the card as a whole. Hence if there are two interfaces on a WAN Controller 614 or 618 card and an interface filter is created under one of them - both interfaces will have their interface filters attribute set to 1.

## **2.9 PIM restrictions on F621**

In this software version PIM group addresses must be manually setup on FDDI Controller 621 circuits. It has been noted that some PIM applications randomly assign their PIM addresses. This means that, when using such an application, the group addresses will need to be spoofed and manually entered into the DECNIS.

## **2.10 SMDS datalink restrictions**

In this software version the SMDS Addressing scheme is limited to that specified in Bellcore specification TR-TSV-000772. Refer to the management guide for details.

SMDS datalink is seen as a LAN by routing. The following LAN services are NOT supported:

- Native IPX. (Note: IPX IP Tunnels are supported.)
- Bridging.
- MOP load/dump/loop, BOOTP
- DECNet Phase IV routing
- LLC2
- AppleTalk

The following LAN services are supported:

- ISO routing (DECnet Phase V, I-ISIS)
- IP (RIP,OSPF,IPX Tunnel)

### 2.11 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.

### 2.12 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.

### 2.13 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.

### 2.14 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
```

## 2.15 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.

## 2.16 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.

## 2.17 NetWare® IPX Routing: Events

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

- State Change

## 2.18 AppleTalk® Routing: Events

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

- State Change

## 2.19 CSMA-CD Events

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

## 2.20 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 xyzy is not checked or used by the DECNIS:

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

## **2.21 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 V4.0 software in your network.

### **3.1 ACTUAL SPEED Characteristic**

For W622 line-cards (Not W622/HS) the value of the ACTUAL SPEED characteristic of the MODEM CONNECT LINE entity 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 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

### 3.5 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 V4.0 software.

### 4.1 Bridging over PPP

If the DECNIS is configured to run bridging over PPP, and the PPP link negotiates an sdu\_size less than that required it will provide no notification to bridging and therefore the client. Also since the default PPP link sdu\_size is 1500 and bridging requires an sdu\_size of 1524 (to get the encapsulated ethernet packet in it) or 4500 (to get the encapsulated FDDI packet in it) it is often the case that bridging between DECNIS and other vendors' equipment, over PPP, will not work without manual intervention to set the correct sdu\_size. Example NCL for doing this follows:

```
NCL>REMOVE BRIDGE PORT 'P1' mac TYPES {fddi}
NCL>SET BRIDGE PORT 'P1' MANUAL DATA LINK sdu SIZE 1536

NCL>SET PPP LINK 'L1' MINIMUM sdu SIZE 1536
NCL>SET PPP LINK 'L1' PREFERRED MAXIMUM RECEIVE sdu SIZE 1536
```

## 4.2 RouteAbout PPP Interoperability

In this release the DECNIS has a default Maximum Receive SDU Size equal to the default MRU size (1500). The MRU, being the default, is not advertised in PPP LCP Configure requests. No option means default as stated in RFC.

If a NAK is received and the MRU size in it is greater than the Preferred Maximum Receive SDU Size, then the MRU option can't be accepted and the DECNIS will use the Preferred Maximum Receive SDU Size instead (also 1500 by default).

The RouteAbout product currently has a default Maximum Receive SDU Size of 2048, and does not accept the absence of the MRU option to mean the default. This prevents the DECNIS and RouteAbout negotiating an LCP connection. The workaround is to set the DECNIS Preferred Maximum Receive SDU Size to a value other than 1500 and less than the Preferred Maximum Receive SDU Size on the Routeabout.

## 4.3 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.

## 4.4 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)
```

## 4.5 DECMCC - SNMP ARP entry table deletion

It is not possible 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 delete.

## 4.6 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 possible to set from DECMCC the following variables in the FDDI MIB (RFC1285).

- snmpFddiMACTReq

- snmpFddiPORTMACLoopTime
- snmpFddiPORTTBMMax

The following will not be settable 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.

## 5 Configuration Information

This section provides information associated with installation and configuration of the DEC-NIS V4.0 software..

### 5.1 Changing Phase IV address

If the PhaseIV address of a DECNIS is changed in the host configurator then without special action in the decnis configurator an invalid NCL script is generated.

To work around the problem

- Invoke the decnis configurator and select Routing
- Reenter the PhaseIV prefix
- Generate NCL

The NCL script now correctly contains the new PhaseIV address.

### 5.2 DECNIS configurator: COPY option for X.25 outgoing security.

Do not use the COPY outgoing security option (when copying outgoing security information from one Client to another). Instead use the ADD outgoing security for every single node.

### 5.3 Changing the Load Type in the Load-host Configurator

When changing the DECNIS load type flag from Partial-Flash load to Full Network load ( and visa versa ), two incorrect error messages may be generated as the DECNIS Load-host configurator datafile is being updated.

The message indicates that the configurator has:

```

"FAILED to update DECNIS Management scripts.
  DECNIS version updated BUT NCL script unmodified"
or
"The management script for this DECNIS could not be compiled.
  Examine the log file for further details."
```

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.

#### 5.4 Using the Local Naming Option in the Load-host Configurator

When the Load-host configurator asks you to enter the DNS Node Name for the router and you have set up DECnet to use Local NameSpace (LNS) and you enter a node name of the form LOCAL:.node, then no update actually occurs at that point. The following message will appear at the bottom of the screen:

```
The name refers to a DNS Local name space. No DNS updates have
occurred. DNS name : LOCAL:.node
```

This is not an error. This message is informing you that nothing has yet happened. The local name file does not get updated by the Load-host Configurator. The information that you have enetered is remembered and the local name file gets updated by the Router Configurator. This is because the Router Configurator holds the setup information on tower sets (which is needed for the local name file update).

#### 5.5 DECNIS system time when loaded using BOOTP

If a DECNIS is configured and loaded using BOOTP (on PC or Digital Unix® 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

#### 5.6 Configurator W618/W614 restriction

In this software version substituting a W614 for a W618 in the configurator doesn't work correctly. If you wish to do this please re-start the configuration from scratch.

#### 5.7 Configurator AppleTalk restiction

In this software version, when a Line or DTE is being created and Appletalk option are specified. If later the options are removed, to get back to the defaults, the configurator still produces scripts with the old values in. The only work-around is to start the configuration again, from scratch.

## **6 NCL Problems**

This section describes provides information about possible problems with NCL.

### **6.1 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".

### **6.2 Counter discrepancies on disabled circuits**

The multi-processor architecture of the DECNIS system may result in counters being lower than expected for disabled circuits.

Lost or low counters will be corrected when the circuit is re-enabled, providing the circuit and its associated device and datalink entities are not re-configured.

### **6.3 Using the 50-Way Loopback Connector**

You cannot use the STOPLOOP command on a MODEM CONNECT LINE, if the W622 or W614/8 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.

### **6.4 Loopback With Assistance**

MOP loopback with assistance is not supported.

### **6.5 NCL Abbreviation of 'Protocol' Keyword**

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

## **7 Documentation Information**

The following sections describe documentation changes.

## 7.1 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 2.16.

## 7.2 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).