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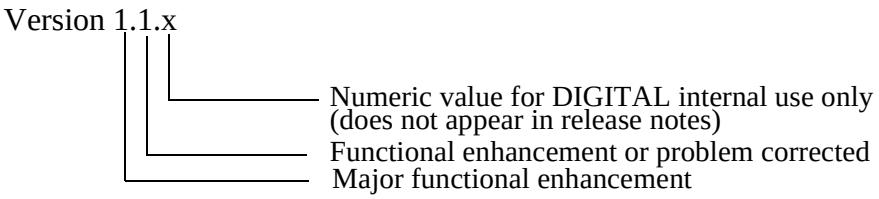
AA-R7QDA-TE

Distributed Routing Software Version 3.0 Release Notes March 1998

As warranted, DIGITAL changes the firmware of this device to make functional enhancements or to correct reported problems. These release notes identify enhancements and changes to the firmware that impact end-user operations. They also contain firmware and software requirements, and list updates in this release as well as known conditions and restrictions that apply to the operation of the modules.

The following example describes the firmware version number:



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Introduction

These release notes describe limitations in the operation of V3.0 of the Distributed Routing Software (DRS).

Firmware Requirements

V5.0 of the DIGITAL MultiSwitch 900 firmware is recommended.

Software Requirements

If you are using clearVISN to manage the module, you must use clearVISN software version 2.1 or higher.

Software Upgrade Process

Software Upgrades

Do not log out from the * prompt while an upgrade is in progress. If you do, the console may not be accessible again until the router is power cycled.

Upgrading Router Software from Digital TCP/IP Services for OpenVMS Environment

Attempts to upgrade the router firmware version using TFTP may fail when the binary image file resides on a VMS system, due to a constraint with the VMS UCX product (V4.0 and earlier).

Router image files on the VMS system are not successfully copied via TFTP if the file is in VMS sequential, fixed-512 (fixed length, 512-byte) record format. TFTP uses this record format for octet (binary) transfers, so any TFTP binary put operation to the VMS system will create the file in that format. The problem arises because the router image file contains a partial last block (that is, data is not block aligned), and the UCX TFTP server function erroneously returns to the router the full last block.

The residual invalid data results in an internal router verification error, and although the TFTP copy phase of the upgrade procedure results in an "OK" status, the FLASH blast step is not attempted due to the verification failure. The router will simply restart itself using the prior (older) FLASH image. See the "Booting, Dumping, and Upgrading the System" chapter of the *Distributed Routing Software System Software Guide* for full details on the upgrade procedure.

To work around this restriction, convert the fixed-512 file format to Stream_LF record format before copying the file.

Multilink PPP

Upgrading Multilink PPP from DRS Version 2 to Version 3

The configuration structures for PPP Multilink bundles have changed since version 2 of the Distributed Routing Software. In particular:

- MP Dial Circuit devices are no longer required or supported. They are replaced by PPP MP Bundle pseudo devices.
- All Multilink bundles must have an associated MP Bundle pseudo device. You can include fixed links (leased lines or PVCs) in multilink bundles by associating them with the MP Bundle pseudo device.

When the router is rebooted after the upgrade from Version 2 to Version 3 any existing MP Dial Circuit devices will be disabled. You must convert these devices to PPP MP Bundle pseudo devices by using the **change device ppp-mp-bundle** *net#* command at the `Config>` prompt, where *net#* is the network interface number of the Multilink Bundle device. For example:

```
Config> change device ppp-mp-bundle

Interface number [0]? 4
```

When the router is rebooted again, the new PPP MP Bundle pseudo device will use the Multilink configuration that was set up for the MP Dial Circuit.

All network interface ports that have been configured for Multilink PPP under Version 2 will be disabled by default because they are not yet associated with a PPP MP Bundle pseudo device. To correct this do the following.

Step	Action
1	Ensure that there is a suitable PPP-MP-Bundle pseudo device. You can do this in one of two ways: **1)** Create one by entering the following at the `Config>` prompt: `Config>` **add device ppp-mp-bundle** command **2)** Upgrade a Version 2 MP Dial Circuit with the **device ppp-mp-bundle** *net#* command.
2	Associate the physical port with the PPP MP Bundle pseudo device by entering the following command: `MP Config>` **set fixed add** *net#* where *net#* is the network interface number of the leased line.

Platform Specific Release Notes

RouteAbout Central EP

Internal Hardware Time of Year Clock

All RouteAbout Central EPs contain a new hardware Time Clock feature that allows time and date information to be preserved across router restarts.

Refer to the *Distributed Routing Software System Software Guide*, Chapter 2 for information about setting the system time using the `Config>`**time set** command. The Telesaving feature uses the system time and date, as described in the *Distributed Routing Software Network Interfaces Operations Guide*, Chapter 14, section 14.1.6.

RouteAbout Central EI

Using Quick Config in a DIGITAL MultiSwitch 900

After a factory reset of the module and redirection to the console via the MAM, the module will report that no protocols have been configured and enter the Quick Config process.

During the config process if you enter NO for bridging and YES for protocols then the module fails to complete the Quick Config process, the connection is closed and it takes up to 5 minutes for the module to reboot.

You can avoid this problem by initially configuring only the router's in-band IP address after restarting with factory defaults. You should enter the sequence of commands via the MAM is as follows:

Step	Action
1	Select `[1] Restart with Factory Defaults`
2	Select `[4] Configure IP ...`
3	Select IP Config Menu item `[2] Set In-Band Interface IP Address`
4	Select IP Config Menu item `[2] Return To Main Menu`
5	Select`[2] Restart with Current Settings`
6	Select `[5]  Go to Local Console` The `*` prompt appears

7	Enter the following :
	`MOS Operator Control`
	`*` **t 6**
	`Gateway user configuration`
	`Config>` **qc**

8	Enter the quick config commands as before.

There are also the EasyStart and Router configurator tools available to help you initialize the router's configuration. Refer to the *Distributed Routing Software System Software Guide* for more information about using the quick config, EasyStart and Router Configurator commands.

RouteAbout Central EP

When you restart the router, or when the ISDN line is first plugged in, an initial outbound call attempt may fail if the link to the ISDN network has not been fully initialized. The router will automatically retry in a few seconds.

General V3.0 Distributed Routing Software Release Notes

IBM-related Protocols

Changes from Prior Release

The following features have been removed from V3.0 of the Distributed Routing Software.

- Data Link Switching (DLSw)
- Boundary Access Node (BAN)

Bandwidth Reservation System (BRS

BRS uses classes only, not filters.

You cannot assign a BRS filter to SNMP responses, since the destination UDP port of an SNMP response may vary depending on the port used by the requester.

Bridging

- If you statically define a MAC address on a certain port, the bridge will not learn dynamic information about the address. For instance, if you move the station to a new port, the bridge will still continue to send frames destined to it on the old port.
- If the bridging MAC address database fills, the bridge will prematurely age MAC addresses in order to make more room in the database. It will first age out any entries that are within 85% of their maximum age. If that does not free enough space, then all entries within 65% of maximum are aged out. This can result in a large number of entries being aged out at the same time, in excess of the space required for new entries.
- Do not attempt to use MAC filtering on an IP tunnel port.
- When operating in IP Host Only mode it is recommended that the bridge ID be set to an unused MAC address (i.e., a MAC address other than that assigned to one of the module's interfaces).

Compression

X.25 compression is not supported when using old-style X.25 circuits over X.25. New style X25-DA and DLM ISO circuits (DEC style) and all other protocols are supported by X.25 compression.

DECnet

Incorrect detection of Designated Router with OSI L2 and DNA V L1.

This problem arises from the fact that DNA V router LAN circuit router priority can be configured from two places:

- Phase IV - `define cir eth/0 router priority`
- OSI - `set subnet 0` (L1 Priority and L2 Priority)

When these priority levels are configured differently, inconsistencies arise that lead to incorrect elections of a phase IV designated router. To correct this problem, you now cannot configure a phase IV priority level on circuits that also have OSI configured (i.e. not **l2_only** type circuits). In such circumstances, you see the following message:

```
NCP> define cir eth/0 router priority
Modify circuit router priority from OSI
NCP>
```

DECNIS FDDI Interoperability with RouteAbout Modules

When configuring a DECNIS to interoperate with a RouteAbout (which cannot process FDDI format packets on PPP links) it is necessary to add the following lines to the DECNIS extra_set NCL file.

```
remove bridge port MAC types {FDDI}
set bridge port Manual Data Link SDU Size 1536
set ppp link Minimum SDU Size 1536
set ppp link Preferred Maximum Receive SDU Size 1536
```

Dial Circuit Interfaces

A limit of 100 virtual dial circuit interfaces should not be exceeded.

DNA-PhaseV Routing

When running the **distance vector** algorithm at level 2, inbound RAPs (Reachable Address Prefix) messages will not be supported (all V2 releases).

If you are using DECnet Phase V, do not set an area address that ends with 00-40. This LOC-AREA has a special meaning in Phase V of the default area, to be used by endsystems in the absence of a router.

EasyStart

Digital UNIX V3.2A is not recommended as a bootp server. V3.2C or later is recommended.

EasyStart operation will not initiate for RouteAbout Central modules inserted in a DIGITAL MultiSwitch 900.

How to stop EasyStart requests

If EasyStart is initiated and the required bootp file is available, then no further action is required. However, if the configuration file is unavailable and the module has a console, then enter the **stop** command. Control will be returned to the quick configure setup.

RouteAbout Access modules all have a local console port that you can use. RouteAbout Central modules in a DIGITAL MultiSwitch 900 do not use EasyStart, but if you need to use the MultiSwitch setup port, then you must use the console **redirect** command to redirect the chassis's console to the slot containing the RouteAbout. It will take at least two redirects, probably more, and then you can stop the module as defined in the module's Installation and Configuration guide. When the console redirect fails you will receive "Module Not Responding! Connection closed!" messages after you press Return.

If the DIGITAL MultiSwitch 900 is running V4.2.0 or earlier, Easy Start should be stopped as soon as possible.

IP

- The IP configuration command to set routing table size should be used with extreme caution. If too large a table size value is entered the router could crash when it is restarted due to memory allocation failure. The exact size at which this will be a problem is dependent on memory usage from other configuration setup values.
- The command line interface allows you to create an IP address/mask pair that is illegal (e.g., 192.1.1.1/255.0.0.0). The resulting address is not advertised by the routing protocols. Be sure that your address mask is not less restrictive than the default for the class (Class A - 255.0.0.0, B - 255.255.0.0, C - 255.255.255.0).
- If you have configured IP routing and IP host services (HST), you cannot monitor HST from the GWCON process (**talk 5**). HST is only used in the absence of IP routing, so the HST

configuration information is ignored and monitoring of HST disabled. If IP is configured you can use the information in your IP routing configuration to remotely access the router.

IPX

- If you are using IPX tunneling via IP, IP routers on the tunnel will be entered into the IPX routing table in hexadecimal. For example, an IP router with address 125.125.125.10 on a tunnel with IPX network number 210 will appear as 210/00007d7d7d14.
- The IPX Keepalive time-out value is ignored and will continue to spoof IPX Keepalive packets indefinitely or until the connection is terminated.
- If you configure a filter with a hop count equal to or greater than the advertised hop count, set filters on, and then monitor via the slist and filter commands, you will see that the SAPs are forwarded, but the filter command shows the number of times the service type has been encountered instead of a zero count.
- The IPX monitor access command will correctly display only the number of times that an exact match has been encountered. The IPX Filters command should do the same.

ISDN

An Explicit B Channel is Requested in Outgoing Call Requests

Outgoing call requests request an explicit channel. The call-back delay should be set to at least 1 second (default) so that the call-back reply call can be accepted by the switch.

Set your call-back delay to 1 second on PRI lines if you see the message channel already allocated on a call-back attempt.

Calling Line Identification

In previous releases of the DRS, access to the router could be gained even though the incoming Calling Line Identification (CLID) did not match any known circuit. In order to maintain maximum backwards compatibility, this ability is still allowed. However, it can be disabled on a per-dial circuit basis with the **set send_line_id** command. This command has been used to disable the Line ID protocol on outbound circuits; it will now additionally be used to disable the protocol on inbound circuits as well. The choices for this command have been changed to reflect this.

```
Circuit Config> set send_line_id
Send/Receive Local ID (Both,Send_only,Receive_only,None)[BOTH]?none
Circuit Config> list
Base net: 2
Destination name: remote
Inbound calls allowed
Idle timer = 0 (fixed circuit)
SelfTest Delay Timer = 150 ms
Send/Rcv Line ID:
NONE Circuit Config>
```

The original values of YES and NO are still valid, and map to BOTH and NONE respectively. The settings of SEND_ONLY and RECEIVE_ONLY now restrict Line ID to outbound or inbound use respectively.

For maximum security, and to maintain your current connection abilities, you should review your dial circuit settings before upgrading to this kit.

If Calling Line Identification (also known as Caller ID) is not available, or inconsistently used in your area, you may wish to use the Local ID protocol to match callers to dial circuits, and depend on PPP security to prevent unauthorized access. Set the Send/Rcv Line ID parameter to BOTH.

If you wish to only allow callers with a valid CLID to connect, you should disable the Local ID protocol. Set the Send/Rcv Line ID parameter to NONE.

If CLID is not available to you, but is available at the site(s) you call, you may wish to set the parameter to RECEIVE_ONLY. The protocol will be used to validate incoming callers, but will not be used when making outbound calls. Conversely, if you wish to use only CLID to identify incoming callers, but a site you call needs to use LID, set the parameter to SEND_ONLY.

You may decide to have a mixture of circuits, some allowing Local ID and some not. Additionally, a circuit set to ANY_INBOUND will always allow connects, whether or not CLID and/or Local ID are present.

Incoming Call processing changed

In order to improve the processing of incoming calls, a change was made to the handling of the DN0 setting. If this parameter is not set, any incoming call on the interface will be accepted. Only if it is set to some value will incoming calls be screened by matching the Called Party Address to the setting of DN0 or DN1. If you wish to share the S-Bus between multiple ISDN devices, you should set this value appropriately.

The following steps should be followed when configuring DN0:

- If you have only a single device on the S-Bus, do not set DN0 or DN1 to any value. If they are already set, clear them via the **set dn0** and **set dn1** commands; you will then need to reconfigure any ISDN parameters you may have set, such as local address, SPIDS, etc.
- If you wish to share the S-bus, and your network provides a Called Address for incoming calls, DN0 must be set to match the number presented in the incoming call. If you do not know which number will be presented as the Called Address, follow these console steps.
    - Clear or leave DN0 un-set
    - Enable all ISDN events
    - Generate an incoming call to the ISDN interface
    - Record the value presented in event message ISDN.41
    - Set DN0 to match the recorded value
    - Restart
- If the ISDN network is not supplying a Called Address on incoming calls, the value of DN0 has no effect. All calls will be accepted.
- DN0 MUST be entered as a string of digits, and NOT the name of an ISDN address entry (as is used for Local Address).

Multilink PPP

Router Always Makes Call to One of the ISDN Channels When It Boots

One of the functions of Bandwidth on Demand (BoD) is to detect the failure or non-existence of one or more fixed links of a Multilink PPP Bundle and to replace as necessary with dynamic bandwidth (e.g. ISDN B Channel). This has implications for router startup. If a fixed link of a Multilink PPP Bundle takes longer than about 30 seconds to get to the Up state after a reboot, BoD will notice its absence and raise a call on an ISDN (or equivalent) channel. This call will be taken down again shortly after the fixed link in question comes up.

Multilink Interoperability Problems

RouteAbout platforms do not support the packet fragmentation as described in RFC 1990. If MP fragments are now received, the ELS message PPP.129 is logged and the fragment is discarded.

Compression

RouteAbout modules implement per link compression, not per bundle compression, on MP circuits.

OSI

OSI Prefix Limitation

When adding prefixes at the `OSI config>` prompt, there was a restriction that the interface number for which the prefix was required could not exceed 31. This imposed an unnecessary limitation on the number of prefixes that could be added. This restriction has been removed.

Restriction Using TRACEROUTE In the OPCOM OSI Subsystem

If the OSI algorithm is set for DISTANCE_VECTOR, the TRACEROUTE function will not work. TRACEROUTE only works when the router is in the LINK_STATE algorithm.

PPP

CHAP Negotiation Fails with Cisco and 3Com Routers

In order to retain backwards compatibility with previous releases and some other products such as the RouteAbout Access EW and RouteAbout Access ISDN routers, a new Send Remote ID in Response option has been added to the configuration. This option should be set to **Yes** when interworking with one of these products. The default is No for interworking with Cisco.

Set the following CHAP parameters to these values.

- Authent Request Tries: 20
- Retry Timer: 3000
- Request Timer: 15000
- Repeat Authentication Timer: 0
- Send Remote ID in Response: No

The following is an example command session to set the CHAP parameters.

```
PPP Config> set auth param chap
Request tries [20]?
Retry timer (mSec) [3000]?
Request timer (mSec) [15000]?
Repeat authentication timer (min) [0]?
Send Remote ID in response packets [no]: new parameter
```

No Automatic Detection of Line Speed

The line speed on serial interfaces is determined by the connected modem and hardware uses this clock to determine its transmission rate. However, the SNMP attribute **IFspeed** does not automatically reflect this line speed. You should manually configure the line speed reported in the IFspeed attribute for PPP circuits, using the **set hdlc-speed** command.

SNMP

The router does not have a default community string for SNMP. Many management tools assume that the default community string of "public" will be present. If the router is configured through the quick config process described in the module's Installation and Configuration guide, a community string of "public" will be created. The community string may also be set from the installation menu or from the DIGITAL MultiSwitch 900 setup port MAM menu. To manually add one, select SNMP configuration and add the community string. See the module's Installation and Configuration guide for more information.

Telesaving

ISDN Fixed Circuits Do Not Capture Time Utilization for Budgeting

When a Dial Circuit has idle timer set to 0 it becomes a fixed circuit that will not time out. The budget feature does not maintain any timer information on fixed circuits. Line usage on these circuits does not contribute to the budget usage, and these circuits are not disconnected when the budget expires.

To include fixed circuits in the router budget usage statistics, set the Dial Circuit idle timer to its maximum value (65535). Since a fixed circuit is likely to be permanently in use, it should not time out, and its line usage will be included in the budget usage statistics.

Budget Feature Cannot Monitor Frame Relay and X.25 Dial Circuits

The budget feature reports and controls connection time for dial-on-demand circuits only, such as ISDN, V.25 *bis*, or Frame Relay SVC dial circuits where the idle timer is configured to a non-zero value.

X.25 and Frame Relay dial circuits are not monitored by the budget feature, but the budget configuration circuit command offers X.25 and Frame Relay dial circuit connections in its list of valid circuits. Do not try to use the budget feature on these circuits.

V.25 bis

DTR Dial Problem When Initial Minimum Timer Is Greater Than Idle Timer

If the initial minimum timer profile is set to a number greater than the idle timer, calls disconnect but keep trying to call back. If the initial minimum timer is set to a number less than or equal to the idle timer, the call terminates and no new call occurs. This has been observed with triggered RIP and idle set to 30 seconds.

Once the dialup connection has been established, PPP maintenance packets are generated every 4 seconds. If the incoming end disconnects first, there is a delay of about 25 seconds before the outgoing modem indicates a disconnection to the router. During this time, the link appears to be up to PPP, which continues to send maintenance packets. However, there is no echo response from the far end, and after 4 packets have been sent (in about 16 seconds) without response, PPP declares the link to be down. This causes a netdown event which deletes the routes that triggered RIP has established, and makes triggered RIP request another dialup connection when the outgoing modem finally signals a disconnection.

One way around this is to set the **down notify timer** for the outgoing dial circuit to a value greater than the disconnection delay mentioned above.

Another solution is to reduce the delay, at the outgoing end, between carrier loss and the outgoing modem signalling disconnect. Modems using the AT command specification control this delay using the value in modem register S10. Setting S10 to a small number, such as 5 seconds, should result in correct operation if the down notify timer is set to its default value.

Setting up a modem for DTR dialling

Setup procedures vary considerably between modems. The following procedure is based on the use of the AT command set. With the modem set to accept AT commands from an asynchronous console, enter the following (comments following the "!" below should not be entered):

```
AT&C0 ! Forces Data Carrier Detect high
AT&S1 ! Data Set Ready acts normally
AT&R1 ! Forces Clear To Send High
AT&M2 ! Selects DTR dialling of number in directory 0
AT&Q2 ! Alternative to AT&M2
ATS0=1 ! Enable auto-answering after one ring (incoming end)
ATS10=50 ! Set the loss of carrier to hangup delay to 5 seconds
AT&Y0 ! Use stored profile 0 following a hard reset
AT&W0 ! Store setting in non volatile memory as profile 0
```

You can concatenate these commands, as in the following example.

```
AT&C0&S1&R1&M2S0=1S10=50&Y0&W0
```

NOTE: Modem settings can vary between manufacturers. For modems not supporting these commands, please consult the modem users guide for alternative setup methods.

WAN Restoral (WRS), WAN Reroute (WRR)

General

If you are using V.25 *bis* as your backup link, the modems also have to be fully V.25 *bis* compatible, and correctly configured to work with the RouteAbout modules.

There are step-by-step RouteAbout configuration instructions in the module's Installation and Configuration guide, which need to be followed carefully. Here are some of the common pitfalls, and how to avoid them.

RouteAbout Modules

When configuring the dial circuits, make sure that one end is set for outgoing calls, and the other for incoming. Configuring both ends for bi-directional calling invites call collisions, as the routers at each end of the primary can see primary loss simultaneously.

For WAN Restoral, do NOT configure a routing circuit on a secondary dial up network. The router will allow such a configuration, but will restart when the secondary is activated. For WAN Reroute, you need to configure routing on the alternate interface as well as the primary.

If you are using ISDN, make sure that the primary circuit's PPP MRU size is manually set to a value below the default of 2048. The recommended value is 1800.

From the point of view of routing, WAN Restoral sees only the primary connection. So DECnet Phase IV, for example, will show the same circuit identifier for the routing circuit when the secondary is up as it does when the primary is up. Also, if you disable the primary net from the console, you will not be able to restore on the corresponding secondary.

Modems

Be sure to select a modem that fully implements the V.25 *bis* recommendation (not all do so).

The following is a list of tested and verified modems:

- Microcom Deskporte FAST with V.34.
- Motorola V.3400
- Motorola Codex 3266
- MultiTech Systems MT2834BA
- Penril Datability Networks Alliance V.34
- Zypcom Z34-SX external

Make sure you have these key modem settings correctly configured. They are NOT usually the default settings of the modem:

- DTR must be set to 108.2 operation
- DSR must follow DTR
- CTS must follow the operation of the auto-call unit

X.25

Maximum Circuits for X.25 Switching

The Maximum Circuits parameter, used by X.25 Switching, defaults to a value of 100. The following example shows how to modify this value.

```
*talk 6
Config> feature x25s
X25S Config> set x25-switching
Routing Priority (1-65535) [255]?
Maximum Circuits (1-65535) [100]? 256
```

NOTE: Two circuits are used by each switched connection.

Memory Requirements for X.25 Switching

Overview

When setting up X.25 switching, consideration has to be given to the overall memory requirements of X.25. For systems that support large numbers of DTEs or large channel ranges per DTE, you must not over-configure the router. You may need to trade off against the number of global buffers required for optimal data throughput, the memory allocated for each DTE, and the memory required to establish each switched circuit. Your aim is to have sufficient global buffers to support the data-flow across the switched connections, while still leaving enough memory for the data structures associated with each DTE and each switched connection.

A switched connection can use up to (2 x window size) global buffers. You do not need to allocate more than this, and to do so reduces the memory available for other purposes. Do not reduce the number of global buffers too much, or data transfer problems may occur. DIGITAL currently recommends a minimum of 400 global buffers.

The memory required per DTE is dependent on the number of channels defined on the DTE. This memory will be allocated whether or not the channel is used. DIGITAL does not recommend using more than 512 channels on any DTE in the system.

As each switched connection is set up, further memory is allocated. There must be enough free memory to support the establishment of these switched connections.

Tuning the Router

Before defining X.25 switching, boot the system and issue the **memory** command at the GWCON (+) prompt, to get the statistics on current memory usage. Add together the values in the “Never Alloc” and “Prev Alloc” columns to find the amount of free memory (FM). Also note the value of the total number of global buffers (TG).

Each X.25 DTE requires 76 Kbytes and each switched connection requires 1 Kbyte. By multiplying the number of DTEs by 76 and the number of switched connections by 1, compute the memory requirements (MR) for the desired X.25 configuration. Check that MR is less than the available free memory (FM).

If MR is greater than FM, either the configuration is too complex and must be reduced in size, or there are already too many global buffers (TG) defined. For the latter case the number of global buffers may be reduced to as few as 400, provided this will still leave sufficient to run the required number of switched connections.

Compute the amount of memory remaining for use as global buffers (GA) by subtracting MR from FM. If necessary, the number of global buffers can be increased. Dividing GA by 2332 will show how many extra buffers could be allocated.

To change the number of global buffers that the router may use, enter the **set global** *nnn* command at the `Config>` prompt, where *nnn* is the number of global buffers required.

Example

Consider a RouteAbout Central with 1 sync DTE and 4 LLC2 DTEs, each with a channel range of 1..512. The module will support 512 switched connections (1024 SVCs). The following memory is required:

```
 76 * 5 * 1024 = 389120 bytes for the DTEs
512 * 1 * 1024 = 524288 bytes for the switched connections
                 ------
                  913408 bytes total
```

Depending on which other protocols are defined to run on the system there should be enough memory to allow for 1600 global buffers.

Event Logging System

The X.25 Network Interface section of the *Event Logging System Messages Guide* describes the ELS event X25.010. This event is never logged by the software.

X.25 Config Process Menu

The X.25 Config process provides the user with a list of protocols in response to the help request for the **add|change|delete protocol ?** commands. The only protocols supported by these commands are IP, DN and IPX.

ETH Config Commands

When X.25 establishes an LLC2 session, it uses the following parameter settings.

```
Received I Frames Before ACK (N3) 254
Transmit Window (Tw) 96
Receive Window (Rw) 32
```

These values cannot be changed through the ETH Config> commands.

Documentation Errors

Routing Protocols Reference Guide

Chapter 13. Section 13.5.1, pp. 13-14

This release of the PPP Multilink Protocol does not support MP packet fragmentation. This section should be deleted.

Network Interfaces Operations Guide

Chapter 2. Section 2.1.2, pp. 2-3, Configuring a V.25 bis Dial Circuit

In Step 2 of this procedure, the command to change the protocol to Proteon Serial Link is **set data-link proteon**.

Page 2-9, Step 11

Step 11 suggests that you can use the **set inbound** command, specifying **any** to accept all incoming calls. The correct command is either **set inbound** *address* to let the circuit accept incoming calls from a specific address, or **set any_inbound** to accept all incoming calls. Refer to the command descriptions on pages 2-29 and 2-30 for more details.

Chapter 6. Section 6.4.1, pp. 6-3, Configuring ISDN Parameters

The description of the step in the configuration procedure for setting the switch-variant lists the Basic Rate options, but not the Primary Rate options. Later in the chapter there is a full description of all of the commands, and the options are listed in full. The following text replaces Step 3 in Chapter 6. section 6.4.1 (page 6-3):

3.	Specify the type of switch to which this ISDN interface is connected. Use the **set switch-variant** command. The BRI options are NET3, INS64, VN3, 5ESS, DMS100, or NI1, and the PRI options are NET5, INS1500, 4ESS, DMS100 NI2 or AUSTEL.
4.	`ISDN Config>` **set switch-variant** `Switch-Variant-Model []?` **net3**

Chapter 8

The implementation of Multilink PPP Bundles has changed significantly since version 2. The **set data-link multilink-ppp** command can only be used on fixed circuits. It cannot be used on Dial Circuits. Refer to Chapter 8 of the *Network Interfaces Operations Guide* for details and illustrated examples showing how to configure Multilink PPP bundles in this release.

Chapter 8, Page 8-80

The prompt for the base idle timer was omitted from the description of the **set mp** command. The example command is

Example:

set mp

```
Base Links [1]?
Max Links [2]?
Base idle timer [60]?
BoD threshold: [70]?
BoD sample time [30]?
BoD base link line speed [64000]?
BoD add link persistence [5]?
BoD delete link persistence [10]?
Assign default destination address name []?
```

Base idle timer	The idle timer for the base links in the multilink PPP bundle. If all of the circuits in the bundle are dial circuits, then this is the interval that the system will wait before dropping the last circuit when there is no activity.

DIGITAL MultiSwitch 900 Platform-Specific Release Notes

Local Console of Installed RouteAbout Module Using MS900 Product Redirect

This software release will allow access to the local Command Language Interface (CLI) for routers installed in a DIGITAL MultiSwitch 900 via the Start Product Redirect menu choice of the DIGITAL MultiSwitch 900 INSTALLATION MENU via a console attached to the chassis console port. Use of this feature is not recommended until V5 of the DIGITAL MultiSwitch 900 firmware is installed.

The use of CLI via the console redirect is not recommended until Version 5 of the DIGITAL MultiSwitch 900 firmware is installed. V4 can be used, but the following restrictions apply:

- Control characters are not passed to module in use. To switch processes (e.g., from Config to CGWcon) you must exit the module by typing Control-C, redirect to the module, and re-enter CLI and select the desired process.
- Anything typed is repeated after a carriage return.

One restriction that applies to both V4 and V5 of the DIGITAL MultiSwitch 900 firmware is that when there are requests that have large amounts of output (list data dynamic is ASRT with a large number of adjacent nodes), the output will be truncated.

DIGITAL MultiSwitch 900 Management

- In a DIGITAL MultiSwitch 900 that is accessed by its OBM port and OBM IP Address, except for LAN Interconnect, the RouteAbout modules cannot be managed by MultiChassis Manager (MCM). To access the module via Telnet, use the MCM front panel window and select the TELNET from APPLICATION pull down on the tool bar and enter the module's OBM address. The TELNET icon in the Brouter Summary Window does not work.
- The RouteAbout Installation menu for a module configured with IP routing will be somewhat different from the same menu for the same module with Host IP configured. The Host IP menu will look like an unconfigured module. The Host IP address may be viewed by selecting option `[3] Show Current Settings`. If IP routing is configured, the `Show Current Settings` and `Configure IP` options will not be present and the defined IP addresses will be displayed, not the associated interfaces.
- If a RouteAbout Central module is placed in a DIGITAL MultiSwitch 900 and access via the DIGITAL MultiSwitch 900's OBM port is required, the following limitations apply:
- The RouteAbout Central will be initially accessible, via PING or TELNET, but if the module is restarted, then the DIGITAL MS 900 must be restarted (option 2 on the DIGITAL MultiSwitch 900 INSTALLATION MENU) before access to the module is available.

DIGITAL MultiSwitch 900 IP services

If the IP address of a DIGITAL MultiSwitch 900 IP services module is to be reassigned from any slot to a slot containing a RouteAbout module and the module is configured with HostIP enabled, IP disabled, you must remove (power cycle) the module that was in the previous slot before the RouteAbout module can act as the IP Services module.

RouteAbout Access EW/EI

If the side dedicated Ethernet port is in use, and it is disconnected from the module, the Ethernet self test will continue to pass.

Online Information

Further information on this network product or topic is available on the DIGITAL Network Product Business (NPB) Web Site as well as its Bulletin Board System. Both systems maintain a common, rich set of up-to-date information on NPB's products, technologies, and programs.

The Web Site can be reached at geographic locations via the following URLs:

North America Network Product Business Home Page	http://www.networks.digital.com/
Europe Network Product Business Home Page	http://www.networks.europe.digital.com/
Asia Pacific Network Product Business Home Page	http://www.networks.digital.com.au/
Digital Equipment Corporation Home Page	http://www.digital.com/

To get firmware and management information base (MIB) information, please choose the "Technical Information" link, and from there choose the "Technical Information (Drivers, Manuals, Tech Tips, etc.)" link. You will see a listing of all the products available on the NPB Web Site.

To connect to the NPB Bulletin Board System, you need a PC and a modem. Set your modem to 8 bits, no parity, 1 stop bit. Dial 978-506-5777 (U.S.A.)

Distributed Routing Software Online Information

The latest information about the RouteAbout routers and the Distributed Routing Software can be found at the following locations:

North America	http://www.networks.digital.com/dr/drs
Europe	http://www.networks.europe.digital.com/dr/drs
Asia Pacific	http://www.networks.digital.com.au/dr/drs

Router Configurator

The latest information about the clearVISN Router Configurator can be found at the following locations:

North America	http://www.networks.digital.com/dr/crc
Europe	http://www.networks.europe.digital.com/dr/crc
Asia Pacific	http://www.networks.digital.com.au/dr/crc

These sites include

- A description of the new features in this release
- The latest release notes for this software
- Information about how to install the software

This information is also available on the CD distribution kit, but the latest updates are maintained on these Web sites.

Using Electronic Mail

The Network Information Center (NIC) of SRI International provides automated access to NIC documents and information through electronic mail. This is especially useful for users who do not have access to the NIC from a direct Internet link, such as BITNET, CSNET, or UUCP sites.

To use the mail service, follow these instructions:

1. Send a mail message to **SERVICE@NIC.DDN.MIL**.
2. In the SUBJECT field, request the type of service that you want followed by any needed arguments.

Usually, the message body is ignored, but if the SUBJECT field is empty, the first line of the message body is taken as the request.

The following example shows the SUBJECT lines you use to obtain NIC documents:

```
HELP

RFC 822

RFC INDEX

RFC 1119.PS

FYI 1

IETF 1IETF-DESCRIPTION.TXT

INTERNET-DRAFTS 1ID-ABSTRACTS.TXT

NETINFO DOMAIN-TEMPLATE.TXT

SEND RFC: RFC-BY-AUTHOR.TXT

SEND IETF/1WG-SUMMARY.TXT

SEND INTERNET-DRAFTS/DRAFT-IETF-NETDATA-NETDATA-00.TXT

HOST DIIS
```

Requests are processed automatically once a day. Large files are broken into separate messages.