digital

AA-R46TB-TE

RouteAbout Access Software Release Notes Version 3.0 May 1998

These release notes contain additional information about RouteAbout Access Software Version 3.0. RouteAbout Access Software Version 3.0 runs on the following products:

- RouteAbout Access ES
- RouteAbout Access ISDN/IP
- RouteAbout Access ISDN/MP

This document contains the following topics:

New Software Features

The following table describes the new features in RouteAbout Access Software Version 3.0:

Feature	Description
Priority Forwarding	Allows you to tag IP packets using IP filters and then prioritize tagged packets using Bandwidth Reservation.
Serial Interface Dialer (DIAL)	Handles the process of placing and receiving telephone calls. Serial Interface Dialer (DIAL) supports asynchronous and synchronous communication, including synchronous V.25 bis.
Frame Relay Enhancements	Supports virtual circuits, LAN emulation, and Frame Relay Manager.
HTTP Authentication	Provides authentication to users for access to services behind a firewall.
ISDN BRI Enhancements	Provides Data Over Speech Bearer Service (DOSBS) and Frame Relay over ISDN.
NetWare Link Services Protocol (NLSP)	Provides link-state routing protocol for NetWare IPX networks.
Routing Information Protocol (RIP)	Routing Information Protocol (RIP) Version 2 provides enhancements to RIP Version 1.
Triggered RIP	Exchanges routing updates only when there is a change in routing information.
Interface Utilization Measurement	Provides utilization measurements for all interfaces.
PPP Data Compression Enhancement	Provides additional PPP data compression capability.
D Channel Callback	Lets you set up callback on an ISDN interface so that the local router does not answer the incoming call, and the remote router does not incur the expense of placing the call.
Network Address Translation (NAT)	Lets a router represent an entire LAN to the Internet as a single, global IP address. The Internet sees all traffic from the local network as originating from the global IP address. Likewise, all traffic coming into the local network from the Internet is addressed to the global IP address. This allows your Internet Service Provider (ISP) to assign one IP address to your LAN, instead of allocating a block of IP addresses, one for each computer on the network. This implementation of NAT is compliant with RFC 1631, *The IP Network Address Translator (NAT)*.

Corrected Problems

The following problems have been fixed for this release:

- In previous releases of this software, when running IPX, AppleTalk, or Bridging over a PPP link, you had to either enable or disable these protocols on both ends of the link. Otherwise, the router on which the protocol was enabled ran out of buffer memory and crashed.
- When Bandwidth Reservation System (BRS) processes a bridged PPP packet, it strips a fixed-length 4 byte PPP header from the packet before determining the data type (NetBIOS, SNMP, etc.). BRS uses the data type to determine the correct BRS class. Previously, the PPP header was not a fixed length and could be from 1 to 4 bytes long. Currently, the PPP header is always 4 bytes long.

Known Problems, Limitations, and Clarifications

This section explains known problems, limitations, and clarifications for RouteAbout Access Software Version 3.0.

General

- In previous releases of this software, routers that supported dial circuits used a proprietary protocol, known as the Line ID protocol, to identify the calling router. RouteAbout Access Software Version 3.0 does not support the proprietary Line ID protocol, it uses PAP, CHAP, and caller ID to identify callers.
- DIGITAL advises that you need an understanding of the routing environment and available memory on the router to increase table sizes.
- DIGITAL recommends that the maximum number of dial interfaces you configure is eight. Adding more than the recommended dial interfaces causes the router to exhaust available memory and crash during initialization. If this happens, you need to clear your configuration before reloading, unless you saved a configuration with no more than the maximum number of dial interfaces.
- You should leave the time-out parameter of the add dump-entry command at its default value of 10. Large values (such as 120 seconds) sometimes prevent crash dumps from completing.
- The hardware does not have a time of day clock chip with battery backup. For time to be meaningful, you have to get the time from a nearby host. The time commands at the `Config>` prompt allow for this operation. Enter the system time upon restarts or configure the router to poll a nearby host.

WAN Interfaces

Under extremely heavy traffic over a WAN interface, routing packets for some protocols may be dropped. This can destabilize routing protocols, causing sporadic readability. This is inherent in the nature of these routing protocols. To avoid this condition, enable Bandwidth Reservation on both ends of the WAN connection.

ISDN

- If the ISDN switch providing the connection supports Caller-ID authentication, set the Circuit Manager Access List to the name of the remote router(s) you configured in the ISDN Address List.

- The RouteAbout Access Quick Config does not ask for directory numbers for the INS64 switch variant because INS64 does not require them. Therefore, if the INS64 switch needs subaddressing, you must enter the ISDN configuration and explicitly set the directory numbers. For example:

```
Config>network 1
Circuit Configuration
Circuit Config <NET-1> bri
Basic Rate ISDN user configuration
BRI Config <NET-1> set dn0
Enter DN0 (Directory-Number-0) []? 54
```

Note: The directory number 0 (DN0) has only a subaddress component which, in this example, is 54.

PPP

- RouteAbout Access Software Version 3.0 supports PPP, PAP, and CHAP authentication. If the router is enabled to authenticate another router using PAP and CHAP, use CHAP first and then allow the remote router to use PAP if it does not support CHAP. We cannot fall back from CHAP to PAP when another router is the authenticator because, by PPP specification, if a router supports CHAP, and the other router asks for CHAP, the first router must use CHAP.

  This may cause confusion if you configure a PAP password on your router and then enable the other router to authenticate using PAP and CHAP. When the other router asks for CHAP, we comply, but PPP authentication fails because we do not have a CHAP secret configured.

  If PAP authentication is required, then the other router (of any brand) must only request PAP. We comply and return the PAP password that you configured.

- A remote router calling into a local router running RouteAbout Access Software Version 2.3 or higher is not allowed to request PAP from the local router. There is a potential security risk where PAP passwords can be stolen. This introduces a possible incompatibility with routers running software prior to Version 2.3 that have PAP enabled and other vendor's routers with PAP enabled. Routers running RouteAbout Access Software Version 3.0 refuse PAP requests because only the router answering the call can request PAP, not the router placing the call.

  Since the PAP request is refused, the remote router ends the call and the link never comes up. The solution is to disable PAP until you have upgraded all routers to Version 2.3 or higher. You should use CHAP during the transition because CHAP is more secure and it is not susceptible to password stealing. Both ends of a PPP link can request CHAP.

- PPP Callback, which initiates a call back to a caller without answering the incoming call, only works on the first call received from the caller. If the calling router calls a second time after one call is already established, the receiving router answers the second call momentarily, and then drops the call. Then, the receiving router makes a second call back. To work around this problem, configure the remote router (that is, the router making the call) to call only once.

  If you need Multilink PPP (MP), configure the router receiving the call to bring up the second call either by enabling Bandwidth-on-Demand or by setting the MP initial-bundle-size to two.

- The RouteAbout Access Software has sophisticated call collision logic within Multilink PPP (MP) that normally assembles a multilink bundle of two ISDN B channels even when two RouteAbout Access routers call each other simultaneously. However, that software requires each router to know the identity of the other router. Therefore, when two routers are both enabled to place outbound calls to each other, you must have caller ID provisioned on your ISDN switch or have PPP, PAP, or CHAP enabled on the router, so the two routers can correctly identify each other. Otherwise, one of the two calls is refused and call retries begin. This can cause some thrashing as call collisions continue to occur, while the second B channel is brought up.

RADIUS Authentication

- The form that the RouteAbout Access Software presents to the user who is authenticating using HTTP allows the user to enter up to 32 characters. However, when the router sends the authentication request to the RADIUS server, the router sends only the first 15 characters that the user entered.
- When a user authenticates using HTTP authentication, the RouteAbout Access Software does not generate RADIUS Event Logging System (ELS) messages to show the authentication activity.

X.25

When running IPX WAN over X.25 with the packet size set to 512K, the window size set to the default of 2, and the speed set to 9600 or 19200 bps, the link fails NLSP negotiation. The link comes up using only RIP.

The workaround for this problem is to set the packet size and window size on the router in the X.25 National Personality configuration and on each port on the X.25 switch to the same value. A packet size of 512K and a window size of 4 works with speeds of 9600 and 19200 bps. A packet size of 256 and a window size of 6 also works with the speed set to 9600 bps.

Impact of Upgrading From Previous Versions

- RouteAbout Access Software supports two types of Frame Relay interfaces: Frame Relay LAN Emulation (FRLANE) and Frame Relay Virtual Circuit (FRVC). If you are using Frame Relay and upgrade to Version 3.0, the software converts existing Frame Relay interfaces to Frame Relay LAN Emulation (FRLANE) interfaces. For more information, refer to the *RouteAbout Access Software LAN/ WAN Interface Guide*, available on the DIGITAL Networks Products Home Page. See *Accessing Online Information* on page 11 for web site locations.
- If you are using Multilink PPP (MP) and are upgrading a RouteAbout Access ISDN router to Version 3.0, the default for MP has changed from disabled to enabled.
- RouteAbout Access Software Version 3.0 does not support Proteon Serial Line (PSL). When you upgrade a router that has PSL interfaces, the software converts PSL links to PPP links. In this case, since the router at the other end of the link is running PSL, your WAN link will go down. DIGITAL recommends that you reconfigure your WAN links to run PPP before you upgrade to Version 3.0.

RouteAbout Access ISDN Routers

- The console port on RouteAbout Access ISDN routers does not support autobaud. The baud rate defaults to 9600, but you can change it using the set baud rate configuration command.
- When the RouteAbout Access ISDN router is booting, the LAN and the OK indicator lights both blink. Only the OK indicator light should blink.

Upgrade Procedures

The following procedures describe how to upgrade the RouteAbout Access ES, ISDN/IP, or ISDN/MP from RouteAbout Access Software Version 2.0 or 2.3 to Version 3.0. Version 3.0 requires the software ROM Version be at least 2.10. The Version 3.0 upgrade kits include software ROM Version 2.10, as well as the Version 3.0 router code (filename.rap).

There are two ways to perform the upgrade:

- Command Line Interface (CLI)
- RouteAbout Access Configuration Tool Version 3.0

The CLI method will remove any existing configuration, router load, boot code, and restore the router to factory settings. Therefore, the second method is recommended if you want to save your existing configuration prior to upgrading.

Upgrade to Version 3.0 Using TFTP and the Command LIne Interface

The following procedure describes how to update both the software and ROM version using a .rap file. The .rap file is included in the upgrade kit.

1) Place the .rap file on a TFTP server on the LAN that serves the router to be updated. Note the IP address for the server and the path to the .rap file.

2) Refer to the following procedures in the *RouteAbout Access ES and RouteAbout Access ISDN Installation and Configuration* manual.

— Connecting your RouteAbout to an Ethernet

— Connecting your RouteAbout to a PC

— Plugging in the Power Supply

3) Within 10 seconds after power-up, a series of "-" marks appears on the screen. Press **Ctrl c** when you begin seeing the "-" marks. The router begins the boot program introduction and brings you to the boot prompt indicated by ">'.

4) Enter the following commands at the boot prompt. (User input is indicated by **bold** text.)

>**bm**

```
PROM Load/Dump Program * Revision: 1.10 *
Copyright 1985-1996 Proteon, Inc. All rights reserved
Device types available:
        IBD
        Ethernet
Device type: Ethernet
Interface IP address: 192.20.108.239  ;IP address of the router to be upgraded.
IP mask [FFFFFF00]: 255.255.255.0     ;Subnet mask for the router to upgraded.
Boot from host: 192.20.108.231        ;IP address of TFTP server.
Boot file name: raiip3.rap            ;Name of the file to be loaded
Using Ethernet at (  0, 0).
Trying host 192.20.108.231
       file raiip3.rap
.......loading
.....................................................................
....
.....................................................................
...........

.....................................................................
...........
Starting at 1040000



-----------------------------------------------------------------------
--
----- Flashtool Version 0.05
----- Loadtool: Downloading Boot and Load Images to Oncard Flash
-----------------------------------------------------------------------
```

```
--

Overwrite Current Boot and Load: using Boot Version 2.10? [y/n] y
Are you sure?(Confirm) [y/n] y
Downloading Boot and Load Images, Please Wait ...
PROM Load/Dump Program * Revision: 2.10 *
Copyright 1985-1997 OpenROUTE Networks, Inc. All rights reserved
No valid boot or bootp records found, attempting IBD load
Loading using IBD Load Image "rtabt3.ldc"
------------
Starting at 1020000
No Protocols Configured. Entering Quick Config
Router Quick Configuration for the following:
— Router Name
– Interfaces
– Protocols
– IP (including RIP and SNMP)

   Event Logging will be enabled for all configured subsystems with
   logging level 'Standard'
   Local Router's Name: []
```

5) At this point, you can continue with QUICK CONFIG to configure the router.

6) After configuring the router using QUICK CONFIG, do the following:

```
Config> update VERSION-OF-SRAM
Updating configuration memory to RouteAbout Access Software ™ 3.0 []
Config>ctrl p
* r y
```

Upgrade to Version 3.0 Using the Configuration Tool

The following procedure describes how to use the RouteAbout Access Configuration Tool Version 3.0 to update both the software and ROM version. The upgrade is contained in a .rap file, which is included in the upgrade kit.

The following requirements must be met to perform this procedure:

- RouteAbout Access Configuration Tool Version 3.0 must be installed.
- The PC needs an active TCP/IP connection to the RouteAbout Access router.
- There must be an active terminal connection running using a console cable.
- RouteAbout Access Software Version 3.0 <filename.rap> must be located in the following directory:
  `C:\Program Files\Digital Equipment Corporation\RouteAbout Access Configuration Tool`

1) Use the console connection to add a user with administrative rights via the command line.

```
Config > add user
Enter user name: xxxx
Password: xxxx
Enter password again: xxxx
Enter permission: (A)dmin, (O)perations, or (M)onitor [A]? a
User xxxx has been added
Enabling console login
Do you want to add Technical Support access? (Yes or [No] ): no
```

2) Add an SNMP community, then configure it with read-write access, and enable it.

```
Config>p snmp
SNMP Config> add community private
SNMP Config>set community access write_read_trap private
SNMP Config> enable snmp
SNMP enabled
SNMP Config>
```

3) Copy the current working configuration to the Integrated Boot Device (IBD).

```
Config>boot
Boot config> copy config ibd\save.cfg
COPYing from "CONFIG" to ibd\save.cfg
COPY succeeded
Boot config>
```

4) Retrieve the current software and configuration by starting the RouteAbout Access Configuration Tool. Click **OK**.

> **Note:** The first screen contains copyright information and states that the RouteAbout Access Configuration Tool Version 3.0/0.14 is for Version 3.0 only. The Version 3.0/0.14 RouteAbout Access Configuration Tool *cannot* be used to configure Version 2.0 or 2.3 software.

a) In the upper left corner of the screen, click **Utilities**. A drop down menu appears.

b) Click **Integrated Boot Device (IBD) Manager** and the Integrated Boot Device (IBD) Manager window appears.

c) Enter the **Host** IP address of the RouteAbout Access router's Ethernet (LAN) interface.

d) Add the **username** and **password** configured earlier.

e) Click **LIST** (contents of the IBD). The contents of the IBD are listed. It should contain the router software: <filename.ldc> and <save.cfg>.

f) Click **GET** (a file from the IBD). A dialog window appears. Enter or select the name of the .ldc file to "get" and click **OK**. The current directory becomes: `C:\Program Files\Digital Equipment Corporation\RouteAbout Access Configuration Tool.` A third dialog window appears.

g) Enter the **name of the new file**: <filename.ldc> and click **OK**. A progress window appears showing you the status of the transfer. When it is complete the Integrated Boot Device (IBD) Manager window appears.

h) Click **GET** (a file from the IBD) and repeat the process **???**, but copy the file to save.cfg. Once both the .cfg and .ldc files have been copied to the PC, they are available if the files need to be restored.

5) The Integrated Boot Device (IBD) Manager will not write over the existing .ldc file in the IBD. The current .ldc and .cfg files need to be removed and the new .rap (3.0 software) downloaded into the IBD.

a) At the Integrated Boot Device (IBD) Manager window, click **DELETE** (a file in the IBD). A dialog window appears, enter or select the **name of the .ldc file** to delete and click **OK**. The Integrated Boot Device (IBD) Manager window displays the "Transfer status" and when it completes a "Transfer Complete" message appears.

Note: Wait 30 seconds before clicking **LIST** or any commands to allow the actual process to complete.

b) Click **DELETE** (a file in the IBD) and repeat the process to delete the file save.cfg.

Note: Without any software in the router's IBD it is imperative that the router is not powered off.

6) To put the RouteAbout Access Software Version 3.0 on the router, you need to put the new .rap file on the PC. It is suggested that the file be resident in the following directory: `C:\Program Files\Digital Equipment Corporation\RouteAbout Access Configuration Tool directory`.

a) Click **PUT** (a file in the IBD). A dialog window appears. Enter or select the name of the Version 3.0 .rap file to "put" and click **OK**.

b) A second dialog window appears. Enter the name of the new file <filename .ldc>. Click **OK**. The Integrated Boot Device (IBD) Manager window displays the "Transfer status" and, when complete, a "Transfer Complete" message appears.

c) Exit the Integrated Boot Device (IBD) Manager and minimize the RouteAbout Access Configuration Tool.

7) Using the console connection to reload the router by entering the following command:

ctrl p
*

reload
`Are you sure you want to reload the gateway? (Yes or [No]):` **yes**

(The RouteAbout reloads using the <filename.rap> file, displays copyright information, and asks you to confirm the upgrade).

`Overwrite Current Boot and Load? [y/n]` **yes**
`Are you sure? (Confirm)  [y/n]` **yes**

The router will upgrade the boot ROM to Version 2.10, place the Version 3.0 software in the IBD, load the RouteAbout with the 3.0 software, and automatically go into "quick config." Close the Hyperterminal session. It is recommended to restart Windows 95 to free the COM port used by Hyperterminal before moving to the following steps.

Note: The RouteAbout router needs to be reconfigured or needs to have its configuration restored.

To reconfigure the RouteAbout, go to Step 10.

To restore the RouteAbout configuration, go to Step 8.

8) To restore the RouteAbout router configuration, perform the following steps:

a) Maximize the RouteAbout Access Configuration Tool. Select **Advanced Configuration.**

b) Click **Next**.

c) Select the appropriate **Router Type**.

d) Click **Next.**

e) Supply a **Host Name** and add the known **IP address** or an IP address and mask in the LAN configuration window (use an IP address that places the router on the same network as the PC that is running the RouteAbout Access Configuration Tool). Ignore the WAN configuration window.

f) Click **SNMP**.

g) Ensure that **SNMP** and **Enable Router Management via SNMP** radio boxes are enabled.

h) Click **Next**.

i) Click **System**.

j) Place a check at the **Enable Console Login** radio box.

k) Click **New**.

l) Add a user in the **User Name** column.

m) Select **Password** in the Authentication column.

n) Select **Administrator** in the User Permission column.

o) Ensure that the arrow to the left of the user row is pointing to the appropriate user.

p) Click on **Change Password/Secret** box. Then, add a password, add the password again, and click **OK**.

q) Click **Next**.

r) At the Save Configuration window, select a free **COM port**.

s) Click **Next**. The exporting configuration window appears and the progress of the process is shown.

t) After the export, in the upper left corner of the screen, click **Utilities**. A drop-down menu appears. Click **Integrated Boot Device (IBD) Manager**. The Integrated Boot Device (IBD) Manager window appears.

u) Enter the **Host** IP address of the RouteAbout Access router's Ethernet (LAN)interface.

v) Add the **username** and **password** configured earlier.

w) Click **LIST** (contents of the IBD). The contents of the IBD will be listed; it should contain the router software <filename.ldc>.

x) Click **PUT** (file in the IBD). The current directory becomes `C:\Program files\Digital Equipment Corporation\RouteAbout Access Configuration Tool`. A dialog window appears.

y) Enter **save.cfg** and click **Okay**.

z) A second dialog window appears. Enter **save.cfg** and click **OK**. A progress window appears along with a Transfer Complete status message in the Integrated Boot Device [IBD] Manager.

aa) Click **Close**.

ab) Click **Exit**. A dialog window appears. Click **Yes**.

9) Open the terminal emulator window and log in to the router. At the asterisk type:

```
* t 6
Config> boot
TFTP Boot/dump configuration
Boot config> copy ibd\save.cfg config
COPYing from ibd\save.cfg to "config"
Got host name "xxxxx" - is this okay? (Yes or [No]): Yes
COPY succeeded
Config> ctrl p
* r y
```

The router will restart with the new code and the saved configuration save.cfg.

```
* t 6
Config> update VERSION-OF-SRAM
Updating configuration memory to RouteAbout Access Software ™ 3.0 []
Config> ctrl p
* r y
```

This completes the configuration restoration.

To reconfigure the RouteAbout router, maximize the RouteAbout Access Configuration Tool and select the appropriate method.

Accessing Online Information

Further product information is available on the DIGITAL Network Products Home Page. You can accesss a rich set of up-to-date information about products, technologies, and programs at the following web site locations:

Americas:	http://www.networks.digital.com
Europe:	http://www.networks.europe.digital.com
Asia Pacific:	http://www.networks.digital.com.au