

**IBM 8285 NWAYS WORKGROUP SWITCH**

**8285 CONTROL-POINT MICROCODE UPGRADE**

**INSTALLATION INSTRUCTIONS**

**FOR PNNI VERSION V.3.2.1**

## TABLE OF CONTENTS

<b>1. TRADEMARKS AND SERVICE MARKS</b> .....	3
<b>2. INSTALLATION INSTRUCTIONS</b> .....	4
<b>2.1 BEFORE INSTALLATION</b> .....	4
2.1.1 PURPOSE .....	4
2.1.2 PREREQUISITE .....	4
<b>2.2 Copying Operational/Boot and FPGA Codes on your workstation</b> .....	4
2.2.1 References .....	4
2.2.2 DISTRIBUTION INTERNET PACKAGE .....	5
2.2.3 REQUIREMENTS .....	5
2.2.4 DOWNLOAD THE 8285 WEB FILES ON YOUR WORKSTATION .....	8
2.2.5 For In-band Download .....	9
2.2.6 For Out-of-Band download .....	10
<b>2.3 UPGRADING THE 8285, USING THE IN-BAND DOWNLOAD</b> .....	10
2.3.1 STEP 0: SAVE THE CONFIGURATION BEFORE THE UPGRADE .....	11
2.3.2 STEP 1: DOWNLOAD INBAND THE 8285 BOOT MICROCODE .....	11
2.3.3 STEP 2: DOWNLOAD INBAND THE 8285 OPERATIONAL MICROCODE .....	12
2.3.4 STEP 3: ACTIVATE THE NEW 8285 MICROCODES .....	13
2.3.5 STEP 4: CHECK THE NEW LEVELS OF CODES .....	13
<b>2.4 UPGRADING THE 8285, USING THE OUT-OF-BAND DOWNLOAD METHOD</b> .....	14
2.4.1 GENERAL SCENARIO OF OUT-OF-BAND MICROCODE DOWNLOAD .....	14
2.4.2 SCENARIO FOR THE UNIVERSAL CODE DOWNLOAD KIT (UCDK) USERS .....	16
<b>2.5 CHECKING THE NETWORK AND SAVING THE CONFIGURATION</b> .....	17
2.5.1 PUBLICATION UPDATE .....	18

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## 1. TRADEMARKS AND SERVICE MARKS

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## 2. INSTALLATION INSTRUCTIONS

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### 2.1 BEFORE INSTALLATION

#### 2.1 .1 PURPOSE

The purpose of this document is to provide instructions for upgrading the 8285 from minimum version v.3.0.0 to current level.

#### 2.1 .2 PREREQUISITE

These installation instructions apply to the following 8285 minimum level:

Flash EEprom version V3.0.0

Boot EEprom version V3.0.0

To know the current version of the operational code on your 8285, use the command "SHOW DEVICE" and look for the line beginning with "Flash EEPROM Version".

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## 2.2 Copying Operational/Boot and FPGA Codes on your workstation

### 2.2 .1 References

- *Release Note for 8285 V.3.2.1*
- *Installation Instructions for IBM Universal Code Download Kit, Part Number 80G3152*
- *IBM 8285, Installation and user's Guide (SA33-0381).*
- *IBM 8285/8260 ATM Command Reference Guide (SA33-0385)*
- *IBM 8285/8260 ATM Control Point Version 3, User's guide (SA33-0452)*
- *IBM 8285/8260 ATM Control Point Version 3, Command Reference Guide (SA33-0453)*

## 2.2 .2 DISTRIBUTION INTERNET PACKAGE

The code upgrade files are available on the Internet (<http://www.networking.ibm.com/support>):

- *A Readme*
- *8285 ATM Workgroup Switch operational microcode (85V321.OPE)*
- *A soft copy of this installation instructions (I185V321.PDF)*
- *A soft copy of the release note (RN85V321.PDF)*
- *A new Network Management MIB version 2.1 (8260V21.MIB)*
- *8285 ATM Workgroup Switch boot microcode (BT85V321.BIN)*
- *8285 FPGA picocode (8285C32.ENC)*

## 2.2 .3 REQUIREMENTS

### 2.2 .3.1 In-band download method

Once your environment is set for in-band operation, the download is much faster than an out-of-band download.

For the in-band download, you **MUST** have a TFTP Server connected to the ATM network, either in Classical IP, or in Ethernet or Token Ring LAN-Emulation, or in SLIP through the 8285 Console port.

\* Classical IP mode

Make sure that your ATM network is configured for IP Over ATM (RFC 1577).  
To configure your ATM network for IP over ATM:

1. Connect an ARP server to the ATM network. The ARP server will be used to map IP addresses to ATM addresses.
2. For each 8285 verify that the following parameters are configured:
  - ATM address of the ARP server
  - IP address and IP mask of the 8285

- IP address of the default gateway

3. Verify the IP connectivity to the ARP server by entering a PING command on each 8285.
4. If your TFTP Server is not the ARP-Server, verify the IP connectivity to the TFTP Server by entering a PING command on each 8285.

The microcode file must be installed on that TFTP Server, in a directory reachable through TFTP.

\* **Ethernet or Token Ring Forum-compliant LAN-Emulation mode**

Make sure your network is configured in Ethernet or Token Ring LAN-Emulation (Forum-Compliant).

To configure your network in Ethernet or Token Ring LAN-Emulation :

1. You must have an Ethernet or Token Ring LAN-Emulation server configured and ready.  
  
You may use the local LES of the 8285. Refer to the section "Setting Up LAN Emulation Servers" in the Chapter 6 of the IBM 8285 Installation and User's guide (SA33-0381-00), or in the Chapter 14 of the IBM 8285 Installation and User's guide (SA33-0381-01).
2. You must configure the Ethernet or Token Ring LAN-Emulation Client on your 8285.  
  
Refer to the section "Setting SNMP Parameters" in Chapter 6 of the IBM 8285 Installation and User's guide (SA33-0381-00), or to the section "Setting Up a LAN-Emulation Client" in Chapter 14 of the IBM 8285 Installation and User's guide (SA33-0381-01).
3. You must have a TFTP Server somewhere in the IP network (either on the Emulated LAN, either behind an IP Gateway), and the microcode files installed on that TFTP Server.

Check that you can ping the TFTP server from the 8285.

\* **Serial Line IP (SLIP) mode**

Make sure your SLIP workstation can act as a TFTP server.

NOTE: If you have TCP/IP for OS/2, the TFTP Server is 'TFTPD.EXE'.

1. Set up the 8285 Console configuration in SLIP Mode:

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Refer to the section "Setting Up a Configuration Console in SLIP Mode" in Chapter 5 of the IBM 8285 Installation and User's guide (SA33-0381-00), or in Chapter 9 of the IBM 8285 Installation and User's guide (SA33-0381-01), for details on this.

2. You will set the TFTP server IP address as the SLIP remote address, to allow you to perform in-band download between your workstation and the 8285.

### **1.2 .3.1 Out-of-Band download method**

Updating the 8285 software microcode using the Out-of-Band download method requires a workstation with an emulated ASCII terminal and the support of XMODEM protocol for file transfer. The workstation is connected to the console port of the 8285 either locally, using a null modem, or remotely.

ASCII terminal emulation and XMODEM protocol are offered by many products such as:

\* DOS platform:

- FTTERM
- ProComm(\*\*) for DOS

NOTE: This product is the one IBM provides in its Universal Code Download Kit (UCDK), Feature code 3150, part number 80G3150. Refer to Installation Instructions for IBM Universal Code Download Kit, part number 80G3152.

- ProComm Plus for DOS

\* Windows(\*\*) Platform

- ProComm Plus for Windows
- Windows Terminal

\* OS/2(\*) Platform

- Softerm Custom(\*\*)
- HyperTerminal(\*\*)

\* AIX(\*) Platform

- Asynchronous Terminal Emulation (ATE)

The above list is not exhaustive.

The emulated ASCII terminal line settings should be set to the 8285 factory defaults:

- o Baud rate: 9600 bps
- o Data bits: 8
- o Parity: None
- o Stop bits: 1

The terminal parameters should be setup as follows:

- o Terminal emulation: VT100
- o Duplex: Full
- o Flow Control: None

## **2.2 .4 DOWNLOAD THE 8285 WEB FILES ON YOUR WORKSTATION**

The code files to upgrade (or restore) the Base Unit are available on the Internet. They consist of the boot and operational microcodes, the FPGA and MIB codes, so that text files in plain text or PDF (Acrobat reader) format.

These files must be placed in a directory reachable through TFTP, like /tmp for a Unix/AIX station, so that In-Band download toward the Base Unit can be performed.

After the files have been downloaded, on an AIX Workstation make sure that the files can be read by all users :

**•Log in as "root" Set the path to the microcode files directory**

**Enter: *chmod a+r BT85V321.BIN***

**Enter: *chmod a+r 85V321.OPE***

**Enter: *chmod a+r 8285C32.ENC***

## **2.2 .5 For In-band Download**

You need to perform an inband download operation, using either:

- Classical IP mode. Make sure that your ATM network is configured for IP Over ATM (RFC 1577). To configure your ATM network for IP over ATM:
  1. Connect an ARP server to the ATM network. The ARP server will be used to map IP addresses to ATM addresses.
  2. For each A-CPSW module verify that the following parameters are configured:
    - **ATM address of the ARP server**
    - **IP address and IP mask of the A-CPSW**
    - **IP address of the default gateway**

3. Verify the IP connectivity to the ARP server by entering a PING command for each A-CPSW module.
4. Verify the IP connectivity to the TFTP server by entering a PING command for each A-CPSW module.

- Ethernet or Token Ring LAN-Emulation mode

Make sure your network is configured in Ethernet or Token Ring LAN-Emulation.

To configure your network in Ethernet or Token Ring LAN-Emulation :

1. You must have an Ethernet or Token Ring LAN-Emulation Server configured and ready. You can use the local LES of the 8260.
2. You must configure the Ethernet or Token Ring LAN-Emulation Client on your 8260.
3. You must have a TFTP Server somewhere in the IP network (either on the Emulated LAN, either behind an IP Gateway), and the microcode files installed on that TFTP Server.
4. Check that you can PING the TFTP server from the 8260 LEC.

- Serial Line IP support (SLIP) mode. Make sure your workstation can act as a TFTP server .

1. Set up a A-CPSW Configuration Console in SLIP Mode:
2. Then configuring the SLIP interface on the TFTP workstation will allow you to perform Inband Download between your workstation and the A-CPSW.
3. The SLIP connection will be broken after a reset of the A-CPSW and connection will be operational in normal mode.

### **2.2 .6 For Out-of-Band download**

Copy these files on the XMODEM station:

- o 8285 boot microcode, file name: BT85V321.BIN.
- o 8285 operational microcode, file name: 85V321.OPE.

**MANDATORY MICROCODE LEVEL: V.3.0.0**

If your 8285 has not been upgraded to the Version 3.0 (PNNI) with the MES 5509, P/N 10J2458, this microcode will not run.

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## **2.3 UPGRADING THE 8285, USING THE IN-BAND DOWNLOAD**

- o Before upgrading, remember:

Check that all the ATM components of your network are at the PREREQUISITE levels: refer to chapters "Prerequisite" and "Machines Affected" above.

- o **IMPORTANT**

The following steps are showing an example of Inband Download in Classical IP mode, using the ARP server as TFTP server .

It is advised to update ALL 8285 ATM hubs starting with the furthest 8285 from the ARP server, in terms of PNNI/IISP link hops.

You may log in to the 8285 console either **LOCALLY** using an ASCII terminal connected to the 8285 console port, or **REMOTELY** using a TELNET session.

### **2.3.1 STEP 0: SAVE THE CONFIGURATION BEFORE THE UPGRADE**

Before you begin the upgrade procedure we advise you to upload the configuration of each 8285 in your network :

1. Set up the TFTP parameters by entering the following commands:

- o SET TFTP SERVER\_IP\_ADDRESS <ip address of the TFTP server>
- o SET TFTP FILE\_TYPE CONFIGURATION
- o SET TFTP FILE\_NAME  
Provide the full path of the file when prompted

2. Start the inband-upload procedure by entering:  
UPLOAD  
When prompted, type "Y" to confirm.

**It is advised to perform the following steps with NO OPERATIONAL TRAFFIC flowing in your ATM campus network. Typically, this would be scheduled as part of a maintenance period. You would better save all your configuration parameters before.**

### **2.3 .2 STEP 1: DOWNLOAD INBAND THE 8285 BOOT MICROCODE**

Upgrade the 8285 boot microcode as follows:

1. Log in as the ADMINISTRATOR on the 8285 console
2. Upgrade the 8285 boot microcode (Boot EEPROM) as follows:
  - a. Configure the TFTP parameters by entering the following commands:
    - o SET TFTP SERVER\_IP\_ADDRESS <ip address of the TFTP server>
    - o SET TFTP FILE\_TYPE BOOT
    - o SET TFTP FILE\_NAME  
Type the full path name of the boot microcode file (BOOTV320.BIN) when prompted.
  - b. Make sure you can reach the TFTP server by entering:  
PING <ip address of the TFTP server>  
(Stop ping by entering: Ctrl+C)
  - c. Start the download inband procedure by entering:  
  
DOWNLOAD INBAND  
When prompted, type "Y" to confirm.
  - d. Wait for successful termination of the download operation. The message **Download Successful** is displayed.

This may also be checked by displaying the TFTP last transfer result with the command: "SHOW TFTP".

**NOTE**

The command "SHOW DEVICE" displays the new BOOT code version which will become active. It will be displayed as V.3.x.y (where 3.x.y is the currently downloaded code).

**IN CASE OF FAILURE**

If the download inband operation fails, retry this step. If the failure recurs, refer to the Troubleshooting chapter of IBM 8285 Nways Workgroup Switch: Installation and User's Guide.

**2.3 .3 STEP 2: DOWNLOAD INBAND THE 8285 OPERATIONAL MICROCODE**

Upgrade the active 8285 operational microcode (Flash EEPROM) as follows:

1. Configure the TFTP parameters by entering the following commands:

- o SET TFTP SERVER\_IP\_ADDRESS <ip address of the TFTP server>
- o SET TFTP FILE\_TYPE OPERATIONAL
- o SET TFTP FILE\_NAME

Type the full path name of the operational microcode file (85V320.OPE) when prompted.

2. Make sure you can reach the TFTP server by entering:

PING <ip address of the TFTP server>

(Stop ping by entering: Ctrl+C)

3. Start the download inband procedure by entering:

DOWNLOAD INBAND

When prompted, type "Y" to confirm.

4. Wait for successful termination of the download operation. The message

Download successful is displayed.

This may also be checked by displaying the TFTP last transfer result, through the command "SHOW TFTP".

**NOTE: The command "SHOW DEVICE" displays the operational code level in backup. It will appear as V.3.2.1**

### 2.3 .4 STEP 3: ACTIVATE THE NEW 8285 MICROCODES

1. Activate the new version of 8285 operational microcode by entering the command:

- o CLEAR ERROR\_LOG
- o SAVE ALL
- o SWAP MICROCODE and confirm with Y

2. The telnet session, if any, is broken.

#### STEP 4: CHECK THE NEW LEVELS OF CODES

1. Login as the ADMINISTRATOR on the 8285 console

2. The following table lists the microcode and FPGA versions that must be displayed for the 8285 at completion of the upgrade. Use the following commands :

- o SHOW DEVICE

<b>REMINDER</b>
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This must be performed with NO OPERATIONAL TRAFFIC flowing in your ATM campus network. Typically, this would be scheduled as part of a maintenance period.
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- o SHOW MODULE 1 VERBOSE

Operational FPGA version C32

Flash EEprom version V 3.x.y (where x.y is the currently downloaded version)

Boot EEprom version V 3.x.y (where x.y is the currently downloaded version)

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## 2.4 UPGRADING THE 8285, USING THE OUT-OF-BAND DOWNLOAD METHOD

### 2.4.1 GENERAL SCENARIO OF OUT-OF-BAND MICROCODE DOWNLOAD

Repeat the following actions for every 8285:

1. Connect a workstation to the console port of the 8285.
2. Start the ASCII terminal emulator.
3. Log in as Administrator on the 8285 console.

#### REMINDER

\* The Out-Of-Band procedure can be used as a backup procedure, in case you do not have any TFTP Server.

\* The Out-of-band Download implies the stop of the ATM Switching, since the 8285 will be running in the Maintenance Mode. Typically, this should be scheduled as part of a maintenance period.

\* In Case of Failure

If the download operation fails, retry the procedure. If the failure recurs, record the error code and refer to the description of the command "DOWNLOAD OUT\_OF\_BAND" (page 34) of the IBM 8285/8260 ATM Command Reference Guide (SA33-0385).

4. Enter the maintenance mode by entering the MAINTAIN command.
5. In maintenance mode, you should get the ">>" prompt.
6. Start the download operation for the OPERATIONAL code by entering, after the ">>" prompt, the command  
DOWNLOAD OUT\_OF\_BAND OPERATIONAL
7. When the 8285 is waiting for the file to be sent, start the send-file procedure at your ASCII terminal emulator.

8. Start the download operation for the BOOT code by entering after the ">>" prompt the command  
    DOWNLOAD OUT\_OF\_BAND BOOT
9. When the 8285 is waiting for the file to be sent, start the send-file procedure at your ASCII terminal emulator.
10. After successful completion of the download operation, the 8285 will reset automatically, and will activate the new microcodes.

#### **2.4 .2 SCENARIO FOR THE UNIVERSAL CODE DOWNLOAD KIT (UCDK) USERS**

##### NOTE

If the line between the workstation (ASCII terminal emulation) and the 8285 is operating at 9600 bps, the file transfer will last about 30 minutes.

Repeat the following actions for every 8285:

1. Establish the connection between the DOS workstation and the 8285 console port.  
    Refer to the IBM 8285 Installation and User's guide.
2. Start the ProComm(\*\*) software
3. After the terminal screen is displayed, press the "Alt-B" keys to specify the path to the software and command files. The path is entered in the "PATH:" input field.  
  
    e.g: PATH: C:\TMP
4. Log in as ADMINISTRATOR on the 8285 console.
5. Enter the maintenance mode by entering the MAINTAIN command.
6. In maintenance mode, you should get the ">>" prompt.
7. Download of operational code is done through a single CMD file: DNLD
  - a. Press the "Alt-F5" keys. The ProComm Command file(s) is(are) listed in a window.
  - b. Select the ProComm Command file DNLD.CMD using the arrow up/down keys: the selected entry is highlighted.

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Press the "Enter" key to confirm the selection.

The download out-of-band procedure for the operational code is started automatically and the file transfer initiated. File transfer progress will be indicated on the terminal until completion.

8. Once the download of operational code is successful, the 8285 is reset automatically. After that reset, the new code is active.

### 2.3.3 CHECK THE NEW LEVELS OF CODES

1. Log in as the ADMINISTRATOR on the 8285 console
2. The following table lists the microcode and FPGA versions that must be displayed for the 8285 at completion of the upgrade. Use the following commands :
  - o SHOW DEVICE
  - o SHOW MODULE 1 VERBOSE
    - Operational FPGA version C32
    - Flash EEprom version V 3.x.y (where x.y is the currently downloaded version)
    - Boot EEprom version V 3.x.y (where x.y is the currently downloaded version)

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## 2.5 CHECKING THE NETWORK AND SAVING THE CONFIGURATION

After you complete the upgrade procedure for every 8285 ATM hub in your network, verify that your network is operational. To do this:

- o Check that all links are active, specifically the PNNI and IISP links.
- o Check the connectivity between the TFTP server (if any) and each 8285 in the network, using the PING command.

NOTE
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If the line between the workstation (ASCII terminal emulation) and the 8285 is operating at 9600 bps, the file transfer will last about 35 minutes.
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- o Once the links are up and running successfully, we advise you to upload the configuration of each 8285 in your network :

1. Setup the TFTP parameters by entering the following commands:
  - SET TFTP SERVER\_IP\_ADDRESS <ip address of the TFTP server>
  - SET TFTP FILE\_TYPE CONFIGURATION
  - SET TFTP FILE\_NAMEProvide the full path of the file when prompted
2. Start the upload inband procedure by entering:       UPLOAD  
When prompted, type "Y" to confirm.

**MIGRATION COMPLETE**

You have successfully completed the ATM V3.2.1 upgrade.

### **2.5 .1 PUBLICATION UPDATE**

Read the Release Note (RN85V321.PDF) to understand what the newly installed version brings, compared to the previous version.

END OF DOCUMENT