IBM Installation Instruction

IBM 8285 Nways ATM Workgroup Switch

Installation Instruction

for

ATM upgrade kit

FPGA level C31, C30, B50

Operational Microcode Version v.1.5.2

Boot Microcode Version v.1.5.2

PN N.A. 1 of 19	EC N.A. 24Jun97				

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2.0 Installation Instruction

2.1 Before Installation

2.1.1 Purpose

The purpose of this document is to provide instructions for upgrading the 8285.

2.1.2 Prerequisite

Here follow the minimum different pre-requisite levels:

Component	Feature Code	Operational FPGA Version	Flash EEPROM Version	Boot EEPROM Version
8285	----	C10	v.1.4.0	v.1.4.0
A4-FB100 (MIC)	5004	B40	n/a	n/a
A4-FB100 (SC)	5104	B40	n/a	n/a
A2-MB155	5002	B40	n/a	n/a
A3-MB155	5003	C10	n/a	n/a
A12-TP25	5012	C10	n/a	n/a
A-CMU1	5102	B40	n/a	n/a
A-CMU2	5202	B40	n/a	n/a
A04MB-BRG	5204	B40	n/a	n/a
A2-WAN	5302	B40	n/a	n/a

2.1.3 Machines affected

This installation instruction, Part Number 10J2452, applies to the following 8285 levels:

Component	Flash EEPROM Version	Boot EEPROM Version
8285	v.1.4.0 v.1.4.3 v.1.5.0 v.1.5.1	v.1.4.0 v.1.4.3 v.1.5.0

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".

It is highly recommended to upgrade the media modules to the latest FPGA picocode level included in this package for your convenience.

2.1.4 Distribution Files

These files should be placed in a directory reachable through TFTP, like /tmp for a UNIX/AIX station.

The present kit contains 5 diskette imagess :

1. The diskette image, Part Number 10J2435, contains
   a. A notice file (README.285)
   b. A-CPSW boot microcode (oper150.bin)
   c. A-CPSW operational microcode (boot150.bin)
   d. A soft copy of this installation instruction (inst8285.doc)
   e. A soft copy of the release note (rel8285.doc)
2. The diskette image, Part Number 10J2436, contains:
   a. A-CPSW FPGA picocode (swpgab50.enc)
   b. 8285 FPGA picocode (85pgac30.enc)
   c. A new MIB version 1.7 (mib1.7)
3. The diskette image, Part Number 10J2437, contains:
   a. HS 100Mbps MIC connector FPGA picocode (100mc50.enc)
   b. HS 100Mbps SC connector FPGA picocode (100sc50.enc)
4. The diskette image, Part Number 10J2438, contains:
   a. HS 155Mbps 2 ports FPGA picocode (1552p50.enc)
   b. HS 155Mbps 3 ports FPGA picocode (1553p31.enc)
5. The diskette image, Part Number 10J2439, contains:
   a. Carrier module FPGA picocode (cmpga50.enc)
   b. 12 port 25 Mbps module FPGA picocode (25pga30.enc)

2.1.5 Requirements

2.1.5.1 In-band download method

You need to perform an in-band download operation for the FPGA picocode upgrade.

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 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 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.

* 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:

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. Then set the TFTP server address to the SLIP remote address, to allow you to perform in-band download between your workstation and the 8285.

2.1.5.2 Out-of-Band download method

WARNING

The download out-of-band is not supported for this release.

2.1.6 References

* *Release Note, Part number 10J2329, EC level E95670.*
* *Installation Instruction for IBM Universal Code Download Kit, Part Number 80G3152*
* *IBM 8285 Installation and User's guide (SA33-0381-01)*
* *IBM 8285 Installation and User's guide (SA33-0381-00)*
* *IBM 8285/8260 ATM Command Reference Guide (SA33-0385)*
* *ProComm Reference Manual*

2.1.7 Copying the Distribution files on your Workstation

Important

This is a necessary step for downloading the 8285 software microcodes from a workstation.

1. Use the diskette image PN 10J2435 to copy to the directory where you want the microcodes to reside, the following files:

   8285 boot microcode, file name: **boot152.bin**.
   8285 operational microcode, file name: **oper152.bin**.

2. Use the diskette image PN 10J2436 to copy to the directory where you want the microcodes to reside, the following files:

   8285 FPGA picocode file name : **85pgac30.enc**.

3. Use the diskette image PN 10J2437 to copy to the directory where you want the microcodes to reside, the following files:

   HS 100Mbps MIC connector FPGA picocode file name : **100mc50.enc**.
   HS 100Mbps SC connector FPGA picocode file name : **100sc50.enc**.

4. Use the diskette image PN 10J2438 to copy to the directory where you want the microcodes to reside, the following files:

   HS 155Mbps 2 ports FPGA picocode file name : **1552p40.enc**.

HS 155Mbps 3 ports FPGA picocode file name : **1553p31.enc**.

5. Use the diskette image PN 10J2439 to copy to the directory where you want the microcodes to reside, the following files:

   Carrier Module FPGA picocode file name : **cmpga40.enc**.
   12 ports 25 Mbps module FPGA picocode file name : **25pga30.enc**.

6. Remove the distribution diskette part number 10J2439 from the workstation unit.

7. 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 boot152.bin
   Enter: chmod a+r oper152.bin
   Enter: chmod a+r 85pgac30.enc
   Enter: chmod a+r 100mc50.enc
   Enter: chmod a+r 100sc50.enc
   Enter: chmod a+r 1552p50.enc
   Enter: chmod a+r 1553p31.enc
   Enter: chmod a+r cmpga50.enc
   Enter: chmod a+r 25pga30.enc

2.2 Upgrading the 8285

Before upgrade Reminder

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

IMPORTANT

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

It is recommended to update **all** 8285 ATM hubs starting with the 8285 module that is the farthest from the ARP server in terms of SSI/NNI links 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.

Just in case

Since a new migration process exists for the ATM upgrade kit, you might encounter new MAINTENANCE codes (please refer to the Release Note in the appendix B).

2.2.1 Step 0: Saving Configuration before the upgrade

REMINDER

It is recommended 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.

Before you begin the upgrade procedure we recommend 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_NAME
   Provide the full path of the file when prompted
2. Start the upload inband procedure by entering:
   UPLOAD
   When prompted, type "Y" to confirm.

2.2.2 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. perform the following command:

   SET DEVICE MIGRATION NOT_ALLOWED
   SAVE DEVICE

3. Upgrade the 8285 boot microcode (Boot EEPROM) as follows:
   a. Configure the TFTP parameters by entering the following commands:

      SET TFTP SERVER_IP_ADDRESS <ip address of the TFTP server>
      SET TFTP FILE_TYPE BOOT
      SET TFTP FILE_NAME
      Type the full path name of the boot microcode file (**boot152.bin**) when prompted.

   b. Make sure you can reach the TFTP server by entering:
      PING <ip adress 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.1.5.2**.

In Case of Failure

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

2.2.3 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:

   SET TFTP SERVER_IP_ADDRESS <ip address of the TFTP server>
   SET TFTP FILE_TYPE OPERATIONAL
   SET TFTP FILE_NAME
   Type the full path name of the operational microcode file (**oper152.bin**) when prompted.

2. Make sure you can reach the TFTP server by entering:
   PING <ip adress 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.1.5.2**.

   In Case of Failure

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

2.2.4 Step 3 : Download Inband the 8285 FPGA picocode

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

   SET TFTP SERVER_IP_ADDRESS <ip address of the TFTP server>
   SET TFTP FILE_TYPE FPGA
   SET TFTP FILE_NAME
   Type the full path name of the FPGA file (**85pgac30.enc**) when prompted.
   SET TFTP TARGET_MODULE 1

2. Make sure you can reach the TFTP server by entering:
   PING <ip adress 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 (it may take up to 10 minutes). 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 MODULE 1 VERBOSE** displays the FPGA level in backup.

It will appear as **C30**.

In Case of Failure

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

2.2.5 Step 4 : Download Inband the FPGA picocode on media modules

WARNING

You must download the new FPGA picocode on all of the blades of the 8285 expansion before proceeding to the next steps.

1. Be sure that the status of **all** ATM media modules plugged in the 8285 is **connected**. This is a prerequisite for performing a download operation on an ATM media module. To verify that a module is **connected**, enter the SHOW MODULE ALL command from the 8285 console. To connect an isolated ATM media module, enter the SET MODULE n CONNECTED command, where "n" is the number of the slot where the ATM media module is installed.

2. Display the configuration of your **connected** ATM media modules by entering a SHOW MODULE ALL VERBOSE command. This allows you to distinguish the different media modules installed in the 8285

3. For **each** A4-FB100 module with MIC connectors (FC 5004)

a. **Please check first, that FPGA level B50 is not already present in the A4-FB100 MIC (as operational or as backup) :**

   SHOW MODULE n VERBOSE (n is the position of the blade)

   If FPGA level is B50, then skip to next blade

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

   SET TFTP SERVER_IP_ADDRESS <ip address of the TFTP server>
   SET TFTP FILE_TYPE FPGA
   SET TFTP FILE_NAME
   Type the full path name of the FPGA file (**100mc50.enc**) when prompted
   SET TFTP TARGET_MODULE n
   Where "n" is the number of the slot where the A4-FB100 module is installed.

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 (it may take up to 10 minutes). The message *Download successful* is displayed.

Note

The command **SHOW MODULE n VERBOSE** (where "n" is the number of the slot where the A4-FB100 MIC module is installed) displays the FPGA level in backup.

It will appear as **B50**.

In Case of Failure

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

4. For **each** A4-FB100 with SC connectors (FC 5104):

a. **Please check first, that FPGA level B50 is not already present in the A4-FB100 (as operational or as backup) :**

   SHOW MODULE n VERBOSE (n is the position of the blade)

   If FPGA level is B50, then skip to next blade

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

   SET TFTP SERVER_IP_ADDRESS <ip address of the TFTP server>
   SET TFTP FILE_TYPE FPGA
   SET TFTP FILE_NAME
   Type the full path name of the FPGA file (**100sc50.enc**) when prompted
   SET TFTP TARGET_MODULE n
   Where "n" is the number of the slot where the A4-FB100 module is installed.

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 (it may take up to 10 minutes). The message *Download successful* is displayed.

Note

The command **SHOW MODULE n VERBOSE** (where "n" is the number of the slot where the A4-FB100 SC module is installed) displays the FPGA level in backup.

It will appear as **B50**.

In Case of Failure

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

5. For **each** A2-MB155 (FC 5002):

a. **Please check first, that FPGA level B50 is not already present in the A2-MB155 (as operational or as backup) :**

SHOW MODULE n VERBOSE (n is the position of the blade)

If FPGA level is B50, then skip to next blade

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

SET TFTP SERVER_IP_ADDRESS <ip address of the TFTP server>
SET TFTP FILE_TYPE FPGA
SET TFTP FILE_NAME
Type the full path name of the FPGA file (**1552p40.enc**) when prompted
SET TFTP TARGET_MODULE n
Where "n" is the number of the slot where the A2-MB155 module is installed.

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 (it may take up to 10 minutes). The message *Download successful* is displayed.

Note

The command **SHOW MODULE n VERBOSE** (where "n" is the number of the slot where the A2-MB155 module is installed) displays the FPGA level in backup.

It will appear as **B50**.

In Case of Failure

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

6. For **each** A3-MB155 (FC 5003):

a. **Please check first, that FPGA level C31 is not already present in the A3-MB155 (as operational or as backup) :**

   SHOW MODULE n VERBOSE (n is the position of the blade)

   If FPGA level is C31, then skip to next blade

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

   SET TFTP SERVER_IP_ADDRESS <ip address of the TFTP server>
   SET TFTP FILE_TYPE FPGA
   SET TFTP FILE_NAME
   Type the full path name of the FPGA file (**1553p31.enc**) when prompted
   SET TFTP TARGET_MODULE n
   Where "n" is the number of the slot where the A3-MB155 module is installed.

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 (it may take up to 10 minutes). The message *Download successful* is displayed.

Note

The command **SHOW MODULE n VERBOSE** (where "n" is the number of the slot where the A3-MB155 module is installed) displays the FPGA level in backup.

It will appear as **C31**.

In Case of Failure

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

7. For **each** A12-TP25 (FC 5012):

a. **Please check first, that FPGA level C30 is not already present in the A12-TP25 (as operational or as backup) :**

   SHOW MODULE n VERBOSE (n is the position of the blade)

   If FPGA level is C30, then skip to next blade

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

   SET TFTP SERVER_IP_ADDRESS <ip address of the TFTP server>
   SET TFTP FILE_TYPE FPGA
   SET TFTP FILE_NAME
   Type the full path name of the FPGA file (**25pga30.enc**) when prompted
   SET TFTP TARGET_MODULE n
   Where "n" is the number of the slot where the A12-TP25 module is installed.

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 (it may take up to 10 minutes). The message *Download successful* is displayed.

Note

The command **SHOW MODULE n VERBOSE** (where "n" is the number of the slot where the A12-TP25 module is installed) displays the FPGA level in backup.

It will appear as **C30**.

In Case of Failure

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

8. For **each** A-CMU1, A-CMU2, A04MB-BRG, A2-WAN (FC 5102, 5202, 5204, 5300, 5008 and 5302) :

a. **Please check first, that FPGA level B50 is not already present in the blade (as operational or as backup) :**

SHOW MODULE n VERBOSE (n is the position of the blade)

If FPGA level is B50, then skip to next blade

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

SET TFTP SERVER_IP_ADDRESS <ip address of the TFTP server>
SET TFTP FILE_TYPE FPGA
SET TFTP FILE_NAME
Type the full path name of the FPGA file (**cmpg40.enc**) when prompted
SET TFTP TARGET_MODULE n
Where "n" is the number of the slot where the module is installed.

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 (it may take up to 10 minutes). The message *Download successful* is displayed.

Note

The command **SHOW MODULE n VERBOSE** (where "n" is the number of the slot where the ATM module is installed) displays the FPGA level in backup.

It will appear as **B50**.

In Case of Failure

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

2.2.6 Step 5 : Activate the new 8285 microcodes and FPGA picocode

REMINDER

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.

1. Check for all the ATM module if a new level of FPGA C31, C30 or B50 is present in operational or backup :

   SHOW MODULE n VERBOSE
   Where "n" is the number of the slot where the ATM module is present.

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

   CLEAR ERROR_LOG
   SAVE ALL
   SWAP MICROCODE and confirm with Y

3. The telnet session, if any, is broken.
   (.../...)

4. Login as **Administrator** on the 8285 console

5. Perform the FPGA picocode SWAP, issue the command:

   SWAP FPGA_PICOCODE slot1 ... slot4

   WARNING

   You must perform the FPGA SWAP for the 8285 base and all the ATM Media blades for which you have downloaded FPGA picocode.

   If the FPGA picocode B50, C31 or C30 is already present as OPERATIONAL, then the SWAP for that slot is not needed.

2.2.7 Step 6 : 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 :

   SHOW DEVICE
   SHOW MODULE n VERBOSE

Component	Feature Code	Opera-tional FPGA Version	Flash EEPROM Version	Boot EEPROM Version
8285	----	C30	v.1.5.2	v.1.5.2
A4-FB100 (MIC)	5004	B50	n/a	n/a
A4-FB100 (SC)	5104	B50	n/a	n/a
A2-MB155	5002	B50	n/a	n/a
A3-MB155	5003	C31	n/a	n/a
A12-TP25	5012	C30	n/a	n/a
A-CMU1	5102	B50	n/a	n/a
A-CMU2	5202	B50	n/a	n/a
A04MB-BRG	5204	B50	n/a	n/a
A2-WAN	5302	B50	n/a	n/a

2.2.8 Step 7 : Checking Network and Saving Configuration

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

Check that all links are active, specifically the SSI and NNI links.

Check the connectivity between the TFTP server and each 8285 in the network using the PING command.

Once the links are up and running successfully, we recommend 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_NAME
     Provide 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 FIRMWARE upgrade.

2.3 After Installation

2.3.1 Publication Update

Insert the companion Release Note in your publications binder.

End of Document