



Eaton ePDU
How to upgrade your ePDU Base Card Firmware & Network Management Card
Firmware – 2-step Instruction File

3/4/2014

Document Revision: R11

Eaton Proprietary Information
Copyright © 2007 Eaton Corporation. All Rights Reserved.

Proprietary Notice

Copyright © 2007, 2008 Eaton Corporation. All Rights Reserved.

NOTICE TO PERSONS RECEIVING THIS DRAWING AND/OR TECHNICAL INFORMATION

Eaton Corporation claims proprietary rights to the material disclosed hereon. This drawing and/or technical information is issued in confidence for engineering information only and may not be reproduced or used to manufacture anything shown or referred to hereon without direct written permission from Eaton Corporation to the user. This drawing and/or technical information is the property of Eaton Corporation and is loaned for mutual assistance, to be returned when its purpose has been served.

THIS DRAWING AND/OR TECHNICAL INFORMATION IS THE PROPERTY OF EATON CORPORATION.

Document Number or File Name -	Document Title ePDU Upgrade Instructions	Doc Rev:, Code Rev: Date: 2013 03 15 – R10
Copyright © 2007 Eaton Corporation. All Rights Reserved. OFFICIAL DOCUMENT		Sheet 2 of 30

Revision History

Revision	Who	Date	Notes
R00	Vialle, JB	2011 12 12	First Draft
R01	Vialle, JB	2011 12 16	Added note to avoid com conflict with hyper terminal or any other applications
R02	Vialle, JB	2012 02 16	Updated with version 0002 of the upgrade tool and small addition
R03	Vialle, JB	2012 03 07	Added upgrade note on one-time outlet reboot
R04	Vialle, JB	2012 03 07	Added the NMC card upgrade procedure
R05	Vialle, JB	2012 03 09	Minor corrections and re-layout
R06	Vialle, JB	2012 03 16	Added revision information to help upgrade decision
R07	Vialle, JB	2012 08 02	FW upgrade P5/30 to 00.10.0001
R08	Vialle, JB	2012 11 08	FW upgrade 3P to 00.12.0001
R09	Vialle, JB	2013 03 15	NMC FW new release 01.01.0009
R10	Vialle, JB	2013 10 09	NMC FW new release 01.01.0010 New release of base card 1P 01.12.0001
R11	Vialle, JB	2014 03 04	Bootloader Software Version: 00.01.0009 Firmware Software Version: 01.01.0011 Web Version: 01.01.0003



WRITTEN BY: JB Vialle

CHECKED BY:

APPROVED BY:

Document Number or File Name	Document Title ePDU Base Card Firmware Upgrade Instructions	Doc Rev: R10
Copyright © 2010, Eaton Corporation Eaton CONFIDENTIAL DOCUMENT		Sheet 3 of 30

Table of content

- A. Introduction 5
 - 1.1 [Step 1 – ePDU Base Card Upgrade Instructions](#) 7
 - 1.2 Hardware and Preparation 8
 - 1.3 Steps to follow to upgrade the ePDU 9
 - 1.4 Install and use provided software for Firmware Upgrade 12
 - 2.1 [Step 2 – Network Management Card Upgrade Instructions](#)..... 21
- B. Acronyms 30

COMPANY CONFIDENTIAL

© - **Copyright 2010 Eaton Corporation**

IMPORTANT - READ

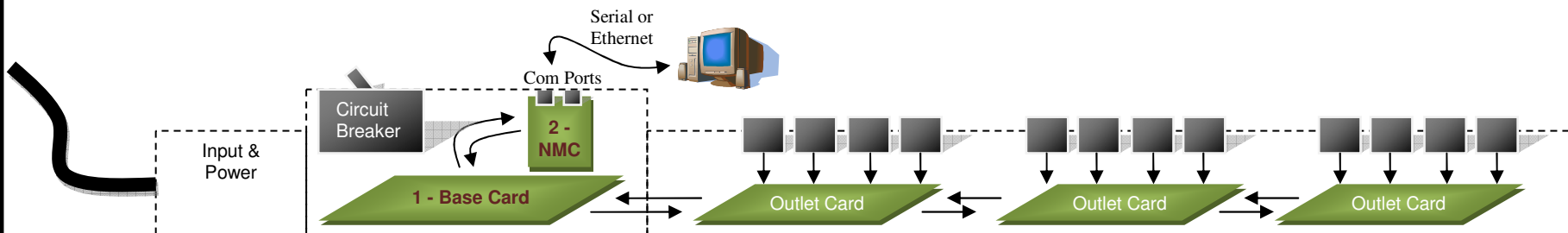
A. Introduction

Here is what you should know and remember first:

There are **2** independent sets of firmware accessible to upgrade:

1. **(Step 1)** ePDU or also known as “Base Card” Firmware → Manages the data collection and management
2. **(Step 2)** Com card or also known as “NMC” Firmware → Manages all communications to the outside

These 2 firmware are physically located inside to 2 different electronic cards (1 & 2 on the drawing below from managed unit):



⇒ You can elect to follow step 1 (Base Card) and/or step 2 (NMC) independently in the order that fits your needs:

- Update recommended for Base Card firmware having a version below: **00.12.0001 (1P units)**
- Update recommended for Base Card firmware having a version below: **00.12.0001 (3P units)**
- Update recommended for NMC firmware having a version below: **01.01.0011**

Note: You can find version information on the product **LCD screen** (Menu (ENTER) > ePDU Info > P3/5 (SCROLL)) or on the product web interface:

ePDU Information	
Model	Eaton ePDU MA 1P IN:L6-30P 24A OUT:20xC13, 4xC19
Part Number	eMA010 / Default PN
Serial Number	IOQSB01001/ Default SN
F/W version	00.08.0007/ 01.01.0007
Web Version	01.01.0001

BC FW / NMC FW

COMPANY CONFIDENTIAL

© - Copyright 2010 Eaton Corporation

Step 1 ePDU Base Card UPGRADE PROCESS

COMPANY CONFIDENTIAL

© - **Copyright 2010 Eaton Corporation**

A.1.1.1.1.1 Power Quality Division / Services Group

A.1.1.1.1.2 Page 6 of 30

1.1 Step 1 – ePDU Base Card Upgrade Instructions

⇒ **General**

This document is destined to the ePDU user that is willing to upgrade/flash his ePDU with a new ePDU base card firmware. This process can be performed while the ePDU's outlets are "hot" and it will not affect their state. User must not in any case open the product for this upgrade. There is no safety risk to highlight. Please read carefully the information below;

⇒ **Important notes**

⚠ It is important that you close all programs on your connected PC or equipment while processing the instructions below;

COMPANY CONFIDENTIAL

© - **Copyright 2010 Eaton Corporation**

1.2 Hardware and Preparation

⇒ For this operation, user need prepare tool as below:

1. PC/laptop needs to have a serial port



Figure 1 - PC/Laptop serial port

2. RS232 to RJ45 cable (use a USB adapter if you do not have a serial port on your laptop → not provided in product carton)




Figure 2 - Serial cable (comes with ePDU)





Figure 3 - USB adapter

3. Upgrade software tool (setup.exe): “Eaton ePDU upgrade Software”

4.  **Select the appropriate firmware file.** There are 2 available file (*.S19) categories:
 - a. ICM1: 1-phase products
 - b. ICM3: 3-phase products

Example (file name for reference only):

	Marlin1_ICM1_00.01.0003.s19	241 KB	S19 File	11.11.2010 08:59
	Marlin1_ICM3_00.01.0003.s19	252 KB	S19 File	11.11.2010 09:14

COMPANY CONFIDENTIAL

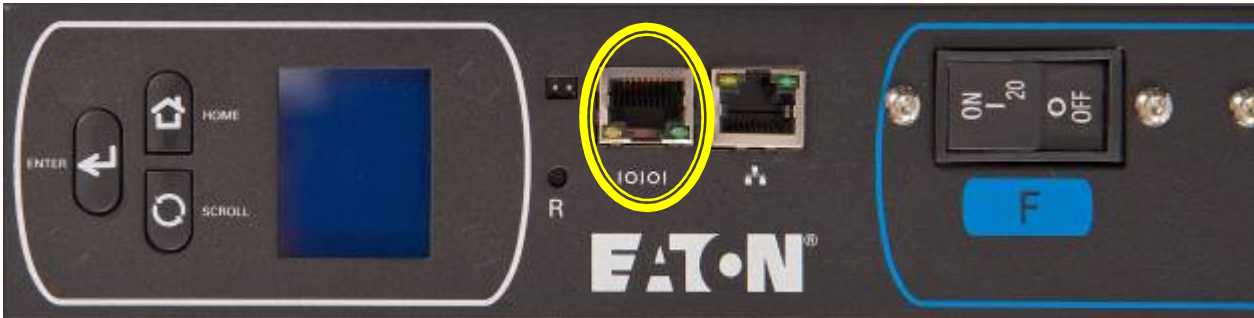
© - Copyright 2010 Eaton Corporation

1.3 Steps to follow to upgrade the ePDU

Check upon
completion



Connect the RS232-RJ45 cable between the Computer (RS232) and the ePDU (RJ45 for serial).



COMPANY CONFIDENTIAL

© - Copyright 2010 Eaton Corporation

Check upon completion

☐

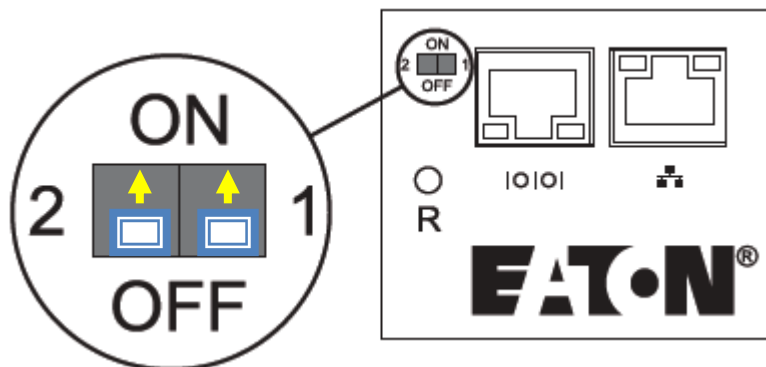
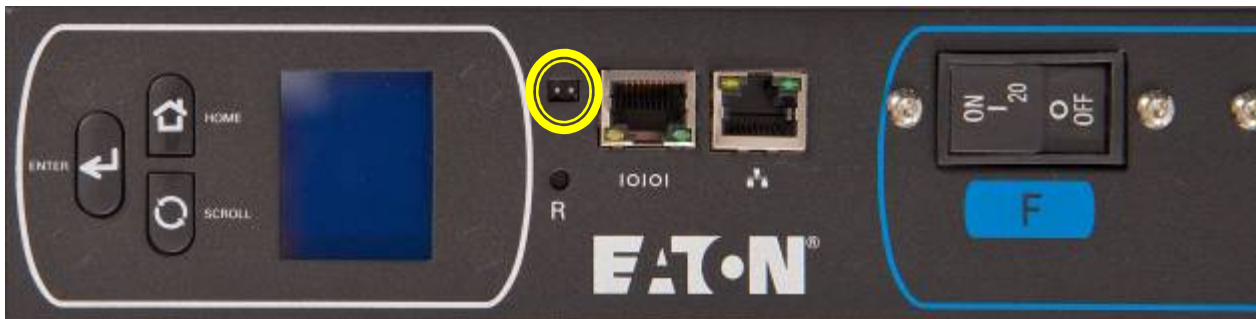
Change the status of **both** switches from OFF to **ON** to switch to PDU upgrade mode.

Note: If both dip switches below are not toggled into OFF position, there will not be any serial communication and the upgrade will not be possible.



Warning: Do not change or touch dip switches during the upgrade process

Note: Be careful when changing the dip switches position as they are fragile. Do not use a sharp tool. Do not force them into position (verify if something is not blocking the switch)



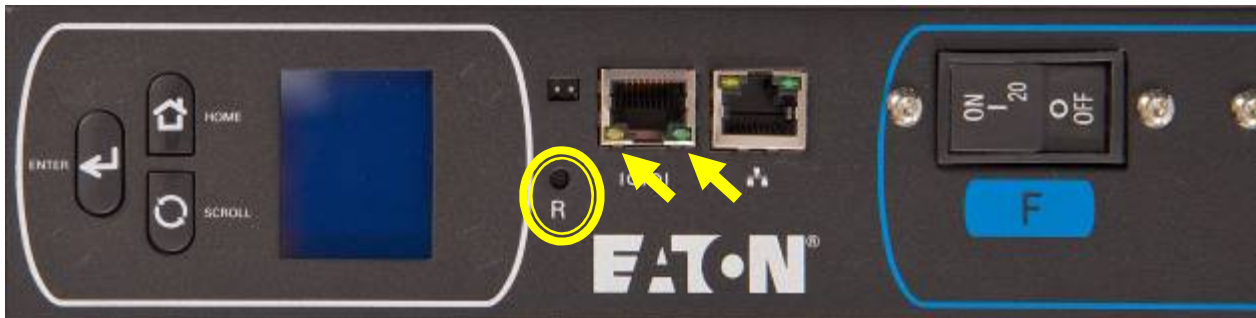
COMPANY CONFIDENTIAL

© - Copyright 2010 Eaton Corporation

Check upon completion



Reset the NMC card with the button R available near the 2 switches.



- ⇒ **Note:** Use a sharp long tool to press the recessed reset button during 1s to 3s.
- ⇒ **Note:** After you do this, check that the 2 LEDs of the Serial port are OFF (2 arrows above).

COMPANY CONFIDENTIAL

© - Copyright 2010 Eaton Corporation

Check upon
completion

☐

1.4 Install and use provided software for Firmware Upgrade

Prerequisites : the upgrade software could be installed in **Windows XP SP3 or higher** release of Windows operating system.

You need to install the Eaton software upgrade tool on your PC.

⇒ This tool (exe file) should be made available to you.



Figure 4 - Follow the step-by-step installation process

After correct installation (run setup.exe) of the Eaton software upgrade tool, double click the icon installed on your desktop or startup menu:



COMPANY CONFIDENTIAL

© - Copyright 2010 Eaton Corporation



The below window opens:

Eaton ePDU Upgrade Software - 01.00.0002

EATON
Powering Business Worldwide

ePDU Firmware File:

Select connection type ☒ RS232 ☐ Force Upgrade

	ePDU Information	File Information
Product		
Reference Number		
Version		
Ready for Upgrade		

COMPANY CONFIDENTIAL

© - Copyright 2010 Eaton Corporation

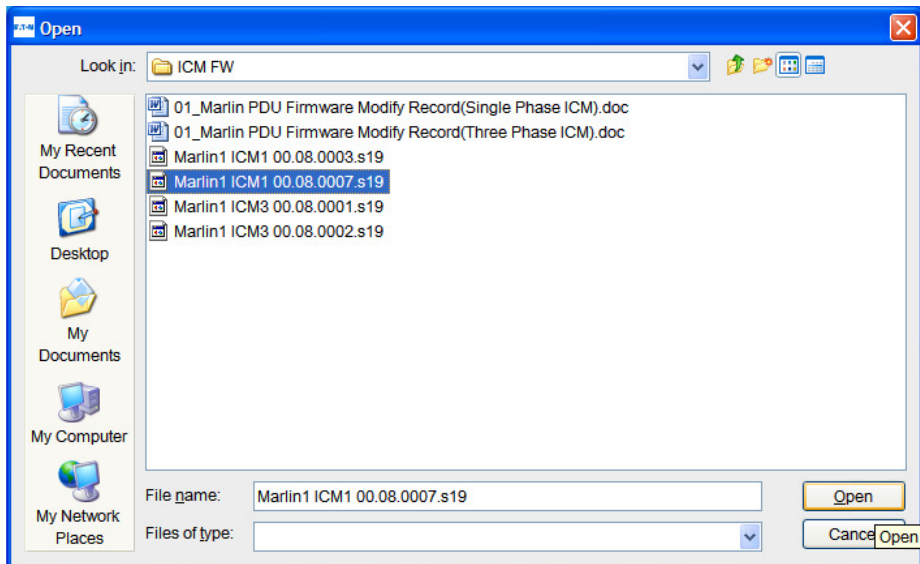
A.1.1.1.1.3 Power Quality Division / Services Group

A.1.1.1.1.4 Page 13 of 30

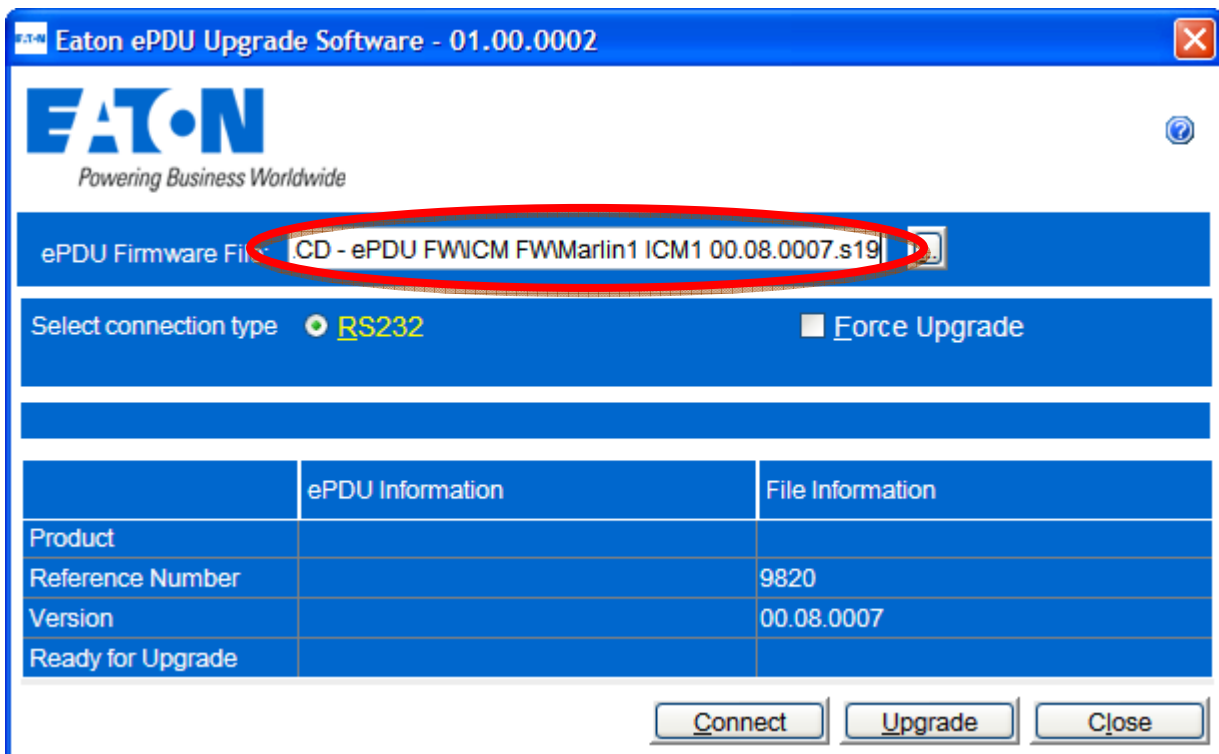
Check upon completion



Click the icon to select the **correct** firmware *.s19 file, which you will flash into the ePDU (below picture is shown as an example).



Verify file path in main window:




COMPANY CONFIDENTIAL

© - Copyright 2010 Eaton Corporation

Check upon completion




Connect

Click the icon , wait for a moment, the tool window is updated with ePDU info as follows upon communication and connection success:

Eaton ePDU Upgrade Software - 01.00.0002

EATON
Powering Business Worldwide

ePDU Firmware File: \\Desktop\PDU upgrade\Marlin1 ICM1 00.08.0007.s19 

Select connection type ☒ RS232 ☐ Force Upgrade

ePDU Information		File Information
Product	Eaton ePDU MA 1P IN:C20 16A OUT:20...	
Reference Number	9820	9820
Version	00.08.0007	00.08.0007
Ready for Upgrade	Yes	

Connect Upgrade Close

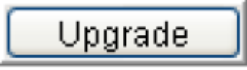
COMPANY CONFIDENTIAL

© - Copyright 2010 Eaton Corporation

Check upon completion



Upgrade

Click the icon , then the ePDU begins the flash process as shown by the progress bar in the following window.

You can also check the ePDU LCD upgrade progress bar

⇒ The upgrade time is about 5 minutes



Warning: Do not disconnect ePDU from mains or network connection during process – Avoid interactions on ePDU.

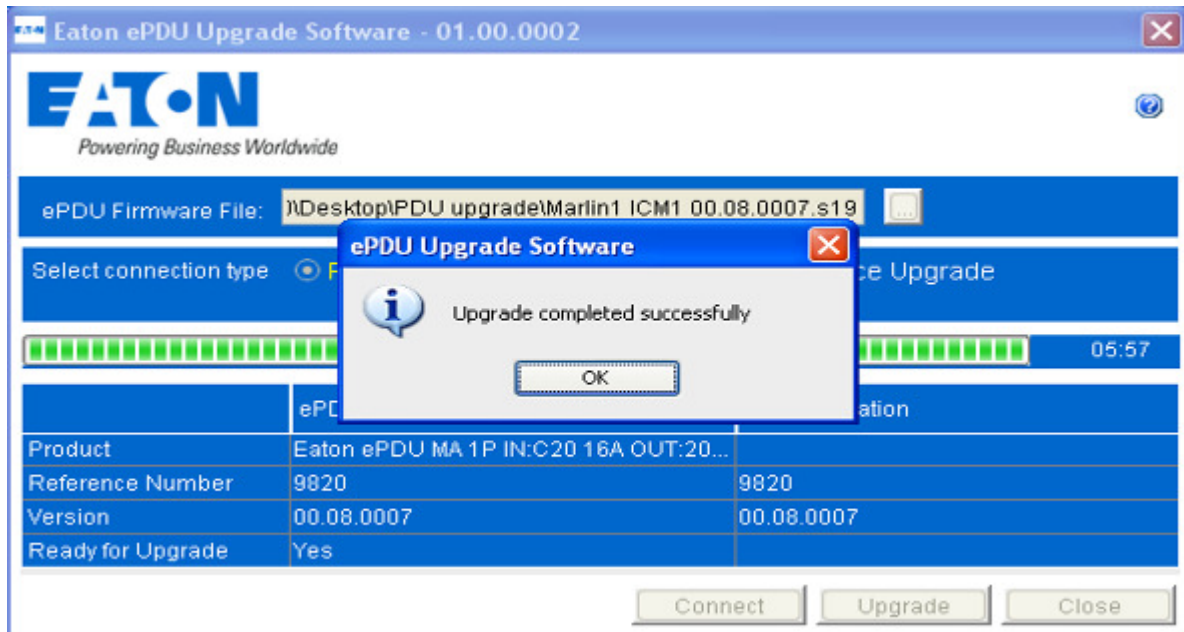
COMPANY CONFIDENTIAL

© - Copyright 2010 Eaton Corporation

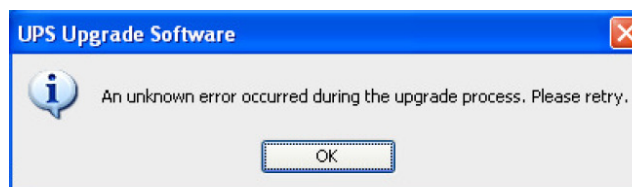
Check upon completion



Once flash upgrade is completed, you will see the following:



If the programming process is interrupted or unsuccessful, the following window is displayed:



- ⇒ Re-execute Step 4 and try to perform the flash upgrade again. After several unsuccessful tries, contact Eaton support team or your local representative and escalate this issue

COMPANY CONFIDENTIAL

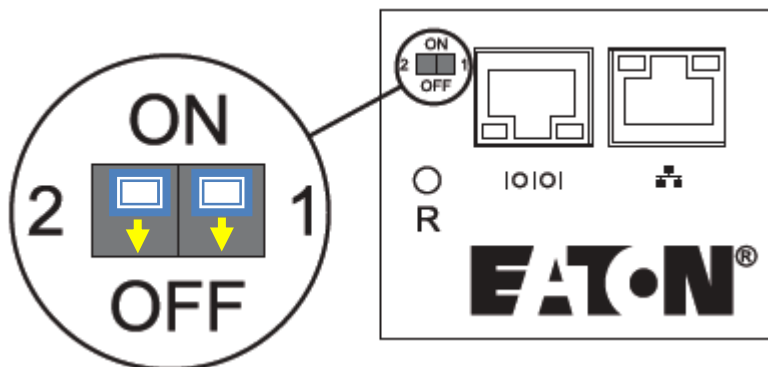
© - Copyright 2010 Eaton Corporation

Check upon completion



Flash Finish process:

Upon successful upgrade, change the dip switches to 1:"OFF",2:"OFF" position as shown below:



Reset the card again and **wait 30s**. **The user doesn't need to restart the PDU.** This process should have had absolutely **no impact on outlet state** or connected loads.



Note: You can verify that you have the correct version of firmware on the LCD Screen with below process:

- 1) Press ENTER button
- 2) Select "ePDU info" on the menu screen (SCROLL down then ENTER)
- 3) Hit the SCROLL button twice and verify the ePDU FW Version is correct
- 4) Your ePDU is ready

COMPANY CONFIDENTIAL

© - Copyright 2010 Eaton Corporation



Powering Business Worldwide



Note: If firmware version is not correct and not matching the S19 file name, then try again following carefully the above process. You can try to force the upgrade by selecting the “Force Upgrade” check button:

	ePDU Information	File Information
Product	Eaton ePDU MA 1P IN:C20 16A OUT:20...	
Reference Number	9820	9820
Version	00.08.0007	00.08.0007
Ready for Upgrade	Yes	

COMPANY CONFIDENTIAL

© - Copyright 2010 Eaton Corporation

Step 2 ePDU NMC UPGRADE PROCESS

COMPANY CONFIDENTIAL

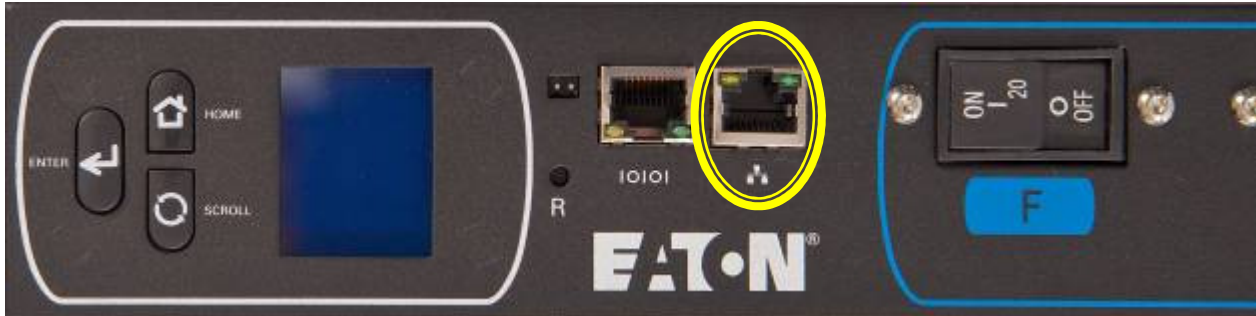
© - *Copyright 2010 Eaton Corporation*

2.1 Step 2 – Network Management Card Upgrade Instructions

Check upon
completion

☐

Make sure that your ePDU is connected to the network via the Ethernet port of the ePDU:



COMPANY CONFIDENTIAL

© - Copyright 2010 Eaton Corporation



Powering Business Worldwide

Upgrade: Execute the firmware (.exe file) provided to you or downloaded from the web (visit www.eaton.com/ePDU).

[Technical Specs](#) [Features](#) [Documentation](#) [Options](#) [Service & Support](#)

Eaton Advanced Monitored ePDUs - OPTIONS

Jump to:
→ [Power Management Software](#)
→ [Accessories](#)
→ [ePDU Firmware](#)

Mounting Hardware

Mounting hardware is included with the ePDU when it ships

Eaton IT Racks

Option	Part Number	Dimensions
Eaton IT Value Rack	PMT442442V	44U x 24" x 42"
Eaton IT Premium Rack	PMT442442P	44U x 24" x 42"
Eaton IT Value Rack	PMT443042V	44U x 30" x 42"

Power Management Software

	Part Number	List Price*
UPS and ePDU Supervisory Software		
Intelligent Power Manager The newest version of IPM enables the monitoring and management of power at the receptacle level for Eaton's new ePDUs.	free download 66925 (Silver) 66926 (Gold)	free \$569 \$2,765

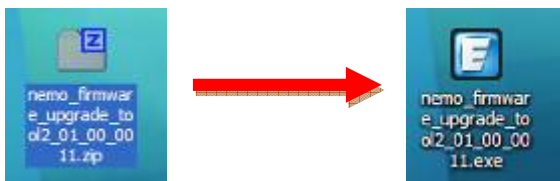
Accessories

Option	Part Number	List Price*
Outlet Cap C13 Outlet Cap	035-0113	\$3
Outlet Cap C19 Outlet Cap	035-0119	\$3
Monitoring Probe Environmental Monitoring Probe	EMP001	\$104
Plug Restraint Plug Restraint Cable Tray	KBLT01	\$83

ePDU Firmware

Option	Part Number	List Price*
MIB Connect your ePDU to your SNMP software	free download	free
Official release Firmware Upgrade Upgrade your product to the latest firmware revision. (Please refer to this Quick Start document for EnergyWise configuration)	free download 42.7MB	free

If downloaded file is compressed, extract the content into your desktop folder or known location inside your PC and execute the program.



You do not need to restart your ePDU manually after the upgrade is complete.

COMPANY CONFIDENTIAL

© - Copyright 2010 Eaton Corporation

A.1.1.1.1.3 Power Quality Division / Services Group

A.1.1.1.1.4 Page 22 of 30

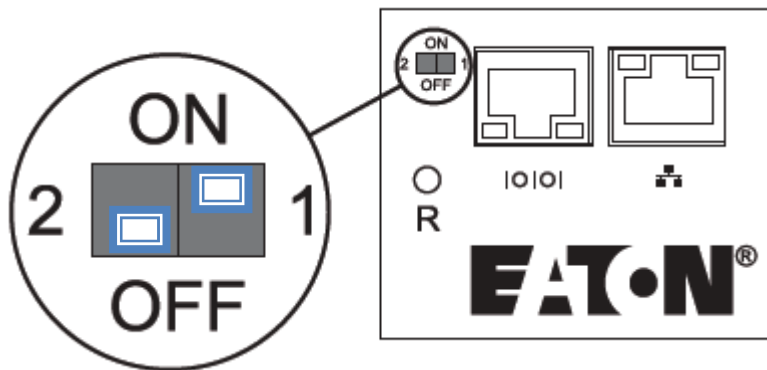
→ Via ePDU dip switch:

Note:

- 1) **Note or remember the IP address** of your ePDU as you not be able to retrieve it once in FTP mode
- 2) The IP address in FTP mode is the **same** as in http mode.

Set the dip switch as below configuration;

Switch 1 = **ON**, Switch 2 = **Off**



Warning: Do not change or touch dip switches during the upgrade process

Note: The Switch 1 is closest to the serial port.

Then reset your ePDU via the recessed reset button and **wait 30s**



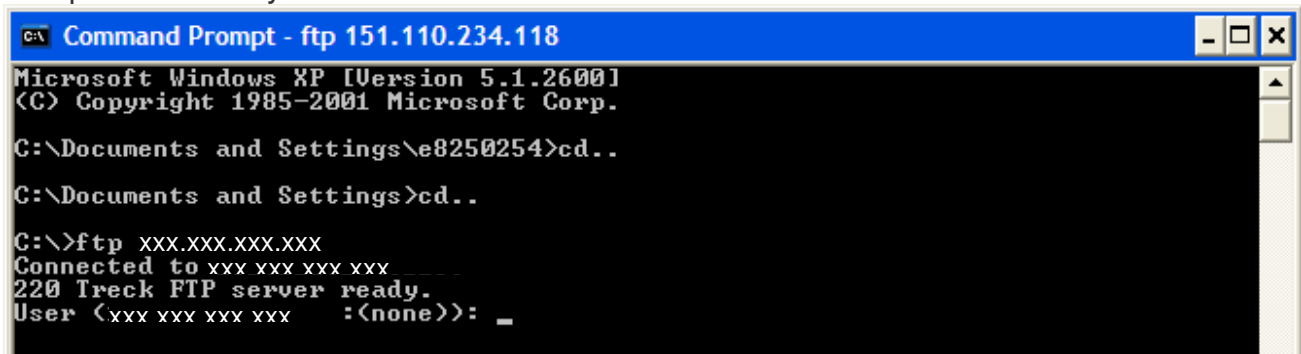
COMPANY CONFIDENTIAL

© - Copyright 2010 Eaton Corporation

Note: To verify that the Com card is in FTP mode:

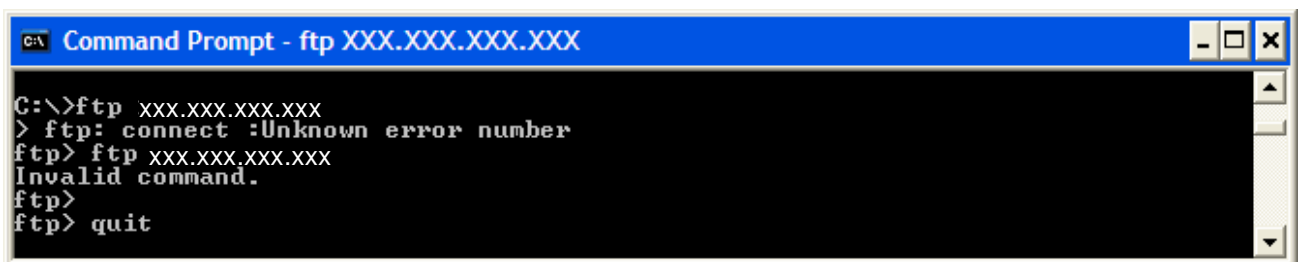
- Open a DOS window
- Then type "ftp *IP address of the card*" (i.e. "ftp 122.10.51.20")

→ Upon **success** you will read "Connected to XXX.XXX.XXX.XXX"



```
C:\>ftp xxx.xxx.xxx.xxx
Connected to xxx xxx xxx xxx
220 Treck FTP server ready.
User (xxx xxx xxx xxx :<none>): _
```

→ Upon **failure** to connect, you will see something similar to the following display



```
C:\>ftp xxx.xxx.xxx.xxx
> ftp: connect :Unknown error number
ftp> ftp xxx.xxx.xxx.xxx
Invalid command.
ftp>
ftp> quit
```

- ⇒ Check your IP address is correct
- ⇒ Check your dip switch setting as defined above
- ⇒ Did you reset your com card and wait 30s?
- ⇒ Do you have a working Ethernet connection between computer and ePDU?
- ⇒ Restart the above procedure
- ⇒ Contact Eaton support or local representative in case of permanent communication failure.

COMPANY CONFIDENTIAL

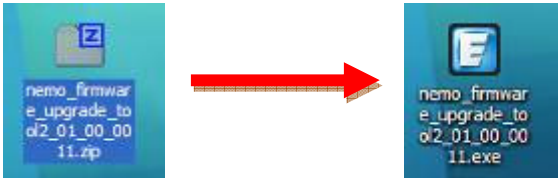
© - Copyright 2010 Eaton Corporation

Check upon
completion

☐

Upgrade: Execute the firmware (.exe file) provided to you or downloaded from the web (visit www.eaton.com/ePDU).

If downloaded file is compressed, extract the content into your desktop folder or known location inside your PC and execute the program.



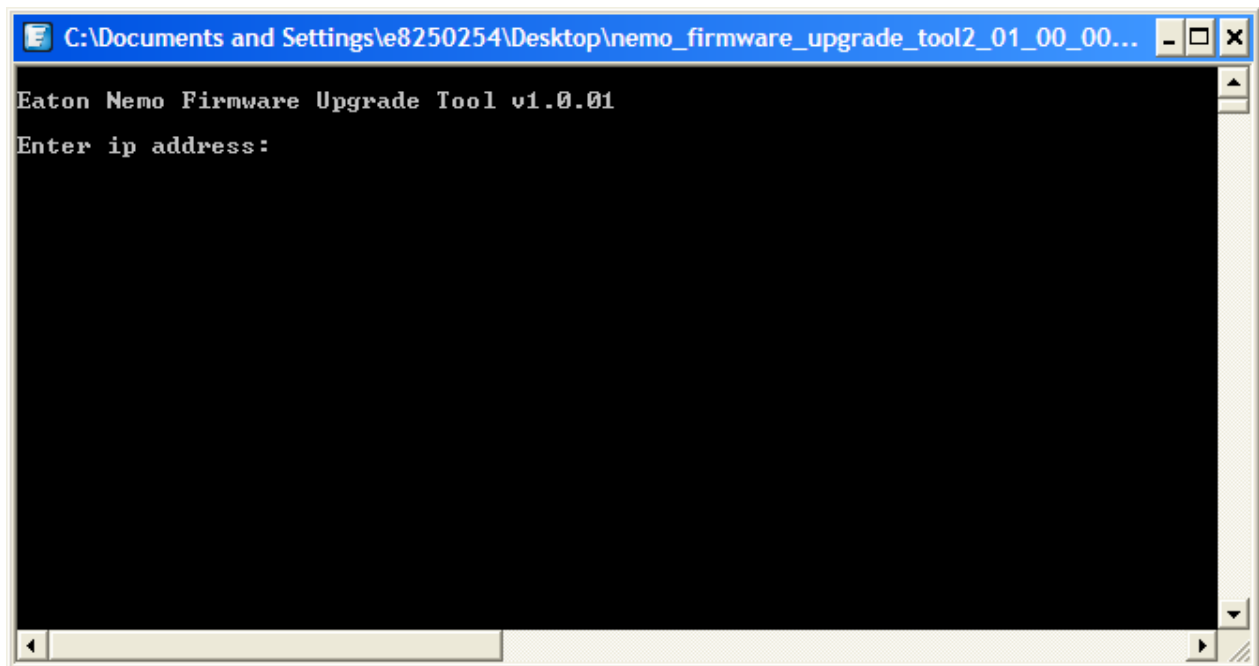
COMPANY CONFIDENTIAL

© - Copyright 2010 Eaton Corporation

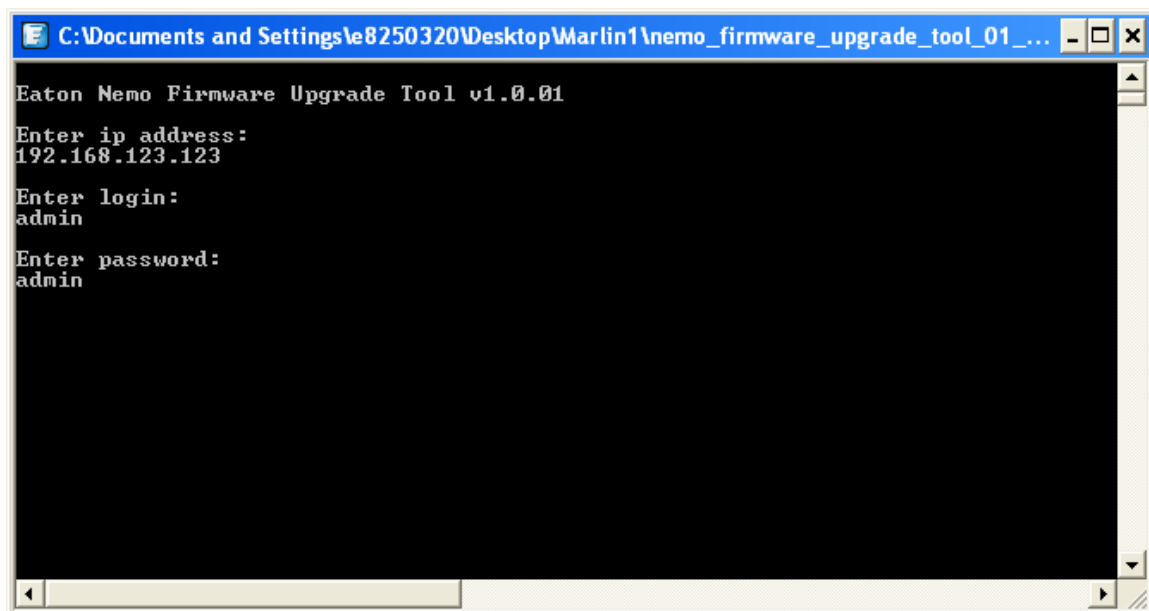


Powering Business Worldwide

Enter the IP address of the COM card in the DOS window (it may be different from the default address used below in example – i.e. 191.168.123.123):



- Enter the password "admin" and hit Enter key. The upgrade should start



Warning: Do not disconnect ePDU from mains or network during process

Wait for the upgrade to complete (~3min.) at the end you should have the following display after a successful upgrade:

COMPANY CONFIDENTIAL

© - Copyright 2010 Eaton Corporation

A.1.1.1.1.3 Power Quality Division / Services Group

A.1.1.1.1.4 Page 26 of 30



Powering Business Worldwide

```
C:\Documents and Settings\le8250320\Desktop\Marlin1\nemo_firmware_upgrade_tool...

Eaton Nemo Firmware Upgrade Tool v1.0.01
Enter ip address:
192.168.123.123

Enter login:
admin

Enter password:
admin

Please wait for the update...
ftp> open 192.168.123.123
Connected to 192.168.123.123.
220 Treck FTP server ready.
User (192.168.123.123:(none)):
331 User name okay, need password.

230 User logged in, proceed.
ftp> bin
200 TYPE Command okay.
ftp> put packages/Firmware.bin
200 PORT Command okay.
150 File status okay; about to open data connection.
226 Closing data connection.
ftp: 1032248 bytes sent in 45.91Seconds 22.49Kbytes/sec.
ftp> cd /eaton/images
250 CWD requested file action okay, completed.
ftp> put packages/eaton/images/entete.png
200 PORT Command okay.
150 File status okay; about to open data connection.
426 Connection closed; transfer aborted.
ftp: 7888 bytes sent in 0.00Seconds 7888000.00Kbytes/sec.
ftp> put packages/eaton/images/favicon.png
200 PORT Command okay.
150 File status okay; about to open data connection.
226 Closing data connection.
ftp: 3962 bytes sent in 0.00Seconds 3962000.00Kbytes/sec.
ftp> put packages/eaton/images/exclamation.gif
200 PORT Command okay.
150 File status okay; about to open data connection.
226 Closing data connection.
ftp: 10901 bytes sent in 0.00Seconds 10901000.00Kbytes/sec.
ftp> put packages/End.txt
200 PORT Command okay.
150 File status okay; about to open data connection.
Connection closed by remote host.
ftp> close
Not connected.
ftp> quit

Update completed successfully
*** Hit [ENTER] key to terminate...
```

COMPANY CONFIDENTIAL

© - Copyright 2010 Eaton Corporation

A.1.1.1.1.3 Power Quality Division / Services Group

A.1.1.1.1.4 Page 27 of 30

Troubleshooting

⇒ If communication is interrupted or having issues, retry this upgrade process.

⇒ if:

- you have incorrectly positioned dip switches
- Connected the network cable in the wrong (i.e. serial port)
- Accidentally disconnected the cable during upgrade (avoid at all cost)

You will likely have the following screen response:

```
Eaton Nemo Firmware Upgrade Tool v1.0.01
Enter ip address:
192.168.123.123
Enter login:
admin
Enter password:
admin
Please wait for the update...
ftp> open 192.168.123.123
> ftp: connect :Unknown error number
ftp> admin
Invalid command.
ftp> admin
Invalid command.
ftp> bin
Not connected.
ftp> put packages/Firmware.bin
Not connected.
ftp> cd /eaton/images
Not connected.
ftp> put packages/eaton/images/entete.png
Not connected.
ftp> put packages/eaton/images/favicon.png
Not connected.
ftp> put packages/eaton/images/exclamation.gif
Not connected.
ftp> put packages/eaton/images/off.gif
Not connected.
ftp> put packages/eaton/images/on.gif
Not connected.
ftp> put packages/eaton/images/state1.gif
Not connected.
ftp> put packages/eaton/images/state2.gif
Not connected.
ftp> put packages/eaton/images/state3.gif
Not connected.
ftp> put packages/eaton/images/state4.gif
Not connected.
ftp> put packages/eaton/images/treeicon_powersource.gif
Not connected.
ftp> put packages/eaton/images/treeicon_syslog.gif
Not connected.
ftp> put packages/eaton/images/treeicon_system.gif
Not connected.
ftp> cd /eaton/html
Not connected.
ftp> put packages/eaton/html/index.html
Not connected.
```

COMPANY CONFIDENTIAL

© - Copyright 2010 Eaton Corporation



Powering Business Worldwide

In this case, make sure that you go back to this procedure and double check for mistakes

Here is a quick checklist:

- ⇒ Communication with ePDU
 - ePDU power ON
 - Dip switches configuration
 - Incorrect IP address
 - Wrong port
 - Cable or connector issue
 - Environment disturbances (try in a different location)
- ⇒ FW version
 - Make sure that you have downloaded the latest version from the web

COMPANY CONFIDENTIAL

© - **Copyright 2010 Eaton Corporation**

B. Acronyms

EMP	E nvironmental M onitoring P robe
ePDU	e nclosure P ower D istribution U nit
FW	F irm w are
HW	H ard w are
ICM	I ntput C onnecto r M odule (Also called the base card or mother board of the ePDU – 1 = 1-phase and 3 = 3-phase products)
NMC	N etwork M anagement C ard (Project Name: Nemo)
SM	S ection M odule (Board that control and/or monitor the outlets)

- END OF UPGRADE PROCESS -

COMPANY CONFIDENTIAL

© - **Copyright 2010 Eaton Corporation**