# Updating the Firmware of the Legacy Communication Card to Version 3.1

## Overview

This document describes how to update the firmware of the Legacy Communication Card (LCC) to version 3.1. The firmware can be updated directly to version 3.1 from all prior released versions (1.6, 2.2, 2.3, or 3.0).

## System Requirements

To update the LCC card firmware to v3.1, you will need:

- A computer with a serial port. In the examples below a 64-bit Windows 7 PC is used.
- A terminal emulation program that supports XMODEM file transfer, such as Tera Term.
- The LCC v3.1 firmware, available from APC Technical Support.
- An APC serial cable (part number 940-0024 or 940-1524) to connect the PC to the LCC.

  **Note**: A “standard” serial cable or NULL modem cable will not work.

## Updating the LCC firmware to v3.1



Warning: Follow the firmware update procedure steps in order. Failure to follow this process in the correct sequence can result in an LCC that is inoperable and cannot be fixed.

### Notes on the update

- Each step of the firmware update process must be completed within a reasonable amount of time, or it will time out, and the firmware update process will have to be restarted.
- If the USB port of the LCC is connected to the PC, disconnect it before performing the firmware update.

### Firmware files

The LCC v3.1 firmware provided by APC Technical Support consists of three files:

1. **LCB_05.6.enc:** A bootloader file that adds support for **LCB_06.0.enc**, which is larger in size.
2. **LCB_06.0.enc:** A bootloader file that adds support for firmware updates using the Firmware Upgrade Wizard via USB, for subsequent firmware revisions.
3. **LCC_03.1.enc:** The version 3.1 application firmware for the Legacy Communications Card.

**Note:** The files must be transferred to the LCC in the order described in the Firmware update procedure.



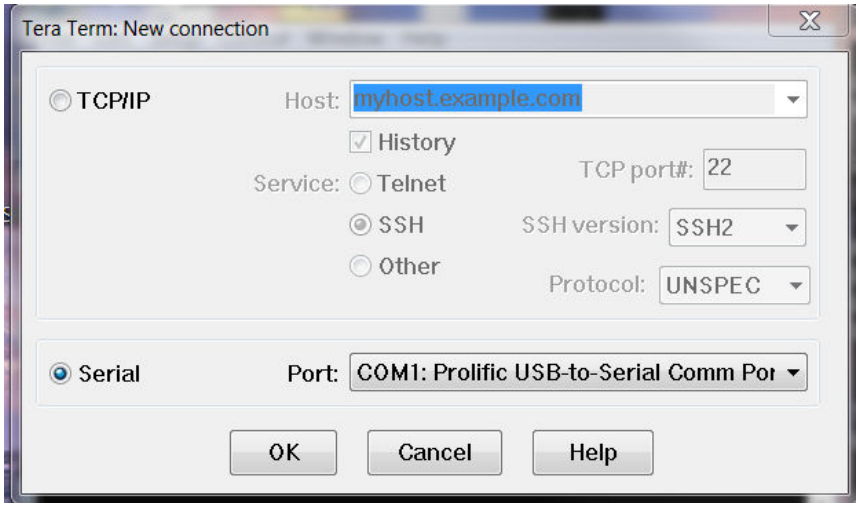
APC by Schneider Electric

**Firmware update procedure**

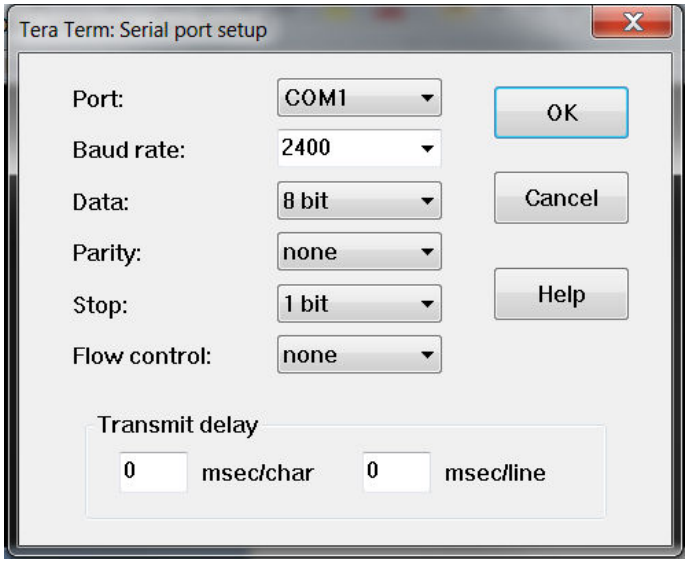
1. Connect the DB9 Computer Interface connector of the LCC to the serial port of the PC, using a 940-0024 or 940-1524 cable. Alternatively, you can use a USB to DB9 serial adapter to connect the LCC to the serial port of the PC.

2. Open Tera Term, or a similar terminal emulation program that supports XMODEM file transfer. Connect Tera Term to the serial port of the PC that is connected to the LCC.

   For example, to connect to the COM1 serial port using a USB-to-Serial adapter:




3. In Tera Term, select **Setup > Serial port**. Configure communications for 2400 baud (bits per second), 8 data bits, no parity, 1 stop bit, no flow control. For example, for COM1 setup:



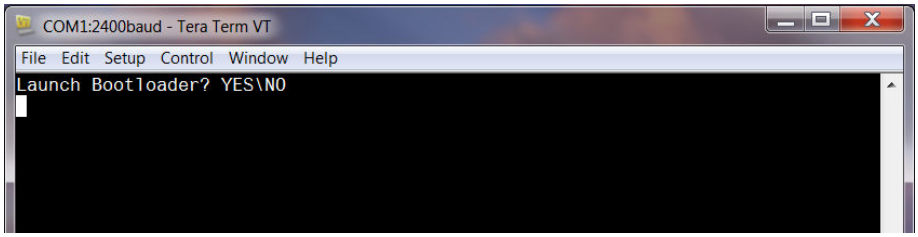

4. Press <CR> (Carriage Return) in the Tera Term window to initiate the update process.

5. For LCC version 3.0, the screen displays:

```
Current Versions: LCC 03.0 / LCB 06.0
Launch Bootloader? YES\NO
```

For all other earlier LCC versions, the screen displays:

```
Launch Bootloader? YES\NO
```




**Note**: If the above does not display, it could be because:

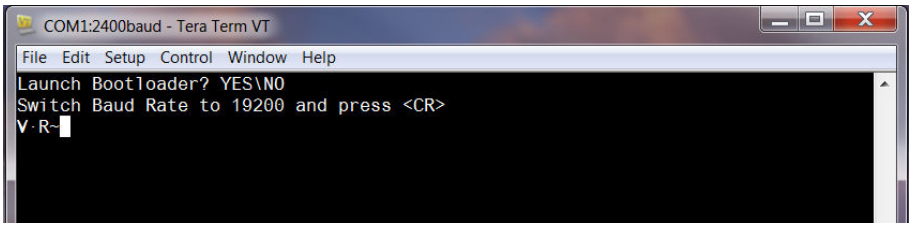
i) The LCC has no application (skip to step 8 in this case),
ii) The USB cable of the LCC is still connected,
iii) The USB-to-Serial adapter used is not functioning or is not connected correctly, or
iv) An incorrect serial port has been selected.

6. Type YES in capitals to continue the process.

**Note:** If you don't enter YES within 10 seconds, or if you enter yes in lowercase, the process will abort, and show an "Aborting…" message on screen. You will then need to go back to step 3 in order to start the process again.

7. The following displays on the screen:

```
Switch Baud Rate to 19200 and press <CR>.
```




**Note:** You may see 'garbage' characters before the terminal prompt, as captured in the screen shot above. These characters can be ignored and do not interfere with the update process.

8. In Tera Term, select **Setup > Serial port**. Change the baud rate to 19200 baud, leaving the other parameters as they are (8 data bits, no parity, 1 stop bit, no flow control).

9. Press <CR> (Carriage Return) in the Tera Term window to continue.

**Note:** If you don't enter <CR> at 19200 baud within 60 seconds, the process will abort, and show an "Aborting…" message on the screen at 19200 baud. You will then need to go back to step 3 in order to start the process again.

10. For LCC version 3.0, the screen displays:

```
Starting Bootloader...
Send file using XMODEM

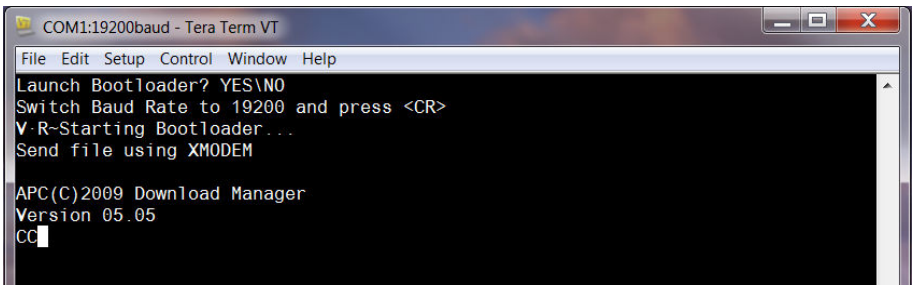
APC (C) 2015 Download Manager
Version 06.0
```

**Note**: If you are updating from version 3.0 only, **skip to step 15**, as only the application file (LCC_03.1.enc) needs to be transferred to the LCC.

For all other earlier LCC versions, the screen displays:

```
Starting Bootloader...
Send file using XMODEM

APC(C)2009 Download Manager
Version 05.05
```




The terminal screen capture above shows that the Download Manager of the LCC is awaiting the XMODEM start, by sending the character "C". This will eventually be followed by § or a similar character (this will vary by font within terminal emulation program). These characters signal the beginning of the XMODEM transfer, and are expected.

**Note:** If you do not see the entire message above, including the download manager version number, it is likely that the Bootloader did not launch properly. In this case, either wait for the time out to occur (60 seconds) and restart the process at step 3, or pull the LCC out of the UPS smart-slot and reinsert it, and then restart the process at step 3.

11. Start the XMODEM transfer of the first file (**LCB_05.6.enc**).

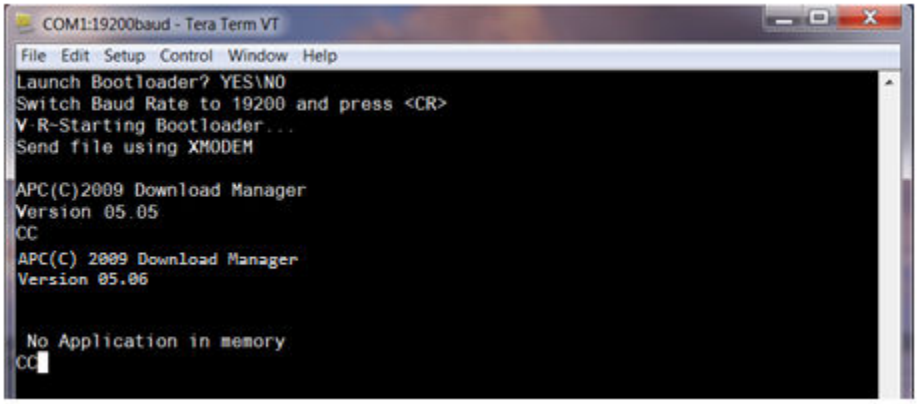
In Tera Term, select **File > Transfer > XMODEM > Send…** Select the file to transfer (e.g., <*full filename path*>\ **LCB_05.6.enc**) in the "File name" box. Then click **Open**.

If you don't initiate the file transfer correctly within 60 seconds, the process will abort, showing an "Error XModem retry count exceeded" message on screen. You will then need to go back to step 3 in order to start the process again.

12. Once file transfer is complete, the LCC will restart automatically. At this point, the rev **5.6** Download Manager is running without a valid application (this is expected). Now the following displays on the screen:

```
APC(C)2009 Download Manager
Version 05.06

 No Application in memory
```




The terminal capture above shows that the LCC's Download Manager is awaiting the XMODEM start by sending the character "C". This will eventually be followed by § or a similar character (this will vary by font within terminal emulation program). These characters signal the beginning of the XMODEM transfer, and are expected.

13. Start the XMODEM transfer of the second file (**LCB_06.0.enc**).

    In Tera Term, select **File > Transfer > XMODEM > Send…** Select the file to transfer (e.g., <*full filename path*>\ **LCB_06.0.enc**) in the "File name" box. Then click **Open**.

    **Note**: If you don't initiate the file transfer correctly within 60 seconds, the process will abort, showing "Error XModem retry count exceeded" on the screen. Because there is no valid application, the LCC will simply restart the Download Manager and wait for a valid application to be uploaded.

14. Once file transfer is complete, the LCC will restart automatically. At this point, the rev **6.0** Download Manager is running without a valid application (this is expected). Now the following displays on the screen

```
APC (C) 2015 Download Manager
Version 06.0

 No Application in memory
```

15. Start the XMODEM transfer of the final file (**LCC_03.1.enc**).

    In Tera Term, select **File > Transfer > XMODEM > Send…** Select the file to transfer (e.g., <*full filename path*>\ **LCC_03.1.enc**) in the "File name" box. Then click **Open**.

    If you don't initiate the file transfer correctly within 60 seconds, the process will abort, showing "Error XModem retry count exceeded" on the screen:

    - If you are updating from LCC version 3.0, the LCC will restart its application, and you will need to **restart the process at step 3 above**.
    - For all other earlier LCC versions, the LCC will simply restart the Download Manager (because there is no valid application) and wait for a valid application to be uploaded. Therefore, repeat this step as necessary until a valid application is loaded correctly.

16. Once file transfer is complete, the LCC will restart automatically and prompt you to switch the baud rate back to 2400. This is optional for future serial port use; otherwise you can exit the terminal program.



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