

### Experiment: How to upgrade ESP300 firmware using HyperTerminal

**Tools:** ESP300 Controller, RS232 cable, PC

**Scope:** This technical note describes the process of upgrading ESP300's firmware using HyperTerminal based on the board revision of the motherboard.

#### Details:

Based on the current board version, it might be necessary to upgrade the firmware and/or FPGA at the same time. Board revision can be verified by physically looking at the board.

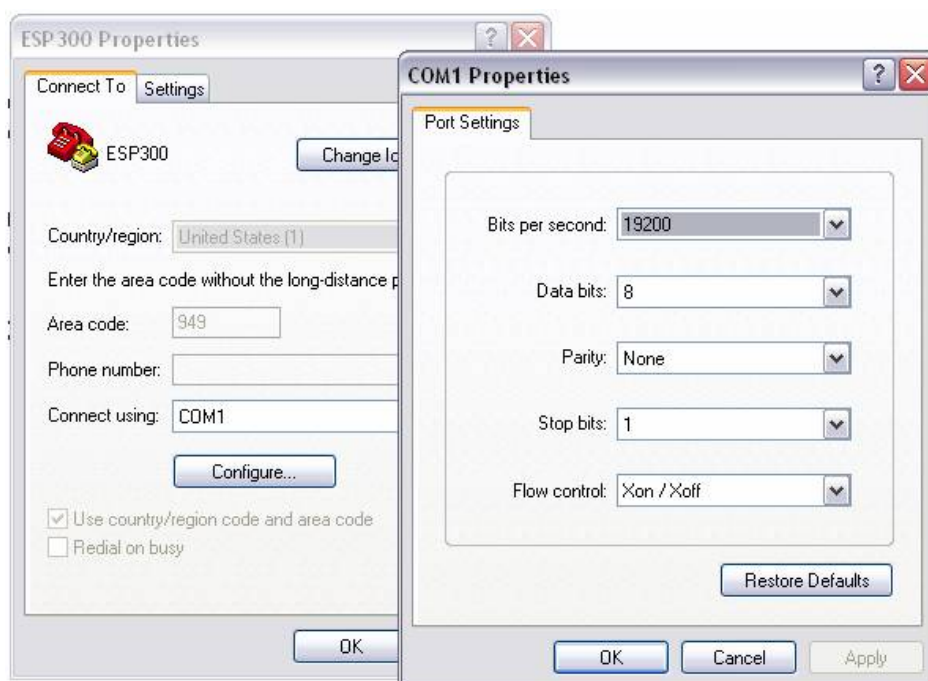
C ~ H: Update in house (firmware, FPGA, board)

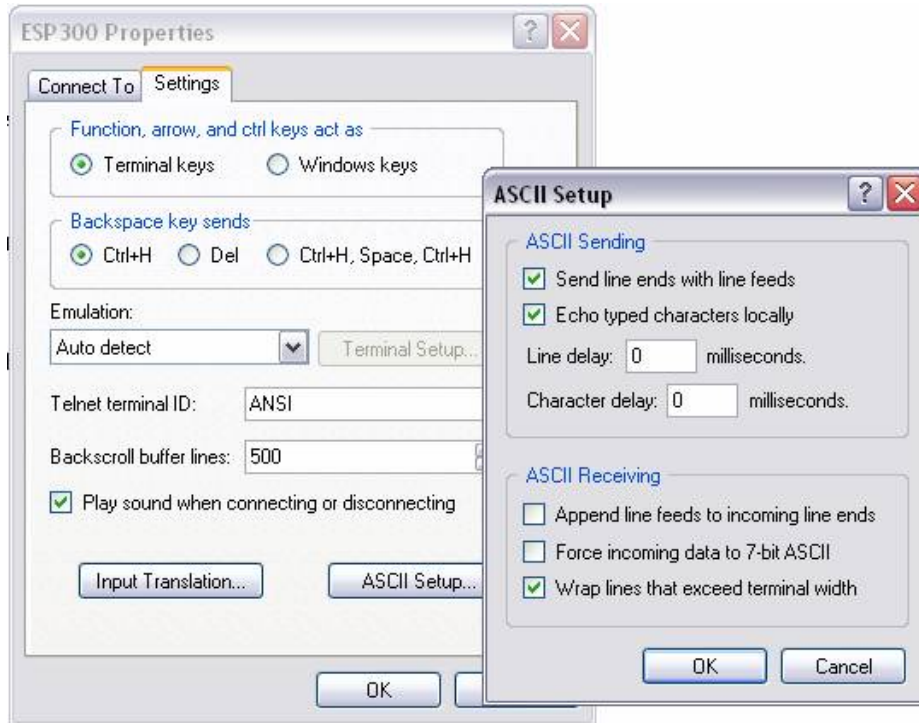
J ~ T: Update FPGA, then controller firmware. Do not reset controller after FPGA update

V to AB Update controller firmware only. No FPGA update needed.

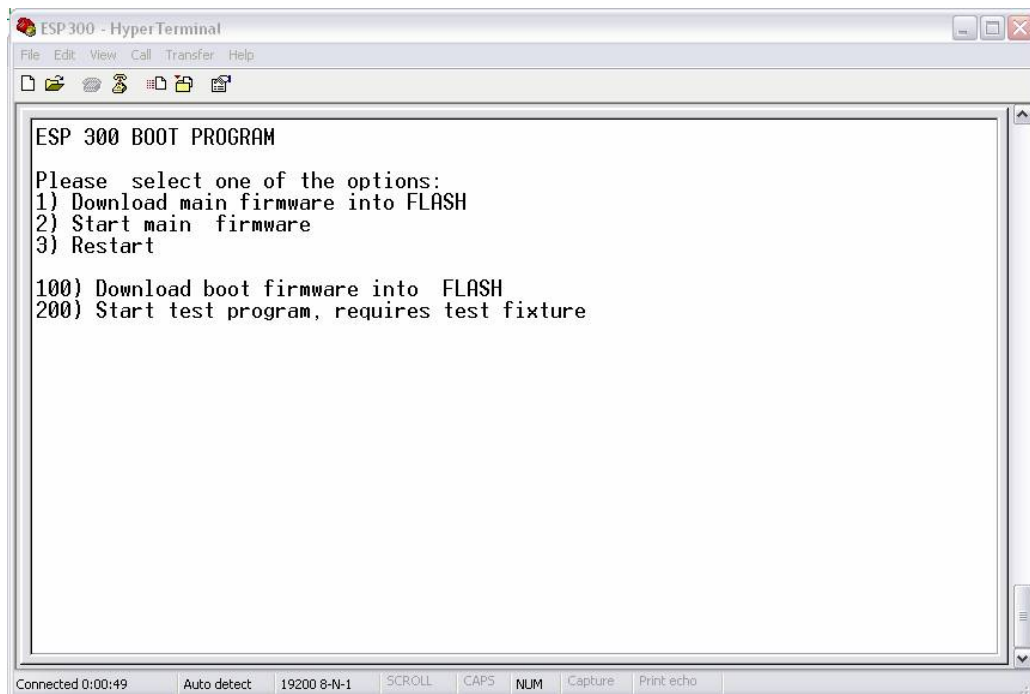
Upgrade should be only done through RS-232.

1. Save the firmware file to the computer's desktop.  
(<http://download.newport.com/MotionControl/Current/MotionControllers/ESP300/Updates/>)
2. Connect to the ESP300 controller using RS-232 cable over HyperTerminal and set the parameters as described in the ESP manual  
(<http://download.newport.com/MotionControl/Current/MotionControllers/ESP300/Manual/ESP300.pdf> page 31, section 2.1.2)

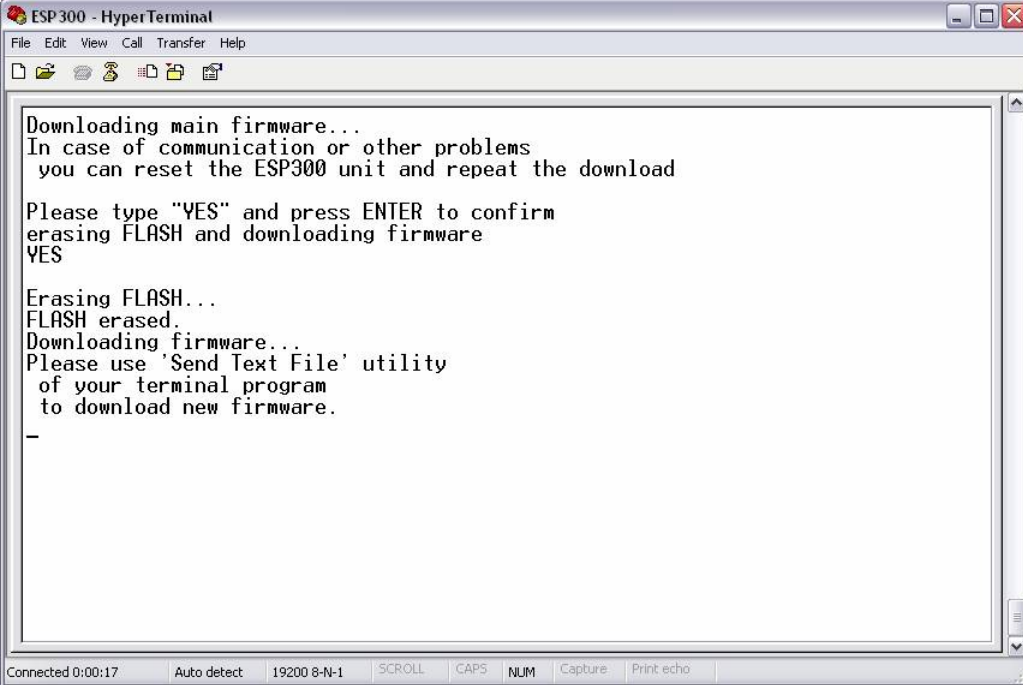




3. While the HyperTerminal is running turn the controller OFF. Press on the SPACE bar and turn the controller back ON.
4. The following screen will appear:



5. Press 1 and then Enter.
6. Type YES and press enter. FLASH will get erased.



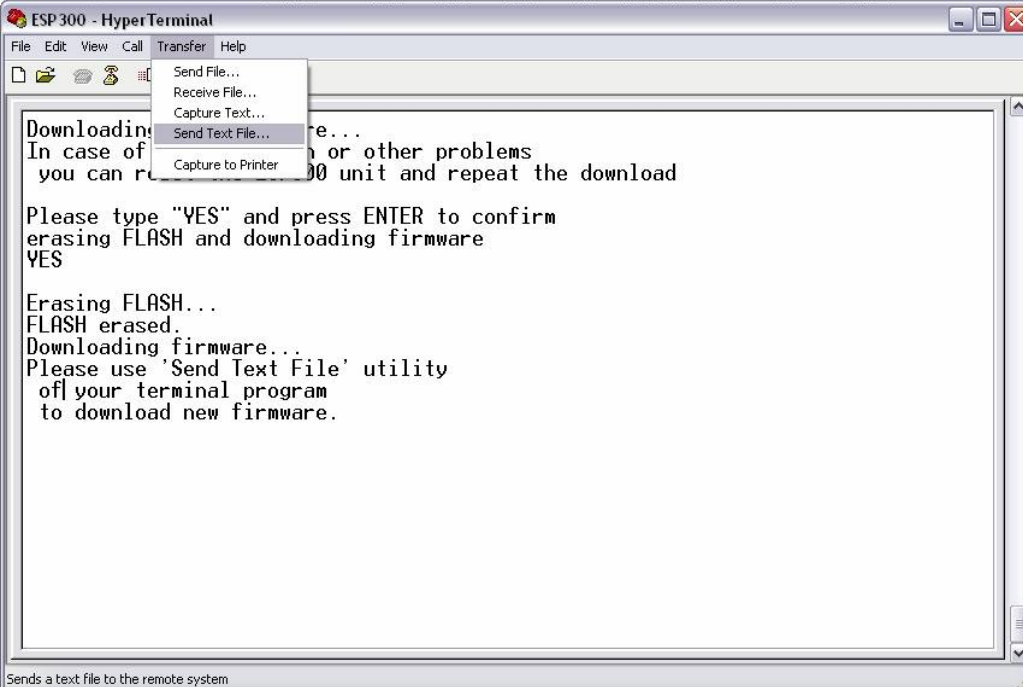
```
ESP300 - HyperTerminal
File Edit View Call Transfer Help
[Icons]
Downloading main firmware...
In case of communication or other problems
you can reset the ESP300 unit and repeat the download

Please type "YES" and press ENTER to confirm
erasing FLASH and downloading firmware
YES

Erasing FLASH...
FLASH erased.
Downloading firmware...
Please use 'Send Text File' utility
of your terminal program
to download new firmware.
-

Connected 0:00:17 Auto detect 19200 8-N-1 SCROLL CAPS NUM Capture Print echo
```

7. Select Transfer > Send Text File....



```
ESP300 - HyperTerminal
File Edit View Call Transfer Help
[Icons]
Transfer
  Send File...
  Receive File...
  Capture Text...
  Send Text File...
  Capture to Printer
Downloading main firmware...
In case of communication or other problems
you can reset the ESP300 unit and repeat the download

Please type "YES" and press ENTER to confirm
erasing FLASH and downloading firmware
YES

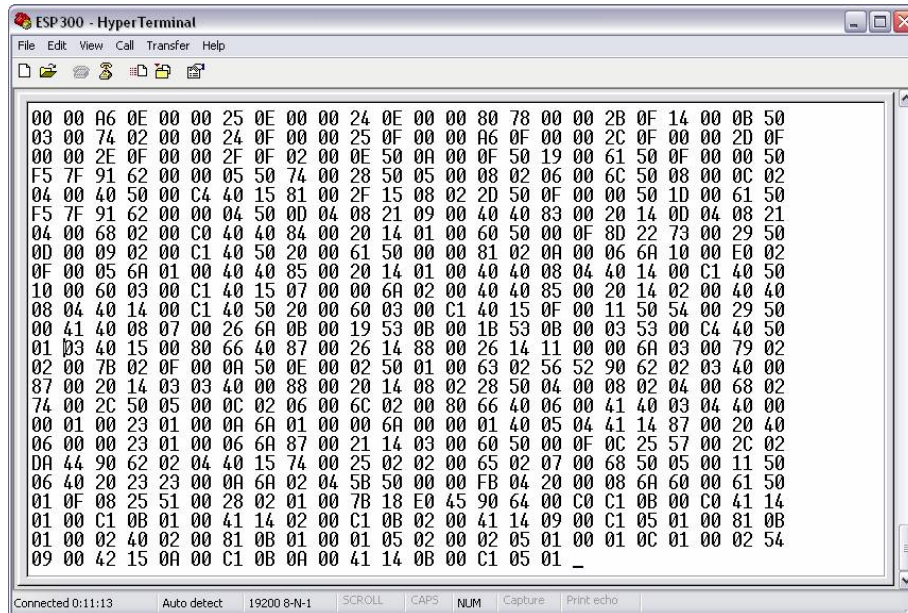
Erasing FLASH...
FLASH erased.
Downloading firmware...
Please use 'Send Text File' utility
of your terminal program
to download new firmware.

Sends a text file to the remote system
```

## Technical Bulletin

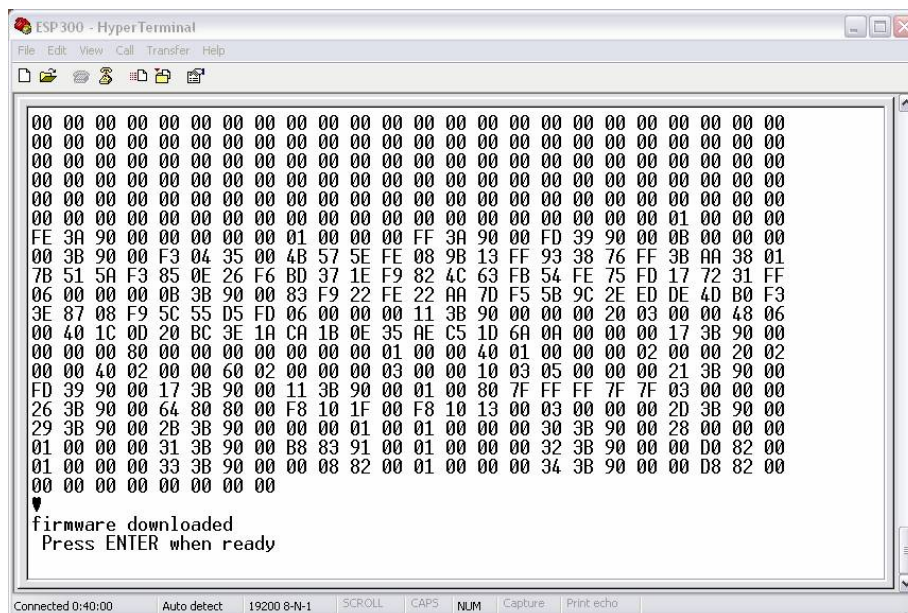
## How to upgrade ESP300 firmware using HyperTerminal

- Browse for the file that you saved (on the desktop) while the file type is All files (\*.\*)
- Hex numbers will appear on the screen and it will take about 10-12 minutes for the data to be transferred.



```
ESP300 - HyperTerminal
File Edit View Call Transfer Help
00 00 A6 0E 00 00 25 0E 00 00 24 0E 00 00 80 78 00 00 2B 0F 14 00 0B 50
03 00 74 02 00 00 24 0F 00 00 25 0F 00 00 A6 0F 00 00 2C 0F 00 00 2D 0F
00 00 2E 0F 00 00 2F 0F 02 00 0E 50 0A 00 0F 50 19 00 61 50 0F 00 00 50
F5 7F 91 62 00 00 05 50 74 00 28 50 05 00 08 02 06 00 6C 50 08 00 0C 02
04 00 40 50 00 C4 40 15 81 00 2F 15 08 02 2D 50 0F 00 00 50 1D 00 61 50
F5 7F 91 62 00 00 04 50 0D 04 08 21 09 00 40 40 83 00 20 14 0D 04 08 21
04 00 68 02 00 C0 40 40 84 00 20 14 01 00 60 50 00 0F 8D 22 73 00 29 50
0D 00 09 02 00 C1 40 50 20 00 61 50 00 00 81 02 0A 00 06 6A 10 00 E0 02
0F 00 05 6A 01 00 40 40 85 00 20 14 01 00 40 40 08 04 40 14 00 C1 40 50
10 00 60 03 00 C1 40 15 07 00 00 6A 02 00 40 40 85 00 20 14 02 00 40 40
08 04 40 14 00 C1 40 50 20 00 60 03 00 C1 40 15 0F 00 11 50 54 00 29 50
00 41 40 08 07 00 26 6A 0B 00 19 53 0B 00 1B 53 0B 00 03 53 00 C4 40 50
01 03 40 15 00 80 66 40 87 00 26 14 88 00 26 14 11 00 00 6A 03 00 79 02
02 00 7B 02 0F 00 0A 50 0E 00 02 50 01 00 63 02 56 52 90 62 02 03 40 00
87 00 20 14 03 03 40 00 88 00 20 14 08 02 28 50 04 00 08 02 04 00 68 02
74 00 2C 50 05 00 0C 02 06 00 6C 02 00 80 66 40 06 00 41 40 03 04 40 00
00 01 00 23 01 00 0A 6A 01 00 00 6A 00 00 01 40 05 04 41 14 87 00 20 40
06 00 00 23 01 00 06 6A 87 00 21 14 03 00 60 50 00 0F 0C 25 57 00 2C 02
DA 44 90 62 02 04 15 74 00 25 02 02 00 65 02 07 00 68 50 05 00 11 50
06 40 20 23 23 00 0A 6A 02 04 5B 50 00 00 FB 04 20 00 08 6A 60 00 61 50
01 0F 08 25 51 00 28 02 01 00 7B 18 E0 45 90 64 00 C0 C1 0B 00 C0 41 14
01 00 C1 0B 01 00 41 14 02 00 C1 0B 02 00 41 14 09 00 C1 05 01 00 81 0B
01 00 02 40 02 00 81 0B 01 00 01 05 02 00 02 05 01 00 01 0C 01 00 02 54
09 00 42 15 0A 00 C1 0B 0A 00 41 14 0B 00 C1 05 01 _
Connected 0:11:13 Auto detect 19200 8-N-1 SCROLL CAPS NUM Capture Print echo
```

- When done you will see Press ENTER when ready.



```
ESP300 - HyperTerminal
File Edit View Call Transfer Help
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
FE 3A 90 00 00 00 00 00 01 00 00 00 FF 3A 90 00 FD 39 90 00 0B 00 00 00
00 3B 90 00 F3 04 35 00 4B 57 5E FE 08 9B 13 FF 93 38 76 FF 3B 9A 38 01
7B 51 5A F3 85 0E 26 F6 BD 37 1E F9 82 4C 63 FB 54 FE 75 FD 17 72 31 FF
06 00 00 00 0B 3B 90 00 83 F9 22 FE 22 AA 7D F5 5B 9C 2E ED DE 4D B0 F3
3E 87 08 F9 5C 55 D5 FD 06 00 00 00 11 3B 90 00 00 20 03 00 00 48 06
00 40 1C 0D 20 BC 3E 1A CA 1B 0E 35 AE C5 1D 6A 0A 00 00 17 3B 90 00
00 00 00 80 00 00 00 00 00 00 00 00 01 00 00 40 01 00 00 02 00 00 20 02
00 00 40 02 00 00 60 02 00 00 00 03 00 00 10 03 05 00 00 00 21 3B 90 00
FD 39 90 00 17 3B 90 00 11 3B 90 00 01 00 80 7F FF FF 7F 7F 03 00 00 00
26 3B 90 00 64 80 80 00 F8 10 1F 00 F8 10 13 00 03 00 00 00 2D 3B 90 00
29 3B 90 00 2B 3B 90 00 00 00 01 00 01 00 00 00 30 3B 90 00 28 00 00 00
01 00 00 00 31 3B 90 00 B8 83 91 00 01 00 00 00 32 3B 90 00 00 D0 82 00
01 00 00 00 33 3B 90 00 00 08 82 00 01 00 00 00 34 3B 90 00 00 D8 82 00
00 00 00 00 00 00 00 00
firmware downloaded
Press ENTER when ready
Connected 0:40:00 Auto detect 19200 8-N-1 SCROLL CAPS NUM Capture Print echo
```

- You will be directed to the first screen. (If the FPGA needs to be updated it has to be done at the point. Follow the same procedure and just uses the \*.Hex file.)
- When done uploading the files, reboot the controller.
- Send VE? command in the HyperTerminal window to verify the upload.