



Reflash Instructions

Spectrum Control's SmartStart PDU utilizes a nonvolatile flash memory device for storage of operating system and application software, as well as configuration and calibration information. The configuration and calibration information is regularly modified as part of normal operation, in response to user interaction with the unit. A separate and distinct process (commonly called 'reflashing') must be used to modify operating system and application software if necessary to correct errors, add new features, etc. This document describes the process used to 'reflash' the unit.

In short, reflashing the unit consists of directing the PDU to download a specially formatted data file ('image') into local ram memory, verifying image integrity via a checksum procedure, erasing specific areas of flash memory, and storing the data from the image file to those same areas of flash memory.

The reflashing process is directed by an operator interacting with the unit using the command line interface either via a serial connection to the front panel RS232 port, or via telnet. In EITHER case, a LAN connection is necessary. The image file to be downloaded must be accessible to a TFTP server application running on a host which is itself accessible to the SmartStart PDU via the LAN. Normally, the reflash process is initiated and carried out via interaction with a unit in normal running condition. To help ensure a successful reflash process, make sure there is no interruption of power during the process. An interruption of power could cause the reflash procedure to fail. A backup procedure, only available via the serial interface, is also provided in case a previous reflash process failed and the unit is rendered inoperable. Both processes, in more detail are explained below.

Reflash Under Normal Operating Conditions

1. Set up the SmartStart PDU with adequate power and LAN connections. Set up a serial connection, if that is to be used for operator interaction.
2. Set up a separate computer host accessible via the same LAN used by the PDU. The IP address of this host will be needed in a later step in this process.
3. Ensure a TFTP server application is running on the host.
4. Place the new image file (obtained from Spectrum Control) into the directory used by the TFTP server.
5. Power up the SmartStart PDU and log in (either via serial or telnet) as 'admin'.

6. Type '@REFL ADDR,xxx.xxx.xxx.xxx<CR>' (xxx.xxx.xxx.xxx is the IP address of the host running the TFTP server application). System response is '#REFL OK'.
7. Type '@REFL CHKSUM,xxxxx<CR>' (xxxxx is the checksum number supplied along with the image file). System response is '#REFL OK'.
8. Type '@REFL TFTP<CR>' System response is '#Download starting' '#Download complete, starting checksum calc...' '#REFL Download OK'
9. Type '@REFL REFL<CR>' System response is '#Starting checksum calc...' '#REFL Checksum OK, Reflash in progress...'
10. The erase/reflash process then takes several minutes. At the end of the process, the system will execute an automatic SOFT REBOOT.
11. At this point the PDU is executing the new OS/App. An operator can log into the unit and operate it normally. In particular, typing the '@SYSI<CR>' command will cause the display of something similar to the following:

```
@SYSI
System Name   : ReflashTest
Model        : XXXX-XX
Serial Num.   : 542
MAC Addr.    : 000674000542
Boot Ldr Rev. : 1.0
Backup Rev.  : 1.0
Main App Rev. : 3.0
Date Manuf.  : 20040814
Date Last Rev. : 20040816
#OK
```

The 'Main App Rev.' and 'Date Last Rev.' fields should reflect the new image file.

Emergency Reflash Process

1. Set up the SmartStart PDU with adequate power and LAN connections. Set up a serial connection. Terminal program must be set up with 57600 baud, 8 bits, no parity, 1 stop bit.
2. Set up a computer host accessible via the same LAN used by the PDU. The IP address of this host will be needed in a later step in this process.
3. Ensure a TFTP server application is running on that host.
4. Place the new image file (obtained from Spectrum Control) into the directory used by the TFTP server.
5. Power up the PDU. The PDU will perform self checks and then print to the serial port, either:
'Checksum failed, reflash forced.'

Otherwise, PDU will print: 'Type REFL to force a reflash'.

User types 'REFL'
6. PDU will print:
'Reflash process initiated!
'Get params via DHCP (type 'Y' or 'N'):
7. User types 'N'.
8. PDU will print:
'Not using DHCP, user typed n'
'Type in address for THIS unit to use: (ex. 192.168.1.100), followed by the 'Enter' key:'
9. User types in IP address for the PDU to use during the reflash process:
192.168.1.111<CR>
10. PDU will print:
'192.168.1.111
Using Local IP -192.168.1.111-
Type in netmask assignment: (ex. 255.255.255.0), followed by the 'Enter' key:'
11. User types in netmask for the PDU to use during the reflash process:
255.255.255.0<CR>

12. PDU will print:
 '255.255.255.0
 Using netmask -255.255.255.0-
 Type in address of TFTP server host (ex. 192.168.1.2), followed by the 'Enter' key:'
13. User types in IP address of TFTP server host: 192.168.1.1<CR>
14. PDU will print:
 '192.168.1.1
 Type in checksum number (max 5 chars, 99999), followed by the 'Enter' key:'
15. User types in checksum number (specific to image file): xxxxx<CR>
16. PDU system software goes to specified IP location and TFTP's the SRec file to local memory.
17. PDU will print:
 '32858
 Using TFTP server address: 192.168.1.1
 Using reflash file image name: reflashImage.s19
 Checking file integrity with checksum: 32858.
 Downloaded file OK, starting reflash process now.....'
18. PDU will use downloaded image file to reprogram flash memory.
19. After reflash is complete, PDU executes SOFT REBOOT.