

Application Note: Updating the AT100 Firmware

Overview

From time to time, application firmware updates will be available for the AT100. These updates will contain new features and enhancements resulting from ongoing product development. Firmware update files are provided free of charge by Astra Telematics, so customers may choose to upgrade to the latest version as and when necessary. There are two methods of updating the AT100 firmware. When the AT100 is at hand, the best method is to load the firmware from a PC serial or USB port using a utility called FlashTool. When the AT100 is installed in a remote asset, the firmware can easily be updated over GPRS. Both techniques are described in detail below.

Firmware update via a PC serial port or USB port

To update the AT100 firmware by direct connection to a PC, you will require the following items:

- AT100 Data Cable (serial)
- USB to serial adapter cable (required for USB port method only)
- Flashtool utility
- Firmware update file iTrax.fls

All the above items are available on request from Astra Telematics.

PC Procedure:

1. Create a new folder called c:\AT100
(note, if you use a different name, you will need to edit flash_gui.bat)
2. Extract the contents of the FlashTool compressed file into the AT100 folder
3. Copy the firmware file iTrax.fls to the same folder
4. Open the AT100 folder and select the file flash_gui.bat and create a shortcut to this file from your desktop (right click – send to – desktop)
5. Run flash_gui.bat via the shortcut and the FlashTool will open
Note: if it fails to open, check that the pathname in flash_gui.bat is correct
6. Select the COM port you will be using to load the firmware
7. Select the load speed. If using a serial port, the maximum speed is 115200 baud. USB to serial adapter may allow faster load speeds, up to the maximum 921600
8. If you wish to erase the AT100 flash memory, select “Erase FFS data”
9. Select “Program”
10. Connect the AT100 to the PC serial or USB port using the AT100 Data Cable and move the switch to select BOOT MODE (or connect the GPS_BOOT input to GND)
11. Power up the AT100

12. The loader should detect the AT100 and begin loading. The procedure takes less than a minute (at 921600 baud).
13. Once loading is complete, close the Flashtool, move the BOOT MODE switch and reset the AT100
14. Confirm with HyperTerminal (4800 baud) that the AT100 firmware update was successful

Firmware Update over GPRS

To update the AT100 firmware remotely over GPRS, you will require the following:

- Firmware remote update file iTrax_update.flc (supplied in 1500 byte blocks)
- Webspace (approx. 1MB) to store the firmware files
- A mobile phone handset or other means to send a OTA command to the AT100

Alternatively, you can arrange for your specific firmware files to be posted on Astra Telematics' own website, so that all you need to do is send the SMS. Please contact us to request this option if required. If your firmware files are already loaded on our web server, you can skip the following stages and simply send the SMS Load command. The specific command to load your particular version of firmware from our web server will be advised by Astra Telematics when you request this option. The format is:

```
*LOAD=208.187.163.209,80,www.gps-telematics.co.uk,/<client_name>#*ELOG#*GPST=9999#
```

Where <client_name> is the unique pathname for your companies' version of the AT100 firmware, as configured on our web server. This pathname will be advised by Astra Telematics.

The remote firmware update technique requires a different version of the firmware flash file, called iTrax_update.flc. This file is broken into small blocks to facilitate a reliable loading procedure using HTTP protocols. The first block is 28 bytes, the second is 20 bytes, followed by 1500 byte blocks and a final block containing the remaining bytes (usually less than 1500). The complete flash file is approx. 1MB and thus there will be approx 600 files in total. The firmware flash file is available from Astra Telematics readily split into the requisite blocks.

The flash files must be stored on a webserver, usually contained within a dedicated folder. The files have custom extension .flc and this may necessitate some changes to the system settings to allow download of such files.

The AT100 is then instructed to download the firmware files from the website by sending an over the air command (either SMS or TCP mode). The LOAD command has the following syntax:

```
*LOAD=<ip_addr>,<port>,<hostname>,<pathname>#
```

The <ip_addr> and <port> are used to open an HTTP connection to the required webserver. The <hostname> and <path> are used to enable the files to be downloaded using the HTTP GET command. Note that <pathname> usually requires a leading forward slash.

We recommend that you add the following commands to the LOAD command to help ensure a successful download process:

```
*ELOG#*GPST=9999#
```

The download process typically takes around 30 minutes. A successful download will require uninterrupted GPRS service for the entire procedure, hence it is best done whilst the vehicle is stationary.

Once the download is complete, the AT100 will confirm error free download of the file using a CRC check and assuming there are no errors, it will immediately reboot using the new firmware. If there are any errors, the AT100 will continue to use the existing firmware.