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## TPS File Replay, Samples Page 8

This example demonstrates the replay of a packet data file using TPS. It illustrates configuration of the packet format, i.e. synchronisation bit pattern and packet length, and controlling the replay speed. It uses a data file and display page as supplied in the SAMPLES folder. This example assumes that TPS has been installed from the downloaded zip file (see [www.microscitech.com](http://www.microscitech.com) home page).

The data file was generated from a simulation of an attitude control system for an upper atmospheric telescope. The resulting TPS display shows elevation and azimuth control parameters.

### Instructions

1. Start TPS.
2. Change to page 8 in the SAMPLES folder by selecting the `Display, Open`, menu-item, navigate to the SAMPLES folder, and then select PAGE0008.BIN from file list in the resulting dialog box.
3. Unlock the display by double clicking anywhere on the display and responding yes to the prompt. This allows the user to modify the TPS packet format as done in the next step.
4. Configure TPS to read packets with a synchronisation pattern of two bytes, 12 and 34 (hexadecimal), and a total length of 122 bytes by selecting the `Transfer, Pkt format` menu item and entering 0x1234 (the default) for the Synchronisation Pattern and 122 as the Packet Length (the 0x prefix denotes a hexadecimal number). The first packet in the file is shown on the back of this sheet, the synchronisation pattern is emboldened.
5. Set the TPS loop-time to half a second by selecting the `Options, System, Loop-time` menu item and enter 500 (500 milliseconds). This setting makes TPS replay one packet every half a second, i.e. a 2Hz packet replay rate.
6. Replay the example data file by selecting the `File, Replay, Raw bin` menu item and select 8.DAT from the file list. Once the file is selected and OK is pressed, TPS will immediately restart playing the data. Every time TPS reads a packet, the vertical arrow at the bottom right of the display will move one to the right, wrapping back to 0 every 16th packet.
7. Press the plus key '+' one or more times to repeatedly double the replay speed. You should notice the arrow's speed increase.
8. Press the minus key '-' one or more times to repeatedly halve the replay speed.
10. If the file replay comes to an end, i.e. the arrow stops moving, then you can immediately replay the file by re-selecting the file 9.dat from the list that appears in the `File` menu.
11. Press the ESC key to enter step-mode, TPS will suspend the file replay and the arrow will stop moving. You will hear a beep sound approx every one second warning you that step mode is on if sound is enabled, menu option `Options, Switches, Sound`.
12. Press ENTER to replay a single packet and then press ENTER again to replay a second packet etc. Now the arrow will move 1 place to the right every time ENTER is pressed and a packet replayed.
13. Press ESC to exit step-mode, TPS will restart automatic file replay.

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14. Let the file replay until the end when the left trace reaches the right hand border. The final trace should appear as shown below.

15. If you exit TPS now, and if you have changed the packet format (step 5), then TPS will ask you if you wish to save the 'System Settings'. Respond no as the packet format change was for example purposes only.

The first packet in 8.DAT, after internal TPS decompression, is shown below. Notice, the first two bytes are the synchronisation bytes, 12 and 34 hexadecimal, and the total packet length is 122 bytes.

```
12 34 d7 ea 00 00 00 00 6a 00 00 6d 5a 29 02 00 56 78 00 6d 5a 29 21 43 23 55 23 99
aa ab 39 30 08 35 39 30 08 35 39 30 f4 25 10 13 b2 2f e6 1d 53 20 68 2b 94 26 e1 10
94 26 00 00 07 00 aa 55 aa 00 dd 0c cb 0c 1b 0d 93 0c da 0c a7 0c 9b 0f 0e 0f de 23
56 08 76 0c 8e 0f 09 01 39 0b 1c 0f f1 07 04 08 c0 00 98 0a 29 0f 59 0e 22 0b c1 0e
f2 07 06 00 00 00 02 00 00 00
```

The TPS screen, upon completion of file replay, is shown below. This screen print was produced by pressing ALT+PRTSCR to capture a bitmap of the window. You can also use the TPS File, Print menu item and press OK to accept the defaults.

