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Trendsetter News
MPE Firmware Version 1.16 Release Notes

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1. SCOPE

This document describes the important features of the Trendsetter News present in V1.16. This device is based on a 3244 Trendsetter Autoloader, so the bulk of the functionality as well as the commands and parameters, are the same.

Common acronyms used in this document are defined in Appendix A.

2. FORMATTING CONVENTIONS

The formatting conventions used in this document are as follows:

all NVS parameters are in italics and

commands to be typed into the diagnostic terminal are in bold as well as the diagnostic command responses.

3. PRELIMINARY CHECKLIST (READ BEFORE YOU BEGIN!)

Please ensure the following checklist is performed before the upgrade is started.

1. ☐ Using the **list version** command, record the following:

   current MPE version: _____

   current head version: _____

   Note: to check the firmware version of a Thermal 2 head, enter **redirect enable** then **ver**.

2. ☐ Ensure you have the TTSNV116.HEX file available.

3. ☐ Using the **fw dir** command, ensure that the following lines show up:

```
(PRI)    MPE LCA E          0.18      4AE39F    5CC2    PASS    YES
(PRI)    ALE LCA E          0.03      4B4061    5CC2    PASS    YES
(PHS)   FDPE LCA            4.00      4B9D23   14643    PASS    YES
```

If any of these are not correct, do NOT load the new firmware. Replace the necessary boards – the three that are required are: MPE E-series, ALE E-series, and FDPE.

4. ☐ Ensure that you allocate at least 4 hours for upgrading and testing the system. After the firmware upgrade, the entire system must be checked to make sure it is operating properly. This includes performing a visual check of plate handling, running a few plots to ensure proper image quality, and instructing the operators on any changes to the system operation. The customer should also be allowed to run a few plates to make sure the machine works to their satisfaction.

4. UPGRADE PROCEDURE

To upgrade the MPE firmware, please perform the following steps:

1. Save all current NVS using both the **fsave all** command (see Appendix B) and the **nvs dump diff** command. Save the files to the workstation directory E:\Service\Nvs. Use the file names S#_nnn.mem for the fsave all file, and S#_Vnnn.dif for the nvs dump diff file (# is the machine number, and nnn is the current (before upgrade) version number).

   fsave all file name: _____

   nvs dump diff file name: _____

2. Load new firmware (see Appendix C).

3. Issue the **nvs upgrade <previous version>** command (for example: **nvs upgrade 1.14**). All changed parameters will be displayed, showing the old value and the upgrade value. You may want to open a capture file before running this command to record all the new or changed parameters.

4. During the upgrade, warning messages will be displayed for any disabled sensors. Try to get these sensors working and enabled as soon as possible as they are required for the proper, safe operation of the Trendsetter.

5. Reset the machine with the **reset** command.

5. SYSTEM CONFIGURATION

Print Console will be the default control software running with the Trendsetter News (formerly known as the Trendsetter 2637). Files are submitted in TIFF format. Although the Platesetter Control Software (PCS) (also known as the Allegro Workstation Software) will allow plates to be imaged on the Trendsetter News, Print Console has several added features to support dual-plate loading. All references to the workstation software made in this document refer to Print Console.

6. CHANGES FROM V1.14

6.1 NVS Changes

The following table details which NVS parameters have changed since the previous release (1.14). The **nvs upgrade** command (issued as a standard part of the firmware upgrade procedure) will ensure these parameters are set correctly. Some parameters in this table may not specify an upgrade value. In these cases, the default value or some other aspect of the parameter has changed but the value saved in NVS memory will remain unchanged. If the head code firmware is to be updated, there may be other NVS parameters changes listed in the release notes for Thermal Head Firmware that are outside the scope of these release notes.

NVS System	Param Name	Old Default	New Default	Upgrade Value	Description	Refer to Section
sys	**wjo**	**250**	**---**	**----**	New nvs parameters needed for the change described in section 6.3.4	
verbose	**System2**	**0**	**---**	**---**	New nvs parameters needed for the change described in section 6.3.5	

6.2 Command Changes

No command has been changed.

6.3 Bug Fixes

6.3.1 Plate Positioning Problem

A problem with positioning plates on the drum was found on site having the following characteristics:

- Standard processor of width 850mm
- Toe-in pin configuration
- Both broadsheet plates and panorama plates are used

The problem is that panorama plates approaching 800mm would not fit through the processor because these plates needed to sit on pins 1 and 3.

Therefore, the subscan size breakpoint determining on which pins a plate should sit have been changed from 800mm to 750mm for the toe-in pin configuration. Plates with subscan size between 750mm and 800mm will now sit on pins 1 and 4 instead of on pins 1 and 3. Here is the revised table showing the plate positioning:

The plate positioning and rotation is as follows:

	Plate Size (ssz)	Plate Positioning	Rotation value
gc toein is 0	ssz ≤ 450mm	centered on pins 1&2 or 3&4	*gc aprot* or *hprot*
	ssz > 450mm	centered on pins 1&3 (137mm off-center relative to the machine	*gc prot*
gc toein is 1	ssz ≤ 450mm	centered on pins 1&2 or 3&4	*gc aprot* or *hprot*
	450 < ssz ≤ **750**	centered on pins 1&3 (137mm off-center relative to the machine)	*gc sprot*
	ssz > **750**	centered on pins 1&4 (centered relative to the machine)	*gc prot*

Note: Pins are numbered starting with 1 at the home side.

For more information on toe-in pin configuration and pins setting, please refer to the release notes for the firmware version 1.14 section 6.4.1.

Modification to the positioning of the plate on the load table

For sites matching the characteristics outlined above, we recommend that panorama plates with subscan size less than 750mm be positioned on the load table so that the plate edge closest to the carriage position be 70mm from pin 1. This way, all plates size smaller than the processor width should fit through the processor. For plate approaching the 750mm, you may have to increase the edge detect wide search distance, that is increase the nvs *carriage edge_wide_search* parameter, so that the edge is detected more rapidly. For more information, please refer to the functional document section 4.5. This document has been updated to reflect the change described here.

6.3.2 Plot Headtest Command

The **plot headtest** command was not working properly in the previous version. This command has been fixed.

6.3.3 Diagnostic Test Plots Mainscan Size Changed

For diagnostic test plots, the firmware limited the mainscan size to (plate size - 240mils - 500mils), the 240mils being the leading edge margin and the 500mils being the trailing edge margin (note - VLF is different). Our spec for the trailing edge margin was changed a while back from 500mils to 300mils, but this piece of code was not updated.

For workstation plots, the mainsize size is limited by Print Console. The margins default to 240mils leading edge; 300mils trailing edge. These margins can be changed (Service menu - Device margins), but should in general be default.

Without large changes to the system so that margins are communicated between workstation and device, the next best solution, implemented in this version, is to change the hard-coded trailing edge margin to 300mils. If the Print Console margins are default, then the image size for workstation plots and diagnostic plots will be the same.

6.3.4 Delay in Turning On and Off the Whisker Air Jet

The whisker air jet is now turned on at ¼ of an inch (nvs controllable distance) from the beginning of the plate and is turned off at ¼ inch from the end of the plate. This has been implemented in order to avoid plate lifting when imaging. An nvs parameter, sys whisker_jet_offset (wjo), is used to set the distance from the edges of the plate at which the air jet will be turned on and off.

6.3.5 Error "trailing edge clamps not on actuator"

There have been many reports of the error "trailing edge clamps not on actuator" suspending the machine even if all the clamps were on the actuator during unload. A firmware fix has been introduced in this firmware version so that the trailing edge sensor is read a few times before failing.

6.3.6 Name Changed

Commercial machines are being treated as a separate model, whereas wide is still an option. The table below shows the name change:

Old Name	New Name
Trendsetter News 70	Trendsetter News 70
Trendsetter News 70 (c)	Trendsetter News 70C
Trendsetter News 70 (w)	Trendsetter News 70 (w)
Trendsetter News 70 (c) (w)	Trendsetter News 70C (w)
Trendsetter News 100	Trendsetter News 100
Trendsetter News 100 (w)	Trendsetter News 100 (w)
Trendsetter News B1	Trendsetter News B1
Trendsetter News B1 (c)	Trendsetter News B1C

6.3.7 New System Task

A new task has been added to the firmware to take care of lengthy operations such as debris removal monitoring, temperature monitoring and turning on and off of the whisker air jet. This new task is called system2 task. To monitor activity from this task, use the command "set verbose sys2 x" where x is the verbose level you want.

6.3.8 Focus error with TH2 heads

On machine using thermal 2 heads, the following focus error was often reported: "Exposure Head: Tfx / Thermal 2: [01313] Focus: Focus error: Media out of range". This problem has been solved by holding focus 2 swaths earlier than in previous firmware version at the end of the plate.

7. KNOWN DEFICIENCIES

Same deficiencies as in version 1.14.

Appendix A: Common Acronyms

MPE	Main Processor Electronics
CTP	Computer to Plate (this includes Trendsetters and Platesetters)
NVS	Non-Volatile-Storage
TTS	Thermal 3244 Trendsetter
TTSL	Thermal Trendsetter Autoloader
TTSS	Thermal Trendsetter Spectrum
TTSP	Thermal Proofsetter
T324	Thermal 3244 Platesetter
GVLF	Green VLF Platesetter
TVLF	Thermal VLF Platesetter
GVTS	Green VLF Trendsetter
TVTS	Thermal VLF Trendsetter

Appendix B: Backing UP and Restoring NVS RAM Using PCPLUS

What is NVS RAM?

The NVS RAM in recorder machines provides the following:

- Storage for machine-dependent "configuration and calibration parameters" that must remain intact between power cycles.
- Storage for "state variables" that allow a machine to resume where it left off if power is cycled during loading or imaging.

At power-up, the contents of NVS RAM are copied to regular volatile RAM in the recorder and that is where they are used by the firmware. If any of these parameters are changed for any reason they must be copied back to NVS RAM or the changes will not be preserved after the next power-up. Changing individual NVS parameters is therefore a two-step process:

1. A parameter is first changed in a volatile RAM copy of the parameter
2. The changed value is saved (i.e. copied) to the NVS memory

Generally, there is no need to change "state" variables in NVS RAM since they simply contain a record of where the machine is (or was) during various tasks.

Whenever firmware is upgraded in a recorder machine, some of the NVS calibration and configuration parameters will typically need to be upgraded as well. Simply loading new firmware into a machine will not upgrade the NVS. Steps must be taken to ensure that the NVS is properly configured for the new firmware. This process may be partly or wholly accomplished with the **nvs upgrade** command available from the recorder monitor. In some cases, however it will be necessary for the installer to make certain upgrade configurations depending on the hardware that is present in the particular machine. Instructions on how and when to use **nvs upgrade** as well as any special machine-dependent upgrade procedures will be included near the beginning of this release note.

IMPORTANT: BEFORE UPGRADING THE FIRMWARE OF ANY RECORDER MACHINE YOU MUST BACKUP THE CONTENTS OF THE CURRENT NVS MEMORY IN CASE IT BECOMES NECESSARY TO REVERT TO THE PREVIOUSLY INSTALLED VERSION OF FIRMWARE!

Procedure to Backup and Restore NVS

There are two procedures that must be followed to do a reliable backup (as well as a possible restore) or NVS memory. The required procedure is outlined here. A second procedure, used to produce a human-readable listing is described in Appendix D.

Procedure "A" is used to take an image of the current NVS memory before the firmware upgrade and restore the image at a later date. This procedure is used to save the entire 32k of NVS RAM. The "**fsave all**" monitor command is used to download the NVS memory to a file and the "**fload memory**" command is used to upload the NVS memory from a file.

The procedure outlined here is used to save the entire 32k of NVS RAM. The "**fsave all**" monitor command is used to download the NVS memory to a file and the "**fload memory**" command is used to upload the NVS memory from a file. This procedure MUST be followed to produce a reliable backup of the device parameters.

An overview of the general procedure is shown below

Backing up NVS:

1. Open a log file to collect data that is displayed on the monitor screen
2. Issue a monitor command to allow the desired data to be displayed (and therefore also collected in the log file).
3. Close the log file

Restoring NVS:

1. Issue a command at the monitor that readies the recorder to read a log file.
2. Send the log file to the recorder

Detailed instructions for accomplishing these general steps using various terminal configurations are given in further on in this appendix. An NVS dump file made according to the procedure that follows will be exactly 79508 bytes long. If your file is exactly this long there is a very high probability that it is not corrupt. If you require more assurance concerning the integrity of the file you may examine it with a text editor or listing utility and check for the following:

- The file must consist of exactly 995 lines.
- The first 992 lines will be 78 characters long and look similar to the following

```
S2258000004E56532056657273696F6E203200AAAA55555555555555555555555555555555AABD
```

- Line 993 will be 76 characters long and look similar to the following:

```
S224807FE05555555D5555755575D55DD775555555AA6EAAABBAAAAAAE998E823A4A9FFED671
```

- Lines 994 and 995 (the last two lines) will look exactly like this:

```
S9030000FC
END OF NVS MEMORY DUMP - Close log file and hit [Y] (Y/N)
```

Procedure to Backup and Restore NVS

Previous release notes specified two separate procedures for backing up and restoring NVS memory. There is now only one simplified procedure to follow. This procedure is used to save the entire 32k of NVS RAM. The "**fsave all**" monitor command is used to download the NVS memory to a file and the "**fload memory**" command is used to upload the NVS memory from a file. An overview of the general procedure is shown below

Backing up NVS:

1. Open a log file to collect data that is displayed on the monitor screen
2. Issue a monitor command to allow the desired data to be displayed (and therefore also collected in the log file).
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```

- Line 993 will be 76 characters long and look similar to the following:

```
S224807FE05555555D5555755575D55DD775555555AA6EAAABBAAAAAAE998E823A4A9FFED671
```

- Lines 994 and 995 (the last two lines) will look exactly like this:

```
S9030000FC
END OF NVS MEMORY DUMP - Close log file and hit [Y] (Y/N)
```

Terminal Program Setup

The PCPLUS terminal utility is usually used for NVS backup and restore. This utility may be run from either DOS (or a DOS window) or it may be used with a "Windows" style interface. It is assumed that the terminal program will be run on the system workstation. If it is run on another PC it may be necessary to change all the hard drive reference letters in this appendix from E: to C:. Any files created on the C: drive of a separate PC (i.e. terminal) should be copied over to the workstation on drive E: for archival purposes The following subsections show the necessary changes to the default configurations of the PCPLUS programs.

Setting up PROCOMM Plus for DOS (version 2.0)

Hit "Alt-S" and select "Protocol Options" and "General Options"
Set "Abort transfer if CD lost" to "No"

Hit "Esc" to return to "Protocol Options" menu and choose "Ascii"
Set "Character Pacing (milliseconds)" to "0"
Set "Line Pacing (1/10 sec)" to "0"
Set" Pace Character" to "126"
Save and exit

Setting up PROCOMM Plus for Windows 95 (version 4.0)

Under "Setup" - "System" - "System Options…"
Select "Data" Tab
Select "Path" Tab
On the "Capture Path" entry line, set a path for the capture file. For example, E:\NVS (This specifies only the capture file path, not the filename itself). The filename will be prompted for at the time a download is begun.
Select "OK"

Under "Setup" - "Data" - "Transfer Protocol…"
Under "CR options - upload" select "Don't translate CR"
Under "LF options - upload" select "Don't translate LF"
Under "CR options - download" select "Don't translate CR"
Under "LF options - download" select "Don't translate LF"
Be sure to uncheck the "Use" box
Select "OK"

Under "Setup" - "Data" - "Setup Files…"
Under "Meta Keys" select "None"
Under "Translate Table" select "None"
Under "Capture" select "None"
Select "Setup" (brings up "Capture File Options" window).

In "Capture File Options" window"
Disable "Write text as it appears on screen"
Disable "Write filtered text with no emulation escapes"
Enable "Write raw text including all escapes"
Enable "Overwrite existing capture file"
Enable "Query for file name when capture is started"

Detailed NVS Backup Procedure

Steps	Using PCPLUS in a DOS window	Using PCPLUS with windows interface
Prepare recorder to dump all NVS	**fsave all** Y/N prompt appears, ignore for now	**fsave all** Y/N prompt appears, ignore for now
Open log file	**Alt-F1** Pop-up window prompts for a filename	**Alt-F1** Pop-up window prompts for a filename
Name log file	Enter a path plus a name that includes the firmware version before upgrade e.g. **E:\NVS\xxx.MEM** (where xxx is the version number).	Enter filename (without path or extension) that includes the firmware version before upgrade. e.g. **xxx**. (where xxx is the version number). Pcplus adds a ".CAP" extension to this name and uses the previously defined path. Click "OK".
Dump entire NVS to log file	**Y** Data is displayed as it is dumped. The dump will take a few minutes. Eventually the following message is displayed: END OF NVS MEMORY DUMP - Close log file and hit [Y] (Y/N)	**Y** Data is displayed as it is dumped. The dump will take a few minutes. Eventually the following message is displayed: END OF NVS MEMORY DUMP - Close log file and hit [Y] (Y/N)
Close log file	**Alt-F1**	**Alt-F1**
Confirm end of download	**Y**	**Y**
Rename file	Not necessary	Rename the file: **E:\NVS\xxx.CAP** To: **E:NVS\xxx.MEM**

Detailed NVS Restore Procedures

Steps	Using PCPLUS in a DOS window	Using PCPLUS with windows interface
Initialize NVS	**nvs init all creo** All NVS firmware defaults written to NVS	**nvs init all creo** All NVS firmware defaults are written to NVS
Reset the recorder	**reset** Ensures NVS is copied to active RAM	**reset** Ensures NVS is copied to active RAM
Prepare recorder to receive all NVS	**fload memory** "Begin upload…" message appears	**fload memory** "Begin upload…" message appears
Prepare to upload	**PgUp** Pop-up window prompts for protocol	Select "Data" - "Send File"
Select ASCII	**A** Filename prompt appears	ASCII protocol was already selected when PCPLUS was set up.

Enter NVS filename	Enter the path and name of the previously saved configuration file e.g. **E:\FW\xxx.MEM** after hitting ENTER the upload will begin. Pace characters are displayed as the upload progresses. This stops when the upload completes. This will be followed by a "Transfer Successful" message.	Navigate to **E:\FW\xxx.MEM** and Select "Open" Button. The load begins and a "progress" window appears that tracks the progress of the load. When transfer is 100% done a "Transfer Successful" message will appear. Close the progress window.
Reset the recorder	**reset** Ensures NVS is copied to active RAM	**reset** Ensures NVS is copied to active RAM

Appendix C: Loading Firmware Using PCPLUS

Before loading firmware it is assumed that the installer is running either "Procomm Plus" for DOS or "Procomm Plus" for Windows 95 at the system workstation. It is further assumed that all of the necessary program options have been set up as described in Appendix C "Backing Up And Restoring NVS" and that the "Allegro" software is not running on the workstation.

Steps	Using PCPLUS in a DOS window	Using PCPLUS with windows interface
Copy firmware to workstation hard drive:	Create a directory on the WS hard drive to hold the new firmware. Give it a meaningful name that includes the version number for example: **E:\FW\xxx**	Create a directory on the WS hard drive to hold the new firmware. Give it a meaningful name that includes the version number for example: **E:\FW\xxx**
Jump to the bootstrap loader	**reset boot** (Bootstrap loader will sign on and display messages)	**reset boot** (Bootstrap loader will sign on and display messages)
Change baud rate to 38400	hit **Alt-P**, select menu item **7**, hit **Esc**	Click baud rate button and select 38400
ready to load	**fload bank 0**	**fload bank 0**
Prepare to upload	**PgUp** (A pop-up window prompts for protocol)	Select "Data" - "Send File"
Select ASCII	**A** (Filename prompt appears)	(ASCII protocol is already selected)
Enter firmware filename	Enter the path and name of the firmware. Hitting ENTER starts upload Pace characters displayed during load and stop when complete	Navigate to the path and firmware file name. Select the "Open" The load begins. Progress is graphically displayed.
Reset	**reset**	**reset**
Change baud rate to 9600	hit **Alt-P**, select menu item **5**, hit **Esc**	Click baud rate button and select 9600

Appendix D: Creating a Human-Readable Copy of all Non-Default NVS Parameters Using PCPLUS

This file is for reference only and should NOT be used for restoring NVS parameters! Note that this file will not contain any "NVS "state variables". The file created during this procedure will conveniently show the installer a "snapshot" of the NVS configuration before the firmware upgrade was begun.

This procedure uses the **nvs dump diff** monitor command. This command creates a file that contains only those configurations that are different from their firmware default values. This file is fairly short since it does not list unchanged default parameters already embedded in the firmware. The **nvs dump** command (i.e., without **diff**) may optionally be used to create an ASCII file containing all of the NVS configuration and calibration parameters. This file is rather long but contains complete configuration information. Only **nvs dump diff** is necessary to capture all necessary information.

NOTE: This procedure should ONLY be used to make a human-readable text file of any NVS parameters that are set to non-default values. This file should NOT be up-loaded back into the recorder!

Steps	Using PCPLUS in a DOS window	Using PCPLUS with windows interface
Open log file	**Alt-F1** Pop-up window prompts for a filename	**Alt-F1** Pop-up window prompts for a filename
Name log file	Enter a path plus a name that includes the firmware version before upgrade e.g. **E:\NVS\xxx.DIF** (where xxx is the version number).	Enter filename (without path or extension) that includes the firmware version before upgrade. e.g. **xxx** (where xxx is the version number). Pcplus will adds ".CAP" extension to this name and uses the previously defined path.
Dump configuration parameters to log file	**nvs dump diff** Data is displayed as it is dumped. When the dump completes this display stops.	**Nvs dump diff** Data is displayed as it is dumped. When the dump completes this display stops.
Close log file	**Alt-F1**	**Alt-F1**
Rename file	Not necessary	Rename the file: **E:\NVS\xxx.CAP** To: **E:NVS\xxx.DIF**

Appendix E: NVS Backup/Restore and Loading Firmware using Service Shell

Terminal Program Setup

For a detailed terminal setup guide please refer to the system documentation under the "Help" menu in Service Shell.

Service Shell is composed of two parts: Service Host and Service Shell Client. The Service Shell is a **client (**Service Shell Client) application that connects to a remote service host **server (**Service Host) to provide access to the CreoScitex devices. Therefore, in order to communicate with the device, you have to ensure that Service Host is running. If the Service Host is started, you should have a "Service Host" icon  in the system tray.

- If you do not have this icon, you need to start Service Host. To do so, select Start menu/Program/CreoScitex Service Shell and click on "Service Host".
- If you do have this icon and it is red, right click on it and select "Start Service".

When the Service Host is running, you can connect to it using the Service Shell Client. To start the Service Shell Client, select Start menu/Program/CreoScitex Service Shell and click on "Service Shell Client". You will then need to enter the name of the server you wish to communicate with. The Server name is simply the name of the machine running Service Host connected to the device you wish to talk to.

To set up the proper baud rate (9600), com port and monitor fonts go to the "File" menu and select "Preferences…". In the preferences window, select the "COM Port – MPE" preference and then click on the "Edit Preferences…" button to make the required changes.

Important!

When the firmware prompts you for a "Y/N" reply or more generally, when the firmware prompts you for a single character reply, as in the example below:

Example:

```
>> fsave all

Begin download and then press 'Y' to continue ('N' to cancel) (Y/N)
```

You should always follow your answer by the <shift enter> combination rather than only the <enter> key. When Service Shell detects the <shift enter> key, it does not append the carriage return character to your answer.

In cases where the <shift enter> combination is specifically required, the following is an example of the output you would get if you were to use the <enter> key only:

```
>> fsave all

Begin download and then press 'Y' to continue ('N' to cancel) (Y/N)
```

```
y
S2258000004E56532056657273696F6E2032000000280000004102200038183040084000302028
Download Aborted!
```

Note: For newer version of firmware (January 2001) both <shift enter> and <enter> keys will be accepted by the firmware.

NVS Backup Procedure: manually cutting and pasting data

We recommend that you minimize the number of diagnostic messages sent to the monitor window when highlighting NVS backup text to copy. To do so, make sure the device is idle and that all verbose fields are set to zero ("set verbose xxx 0"). Although this is not mandatory, it will greatly facilitate the task.

Steps for Backing up NVS:

- In Windows, open notepad through start menu/programs/accessories.
- In the Service Shell Device Monitor press <enter> a few times to ensure you are at the bottom of the monitor screen.
- Set a bookmark (handy feature) by right clicking the mouse in the monitor window. Select a bookmark colour of your choice. The bookmark will make it easy for you to find the beginning of your NVS backup.
- Enter the command "**fsave all**". Once the device has finished outputting the backup data to your monitor screen (approx. 5 min), click on the coloured square on the right, which matches the colour bookmark that you set. This will bring you back to the beginning of the NVS backup.
- Start highlighting with the first line that looks similar to this:

```
S2258000004E56532056657273696F6E203200AAAA55555555555555555555555555555555AABD
```

Use the "Page Down" key or scroll down with the scroll bar on the left until you reach the end of the back up. The end of the backup will either look like this:

```
S9030000FC
END OF NVS MEMORY DUMP - Close log file and hit [Y] (Y/N)
```

Or like this depending how recent the firmware version is. (Firmware version and compile date will vary depending on the version you are using):

```
S9030000FC
Thermal VLF Trendsetter - Master Processor Electronics *
    MPE Firmware Version 1.50
```

```
            Feb 02 2001 11:48:42

END OF NVS MEMORY DUMP - Close log file and hit [Y] (Y/N)
```

- Once you have the entire text highlighted (include version information as well, it will not interfere when loaded back into the device), right click on the highlighted portion and select "Copy to Clipboard".
- Make your notepad window active, right click on that window and choose Paste from the menu. Your notepad should now contain the hex data you copied from Service Shell. Ensure that the file has no blank lines before the hex data starts, otherwise the file will not load properly.

NO BLANK LINES AT THE TOP OF THE FILE!

```
S2258000004E56532056657273696F6E203200AAAA55555555555555555555555555555555AABD
```

- Save the notepad file as serial#nvs.txt. Example: B525nvs.txt

NVS Restore Procedure

Restoring NVS with Service Shell requires that you know the path to the location of your backup file. If you are downloading firmware remotely, the file to be downloaded has to be located on the Server, which is the computer directly connected to the machine.

In the Service Shell Device Monitor enter the command "**fload memory**". After the message "Begin ASCII transfer now" appears in the device monitor window, enter the "**sendfile** pathname\filename" command.

Example:

```
>> fload memory
Loading memory:
      File format     = Motorola S-Record
      Pace character  = `~' (ASCII value 126)
      Begin ASCII transfer now ...
sendfile c:\temp\B525nvs.txt
```

Service Shell will then proceed to upload the NVS backup file. A progress bar will be displayed at the bottom. You may close the download progress window, after the download is completed, by clicking on the ✕ at the bottom right corner.

Please Note:

1) If you forget to enter the "**fload memory**" command before issuing the **sendfile** command the following will be displayed:

```
sendfile c:\temp\B525nvs.txt
>> S2258000004E56532056657273696F6E203200000028000000410220003818304008400030202 8
m                                                    ^m Invalid command
>> S225800021002220000000084000000800040840040048000800280000200030000218800400F1
m                                                    ^m Invalid command
>> S225800042800020001104282000004024081010006420800420200008105404080020200404 87
m                                                    ^m Invalid command
>> S225800063022020
<MPE> Can't send data chunk at offset=0x00000000
m              ^m Invalid command
```

2) Downloading from a mapped drive may not work depending on the version of Service Shell you are using. If you get the error shown below using a mapped drive and you are positive you mapped the drive correctly, copy the file to the local server drive. Retype the **sendfile** command with the corrected path name and press enter.

Error you may get using a map drive:

```
<ERROR> Cannot find firmware file
```

Loading Firmware

Loading firmware with Service Shell requires that you know the path to the location of your firmware file. If you are downloading firmware remotely, the file to be downloaded has to be located on the Server, which is the computer directly connected to the machine.

To download firmware, use the following command: "**download** pathname\filename"

Example:

```
download d:\temp\tvts_150.hex
```

Service Shell will then proceed to download the firmware file. A progress bar will be displayed at the bottom. You may close the download progress window, after the download is completed, by clicking on the ✕ at the bottom right corner.

If you are upgrading firmware you must enter the **nvs upgrade** command. To use the command correctly you must know the version you are upgrading from.

Example:

If someone was to upgrade from version 2.5 to 3.0 he or she would enter:

```
nvs upgrade 2.5
```

After the firmware version 3.0 was loaded.

Firmware download filename accepted by Service Shell:

It is important when downloading firmware through Service Shell using the **download** command to use the official ".hex" filename. Service Shell detects the kind of download it has to perform based on the filename. Therefore, if you enter a filename that is not recognized by Service Shell, the download will not proceed. For MPE based machine, the name convention is:

Format: UUUU_xxx.hex,

UUUU - the four letter machine identifier

xxx - the firmware version.

Example: TTSB_250.hex

Aborted Download

When initiating downloading the current firmware is first erased off the MPE before the new firmware is loaded. If the firmware load is interrupted by a corrupt file or is manually aborted during the loading process, all that will remain is boot code. No prompt will appear because the MPE is now running boot code, which is set at a different baud rate (38400 bps). The normal diagnostic baud rate is set at 9600 bps. Even though no prompt shows up, do not be alarmed. The **download** command will still work and the firmware download can be restarted. Therefore, if this happens, reenter the **download** command. (Note: the up arrow brings back previously entered command!)

Download command: "**download** pathname\filename"

Please Note:

Downloading from a mapped drive may or may not work depending on the version of service shell you are using. If you get the following error using a mapped drive <ERROR> Cannot find firmware file and you are positive you mapped the file correctly. Copy the file to the local server drive. Retype the **download** command with the corrected path name and press enter.

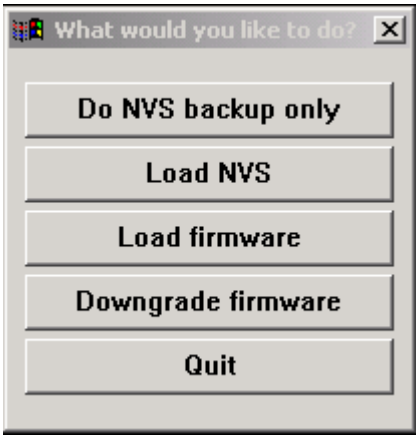
Appendix F: "FirmwareUpgrade_MPE.spt": A Useful Service Shell Script available in Service Shell version 2.3

The firmware upgrade script, **FirmwareUpgrade_MPE.spt**, can be found by, left clicking on the script icon then left clicking on the "device" group.

To execute the script highlight the FirmwareUpgrade_MPE script by left clicking on it.

In the same column at the bottom, left click on the Run button. This will execute the script.

The script will prompt you with four choices:



When running either the "Do NVS backup only", "Load Firmware" or the "Downgrade firmware" option the script will do two things: 1) generate a folder or folders for backup files and 2) generate backup files for the user. Here are some details about the folders and files generated by the script:

The folder or folders generated by this script follow the format below:

Format: UUUUSNssssTTTTFWxxx

UUUU - four letter machine identifier

SN - denotes serial number

ssss - device serial number located under "set sys sn" or "set config serial"

TTTT - file type generated (nvs, dump, upgradelog)

FW - denotes firmware

xxx - current firmware version when the file was generated.

Example: TVTSSN0525FW250

The files generated by this script follow the format below:

Format: UUUUssssTTTTxxxTHyyy.fmw

UUUU - four letter machine identifier

ssss - device serial number located under “set sys sn” or “set config serial”

TTTT - file type generated (nvs, dump, upgradelog)

xxx - current firmware version when the file was generated.

yyy - current head firmware version when the file was generated.

Example: TVTS0525dump250TH180.fmw

The script will generate the same filenames when executed more than once with the same firmware version. To prevent the overwriting of files, the script will keep up to 10 of the same filenames before it begins to overwrite files. When a duplicate file is found the extension is changed from .fmw to .fm0 and will increment .fm1, .fm2, .fm3… until it reaches .fm9. After .fm9 is reached the script will start back at .fm0 again. The most recent file always has .fmw extension.

Script path name retention:

The script generates a file to keep a copy of the previous paths of the files loaded and generated, to aid the user. The next time the script is executed it will use the same paths and file names that were used the last time the script was run. The paths are kept in a file loadfmwMPE.txt under ServiceShell\bin.

Special cases and error reporting:

Important!

If your firmware or NVS download is aborted (while running the script), the only way to recover is to manually download firmware or NVS. The script will not work properly if the download was aborted. Please refer to *Loading Firmware* or *NVS Restore Procedures* section below for further instructions.

Older versions of firmware may not recognize commands or may not follow the correct format. In these cases default settings will be used:

ZZZZ - for the four letter machine identifier

0.00 - for the firmware version

0.0 - for the head firmware version

Here is an example of a message the script will output:

WARNING: Timeout waiting for head version, to display head firmware version number. Assigning 0.00 to the files head version number

No Firmware Version Available

In the case where no firmware version is found in a firmware upgrade, the script will prompt the user to issue a NVS upgrade manually. It is then up the user to determine from what firmware version to upgrade from.

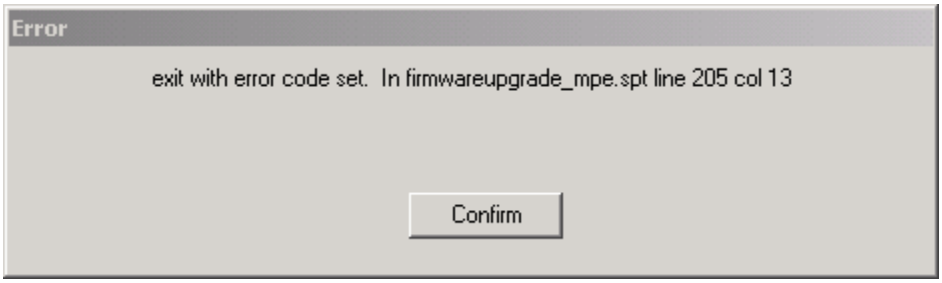
Aborting a script

If the script has an error or a user aborts it, the script will bring up a dialogue box:



Errors generated by the script

If the user aborts the script with the abort button only the above dialogue box will be displayed. If the script itself generated the error, the service shell window will change to: < Script > and the following dialogue box will be displayed.



This box gives the location of where the script exited or aborted. This is a current behavior of the splot service shell interface and may not be informative for the average user. It is best to close this dialogue box similar to one above and use the window selection bar to switch from the script window < Script > to the output window < Output >. For every error generated by the script there is an error displayed in the output window and in the device monitor window.

Switching to the output window should prove to be more useful for the average user rather than deciphering splot code, which is what is displayed in the < Script > window.

Commands from script not reaching terminal window

If you get the following error:

```
Check the terminal window to see if you are connected to the device.
(Hit Enter and check for >> prompt.)
Also check that commands from the script are reaching the terminal window.
```

If you are in fact connected to the device and the >> prompt is showing up, but you are still getting this same error. You should restart Service Shell Client and try running the script again.

Path name format in the device monitor (terminal window)

Path names are reformatted in the device monitor.

Example:

d:\firmware\tvts_150.hex

will appear in the log as:

;d:|firmware|tvts_150.hex

The '\' is exchanged with '|' because firmware uses a '\' or '/' to repeat the last command

The semicolon is included in the string so the firmware treats the text as a comment and not a command. This is done for any comment sent from the script to the device.

Running the script remotely

Running this script remotely is not supported. If you want to get around this you will have to do the following:

The HOST and REMOTE computer must have exactly the same directory structure. Example:

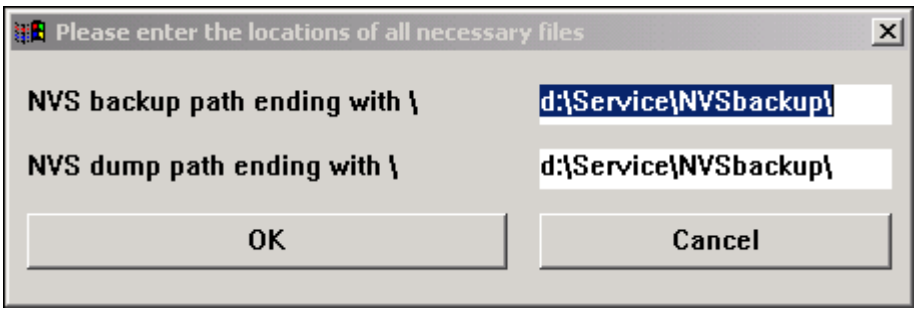
HOST: \\SN023\Ddrive\Firmware\tvts_150.hex
REMOTE: \\SN002\Ddrive\Firmware\tvts_150.hex

The REMOTE computer running the script only checks for files to be uploaded/downloaded on the REMOTE computer.

If you enter a different directory structure between the HOST and REMOTE computer, the script will fail on the download command sent to the device. The HOST will not find the file.

Do NVS backup only

The “Do NVS backup only” option generates a NVS backup file and a NVS dump file. The default paths for this option are displayed below:



Important!

If you modify the path ensure that you include a '\' at the end of the path.

The script is looking only for the locations where it should generate a folder or folders and files. Do not include a file name in the path name.

Here is an example of the folder or folders that will be generated under the path or paths specified by the user:

TVTSSN0245FW150

Here is an example of the files generated after this option is executed:

TVTS0245nvs150TH180.fmw

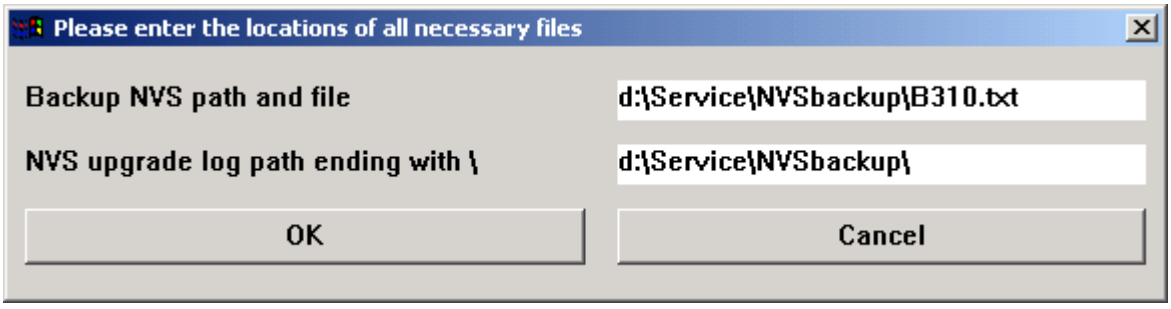
TVTS0245dump150TH180.fmw

A "Script Finished" button will appear when the script is complete.

Load NVS

The "Load NVS" option is used to load NVS.

The default paths for this option are displayed below:



Be sure to include the NVS backup filename in the path like in the example above.

NVS backup file can be altered, but it is recommended to use the same ones as generated by the script.

The script is looking only for the location where it should generate a folder and file for the NVS upgrade log. The NVS upgrade log may or may not happen, (more details below). Do not include a file name in the path name.

Here is an example of the folder that will be generated under the path specified by the user:

TVTSSN0618FW130

Here is an example of the file that may be generated after this option is executed:

TVTS0618upgradelog130.fmw

A NVS upgrade may be issued after the NVS is loaded, depending on the version of firmware the NVS fsave all file was created with.

If you loaded NVS onto a version of firmware that does not have the "set config ver" NVS parameter the script will complete and a "Script Finished" button will appear.

If you loaded NVS onto a version of firmware that does have the "set config ver" NVS parameter, and you loaded NVS that was created with an older version of firmware that had the "set config ver" NVS parameter. The script will output the message:

Upgrading NVS

A NVS upgrade log file will be created. A "Script Finished" button will appear when the script is complete.

If you loaded NVS onto a version of firmware that does have the "set config ver" NVS parameter, and you loaded NVS that was created with that same version of firmware. The script will output the message:

No need to upgrade NVS. The version of firmware that the NVS file was created with is the same as the current firmware version.

A "Script Finished" button will appear when the script is complete.

If you loaded NVS onto a version of firmware that does have the "set config ver" NVS parameter, and you loaded NVS that was created with a version of firmware that does not contain "set config ver". The script will output the message:

You loaded a NVS file that was created from a version of older firmware that did not have NVS versioning in it.

Please issue a manual "NVS upgrade x.xx" to make "set config ver" non zero.

x.xx is the version of firmware that the NVS was created with.

A dialogue box will also appear to warn the user.

If you loaded NVS onto a version of firmware that does have the "set config ver" NVS parameter, and you loaded NVS that was created with a version of firmware newer than the one you loaded. The script will output the message:

You loaded a NVS file that was created from a version of firmware that is more recent than the firmware version you just downgraded to.

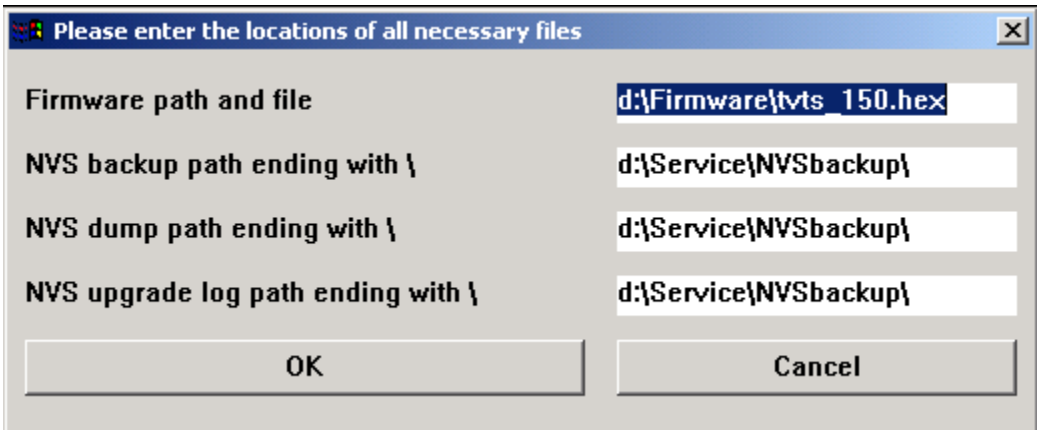
WARNING: THIS IS NOT RECOMMENDED!

A “Script did not complete!!!!!” dialogue box will appear. This is to make it clear to the user that the NVS loaded is not compatible with the version of firmware presently on the device.

Load Firmware

The “Load firmware” option generates a NVS backup file, and a NVS dump file, loads firmware and finally generates a NVS upgrade file.

The default paths for this option are displayed below:



Be sure to include the firmware filename in the path like in the example above.

It is also important when downloading firmware through Service Shell to use the official “.hex” filename. Service Shell detects the kind of download it has to perform based on the filename. Therefore, if you enter a filename that is not recognized by Service Shell, the download will not proceed. For MPE based machine, the name convention is:

Format: UUUU_xxx.hex

UUUU - the four letter machine identifier

xxx - the firmware version.

Example: TTSB_250.hex

If you modify the path for NVS files, ensure that you include a ‘\’ at the end of the path. The script is looking only for the locations to generate the files. The script does not require a file name. The script will generate the file name automatically. Do not include a file name in the path name.

Here is an example of the files generated after this option is executed:

TVTS0245nvs150.fmw

TVTS0245dump150.fmw

TVTS0245upgradelog150.fmw

A “Script Finished” button will appear when the script is complete.

Downgrade firmware

The “Downgrade firmware” option is used to revert back to an older version of firmware. The option, loads firmware and then loads a NVS backup file (specified by the user).

The default paths for this option are displayed below:



Be sure to include the firmware filename in the path like in the example above.

It is also important when downloading firmware through Service Shell to use the official “.hex” filename. Service Shell detects the kind of download it has to perform based on the filename. Therefore, if you enter a filename that is not recognized by Service Shell, the download will not proceed. For MPE based machine, the name convention is:

Format: UUUU_xxx.hex

UUUU - the four letter machine identifier

xxx - the firmware version.

Example: TTSB_250.hex

Be sure to include the NVS backup filename in the path like in the example above.

NVS backup file can be altered, but it is recommend to use the same ones as generated by the script.

The script is looking only for the location where it should generate a folder and file for the NVS upgrade log. The NVS upgrade log may or may not happen, (more details below). Do not include a file name in the path name.

Here is an example of the folder that will be generated under the path specified by the user:

TVTSSN0618FW130

Here is an example of the file that may be generated after this option is executed:

TVTS0618upgradelog130.fmw

A NVS upgrade may be issued after the NVS is loaded, depending on the version of firmware downgraded to and the version of firmware the NVS fsave all file was created with.

If you downgrade to a version of firmware that does not have the "set config ver" NVS parameter the script will complete and a "Script Finished" button will appear.

If you downgrade to a version of firmware that does have the "set config ver" NVS parameter, and you loaded NVS that was created with an older version of firmware that had the "set config ver" NVS parameter. The script will output the message:

Upgrading NVS

A NVS upgrade log file will be created. A "Script Finished" button will appear when the script is complete.

If you downgrade to a version of firmware that does have the "set config ver" NVS parameter, and you loaded NVS that was created with that same version of firmware. The script will output the message:

No need to upgrade NVS. The version of firmware that the NVS file was created with is the same as the current firmware version.

A "Script Finished" button will appear when the script is complete.

If you downgrade to a version of firmware that does have the "set config ver" NVS parameter, and you loaded NVS that was created with a version of firmware that does not contain "set config ver". The script will output the message:

You loaded a NVS file that was created from a version of older firmware that did not have NVS versioning in it.

Please issue a manual "NVS upgrade x.xx" to make "set config ver" non zero.

x.xx is the version of firmware that the NVS was created with.

A dialogue box will also appear to warn the user.

If you downgrade to a version of firmware that does have the "set config ver" NVS parameter, and you loaded NVS that was created with a version of firmware newer than the one you loaded. The script will output the message:

You loaded a NVS file that was created from a version of firmware that is more recent than the firmware version you just downgraded to.

WARNING: THIS IS NOT RECOMMENDED!

A “Script did not complete!!!!!” dialog box will appear. This is to make it clear to the user that the NVS loaded is not compatible with the version of firmware the user downgraded to.