Trendsetter News
MCE Firmware Version 1.42 Release Notes

Trendsetter News SA
Trendsetter News 50 / 50C
Trendsetter News 70 / 70C
Trendsetter News 100 / 100C
Trendsetter News 150
Trendsetter News 200 / 200C

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1. SCOPE

This document contains information you need to know to use release 1.42 of the MCE Trendsetter News firmware. The devices supported include:

Trendsetter News SA
Trendsetter News 50 / 50C
Trendsetter News 70 / 70C
Trendsetter News 100 / 100C
Trendsetter News 150
Trendsetter News 200 / 200C

Sections include New Features, Bugs Fixed since the last release 1.30.60, Known Bugs, Device Configuration and Device Calibration. The intended audience is test engineers and service personnel.

Please refer to the TechPlanet firmware documentation pages or the Creo Service CD-ROM for information on commands, error messages, and NVS parameters for the Trendsetter MCE.

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. UPGRADE PROCEDURE

VERY Important Note 1!

This firmware uses FEATURE LICENSING. You will not be able to downgrade to firmware that does not use feature licensing.

Do not upgrade if you do not have a proper license and dongle for the device being upgraded.

It is recommended that you upgrade to CR4.1 before upgrading to CR5.x.

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

1. This step must be performed before upgrading the firmware:

Important Note 2!

You must upgrade ServiceShell before upgrading firmware.
Use the new FirmwareUpgrade script to upgrade all the firmware.

Service Shell should always be upgraded before upgrading firmware. The new upgrade scripts often include special procedures that are required for properly installing the new versions of firmware.

If upgrading any firmware component onto an MCE that uses BOOT v1.09 or earlier, it is critical that the new BOOT module be downloaded *before* any other new firmware module, including main firmware, POST, Xilinx, etc. For example, if you download new main firmware onto an MCE with BOOT v1.09, the new main firmware will fail to run. To recover from this, you will have to download the previous version of whatever module(s) you have downloaded and then proceed by downloading the new BOOT. For this reason, it is highly recommended to use the new Firmware Upgrade script whenever you need to download new firmware to the MCE.

2. For the rest of the Upgrade Procedure, please see the detailed upgrade document *FirmwareUpgrade.pdf*. This document can be opened from the script view in ServiceShell by right-clicking on the Firmware Upgrade script, and clicking Help for selected script. Then click the link to the PDF file:



The *FirmwareUpgrade.pdf* file can also be found in the d:\ServiceShell\Scripts\device folder on the workstation.

3. Make the following hardware change for all devices:

Important Note 3!

If the dongle is present on J37, it must be removed. The serial communication cable on the MCE board at J40 must be moved to J37.

This firmware/hardware change fixes a problem with communications errors that may be encountered when using UDRC-L debris removal cabinets. Port J40 is un-buffered whereas port J37 is buffered. The un-buffered J40 port in some cases introduced enough transmission errors to cause communication with UDRC-L cabinets to fail.

The dongle at J37 must be removed for ALL devices. These changes should be made regardless of whether a UDRC-L cabinet is being used or not.

This change was introduced for News devices in firmware version 1.30 and Xilinx 1.94.

4. This must be checked if the device uses a UDRC-L debris removal cabinet:

Important Note 4!

You MUST ensure that the "*media <number> emissionsintensity*" parameter is set correctly for all media.

You MUST also ensure that the "*media <number>* debrisoptions" parameter is set correctly (4 or 5 for PACC) for all hazardous media.

The pixel counting logic in both the MCE main firmware 1.18.11 and the Xilinx firmware 1.94 has been fixed. The pixel counting bugs present in previous versions of MCE and Xilinx firmware usually caused the filter to expire sooner than required, and as a consequence some devices have had their "*media <number> emissionsintensity*" parameter reduced below the specified value in order to compensate for this bug. Some devices may have also had their "*media <number> debrisoptions*" parameter changed from using UDRC-L.

Now that this bug is fixed, **these parameters must be checked and returned to the values specified for each media**. This ensures that the filter life is depleted at the appropriate rate. See the corresponding Media Technical Note on TechPlanet for appropriate values for these parameters.

This change was introduced for News devices in firmware version 1.30 and Xilinx 1.94.

4. NEW FEATURES AND CHANGES

4.1 NVS Changes

The following table details new and changed NVS parameters in this release.

NVS System	Param Name	Old Default	New Default	Description	Refer to Section
gc	**StrokeShear**	--	False	This key enables or disables stroke shearing, which is an alternate method for correcting for plate rotation. This method works better for certain types of screening than the conventional method if the plate rotation is large.	
gc	**LinkCoefficient**	--	23.100	Indicates the coefficient of linear thermal expansion for the link. The default valueis for aluminum (23.100). It was provided as a parameter in case of a future link change to steel (12.400) or it can be turned off by setting the value to 0.0. If this is disabled, or incorrectly configured an unexpected gap or overlap may show up on dual-headed stitched plots.	
gc	**SubpixelComp**	--	True	Used to enable or disable subpixel compensation for stitching media. This is defaulted to TRUE, and only affects dual-headed devices when imaging using both heads on a single piece of media. If this is set to FALSE it may result in an unexpected gap or overlap at the stitch line. If this is set to TRUE the scale of the image maybe changed in order to compensate for any subpixel compensation.	

4.2 Increase In Throughput Specification

Applies to:
⇨ All Trendsetter News

The throughput specs for all News devices have been increased with this release. Please see the specifications documents on TechPlanet for the new throughputs.

For all News devices, the maximum drum speed has been increased. To determine if each media being used can take advantage of the increased drum speed, please refer to the Media Imaging Performance Database spreadsheet on TechPlanet.

4.3 New Focus High SR Mode for Focus Sensitive Media

Applies to:
⇨ All Trendsetter News

A new focus laser mode has been added in this release of firmware that will help prevent focus laser spot artifacts from being created by TH2 heads on sensitive media. This new mode can be enabled for the specific media that is sensitive to the focus laser by using the command:

set media *x* flags 2

The new mode will put the focus laser into a high SR mode that will increase the dwell time required before causing a focus spot. It will also cause the carriage to move the head off the media after edge detection is complete. There may be a slight reduction in throughput when using this mode (less than 0.5 seconds per cycle).

NOTE: The high SR mode should only be enabled when specified by the media's Media Technical Note.

4.4 Feature Licensing

Applies to:
⇨ All Trendsetter News

NOTE: Because of feature licensing, you will not be able to downgrade this firmware to a version of firmware that does not use feature licensing.

This release supports Creo Feature Licensing (CFL) for all Trendsetter News devices. There are several components which are required in order to use this release correctly:

1) Creo License Manager
2) Customer dongle
3) License generated using the customer dongle

The firmware is now licensed and configured by communicating with the Creo License Manager on the workstation, and it must maintain this connection in order to retain its licensing status. Anytime the device is powered on, the firmware automatically attempts to make a connection with the Creo License Manager. Once it makes a connection, it then attempts to get a license for

the device. Upon successful retrieval of a license, the device will be considered licensed and will have all the features that it has been licensed for.

If at anytime the connection between the firmware and the Creo License Manager is broken, the firmware will lose its license status. Unlicensed devices will allow basic functionality, such as loading media and imaging diagnostics plots. However they will not allow the device to complete a flush, or image any workstation jobs.

The license provides all the device limits and configurations; it gives the device an identity. Every time the firmware retrieves a license from the Creo License Manager it stores the last licensed values in NVS. This is so the firmware can retain some idea of its identity even while unlicensed. A device that has not yet been licensed at least once will use default licensing values that are a bare minimum for the device.

To see the current licensing status of the device, and the current licensed limits, use the **license** command.

The **license** command will also display any errors that might have occurred while attempting to retrieve a license and it should be the primary command for any license troubleshooting.

Since the firmware now retrieves its limits and configurations from the license, the commands **config** and **feature** are no longer available. They no longer have a use in feature license firmware.

4.4.1 Feature Licensing and Options

The **option** command now operates slightly differently than in previous releases because of feature licensing. Previously the **option** command would display only options relevant to the particular configuration. This has been removed, and now all options will be displayed regardless of the current configuration.

Also, some options will now require a license in order be enabled. The **option** command displays which options need a license, and which options are licensed:

```
NEWS>> option
Available Options
-----------------
        Autoloader option is enabled    <licensed>
         Dual-head option is enabled    <licensed>
        Dual-plate option is enabled
        Film-guide option is disabled
     Unload-offset option is disabled
    Separator-arms option is disabled
ProcessorInterface option is disabled   <licensed - currently disabled>
         Preloader option is enabled    <licensed>
         No-buzzer option is disabled
      Debris UDRCB option is disabled
      Debris UDRCL option is disabled
          Dual-bay option is enabled
  Large-Dual-plate option is disabled
 Single-broadsheet option is enabled
      News-rotator option is disabled
Unavailable Options
-------------------
    ContinuousLoad option is disabled   <requires license>
```

```
          Spectrum option is disabled   <not allowed in this configuration>
           Rotator option is disabled   <requires license>
    Media_manager option is disabled   <not allowed in this configuration>
              VMR option is disabled   <requires license>
```

Make sure to only enable the options that are relevant to the device, many options relate specifically to hardware, and enabling the wrong option may have negative consequences.

4.4.2 Feature Licensing and Simulators

The firmware simulator included in this release also supports feature licensing and will communicate to the Creo License Manager depending on the command line options used when the simulator is executed:

-license=auto Causes the system to attempt a real feature licensing connection
-license=none System will NOT be licensed
-license=<filename> System is licensed using the feature data contained in the specified file.

If the -license option is not present on the command line, the system will use the values stored in NVS (from the last time it was licensed) and will pretend to be licensed.

For example:

```
D:CR5.0>3244FMWflpSIM142.EXE -license=auto
```

4.5 Single Broadsheet Picking

Applies to:
⇨ All Trendsetter News(except News SA)

This release supports the single broadsheet picking option for all News devices equipped with the dual vacuum picker head. To determine if the new split vacuum picker is installed, the picker head can be visually inspected.

Use the **option** command to enable this option, followed by **reset**:

```
NEWS>> option single-broadsheet enable
Single-Broadsheet option enabled successfully
*** The machine must be reset for the changes to take effect ***
*** Command Complete
```

With the single-broadsheet option enabled, a new command is added to the picker command, **picker vac_away <on|off>** to control the away side picker vacuum. The **picker vac <on|off>** command will only control the home side picker vacuum.

```
picker vac_away <on|off>         Turn picker vacuum on or off
  <on|off>
picker vac_away <on|off> [w]     ..and wait for valid reading
  <on|off>
```

Additionally, when the single-broadsheet option is enabled the output of the **picker** command (used to display picker status) is modified to show the vac reading of both home and away side:

```
NEWS>> picker
Task     Initialized Sim mode State        Abort Fault   Step mode Aborted
-------------------------------------------------------------------------
picker   True        Disabled Idle         0             Disabled  False

Picker Up Sensor:           Unblocked
Picker Down Sensor:         Blocked
Wrist Out Sensor:           Unblocked

Plate Cover Closed Sensor:  Unblocked
Plate Stack Sensor (home):  Blocked
Plate Stack Sensor (away):  Blocked

Vacuum (home):          Off
Vacuum (away):          Off

Vacuum Pressure (home):    236 counts
Vacuum Pressure (away):    234 counts
Vacuum (home) threshold: low
Vacuum (away) threshold: low
```

4.6 Display Conversion with the “scan” Command

Applies to:
⇨ All Trendsetter News

The firmware will now display metric conversions of selected analog values using the **scan groups** command.

```
NEWS>> scan groups
Group Name            Status Value     Converted

DI_Group0                    00000080h
DI_Group1                    00000080h
DI_Group2                    00000000h
DI_Group3                    00001872h
DI_Group4                    00008400h
DO_Group0                    00000000h
DO_Group1                    00000006h
DO_Group2                    00008020h
AI_BallScrewTemp           b 00000000h
AI_EngineTemp              b 00000000h
AI_MainBoardTemp           b 00000000h
AI_SystemPressure          b 0000036Eh 638.931  kPa
...
```

5. BUGS FIXED

The following bugs have been fixed in this release of the firmware.

5.1 PRS 6207 - Losing communication with a SAT board causes the MCE to grind once communication is reestablished

Applies to:
⇨ All Trendsetter News

This only occurred in situations where a satellite (SAT) board was accidentally reset, not a common occurrence. The MCE will eventually recover on its own, but for a few minutes after the reset the MCE firmware would struggle handling any commands.

5.2 PRS 7414 - MCE simulators should not use port 5000 for TCP/IP connections

Applies to:
⇨ All Trendsetter News

Port 5000 is used by some Windows OSes and the simulator would conflict with them. The default port has been changed to 9876, but the user can override this by include “-port=xxxx” when running the simulator.

5.3 PRS 7555 - Inconsistent suspend message on door safety loop opened

Applies to:
⇨ All Trendsetter News

Because of the manner of how the safety loop reports to the MCE board, it is possible that due to timing different errors would be displayed for the same cause. This has been resolved.

5.4 PRS 7996 - Should 'loaded force' reset the current load args?

Applies to:
⇨ All Trendsetter News

Loaded force will now reset all the current **load arg** so that the next load will automatically be updated. It will not affect any loads currently in progress.

5.5 PRS 8114 - Parameterized error table fills up and results in nonsensical error

Applies to:
⇨ All Trendsetter News

This was very a rare occurrence. It would result in the wrong error being displayed if the firmware was suspended with a parameterized error for long period of time while other parameterized errors were still being generated.

5.6 PRS 8318 - Aborting while loading can cause the scheduler to lockup

Applies to:
⇨ All Trendsetter News (except NewsSA)

This would only affect devices that have more than one media handler task. If two images were queued up on the device, with the first media was being imaged and the second was waiting to be loaded on the drum, it would be possible that an abort could lock up the entire system. This was rare.

5.7 PRS 8743 - 'drum stop' can produce unexpected oscillations if first command after reset (safety loop break)

Applies to:
⇨ All Trendsetter News

After a reset or the safety loop is broken, if a ‘drum stop’ is the first drum command issued then it was possible for the drum to begin oscillating around a small range. This has been fixed.

5.8 PRS 8827 - 'Media' command can cause the monitor to deadlock a debug verbosity

Applies to:
⇨ All Trendsetter News

The **media** command was blocking the monitor output when at debug verbosity, causing a deadlock. This has been fixed.

6. KNOWN BUGS

This section lists the known problems that have not been fixed for this release of the firmware. Where possible, workarounds to the problems are described. More information can be obtained by examining each problem report listed below in the problem report system at http://ccaapplications.creo.com/teamapps/output/reportingsystem/ODRS/.

6.1 PRS 6489: Add readable diagnostic messages for DCAPI and TPA commands

6.2 PRS 6605: No suspend prompt on TPA jobs if error occurred while plotting

6.3 PRS 6632: Plate too small on load, creates havoc

6.4 PRS 7725: Preempted suspend condition causes problem with carrier verification

6.5 PRS 8101: Firmware crash on 'nu_queue_full' during cycle test

7. DEVICE CONFIGURATION PROCEDURES

7.1 Configuring the Device Model

Applies to:
⇨ All Trendsetter News

The **config** and **feature** commands are no longer available. All configurations and feature management must be done using a license and Creo License Manager.

7.2 Enabling Options

Applies to:
⇨ All Trendsetter News

Options have changed in this release. Options are no longer display to the specific model of device, all available options will be displayed when using the **option** command. However some options will now indicate that they are either "licensed" or "requires license" in order to be enabled.

Use the **option** command to list all options, and enable/disable options applicable to the model. Ideally, all required NVS parameters would be configured automatically when the model is configured. This has not yet been done, in part because a single model can have different options that change its characteristics. The following list defines what settings must be verified when a model or feature is changed (do **access dev** first to gain access to commands):

- **option autoloader enable** enable for all News configurations (except SA)
- **option dual-plate enable** enable for all News configurations
- **option rotator enable** enable if rotator is installed
- **option news-rotator enable** enable if rotator is installed
- **option dual-head enable** enable for News 200/200C
- **option dual-bay enable** enable if dualbay hardware is installed
- **option single-broadsheet enable** enable if single broadsheet picker is installed
- **option debris udrcb enable** if UDRC-B is installed
- **option debris udrcl enable** if UDRC-L is installed

After using this command, reset the machine then use the **option** command on its own to verify that the options were set correctly.

8. DEVICE CALIBRATION PROCEDURES

If the firmware is being loaded into a new machine or the NVS parameters have been erased without making a backup, then the following NVS parameters must be calibrated:

8.1 Setting the Plate Measuring Sensor Offset

Applies to:
⇨ All Trendsetter News

The *mh DistSensorToLEC* parameter specifies the nominal distance between the Leading Edge Clamps (LEC) and the optical plate measuring sensor on the load ramp. This parameter is used by the firmware to measure the main-scan size of plates as they are being wound onto the drum. On an Autoloader, to calibrate this parameter, place a stack of plates of a known size into the bay, load the correct plate size information from the workstation, and verify that the media mainscan size is correct by entering the **bay 1** command from the diagnostic terminal.

Type **load calibrate** through diagnostics. This will cause a plate to be loaded using the default load method. The plate size will be measured and the *mh DistSensorToLEC* parameter will be calibrated as the plate is wound onto the drum. The new value is automatically updated and saved.

On an Autoloader, to override the default load method and perform a calibration using the automatic load method, issue the **load bay 1 calibrate** command. To force a calibration with the manual load method, use **load manual calibrate** command.

8.2 Calibrating the Unload Table Cup Rotate Position

Applies to:
⇨ All Trendsetter News (except News SA)

The *mhauto UtRotatorPos* parameter specifies the nominal position for the unload table traveler to move to before rotating the unload vacuum cups. The firmware moves the traveler to this position and checks the rotate position sensor before attempting to rotate the cups. If the sensor is not tripped, then the traveler is moved slowly towards the away end of the table until the sensor is tripped or the firmware gives up and suspends.

Calibrate this parameter with the unload table in the down position (use the **table down** command). Move the traveler home by typing **table home**. Then type **table move rotate**. This command will move the traveler to the position specified by *mhauto UtRotatorPos*. The center of the optical interrupter tab on the traveler should be 1-2 millimeters towards the home side of the rotate position sensor, and the sensor should be tripped (check the sensor using the **table** command). Adjust the position by changing the *mhauto UtRotatorPos* parameter and re-typing **table move rotate**. The new value is automatically saved when it is changed.

On machines with short unload tables (most Trendsetter 400 and NEWS machines), the *mhauto UtRotatorPos* parameter should be set to 500 to make sure the traveler stops in the correct place when it is dragging a plate along the unload table.

8.3 Enabling Plate Rotation

Applies to:
⇨ All Trendsetter News (except News SA)

The rotator is enabled in firmware by typing **access expert** then **option rotator enable**. Plate rotation is controlled from Print Console. If the rotator option is enabled, then a "Rotate Plate" checkbox will show up in the Media Size settings in Print Console. If this box is checked, Print Console will tell the Trendsetter to rotate the plate during unload.

Without Print Console, rotation can be tested by typing:

- **load bay 1 r 1** to load a plate from the bay and tell it to rotate on unload, or
- **unload r 1** to unload the plate on the drum and tell it to rotate.

8.4 Adjusting Eject Speed and Distance

Applies to:
⇨ All Trendsetter News (except News SA)

8.4.1 Eject distance

The plate will be pushed towards the processor at fast speed, then slowed down to match the processor intake speed.

The *exit FastDistance* parameter determines when the traveler slows down. This parameter should be set to the distance (in mm) from the traveler home position to the position of the far end of plate when the speed changes. To adjust this distance, enter **set exit fastdistance <nn>** where <nn> is the new value in millimeters.

To adjust the distance that the plate moves at slow speed, enter **set exit slowpush <nn>** where <nn> is the new distance value in millimeters.

The new values will be saved automatically when they are changed.

8.4.2 Eject speed

Enter **set exit velocity** to see the current slow speed setting.

Use the **table move <position> <velocity>** command to test different speeds and determine the best speed. Enter **set exit velocity <nn>** where <nn> is the new speed setting. The new value will automatically be saved.

APPENDIX A: COMMON ACRONYMS

AL	Autoloader
BBR	Boot-block Recovery
CFL	Creo Feature Licensing
CL	Continuous Load
CR	Controlled Release
CTP	Computer to Plate (this includes Trendsetters and Platesetters)
GENINE	Generic I/O Node Electronics Board
kPa	kilopascals
LIONEL	Little I/O Node Electronics Board
MCE	Master Control Electronics
NEWS	Trendsetter NEWS
NVS	Non-Volatile-Storage (Flash or BBRAM)
PC	Print Console
PDB	Power Distribution Board
POST	Power-On Self Test
SAT	Satellite Electronics Board (PDB, GENINE, LIONEL, Slave MCE)
SP	Trendsetter Spectrum
TH1.7x	Thermal 1.7x Head
TH2	Thermal 2 Head
TPA	Test Plot Applet
TS	Trendsetter – base model
TSAL	Trendsetter Autoloader
WS	Workstation
UDRC	Universal Debris Removal Cabinet

APPENDIX B: NVS BACKUP/RESTORE AND LOADING FIRMWARE

Service Shell is required to load new firmware, and to backup or restore NVS parameters. A script has been written to simplify these tasks.

As part of the Service Shell install, a script named **FirmwareUpgrade.spt** is copied to the Device scripts folder. A document describing how to configure Service Shell and how to use the script is also included in the **d:\ServiceShell\scripts\device** folder. Service Shell is installed on every workstation before it leaves the factory, so this document will be present on every workstation.

Inside Service Shell, left-click on the Scripts icon, then left-click on the Device group. Double-click on FirmwareUpgrade.spt to start the script. It is very important to use this script for the upgrade to make sure a full NVS backup is performed. Furthermore, depending on which firmware is being upgraded, this release of firmware may require a new BOOT module to be installed on the MCE, and requires the POST, Xilinx and OVWR modules to be re-installed. **If the new BOOT module is not installed before the new firmware is, the new firmware will not execute!** The upgrade script will take care of this for you, so it is important that you use it.

RAM vs. FLASH Parameters in MCE Machines

There are two separate types of NVS parameters that are accessed by the MCE firmware. Most parameters are stored in BBRAM (Battery Backup RAM). A few parameters that are not expected to be changed frequently are stored in Flash. Both sets of parameters must be backed up to fully capture the state of the machine; and both sets of parameters must be loaded onto a new board to restore the machine to its previous state. The FirmwareUpgrade.spt script automatically creates two separate files, one for each type of NVS, and expects both files when restoring parameters.

NVS parameters in general provide the following:

- Storage for machine-dependent 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.

All parameters are saved immediately as soon as they are changed.

When firmware is upgraded on a device, any new parameters will automatically be set to their default value. If a more complicated upgrade procedure is required, a script will be created to perform this upgrade, and this script will be released with the firmware.

IMPORTANT: BEFORE UPGRADING THE FIRMWARE OF ANY MACHINE YOU MUST BACKUP THE CONTENTS OF THE CURRENT NON-VOLATILE-STORAGE IN CASE IT BECOMES NECESSARY TO REVERT TO THE PREVIOUSLY INSTALLED FIRMWARE!