Kodak

NVS Tracker Toolbox

Administrator Guide

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CONTENTS

Revision History i

1. About the Administrator Mode 1
   1.1 Passwords 1
   1.2 Getting Started 2

2. CTP Categories and Product Names 2

3. NVS Parameter Grid Design 3

4. System Monitor Design 5

Appendix A - Detailed Explanation of Synchronizing NVS Tracker Toolbox 6

Appendix B - Example of entering new system and designing a grid 9

1. ABOUT THE ADMINISTRATOR MODE

NVS Tracker Toolbox is a service tool designed to be proactive in diagnosing incorrect parameter settings and parameters that are out of a specified range. It also provides a suite of tools that assist in tracking and capturing intermittent errors in Kodak® platesetter systems. Before using this guide, you should have a thorough understanding of the *NVS Tracker Toolbox User Guide* and the functionality of NVS Tracker.

To get optimum value from the NVS Tracker Toolbox, the data that is captured and tracked must be accurate, and the display of information in the grids should be logical. An experienced user must set up the framework for effective storage and retrieval of information. Part of the Administrator Mode is used to assign systems to CTP categories, and enable tools related to these system categories. Additional tools in the Administrator Mode can check the accuracy of data captured, and how the data is stored.

If you are updating NVS Tracker's database, you will need a written plan for how parameters will be captured, grouped, labeled and displayed. This is equally important prior to adding or modifying CTP categories.

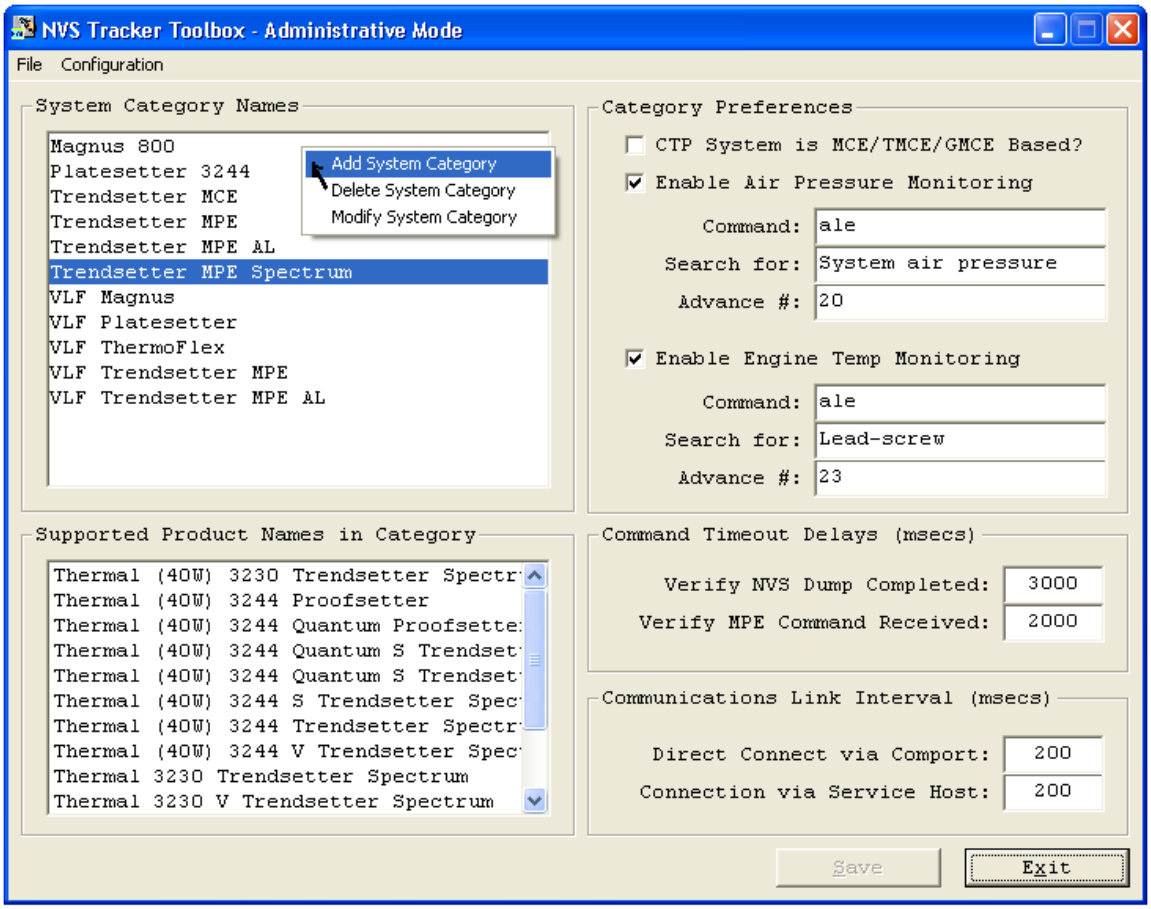
1.1 Passwords

There are two passwords for entering the Admin Mode:

- The limited access password lets you maintain the Supported Systems list or select CTP categories to assign Product Names (see *NVS Tracker Toolbox User Guide*). This password is the same one used as a default for accessing the Print Console service mode.
- The unlimited access password is used for features of the Admin Mode.

1.2 Getting Started

To log into the Administrator Mode, select **Security > Administrator**. Type the Administrator password and click **Enter**.



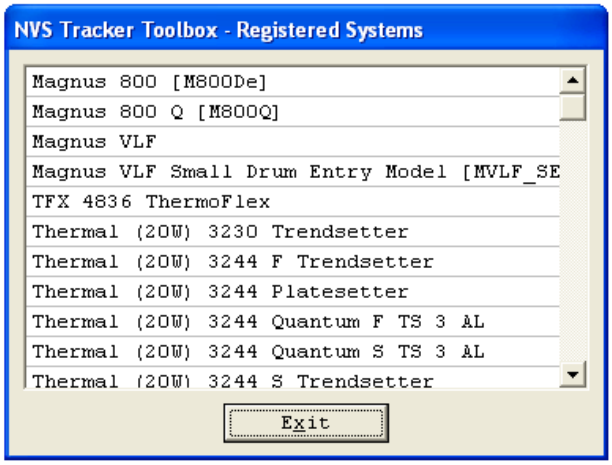
2. CTP CATEGORIES AND PRODUCT NAMES

In Administrator Mode, boxes display **System Category Names** and **Supported Product Names**. NVS Tracker Toolbox can support up to 20 CTP categories, with each category supporting 50 system product names. An example of this is the MPE Trendsetter, which is a basic non-autoloader/non-Spectrum category. There are various types of base Trendsetters including 3230, 3244, Fast, Standard, 20 watt, 40 watt, and so on but all of these systems are still Trendsetters and share a very common NVS Dump profile. The purpose of creating system categories is to limit the number of support files needed to operate NVS Tracker Toolbox. Just one database control file is required per category. These files are located in the **\NVS Tracker Toolbox\Supported Systems** directory.

Check boxes are associated with each category that indicate whether the system is MPE based, or MCE/TMCE/GMCE based. Additional check boxes document the syntax for displaying air pressure/engine temperature, and are used by the System Monitor to track CTP environmental data.

In Supported Product Names, you can add the names of the systems that are associated with each category. These Supported Product Names are displayed for each system

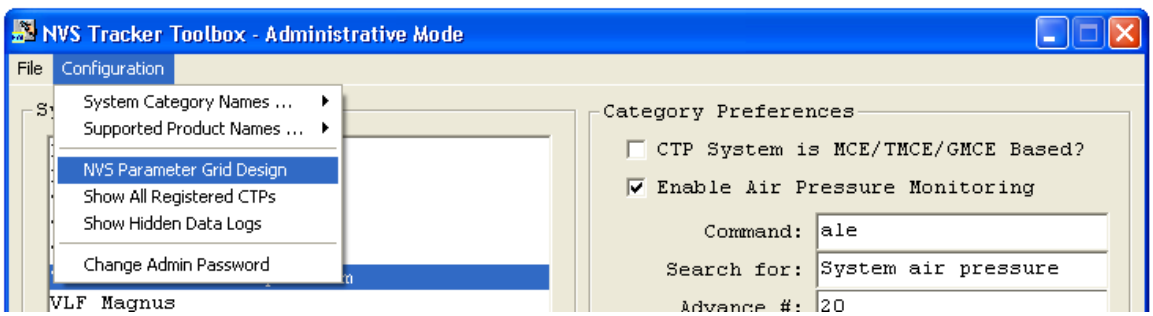
when you type **`List Version`** at the command prompt. When NVS Tracker Toolbox synchronizes, it sends **`List Version`** to the external device and identifies what type of system it is connected to. It scans through each System Category to see if the external device is listed in the Supported Product Names. If a match is found, NVS Tracker Toolbox has been set up to support the external device, and the applicable support database is loaded to capture and evaluate the NVS/PRM dump. If the external device is not listed, you can choose a System Category to assign the CTP to. When the System Category is selected, the product name is saved to that category and stored in the Registered Systems list. The Product Name will be available the next time you synchronize with a similar system.



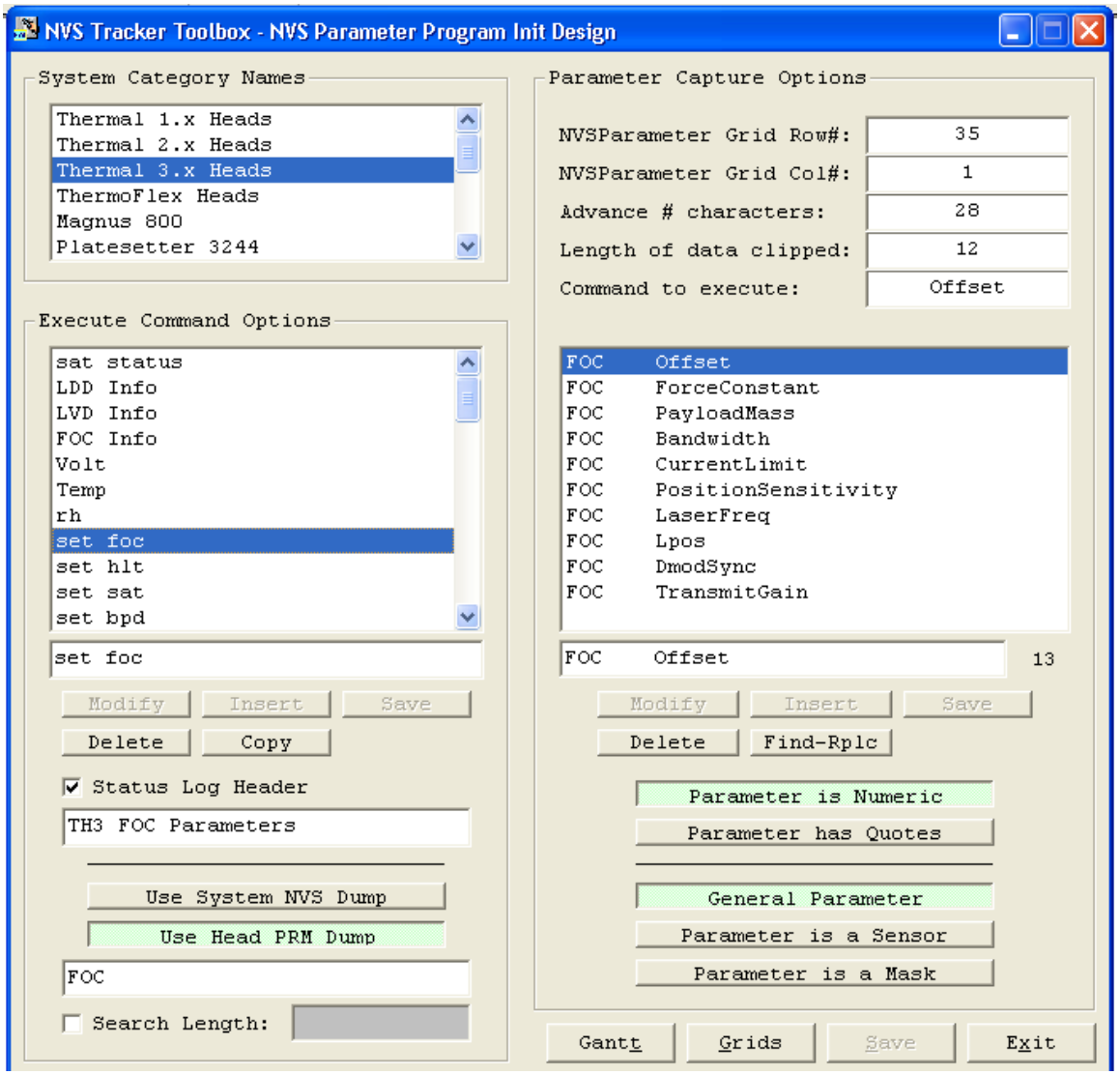
At the bottom right of the administrator form, you can specify **Command Timeout Delays** and **Communication Link Intervals**. The purpose of a Command Timeout is to measure file stability time after executing a command or capturing a NVS/PRM backup. It works on the assumption that if no further data is received after the delay timeout expires, then the CTP must have finished sending the requested information. Some systems take longer than others, so these timeouts must be set to properly function on our slowest systems. These delays are only used for commands that do not report **Complete** when execution has finished. The Communication Link Interval determines how often we check for data coming into the receive buffer. Because NVS Tracker Toolbox requires time to monitor and format the incoming data stream, it must have control over the event-driven buffer that is used to receive data from the Service Host.

3. NVS PARAMETER GRID DESIGN

In Administrator Mode, select **Configuration > NVS Parameter Grid Design**.



The NVS Parameter Grid Design is displayed:



The NVS Parameter Grid Design allows an administrator to write a controlled routine for how each system category will execute commands and search for NVS Parameters to populate the CTP Database. The design is also applied for generating your Status Log when you synchronize with a system. You can choose from a variety of selections to describe whether the NVS Parameter is numeric, has quotes, and whether it is a mask/sensor. You can also select where to store the parameter in the database, what syntax to search for, and where to clip the valid data to be evaluated.

You can also program NVS Tracker Toolbox to grab information from either the system's NVS/PRM Dump, the thermal head's PRM Dump, or by executing individual commands. There are two additional tools (**Gantt** and **Grids**) to ensure the commands were correctly entered and that data is being stored accurately.

- **Gantt** displays the various cells that you have programmed to store data. It also does a quick calculation of all the stored data, and will display a list of any cells that have been written to more than once (overwriting valid data). You can correct the error by selecting another storage cell.

- **Grids** displays the NVS Database control grid for the CTP Category and Thermal Head that is currently selected. This grid is useful to see the entire storage cell at a glance. Every 10th line in the grid is highlighted in yellow to make viewing easier. This is the control grid that gets executed during synchronization, and is the reference grid for the evaluation utility to know how to check for faults.

Configuration > Show Hidden Data Logs is a utility that displays NVS Tracker Toolbox hidden storage logs. These logs are used to store data for NVS Tracker to perform its functions. They include the Data Search log, the NVS/PRM Dump log, the Head PRM Dump log, the Service Host Receive Buffer, the Terminal View buffer and the System Monitor logs. You can use this utility to 'single step' through each parameter being searched to ensure it is properly capturing the data when synchronizing with a CTP. You can also operate NVS Tracker Toolbox with this utility enabled, which will allow you to view the data being captured internally in the Data Search log or the NVS Dump logs. By monitoring these logs, you can capture problems with time delays being set too short (for data being returned after commands are executed by NVS Tracker Toolbox during synchronization). The delays can be updated on the NVS Tracker Toolbox Admin home page.

4. SYSTEM MONITOR DESIGN

NVS Tracker Toolbox can monitor the environmental condition of our systems. It will track current, minimum and maximum pressure, humidity and temperature (see the *NVS Tracker Toolbox User Guide* for more details). Due to the differences in how each system's firmware reports data, NVS Tracker Toolbox needs to know exactly what phrase to search for and how many characters to advance to grab the actual syntax to evaluate the integer.

You can enable the air pressure test for each System Category. When NVS Tracker Toolbox synchronizes, it checks to see if the connected system supports this test. If it does, then NVS Tracker Toolbox enables the air pressure option on the System Monitor to make it available.

Data also must be entered for how the engine reports the lead screw temperature. Some systems use the **`engine`** command, while other systems use the **`ale`** command. The syntax reported back also varies with each CTP Category. For example, a VLF Trendsetter uses the syntax **`Carriage Nut`**. NVS Tracker needs to know how many spaces to count to grab the actual numeric temperature data. Start counting from the 'C' in Carriage as the first character, and keep counting characters and spaces until you reach the space before the carriage nut temperature. For the VLF Trendsetter, it is 27 place values. Enter this value into **Advance #.** NVS Tracker Toolbox now knows exactly what command to execute, what line to grab the data from, and where the data is located on that line.

You will be prompted to **Save** any changes when you exit the Admin mode.

APPENDIX A - DETAILED EXPLANATION OF SYNCHRONIZING NVS TRACKER TOOLBOX

When you click the **Synchronize** button or select it from the menu, NVS Tracker Toolbox begins its synchronizing process. The following summarizes how NVS Tracker Toolbox synchronizes with an MPE-based CTP (MCE is similar, but **`set prd`** is used instead of **`set config`**). The routine is executed in the following order:

1. You selects from one of four types of synchronize (See the *NVS Tracker Toolbox User Guide* for explanation of the four types).
2. All active tools under the Tools menu that are system-specific are disabled.
3. Any active tools currently running are paused. Edit mode is exited if enabled.
4. The **Synchronize** button changes to **Synchronizing** and the form is disabled for use.
5. The connection is tested to ensure you are communicating with a device.
6. All internal program variables are reset to their defaults.
7. If selected, the attached device verbosity is turned off.
8. The system is tested to ensure we are not talking to the head (TH2 or later).
9. Workstation echoing of commands is suppressed (if selected - for MPE systems)
10. Incoming data control is switched from the Terminal View to the internal Data Search log. This log is used to perform most parameter evaluations and data captures while initializing/synchronizing.
11. The hidden progress bar and status display pops up at the bottom of the form to show the progress of the synchronization process.
12. A quick check is made to test if this is a single or dual processor device (for example, Trendsetter News 200), or if there is a TH3 device attached. (MCE/GMCE based CTPs only).
13. The commands **`List Version`** and **`Set Config`** are executed (**`Set PRD`** is used for MCE/GMCE systems), and data received is directed to the internal Data Search log.
14. A comparison is made between the list of supported systems (registered systems) and the system name listed on the first line of **`List Version`** command.
    - If the system name is NOT found, NVS Tracker captures the current name from **`List Version`** and asks you to choose a CTP Category to assign the new system to.
    - If the system name is registered with a CTP Category, then it associates the system name found with the CTP Category assigned to that name (For example, both the Thermal 3244 F Trendsetter Spectrum and the Thermal 3244 V Trendsetter Spectrum are assigned to the category Trendsetter MPE Spectrum). The purpose of each category is to enable system specific tools

and load a system parameter reference grid for evaluating the NVS Dump/Head Dump.

15. After the CTP Category is determined and the System Name is stored, NVS Tracker Toolbox logs the firmware version, Thermal Head Module, Head Code version (all found under **`List Version`**), CTP Model, Client's Name, and CTP Serial Number (found under **`Set Config`**). If any of the **`Set Config`** data is null, NVS Tracker Toolbox prompts the user to enter valid data, then saves the data to the **`Set Config`** module. After saving, it rescans **`Set Config`** to ensure the data was properly saved. This data is used to build the hard drive directory structure for storing system reference grids, NVS Dumps, FSave backups, and log files.

16. After determining the system serial number and client name, NVS Tracker Toolbox checks to see if you have synchronized with this system before. If so, it loads the last NVS Parameter database grid that it saved and checks for any changed parameters since your last synchronizing (or last refresh, if on the same day). If this is the first time logging onto the system, a new grid is created and saved. No comparisons will be performed if it is your first synchronization, but all other routines will be performed during synchronizing.

17. If NVS Tracker Toolbox detects that the CTP has a Thermal 2 or a ThermoFlex head, **`redirect enable`** is activated, head verbosity is disabled (if selected), and engineering mode in the head is enabled. The correct head serial# and head firmware version are recorded from inside the head. Then **`redirect disable`** is executed. For Thermal 3 heads, NVS Tracker switches communications to the head and records similar data.

18. The CTP Database is opened and searched in order to find the current system's serial# row in the grid. If the CTP serial# does not exist in the database, then a new row is opened. The database is updated with the data accumulated so far. NVS Tracker Toolbox enables and switches views to the Status Log, where it builds a system summary of the synchronizing events. The events so far include a Client Header giving info on the client name, date, last date logged on, system name, model, versions & head code. Should changes have occurred to the firmware version, Thermal Head Module, head serial# or Head Code since the last visit, NVS Tracker Toolbox logs this change perform system backups to capture the changes to disk. Backups are automatic.

19. NVS Tracker Toolbox issues the command **`Set Head`** and evaluates what type of head it is accessing. It loads the proper head support grid to capture head parameters for evaluation. (different commands such as **`head version`** are used for MCE/GMCE systems)

20. NVS Tracker executes the command **`List Stats`** and evaluates system usage and faults. It updates both the database and Status Log with total media usage, recent media usage and fault data. It calculates system reliability data. (different commands are used for MCE/GMCE systems, and **`Image Stats`** has been removed from the latest GMCE firmware release for VLF Magnus).

21. NVS Tracker checks to see if the system is being used for production. If it is not in production, and if the User Options selection is checked to perform backups during each site visit, NVS Tracker Toolbox performs an FSave for MPE-based systems and saves the results to the disk (if the CTP have a Thermal 2/3 or a ThermoFlex head, a **`PRM Dump`** is also done). Otherwise, it will only perform an NVS Dump.

22. NVS Tracker Toolbox does additional evaluations on the logs to ensure the captures are good.

23. NVS Tracker Toolbox loads the Thermal Head NVS parameter support grid for the detected head type. It does a compare with each parameter against the previous grid that was stored from the last visit to see if any parameters have changed. It logs all changes to the Status Log while it adds the newest parameter captures to the CTP Database. It also records all changes to the NVS History log.

24. NVS Tracker Toolbox loads the System NVS parameter support grid for the detected system. It then executes the System parameter grid and logs all parameters to the new NVS Storage grid that it builds. It does a compare with each parameter against the previous grid that was stored from the last visit to see if any parameters have changed. It logs all changes to the Status Log. This allows the user to see any parameters that were altered since the last site visit or NVS Tracker Toolbox refresh.

25. If you selected check for Staccato setup (MPE-based) or if NVS Tracker Toolbox detects a new laser head, NVS Tracker executes the Staccato evaluation utility and reports any faults it finds.

26. It executes the NVS Parameter Evaluation routine, and compares all Alert Me If equations for the current Laser Head and CTP Category and reports any faults that it finds in the Status Log.

27. If **User Options > Custom Commands** is selected, it executes any commands found in your personal list of commands. This allows you to document personal data when synchronizing.

28. Head verbosities and system verbosities are turned back on (if selected in Custom Synchronize).

29. NVS Tracker enables any applicable tools under the Tools Menu and loads the status bar with your selected display categories from User Options.

The system is now synchronized, and NVS Tracker Toolbox switches back to the Terminal View log for use.

APPENDIX B - EXAMPLE OF ENTERING NEW SYSTEM AND DESIGNING A GRID

NVS Tracker Toolbox framework supports up to 20 CTP Categories with 50 product names per category. You can add, delete or modify categories by selecting your choice from the **Configuration** menu in the **Administrator Mode**. You can also right-click on the list boxes of the form for the same configuration choices.

1. Enter a list of Supported Product Names to support the new category that you are creating. For example, if you entered a Trendsetter MPE for a category, then some system names would be Thermal 3244 Trendsetter, Thermal (20 W) 3244 F Trendsetter, and so on). These names are displayed under **`List Version`** on the first line of the commands response from the device. This is what NVS Tracker Toolbox searches for when it is detecting a supported model. These are also the system names that are displayed under **Help > Show Registered CTPs**.

2. If the system category that you are entering supports air pressure reporting with the **`ale`** command, select **Enable Air Pressure Monitoring**.

   Enter the command that you would normally execute to see the air pressure displayed (**`ale`**).

   Enter the syntax phrase that gets displayed when the air pressure is reported (**`System Pressure`**), and enter the number of character spaces from the beginning of the phrase to the air pressure integer that you are capturing.

   The air pressure tests will now be enabled for this system category. Do the same for the **Engine Temp Monitoring**.

3. There should be no need to alter the **Command Timeout Delays** or the **Communications Link Intervals**.

4. Select **Configurations > NVS Parameter Grid Design** to display a form where you can add parameters to be searched for.

   You will notice that the Thermal Heads are listed as separate system categories. This is because heads are interchangeable between systems. When NVS Tracker Toolbox synchronizes, it detects the installed head type and launches the appropriate grid. It then detects the system type and starts its support grid as well.

5. Use the left hand side of this form to enter commands to be sent to the MPE, and the right hand side of the form to enter parameters to be searched for from the response to the commands being sent.

6. In **Available System**, click the system category that you entered on the previous form, or on a category that you wish to alter.

   This loads the support parameter grid for that system or laser head so that you can enter/edit the grid. The first time you click on a newly created category you are prompted for NVS Tracker Toolbox to create a new database grid. Select **Yes** to create the grid. This takes about one minute.

7. In **Execute Command Options**, enter the commands that you wish to send to the device. These commands are sent to the MPE while NVS Tracker Toolbox is synchronizing (or refreshing).

At the same time, NVS Tracker Toolbox is building a status report with the data it is programmed to capture. The report can be broken down into modules or topics by creating 'Headers' to be added with each command group. For instance, if you wanted to display a Status Log header called Engine Parameters, type the command **`Set Drum,`** click **Status Log Header** and type **Engine Parameters**. Then type **`Set Carriage`** to capture carriage parameters. If you do not add a new Status Log Header for **`Set Carriage`**, it will use the same header that was specified for the previous command. So, both the **`Set Drum`** and **`Set Carriage`** command parameters will be displayed under a heading called Engine Parameters in the Status Log. These same headers are also displayed in the CTP Database in drop down menus for each system module, so that you can choose the system category to evaluate and then what module (Header) to view.

8. For each command, you can select **Use System NVS Dump**, **Use Head PRM Dump** or leave both unselected. If you select either choice, NVS Tracker Toolbox searches the selected Dump file for the parameters associated with the command. If neither is selected, NVS Tracker Toolbox executes the command and searches the internal Data Search Log (hidden system log) for the parameters associated with the command.

9. Most commands that we need to evaluate are found in the NVS Dump or Head PRM Dump, so you should usually select these check boxes. Commands like **`Mask`** and **`Head Mask`** are not found in the dump so you must manually execute and search for these in the Data Search Log. If you selected to search the NVS Dump, enter which module in the NVS Dump you wish to search (for example, NVS hdm (Head Media Parameters) calibration [2] would search for HDM 2 module for the specified parameters).

Note: Because some parameters have the same name in HDM and Media modules, you can also specify the length of the search in order to limit it to the module you wish to be searching.

10. Once you have entered all the data for the highlighted command, click **Save** in Execute Command Options. The command will be added to the list box. If you make a mistake while typing a saved command, you can select the command from the Commands to Send list box, then delete or modify the command. You can also insert a command above your current selection if you wish.

11. When you have entered your commands, select the desired command and enter the parameters you wish to search for relating to the selected command. In the Parameter Capture Options on the right side, enter the long name of the parameter into the text box under the parameter list box. For example, with the command **`set drum epos`**, **`epos`** is the short parameter name and **`edge_position`** is the long parameter name).

12. Once the long parameter name has been entered, select according to whether the parameter is a mask, sensor, or a general parameter. NVS Tracker Toolbox uses this information in displaying data in the CTP Database.

13. Identify whether the value of the parameter you are searching for is numeric, or if it has quotes. NVS Tracker Toolbox must remove the quotes prior to using the data for parameters like 'media name', 'media color', 'set config owner', and so on. The Alert Me If utility only allows Boolean equations to be executed against numeric values, so it is important to specify whether the value is purely numeric. Leave both of these boxes cleared if the parameter is non-numeric without quotes.

14. In order to store and retrieve information about this parameter from the database, you must assign it a storage cell in the NVS Parameter grid. At the top right corner of the form, enter a grid row and column number for storing the data.

Note: The thermal head and system category use this same grid for storing data, so it is important to have a Microsoft® Excel® spreadsheet that documents what cells have already been assigned to other categories.

In general, the Thermal Head and statistics grids use rows 1 – 50 and the system categories use rows 51 – 120. Each row is 120 columns wide, so there is more than ample room to store all needed data relating to a system. There are also certain cells that are not available to the user, as NVS Tracker requires space in the grid to store reference data for its own use. To view these cells, click **Gantt**. The Reserved cells are colored grey.

15. Continuing in the top right corner of the form, after the grid row and column number text boxes, three more text boxes provide information on how to grab the data and the parameter's short name. NVS Tracker Toolbox initially searches for the parameter's long name. It must know how many character spaces to advance from the beginning of the long name to the integer that you wish to capture. It also needs to know how many spaces of data you wish to capture for evaluating the value. NVS Tracker Toolbox removes the extra spaces while evaluating the data. Enter the short parameter name in the next text box to provide NVS Tracker Toolbox with the correct syntax should you decide to restore the parameter. The short name is also displayed in the CTP Database when you view system parameters. Also, instead of entering an integer for **Length of data clipped**, you have the option of entering **EOL**. If this is entered, NVS Tracker will clip to the End of Line.

16. To save the parameter that you just entered, *do not use* the **Save** button at the bottom right hand corner of the screen, but *use* the **Save** button in Parameter Capture Options. The long name parameter is added to the list box, and the form is ready to enter the next parameter. You can modify, delete, or insert parameters in the same manner as MPE Commands.

17. Continue to enter all parameters relating to the current selected MPE.

18. Click on the next command and enter all its related parameters.

19. When all the parameters for all commands are entered, save the grid by clicking **Save** in the bottom right hand corner of the form.

    It takes a minute to build the grid and save it to disk. The form will be disabled during this time. The file is saved to NVS Tracker Toolbox home directory in **\Supported Systems**.

    The next time you log onto a CTP system related to this CTP category, NVS Tracker Toolbox will load your parameter grid and execute the commands and parameters that you programmed.

20. To capture mask data using either the **`Mask`**, **`Scan Bits,`** or **`Head Mask`** commands, they must be the FIRST command in the Execute Command Options list to function properly.

    NVS Tracker Toolbox checks the first command to see if it is a Mask or Scan command, and executes a separate routine designed to evaluate Mask * Scan data

for both system and head masks. NVS Tracker Toolbox will operate normally whether or not you choose to capture mask data.

A variety of Excel spreadsheets are available detailing all of the administrator grids used by NVS Tracker Toolbox. They are helpful in understanding how the program stores and retrieves data, and are a good resource to ensure you do not use grid cells currently in use by other areas of NVS Tracker Toolbox.