1. Getting Started

Congratulations on your purchase of the T2N thermal printer! With the T2N printer comes the T2N Configuration Utility. This utility is a necessary application and component to configure your T2N printer, monitor status, provide diagnostic support, and perform a variety of important printer functions.

This chapter will get help the user started with the T2N Configuration Utility:

- See Access to find out how to get the T2N Configuration Utility that came with your T2N purchase and how you can download the latest version.

- See System Requirements to check the requirements for your PC to run this utility.

- See Installation & Launch to find out how to install and run the Utility.

- See Version Numbering to understand how the Configuration Utility uses version numbers to reflect feature updates and how it further relates to your firmware level.

- See Utility Overview to view how the Configuration Utility is structured in terms of its various sections and tabs.

- See Language Selection to see how to select the right language for the tool.

- See Tool Interface to see how to select the port for the Configuration Utility to communicate with the T2N printer.

- See Test the Connection to see how to verify the connection so that you are ready to configure your T2N printer.

1.1 Access

The Configuration Utility will be available for users to access in the following methods:

- **From the CD** included with the T2N printer. Put the CD in your computer and follow the guide.

- **From the Printronix website** http://www.printronix.com/products/drivers.aspx.

- **From the Configuration Utility**, click the HELP button, and select Utility and Drivers to open a browser to http://www.printronix.com/products/drivers.aspx. Download the utility.

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1.2 System Requirements

The system requirements for the Configuration Utility are the following:

- **32-bit Windows Operating System:** Win2K, Windows XP, Vista, Windows 7, Windows 8

- **64-bit Windows Operating System:** Windows XP, Vista, Windows 7, Windows 8

- **Hard Drive:** 2 MB Free

The Configuration Utility is not supported on Linux or UNIX systems.

1.3 Installation & Launch

INSTALLATION

The Configuration Utility will be released as zip file in the format *part number.*zip. The zip file will contain four elements: (1) the Configuration Utility (*.exe)* file, (2) the compiled Help Files *T2NHelp.chm*, (3) PDF file *T2NHelp.pdf*, and (4) *README.txt* file. There is no installation process necessary. Simply extract the contents into the desired directory or location of choice. From there, run the application *.exe* file.

IMPORTANT: Extract the files from the zip file into the local C directory of your laptop or PC in order to have access to the automated HELP contents within the Configuration Utility.

The name of the application will follow the format: *ConfigUtil_vm_xxY.exe*. The v*m_xxY* suffix is the version number of Vm.xxY as described in Version Numbering. Including the version number allows the user to have several different versions of the Configuration Utility if desired.

The T2N Configuration Utility can be launched with the icon

LAUNCHING THE APPLICATION

Double-click on the icon or execute the *ConfigUtil_vm_xxY.exe* from a Windows Command prompt. The application will open as shown in Utility Overview.

1.4 Version Numbering

The Configuration Utility will evolve in terms of its functionality and configuration options in partnership with the firmware. Each Configuration Utility release will have a version number with the scheme: **V**m**.**xxYY:

- V   = Version

- m   = Main Version Level   [used to identify major updates]

- xx   = Compatibility Level   [version for compatibility level]

- YY   = A-Z, AA-ZZ   [letter for minor updates]

The T2N firmware will also have a similar version number scheme. The rules and limitations of how different firmware and Configuration Utility versions will interact are discussed in Compatibility Challenges.

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1.5 Utility Overview

The Configuration Utility layout shown when the application is launched is shown in Figure 1. There are several sections in the tool that are highlighted in the figure:

- **Language Selection**. The tool is capable of several different languages: English, Simplified Chinese, Traditional Chinese, Korean, Spanish, French, German, Italian, Portuguese, and Russian. All headings and configuration values will be translated as a result. Note that your PC regional settings should match the language selected. See Language Selection for more information.

### Figure 1 Configuration Utility Layout
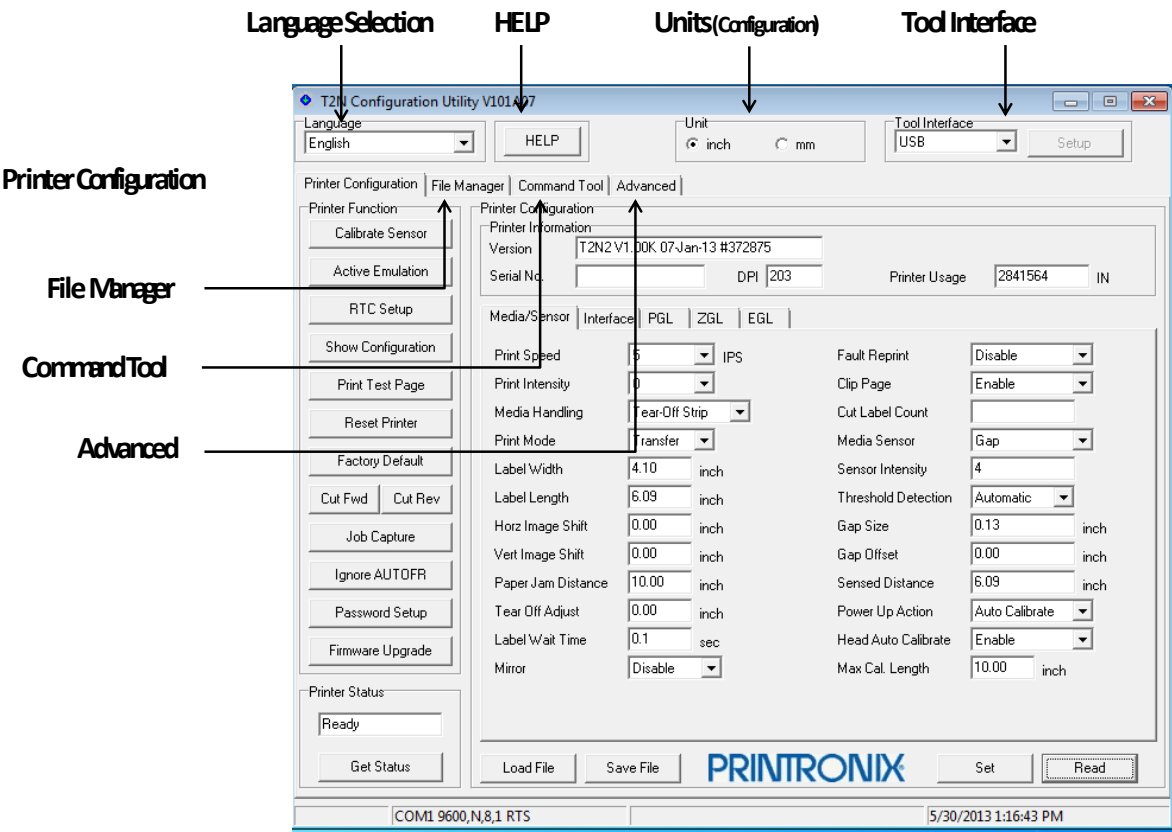
- **HELP**. The HELP button offers easy access to several areas of support including help contents with indexing and searching, and links for the Configuration Utility upgrades. The HELP content is in English only. See HELP for more information.

- **Tool Interface.** The Tool Interface is used to select how the Configuration Utility will communicate with the printer. Often, this is different than how the printer will communicate with the host system in a real application environment. See Tool Interface for more information.

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- **Printer Configuration** (First Tab). This section is used to upload and download the configuration, perform a number of actions, and get status from the printer. The Unit selection between *inch* and *mm* is used for this section. See Printer Configuration for more information.

- **File Manager** (Second Tab). This section is used to view, upload, and download files to/from the printer memory devices (DRAM, FLASH, and SD CARD). See File Manager for more information.

- **Command Tool** (Third Tab). This section is used primarily for diagnostics and simple tests. Users can create simple jobs or load jobs from files and send to the printer for testing purposes. See Command Tool for more information.

- **Advanced** (Fourth Tab). This section is used for advanced configuration options, including memory allocation, scalable font control, statistics control, and text printing through PGL. It should not be necessary to use this section for typical setup procedures. See Advanced Setup for more information.

1.6 Language Selection

Choosing the right language is always the first step. The language selections are given with a drop-down menu in the upper left-hand corner as shown in Figure 2. The following languages will be available: English (default), Simplified Chinese, Traditional Chinese, Korean, Spanish, French, German, Italian, Portuguese, and Russian. As a result of this setting, all labels and configuration options will be translated. Numerical values will remain 0-9 (decimal) and 0-F (hexadecimal).
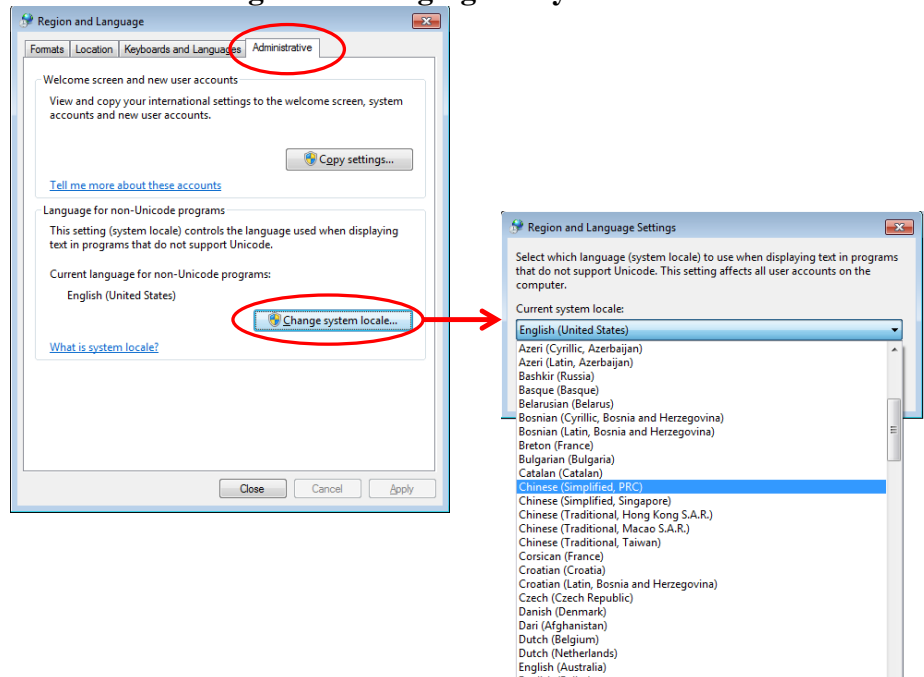
Figure 2 Language Selection
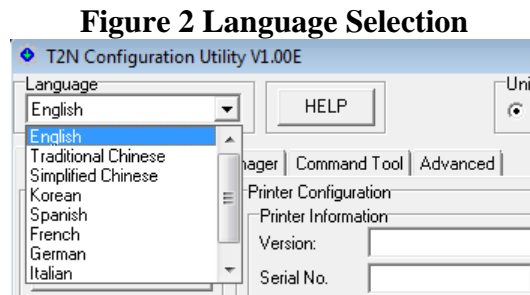
IMPORTANT: Some languages such as Traditional Chinese, Simplified Chinese, and Korean require special fonts and characters sets to be available in order to display properly. In order to use these languages, your PC or laptop must be configured properly for the right region / language. On Windows 7 systems, the region and language is chosen as follows:

1. Go to the Start Menu and open the "Control Panel".

2. Open the application Region and Language .

3. Go to the "Administrative" tab and click on "Change system locale …" as shown in Figure 3.

4. Select the desired language:

    a. For **Simplified Chinese**, choose "Chinese (Simplified, PRC)".

    b. For **Traditional Chinese**, choose "Chinese (Traditional, Taiwan)".

    c. For **Korean**, choose "Korean (Korea)".

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5. Follow the instructions, including rebooting if necessary.

**Figure 3 Changing the System Locale**

Once your system is properly configured, the chosen language will be the default language selected on the Configuration Utility when launched.

1.7 Tool Interface

The Tool Interface section found in the upper right hand corner is used to choose the communication I/O with the printer. The options are "COM", "USB", or "ETHERNET". The default interface is USB. When bringing up the application, if the printer is connected to PC with USB interface, bringing up the application automatically reads the configuration settings from the printer and populates the fields. This interface selection can be different from the interface sending print jobs. For example, a user might want to select USB or COM with a laptop to configure the Ethernet parameters for a live application environment. Alternatively, the user might prefer USB for both the Tool Interface and the live application.

Figure 4 illustrates the Tool Interface section along with the "Setup" button to configure the chosen I/O. When USB is selected, no setup is required. For the COM (RS-232 serial), the setup options are shown in Figure 4. If ETHERNET is selected as the interface, no setup is required here, but the Ethernet Setup within the Interface Tab must be configured. Once the Tool Interface is chosen and setup is complete, the Configuration Utility will be ready to use.

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Figure 4 Tool Interface Setup
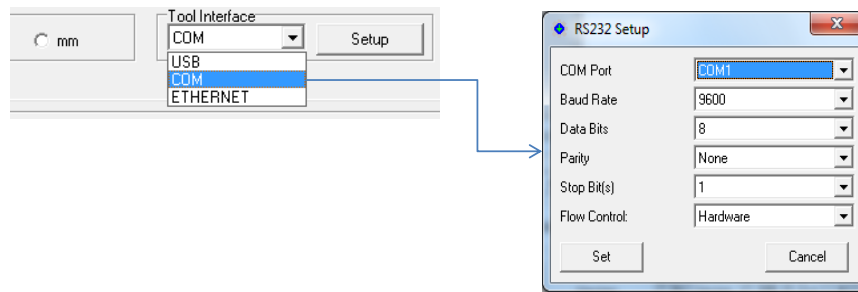
USB CONNECTION

This is the default interface for the Configuration Utility .The "Setup" button is grayed out because there is no setup required with USB.

COM (RS-232) CONNECTION

When "COM" is chosen as the Tool Interface, the user should then hit the "Setup" button to get the dialogue box shown in Figure 4. The following parameters configure how the computer running the Configuration Utility will communicate with the printer:

- COM Port: Select *COM1* to *COM30*. The default is *COM1*.

- Baud Rate: Sets the baud rate of the serial interface. Baud rate is the speed at which serial data is transferred between the host computer and the printer. Choices are *1200*, *2400*, *4800*, *9600* (default), *19200*, *38400*, *57600*, or *115200*.

- Data Bits: Select the serial data word length of *7* or *8* (default).

- Parity: Select *None* (default), *Odd*, or *Even*.

- Stop Bit(s): The number of stop bits in the serial data word. Select *1* (default), or *2*.

- Flow Control: Select *None*, *Hardware* (default), or *Xon/Xoff*. When *Xon/Xoff* is selected, the printer controls the flow of communication from the host by turning the transmission on and off. In some situations, such as when the buffer is full or the timing of signals is too slow or too fast, the printer will tell the host to stop transmission by sending an XOFF character. The data does not have any End of Text codes; *Xon/Xoff* is a non-block protocol.

NOTE: The default settings for COM within the Setup should match the printer factory defaults for RS-232. Before modifying these settings, test the connection with the printer using the default settings.

ETHERNET CONNECTION

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There is no "Setup" required as part of the Tool Interface selection. However, the <u>Ethernet Setup</u> within the <u>Interface Tab</u> must be configured before communication can begin. See <u>Ethernet Connection</u> for instructions on how connect to the network.

1.8 Test the Connection

Once the <u>Tool Interface</u> selection is setup, the very first thing to do is a "Read" operation (lower right-hand corner of the Configuration Utility as shown in Figure 1) in order to upload the printer's current configuration into the Configuration Utility fields. For USB connection, this process is done automatically.

If the Configuration Utility is working properly, then the "Communicating" progress bar will show and the Printer Configuration values will be populated. If not properly communicating with the printer, then the "Read" operation will result in either a "Port Open Error" or "Data Transmission Error" window. See below.
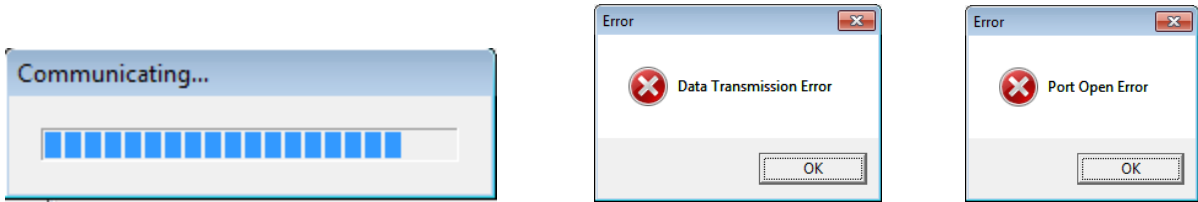

If any communication problems persist, change the Tool Interface to USB. This is the easiest method of establishing communication with the printer. Once communication has been established, the "Read" can be used to upload the configuration to check the <u>Interface Tab</u> settings if necessary.

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2. Printer Configuration

There are four main sections in the Configuration Utility, chosen from tabs at the top level. Figure 5 highlights the first major section *Printer Configuration*.

Figure 5 Printer Configuration Tab
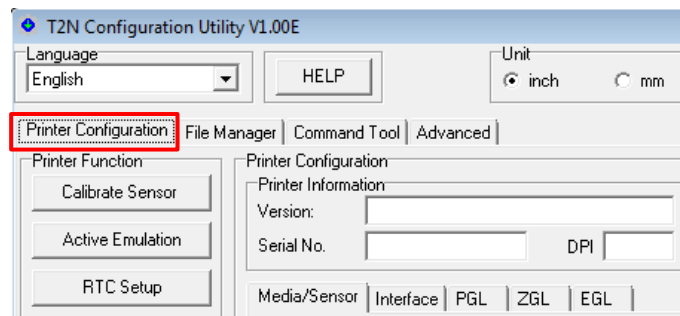
The *Printer Configuration* section is the initial section shown when the Configuration Utility is launched. There are several important functions of this section:

- *Printer Information*. This subsection displays information about the T2N printer currently connected with the Configuration Utility. See Printer Information for more details.

- *Printer Configuration Tabs*. This subsection is where users will setup and store a configuration in the T2N printer. The available tabs for Configuration are the following:

    Media/Sensor Tab   Configure all label and sensor settings.

    Interface Tab   Configure the host I/O, including serial and Ethernet.

    PGL Tab   Configure PGL settings.

    ZGL Tab   Configure ZGL settings.

    EGL Tab   Configure EGL settings.

- *Printer Functions.* This subsection is comprised of a set of buttons used to perform setup actions (e.g., Calibrate Sensor, Active Emulation), diagnostics, and other important features such as Firmware Upgrade. See Printer Functions for more detail.

- *Printer Status*. This subsection is used to query the printer on its status (e.g., Ready, Head Open, Paper Jam, Out of Paper, etc). See Printer Status for more details.

2.1 Printer Information

The printer information section is shown in Figure 6. Upon doing a "Read" action (button lower right-hand corner), this information will be populated in the Configuration Utility. All of the items shown are read-only and cannot be modified. This section describes these fields in greater detail.

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Figure 6 Printer Information

If there are issues that need to be reported to the Printronix Customer Support Center, it is important that these field values be reported for prompt handling.

VERSION

The "Version" is the model name, program file version, program file date, and program file part number. The model name is T2N2 = 203 DPI, T2N3 = 300 DPI. The program file version is in the Printronix format **V**m**.**xxYY as described in Version Numbering.

The program file part number is used to identify the software if discussing the product with the Customer Support Center.

SERIAL NO.

The "Serial No." is the serial number of the printer set in the Factory.

DPI

The DPI of the printer is shown in this box. Either 203 or 300 based on the printer model.

PRINTER USAGE

The "Printer Usage" value is given in inches only and cannot be reset. If a new controller is installed, this value will be reset to the value on the new controller.

2.2 Configuration Overview

Printer setup can be accomplished either through the Configuration Utility or the webpage (when network is used). Therefore, it is very important to have a good understanding of this section. The T2N printer holds two configurations: (1) Factory Configuration and (2) User Configuration. The Factory Configuration cannot be changed. The User Configuration can be uploaded and downloaded as often as necessary using the "Read" and "Set" buttons, respectively. Using the "Save File" and "Load File" buttons, configurations can be saved and loaded as files stored on your computer. This makes transferring configurations from one printer to another easy.

Note that windows driver jobs or host commands from emulations PGL, ZGL, or EGL might have an effect on the User Configuration. Often these emulations have commands intended to help the user setup the printer. Configurations are stored in FLASH memory every time the printer is reset or powered off.

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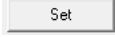This section covers the following topics:

2.2.1 Basic Configuration Control

READ: UPLOADING THE T2N CONFIGURATION

The "Read" button [Read] loads the entire set of configuration values from the printer to the Configuration Utility. This will overwrite any values within the various fields for Printer Configuration tabs (e.g., Media/Sensor Tab, Interface Tab, PGL Tab, ZGL Tab, EGL Tab) and the Advanced Setup. The "Read" operation is important to do in the following situations:

- After completing the Tool Interface setup to confirm proper communication.

- After doing a "Set" operation to validate the input values were accepted.

SET: CHANGING THE T2N CONFIGURATION

The "Set" button [Set] transfers the configuration values of the current page from the Configuration Utility and stores in the printer. Note the following:

- A "Set" operation should be followed by a "Read" operation to validate the operation was completed successfully.

- If a field has an invalid value (out of range), the printer will reject that value. Depending on the menu and invalid value selected, the menu might leave the current (valid) value intact or choose the minimum or maximum (valid) value. The user will know this happened after doing a "Read" operation following the "Set".

- Each tab or page with configuration options should be "Set" before moving to the next page or tab.

- When modifying values in either "inch" or "mm" and then doing a "Set", these values might be converted into an even number of printer dots. Therefore, upon a "Read", the values may change due to rounding to the nearest printer dot. Furthermore, the rounding may be different for 203 and 300 DPI printers.

FACTORY DEFAULT: RESETTING THE T2N CONFIGURATION

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The "Factory Default" button in the Printer Function section can be used to restore the printer configuration to the Factory Configuration. The exception is the network parameters which can only be set to their default within the Interface tab using the "Network Default" button.

2.2.2 Parameter Values

There are two different forms of input for Printer Configuration options:

- *Drop-down parameters*. Drop-down menus will provide the user with the valid range of selections and can be stored into the printer configuration by a "Set".

- *Free-form parameters*. Free-form parameters allow the user to enter any value and in any format even when a range is specified to the right of the box. However, if the input does not conform to the right format or range, it may be ignored or modified by the printer when doing the "Set" operation.

Users are recommended to check that all values changed are accepted upon doing a "Set" by following up with a "Read" regularly.

2.2.3 Unit Preference: mm or inch

Figure 7 illustrates how the Unit section works. Based on the selection of "inch" or "mm", applicable parameter values within the Printer Configuration section (or other sections) will change dynamically from inches to millimeters or vice versa. The label shown to the right of the parameter value will also change. The Media/Sensor Tab is where most values are affected by this selection.

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Figure 7 *mm* **versus** *inch*

Warning: Upon changing the unit type, an automatic "Read" operation will commence. Any temporary values modified by the user but not saved in the printer will be overwritten.

2.2.4 Configurations as Files

The ability to save and restore configuration to/from a file is a powerful feature because it allows users to create a configuration once and then easily update multiple printers with that same configuration. A saved configuration file can be loaded into the Configuration Utility and then downloaded into the printer using the "Set" command.

Warning: The saved configuration file is in a binary format and should not be opened or modified outside of the Configuration Utility.

SAVE FILE: SAVING CONFIGURATIONS AS FILES TO THE PC

The "Save File" button can be used to save the current values in the Configuration Utility as file (extension *.dcf*) to any location on your PC running the Utility. By pressing the button, a "Save As" window emerges to allow the user to choose the location and file name.

Before saving the configuration on the PC, the following steps are recommended:

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1. Configure the target printer as desired.

2. Perform a "Read" operation to verify the target printer configuration.

3. If complete, save the configuration using the "Save File" feature. Make sure to give the file a meaningful name for later reference.

Note: The network configuration will not be included in the saved file since the IP address and other parameters are often unique for each printer.

LOAD FILE: RESTORING CONFIGURATIONS FROM FILES FROM THE PC

The "Load File" button [Load File] can be used to load the Configuration Utility with the selected file on your PC (extension *.dcf*). This operation will bring up an "Open" window that allows the user to navigate their PC to select the intended file. Once the file has been selected, the configuration values are populated in the Configuration Utility fields.

The configuration values are not stored in the printer until the "Set" operation is performed on each of the Configuration tabs.

2.2.5 Compatibility Challenges

The Configuration Utility is an application designed to be 100% compatible with a specific version level of firmware. Each Configuration Utility release has a certain set of static configuration options. Likewise, a firmware version will be able to support a certain set of static configuration options. What happens if the capabilities of the Configuration Utility and firmware do not match? We refer to this as the "Compatibility Problem".

The version level format **V**m**.**xxYY as described in Version Numbering is common for both firmware and Configuration Utility. The component *xx* of the version format represents the configuration option capabilities. Therefore, firmware version V1.02C = V1.02B = V1.02F in terms of configuration options. If more configuration options are added, the next version released would be V1.03A.

This same version scheme applies to the Configuration Utility. Using a common version scheme then make it easy to determine where compatibility problems could exist. For example, if the firmware was V1.03C and the Configuration Utility was V1.03F, they are compatible. Alternatively, if the firmware is V1.03C and the Configuration Utility was V1.02P, then the Configuration Utility has fewer configuration option capabilities creating a "Compatibility Problem".

There are two potential compatibility scenarios that need to be considered:

Firmware versus Utility   T2N firmware version does not match Configuration Utility

Saved Files versus Utility   T2N config files *.dcf does not match Configuration Utility

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2.2.5.1 Firmware versus Utility

Users can be comforted in the fact that the latest Configuration Utility release will function correctly with older versions of firmware. However, the printer firmware might not support all options available in the Configuration Utility. If the Configuration Utility attempts to configure an option non-existent in the printer, the firmware will ignore it.

The best practice is to use a Configuration Utility that is at the same *xx* version level as the firmware. The table below shows the three possible scenarios and the how they are handled.

Firmware Version	Utility Version	Compatibility Results
V1.03C	V1.05B	Configuration Utility is at greater version (1.05) than firmware (1.03). Configuration Utility will have a larger feature set than supported in the firmware. Setting some options in Configuration Utility might be ignored by the firmware. Do a "Read" to confirm after "Set". The first attempt to communicate with the printer will result in an Information window in Figure 8 below.
V1.03C	V1.03F	Configuration Utility is at same version (1.03) as the firmware (1.03). Configuration Utility will have a matching set of features with the firmware. The letter on the end does not matter in terms of compatibility.
V1.03C	V1.01F	Configuration Utility is at lower version (1.01) than firmware (1.03). Configuration Utility will not have the latest the full set of features supported in the firmware. The first attempt to communicate with the printer will result in a warning window in Figure 9 below.

When the firmware version is lower (fewer features) than the Configuration Utility, then an information window shown in Figure 8 will come up when communication is first established. This may not be a serious issue, but one the user might want to be aware of. In this case, the Configuration Utility may be showing options or selections which are not supported in the firmware. This message will appear on each Read operation unless the "Do not show this message again" option is selected.

Note: While the Information window will be displayed when the Configuration Tool first establishes communication when the Tool is launched, the "Do not show this message again" option will only appear when doing a "Read" action (button lower right-hand corner).

Figure 8 Information Window when Firmware < Utility
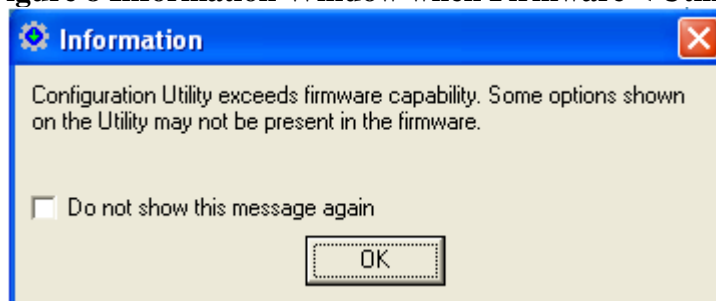
When the firmware version is greater (more features) than the Configuration Utility, then a warning window shown in Figure 9 will come up when communication is first established. In this case, not all capabilities in the firmware will be represented by an older Configuration Utility. This message will appear on each Read operation unless the "Do not show this message again" option is selected.

Note: While the Information window will be displayed when the Configuration Tool first establishes communication when the Tool is launched, the "Do not show this message again" option will only appear when doing a "Read" action (button lower right-hand corner).

Figure 9 Warning Window when Firmware > Utility

2.2.5.2 Saved Files versus Utility

When the user saves a file using the "Save File" button, the configuration is stored in a *.dcf format by a Configuration Utility at a given version level. What happens if the *.dcf file is loaded using the "Load File" button into a Configuration Utility at a different level? This section will cover that case.

Users can again be comforted in the fact that the latest Configuration Utility release will *load* older versions of saved files properly.

The best practice is to use a Saved File, Configuration Utility, and firmware that are at the same version level. The table below shows the three possible scenarios and the how they are handled when saved files are loaded into the Configuration Utility.

Saved File Version	Utility Version	Compatibility Results
V1.03C	V1.01F	Configuration Utility is at lower version (1.01) than the saved file (1.03). Configuration Utility will not have the latest the full set of features required by the saved file. Upon the "Load File" operation, the Configuration Utility will present a warning to the user as shown below.
V1.03C	V1.03F	Configuration Utility is at same version (1.03) as the saved file (1.03). Configuration Utility will have a matching set of features with the saved file. The letter on the end does not matter in terms of compatibility.
V1.03C	V1.05B	Configuration Utility is at greater version (1.05) than saved file (1.03). Configuration Utility will have a larger feature set than supported in the saved

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		file. No warning is required.

When the saved configuration version is greater (more features) than the Configuration Utility, then a warning window shown in Figure 10 will come up when saved file is loaded into the Configuration Utility. Users are recommended to either find an equivalent version of the Configuration Utility or to check the values loaded carefully. This message will appear on each Load operation unless the "Do not show this message again" option is selected.

Figure 10 Warning Window when Saved File > Utility

2.3 Media/Sensor Tab

The first tab in the Printer Configuration is the Media/Sensor parameters. This tab is shown in Figure 11. The values populated in the fields are based on loading the configuration (clicking "Read") from a new 203 DPI printer (in effect, the Factory default). They are common to all the emulations PGL, ZGL, and EGL unless otherwise noted.

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Figure 11 Media/Sensor Setup

Print Speed

This option specifies the speed in inches per second (IPS) at which the media passes through the printer while printing. The range is 2 to 6 IPS as selectable via the pull-down menu.

The factory default is 3 IPS for 300 DPI and 5 IPS for 203 DPI.

Print Intensity

This option specifies the level of thermal energy from the printhead to be used for the type of media and ribbon installed. Large numbers imply more heat (thermal energy) to be applied for each dot. This has a significant effect on print quality. The print intensity and speed must match the media and ribbon type to obtain the best possible print quality and barcode grades.

The range is -15 to 15. The factory default is 0.

Media Handling

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This option specifies how the printer will handle the media (labels or tag stock).

- **Continuous**. Printer prints on the media until the print buffer is empty and then stops at the next top of form under the print line of the printhead.

- **Tear-Off Strip** (factory default). Printer prints on the media and sends it out the front until the print buffer is empty, then after Label Wait Time times out, it positions the last label (cross perforation following) over the tear bar for removal.

- **Peel-Off**. After printing, peels and presents die-cut labels from the liner without assistance. The printer waits for you to take away the label before printing the next one (on-demand printing).

- **Cut**. When the optional media cutter is installed, it automatically cuts media after a specified number of labels have been printed based on the value of 'Cut Label Count'. It cuts continuous roll paper, labels, or tag stock. If the cutter is not installed, this selection will be ignored upon doing a "Set" operation.

Print Mode

This option specifies the type of printing to be done.

- **Direct**. Indicates Direct Thermal printing (no ribbon) and requires special heat sensitive media.

- **Transfer** (factory default). Indicates Thermal Transfer printing (ribbon installed).
NOTE: When in **Direct** mode, the T2N printer will not present a fault even if the ribbon is still installed. Users are responsible to make sure the ribbon is taken out when **Direct** mode is used.

Label Width

This option specifies the physical width of the image to be printed. The allowable range in inches is 0.1 to 4.1 inches. The allowable range in millimeters is 2.5 to 104 mm.

Label Length

This *Label Length is the logical label length* consistent with the host application. When performing calibration, both *Label Length* and *Sensed Distance* values are changed to match the label (see <u>Calibrate Sensor</u>). *Sensed Distance* is read-only value and represents the actual label length of the media installed, but *Label Length* should be adjusted to match the application form length.

For example, after performing calibration, both *Sensed Distance* and *Label Length* for gapped media may be changed to 5.97". If PGL intends on printing forms declared for 6", then the *Label Length* should be adjusted to 6". This would leave *Label Length* to be 6" with a *Sensed Distance* of 5.97". If *Label Length* was not adjusted, PGL may declare form boundary errors.

Note that *Label Length* can be overridden by the languages PGL, ZGL, or EGL based on host commands that change the label length value. For example, PGL will change this value when the PGL option *Host Form Length* is enabled and a form is printed that has a different length.

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The minimum Label Length is 0.1 inches. The maximum Label Length is based on the Page Memory allocated, but is limited to 99 inches. The factory default is 6 inches.

Setting a label length in the application longer than the maximum allowed will result in an undesired outcome.

Horz Image Shift

This option specifies the amount to shift an image horizontally outboard (-) or inboard (+) for precise positioning on the label. The actual width of the image is not affected by this parameter. The allowable range is -1.00 to +1.00 inch.

The factory default value is 0 inch.

Vert Image Shift

This option specifies the amount to shift an image vertically up (-) toward the leading edge or down (+) toward the trailing edge for precise positioning on the label. The actual height of the image is not affected by this parameter. The allowable range is -1.00 inch to 12.80 inches.

The factory default value is 0 inch.

Paper Jam Distance

After completing a label, this option specifies the maximum distance to search for a gap or mark before declaring a paper jam fault. The range is 2.00 to 999.00 inches. Recommended length is 1.5 times of the label length of the installed media.

The default is 10 inches.

Tear Off Adjust

This option represents the distance to advance (+ shift) or pull back (– shift) the stop position of a label when *Tear-Off Strip*, *Peel-Off*, or *Cut* Media Handling option is selected. A new set value will take effect on the next print job. The allowable range is -1.00 inches to + 0.2 inches, in .01 inch increments.

The factory default is 0.00 inches.

Label Wait Time

When Media Handling is set to *Tear-Off Strip*, *Label Wait Time* specifies the number of seconds after printing stops that the printer will wait before it advances media to the tear bar position.

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		SHEET 19	

When Media Handling is set to *Continuous*, *Peel-Off* or *Cut*, *Label Wait Time* has no effect. However when Media Handling is set to *Cut*, the distance set for *Tear Off Adjust* will be added to each form when being presented to the cutter.

The range is 0.1 to 60.0 seconds, and the factory default is 0.1 second.

Mirror

This option will mirror any image when enabled. The mirror effect is such that the last column is printed first and the first column is printed last. The options are as follows:

- **Disable** (factory default). No mirroring takes place. The image prints normally.
- **Enable**. The image effect is used.

Fault Reprint

This option determines how the printer handles data that was printing when an error occurred.

- **Disable** (factory default). The printer will not reprint the label that was printing when the error condition occurred.
- **Enable**. The printer reprints the label that was printing when the error condition occurred.

Clip Page

This option determines how the printer handles *Label Length* values that are larger than actual label length (or *Sensed Distance*) when using gap or black mark media. This option has no effect when the *Label Length* parameter is less than the actual label length. This option is illustrated in Figure 12.

- **Enable** (factory default). When the *Label Length* value provided by the user or application is greater than the actual label length, the printer clips the excess image to fit the label. The excess image is now lost and the following label can be used to print subsequent images.
- **Disable**. When the *Label Length* value provided by the user or application is greater than the actual label length, the printer prints the excess image on the next label(s). Once the image is completely printed, the printer will go to the next top-of-form.

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Figure 12 Clip Page Handling
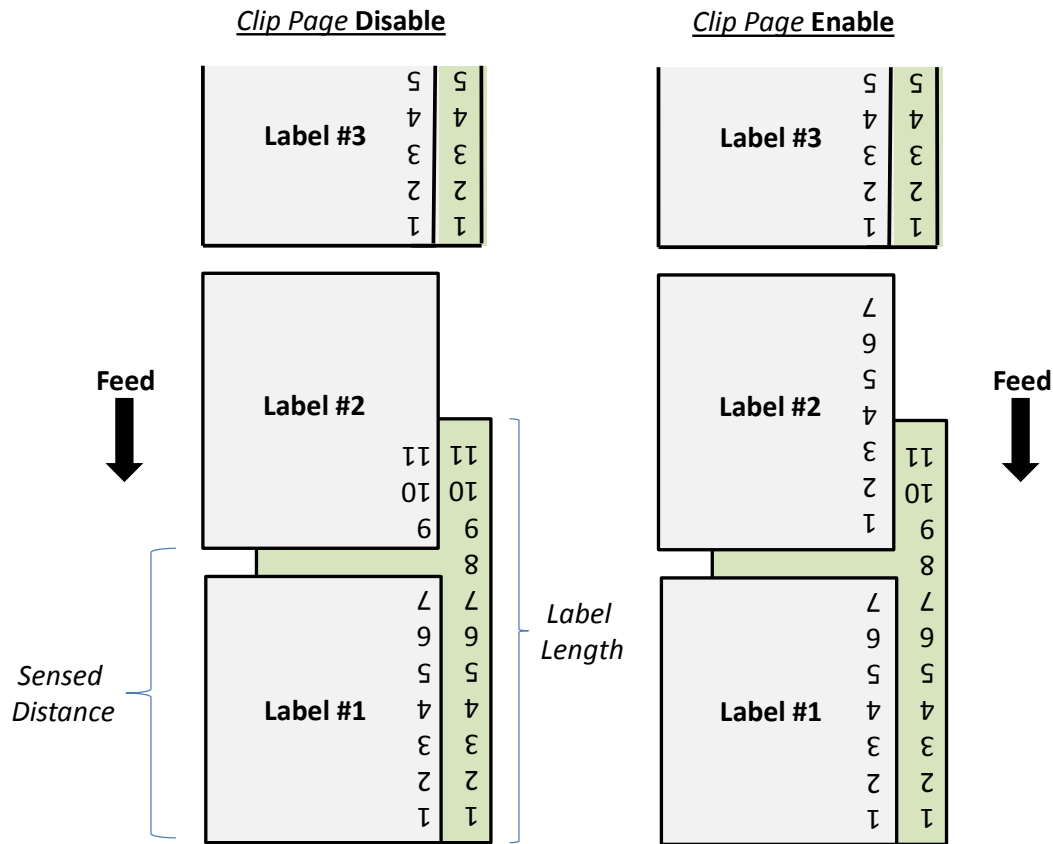
Cut Label Count

This option is used when the cutter is installed and enabled and the user specifies the number of labels between each cut.

The factory default is 0 (no cutter action).

Media Sensor

The user selects the type of media loaded in the printer. The printer adjusts the sensor algorithm depending on the type of media. The choices are *Gap*, *Black Mark*, and *Disable*. The factory default is *Gap*.

Sensor Intensity

This option is to set the emitting intensity of the gap sensor or black mark sensor. The range for the gap sensor is 0-7 and the black mark sensor 0-3. This field is read only. The value is filled in after the calibration. The Sensor Intensity can be changed in the Calibrate Sensor operation.

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		SHEET 21	

Threshold Detection

The threshold is used when detecting the difference between gap and label. The printer uses the threshold to determine the label gap size and top of form.

- **Manual**: This selection can be used when the label has preprinted form or the label has very thin liner. If the label height and gap are entered in the Auto Calibration, the Threshold Detection is changed to Manual.
- **Automatic (factory default)**: The printer will automatically figure out the right value for calibration.

Gap Size / Black Mark Size / Disable Size

Gap size defines the distance between the bottom edge of one label to the top edge of the next label. This value is filled in when the calibration is completed. The value can be changed if it is known to the user. If the value is changed after the calibration, the new value is used for the gap sensing during printing.

Gap Offset / Black Mark Offset / Disable Offset

The offset is used to move the starting image from the top of form. The range is + and - of the label length.

Sensed Distance

This value is read-only and set upon completing the calibration procedure (see Calibrate Sensor). It represents the distance sensed between the TOF of one label to the TOF of the next label. The Sensed Distance varies based on different media types:

- **Die-cut labels**: measurable length of the removable label (leading edge to trailing edge). This does not include the liner material or gap.
- **Tag Stock with notches or holes**: measurable length from the trailing edge of one notch or hole to the leading edge of the next notch or hole.
- **Tag Stock with black marks on underside**: measurable length from the middle of the leading edge of one black mark to the middle of the next black mark. Unlike other gap types of media, the printer is able to print over the top of a black mark, so label length is really the size of one black mark plus the length of the media between black marks.

Power Up Action

This menu is used to determine how the engine will synchronize with the media upon power-up. There are three options:

- **Auto Calibrate** (factory default). When the printer is first powered on, it will complete its initialization and then perform an Auto Calibrate.

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- **Seek TOF**. Moves the media to TOF at power up provided that the user has already calibrated media using gap/mark sensor. A seek to TOF will not be done when the Gap/Mark Sensor is set to Disable.

- **Disable**. No movement at power up.

Head Auto Calibrate

This option selects whether the printer does a media calibration after a Print Head Open fault.

- **Enable** (factory default). Performs media calibration each time the Printhead Open fault condition is cleared. The Feed key must be pressed to initiate the calibration.

- **Disable**. No media calibration after Printhead Open fault.

Max Cal. Length

This option specifies the maximum distance to search for a gap or mark before declaring calibration unsuccessful. Recommended length is 1.5 times of the label length of the installed media.

The factory default value is 10".

2.4 Interface Tab

Once setup, the host interface ports are all active and available. In other words, one job may be sent through USB while the next job can be sent through serial, followed by a third job through Ethernet. The user must be careful not to send the jobs at the same time or the application could be misprinted. The Interface Tab is shown in Figure 13 with a DHCP selection. This illustration assumes a network connection is established.

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		SHEET 23	

Figure 13 Interface Tab

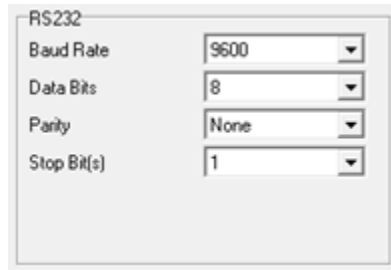
This section covers the following areas within the Interface Tab:

- See USB Setup to setup the printer to use the USB port for host IO.

- See Serial RS-232 Setup to setup the printer to use the serial RS-232 port for host IO.

- See Ethernet Setup to setup the printer to use the Ethernet for host IO or for communication with the Configuration Utility.

- See Ethernet Connection to see how to identify and select the right printer through methods such as using the USB, serial RS-232, or network discovery.

- See Web Setup to see how to launch the T2N webpage and perform setup tasks there.

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		SHEET 24	

2.4.1 USB Setup

There is no setup for USB. Just connect the USB cable between the printer and host and the printer is ready to receive data.

2.4.2 Serial RS-232 Setup

Baud Rate

Sets the baud rate of the serial interface in the printer. Baud rate is the speed at which serial data is transferred between the host computer and the printer. The options for the RS-232 interface are 1200, 2400, 4800, 9600, 19200, 38400, 57600, and 115200 Baud.

The factory default is 9600.

Data Bits

Sets the length of the serial data word. The length of the data word can be set to 7 or 8 bits and must match the corresponding data bits setting in the host computer.

The factory default is 8.

Parity

The options are Odd, Even, or None. The setting must match the corresponding parity setting in the host computer.

The factory default is None.

Stop Bit(s)

Sets the number of stop bits in the serial data word. Either 1 or 2 stop bits can be selected. The setting must match the corresponding stop bit setting in the host computer.

The factory default is 1.

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		SHEET 25	

2.4.3 Ethernet Setup

IP Assignment

This item allows you to choose the method of how the IP Address and its related parameters will be chosen. Users should consult the administrator for the appropriate setting.

- **Static IP**. The user can choose the appropriate IP Address, Subnet Mask, and Gateway Address. Changing Static IP will cause the printer to reboot.

- **DHCP** (factory default)**.** The IP Address, Subnet Mask, and Gateway Address will be automatically chosen at power-up. These selections will be greyed out to indicate they are automatically set.

Note: Changing this option will force a reboot.

IP Address

This item allows you to set the IP Address for the TCP/IP protocol. The entry should include the four segments each separated by a period (e.g., 10.22.1.18). If the *IP Setup* is set to DHCP, this field is automatically assigned and read-only.

Subnet Mask

This item allows you to set the Subnet Mask for the TCP/IP protocol in four three-digit segments, each separated by a period (e.g., 255.255.255.0). If the *IP Setup* is set to DHCP, this field is automatically assigned and read-only.

Gateway

This item allows you to set the gateway address for the TCP/IP protocol. The entry should include the four segments each separated by a period (e.g., 10.22.1.18). If the *IP Setup* is set to DHCP, this field is automatically assigned and read-only.

Printer Name

This item allows you assign a name to the printer on the network. This printer name will be stored in the *sysName* field of the printer MIB. The default name is PS-*xxxxxx* where *xxxxxx* is the last three segment of the MAC address. The name can be alphanumeric (case-sensitive) from 1 to 32 characters in length. Changing this field will cause the printer to reboot in order for the change to take place.
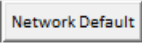
MAC Address

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This item is the Manufacturer's Assigned Number, and is unique for the NIC option. This field is read-only.

NOTE: The IP Address and the Printer Name can not be changed in the same Set operation. If both the IP Address and the Printer Name are both changed and the Set is pressed, then only one of the selections will be accepted and the other selection will remain unchanged.

RESETTING NETWORK DEFAULTS

To reset the network configuration to its factory default, press the Network Default button. This will only change the network parameters.

2.4.4 Ethernet Connection

CONNECT TO THE PRINTER USING USB OR RS-232

If the Tool Interface is setup to use USB or COM (RS-232 serial), then doing a "Read" operation will then populate the Interface tab fields, including displaying the current network setup. From there, the user can configure the network as desired and use the "Set" operation to save in the printer.
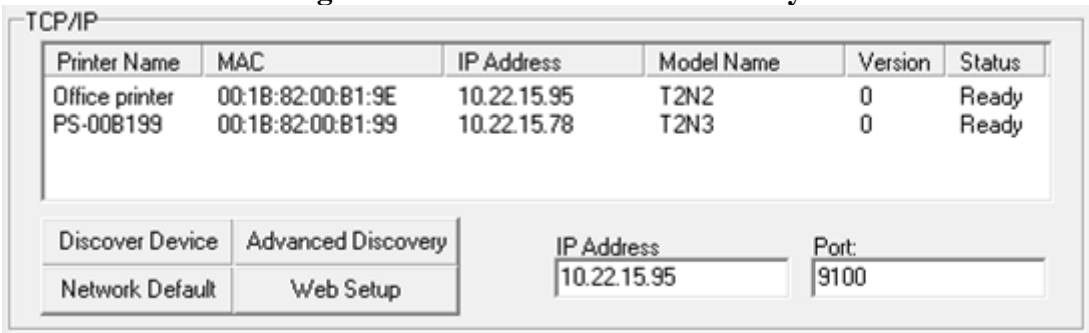
Once the setup is complete, the user can choose to use "ETHERNET" for the Tool Interface if desired.

CONNECT TO THE PRINTER USING KNOWN IP ADDRESS

If the user wants to connect the T2N printer into the network and discover it without the Tool Interface setup for USB or COM (RS-232 serial), then the instructions within this section should be followed.

If the user knows the IP address of the unit, the IP address can be entered directly into the field labeled "IP Address" shown in Figure 14. With the Tool Interface set to "ETHERNET", the "Read" operation will then establish communication and confirm the connection.

Figure 14 Ethernet TCP/IP Discovery

DISCOVER PRINTERS IN THE NETWORK

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			SHEET 27

The button "Discover Device" Discover Device can be used to list devices found on the Local Area Network. This form of discovery looks within the local VLAN only. From there, the user can choose the desired device to connect to. The Tool Interface should be set to "ETHERNET" for configuration operations.

The button "Advanced Discovery" Advanced Discovery can be used to select ranges of IP addresses for discovery. This can be used to expand the range of discovery outside the local VLAN and allow the user to communicate with any printer within the firewall. Upon using this feature, another window TCP/IP Setup will come up. The steps are illustrated in Figure 15:

1. Enter the First and Last IP address of a given range, along with the Discovery Port.
2. Hit "Add" button and that range will be placed in the list on the left.
    a. If a wrong range was entered, the range on the left can be highlighted and the "Modify" button can be used to change the range.
    b. The "Remove" button can be used to remove the highlighted range as well.
    c. Repeat as necessary.
3. Hit the "Discover" button to find the T2N printers on the network for the ranges entered.
    a. Give the Configuration Utility a few moments to find the printers.
    b. Once the discovery process is over, the printers found will show in the TCP/IP window.
4. Select the target printer from the left side and perform a "Read" operation to confirm the connection.

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Figure 15 Discovery Process
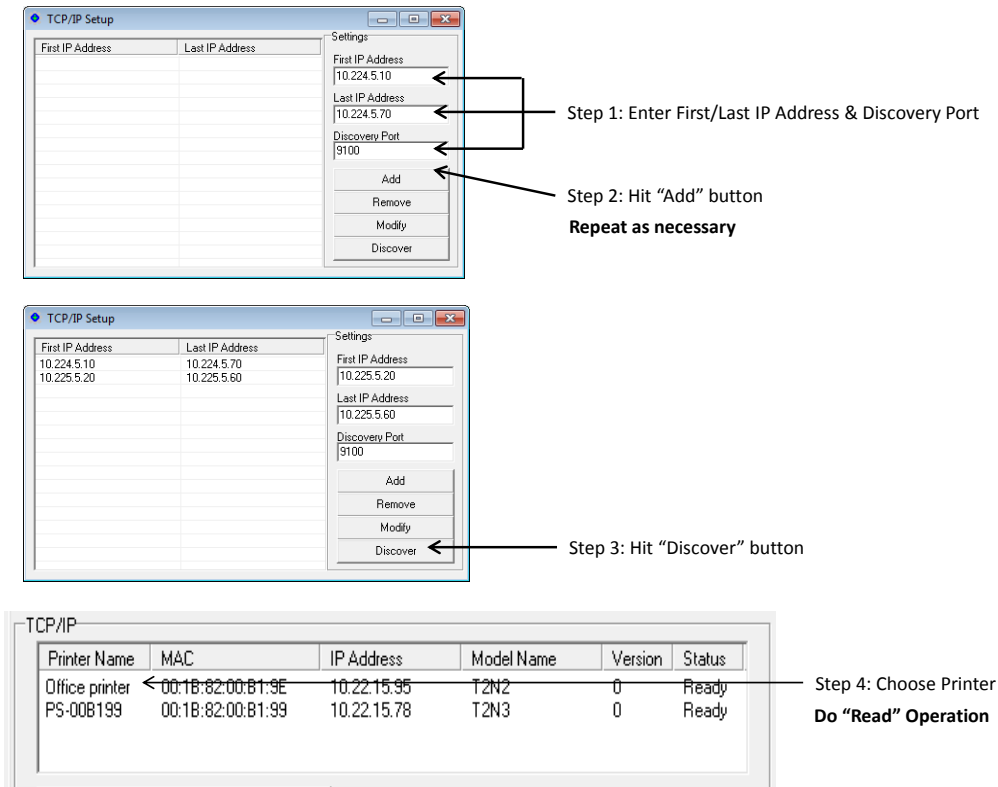
2.4.5 Web Setup

Click on "Web Setup" [Web Setup] button to bring up the selected printer's webpage using default browser. Instruction on how to use the webpage is not included. As can be seen in Figure 16, the webpage is organized similarly with the Configuration Utility such that separate instructions are not necessary.

NOTE: The Password Setup on the webpage and the Password Setup on the Configuration Tool set up two different passwords. The webpage password does not affect the Configuration Tool and the Configuration Tool password does not affect the webpage. The webpage Password Setup requires a User Name. This User Name can be set to any value, it does not have to be the log-in user name of the computer on which the browser is running. However it must be set to something for the password to take affect.

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Figure 16 T2N Webpage

2.5 PGL Tab

PGL Setup options are shown in Figure 17 along with their factory default settings.

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		SHEET 30	

Figure 17 PGL Setup

Orientation	Portrait		Ignore Mode	Disable
Print Direction	Head First		Ignore Char	0 — 0-255
Character Group	Standard Sets		Skip Cmd Prefix	Enable
Character Set	ASCII		Trunc Dyn Data	Disable
Select SFCC	126 — 1-255		Slash 0	Disable
Host Form Length	Enable		UPC Descenders	Always
Var Form Type	Add Nothing		C39 Compatible	Disable
Var Form Adjust	0 — 0.1 inch		I-2/5 Selection	Leading Zero
Forms Handling	Disable		Select SO Char	14 — 0-255
Do FF at TOF	Enable		Vertical Adjust	0 — -20 to 20
Ext Execute Copy	Disable		PGL Diagnostics	On
Boundary Check	Disable		Storage Select	SD

Orientation

Orientation describes the rotation of the image relative to the *Print Direction* option:

- **Portrait** (factory default) represents 0 degree rotation
- **Landscape** represents 90 degree rotation.
- **Inv. Portrait** is 180 degree rotation.
- **Inv. Landscape** is 270 degree rotation.

This is illustrated in Figure 18 in which text is placed at the origin according to its *Orientation* setting. ZGL has its own independent setting for Orientation.
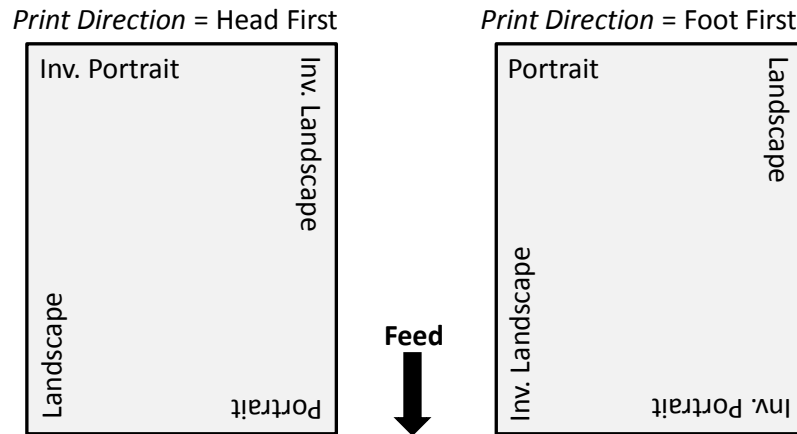
Print Direction

Print Direction defines Portrait relative to the direction of feed:

- **Head First** (factory default) makes Portrait elements feed first.
- **Foot First** makes Portrait elements feed last as illustrated in Figure 18.

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		SHEET 31	

Figure 18 Orientation versus Print Direction

Character Group and Character Sets

This menu item selects the character set used by the printer. Changing the Character Group will automatically change the available selections in the Character Sets menu. Character Groups and Sets are shown in Full in PGL Character Sets.

Select SFCC

You can specify which decimal code (1-255) will be used as the Special Function Control Code (SFCC). The SFCC denotes that the following data is a PGL command.

The range is 1-255, and the factory default is 126.

Host Form Length

Determines how the *Label Length* (see Media/Sensor Tab) is affected upon receiving an EXECUTE command.

- **Enable** (factory default). The physical label length will change to match the form length (specified in CREATE command). The physical label size remains at the new setting until another EXECUTE command is received, or the *Media/Sensor* settings are changed.

- **Var. Length**. The physical label length is the longest print element defined in CREATE mode, including both static and dynamic elements, plus the setting of *Var Form Adjust* with CREATE;NAME;0.

- **Var. Dynamic Len**. The physical label length will change to the longest print element defined in the form, including the dynamic element in EXECUTE mode and the static element in CREATE mode, plus the setting of *Var Form Adjust* with CREATE;NAME;0.

- **Disable**. Forms printed in EXECUTE mode do not change the physical label size. Therefore, the size of the form (defined in CREATE mode) must fit within the current label dimensions, or errors may occur.

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NOTE: The difference between *Var. Length* and *Var Dynamic Len* is for example, CREATE;NAME;0. If there are 10 dynamic fields defined in CREATE mode, but only three dynamic fields are used in EXECUTE mode (for Var. Length), the label length will be based on the longest printed element among the 10 dynamic field and the static element defined in CREATE mode. For *Var Dynamic Len*, the label length will be based on the longest printed element among the three fields defined in EXECUTE mode and the Static element defined in CREATE mode.

Var Form Type

- **Add Nothing** (factory default). When selected, no action is taken.
- **Add ;0**. When selected, the form length ends at the longest printed element. (Same as ~CREATE;filename;0)
- **Add ;X**. When selected, the form length is the same as the physical page length (the Label Length menu under MEDIA SETUP). (Same as ~CREATE;filename;X).

Var Form Adjust

This specifies an amount (in tenths of inches) to add to the length of variable-length forms. Variable-length forms use a semicolon at the end of the CREATE command: ~CREATE;<FORMNAME>;0.

Forms Handling

This submenu allows the user to handle the form in the following ways:

- **Disable** (factory default). No effect.
- **Auto Eject**. Automatically moves to the next TOF if the form is in the middle of the page, and then ejects a page by performing a form feed (FF).
- **Auto TOF**. Automatically does a form feed (FF) to the next top of form if the form is in the middle of the page.

Do FF at TOF

Determines whether the printer, with media already set at the TOF (Top-of-Form) position, will advance media to the next TOF position upon receipt of an FF command.

- **Enable** (factory default). The printer will advance media from the present TOF position to the next TOF position upon receipt of an FF command, causing a blank form.
- **Disable**. The printer will not advance media from the present TOF position to the next TOF position upon receipt of an FF command.

Ext Execute Copy

SIZE	CODE IDENT NO.	DRAWING NO.	REV
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		SHEET 33	

- **Disable** (factory default). Dynamic data, overlay data, etc. are not allowed if the optional Form Count parameter (number of forms to print) is specified as part of the Execute command. (This setting is IGP-100 compatible.)
- **Enable**. Dynamic data, overlay data, etc. are allowed within a form where the Form Count parameter is specified in the Execute command. In this case, the same form is printed for whatever the Form Count is. Incremental data is not incremented since the printing page is the same. The overlay data is only printed with the first form and not on subsequent forms, and each form is printed on a separate page.

Boundary Check

This option turns on or off the page boundary check for all print elements.

- **Enable** (factory default). When enabled, an out of bound error is reported if the print element is out of the page boundary.
- **Disable**. When disabled, no out of bound error is reported. The out of bound print element prints over the page boundary.

Ignore Mode

This parameter instructs the IGP to ignore the character selected under the Select Character menu.

- **Disable** (factory default). The IGP does not ignore any characters.
- **Enable**. The IGP ignores the character specified in the Select Character menu.

Ignore Char

This parameter selects which character to discard when Ignore Mode is enabled.

- **0** (the default)
- **0 - 255**. Any character from 0 to 255 in decimal.

Skip Cmd Prefix

Stands for Skip Command Prefix. This parameter determines if the printer will print any non-terminated data on the same line before a PGL command is received. This command only has affect when the Active Emulation is set to PGL. Otherwise, data before a valid PGL command will always be ignored.

- **Disable**. Data preceding the command will be processed as text.
- **Enable** (factory default). Data preceding the command will be skipped (ignored).

Trunc Dyn Data

This submenu allows the user to truncate the dynamic data up to the maximum data length specified in Create Mode.

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- **Disable** (factory default). If the dynamic data exceeds the maximum data length, an error will report.

- **Enable**. If the dynamic data exceeds the maximum data length, the data truncates.

Slash Zero

This parameter allows you to print the numeral "0" with or without the slash. This option applies to all character sets except OCR A and OCR B.

- **Disable** (factory default). Zero is printed without a slash.

- **Enable**. Zero is printed with a slash.

UPC Descenders

This parameter allows you to print bar code descenders when human readable data is not presented in the UPC/EAN bar codes.

- **Always** (factory default). UPC/EAN bar codes are printed with descenders, even if there is no human readable data.

- **Never**. UPC/EAN bar codes are printed without descenders if the PDF command is present.

- **Only With PDF**. UPC/EAN bar codes are printed with descenders only when the PDF command is presented.

C39 Compatible

This menu makes the old method of decoding C39 alternative character set compatible with the new method. For example in the old method for barcode data, %K123%M, the barcode scans as [123]. The new method scans the barcode as %K123%M.

- **Disable** (factory default). Uses the current way of decoding.

- **Enable**. Matches the old method of decoding.

I-2/5 Selection

This option is added to be compatible with a special IGP-X00 customization. Usually, if Interleaved 2/5 bar codes have an odd number of digits, a leading zero is inserted in front of the data. However, this special IGP-X00 customization gives you the option of adding a space character at the end of the bar code instead.

- **Leading Zero** (factory default). A leading zero is inserted in front of the data.

- **Trailing Space**. A space is inserted at the end of the data instead of a leading zero.

- **X2 DPD**. When selected, I-2/5 bar code with a magnification X2 will use the specially configured ratios 3:3:6:5 rather than 3:6:9:12 for compatibility with other Printronix models.

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- **Modulo 7 CD**. The I-2/5 bar code uses a modulo 7 check digit instead of the default modulo 10 check digit.

Select SO Char

Allows you to specify a decimal code from 0 through 255 to be used in place of SO (Shift Out) as the control code which allows access for the alternate set of control function characters. See the description of the Code 128 barcodes in the *PGL Programmer's Reference Manual* for details.

The range is 0 to 255, and the default is 14.

Vertical Adjust

This option is to adjust printer dpi to expand or shrink the vertical position of graphic elements and the height of the vertical line. The factory default is 0 dots. The adjustment range is from -20 dots to 20 dots with respect to the current printer dpi.

PGL Diagnostics

This option is to available to select how to handle error conditions with PGL commands and forms when encountered:

- **On** (factory default). Full error checking reported. Any element that falls off the current page is reported as an error.

- **Off**. There is no error checking. Graphic elements such as alpha, line, barcodes, etc. will be clipped if they are beyond the page boundaries.

Storage Select

This menu allows the user to map the parameter DISK to either the Flash (PCB Flash) or SD Card.

- **DISK = PCB Flash**
- **DISK = SD** (factory default)

2.6 ZGL Tab

ZGL Setup options are shown in Figure 19 along with their factory default settings.

SIZE	CODE IDENT NO.	DRAWING NO.	REV
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		SHEET 36	

Figure 19 ZGL Setup

Orientation

Orientation describes the rotation of the image relative to the *Print Direction* option:

- **Portrait** (factory default) represents 0 degree rotation
- **Landscape** represents 90 degree rotation.
- **Inv. Portrait** is 180 degree rotation.
- **Inv. Landscape** is 270 degree rotation.

This is illustrated in Figure 18 in which text is placed at the origin according to its *Orientation* setting. PGL has its own independent setting for Orientation.

Print Direction

Print Direction defines Portrait relative to the direction of feed:

- **Head First** makes Portrait elements feed first.
- **Foot First** (factory default) makes Portrait elements feed last as illustrated in Figure 18.

Character Group and Character Sets

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This menu item selects the character set used by the printer. Changing the Character Group will automatically change the available selections in the Character Sets menu. Character Groups and Sets are shown in Full in ZGL Character Sets.

ZPL Compatible

This menu allows you to select the compatibility mode for ZGL:

- **ZPL-I** = Zebra Programming Language I.
- **ZPL-II** = Zebra Programming Language II.

The factory default is ZPL-II.

Command Prefix

This item allows you to select the prefix for the control instructions command. The range is 1-255, and the default is 126.

Label Prefix

This item allows you to select the prefix for the format instructions command. The range is 1-255, and the factory default is 94.

Delimiter

This item allows you to select the delimiter used to separate the parameter of a command. The range is 1-255, and the factory default is 44.

Host Form Length

Chooses between the *Label Length* parameter under Media/Sensor or the host application for the actual label size:

- **Enable** (factory default). Label length will be determined by the ^LL command if it is present. If the ^LL command is not present, it will be based on the *Label Length* value parameter under Media/Sensor.
- **Ignore**. The ^LL command is ignored.
- **Disable**. Label length will be determined by the *Label Length* value parameter under Media/Sensor.

Left Position

The ^LS command specifies a horizontal offset to be added to all label element positions. The Left Position option displays the value specified by the ^LS command and provides an alternative method for specifying the horizontal offset.

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The range is -1000 to 1000 dots. The factory default is 0.

Top Position

The value of this option specifies a vertical offset to be added to all label element positions in dots per inch. For example, if the value is 3 and the current form length is 6 inches, then 18 dots will be added to element's vertical position.

The range is -100 to 100 dots/inch (DPI), and the factory default is 0.

Resolution Mode

The ^JM command determines the apparent print resolution of the printed label. If half resolution mode is selected by the ^JM command, the printed output of a 300 dpi printer matches that printed by a 150 dpi printer (half resolution). This essentially doubles the size of the label image, including label dimensions. If full resolution mode is selected, the output is printed normally. The Resolution Mode option displays and selects the current setting associated with the ^JM command.

The factory default is Full.

Label Format

This option is the combination of MC Label Fmt (command ^MC), PQ Label Fmt (command ^PQ), and IS Label Format (command ^IS) on other Printronix thermal products. This option selects how those labels should be retained in memory:

- **List Format** (factory default). A display list of print elements (graphics, text, and barcodes) is used to store form data. Optimized for memory and speed for typical applications. The display list is executed (rastered) for each label printed.

- **Bitmap Format**. Instead of using display lists, forms are kept in memory as bitmaps. This can be faster than using the List Format when lots of different print elements are used or the form is complex.

Label Buf Size

This option allows you to set the label buffer size. The buffer is used to store the data from ^XA up to ^XZ for command processing. The maximum size of the buffer cannot exceed the amount of available memory in the system. If a value greater than the amount of memory available is selected, the setting will revert to the original setting. The new buffer size only takes effect upon power-up after saving the configuration using "Set".

The range is 360 KB to 3600 KB, and the factory default is 720 KB.

FB Width Adjust

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The FB Width Adjust command allows the user to adjust (increase or decrease) the width of field block from the field block command ^FB, so that the text line in the block can be broken at a different word.

The selection is from -100 to 100 dots. The factory default is 0 dots.

DG Command

This menu sets the format type to correctly process a command.

- **Graphic Format** (factory default). The command is used in graphic format (outside of ^XA…^XZ).
- **Label Format**. The command is used in label format (within ^XA..^XZ).

CI22 Command

This menu allows the user to select either Unicode printing or DBCS printing for CI22.

- **Unicode Data** (factory default). The data are treated as straight Unicode data.
- **DBCS Data**. The data are treated as DBCS data.

Ignore JU Cmd

This menu allows the ^JU Configuration Update command to be ignored.

- **Disable** (factory default). Process the ^JU command.
- **Enable**. Ignore the ^JU command.

Ignore LH Cmd

This menu allows the ^LH command to be ignored.

- **Disable** (factory default). Process the ^LH command.
- **Enable**. Ignore the ^LH command.

Ignore PR Cmd

This menu allows the ^PR Print Rate command to be ignored.

- **Disable** (factory default). Use the print rate settings from the ^PR command in the datastream.
- **Enable**. Ignore the ^PR commands in the datastream, and use the front panel Print Speed setting.

Ignore MD/SD Cmd

This menu allows the ^MD Media Darkness and ~SD Set Darkness commands to be ignored.

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- **Disable** (factory default). Use the darkness settings from the ^MD and ~SD commands in the datastream.

- **Enable**. Ignore the ^MD and ~SD commands in the datastream and use the front panel intensity settings.

Ignore MN Cmd

This menu allows the ^MN Media Tracking command to be ignored.

- **Disable**. Use the media tracking (sensor setting) as set by the ^MN command in the data stream.

- **Enable** (factory default). Ignore the ^MN commands in the data stream, and use the sensor setting configured via the front panel menu.

Vertical Density

This option allows you to fine tune the vertical print density (in the paper motion direction) on printers with either 203 or 300 dpi print heads. The result is that the vertical position and height will be changed accordingly. The default value matches the print head dpi. Enter a new DPI value to either compress (higher DPI) or expand (lower DPI) the image.

The range varies depending on the print head. For 203 dpi, the range is 201 to 220. For 300 dpi, the range is 300 to 330. The factory default is the actual print head dpi.

Storage Select

This menu allows the user to map the parameter B: to either the Flash (PCB Flash) or SD Card.

- **PCB Flash** – map B: to PCB Flash.

- **SD** (factory default) – map B: to SD card.

2.7 EGL Tab

EGL Setup options are shown in Figure 20 along with their factory default settings. Descriptions of each menu and their factory defaults follow.

Figure 20 EGL Setup

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Print Direction

Print Direction defines the direction of feed:

- **0 (factory default)** makes label feed head first.
- **1** makes label feed foot first.

Density

Print Density in the Media/Sensor tab is exclusively for PGL and ZGL. EGL uses the *Density* in this tab.

The range is 0 to 15 and the factory default is 8.

Reference

This option defines the origin of the image relative to the label. The first entry defines the horizontal (x) offset and the second entry defines the vertical (y) offset. The default is (0, 0).

Code Page

This option defines the current character set selection. The options correspond to the EGL **I** command. The command syntax is **I**P_1,P_2,P_3 with the three parameters. The first parameter P_1 is used to select whether 7 or 8 bit data will be used. The second parameter P_2 selects the code page. The third parameter P_3 selects a KDU country code which is not supported in this product.

Option	P_1	P_2	Description
USA	7	0	USA
BRI	7	1	British
GER	7	2	German
FRE	7	3	French
DAN	7	4	Danish
ITA	7	5	Italian
SPA	7	6	Spanish
SWE	7	7	Swedish
SWI	7	8	Swiss
437	8	0	English - US
850	8	1	Latin 1

852	8	2	Latin 2 (Cyrillic II/Slavic)
860	8	3	Portuguese
863	8	4	French Canadian
865	8	5	Nordic
857	8	6	Turkish
861	8	7	Icelandic
862	8	8	Hebrew
855	8	9	Cyrillic
866	8	10	Cyrillic CIS 1
737	8	11	Greek
851	8	12	Greek 1
869	8	13	Greek 2
1252	8	A	Latin 1
1250	8	B	Latin 2
1251	8	C	Cyrillic
1253	8	D	Greek
1254	8	E	Turkish
1255	8	F	Hebrew

The table above shows the available options and how that corresponds to the P_1 and P_2 parameters of the **I** command. The default code page is 437.

2.8 Printer Functions

Printer Functions are along the left side of the Printer Configuration section as highlighted in Figure 21.

Figure 21 Printer Functions
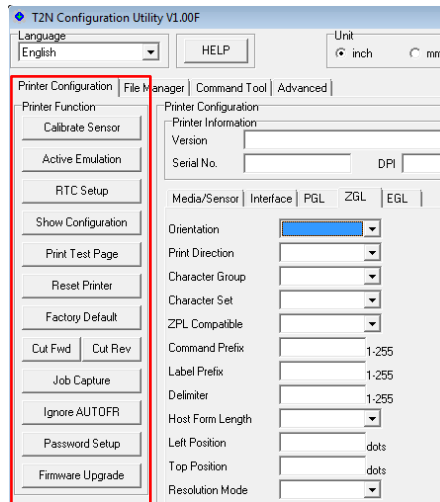
There are several different functions available:

Calibrate Sensor   Calibration of the labels and sensors.

Active Emulation   Select the Emulation (Auto Switch, PGL, ZGL, EGL) of choice.

RTC Setup   Configure the real-time-clock.

Show Configuration   Assemble the Configuration into a readable file.

Print Test Page   Print configuration test page on the printer.

Reset Printer   Reboot the printer.

Factory Default   Reset the printer configuration to factory defaults.

Cut Fwd & Cut Rev   Move the cutter one rotation forward or backward. (Note: There is no observable difference between 'Cut Fwd' and 'Cut Rev'. These options are intended to clear the paper path through the cutter in the event of a paper jam.)

Job Capture   Diagnostics to dump or capture the host data.

Ignore AUTOFR   Ignore the Auto form capability with in EGL.

Password Setup   Protect configuration from users with password.

Firmware Upgrade   Upgrade the printer firmware.

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		SHEET 44	

2.8.1 Calibrate Sensor

Printer calibration is an important operation to ensure the gaps are detected properly. Calibration should be performed on every printer power up and whenever the media type is changed. This section will review both Auto Calibration and Manual Calibration techniques using the Configuration Utility. Alternatively, Auto Calibration can be performed without the Configuration Utility by powering the printer off and back on while holding the PAUSE key on the front panel.
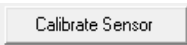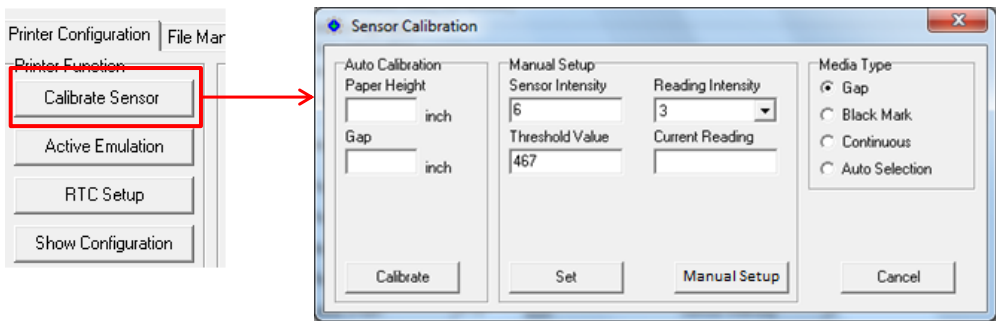
The calibration process is started by clicking on the "Calibrate Sensor" button as shown in Figure 22. This brings up the Sensor Calibration window which has three sections: Media Type, Manual Setup, and Auto Calibration.

Figure 22 Printer Calibration

2.8.1.1 Media Type

Regardless of calibration process preferred, the Media Type should be selected first: *Gap*, *Black Mark*, *Continuous*, or *Auto Selection*. If the label is continuous form, the calibration function checks for the transparency of the paper. Auto Selection can be used when the user has some unique type of media that is not easily distinguished into one of the previous selections. Auto Selection might result in a longer calibration process.

2.8.1.2 Auto Calibration

Auto Calibration is the most popular and easiest method of calibration for standard media types. The entries for "Paper Height" and "Gap" are not required but can be used with challenging media. If used, the T2N printer will use these values during the calibration process; as a result, these values will be reflected in the appropriate Media/Sensor tab parameters.

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When the button "Calibrate" is pressed, the printer will then calibrate (feed) up to the value specified in "Max Cal. Length" (in Media/Sensor tab) or 10" by default.

If calibration is successful, the parameters "Media Sensor", "Sensed Distance", "Label Length", and "Gap Size" (or "Black Mark Size") will be updated in the Media/Sensor tab. If unsuccessful, the printer status LED will flash. Use 'Get Status' to get the printer status. 'Calibration Error' should be displayed in the printer status box. The "Sensed Distance" is the actual distance between gaps or black marks as described in Media/Sensor Tab.

IMPORTANT: There are two options under Media/Sensor Tab that can force the Auto Calibration procedure:
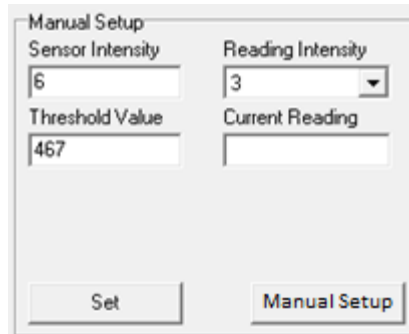
>   (1) **Power-Up Action** = *Auto Calibrate*

>   (2) **Head Auto Calibrate** = *Enable*

When option (1) is set, the Auto Calibration procedure happens upon power-up immediately. When option (2) is set, Auto Calibration will happen after the head is properly latched and **the Feed key is pressed**.

2.8.1.3 *Manual Setup*

Manual Calibration is for advanced users only with very special media. The operation calibrates the sensors only. When the Sensor Calibration window is opened, the values for "Sensor Intensity", "Reading Intensity", and "Threshold Value" are set to their current values in the printer. The "Current Reading" field is a read-only field monitored by the printer for comparison with the set "Reading Intensity" value.

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Defaults and explanations for these fields are shown in the table below with processes for each Media type following.

Option	Default	Range	Description
Sensor Intensity	Gap 3 Mark 2	Gap 0-7 Mark 0-3	This value is to set the emitting intensity of the gap sensor or black mark sensor .
Reading Intensity	Gap 3 Mark 2	Gap 0-7 Mark 0-3	The emitting intensity for the current reading.
Threshold value	512	1023	The threshold is the reference value to determine whether the sensor is seeing the gap/label, or black mark/non-black mark.
Current Reading	N/A	0-1023	The receiving sensor signal strength. This is Read only.

GAP MEDIA TYPE

1. Change values for "Sensor Intensity", "Reading Intensity", and "Threshold Value" if desired.
2. Click the "Manual Setup" button to setup the printer for the manual calibration function.
3. The message "Load Liner and Press Next" is displayed.
4. Load the liner in the printer, close the printhead, and press "Next" to process to next step.
5. The message "Load Media and Press Next" is displayed.
6. Load the media in the printer, close the printhead, and press 'Next' to complete the process.
7. If unsuccessful, the message window "Can't Calibrate" comes up. If successful, then the same parameters updated in the Auto Calibration process are updated in the Media/Sensor tab.
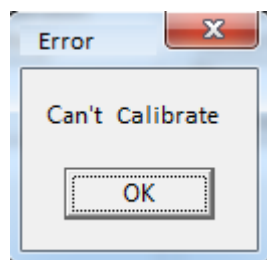

BLACK MARK MEDIA TYPE

1. Change values for "Sensor Intensity", "Reading Intensity", and "Threshold Value" if desired.
2. Click the "Manual Setup" button to setup the printer for the manual calibration function.
3. The message "Place Black Mark on Top of Sensor and Press Next" is displayed.
4. Load the liner in the printer, close the printhead, and press "Next" to process to next step.
5. The message "Move Black Mark away from Sensor and Press Next" is displayed.
6. Load the media in the printer, close the printhead, and press 'Next' to complete the process.

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7. If unsuccessful, the message window "Can't Calibrate" comes up. If successful, then the same parameters updated in the Auto Calibration process are updated in the Media/Sensor tab.

CONTINUOUS MEDIA TYPE

1. Change values for "Sensor Intensity", "Reading Intensity", and "Threshold Value" if desired.

2. Click the "Manual Setup" button to read the paper transparency.

3. Configuration Utility displays the reading as shown in the figure below.
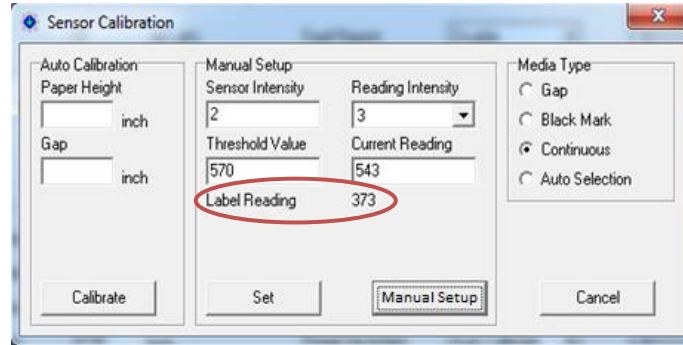
AUTO SELECTION MEDIA TYPE

Manual calibrate does not work with "Auto Selection". This Media Type is only valid for Auto Calibration. If the user clicks the "Manual Setup" button with "Auto Selection" as the Media Type, an error message window "Can't Calibrate" will come up.

2.8.2 Active Emulation

The "Active Emulation" button [Active Emulation] controls how data is processed in the T2N printer. The printer contains three different parsers PGL, ZGL, and EGL. When this Printer Function button is pressed, the window "Emulation Setup" pops up. With the default setting "Auto Switch", all three emulations are active; the data is analyzed in the order ZGL, PGL, and EGL as shown in Figure 23.

When an emulation examines the data, it will execute recognized commands and print forms per the host application. Any data not recognized as part of a form or otherwise legitimate command is given to the next emulation for examination. In the case that none of the emulations recognize the data, the data will be ignored.

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Figure 23 Active Emulation Setup
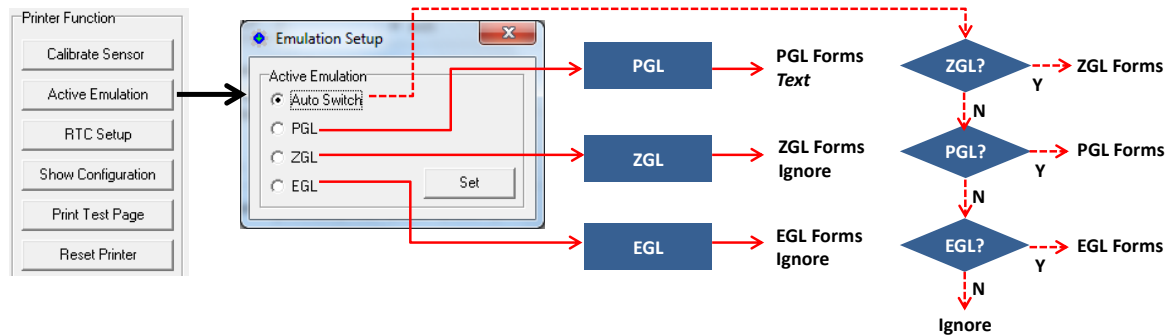
By choosing a specific emulation in the "Emulation Setup" window and clicking the "Set" button, that emulation will be the only Active Emulation to examine the data. The data will either be processed there or ignored. There are situations in which the Active Emulation should be set to a specific emulation:

- It is possible that two different emulations could have overlapping commands. Setting a specific emulation would force the data to be analyzed solely by that emulation.

- It takes more time for data to be analyzed serially by three emulations. For example, if the host applications were exclusively in EGL, it might be faster to set the Active Emulation to "EGL".

- PGL is the only emulation capable of printing straight text. If a job included text outside of a form, setting the Active Emulation would allow PGL to print the data as text. Control of how that text was processed can be chosen via the PGL tab along with the Advanced Settings "PGL Text Printing".

If the user does not want to change the existing setting, the "Emulation Setup" window can be closed and no change will take effect.

2.8.3 RTC Setup (Real-Time Clock)

The T2N printers include a Real-Time Clock (RTC) that can be set by the user and then used within form applications (depending on the emulation's capabilities to use a RTC).

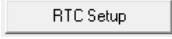The recommended procedure to set the current time is as follows:

1. Click on the "RTC Setup" button [RTC Setup] under Printer Function. The values shown in the fields will be the current clock setting in the printer. See Step #1 in Figure 24.

2. Click on "Get System Time". This will fill out the fields to the current time of the PC running the Configuration Utility. This is shown as Step #2 in Figure 24.

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Figure 24 Real-Time Clock (RTC) Setup
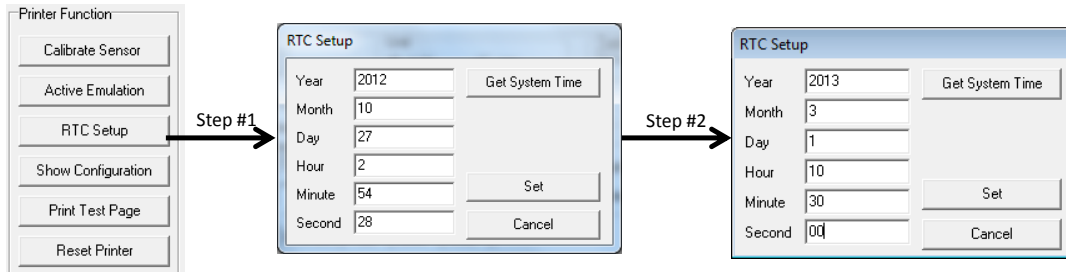
3. Change each field to the time and date you want to set.

4. Click the "Set" button to set the clock in the Printer. The RTC Setup window will then close.

5. To check the Printer RTC Setting, click on the RTC Setup to verify the correct setting.

2.8.4 Show Configuration

The "Show Configuration" button in the Printer Function section is very useful for storing a complete record of the current configuration parameters loaded in the Configuration Utility. When clicked, the Windows Notepad application will be launched with a file named "Config.txt". This file will hold the entire configuration, including the following:

- The time at which the Configuration was stored.

- Printer Configuration section with Printer Version, Serial number, and other statistics.

- Each Printer Configuration tab, including Media/Sensor, Interface, PGL, ZGL, and EGL.

- Advanced Tab settings.

NOTE: In order to guarantee this information is consistent with the printer configuration, do a "Read" operation just before the "Show Configuration" operation.

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Figure 25 Show Configuration
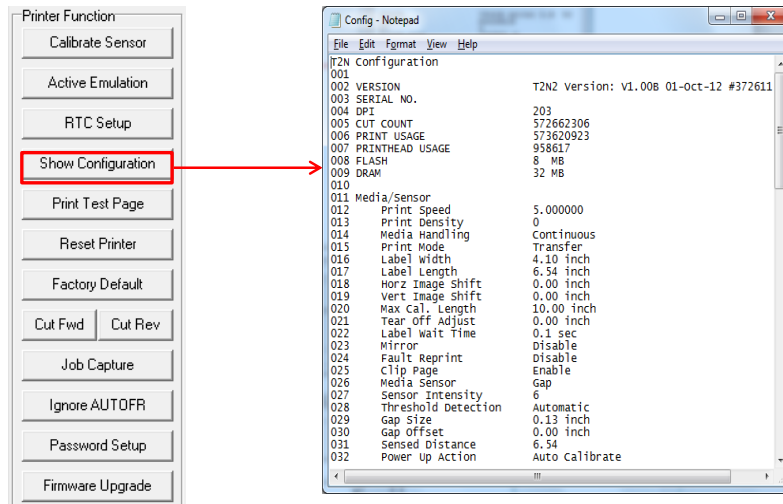
Saving this file can help administrators view, inspect, and store the configuration as a receipt once the setup procedures are completed. The other benefit of this file is that it can easily be sent to the Printronix Customer Support center upon request if there is a problem.
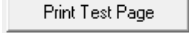
2.8.5 Print Test Page

The "Print Test Page" button [Print Test Page] in the Printer Function section will force the printer to print a test page that consists of a grey print test pattern followed by the current configuration. The format of the configuration is the same as shown with the "Show Configuration" option.

Figure 26 Test Page

001 T2N Configuration	(7/2/12 5:03pm)
002 VERSION	V1.11D 23-Jun-12 #372123
003 SERIAL NUMBER	3T2N21235093
004 DPI	203
005 PRINTER USAGE	1923442 inches
006 PRINTHEAD USAGE	574391 inches
007 CUT COUNT	455
008 FLASH	8 MB
009 DRAM	32 MB
010 MEDIA/SENSOR	
011 Print Speed	4 IPS
012 Print Intensity	-3
013 Media Handling	Continuous
014 Print Mode	Direct
015 Label Width	3.9 inch

Alternatively, the test page can be printed by powering the printer off and back on while holding the FEED Key on the front panel.
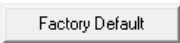
2.8.6 Reset Printer

The 'Reset Printer' button [Reset Printer] in the Printer Function section is a quick way to cycle power the printer.

Note that this action does not reset the printer to factory default configuration. Use the "Factory Default" button to reset the printer's configuration if needed.

2.8.7 Factory Default

The "Factory Default" button [Factory Default] in the Printer Function section can be used to reinstate the entire factory default settings in the printer followed by a reboot. This includes the Media/Sensor, Interface, PGL, ZGL, and EGL configuration parameters. This also affects the *Advanced* settings. The exception is the network parameters which can only be set to their default within the Interface tab using the "Network Default" button.

Note that you must use the "Read" button to load those defaults back into the Configuration Utility.
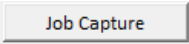
Alternatively, setting the printer to Factory Default can be performed by powering the printer off and back on while holding the PAUSE and FEED keys on the front panel simultaneously.

2.8.8 Cut Fwd & Cut Rev

The "Cut Fwd" and "Cut Rev" buttons [Cut Fwd] [Cut Rev] are used to exercise the cutter in both the forward and reverse direction. This tool helps clear paper jams that occur in the cutter.

NOTE: These two buttons do not adjust the cut position.
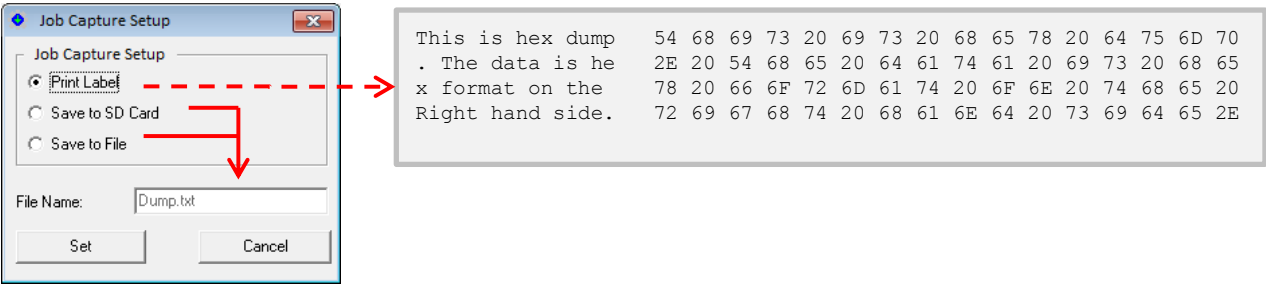
2.8.9 Job Capture

The "Job Capture" [Job Capture] feature is a good way to capture the data sent to the printer in various forms. The data can then be analyzed and/or sent to Printronix Customer Support.

PRINT LABEL

In the default mode with "Print Label" selected, the data will be printed on the label as it is received as shown in Figure 27.   If the print data is not enough to fill up a label, press the Feed key to get the data printed. The only way to disable this mode is to reboot the printer by turning it off/on or using the "Reset Printer" button in the Printer Function section.

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Figure 27 Job Capture Features


```
This is hex dump    54 68 69 73 20 69 73 20 68 65 78 20 64 75 6D 70
. The data is he    2E 20 54 68 65 20 64 61 74 61 20 69 73 20 68 65
x format on the     78 20 66 6F 72 6D 61 74 20 6F 6E 20 74 68 65 20
Right hand side.    72 69 67 68 74 20 68 61 6E 64 20 73 69 64 65 2E
```

SAVE TO SD CARD

Selecting 'Save to SD Card' will have the next print job saved to SD with the file name entered in the 'File Name' box. Print job is determined by the data input timeout. Once the print job is saved to the SD Card, the subsequent print jobs are printed in the normal way.

SAVE TO FILE

This method of capturing data is a two-step process in which data sent to the printer is captured instead of being printed. The first step is to click on the "Set" button. This puts the printer into capture mode. A "Confirm" window is opened, but hold off on clicking the "OK" button until the print job is sent. The printer will store the print job within an internal buffer to be uploaded into a file later.
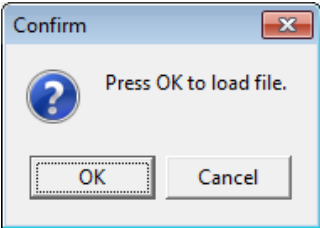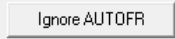
Note that since the Configuration Utility is waiting for the user to click "OK", an alternate means of sending data to the printer must be used. This means opening up another Configuration Utility and using the Command Tool, sending a job using the Windows Driver, or sending data directly to a port. After the print job has been received by the printer, click "OK" in the "Confirm" window to upload the data into to the file shown in "File Name" on the host computer. The other choice is to click "Cancel" in the "Confirm" Window which takes the printer out of capture mode.

2.8.10 Ignore AUTOFR

The EGL AUTOFR command can be used for automatic form printing. This feature requires having a file AUTOFR resident in the flash memory and will be executed by default at power up. There is a possibility that it could create an undesirable situation (infinite loop) or the user wants to discontinue use of the feature.

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By using the button "Ignore AUTOFR" [Ignore AUTOFR] the AUTO FORM will not be executed on the following power-up cycle. This gives the user the opportunity to remove the AUTOFR file present in the flash memory.

2.8.11 Password Setup

For some situations, once the printer is configured, the company or IT group may prefer the configuration does not get changed accidentally by the operator. This can be accomplished by setting a password. The password is stored in the printer like other configuration items.
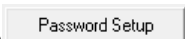
By using the "Password Setup" button [Password Setup], a "Password Setup" window pops up as shown in Figure 28. A new password can be entered once the old password is verified

Figure 28 Password Setup Window
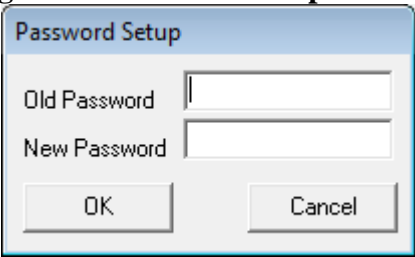
NOTE: Once the password is changed, you will need to remember the password in order to access the printer. If you lose the password, contact the Printronix Customer Support Center.
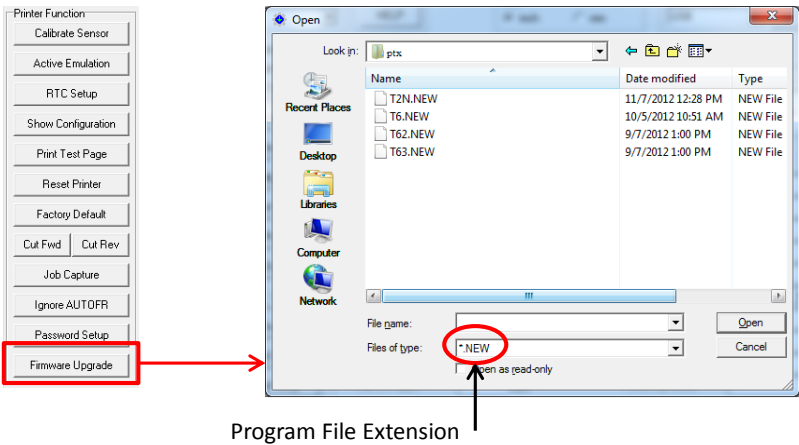
2.8.12 Firmware Upgrade
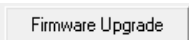
The "Firmware Upgrade" button [Firmware Upgrade] is very convenient way for users to upgrade the printer firmware. Simply click on this button and find the desired program file (.NEW extension) as shown in Figure 29.

Figure 29 Firmware Upgrade Procedure

Program File Extension

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If the printer firmware has different extension, click the down arrow of 'Files of Type' to select '*.*'. Upon a firmware upgrade, the following will occur:

- The User Configuration will be erased and reset to the factory defaults according to the new firmware.

- All files stored in PCB flash will remain in the system.

IMPORTANT: The upgrade process takes several minutes. During upgrade, the printer cannot inform the Configuration Utility of its progress. It is strongly recommended to let the Configuration Utility and printer complete the process without interruption of any kind for at least five minutes once the process has started. After this time and the printer has come back online, the user may again connect with the printer and proceed.

2.9 Printer Status

There are two ways to get status information from the printer: (1) from the LEDs on the printer itself, and (2) using the "Get Status" button in the Configuration Utility (webpage also has this function). This section reviews the different types of status that are reported.

Figure 30 Printer Status

Configuration Utility Status   T2N Front Panel LEDs

Status LED (Amber)

Online LED (Green)   Power LED (Green)

Figure 30 shows both the Printer Status area from the Configuration Utility as well as the LEDs on the actual printer. The user must click the "Get Status" button to query the printer as desired. The table below shows the different Printer Status types and compares them with the LED settings. Note that the Power LED is always ON when the printer is turned on. When a fault is present (Status LED is flashing), follow the instructions in the User Manual to resolve the fault. The Feed Key should be used to clear the fault.

Printer Status	Online LED	Status LED	Description
Ready	ON	ON	Printer is online and ready to process jobs.
Pause	OFF	OFF	The printer is offline and paused. Hit the green pause button to return back online.
Printing	FLASH	ON	The printer is currently processing a job.
Head Open	OFF	FLASH	Print Head is open.
Paper Jam	OFF	FLASH	Media is jammed or gap was not detected.
Out of Paper	OFF	FLASH	The media is out. If the printer detects the gap between two labels are bigger than the gap size, the printer reports 'Out of Paper' error.

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Ribbon End Err	OFF	FLASH	The ribbon is out.
Ribbon Encoder Err	OFF	FLASH	The ribbon is not working properly due to a ribbon wrinkle or jam.
Cutter Error	OFF	FLASH	The cutter is not working properly.
PrintHead Overheat	OFF	FLASH	Print Head is hot.
Calibration Error	OFF	FLASH	The auto-calibration failed due to missing media, failure to detect a gap, etc.

IMPORTANT: Note that the "Get Status" query is in fact a command sent to the printer which returns the status information. This function should work even when in a fault state. However, if the buffer of the printer is full or the host IO is otherwise occupied, the status might not be updated. This could result in the error message:
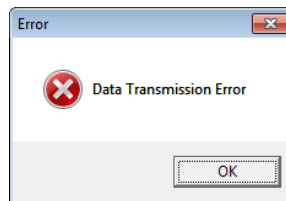
In these situations, the user has the option of checking the printer for faults and resolving the issue or rebooting the printer to clear out the buffers and then query the printer again using the "Get Status" query.

3. File Manager

The second major section of the Configuration Utility is the File Manager, chosen from tabs at the top level. Figure 31 highlights the *File Manager*.

Figure 31 File Manager Tab
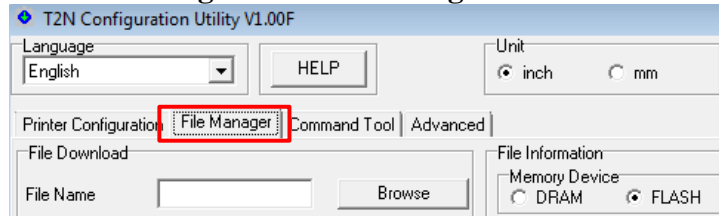
The File Manager Section is shown in Figure 32 and is used to manage files stored in DRAM, PCB FLASH, and the SD Card. This powerful feature allows the user to easily view, download, and delete files from each of these storage areas. In addition, users can format these storage areas if desired. The printer does not support hot swap SD CARD. To use SD Card, insert the card before powering up the printer. Otherwise you will have unexpected result.

Figure 32 File Manager
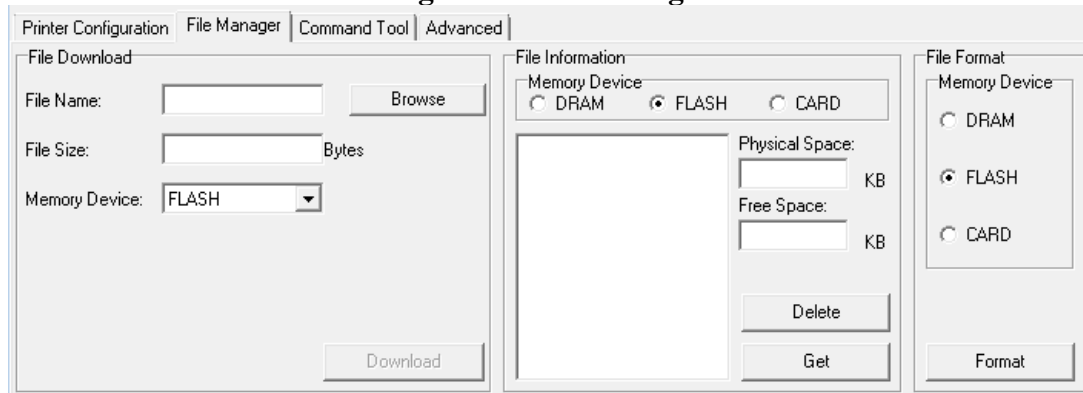
This chapter reviews how to use each of the different functions within the File Manager:

<u>File Information</u>   The ability to view the files on the memory devices.

<u>File Download</u>   The ability to download files into the memory devices.

<u>File Delete</u>   The ability to delete files from the memory devices.

<u>File Format</u>   The ability to format the memory devices.

IMPORTANT: The Configuration Utility does not know if the SD Card is actually installed or not in the printer. Any attempts to read, download, or format a non-existent SD Card can result in a loss of communication with the printer. Verify the SD Card is installed before performing these actions.

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3.1 File Information

Before downloading or performing any action on the file systems, the first step is to check the contents of the file system. This is easily done by selecting the Memory Device of interest within the File Information subsection shown below.
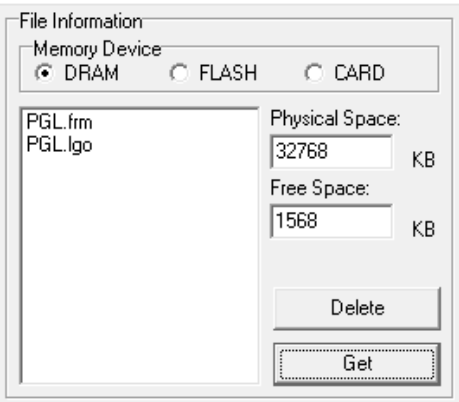

Next, hit the "Get" button and the window is populated with the files resident in that Memory Device. The Physical Space of that device is also shown along with the Free Space available for new files to be downloaded. Note that the maximum amount of Free Space is only a fraction of the Physical Space. The allocation can be modified and is described in more detail in File System and Memory.

3.2 File Download

File download is simple with the File Manager using the "File Download" area. The steps are as follows:

1. View the current contents of the target Memory Device as described in File Information.

2. Choose the target "Memory Device" in the "File Download" area.

3. Press the "Browse" button which brings up the Open File window.

4. Choose the file for download. The filename must be in the 8.3 format or the error message shown below will come up.
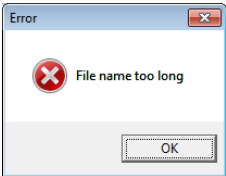
5. Once the file is selected, the "File Name" and "File Size" will be shown in their respective boxes.

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6. Check "Free Space" KB in the "File Information" subsection to verify there is adequate space available before downloading the file into the Memory Device.

7. Press the "Download" button.

Figure 33 File Download Subsection
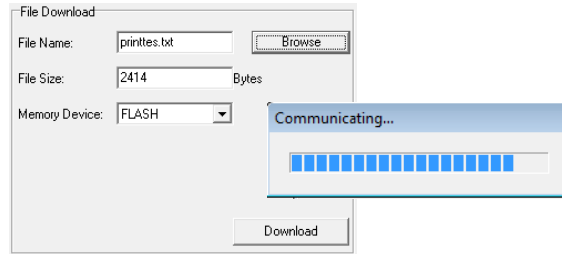
8. Update the file information using the "Get" button and verify the target file has been successfully downloaded. The Free Space will be decremented by the size of the file.

IMPORTANT: Filenames of files saved to the SD card will be converted to upper case. All access to these files by filename will be case insensitive.

3.3 File Delete

Deleting a file from a Memory Device is easy. Using the "File Information" subsection, follow these steps:

1. View what is already present in the desired Memory Device as described in File Information.

2. Choose the desired file to delete from the files shown in the window.

3. Press the "Delete" button to delete the file.

4. After a moment, update the file information using the "Get" button and verify the target file has been successfully deleted. The Free Space will be incremented by the size of the file.

IMPORTANT: The File Manager will delete files from the SD card even if these files are file protected. This includes the Premium Fonts that can be purchased from Printronix. Do not deleted files from the SD card unless you are absolutely positive that these files are no longer required.

3.4 File Format

If the user wants to format the Memory Device, this is also possible using the File Format subsection. Simply choose the target Memory Device and press the "Format button". This action will delete all files in that device. Users will have to confirm they want to perform this action per Figure 34.

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Figure 34 Device Formatting
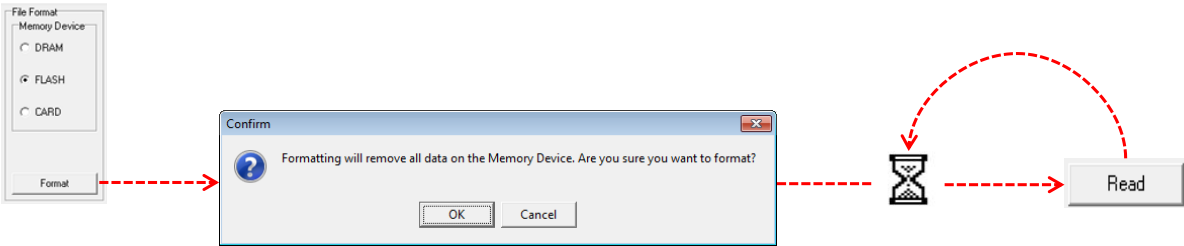
As the figure shows, once the formatting process starts, the user is required to wait for the formatting to complete before continuing to use the printer. For DRAM and FLASH, this is a very quick process. For SD Card, this may take several minutes. The user can push the "Read" button from the Printer Configuration tab to verify the completion of the process. If the "Read" is successful, the operation is complete.
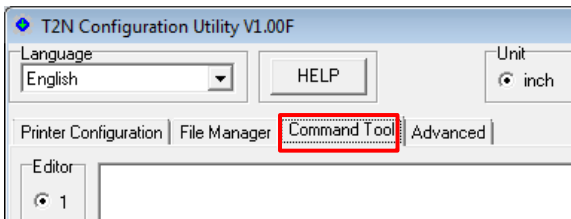
IMPORTANT: In general, it is best to format the SD Card on the PC or laptop instead of the printer.

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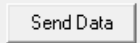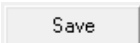
4. Command Tool

The next major section of the Configuration Utility is the Command Tool, chosen from tabs at the top level. Figure 35 highlights the *Command Tool*.
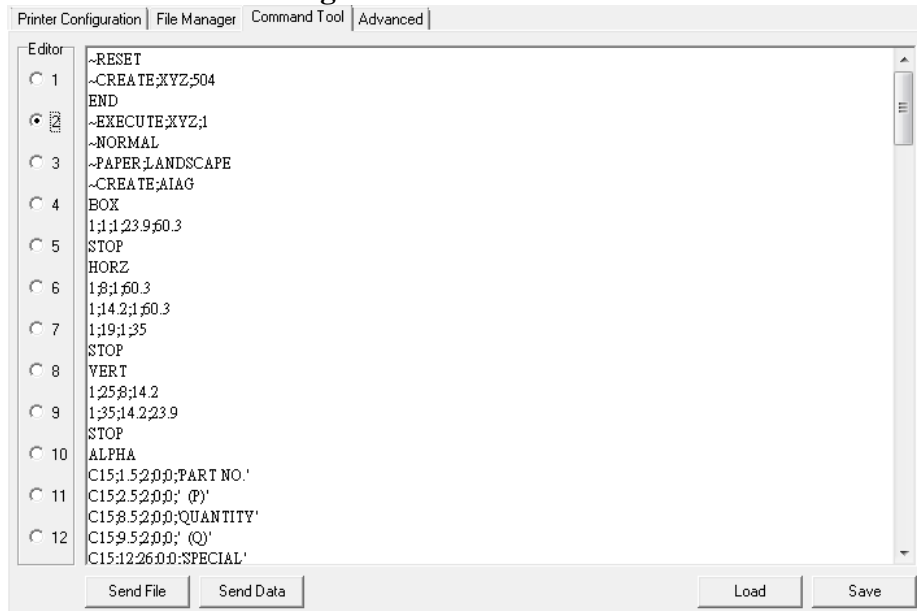
Figure 35 Command Tool Tab

The Command Tool is a very powerful feature to make it easy to perform the following types of tasks:

- Create host data and jobs using one of twelve editors. Simply click within an editor window and start typing. Users can switch between editors without losing any data within the editor.

- Send data within the selected editor to the printer using the "Send Data" button [Send Data]. Sending data from editors can be used to quickly test the printer is properly connected and receiving data.

- Load file contents into the selected editor using the "Load" button [Load]. This will bring up an "Open" window to allow the user to browse for the target file. This method can be used to test a label with the current configuration. Adjustments to the label or configuration can be made quickly and re-tested as necessary.

- Save data from the selected editor to a file using the "Save" button [Save]. After adjustments have been made to a given label, they can be stored for later use. This will bring up a "Save A" window to select the filename and location.

- Send a file directly to the printer using the "Send File" button [Send File].This method does not load the file contents into an editor. This will bring up an "Open" window to allow the user to browse for the target file.

The Command Tool window is illustrated in Figure 36.

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Figure 36 Command Tool

Printer Configuration | File Manager | Command Tool | Advanced

Editor
- ○ 1
- ◉ 2
- ○ 3
- ○ 4
- ○ 5
- ○ 6
- ○ 7
- ○ 8
- ○ 9
- ○ 10
- ○ 11
- ○ 12

```
~RESET
~CREATE;XYZ;504
END
~EXECUTE;XYZ;1
~NORMAL
~PAPER;LANDSCAPE
~CREATE;AIAG
BOX
1;1;1;23.9;60.3
STOP
HORZ
1;8;1;60.3
1;14.2;1;60.3
1;19;1;35
STOP
VERT
1;25;8;14.2
1;35;14.2;23.9
STOP
ALPHA
C15;1.5;2;0;0;'PART NO.'
C15;2.5;2;0;0;' (P)'
C15;8.5;2;0;0;'QUANTITY'
C15;9.5;2;0;0;' (Q)'
C15;12;26;0;0;'SPECIAL'
```

[Send File] [Send Data]   [Load] [Save]

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		SHEET 62	

5. Advanced Setup

The final major section of the Configuration Utility is the Advanced Setup, chosen from tabs at the top level. Figure 37 highlights the *Advanced* tab.

Figure 37 Advanced Tab
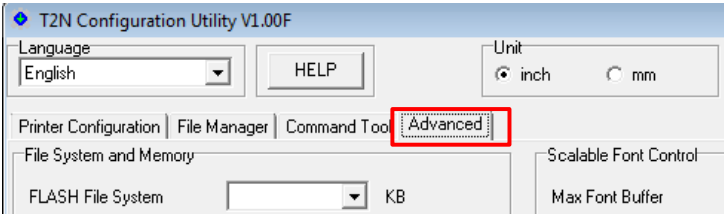
The Advanced Setup section is part of the printer configuration but is set aside because these options should not be set by typical users. These options affect how memory is utilized and only users who are aware of the side effects should modify these parameters. The printer by default is configured for optimum use and these parameters are only for rare circumstances in which the complexity of the job requires them to be modified.

The Advanced section with the factory defaults are shown in Figure 38. When using this section, be sure to upload the current printer values first before modifying them. If not previously performed, the "Read" button in the lower right-hand corner can be used.

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		SHEET 63	

Figure 38 Advanced Setup

This chapter reviews the different types of Advanced Setup:

File System and Memory	Defining how memory is allocated within the system.
Statistics Control	The ability to reset certain statistics.
Media/Sensor Control	The ability to disable and enable sensors.
Scalable Font Control	The ability to modify the appearance of scalable fonts.
PGL Text Printing	The ability to print text through PGL.

5.1 File System and Memory

This section is used to determine how PCB FLASH and DRAM memory is divided between the file system, page memory (memory allocated for the emulations to create images), and free memory used by the emulations or

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		SHEET 64	

system to process the job. To change these settings, select the value from the drop down list and click 'Set' button to set the value. To reset all the settings in the 'File System and Memory', use the "Factory Set" button.

IMPORTANT: The printer must be reset before these setting will take effect.

IMPORTANT: These values should only be changed by knowledgeable users. If improperly configured, the printer performance can be adversely affected.

FLASH File System

Allows the user to select the amount of memory in KB to be allocated to the PCB Flash file system. The selection choices are 1280, 2560, and 3840 KB.

The factory default is 2560 KB.

Max # of Files in FLASH

Allows the user to select the maximum number of files in FLASH to be allocated to the PCB Flash file system. The selection choices are 128, 256, 384, and 512.

The factory default is 256.

DRAM File System

Allows the user to select the amount of memory in KB to be allocated to the DRAM file system. The range is from 256 to 1024 KB in increments of 128 KB.

The factory default is 512 KB.

Max # of Files in DRAM

Allows the user to select the maximum number of files to be allocated in the DRAM File System. The selection choices are 128, 256, 384, and 512.

The factory default is 256.
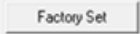
| SIZE	CODE IDENT NO.	DRAWING NO.	REV
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		SHEET 65	

Page Memory

Page memory is what emulations use to create images send to the engine. The amount of memory allocated here can have an effect on the maximum Label Length setting in the Media/Sensor tab and print throughput. This value might be increased if users need long labels or might be reduced if users are printing small labels (less than 2 inches in length) and want to use the extra memory elsewhere. Users can experiment with this value to see how it affects performance.

The range is 300 KB to 4600 KB in increments of 300 KB with the exception of 2200 KB and 4600 KB. The factory default is 2200 KB. The page memory size affects the maximum label length. The maximum label length with page memory of 2200 KB for 300 dpi printer is 48". If you need to print labels longer than 48"for 300 dpi printer, changing the size of page memory allows you to accomplish that.

Setting the Factory Configuration

Upon using the "Factory Set" button [Factory Set], a window will up asking the user to confirm the operation. As stated before, these changes should only be made when the consequences are understood.
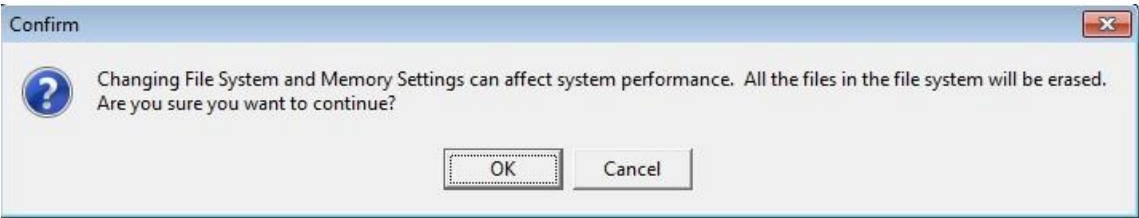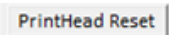
5.2 Statistics Control

This section is used to reset counters in the engine.
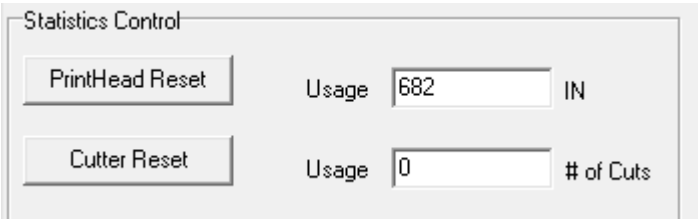
PRINTHEAD RESET

The [PrintHead Reset] button should be pressed each time a printhead is replaced. This helps the user keep an accurate accounting of how much the printhead has been used.

USAGE

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The PrintHead "Usage" value is given in inches only and can be reset by using the "PrintHead Reset" option within <u>Statistics Control</u> in <u>Advanced Setup</u>. When a new head is installed, the user should reset the head for an accurate counter value.

CUTTER RESET

The [Cutter Reset] button should be pressed each time a cutter is replaced. This helps the user keep an accurate accounting of how much cuts that the cutter has performed.

USAGE

The Cutter Usage value is the number of cuts that the cutter has performed. When a new cutter is installed, the count should be reset to maintain an accurate count.

5.3 Media/Sensor Control

This section is provided for advanced control of Media/Sensor options which are not typically needed by users. By default, all the sensors listed are enabled in the printer. Users can disable these sensors if desired based on their specific application or media.

Head-Up Sensor

This menu is used to configure the head-up sensor.

- **Enable (factory default)** enables the head-up sensor.
- **Disable** disables the head-up sensor.

Ribbon Sensor

This menu is used to configure the ribbon out sensor.

- **Enable (factory default)** enables the ribbon out sensor.
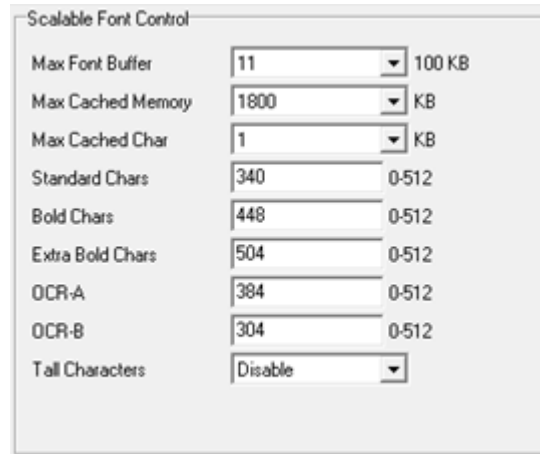- **Disable** disables the ribbon out sensor.

Ribbon Encoder

SIZE	CODE IDENT NO.	DRAWING NO.	REV
A	**55759**	**184797**	
		SHEET 67	

This menu is used to configure the ribbon encoder.

- **Enable (factory default)** enables the ribbon encoder.
- **Disable** disables the ribbon encoder.

5.4 Scalable Font Control

This section is provided for emulations which use scalable fonts (PGL and ZGL only). EGL does not use scalable fonts and thus this section does not affect EGL.

IMPORTANT: For most applications, the default settings related to font memory are acceptable. Therefore, do not change the defaults unless your application requires an uncommon memory configuration.

Max Font Buffer

The maximum amount of DRAM allocated for downloading fonts (TrueType, Scalable, or Bitmap). DRAM allocation will not take effect unless you save it in a configuration and the printer is powered up with that configuration.

The range is 1 to 18 (units of 100 Kbytes), and the factory default is 11 (1100 Kbytes).

Max Cache Memory

The Maximum Cache Memory option specifies the size of the memory block that can be allocated to the font cache. The font cache stores bitmaps that are created on demand from the font outlines stored on the printer flash. The cache allows the printer to print scalable fonts at optimum speed. Memory block allocation will not take effect unless you save it in a configuration and the printer is powered up with that configuration.

To calculate the memory requirement, use this equation:

$$(\textbf{HS} \times \textbf{VS} \times \textbf{Average Height} \times \textbf{Average Width} \times \textbf{NumOf Char}) / 8$$

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SIZE	CODE IDENT NO.	DRAWING NO.	REV
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		SHEET 68	

Where: **HS** = Horizontal resolution

VS = Vertical resolution

Average Height = Average character height (inches)

Average Width = Average character width (inches)

NumOfChar = Number of Characters to be cached

The allowable range is 200 KB through 2000 KB in 200 KB increments.

The factory default is 1800 KB.

Max Cached Char

The Maximum Cached Characters option specifies the size of the largest character that can be stored in the font cache. This will not take effect unless you save it in a configuration and the printer is powered up with that configuration. To calculate the memory requirement, use this equation:

$$(\textbf{HS} \times \textbf{VS} \times \textbf{Average Height} \times \textbf{Average Width}) / 8$$

Where: **HS** = Horizontal resolution

VS = Vertical resolution

Average Height = Average character height (inches)

Average Width = Average character width (inches)

For example, with a print head that prints at 203 dpi you would use the following formula: (203 x 203 x 1 x 1) / 8 = 5,151. Therefore, select a value that is equal to or greater than 5,151. The closest available value is 6 KB.

The allowable range is 1 KB through 20 KB, in 1 KB increments.

The factory default is 1 KB.

Standard Chars

This menu entry permits you to adjust the thickness or font weight of standard text fonts.

The range is 0 to 512, and the factory default is 340.

IMPORTANT: This menu does not apply to bold font types used in PGL.

Bold Chars

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		SHEET 69	

This menu entry permits you to adjust the thickness or font weight of bold text fonts.

The range is 0 to 512, and the factory default is 448.

Extra Bold Chars

This menu entry permits you to adjust the thickness or font weight of extra bold text fonts.

The range is 0 to 512, and the factory default is 504.

OCR-A

Character weight adjustment of resident OCR-A characters.

The range is 0 to 512, and the factory default is 384.

OCR-B

Character weight adjustment of resident OCR-B characters.

The range is 0 to 512, and the factory default is 304.

Tall Characters

Increases the point height of resident Intellifont characters.

- **Disable** (factory default). Standard resident font character point height is maintained.
- **Enable**. Increases the point height of resident Intellifont characters approximately 10%.

5.5 PGL Text Printing

By default, the Active Emulation is set to Auto Switching which means that PGL, ZGL, and EGL are all actively looking at the host data for forms and relevant emulation commands. Pure text jobs will not be printed, but rather the data will be ignored by each emulation in the hopes that the next emulation will process it.

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		SHEET 70	

Printing pure text applications is possible through PGL if the Active Emulation is set to PGL. In this scenario, PGL will process all the host data and not share it with the other emulations. Furthermore, PGL will use the options in these Advanced settings to determine how text (if any) is formatted.

Define CR Code

This option controls the action of the printer when it receives a Carriage Return code (0D hex) from the host computer. If this feature is enabled, each time the printer receives a carriage return, it inserts an additional Line Feed code (0A hex) into the data stream. Do not use this feature if the host computer sends line feeds to the printer.

- **CR = CR** (factory default). Does not insert an extra line feed after each carriage return.
- **CR = CR + LF**. Inserts an extra line feed after each carriage return. The next print position will be print position 1 of the next line.

Define LF Code

This parameter forces the printer to insert an automatic Carriage Return code into the data stream whenever a Line Feed code occurs. This can be used in most installations, but it is required if the host computer does not send carriage returns to the printer.

- **LF = LF** (factory default). Does not perform an automatic carriage return. The next print position will be at the current print character position on the next line.
- **LF = CR + LF**. Performs an automatic carriage return. The next print position will be print position 1 of the next line.

CR Edit

This parameter determines if a carriage return will be followed by a line feed.

- **Disable** (factory default). The printer ignores all carriage returns that are not followed by line feeds.
- **Enable**. The printer processes all carriage returns, even for those that are not followed by line feeds.

Select LPI

This is the number of lines to be printed per inch. For example, at 6 LPI there is 1/6 inch from the top of one print line to the top of the next print line.

The options are 1 to 1000 LPI. The factory default is 6.0 LPI.

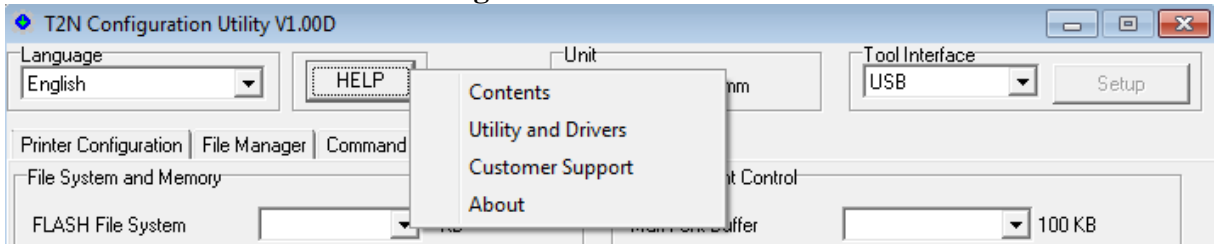| SIZE	CODE IDENT NO.	DRAWING NO.	REV
A	**55759**	**184797**	
		SHEET 71	

6. HELP

The HELP button `HELP` is made clearly available as shown in Figure 39. Upon clicking on the HELP button, there are several different selections:

Figure 39 HELP Button

- **Contents.** Brings up the HELP window with the help contents, index, and search capability. The help file is named T2NHelp.chm. The Configuration Utility .exe and T2NHelp.chm need to be in the same directory and on the C drive. If Configuration Utility does not find the help file, it pops up a window as shown in Figure 40.

Figure 40 Help File Error Message
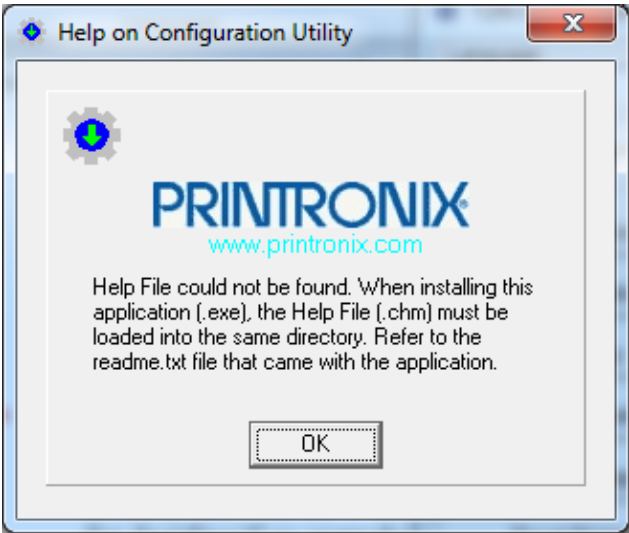
- **Utility and Drivers.** Link to the http://www.printronix.com/products/drivers.aspx website location that will have the latest tool and drivers available for download. The user is responsible for deciding if an upgrade is needed.

- **Customer Support.** Link to the www.printronix.com/support.aspx website location.

- **About.** The About screen will show the copyright, version number of the utility, and Printronix website. The website will be html links. See Figure 41.

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Figure 41 About Window

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7. Character Sets

This chapter illustrates the character groups and character sets available for PGL and ZGL:

PGL Character Sets   Character Groups and Sets for PGL.

ZGL Character Sets   Character Groups and Sets for ZGL.

7.1 PGL Character Sets

This section illustrates the character groups and character sets available in PGL. Within the PGL tab, the option "Character Group" chooses the active group of character sets. The character group "Misc" is included in the Configuration Utility between the "Turkish Sets" and "UTF-8", but is ignored. After choosing the group, the option "Character Set" can be used to choose from among the sets shown below. Those character sets with the asterisk are the factory default choice for the given Character Group.

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Figure 42 PGL Character Groups and Sets

Character Group

Standard Sets

0) ASCII*
1) German
2) Swedish
3) Danish
4) Norwegian
5) Finnish
6) English
7) Dutch
8) French
9) Spanish
10) Italian
11) Turkish
12) CP 437
13) CP 850
14-15) Reserved
16-23) Dwn Overlay
24-31) User Def.

Arabic Sets

ASMO 449*
ASMO 449+
ASMO 708
ASMO 708+
MS DOS CP710
MS DOS CP720
Sakr CP714
Aptec CP715
CP 786
IBM CP864
IBM CP1046
Arabic Lam One
Arabic Lam Two
Win. CP 1256
Farsi 1
Farsi 2
1098 Farsi 1285

Cyrillic Sets

Code Page 866*
Cyrillic CP 437
Cyrillic 113
Cyrillic 8859-5
ISO 915
Code Page 855
Cyrillic 7 Bit
Ukrainian
Bulgarian
Win. CP 1251
Latvian 866
CP 1048

European Sets

Latin 2 8859-2*
Code Page 852
Mazovia
Kamenicky
Roman 8
PC-437 Slavic
Slavic 1250
Code Page 865
Code Page 860
Latin 1 8859-1
Latin 5 8859-9
Latin 9 8859-15
Polish POL1
Win. CP 1250
Win. CP 1252
Win. CP 1257
CP 858 EURO
Lith. CP 773
Serbo Croatic 1
Serbo Croatic 2
CP 774
CP 775
ISO 8859-4

Greek Sets

DEC 256 Greek*
ELOT 928 Greek
Greek 3
ABY Greek
ABG Greek
ELOT 927 Greek
Greek 851
Greek 437
Greek 8859-7
Win. CP 1253
Greek 813 EURO
Greek 869 EURO

Hebrew Sets

Hebrew Old*
Hebrew New
Hebrew DEC
Latin-1 Hebrew
Win. CP 1255

Turkish Sets

Data Gen. Turk.*
DEC Turkish
IBM Turkish
Siemens Turkish
PTT Turkish
IBC Turkish
Bull Turkish
AS400 Turkish
Unisys Turkish
NCR Turkish
PST Turkish
UNIS-1 Turkish
Code Page 853
INFO Turkish
Win. CP 1254
Code Page 857
Azeri

UTF-8[1]

* = Factory Default

[1] UTF-8 can be used with any font to access all of the characters available in that font. For a font with the full Unicode set, the Andálfont is available for purchase.

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7.2 ZGL Character Sets

This section illustrates the character groups and character sets available in ZGL. Within the ZGL tab, the option "Character Group" chooses the active group of character sets. Then the option "Character Set" can be used to choose from among the sets shown below. Those character sets with the asterisk are the default choice for the given Character Group.

Figure 43 ZGL Character Groups and Sets

Character Group (ZGL)

Standard Sets*	Arabic Sets	Cyrillic Sets	European Sets	Greek Sets
USA 1*	ASMO 449*	Code Page 866*	Latin 2 8859-2*	DEC 256 Greek*
USA 2	ASMO 449+	Cyrillic CP 437	Code Page 852	ELOT 928 Greek
UK	ASMO 708	Cyrillic CP 113	Mazovia	Greek 3
Holland	ASMO 708+	Cyrillic 8859-5	Kamenicky	ABY Greek
Denmark/Norway	MS DOS CP710	ISO 915	Roman 8	ABG Greek
Sweden/Finland	MS DOS CP720	Code Page 855	PC-437 Slavic	ELOT 927 Greek
German	Sakr CP714	Cyrillic 7 Bit	Slavic 1250	Greek 851
France 1	Aptec CP715	Ukrainian	Code Page 865	Greek 437
France 2	CP 786	Bulgarian	Code Page 860	Greek 8859-7
Italy	IBM CP864		Latin 1 8859-1	
Spain	IBM CP1046		Latin 5 8859-9	
Miscellaneous	Arabic Lam One		Latin 9 8859-15	
Japan	Arabic Lam Two		Polish POL1	
IBM CP 850			CP 858 EURO	
UTF-8				
Win CP 1252				
Win CP 1250				

Hebrew Sets	Turkish Sets
Hebrew Old*	Data Gen. Turk.*
Hebrew New	DEC Turkish
Hebrew DEC	IBM Turkish
Latin-1 Hebrew	Siemens Turkish
	PTT Turkish
	IBC Turkish
	Bull Turkish
	AS400 Turkish
	Unisys Turkish
	NCR Turkish
	PST Turkish
	UNIS-1 Turkish
	Code Page 853
	INFO Turkish

Notes:

* = Factory Default.

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8. Open Source Licenses

Printronix is required to declare any open source components within the firmware. This chapter declares two open source components:

Ethernut Operating System   The operating system used within the T2N.The **Ethernut** operating system is a free operating system and can be found at http://www.ethernut.de. From its website: "This is an Open Source Hardware and Software Project for building tiny Embedded Ethernet Devices. The target software is an Open Source implementation of a Real Time Operating System called Nut/OS and a TCP/IP protocol suite named Nut/Net."

Ethernut is available under the BSD License (http://www.opensource.org/licenses/bsd-license.php). This license is very liberal and does not require any disclosure of proprietary application code or even updates to the Ethernut code. The copyright included with the Ethernut source code is as follows:

```
/*
* Copyright (C) 2004 by egnite Software GmbH. All rights reserved.
*
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*
* 1. Redistributions of source code must retain the above copyright
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* AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
* OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF
* THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
* SUCH DAMAGE.
*
* For additional information see http://www.ethernut.de/
*
*-
* Copyright (c) 1990 The Regents of the University of California.
* All rights reserved.
```

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Zint Barcode Generator

Zint Barcode Generator   A package that generates barcode images used in EGL.

8.1 Ethernut Operating System

The **Ethernut** operating system is a free operating system and can be found at http://www.ethernut.de. From its website: "This is an Open Source Hardware and Software Project for building tiny Embedded Ethernet Devices. The target software is an Open Source implementation of a Real Time Operating System called Nut/OS and a TCP/IP protocol suite named Nut/Net."

Ethernut is available under the BSD License (http://www.opensource.org/licenses/bsd-license.php). This license is very liberal and does not require any disclosure of proprietary application code or even updates to the Ethernut code. The copyright included with the Ethernut source code is as follows:

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8.2 Zint Barcode Generator

The *Zint* barcode generator is licensed under GPL and is also included in the product. From the website (and download source) http://sourceforge.net/projects/zint/: "**Zint** is a barcode encoding library supporting over 50 symbologies including Code 128, Data Matrix, USPS OneCode, EAN-128, UPC/EAN, ITF, QR Code, Code 16k, PDF417, MicroPDF417, LOGMARS, Maxicode, GS1 DataBar, Aztec, Composite Symbols and more."

This product is compiled as a separate program for the T2N ARM9 platform and stored in the T2N Flash Memory at a fixed address. The *Zint* program has not been modified in any way and does not link into the T2N application code. Instead, the *Zint* program is loaded as a separate program in the factory and is not distributed with the T2N firmware application. The *Zint* program is provided under the GPL License 3.0 (http://www.gnu.org/licenses/gpl-3.0.html).

In addition to the GPL license included within the T2N User's Manual, Printronix has made available the Zint source code, binaries for the ARM9, and all build procedures on the Printronix website. At the bottom of the www.printronix.com website, there is a link "Legal Information" as shown below.

After clicking this link, a new webpage comes up. Click on *Zint License* as shown in Figure 44. Clicking this link will bring up the GPL License 3.0 information with an attachment that includes the build procedures to build the *Zint* binaries used in the T2N product.

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Figure 44 Printronix Website *Zint* License

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