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# WinTOC™ Operator's Manual

**Control Software for the Model 1010  
TOC Analyzer**

**Version 5.2**



O·Analytical



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# Chapter 1

## Introduction

WinTOC™ is a software package that allows the operator to control and monitor the operation of OI Analytical's Model 1010 TOC (Total Organic Carbon) Analyzer from a personal computer (PC). The program also allows the operator to easily sequence analyses, and save and retrieve data for reporting purposes.

### Features

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- Security and auditing
- Custom reporting with electronic signatures
- Remote control of the Model 1010 for convenient operation
- Data acquisition and storage capability
- Display screens and panels of run conditions, methods, and sequences
- Post-run reporting capability with operator-programmable formatting options.
- Stores methods and sequences
- Comprehensive online manual on CD

The WinTOC software package includes:

- One CD
- One RS-232-C adapter—null modem
- One operator's manual on CD (Part number 252536)



# Specifications

## Communications Standard

- Standard RS-232-C (16550 UART recommended)

Table 1.1. WinTOC computer requirements

Parameter	Minimum	Recommended
Computer	IBM compatible	IBM compatible
Processor/Speed	Pentium <sup>®</sup> 133	Pentium II or better
Memory (RAM)	32 MB	64 MB
Free Hard Drive Space	120 MB	120 MB
Operating System	Windows <sup>®</sup> 98	Windows 98/NT, 2000
DOS Version	n/a	n/a
Mouse	Required	Required
Graphics	VGA adapter card with 512K RAM onboard	VGA adapter card with 1 MB RAM onboard
Monitor	Color VGA	Color SVGA
Disk Drive	CD-ROM	CD-ROM
Com Ports*	1 free high speed 16550 com port	1–2 free high speed 16550 com ports
Math Coprocessor	n/a	n/a

\*Requires one unused 9-pin RS-232 com port or 25-pin RS-232 com port with a 25-to 9-pin adapter. The IRQ associated with this port must not be used by any other device, including the mouse or a modem, or any software such as WinFax<sup>®</sup> or Palm<sup>™</sup> HotSync<sup>®</sup>.

## Host Software Requirements

- Windows 98, Windows NT, or Windows 2000

## Printer Requirements

- WinTOC software is compatible with any printer that is supported by Windows 3.1 or later.



## Chapter 2

# Installation

This chapter explains WinTOC software installation and configuration.

**Note:** WinTOC is designed to run under Microsoft Windows 98 or later. For information on how to use Microsoft Windows, refer to the appropriate Windows documentation.

## Software Installation

Before installing WinTOC, confirm that the PC meets the minimum hardware and software specifications required to run WinTOC (see “Specifications” on page 2 in Chapter 1).

1. If running on Windows NT, ensure that the username logged into the PC has administrative privileges or the install program will not run successfully.
2. Insert the WinTOC CD into the CD-ROM drive on the PC.

**Note:** The WinTOC Launch screen (Figure 2.1.) should appear automatically within one or two minutes, depending on the CD-ROM drive’s reading speed. If it does not, follow the instructions in step 3. If it does, go to step 4.

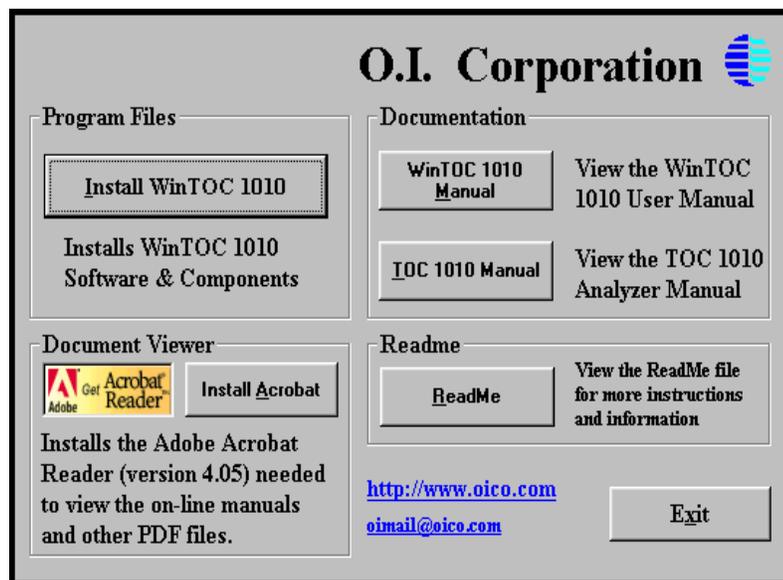


Figure 2.1. WinTOC 1010 Launch screen



3. Click on the Windows **Start** button, choose **Run**, and then type the following in the **Open** field of the Run dialog box: `<drive>\setup.exe`, where `<drive>` is the letter assigned by Windows to the CD-ROM drive (e.g., `d:\setup.exe`). Click **OK**.
4. To install WinTOC, click **Install WinTOC 1010**.
5. During installation the **Change Current Destination Folder** screen will appear (Figure 2.2.). From this screen, install WinTOC in a local directory on the desktop PC or in a local network directory. If WinTOC is installed in a network directory, access it through a shortcut created on the local PC for that directory.

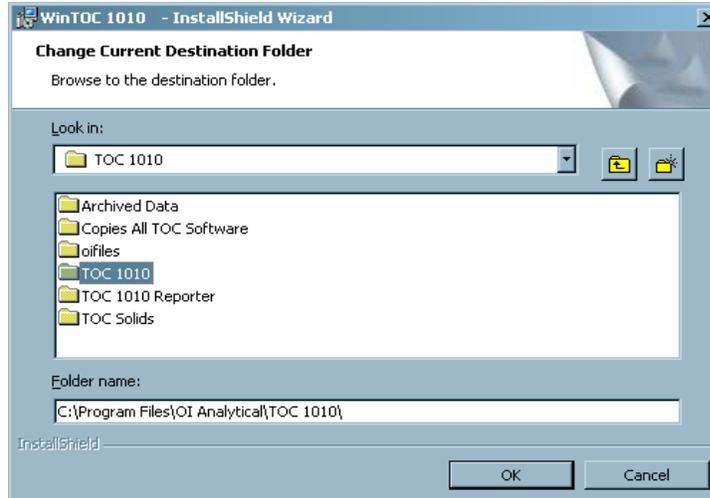


Figure 2.2. WinTOC 1010 Install Shield Wizard

6. During installation the **Enable Security & Auditing?** window will appear (Figure 2.3.). Select which features to install, and click **Install** to complete the installation.

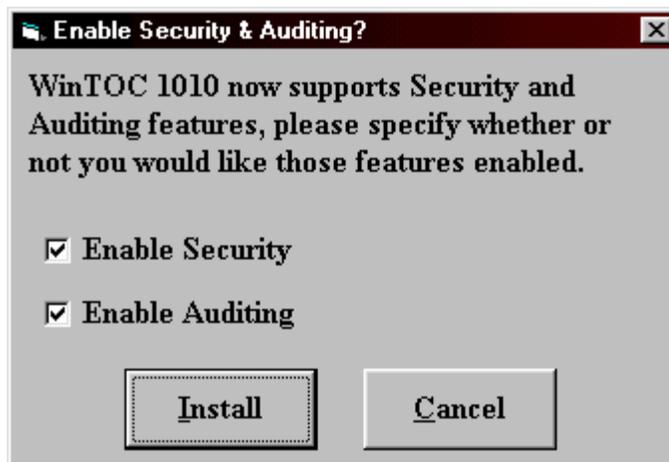


Figure 2.3. Enable Security and Auditing window

7. When the installation is complete, the Launch screen will reappear. From this screen, you may do the following:



- Click **Install Acrobat** to install the Acrobat Reader, which is needed to open the WinTOC manual.
  - Click **WinTOC 1010 Manual** to open the *WinTOC 1010 Operator's Manual*. Acrobat Reader must be installed to open the manual.
  - Click **TOC 1010 Manual** to open the *Model 1010 TOC Analyzer Operator's Manual*. Acrobat Reader must be installed to open the manual.
  - Click **ReadMe** to view the ReadMe text file for more information.
  - Click <http://www.oico.com> to access the OI Analytical Web site.
  - Click [oimail@oico.com](mailto:oimail@oico.com) to open up a new mail message to be sent to OI Analytical.
8. Click **Exit** to close the Launch screen.

## Communications Configuration ████████████████████

After WinTOC is installed, configure communications to the Model 1010(s) through the Configuration Editor.

1. Double-click on the Configuration Editor icon or select **Configuration Editor** from the Windows Start menu.
2. Under **1010 TOC Analyzer**, enter the name(s) of the TOC Analyzer(s) to communicate with WinTOC. WinTOC can communicate with a maximum of four TOC Analyzers via four separate RS-232 serial ports in the PC.
3. Under **Serial Port**, enter the com port number based on the communication link options between the Model 1010 and the PC with WinTOC.
4. After entering all of the information, click **OK** to complete the configuration. A message will appear at the bottom of the window if there are any entry errors.

### Adding a TOC Analyzer After Initial Configuration

Follow the steps below to add a TOC Analyzer after initial configuration has been completed.

1. Double-click on the Configuration Editor icon or select **Configuration Editor** from the Windows Start menu.
2. Enter the information for the new Model 1010. (See “Communications Configuration” on page 5 in this chapter.)
3. Click **OK** when all information is entered.



4. Verify that the system is correctly configured by selecting the icon of the new system. WinTOC will attempt to communicate with the new Model 1010. If communication is established, the WinTOC Status screen will be displayed. If initialization is not possible, a notice is displayed and an off-line copy of WinTOC will be initialized.

### **Removing a TOC Analyzer**

1. Double-click on the Configuration Editor icon or select Configuration Editor from the Windows Start menu.
2. Click on the **Analyzer** box to be deleted and clear the information across the entire line.
3. Click **OK**.



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## Chapter 3

# Introduction to WinTOC

This chapter provides information on the menus, screens, and commands used to control the Model 1010 TOC Analyzer with WinTOC.

**Note:** WinTOC is designed to run under Microsoft Windows 98 or later. For information on how to use Microsoft Windows, refer to the appropriate Windows documentation.

**Note:** When using WinTOC with a Model 1010 option that includes a keyboard and monitor, use the PC keyboard to control and input data. Do not use the Model 1010 keyboard with WinTOC because data loss may occur.

## WinTOC Screens and Menu System

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The screens and menus have been efficiently organized with the most used functions grouped together. There are six main screens in WinTOC:

- Status screen
- Configuration screen
- Methods screen
- Sequences screen
- Calibration screen
- Diagnostics screen



Table 3.1. shows the complete menu and submenu structure for WinTOC. Access these menus from the Status screen.

Table 3.1. WinTOC menus and submenus

<b>Menu</b>	<b>Submenu</b>
File	Printer Setup Exit
Setup	Configuration WinTOC Output Preferences
Databases	Methods Sequences View Methods View Standards
Instrument	Calibration Gas Saver Diagnostics Settings
Commands	Start Sequence Hold Sequence Abort Sequence Spiral Tray Reset Alarm
Utilities	Reporting View Run Log View Last Results Print Last Results Switch User View Audit Trail Archive/Restore Upgrade Firmware
Help	Contents About



## Status Screen

The Status screen displays vital, real-time conditions and settings for the Model 1010 (Figure 3.1.). This screen provides the operator with detailed information about the current operational state of the Model 1010. It also provides information about the sequence that has been programmed, any errors or alarms that exist, and a real-time display of the IR signal.

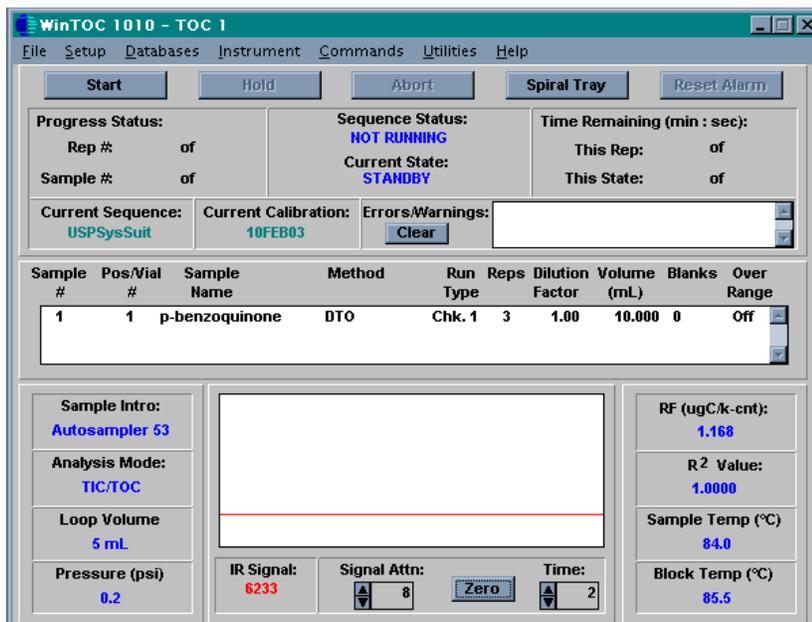


Figure 3.1. Status screen

Screen displays are color-coded to clearly distinguish the data from the static text (see Table 3.2.). The display feedback related to the Model 1010 will be blank when the unit is not currently running a sequence.

Table 3.2. Color codes for screen displays

Text Display	Color
Status Feedback	Blue
Errors/Alarms	Red
Sequence Information	Black
Current Sequence Name/Calibration	Aqua-blue

In addition to the display feedback, this screen provides the ability to control the analysis via the **Start**, **Hold**, and **Abort** buttons. These buttons are grayed or disabled at various times during operations when their respective functions are not



available. The same is true for the **Spiral Tray** button, which assists in loading and unloading the optional Model 1051 Autosampler.

<b>Control Buttons</b>	Provide the ability to control the analysis via the <b>Start</b> , <b>Hold</b> , <b>Abort</b> , <b>Spiral Tray</b> , and <b>Reset Alarm</b> buttons. These buttons are disabled at various times during operation when the respective functions are not available. See “Commands Menu” on page 18 in this chapter.
<b>Rep # __ of __</b>	Indicates the current replicate of the current sample (ranging from 1 to N, where N is the total number of replicates for the current sample) and the total number of replicates to be run for the current sample.
<b>Sample # __ of __</b>	Indicates the current sample that is running (ranging from 1 to N, where N is the total number of samples defined for the current sequence) and the total number of samples to be run for the current sequence. This number is independent of the position or vial number.
<b>Sequence Status</b>	Indicates the current status of the sequence, such as running, stopped, etc.
<b>Current State</b>	Directly reflects the current state of the Model 1010. As the Model 1010 runs a sample, it proceeds through an orderly set of states. The Standby state indicates that the Model 1010 has completed previous functions and is ready to start the next sequence. The time required and remaining for each state is also displayed on this screen.
<b>Time Remaining This Rep</b>	Indicates (in minutes and seconds) the time remaining to complete the current replicate of the sample. This takes into account the time required to complete the remaining states.
<b>Total Time This Rep</b>	Indicates (in minutes and seconds) the total time required to process the current replicate of the sample. This takes into account the time required to complete every state.
<b>Time Remaining This State: __ of __</b>	Indicates (in minutes and seconds) the time remaining to complete the current state on the Model 1010 and the total time required to complete the current state on the Model 1010.
<b>Current Sequence</b>	Displays the name of the current sequence that is running or that will run when <b>Start</b> is selected. To modify the current sequence or select a different sequence, go to the Sequences screen.
<b>Current Calibration</b>	Displays the name of the current calibration that is defined or that will run when <b>Start</b> is selected. To modify the current calibration or select a different calibration, go to the Calibration screen.



<b>Errors/Alarms Listbox</b>	Provides a list of any error or warning conditions that are currently affecting the Model 1010. Messages will continue to display in the listbox until the corresponding condition has been corrected.
<b>Clear</b>	Deletes the messages in the Errors/Alarms Listbox. A listing of these error and warning conditions can be found in Chapter 6.
<b>Current Sequence Data Listbox</b>	Shows the data defined for the current sequence. This is read-only information that is used to determine the sample that is currently running (highlighted), the samples that are already completed, and the samples that are yet to be run.
<b>Sample Intro</b>	Informs the operator of how the sample is being introduced into the Model 1010. Sample introduction modes include sipper tube, syringe, on-line, and autosampler.
<b>Analysis Mode</b>	Displays the analysis types to be performed: TIC/TOC, TIC, TOC, or TC.
<b>Loop Size</b>	Displays the current loop sizes installed in the Model 1010. Loop size options include 1 mL, 5 mL, 10 mL, and 25 mL.
<b>Note:</b>	This is not the actual volume of the loop. Loop volumes are calibrated on the Model 1010 and variances in loop volumes, tubing lengths, and valve internal volumes will affect the actual loop volume. The true loop volumes are stored in memory and are used in calculations for analysis results. The true loop volumes are displayed on the Diagnostics screen and are also found in the printout header.
<b>Pressure (psi)</b>	Displays the Model 1010's system pressure during operation. This readout is used to protect the unit from restrictions and to aid in diagnosing problems.
<b>RF (Response Factor)</b>	Shows the current calibration response factor being applied to all samples. This value is based on the calibration of the unit using standards. The Model 1010 uses a least squares linear regression model of calibration based on the number of standards used to calibrate the unit.
<b>R<sup>2</sup> Value</b>	Displays the correlation coefficient for the current calibration curve.
<b>Sample Temp (°C)</b>	Displays the actual temperature of the sample in the digestion vessel.
<b>Block Temp (°C)</b>	Displays the actual temperature of the heater block heating the digestion vessel.
<b>IR Signal</b>	Shows the current output of the NDIR detector. The signal can vary from a standby value of 4,000 to 8,000 up to a maximum value of 65,535.



**Real-Time IR Graph**

Displays the real-time graph of the IR signal at the bottom of the screen.

**Signal Attn**

Attenuates the NDIR signal display to enlarge smaller peaks or to reduce larger peaks.

**Time**

Increases or decreases the length of time shown to increase or decrease the number of peaks displayed.

## WinTOC Output Screen

The WinTOC Output screen is accessed from the Status screen by going to the **Setup** menu and selecting **WinTOC Output**. This screen is used to specify what output is to be generated and saved by WinTOC, in addition to any output being generated on the Model 1010 (Figure 3.2.).

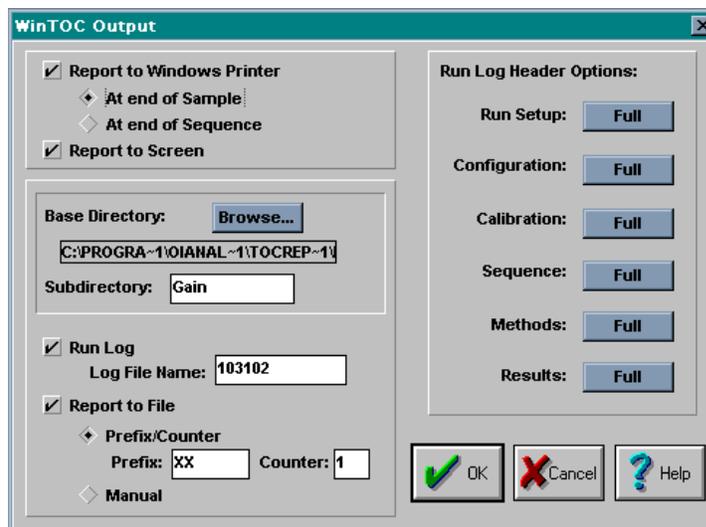


Figure 3.2. WinTOC Output screen

**Report to Windows Printer**

Automatically sends the reporting feedback to the default Windows-based printer attached to the PC that is running WinTOC. The page will print when the sample or the sequence is completed.

**Report to Screen**

Displays the reporting feedback obtained from each sample replicate on the screen for viewing.



## Base Directory

Allows the operator to change the root directory where the result files and run log are stored. Click **Browse** to access the Choose a Directory screen (Figure 3.3.).

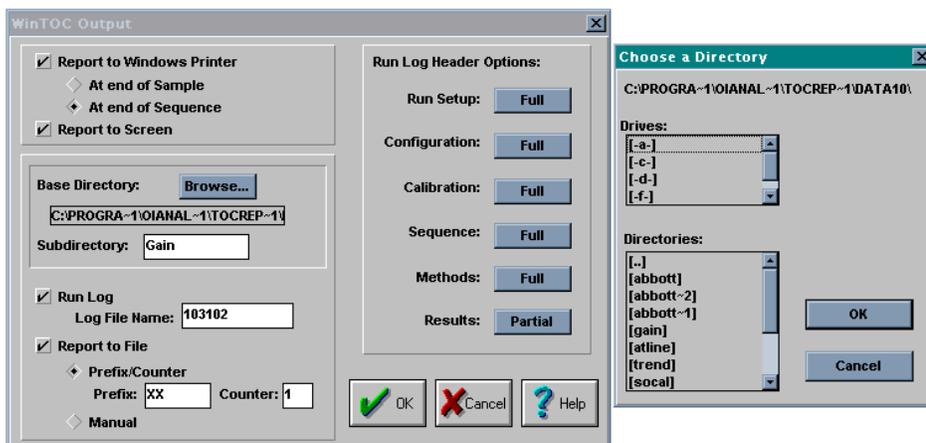


Figure 3.3. Choose a Directory screen

## Subdirectory

Allows the operator to specify the subdirectory or folder in the base directory where result files for each sequence are stored. If this subdirectory does not exist in the base directory, it will be created at the start of a sequence.

## Run Log

Allows the operator to specify that all reporting feedback be directed to a log file. This file is specified by the **Log File Name** field. This run log may be viewed by selecting **View Run Log** under the **Utilities** menu.

## Report to File

Saves the reporting feedback to a specified data file under a specified subdirectory. The IR data acquired during the sample run is automatically saved with the report and may be analyzed post-run through the TOC Reporter.

## Run Log Header Options

Allows the operator to select either full, partial, or no data to be added as information contained in the run log under the following categories: **Run Setup**, **Configuration**, **Calibration**, **Sequence**, or **Methods**. Partial, tabular, tabular with statistics (Tabular/S), or no data can be selected to print under the **Results** category.

## Preferences Screen

The Preferences screen is accessed from the Status screen by going to the **Setup** menu and selecting **Preferences**. This screen allows the operator to specify preferences about the operation of the WinTOC software (Figure 3.4.). Included in these



are the ability to clear the IR display after each sample, set the default number of replicates, and set the default sample volume.

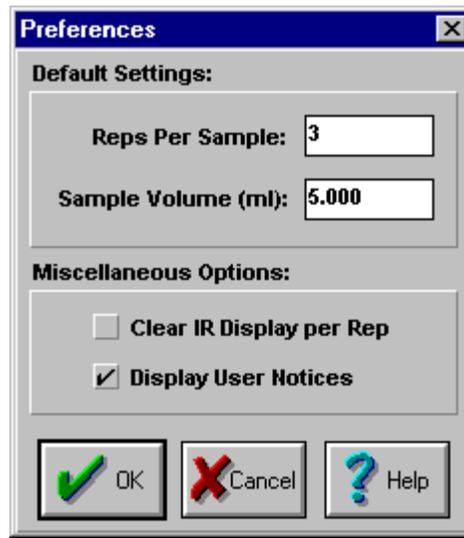


Figure 3.4. Preferences screen

- |  |  |
|--|--|
| <b>Reps Per Sample</b>                 | Used when generating any subsequent sequences. It will be applied to every sample by default when a new sequence is selected or when lines are cleared. The operator may override the defaults when generating the sequence. |
| <b>Sample Volume (ml)</b>              | Used when creating a sequence. This default may be overridden when generating the sequence for samples.  |
| <b>Clear IR Display per Sample Rep</b> | When selected, causes the IR graph to be cleared and zeroed following the completion of each sample of a sequence.   |
| <b>Display User Notices</b>            | When selected, shows helpful reminders that can be beneficial to the operator.   |



**CAUTION:** When sample loops are changed, be sure to change the loop size under the **Loop Size** section and any sample, standard, or rinse volumes that may be affected by a loop size change.

## Settings Screen

The Settings screen is accessed from the Status screen by going to the **Instrument** menu and selecting **Settings**. This screen specifies the Model 1010 output, including the printer, time, and date (Figure 3.5.).

The screenshot shows a window titled "Settings" with the following sections:

- Unit Printer:** Includes a checkbox for "Attached Printer" (unchecked), checkboxes for "Method w/printout" and "Statistics w/printout" (both checked), and a "Run ID" field containing the number "6".
- Unit Time/Date:** Includes fields for "Time" (17 hr, 42 min) and "Date" (12 mo, 3 day, 2002 yr).
- Unit Alarms:** Includes a checked "Enable Alarms" checkbox, a checked "Use Timer" checkbox, and a "Duration (h:m:s)" field set to 00 : 01 : 00.
- Sample Concentration Alarm Setpoints:** A table with columns for "Low" and "High" values for TIC(ppm), TOC(ppm), and TC(ppm).

	Low	High
TIC(ppm)	0.100	5.000
TOC(ppm)	0.500	1.000
TC(ppm)	0.100	6.000

At the bottom of the window are three buttons: "OK" (with a green checkmark), "Cancel" (with a red X), and "Help" (with a question mark).

Figure 3.5. Settings screen

- Attached Printer** Turns on the printer output so that information can be sent to a dot-matrix printer connected directly to the TOC Analyzer.
- Method w/printout** Enables printing capability of the current method parameters.
- Statistics w/printout** Enables printing capability of the average and standard deviation of samples and standards.
- Note:** All statistics are performed on area counts.
- Run ID** This feature is reserved for future expansion.
- Unit Time** Displays the current time. This may be edited for correction. When entering time values, it is not necessary to enter a delimiter (:). Time should be entered on a 24-hour scale.
- Unit Date** Displays the current date according to the Model 1010. This may be edited for correction.

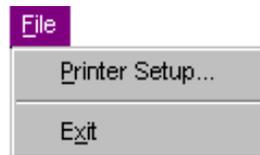


## Unit Alarms

Allows the Model 1010 to provide an external warning when TC, TOC, or TIC high or low concentration limits are exceeded. Through the alarm relay board, the Model 1010 can activate relay closures for external warning devices. Values can be entered from 0.000 to 10,000 ppm C. The alarm duration can be defined through the timer and duration input boxes. If the **Use Timer** dialog box is not checked, the alarm will persist until the next replicate starts.

## Status Screen Menu Descriptions

### File Menu



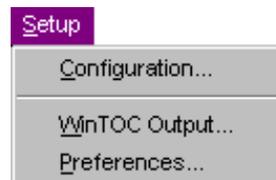
#### Printer Setup

Allows the operator to select paper source, size, orientation, number of copies, and the Windows-based printer to be used with WinTOC. This menu selection does not control the dot-matrix printer that may be directly attached to the TOC Analyzer. For this option, go to the Settings screen under the Instrument menu.

#### Exit

Closes and exits WinTOC. A warning message will be displayed if WinTOC detects that a sequence may currently be running.

### Setup Menu



#### Configuration

Provides access to screens to modify the Model 1010 configuration, specify the basic output (at the Windows PC) during sequence runs, and specify some preferences that can speed up the development of sequences, and modify the IR display.

Accesses the Configuration screen. See “Configuration Screen” on page 33 in this chapter.

#### WinTOC Output

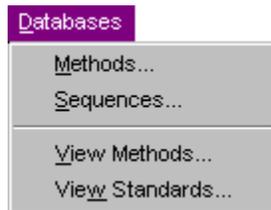
Used to specify what output is to be generated and saved by WinTOC, in addition to any output being generated on the Model 1010. See “WinTOC Output Screen” on page 12 in this chapter.



## Preferences

Used to specify WinTOC operational preferences. Included are the ability to clear the IR display, set the default number of replicates, and set the default sample volume. See “Preferences Screen” on page 13 in this chapter.

## Databases Menu



Provides access to the two critical databases in the WinTOC setup process—the Methods screen and the Sequences screen. These databases are maintained from run to run to help standardize operations without manually inputting information.

## Methods

Accesses the Methods screen. See “Methods Screen” on page 25 in this chapter.

## Sequences

Accesses the Sequences screen. See “Sequences Screen” on page 26 in this chapter.

## View Methods

Allows the operator to view in text format all methods saved in WinTOC. See “Methods Screen” on page 25 in this chapter.

## View Standards

Allows the operator to view the calibration standards that are defined for the current calibration. See “Sequences Screen” on page 26 in this chapter.



## Instrument Menu



Provides the capability to directly affect the operations of the Model 1010. It features the ability to modify the instrument calibration, perform diagnostic functions, and specify instrument parameters used during the sequence.

### Calibration

Accesses the Calibration screen. See “Calibration Screen” on page 30 in this chapter.

### Gas Saver

Automatically activates or wakes up the TOC Analyzer from Gas Saver mode at predefined times that are specified by the operator. See “Gas Saver Screen” on page 31 in this chapter.

### Diagnostics

Accesses the Diagnostics screen. See “Diagnostics Screen” on page 32 in this chapter.

### Settings

Accesses the Settings screen. The Settings Screen specifies the Model 1010 output, including the printer, alarms, time, and date. See “Settings Screen” on page 15 in this chapter.

## Commands Menu



Consists of four functions that control the Model 1010’s analytical progression. These functions also can be performed by clicking on the **Start**, **Hold**, **Abort** and **Spiral Tray** buttons on the Status screen.

### Start Sequence

Starts a sequence run. This button or menu item is available only when WinTOC is not already running a sequence.

### Hold Sequence

Allows the operator to pause the sequence. To resume the sequence, follow the instructions in the dialog box that appears when **Hold Sequence** is selected.

### Abort Sequence

Allows the operator to abort the sequence. WinTOC will prompt the operator to confirm the abort command. **Start Pos/Vial #** allows restarting the sequence where it was aborted by entering the vial number.



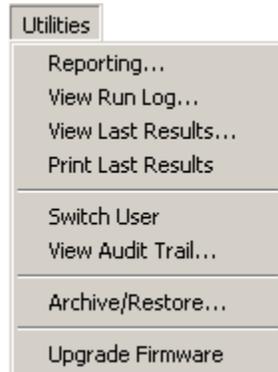
### **Spiral Tray**

Causes the Model 1051 Autosampler tray to either spiral in or out, depending on its current position. The Model 1010 will **not** respond to other commands until the tray has reached the final destination.

### **Reset Alarm**

Manually resets the hardware alarm relay closures.

## **Utilities Menu**



Provides access to utility functions, including reporting and viewing the run log. These options may open separate software programs to complete their tasks.

### **Reporting**

Accesses the TOC Reporter. See “TOC Reporter” on page 53 in Chapter 5 for further information.

### **View Run Log**

Displays the run log, which shows the output reports from the corresponding sequence.

### **View Last Results**

Displays a summary of the previous sample results. This is the same dialog box that is automatically displayed when **Report to Screen** is selected on the WinTOC Output screen under the **Setup** menu. The results for the previously run sample are available for viewing until a new sequence is started.

### **Print Last Results**

Prints a summary of the previous or currently running sample results.

### **Switch User**

Allows the dynamic ability to switch operators while WinTOC is running a sequence or is in standby mode.

### **View Audit Trail**

Displays a summary of all WinTOC security and auditing events since WinTOC was installed.

### **Archive/Restore**

Backs up methods, sequences, and calibrations; and replaces existing methods, sequences, and calibrations with archives.

### **Upgrade Firmware**

Used to upgrade TOC firmware. Instructions are displayed on the screen.



## Configuration Screen

The Configuration screen, accessed from the **Setup** menu, is used to define the run-time configuration of the Model 1010 and the Model 1051 (if attached) (Figure 3.6.). Choices are provided for the sample introduction mode, the analysis mode, and the loop volume to be used. Additional options are provided if an autosampler is specified. Some advanced parameters can be set and a loop calibration can be performed.

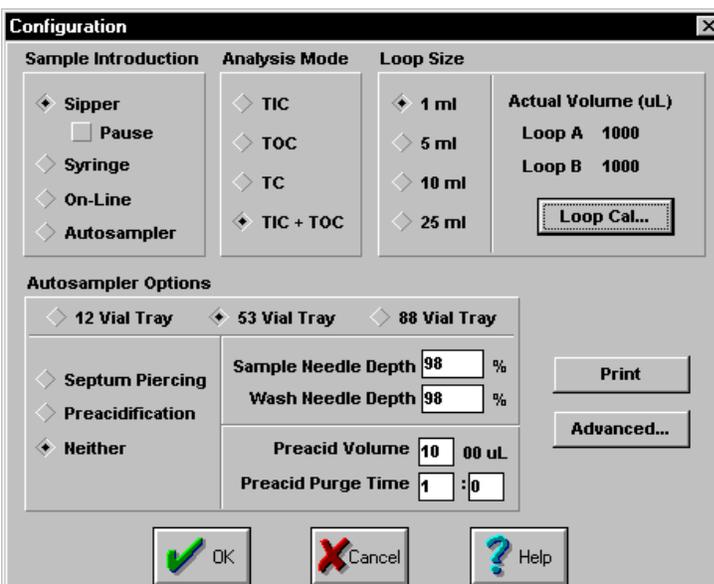


Figure 3.6. Configuration screen

### Sample Introduction

Displays the method used to bring the sample into the Model 1010. Click on the appropriate choice to select the desired sample introduction mode. The choice on the screen is the current method of sample introduction. The operator can select **Sipper**, **Syringe**, **On-Line**, **Autosampler**.

**Note:** The sample introduction mode **cannot** be changed during a sequence run.

**Note:** If **Autosampler** is chosen as the sample introduction mode and the autosampler is not interfaced to the Model 1010, an error message will appear. See the *Model 1051 Autosampler Operator's Manual* for more information.

### Sipper

The Sipper method allows the samples to be introduced by a sipper tube from a sample bottle. If the Model 1010 is performing multiple sample, standard, or check standard analysis, the unit will indicate (via a screen prompt and four beeps) when it is ready for the next sample. The NDIR is linearized over a range of 0 to 125  $\mu\text{g C}$ . Use Table 3.3. to select the correct sample volume according to sample carbon concentration.



Table 3.3. Approximate detectable range for sample volumes (%RSD values will vary with sample volume and concentration)

Sample Carbon Concentration	Recommended Sample Volume
2–20 ppb C*	25 mL
20 ppb–5 ppm C	25 mL
100 ppb C–12.5 ppm C	10 mL
200 ppb C–25 ppm C	5 mL
1–125 ppm C	1 mL

\*Concentrations below 20 ppb C are typically analyzed on-line, not using grab sample techniques.

**Note:** For best results, select the sample loop volume that is the next lowest multiple of the sample volume to be analyzed. For example, for a 5-mL sample volume, select the 1-mL sample loop. For a 10- or 25-mL sample volume, select the 5-mL sample loop.

Samples with carbon concentrations up to 125 ppm C can be analyzed with the 1-mL loop sampling capability. Samples with concentrations greater than 125 ppm C should either be diluted or injected by syringe as described later in this chapter.

**Note:** The Model 1010 pauses by default between analyses when the sipper tube is used. A **Pause** option is offered and can be turned off if the operator does not wish to be prompted between standards, samples, or check standards.

**CAUTION:** When sample loops are changed, be sure to change the loop size under the **Loop Size** section and any sample, standard, or rinse volumes that may be affected by a loop size change.

### Syringe

The Syringe method of sample introduction allows the operator to inject samples when prompted on the screen. The NDIR is linearized over a range of 0 to 125 µg C. A syringe injection volume appropriate to introduce this range of carbon per sample should be selected, depending on the sample's carbon concentration. Use Table 3.4. to select the proper sample injection volume.

**Note:** The maximum syringe injection volume is 1.0 mL. For larger volumes, use one of the loop-based injection modes.

Table 3.4. Approximate detectable ranges for sample injections (%RSD values will vary with operator technique and syringe versus concentration)

Sample Carbon Concentration	Syringe Injection Volume
2–200 ppm C	0.5 mL
5–500 ppm C	0.2 mL
10–1,000 ppm C	0.1 mL



Table 3.4. Approximate detectable ranges for sample injections (%RSD values will vary with operator technique and syringe versus concentration)

Sample Carbon Concentration	Syringe Injection Volume
20–2,000 ppm C	50 µL
50–5,000 ppm C	20 µL
100–10,000 ppm C	10 µL

Upon programming the sequence, WinTOC will prompt the operator (via a screen prompt and four beeps) to enter the syringe injection volume (under the **Loop Volume** section). Enter the desired syringe injection volume.

**Note:** The recommended syringe injection volume range is 10–500 µL. For best results, select the syringe volume so that the sample range falls in the middle of the concentration range of the syringe injection sample volume.

**Note:** Sample introduction by syringe is affected by syringe accuracy and the operator’s syringe technique.

**Note:** The Model 1010 is defaulted to pause between analyses when the syringe mode is used; however, the pause option in this case cannot be turned off.

**On-Line**

The On-Line method configures the software for an on-line or process application. Water may be sampled from flowing processes if the sample loop is plumbed on-line with the process water. If the process water pressure is sufficient (5 psi or greater), the water pressure can be used to continually introduce the sample through the sample loop. In the case of pressure-fed flow through (on-line) sampling, the sample pump downstream of the loop must be bypassed to avoid creating back pressure from the flow line. This is accomplished by connecting (fingertight) the fittings together that are normally connected to the pump inlet and outlet.

**Autosampler**

The Autosampler method allows the operator to configure the Model 1051 Autosampler. For information on autosampler configuration, refer to the *Model 1051 Autosampler Operator’s Manual*.

**Analysis Mode**

Used to select the analysis mode by clicking on the appropriate mode. The mode displayed is the current analysis mode. Choices include **TIC**, **TOC**, **TC**, and **TIC/TOC**.

**Loop Size**

Displays the size of the loops currently installed in the Model 1010. Options for loop size include 1 mL, 5 mL, 10 mL, and 25 mL.

**WARNING:** Maximum water feed pressure for process sampling is 60 psi. Maximum water temperature is 60°C.

**CAUTION:** Only change actual loop volumes when new loops are installed in the Model 1010. Changing or erasing actual loop volumes will affect analysis results.



**Note:** This is not the actual volume of the loop. Loop volumes are calibrated on the Model 1010 and variances in loop volumes, tubing lengths, and valve internal volumes will affect the actual loop volume. The true loop volumes are stored in memory and are used in calculations for analysis results. The true loop volumes are displayed on the Loop Calibration screen and are also found in the header on the printout.

The actual loop size is shown for both **Actual Loop A** and **Actual Loop B** when the corresponding loop size is selected. To modify these values, use the loop calibration feature. (See “Loop Calibration screen” on page 23 in this chapter.)

**Autosampler Options**

Specifies certain autosampler features that the operator may choose to modify. Refer to the *Model 1051 Autosampler Operator’s Manual*.

**Loop Cal**

Accesses the Loop Calibration screen (Figure 3.7.), which allows the operator to calibrate the sample loops. Brief instructions are provided as a reminder of the calibration technique. The calibration should be performed for Loop A and Loop B, for the 1-mL, 5-mL, 10-mL, and 25-mL loops. This will serve as the actual loop volume for subsequent analyses.

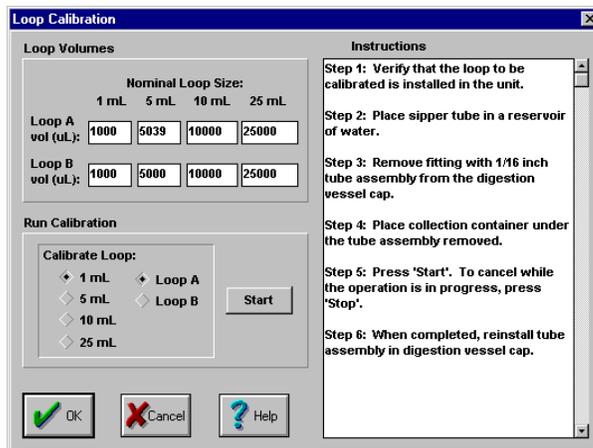


Figure 3.7. Loop Calibration screen



**CAUTION:** Changing the Advanced screen parameters may seriously impair the Model 1010's ability to correctly perform an analysis. Contact OI Analytical's Technical Support Department (800) 336-1911 or (979) 690-1711.

## Advanced

Accesses the Advanced screen (Figure 3.8.), which allows the operator to configure the analog signal output and to adjust some of the key parameters involved in sample transfer, blank averaging, and linearization of the Model 1010.

The screenshot shows the 'Advanced' configuration window with the following settings:

Sample Transfer Times (sec)				Blank Aves. (counts)		
Times for:	Sipper	AS	AS w/septum	TIC	75	
◇ 1 mL	Init	12.0	7.2	6.8	TOC	179
◇ 5 mL	Fill	5.1	5.1	4.2	TC	250
◇ 10 mL	Inject	9.3			IR Linearization Coef.	59000
◇ 25 mL						

Buttons: View Defaults, Reset To Defaults

**Analog Concentration Signal**

In TIC/TOC mode, signal shows:

- ◇ TIC
- ◇ TOC

Signal Range:

Min Conc (ppm C): 1.000

Max Conc (ppm C): 10.000

Test Signal: Off

Use Timer    Duration (h:m:s): 00 : 01 : 00

Buttons: OK, Cancel

Figure 3.8. Advanced configuration screen

## Analog Concentration Signal

Outputs the sample concentration result as either a 4–20 mA or 0–5 VDC square wave analog signal to a device such as a chart recorder or a programmable logic controller. The signal output can be either TIC or TOC mode. The minimum and maximum concentration ranges define the upper and lower limits of the concentration within the 4–20 mA or 0–10 VDC signal. The signal duration can be set through the timer and duration inputs.



## Methods Screen

The Methods screen, accessed from the **Databases** menu, is used to generate a database of methods, which can be used when defining sequences (Figure 3.9.). Methods cannot be individually uploaded or downloaded to the Model 1010.

Reagent Volumes		Times	
Acid:	2 00 uL	TIC React:	02 : 00
Oxidant:	10 00 uL	TIC Detect:	01 : 00
Rinse		TOC React:	02 : 30
Volume:	15 mL	TOC Detect:	01 : 30
Per Rep:	1	TC React:	02 : 30
Per Sample:	1	TC Detect:	01 : 30
		Auto-Repeat:	00 : 00 : 00

Method: **UNTITLED**

New Open... Save Save As... Delete... Print

OK Help

Figure 3.9. Methods screen

The operator can open and save methods. Methods must be saved in order to run a sequence using that method.

Since the Methods screen defines parameters related to the Model 1010's run-time operation, this screen is not available once a sequence is started to prevent overwriting methods of previously analyzed replicate samples.

### Control Buttons

**New**, **Open**, **Save**, **Save As**, and **Delete** buttons are provided to manage the method. A **Print** button is also provided to print the displayed method.

### Reagent Volumes

Sets the **Acid** and **Oxidant** volumes. The acid volume can be set between 0 and 2,000  $\mu\text{L}$  in 100- $\mu\text{L}$  increments, and oxidant volume can be set between 0 and 8,000  $\mu\text{L}$  in 100- $\mu\text{L}$  increments.

### Rinse

Sets the **Rinse** volume. Rinses can be programmed to occur between replicates of the sample (per rep), between samples (per sample), or both. If the rinse **Volume** is 0 and **Per Sample** is 0, no rinses will occur.



**Note:** If rinses are programmed per rep and per sample, after the last repetition, only the rinse per sample will occur.

**Times** Sets the times used for the analysis. The time is the total amount of time required to complete a run.

**Note:** Consistent times should be used for blanks, samples, standards, and check standards to ensure accurate, repeatable analyses.

**TIC React** Sets the time that the phosphoric acid reagent converts TIC to carbon dioxide. The range of time is 00:01 to 10:00 minutes.

**TIC Detect** Sets the time that the carbon dioxide from TIC is purged from the sample. The range of time is 00:45 to 10:00 minutes.

**TOC React** Sets the time that sodium persulfate reagent converts TOC to carbon dioxide. The range of time is 00:01 to 30:00 minutes.

**TOC Detect** Sets the time that the carbon dioxide from TOC is purged from the sample. The range of time is 00:45 to 10:00 minutes.

**TC React** Sets the time that sodium persulfate reagent converts TOC to carbon dioxide and phosphoric acid reagent converts TIC to carbon dioxide. The range of time is 00:01 to 30:00 minutes.

**TC Detect** Sets the time that the carbon dioxide from TIC and TOC are purged from the sample. The range of time is 00:45 to 10:00 minutes.

**Auto-Repeat** Delays the sampling of the Model 1010 to a preset time. This time can be set from 00:00:00 to 24:00:00 (0 to 24 hours).

**Note:** This feature is especially useful when the TOC Analyzer is set up in the at-line sample introduction mode.

## Sequences Screen

The Sequences screen, accessed through the **Databases** menu, allows the operator to generate a reusable database of sequences that is used to automate the sample testing (Figure 3.10.). A sequence is required in order to start any testing. Though



this may seem cumbersome when only testing one sample, it is very efficient for testing a series of samples.

Pos/Vial #	Sample Name	Method	Run Type	Reps	Dilution Factor	Volume (mL)	Blanks	Over Range
1	p-benzoquinone	DTO	Chk. 1	3	1.000	10.000	0	Off
2		Unknown	Sample	2	1.000	5.000	0	Off
3		Unknown	Sample	2	1.000	5.000	0	Off
4		Unknown	Sample	2	1.000	5.000	0	Off
5		Unknown	Sample	2	1.000	5.000	0	Off

Buttons: Clear Lines..., Copy Lines..., Insert Lines..., Remove Lines...

Position #: 1      Reps: 3      Trend

Sample Name: p-benzoquinone      Dilution factor: 1.00

Method: DTO      Volume (mL): 10.000

Run Type: Chk. 1      Reagent blanks before: 0

Remarks:

Sequence: USPSysSuit      View Methods...      View Standards...

Buttons: New, Open..., Save..., Save As..., Delete..., Print, OK, Cancel, Help

Figure 3.10. Sequences screen

The current sequence is shown in the listbox at the top of the screen. All pertinent fields are shown for a quick glance at the samples that are defined. To modify any sample, simply click on that line in the listbox and the corresponding data will be shown in the edit fields below the listbox.

### Pos/Vial #

The vial position number (**Pos #**) is used to sequentially order the samples for analysis (i.e., **Pos 1** will be tested before **Pos 2**, etc.) It also serves as the vial number when using the optional Model 1051 Autosampler. If a sample is placed in Vial 10 in the autosampler tray, the operator must define the sample information for that sample in position 10. There are a maximum of 88 positions available in any one sequence.

**Note:** The autosampler vials **cannot** be run in a nonsequential fashion. That is, vials cannot be sequenced as 3, 8, 1—the sequence must be 1, 3, 8. As seen in this example however, it is possible to skip vials.

### Sample Name

Allows the operator to define a label for the sample. The maximum number of characters is 15.

### Method

Allows a predefined method to be selected for the sample. This list shows only those methods that are defined. To add other methods to the list, use the Methods screen. The default for the **Method** field is **Unknown**, which means that the sample is not defined and will not be used in the sequence.



<b>Run Type</b>	Defines the analysis type to be performed (standard, check standard, or sample). Once the run type has been selected, the quantity of runs and replicates can be entered. Up to five standards and five check standards can be run within a single sequence.
<b>Reps</b>	Used to enter the number of replicates per sample to be analyzed.
<b>Dilution Factor</b>	Indicates that the sample processed was prediluted and that the concentration and mass should be scaled by that factor.
<b>Volume (mL)</b>	Allows the operator to enter the nominal volume of sample to be analyzed. (Volume for standards are entered from the Calibration screen.)
<b>Reagent Blanks Before</b>	Used to program reagent blanks to be run before a set sample.
<b>Remarks</b>	Used to add comments about the sample being tested.
<b>Trend</b>	Automatically inputs data from designated trend samples into a comma-separated values file (*.csv) that is unique to each trend sample. To designate a sample as a trend sample, type in the <b>Sample Name</b> and click <b>Trend</b> . A message will appear indicating the csv file name associated with that trend sample. View all current trend sample names from the <b>Sample Name</b> pull-down menu. csv files are stored in the "Trend" folder located in the current WinTOC output subdirectory. The associated between the trend sample name and its corresponding csv file is noted on all printouts and in the run log.
<b>Use Over Range Checking</b>	Allows the operator to make decisions about a sample before it is run and to check for samples that are over range. If samples are over range, over range checking reduces the sample volume to a predefined value within the linear range of the Model 1010. Over range checking is configurable for either <b>TIC</b> or <b>TOC</b> checking.
<b>Note:</b>	For the Model 1010 to reduce the sample size, the sample size must be 20 mL with 10-mL loops, greater than 5 mL with 5-mL loops, and greater than 2 mL with 1-mL loops. No over range checking is possible with 25-mL loops. Be sure to have enough sample volume to run the worst case scenario. Also run more than one replicate if rerunning a sample, otherwise the RSD will be zero and will always pass the checking test.
<b>Control Buttons</b>	<b>New</b> , <b>Open</b> , <b>Save</b> , <b>Save As</b> , and <b>Delete</b> buttons are provided to manage the sequences. The sequence name specified when exiting the screen will become the current sequence for testing. A <b>Print</b> button prints the displayed sequence.



<b>Clear Lines</b>	Accesses the Clear Lines box, which is used to reset the sample lines in the sequence to defaults. This means that <b>Sample Name</b> is cleared, <b>TOC Method</b> is set to <b>Unknown</b> , and the other fields are set to defaults.
<b>Copy Lines</b>	Accesses the Copy Lines box, which is used to speed up the sequence generation process when multiple samples are the same or similar. Groups of lines or samples can be easily copied.
<b>Insert Lines</b>	Inserts sequence lines into the sample sequence table. The remaining lines located below are automatically renumbered.
<b>Remove Lines</b>	Removes a specified number of lines from the sample sequence table. The remaining lines located below are automatically renumbered.
<b>View Methods</b>	Displays all the defined methods that were created from the Methods screen along with their associated volumes, rinses information, and times.
<b>View Standards</b>	Displays the calibration standards that are defined for the current calibration. This calibration is created by using standards as the <b>Run Type</b> in sequencing. The five standards for each mode that have been defined and their concentration, mass, and status will be displayed. The status indicates whether they are currently being used in the calculation of the response factor.



## Calibration Screen

The Calibration screen, accessed through the **Instrument** menu, is used to specify and modify the calibration or response factor of the Model 1010 (Figure 3.11.). Up to five standards can be defined, including their concentration and mass. Once the calibration is performed, the **Area Counts per Rep** will be shown in the corresponding droplist and a response factor will be calculated.

Std. #	Use	Concentration (ppm)	Volume (ml)	Area Counts per Rep	
1	<input checked="" type="checkbox"/>	0.000	5.000	Rep 1 - 1055	Edit
2	<input checked="" type="checkbox"/>	5.000	5.000	Rep 1 - 49390	Edit
3	<input checked="" type="checkbox"/>	10.000	5.000	Rep 1 - 58082	Edit
4	<input checked="" type="checkbox"/>	20.000	5.000	Rep 1 - 109727	Edit
5	<input checked="" type="checkbox"/>	25.000	5.000	Rep 1 - 134492	Edit

Cal. Mode:   
  TIC   
  TOC   
  TC

Allow Editing:   
  Yes   
  No

RF Calculation:   
  Automatic   
  Manual

RF (ugC/k-cts): 0.907   
 R<sup>2</sup> Value: 0.9886   
 Offset (ugC): -2.880   
 Offset (cts): 3175

Calibration: Current

New Open... Save Save As... Delete... Print

OK Cancel Help

Figure 3.11. Calibration screen

### “Use” Checkboxes

Allows the operator to initially specify the number of calibrants in the calibration curve. The response factor (RF) of an existing calibration curve can be adjusted by selecting which standards are to be used in the calculation. The response factor is automatically recalculated.

### Concentration (ppm)

Allows the concentration of the standard to be entered.

### Volume (ml)

Allows the volume of the standard to be entered.

### Area Counts per Rep

Shows the area counts per replicate in the corresponding listbox once the calibration is performed.

### Cal Mode

Allows the operator to select the calibration mode by clicking on the appropriate mode. TIC, TOC, or TC can be selected.

### Allow Editing

Allows the concentration to be edited in the event that a data entry error occurs. Allows access to the **Edit** buttons.

### RF Calculation

Specifies if the response factor is to be calculated automatically or set manually.

### RF, R<sup>2</sup>, and Offset

Displays parameters showing the characteristics of the calibration for the TC, TOC, and TIC modes.



## Control Buttons

**New**, **Open**, **Save**, **Save As**, and **Delete** buttons are provided to manage the calibrations. A **Print** button is also provided to print the calibrations.

## Gas Saver Screen

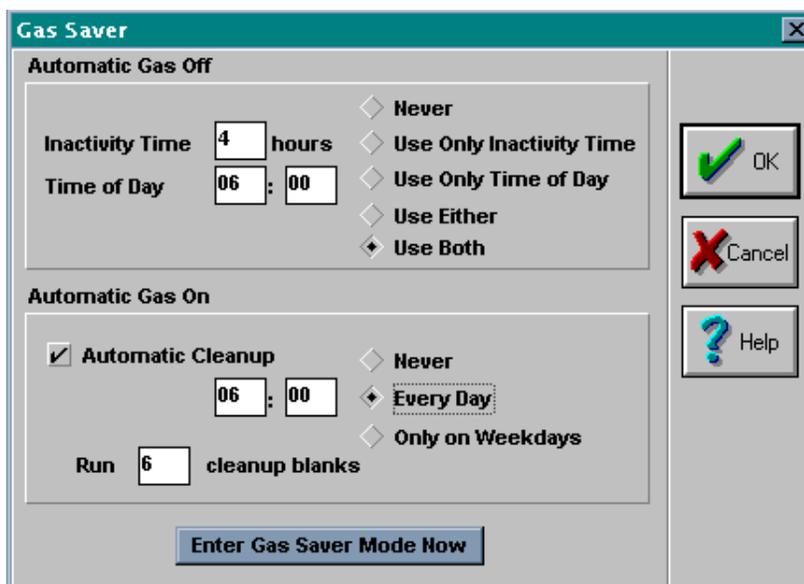


Figure 3.12. Gas Saver screen

### Automatic Gas Off

Allows the operator to specify the time to turn off the nitrogen gas flow to the Model 1010. To maintain the proper IR signal, the flow rate is actually reduced from ~400 mL/min to ~40 mL/min in gas saver mode. The inactivity time or the time of day can be set. Enter the time of day in 24-hr format (24 hr:59 min).

### Automatic Gas On

Allows the operator to specify the time to restore nitrogen gas flow to the Model 1010 and to run an optional cleanup sequence. The Model 1010 can wake up every day (Monday–Sunday) or only on weekdays (Monday–Friday). The operator may also run from 0–99 reagent blanks as part of the wake up routine. Enter in the time of day in 24-hr format (24 hr:59 min).

**Note:** The operator may override any **Automatic Gas Off** setting by clicking on **Enter gas saver mode now**. When in gas saver mode, the operator may override the **Automatic Gas On** setting by clicking on **Exit gas saver mode now**.

**Note:** Run a minimum of six reagent blanks if the TOC Analyzer has been in gas off mode for more than 24 hours.



## Diagnostics Screen

The Diagnostics screen, accessed through the **Instrument** menu, is used to manually operate the Model 1010's individual mechanisms (Figure 3.13.). It is also helpful when troubleshooting the instrument.

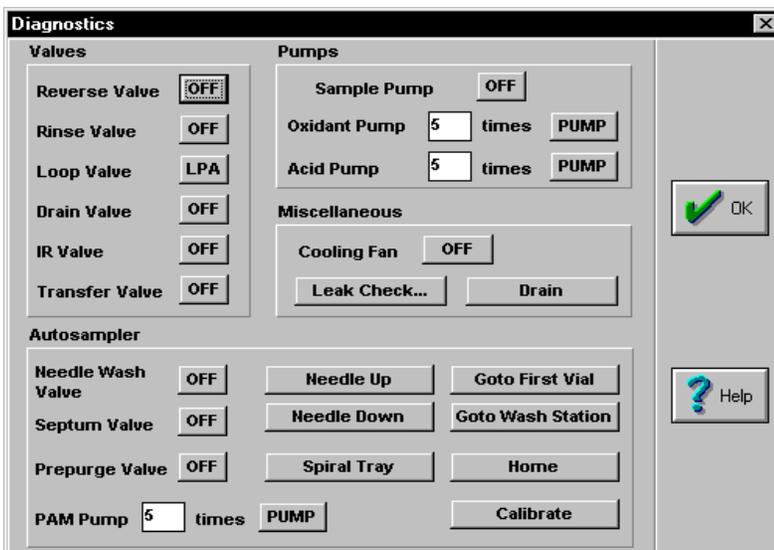


Figure 3.13. Diagnostics screen

**Valves** Manually controls the Model 1010's valves to check functionality. The items in this section can be changed by clicking the valves **ON** and **OFF**.

**Pumps** Primes the acid and oxidant pump. The operator enters the quantity of times the reagent pumps are activated. The range is 1–150. The sample pump can also be activated.

**Note:** When priming the reagent pumps, activate the manual drain periodically to keep the sample vessel from overflowing and flooding other instrument components.

**Miscellaneous** Used to perform a leak check or activate the cooling fan.

**Leak Check** Used to pressurize the system and check for a pressure drop over time by clicking on the **Leak Check** button and following the directions on the screen.

**Drain** Provides an untimed system drain to allow digestion vessel draining or to remove water from the system. To activate and deactivate the manual drain, click **Drain**.



## Autosampler Controls

Controls the functions of the autosampler. The **Needle Wash Valve**, **Septum Valve**, and **Prepurge Valve** can be activated and deactivated by clicking **ON** and **OFF**. The **Needle Up**, **Needle Down**, **Spiral Tray**, **Goto First Vial**, **Goto Wash Station**, **Home**, **Calibrate**, and **PAM Pump** commands can also be activated and deactivated by clicking on the appropriate buttons. See the *Model 1051 Autosampler Operator's Manual* for more information.

## Model 1051 Autosampler Command Descriptions

### Configuration Screen

From the Status screen, go to the **Setup** menu and select **Configuration**. This will access the Configuration screen (Figure 3.14.).

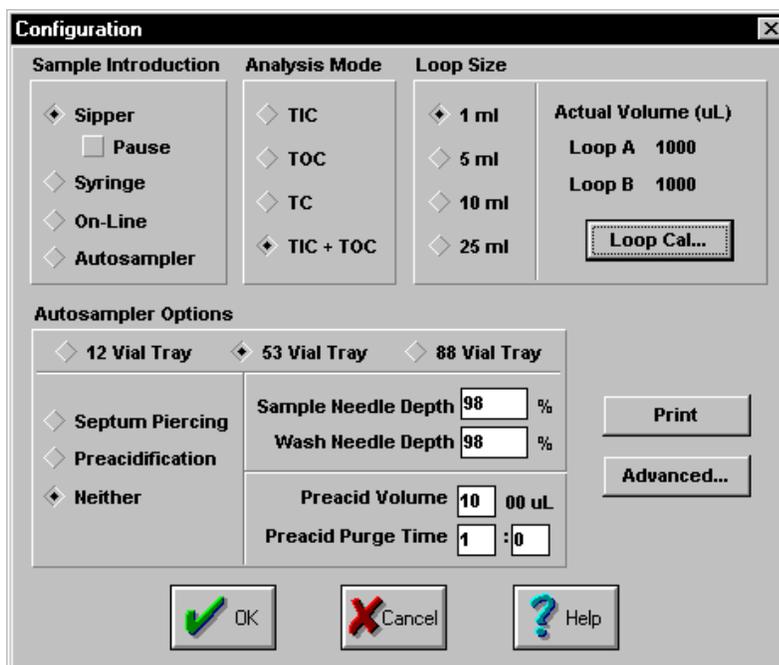


Figure 3.14. Configuration screen

If the Model 1051 is installed, the Model 1010 will recognize the **Autosampler** as a valid option under the **Sample Introduction** section. When **Autosampler** is chosen, the **Autosampler Configuration** becomes active.

- 12 Vial Tray** Allows the Model 1051 to function with a 12-position tray (100-mL vials, 53-mm diameter).
- 53 Vial Tray** Allows the Model 1051 to function with a 53-position tray (40-mL USEPA-approved vials, 28-mm diameter).



- 88 Vial Tray** Allows the Model 1051 to function with an 88-position tray (14-mL vials, 16-mm diameter).
- Septum Piercing** Enables the Model 1051's septum piercing capability, which pressurizes the vial with nitrogen to assist in moving the sample out of the vial.
- Preacidification** Enables the Model 1051's preacidification module (if installed) capability. If **Preacidification** is enabled, **Preacidification Volume** allows the operator to set the amount of acid to inject into the vials for the preacidification process. The range of volume is from 0 to 2,000  $\mu\text{L}$  in 100- $\mu\text{L}$  increments. Preacid purge time allows the setting of the purge time for preacidification. The range of time is 00:00 to 20:00 minutes.
- Sample Needle Depth and Wash Needle Depth** Can be set between 0% to 98%.

## Sequences Screen

From the Status screen, go to the **Databases** menu and select **Sequences**. This will access the Sequences screen (Figure 3.15.).

Pos/Vial #	Sample Name	Method	Run Type	Reps	Dilution Factor	Volume (mL)	Blanks	Over Range
1	p-benzoquinone	DTO	Chk. 1	3	1.000	10.000	0	Off
2		Unknown	Sample	2	1.000	5.000	0	Off
3		Unknown	Sample	2	1.000	5.000	0	Off
4		Unknown	Sample	2	1.000	5.000	0	Off
5		Unknown	Sample	2	1.000	5.000	0	Off

Buttons: Clear Lines..., Copy Lines..., Insert Lines..., Remove Lines...

Position #: 1      Reps: 3      Trend

Sample Name: p-benzoquinone      Dilution factor: 1.00       Use Over Range Checking

Method: DTO      Volume (mL): 10.000       TIC     TOC     TC

Run Type: Chk. 1      Reagent blanks before: 0      If mass is over 0.00 ugC then reduce volume to 0.000 mL

Remarks:

Sequence: USPSysSuit      View Methods...      View Standards...

Buttons: New, Open..., Save..., Save As..., Delete..., Print, OK, Cancel, Help

Figure 3.15. Sequences screen

If **Autosampler** is selected as a sample introduction mode (from the Configuration screen), the **Pos/Vial #** field serves two purposes. First, it is used to sequentially order the samples for analysis (i.e., position 1 will be tested before position 2, etc.). Second, it serves as the vial number when using the optional Model 1051. If a sample is placed in vial 10 in the autosampler tray, the operator must define the sample information for that sample in **Pos/Vial # 10**.



**Note:** The autosampler vials **cannot** be run in a nonsequential fashion. In other words, vials cannot be sequenced as 3, 8, 1; the sequence must be 1, 3, 8. However, it **is** possible to skip vials, as seen in this example.

**Note:** Replicates from a vial of sample, standard, or check standard depends on the sample loop volume and the volume in the vial. For 10-mL samples using 5-mL loops, it is possible to sample at least two replicates from a 40-mL vial.

## Diagnostics Screen

From the Status screen, go to the **Instrument** menu and select **Diagnostics**. This will access the Diagnostics screen (Figure 3.16.).

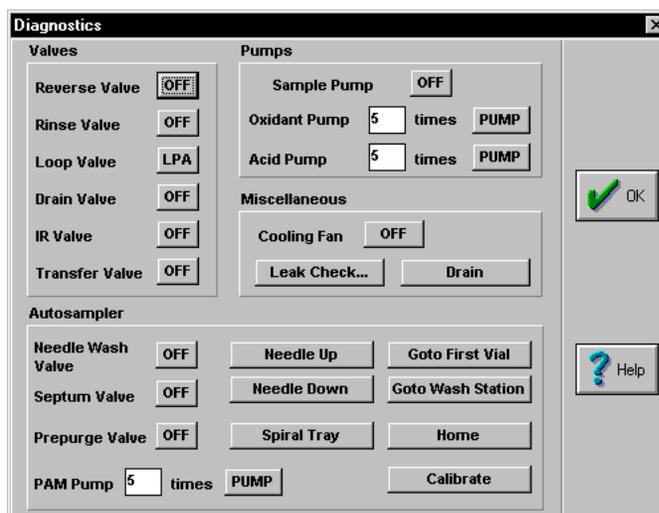


Figure 3.16. Diagnostics screen

Model 1010 components associated with the Model 1051 can be activated from this screen for testing purposes.

- |  |   |
|--|---|
| <b>Autosampler</b>   | Activates the autosampler controls.   |
| <b>Needle Wash Valve, Septum Valve, and Prepurge Valve</b> | Manually controls the valves to check functionality. These items can be changed by clicking the valves <b>ON</b> and <b>OFF</b> .   |
| <b>PAM Pump</b>  | If a preacidification module is installed in the Model 1010/1051, the PAM Pump can be primed for operation by entering the number of <b>times</b> and clicking on the <b>PUMP</b> button. |

Other autosampler functions can be actuated by clicking on their corresponding buttons.





## Chapter 4

# Operation

The OI Analytical Model 1010 TOC Analyzer can be controlled from a host computer using WinTOC software. This chapter outlines the procedures for operating the Model 1010 using WinTOC. For a complete list of WinTOC commands and detailed descriptions of WinTOC screens, refer to “Introduction to WinTOC” on page 7 in Chapter 3.

If the Model 1010 is not used on a daily basis, it can be turned off and restarted as required; however, stabilization of the electronics and detector require a 20- to 30-minute warm up period each time the instrument is turned on.

**Note:** WinTOC is designed to run under Microsoft Windows 98 or later. For information on how to use Microsoft Windows, refer to the appropriate Windows documentation.

## Operational Parameters

The OI Analytical Model 1010 initially uses a default method of parameters. These settings are summarized in Table 4.1.

Table 4.1. Model 1010 default method parameters

Parameter	Default Setting
TIC React	02:00
TIC Detect	01:00
TOC React	02:30
TOC Detect	01:30
TC React	02:30
Acid Volume	200 $\mu$ L
Rinse Volume	25 mL
Oxidant Volume	1,000 $\mu$ L
Rinses Per Rep	1
Rinses Per Sample	1



These settings can be modified through the Methods screen. For more information, see “Methods Screen” on page 25 in Chapter 3.

The first step for the operation of the Model 1010 is setting up the software preferences and settings. The next step is the development of a calibration curve. The final step is creating a sequence and running an analysis.

## Basic Operational Flow

The basic operational flow is designed around using three major software components: configuration, method, and sequence. To run an analysis, these three components must be addressed.

Configuration describes the basic operational mode for the Model 1010, such as the sample introduction mode, the analysis mode, and the loop volume.

Method describes the basic sample cycle for the Model 1010, including the cycle timing, the reagent volumes, and the rinse process.

Sequence describes the selection and ordering of the samples. It specifies sample name, method, run type, number of replicates, sample volume, dilution factor, and use of blanks.

In general, the operator should first specify the Model 1010 configuration, followed by any new methods, and finally, the overall sequence of the samples. Since this information can be stored and recalled, it is very easy to repeat these steps from run-to-run and day-to-day.

At the completion of the sequence, the Status screen will return to its starting condition and reset the available buttons and functions.

## Starting up the Model 1010

1. Install WinTOC as described in “Software Installation” on page 3 in Chapter 2.
2. Ensure that there is no floppy disk in the Model 1010 disk drive. The disk drive is only used for initial program installation at the factory and for system program upgrades.
3. Turn on the power switch on the back panel of the Model 1010.
4. During the Model 1010 boot-up, listen for a series of audible beeps to determine the status of the instrument. The beep sequence is as follows:
  - 1 Beep – System startup
  - 2 Beeps – CMOS check passed
  - 3 Beeps – Firmware ready (start WinTOC communications)



## Starting WinTOC

1. Double-click on the WinTOC icon or select WinTOC from the Windows Start menu.
2. If password protection is enabled for program start-up, enter the password and click **OK**. For more information on password protection, see “Starting Security and Auditing Manager” on page 65 in Chapter 6.
3. Select the WinTOC system to be used. Click **Start**. If you have not configured WinTOC communications, see “Communications Configuration” on page 5 in Chapter 2.

## Instrument Configuration

Before operation, the Model 1010’s operational parameters must be defined and saved.

### Preferences

The Preferences screen is used to specify WinTOC operational preferences. For a description of the Preferences screen options, see “Preferences Screen” on page 13 in Chapter 3.

1. From the Status screen, go to the **Setup** menu and select **Preferences**. This will access the Preferences screen (Figure 4.1.).

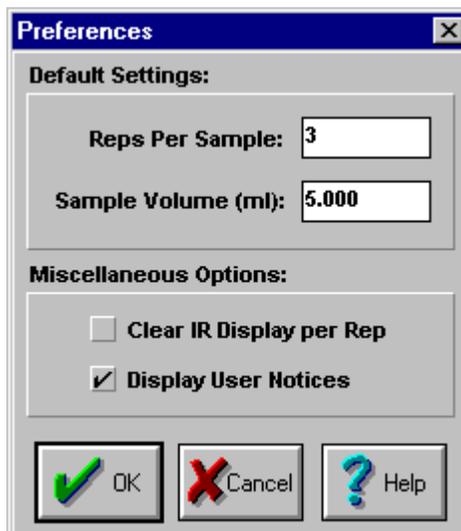


Figure 4.1. Preferences screen

2. Enter in the number of **Reps Per Sample** and the **Sample Volume**.
3. Enable or disable the **Miscellaneous Options**.



4. Click **OK** to save the preferences and exit the Preferences screen. To exit the screen without saving the changes, click **Cancel**.

## Output Settings

The WinTOC Output screen is used to specify what output is generated and saved in WinTOC. The Settings screen is used to specify Model 1010 output. For a description of the WinTOC Output screen and Settings screen options, see “WinTOC Output Screen” on page 12 and “Settings Screen” on page 15 in Chapter 3.

1. From the Status screen, go to the **Setup** menu and select **WinTOC Output**. This will access the WinTOC Output screen (Figure 4.2.).

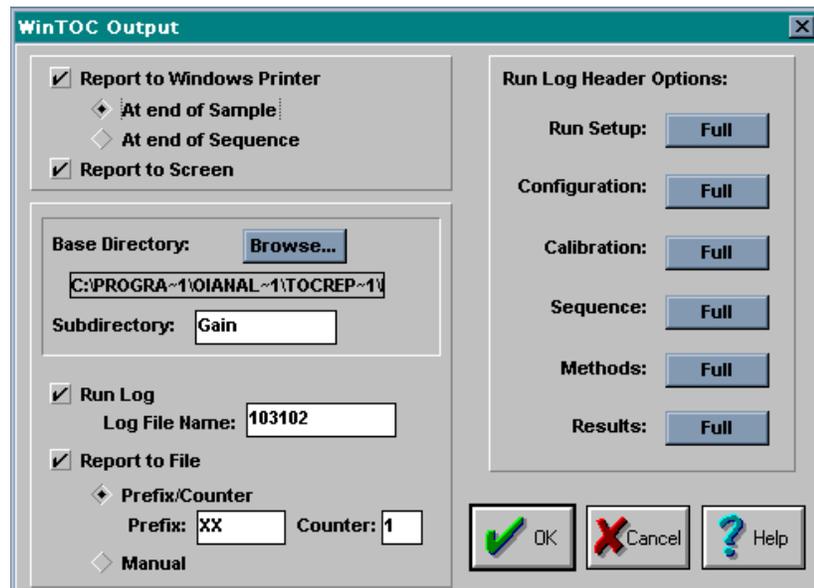


Figure 4.2. WinTOC Output screen

2. Select if the report should be sent to the printer or the screen.
3. Select the base directory folder where the WinTOC output files will be stored. Browse to locate the appropriate directory on a local PC or on a network directory.
4. Specify the subdirectory folder where the WinTOC result files and run log will be stored.
5. If a data run log will be generated and stored, select **Run Log** and specify a Log File Name. If **Run Log** is selected, select the **Run Log Header Options**.

**Note:** Saving each sequence run output in a separate subdirectory is a useful technique.

6. Click **OK** to save the output settings and exit the WinTOC Output screen. To exit the screen without saving the changes, click **Cancel**.
7. From the Status screen, go to the **Instrument** menu and select **Settings**. This will access the Settings screen.



8. Select the **Unit Printer** options.
9. Verify that the **Unit Time/Date** is correct. If incorrect, enter in the correct time or date.
10. Click **OK** to save the settings and exit the Settings screen. To exit the screen without saving the changes, click **Cancel**.

## Configuring the Model 1010

The run-time configuration of the Model 1010 must be set up before performing an analysis.

1. Go to the **Setup** menu and select **Configuration**. This will access the Configuration screen (Figure 4.3.).

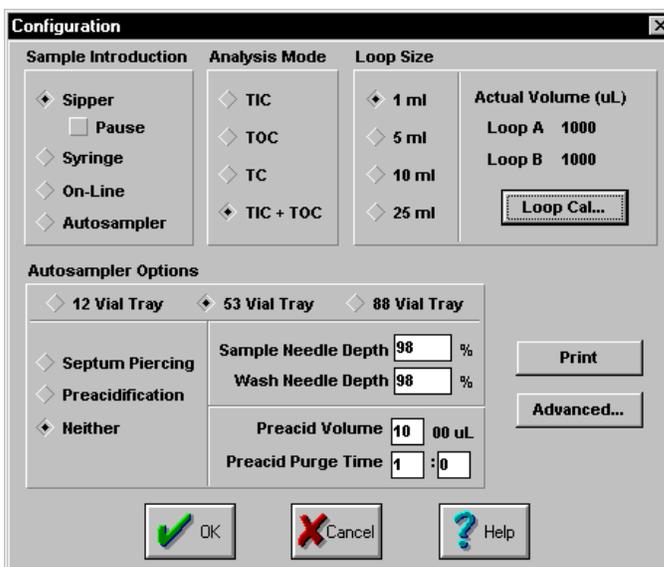


Figure 4.3. Configuration screen

2. Select the **Sample Introduction** method.
3. Select the **Analysis Mode**.
4. Select the **Loop Size**.
5. Enter in the **Autosampler Options**.
6. Click **OK** when all the information has been entered.

## Setting up the Printer

1. From the Status screen, go to the **File** menu and select **Printer Setup**.
2. Enter the requested information, including paper source, size, and orientation.



**WARNING:** As a safety feature, the needle will not lower if the carousel cover is not on. Do not attempt to perform any analyses without the carousel cover installed.

**CAUTION:** Do not expose the carousel to ketones (acetone) or concentrated aromatics; they will disfigure the carousel.

**WARNING:** As a safety feature, the Model 1051 will not function if the carousel cover is not on. Do not attempt to perform any analyses without the carousel cover installed.

**Note:** For the best visibility layout of printed data, use the landscape orientation.

3. Click **OK**.

## Configuring the Optional Model 1051 Autosampler

### Unloading and Reloading the Carousel

1. From the Status screen, click **Spiral Tray** to unload the carousel. The carousel will rotate out and forward for easy access.
2. Remove the carousel cover.
3. Remove the carousel.
4. Remove the sample vials or insert new sample vials into the carousel.
5. Replace the carousel and the carousel cover.

### Calibrating the Model 1051 Carousel Home Position

If the Model 1051 is installed, the carousel must be set so that each vial is centered directly below the needle assembly. This ensures that the needle will consistently hit the center of each vial during the programmed analyses, preventing needle damage and analysis errors.

Set the carousel home position when the Model 1051 is operated for the first time or if the data files are deleted from the Model 1010.

To set the carousel home position:

1. Verify that the Model 1010 and Model 1051 are not currently running an analysis.
2. Place an open vial (without septum) in position 1.
3. Verify that the carousel cover is in place.
4. From the Status screen, go to the **Instrument** menu and select **Diagnostics**. This will access the Diagnostics screen.
5. Click **Home** to rotate the carousel to the home position.
6. Click **Calibrate** to open the Calibration dialog box.



- Center the needle above the vial by manually moving the platter under the carousel (Figure 4.4.).
- Click **OK** to set the new position. The Model 1010/1051 is now ready to operate.

## Programming Needle Depth

The needle depth used during analysis can be set from the Model 1010.

To program the needle depth:

- Verify that the Model 1010 and the Model 1051 are not currently running an analysis.
- From the Status screen, go to the **Instrument** menu and select **Diagnostics**. This will access the Diagnostics screen.
- Click **Home** to rotate the carousel to the home position.
- Click **Needle Down** to lower the needle; check the needle depth.
- If the needle depth is not low enough, return to the Status screen, go to the **Setup** menu and select **Configuration**. This will access the Configuration screen.
- From the Configuration screen, enter the desired value (0–98%) for the **Sample Needle Depth**.

**Note:** For example, if the depth is set to 70%, the needle will lower 70% into the vial. A depth of 70% is recommended for particulated sample to prevent large settled particles from clogging the needle.

- From the Diagnostics screen, click **Needle Down** to retest the needle depth.
- Once the needle is set to the desired depth, click **Needle Up** to raise the needle.

**Note:** The Model 1051 will accept new commands only when previously entered commands have been completed.

## Programming the Needle Wash Depth

The needle depth during the needle wash can be set from the Model 1010. To perform this calibration:

- Verify that the Model 1010 is not currently running an analysis and that the carousel cover is in place.
- From the Status screen, go to the **Instrument** menu and select **Diagnostics**. This will access the Diagnostics screen.

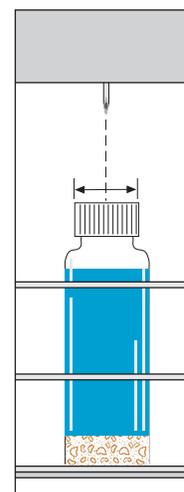


Figure 4.4. Needle alignment

**CAUTION:** Decreasing the needle depth decreases the number of replicates available from a vial.



**CAUTION:** Decreasing the needle depth decreases the number of replicates available from a vial.

3. Click **Go to Wash Station** to rotate the carousel to the wash station position.
4. Click **Needle Down** to check the needle depth.

**Note:** It is recommended that the needle be positioned so that it almost touches the bottom of the wash vessel.

5. If the needle depth is not low enough, return to the Status screen, go to the **Setup** menu and select **Configuration**. This will access the Configuration screen.
6. From the Configuration screen, enter the desired value (0–98%) for the **Wash Needle Depth**.
7. If the needle wash depth was changed, return to the Diagnostics screen and click **Needle Down** to retest the needle depth.
8. Once the needle is set to the desired depth, click **Needle Up**. The Model 1051 is now ready to operate.

## Analyzing Reagent Blanks XXXXXXXXXX

Run reagent blanks until replicate values are consistent before sample analysis using the same conditions of analysis as planned for the samples. Analysis conditions are generally constant for routine samples, but time and volume parameters may vary. For more information see “Analyzing Reagent Blanks” in Chapter 5 of the *Model 1010 TOC Analyzer Operator’s Manual*.

**Note:** The Model 1010 automatically stores a rolling average of the last three reagent blank values run on the unit.

1. Turn on the Model 1010.
2. If any current settings for reagent volumes and analysis times are not correct for the analysis to be performed, set the new conditions of analysis in the Methods screen. To access the Methods screen from the Status screen, go to the **Databases** menu and select **Methods**. Modify and save the method.
3. From the Status screen, go to the **Databases** menu and select **Sequences**. This will access the Sequences screen.
4. Under **Position # 1**, select the **Method** of analysis.

**Note:** If the **Method** name is **Unknown**, that position is *not* analyzed.

5. Enter the number of reagent blanks to be analyzed (0 to 999) in position #1.
6. Enter 0 for the **Volume (mL)** of the sample in position #1.
7. Click **OK**.



8. Save the sequence.
9. From the Status screen, click **Start**. The Model 1010 will begin analyzing blanks and will provide a screen display showing the status of the blanks and of the current blank being analyzed. (To hold the run, click **Hold**. The run can then be resumed by clicking **Start** or aborted by clicking **Abort**.)

**Note:** The printed results from the printer for the reagent blanks are reported in area counts. Typically, IC blanks should be less than 200 counts. OC blanks should be less than 200 counts for 100 g/L sodium persulfate reagent and less than 300 counts for 200 g/L sodium persulfate reagent. Stable blanks are within  $\pm 50$  counts. Reagent blank values will vary depending on the purity of water and the quality of the chemical reagents used.

**Note:** Stable blanks should be established prior to standard, sample, or check standard analysis. If blank values are above the typical range, this is due to high water content or the quality of the reagent being used. If the reagent blanks are high, but stable (within  $\pm 50$  counts), the instrument will still provide satisfactory performance.

## Calibrating the Model 1010

Before running an analysis, a calibration curve must be developed. Standard parameters are programmed into memory for recall during calibration, a calibration sequence is programmed, then standards are analyzed. Once this analysis is complete, the Model 1010 is considered calibrated.

**Note:** Poor laboratory technique, including using standards that have not been freshly prepared, will result in incorrect calibration of the TOC Analyzer.

Calibration can be performed using one to five points. If only one standard is run, the origin is used as the necessary second point for the calibration curve. As the instrument runs standards, it recalibrates after completing each standard analysis.

For more information see “Calibration” in Chapter 5 of the *Model 1010 TOC Analyzer Operator’s Manual*.

### Setting Standard Information

1. From the Status screen, go to the **Instrument** menu and select **Calibration**. This will access the Calibration screen.
2. Click **New** for a new calibration file, or click **Open** to open an existing calibration file.
3. Modify the standard concentration values in the **Concentration (ppm)** listbox.
4. Modify the calibrant volume in the **Volume (mL)** listbox.
5. Select the calibration mode (TIC, TC, or TOC).



6. Click the **Use** checkboxes for the standards to be used in the calibration.
7. Click **Allow Editing** to allow modification of an existing calibration curve by removing outliers.
8. Click **Automatic** for automated Rf calculations. WinTOC will calculate the response factor and store it with the calibration data.
9. Click **Save** or **Save As** to save the new calibration information.
10. Click **OK** to exit the Calibration screen.

**Note:** Always use the same volumes in the calibration sequence and the sample analysis. Using different volumes results in incorrect sample data calculations.

## Running a Calibration Sequence

A calibration curve must be constructed before running an analysis.

1. From the Status screen, go to the **Databases** menu and select **Sequences**. This will access the Sequences screen (Figure 3.9.).
2. Under **Position #1**, enter the **Sample Name**.
3. Select the **Method**.

**Note:** If the **Method** name is **Unknown**, that position is not analyzed.

4. Under **Run Type**, select the standard number to be analyzed (Std. 1, Std. 2, etc.).
5. Enter the number of replicates (**Reps**) to be analyzed (1 to 10).

**Note:** The volume cannot be entered at this time. This information is part of the calibration file. See “Setting Standard Information” on page 45 in this chapter.

6. Enter comments if desired.
7. Repeat steps 2–6 until all standards to be analyzed are entered into the sequence.
8. Click **Save** or **Save As** to save the sequence.
9. Click **OK** to return to the Status screen.

**Note:** If the sequence is not saved, it cannot be run.

10. Click **Start** in the Status screen to run the sequence.

**Note:** The response factor for an acceptable calibration should be in the range of 0.9 to 1.5  $\mu\text{g C}$  per 1,000 area counts ( $\mu\text{g C/k-cts}$ ).



**Note:** Calibration of the Model 1010 cannot be performed with volumes less than 1 mL unless the unit is calibrated in syringe mode.

**Note:** The Model 1010 can analyze up to 10 replicates of a standard.

## Running Check Standards

Running check standards allows the operator to run a known standard to check the current calibration of the Model 1010 without affecting the calibration data. Check standards values will have the reagent blank value and the offset subtracted. Check standards are recalled from the same standards as programmed on the Sequence Screen.

1. From the Status screen go to the **Databases** menu and select **Sequences**. This will access the Sequence screen.

2. Under **Position #1**, enter the **Sample Name** and choose **TOC** under **Method**.

**Note:** If the **Method** name is **Unknown**, that position will not be analyzed.

3. Under **Run Type**, choose the check standard number to be analyzed.

4. Enter the number of **Reps**.

**Note:** Enter the **Volume (mL)** of the check standard to be analyzed (if it is other than the default value).

5. Repeat steps 2–4 until all standards to be analyzed are entered into the sequence.

6. Click **Save** or **Save As** to save the sequence.

**Note:** If the sequence is not saved, it cannot be run.

7. Click **OK** to return to the Status screen.

8. From the Status screen, click **Start** to run the sequence.

## Running WinTOC

### Creating a Sequence

In order to run the Model 1010, a sequence must be defined and saved. Sequencing allows programming and running combinations of blanks, samples, standards, and check standards.

1. From the Status screen, go to the **Databases** menu and select **Sequences**. This will access the Sequences screen (Figure 3.10.).



2. To define a new sequence, click **New**. This will reset the sequence values. If a sequence has already been loaded, a dialog box will appear asking whether or not to save the sequence.
3. To open a previously saved sequence, click **Open**. Select the desired sequence and click **OK**. This will load the selected sequence to the Sequences screen.
4. For **Position #1**, enter the **Sample Name** and choose the **Method** of analysis. The default method is optimized for most analyses. For more information, see “Methods Screen” on page 25 in Chapter 3.

**Note:** If the **Method** name is unknown, that position will not be analyzed.

5. Select **Run Type**.
6. Enter the number of **Reps** to be analyzed.
7. Enter the dilution factor if necessary.
8. Enter the sample volume, if it is not the default volume.
9. Enter comments if desired.
10. Repeat steps 4–8 until all samples to be analyzed are entered in the sequence. The **Clear Lines**, **Copy Lines**, **Remove Lines**, and **Insert Lines** buttons can be used to simplify creating the sequence.

### Clear Lines

The **Clear Lines** button resets sample lines in the sequence to default. This means that the **Sample Name** is cleared, the **Method** is set to unknown, and the other fields are set to default.

To clear lines, specify the line start and end lines in their respective **From** and **To** fields. For example, to clear lines 3 through 6, enter “3” in the **From** field and “6” in the **To** field (Figure 4.5.).

### Copy Lines

The **Copy Lines** button speeds the sequence generation process when multiple samples are the same or similar. It is possible to copy groups of lines or samples.

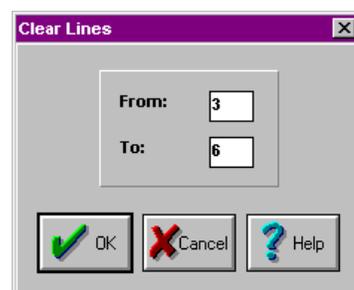


Figure 4.5. Clear Lines



To copy lines, specify the Source start and end lines in their respective **From** and **To** fields. Specify the Destination start and end lines in their respective **From** and **To** fields. For example, to copy lines 2 through 4 to lines 5 through 7, enter “2” and “4” in the Source **From** and **To** fields and “5” and “7” in the Destination **From** and **To** fields (Figure 4.6.).

### Remove Lines and Insert Lines

The **Remove Lines** and **Insert Lines** inserts or removes a specified number of lines from a particular place in the sequence.

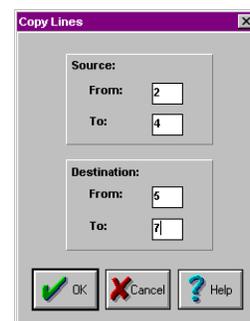


Figure 4.6. Copy Lines

11. Click **Save** or **Save As** to save the sequence. If the sequence is not saved, it cannot be run.
12. Click **OK** to return to the Status screen.
13. Click **Start** in the Status screen to run the sequence.

### Sequence Example

The following is an example of the steps used to prepare a three-point calibration sequence and then to run five samples in triplicate with no prediluting.

1. From the Status screen, go to the **Databases** menu and select **Sequences**. This will access the Sequences screen.
2. a. Name the first standard.
  - Highlight Position 1 under **Pos/Vial #** by clicking in that row.
  - In the **Sample Name** field, type “1 standard” and press [Tab].
- b. Set the method to default.
  - Select “Default” from the **Method** pull-down menu and press [Tab].
- c. Identify this as Standard 1.
  - Select “Std. 1” from the **Run Type** pull-down menu and press [Tab].
- d. Set the number of replicates to 3.
  - Type “3” under **Reps**.
3. a. Enter the second standard.
  - Highlight Position 2 under **Pos/Vial #** by clicking in that row.
  - In the **Sample Name** field, type “2 standard” and press [Tab].



- b. Set the method to default.
  - Select “Default” from the pull-down menu for **Method** and press [Tab].
- c. Identify this as a Standard.
  - Select “Std. 2” from the **Run Type** pull-down menu and press [Tab].
- d. Set the number of replicates to 3.
  - Type “3” under **Reps**.
4. Repeat step 3 for the third standard in Position 3.
  - Type “3 standard” [Tab] [default] [Tab] [Std.] [Tab] [3].
  - Select “Std. 3” from the **Run Type** pull-down menu.
5. Set up the first of the five samples to be run in Position 4.
  - Highlight Position 4 under **Pos/Vial #** and type “Sample” [Tab] [default] [Tab] [Sample] [Tab] [3].
6. Copy the sample setup in step 5 and paste it into Positions 5, 6, 7, and 8.
  - Click **Copy Lines** to access that screen.
  - Starting in the **Source From** field, type [4] [Tab] [4] [Tab] [5] [Tab] [8] [Enter].
7. Name and save the sequence.
  - Click **Save As** and type “Samples” in the highlighted field.
  - Click **OK** to close the dialog box.



The sequence should look similar to the one in Figure 4.7.

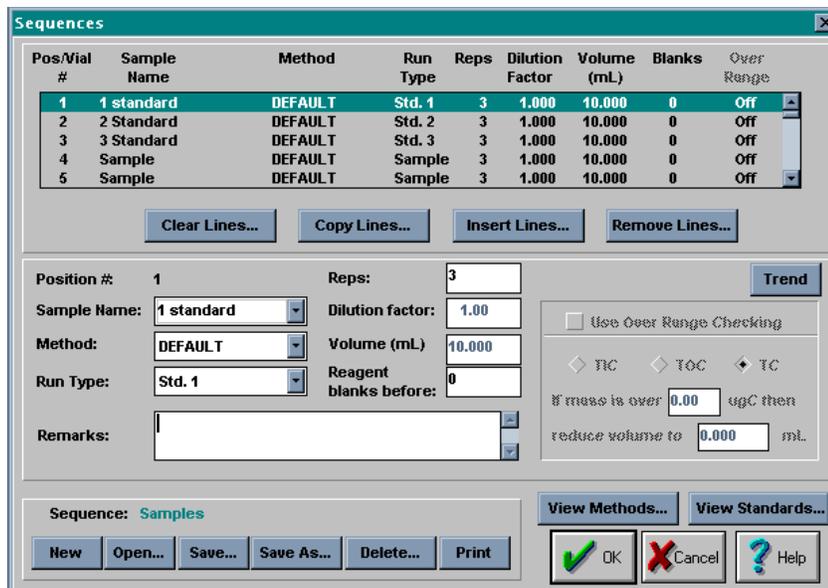


Figure 4.7. Sequences screen example

## Running a Sequence

Running a sample analyzes an unknown and compare its response to known standard values. A sequence must be created before samples can be run. See “Creating a Sequence” on page 47 in this chapter.

## Starting a Sequence

Start the sequence by doing one of the following:

- From the Status screen, go to the **Commands** menu and select **Start Sequence**.
- From the Status screen, click **Start**.

The sequence file will then be downloaded to the Model 1010, and the Model 1010 will begin the sequence.

## Holding a Sequence

Hold (pause) a sequence by doing one of the following:

- From the Status screen, go to the **Commands** menu and select **Hold Sequence**.
- From the Status screen, click **Hold**.

Any sample that is running at the time that **Hold** is selected will be completed. The sequence can be resumed by clicking **Start**.



## Aborting a Sequence

Abort a sequence by doing one of the following:

- From the Status screen, go to the **Commands** menu and select **Abort Sequence**.
- From the Status screen, click **Abort**.

Any sample that is running at the time that **Abort** is selected will be interrupted and cannot be resumed.

## Upgrading Firmware

1. From the Status screen, go to the **Utilities** menu and select **Upgrade Firmware**.
2. Insert the new firmware disk into the computer's floppy drive.
3. Select the floppy drive from the pull-down menu.
4. Click **Upgrade Firmware**.

The floppy disks may be used to upgrade the Model 1010.

## Shutting Down the Model 1010

The following procedure should be followed to allow the components to properly cool and to minimize contamination.

1. Stop all runs on the Model 1010 by selecting **Abort** on the Status screen.
2. Go to the **File** menu and select **Exit** to close WinTOC.
3. Turn off the Model 1010 using the power switch.



# Chapter 5

## TOC Reporter

This chapter provides information on the TOC Reporter. The TOC Reporter is a multipurpose tool used for reporting data obtained from the Model 1010 TOC Analyzer, Model 1020A TOC Analyzer, and Solids TOC Analyzer. This program allows data viewing, analysis, report generation, and recalibration.

### TOC Reporter Screens and Menu System

The TOC Reporter is accessed through **Reporting** in the **Utilities** menu or from the Start menu.

The TOC Reporter screen (Figure 5.1.) displays the data graph and contains menus and toolbar buttons.

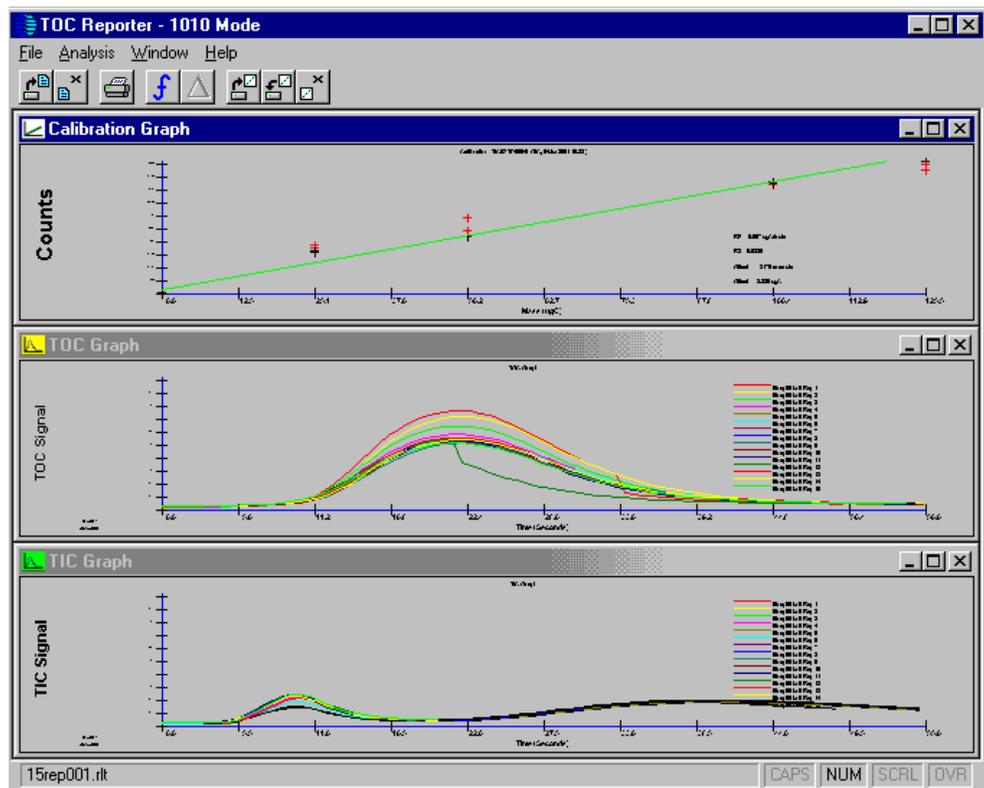
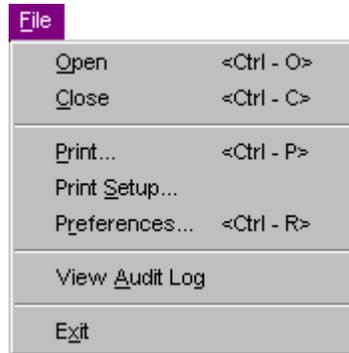


Figure 5.1. TOC Reporter screen



## File Menu



### Open

Used to select WinTOC data files to load for viewing and modification. Files can be printed and modified but not resaved. Curve labels are displayed in the order of selection and loading. This function is also accessed by clicking on



**Note:** Due to Window's difficulties in handling large quantities of data in memory, only 25 result files can be open at one time. If more than 25 result files need to be opened, they must be opened in blocks of 25 files at a time. Each file corresponds to the sample, and contains all of its replicates, data points, and metadata.

### Close

Used to select WinTOC data files to unload from memory. This function is also accessed by clicking on



**Note:** Changes made to samples are only temporary and cannot be resaved to the original file.

### Print

Brings up a **Print** dialog box with the currently active graph window selected by default. The operator may print one or all of the graphs. This function is also accessed by clicking on



### Print Setup

Used to set printing options, including the default printer. Print settings may need to be changed each time the operator opens the program. The graphs print out best in landscape mode.



## Preferences

Accesses the TOC Reporter Preferences screen. This screen is used to modify the active graph window appearance in the TOC Reporter. The TOC Reporter Preferences screen is also accessed by clicking on



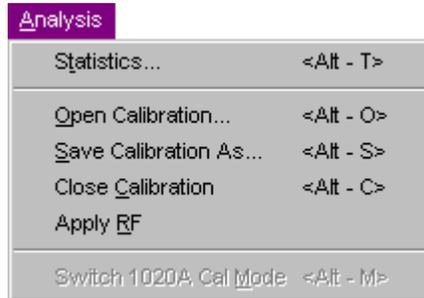
## View Audit Log

Displays a log of all TOC Reporter auditing events since TOC Reporter was installed.

## Exit

Closes the TOC Reporter. Upon exiting the TOC Reporter, no settings will be saved.

## Analysis Menu



## Statistics

Accesses the Statistics screen for viewing areas, mass, and concentration values; printing modified statistics; and exporting data. This function is also accessed by clicking on



## Open Calibration

Loads a calibration file and allows the operator to graphically evaluate outliers for acceptance. This function is also accessed by clicking on



## Save Calibration As

Saves a calibration to a new name. This function is also accessed by clicking on



## Close Calibration

Closes the existing calibration. This function is also accessed by clicking on



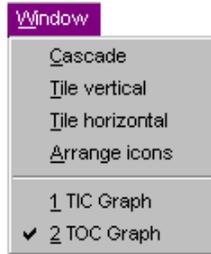


**Apply RF**

Applies the response factor of the current calibration to all open files.



## Window Menu



The **Window** menu in the TOC Reporter contains commands that change the appearance of the graph windows. **Cascade**, **Tile Horizontal**, **Tile Vertical**, and **Arrange Icons** affect the size and placement of the graph windows. The TIC, TC, TOC, and calibration graph windows can be activated using the **Window** menu by selecting **TIC Graph**, **TC Graph**, **TOC Graph**, or **Calibration**.

## Statistics Screen

The Statistics screen is used to view areas, mass, and concentration values; to print modified statistics; and to export data (Figure 5.2.). The area counts for individual replicates can be recalculated by changing the integration start or stop points and average blank area. An item in the treeview is viewed by clicking on it.

**1010 Statistics**

File Name:

- rt001.rtl
  - TIC Rep 1
  - TIC Rep 2
  - TIC Rep 3
  - TIC Rep 4
  - TIC Rep 5
  - TIC Rep 6
  - TIC Rep 7
  - TIC Rep 8
  - TIC Rep 9
  - TIC Rep 10
- rt002.rtl
- rt003.rtl
- rt004.rtl
- rt005.rtl
- rt006.rtl
- rt007.rtl
- rt008.rtl
- rt009.rtl

Clear Selection

Replicate Information

Rep of 10 Date/Time:

Sample Size: 1.000 mL Sample Name:

Run Type: SAMPLE Method Name: short-toc

Sample Intro: Autosplr Calibration Name: toc0509-mod1

Dilution Factor: 1.00 Sequence Name: 53x10short

RF (ugCk-cnt): 1.337 Operator Name: Unknown

Offset (cnt): 2744

Offset (ugC): -3.671

View Comments

Replicate Results

	Area (cts)	Mass (ugC)	Conc (ppm)
TIC:	<n/a>	<n/a>	<n/a>
TOC:	<n/a>	<n/a>	<n/a>
TC:	<n/a>	<n/a>	<n/a>

Print Export

Edit Reps

Add to Graph

Remove from Graph

Sample Averages

	Area (cts)	Mass (ugC)	Conc (ppm)	Std Dev	RSD (%)
TIC:	1175.9	1.522	1.516	293.907	24.99
TOC:	<n/a>	<n/a>	<n/a>	<n/a>	<n/a>
TC:	<n/a>	<n/a>	<n/a>	<n/a>	<n/a>

Modify Integration

TIC  Peak Start (sec):  Apply

TOC  Peak End (sec):  Apply All

TC  Blank Avg Area: <n/a>

OK

Help

~ = unused

Figure 5.2. Statistics screen



## TOC Reporter Toolbar Buttons

### Open Data Files



Accesses the Open Files dialog box. To open data files, select the files to be opened. The Statistics screen will be displayed.

### Close Data Files



Accesses the Close dialog box. To close files, select from the list of open data files in the Close dialog box.

### Print Peak and/or Calibration Charts



Allows the operator to print peaks or calibration charts recorded.

### View Statistics



Accesses the Statistics screen for viewing areas, mass, and concentration values; printing modified statistics; and exporting data.

### Change Preferences



Accesses the TOC Reporter Preferences screen modifying the appearance of the active graph window.

### Open Calibration File



Accesses the Select Calibration dialog box.

### Save Calibration As



Accesses the Enter Calibration dialog box where the calibration points from the open calibration file can be saved to a new file.

### Close Calibration



Closes the existing calibration.

## Using TOC Reporter

TOC Reporter is a data management system that collects statistical information and provides graphical representation of the results (Figure 5.1.). Several sample files can be open at one time. TOC Reporter exports the data to spreadsheets or other Windows-based programs and generates formatted hard copy reports. The data may be reintegrated and manipulated for presentation purposes while the original data is kept secure, as required for GLP compliance.



TOC Reporter is accessed through the Status screen **Utilities** menu or the Windows Start menu. The toolbar buttons at the top of the TOC Reporter screen can be used for the following features:



Open data files



Close data files



Print peak or calibration charts



View statistics



Change preferences on currently selected window



Open calibration file



Save calibration



Close calibration

## Working with Result Files

1. From the Status screen, go to the **Utilities** menu and select **Reporting** or click **WinTOC Reporter** in the Start menu. This will access the TOC Reporter.
2. Go to the **File** menu and select **Open**.
3. Select the result file(s) (\*.rlt) to open and click **OK**. This will load the selected data file(s) into the Statistics screen in the TOC Reporter (Figure 5.2.).
4. Click **OK** to close the Statistics screen.
5. Repeat steps 2–4 until all the desired result files are open. The TOC Reporter allows several result files to be open at one time.



6. Go to the **Analysis** menu and select **Statistics** to open the Statistics screen. The files will be listed in the treeview on the left side of the Statistics screen.
7. To view the result file's graph, click on the result file in the treeview and click **Add to Graph**. The graph will load into the TOC Reporter. Repeat this for all the desired files.
8. To remove a graph from the TOC Reporter, select the result file to remove and click **Remove from Graph**. This will only remove the selected file's graph.
9. To change the graph's appearance, click **OK** to close the Statistics screen. Go to the **File** menu and select **Preferences**. This will access the TOC Reporter Preferences screen (Figure 5.3.). The TOC Reporter Preferences screen modifies the appearance of the active (selected) graph window in the TOC Reporter screen.

**Note:** The Statistics screen must be closed to access the TOC Reporter menus.

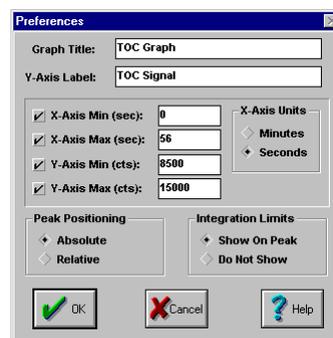


Figure 5.3. TOC Reporter Preferences screen

10. To open a calibration file, go to the **Analysis** menu and select **Open Calibration**. Select the calibration file to open and click **OK**.

## Working with Statistics

The TOC Reporter Statistics screen allows the operator to view areas, mass, and concentration values; print modified statistics; and export data (Figure 5.4.). It can be accessed by going to the **Analysis** menu and selecting **Statistics**. It will also be accessed when a result file (\*.rlt) is opened.

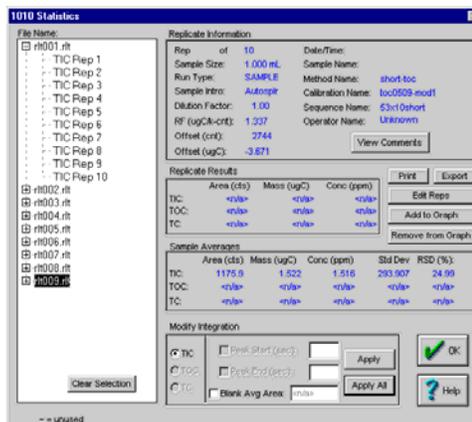


Figure 5.4. Statistics screen

The Statistics screen contains general information, including **Rep #**, **Date** and **Time** of the run, **Sample Size**, **Sample Name**, **Run Type**, **Method Name**, **Dilution Factor**, **Calibration Name**, **Sequence Name**, **RF**, and **Offset**.

**View Comments** displays the operator-defined comments for the sample highlighted in the listbox.



**Print** starts the Report View utility described in “Using Report Viewer” on page 61 in this chapter.

**Export** exports data into spreadsheets and/or LIMS systems. See “Exporting Data” on page 64 in this chapter.

**Sample Averages** contains additional statistical information including the **Area**, **Mass**, **Concentration**, **Standard Deviation**, and **RSD**.

**Modify Integration** modifies integration by clicking on the box next to **Peak Start** or **Peak End** and changing the values in the corresponding edit boxes. To apply the operator-specified Modify Integration values, click **Apply**. **Apply All** sets the same limits for all open files.

## Using Report Viewer

The Report Viewer generates customized hard copy results. The reports can include headers and footers, which can display items such as the page number, total pages, date and time, or company information that is entered in the Security and Auditing Manager (see “Security and Auditing Manager” on page 65 in Chapter 6). Company logos and electronic signatures can easily be incorporated, and entire sections of the report can be omitted.

Typically, a report includes calibration details (one calibration per page), method details (several per page), and one page for each sample included in the report. The Report Viewer scans all the samples included in the report by the operator and only includes each unique calibration or method once to avoid unneeded repetition.

1. From the Statistics screen treeview, select the desired sample(s). To select multiple samples, hold down the [Ctrl] key while selecting the samples.
2. Click **Print**. This will access the Report Viewer window (Figure 5.5.).

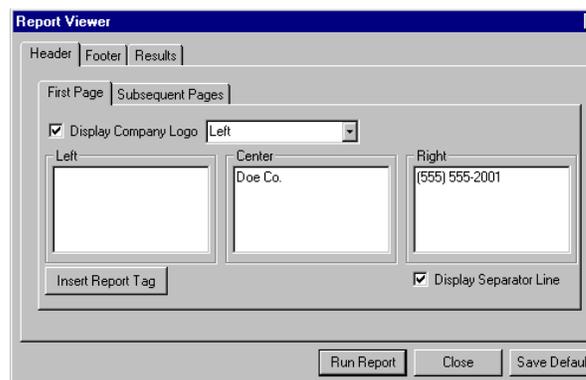


Figure 5.5. Report Viewer window

3. Click on the **Header** tab to set up the report headers.
4. To set up the header information for the first page of the report, click on the **First Page** tab.



5. Enter in the information to be displayed in the **Left**, **Center**, and **Right** areas by either manually typing in the information or by selecting preset tags.

To insert preset tags, click **Insert Report Tag**. The Insert Tag box will open (Figure 5.6.). Select the preset tags from the list. The company information (e.g., Company Address 1, Company Name, etc.) will be the information entered in the Security and Auditing Manager.



Figure 5.6. Insert Tag box

6. To add a separator line between the header and the report, click the **Display Separator Line** box.
7. To display the company logo specified in the Security and Auditing Manager (see “Security and Auditing Manager” on page 65 in Chapter 6), click on the **Display Company Logo** box and select the logo position from the dropbox (left, center, or right).
8. To set up the header information for the remaining pages of the report, click on the **Subsequent Pages** tab. Follow steps 5–7 to specify the header information.
9. Click the **Footer** tab to set up the report footers (Figure 5.7.). Follow the same steps as for the **Header** tab.

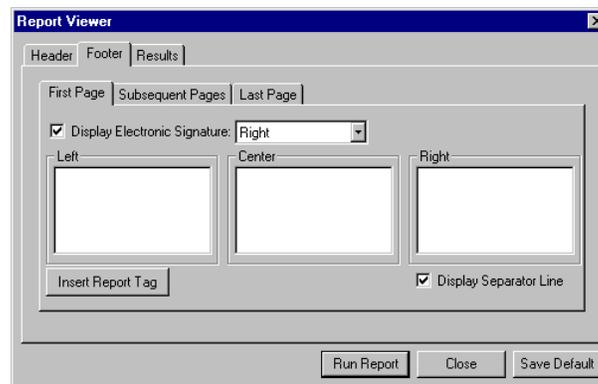


Figure 5.7. Report Viewer Footer tabbed page

10. To display the footer electronic signature specified in the Security and Auditing Manager, click on the **Display Electronic Signature** box and select the signature position from the dropbox (left, center, or right).



11. Click the **Results** tab to customize what results will be displayed (Figure 5.8.).

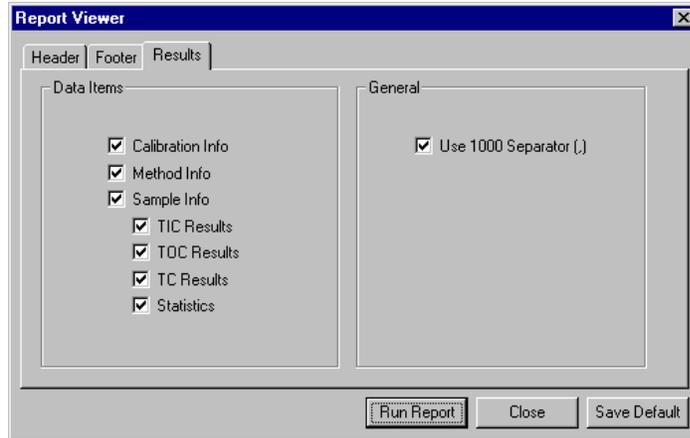


Figure 5.8. Report Viewer Results tabbed page

12. Select the data that will appear in the report by clicking on the appropriate boxes under **Data Items**. Under **General**, select whether or not to use a comma (,) in the numbers.

13. To save the Report Viewer settings, click **Save Default**. All of the previous changes made to the Report Viewer settings are now default formatting parameters and will not need to be entered again for future reports.

14. When all the information is complete, click **Run Report**. A print preview screen will display each page as it will look when printed, as in Figure 5.9.

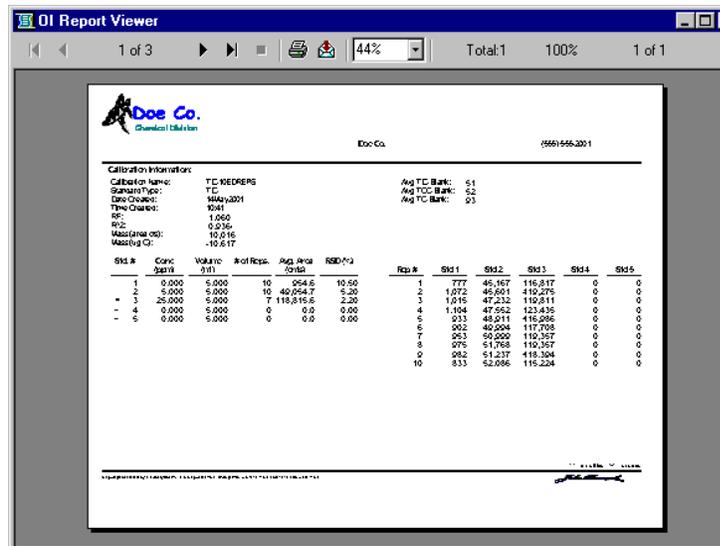


Figure 5.9. Report Viewer print preview

15. Click on the printer icon in the toolbar to send the file to the printer.



## Exporting Data

Data can be exported through the TOC Reporter. The data will be saved in a format that can be imported to other programs.

1. From the Status screen, go to the **Utilities** menu and select **Reporting** or click **WinTOC Reporter** in the Start menu. This will access the TOC Reporter.
2. From the TOC Reporter, go to the **File** menu and select **Open** to open the files to export.
3. Click **Export**.
4. Select the delimiter (**Comma** is recommended) and click **OK**.

**Note:** The **Export Data Points?** option will export the raw data points as well as processed results saved as a \*.csv file in the specified directory.

5. Enter a name and destination for the export file. The WinTOC directory is the default.

Following the export, a dialog box will appear saying that the export is complete.



## Chapter 6

# Security and Auditing Manager

This chapter provides information on the Security and Auditing Manager. The Security and Auditing Manager allows the system administrator to perform the following tasks:

- Enable or disable security and/or auditing
- Create user names and passwords for operators who need access to WinTOC and TOC Reporter
- Define and assign default access privileges
- Customize access privileges for each individual operator
- Modify auditing coverage for both WinTOC and TOC Reporter
- Enter company information that can be used to customize reports in Report Viewer
- Review an audit log of changes to the security and auditing settings

## Starting Security and Auditing Manager

1. Double-click on the Security and Auditing icon or select **Security and Auditing Manager** from the Windows Start menu.
2. The Security and Auditing Manager is administrator password protected. Type in the password and click **OK**. Upon installation, the operator is prompted to enter and verify the Security and Auditing Manager password (Figure 6.1.). If the administrative password is lost, contact OI Analytical Technical Support at (800) 336-1911 or (979) 690-1711.

**Note:** The Security and Auditing Manager password is case sensitive.



Figure 6.1. New administrative password dialog box



3. To change the administrative password, click **Change**. Enter the current password, new password, and password confirmation. Click **OK**.

If an error occurs while entering in the new password, click **Cancel** to exit without changing the password.

If the password file has been deleted or corrupted, a dialog box will appear asking for a new administrative password.

## Setting up WinTOC Users

From the Security page, the administrator can enter in all the necessary information to set up a new WinTOC user. The current users are listed on the Security page of the Security and Auditing Manager (Figure 6.2.).



Figure 6.2. Security page

### Global Settings

**Inactivity Timeout** allows the Security and Auditing Manager to automatically lockout any keyboard and mouse inputs to WinTOC if the application is idle for a operator-specified number of minutes. The input range is 1–999 minutes. After modifying this value, WinTOC must be restarted to implement the change.

**Encrypt All Run Logs** allows the Security and Auditing Manager to create an encrypted run log that can only be opened using WinTOC software. Otherwise, the run log is created as a normal, non-encrypted text file that can be opened and modified with word processing applications such as Microsoft Word or Wordpad.

**Note:** For laboratories requiring data integrity and security through GLP or 21 CFR Part 11 regulations, encrypted run logs are recommended to comply with these regulations.



## Adding a New User

1. From the Security page, click **Add**. This will access the Add New User window (Figure 6.3.). The administrator enters a new user's information complete with password and electronic signature. Permissions are not set from this window.

The screenshot shows a dialog box titled "Add New User". It contains the following fields and controls:

- Login ID: [Text Input]
- Full Name: [Text Input]
- Initials: [Text Input]
- Password: [Text Input]
- Confirm: [Text Input]
- Electronic Signature: [Text Input] with a "Browse..." button to its right.
- Preview: A box containing the text "\*\*\* Feature Not Yet Available \*\*\*".
- Buttons: "OK" and "Cancel" at the bottom.

Figure 6.3. Add new user window

2. Enter in login ID, user's full name, user's initials, password, and password confirmation.
3. An electronic signature may be added, which can be displayed on reports (see "Using Report Viewer" on page 61 in Chapter 5). The electronic signature can be a Windows bitmap (\*.bmp), JPEG (\*.jpg), or TIFF image (\*.tif) file. The recommended size is 125 pixels wide by 40 pixels high. To add an electronic signature, click **Browse** and select the signature file.
4. When all the information is complete, click **OK**.

A new user is now set up to use WinTOC, but this user has no permissions. To set up permissions, see "Defining Permissions" on page 70 in this chapter.

## Editing/Deleting Users

To delete a user, select the user to delete from the user list. Then click **Delete**.

To edit user information, select the user to edit from the user list. Click **Edit** to open the Edit User Information window. The Login ID will not be available to change. Once all the changes have been made, click **OK**.

## Auditing

The Auditing page allows the administrator to specify what events are to be audited. The audit log lists any changes to the selected events along with dates and times



when they occurred. The audit log cannot be edited or modified, but it can be viewed and printed through WinTOC.

1. Click the **Auditing** tab to access the Auditing page (Figure 6.4.).

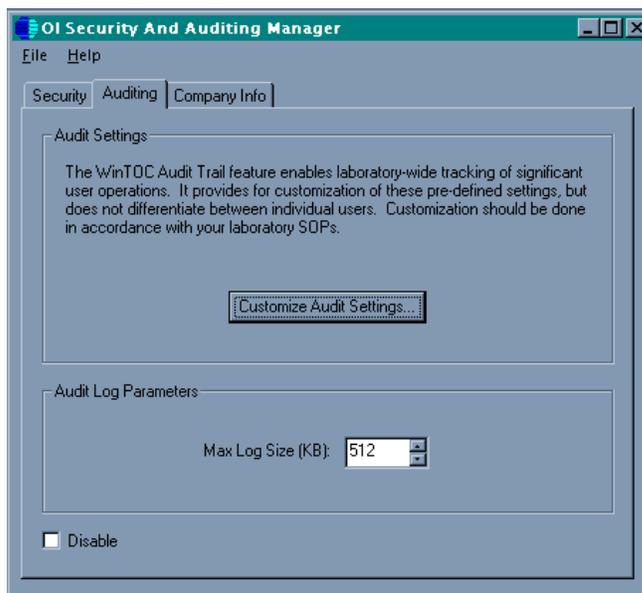


Figure 6.4. Auditing page

2. Click **Customize Audit Settings**. This accesses the Audit Settings window (Figure 6.5.).

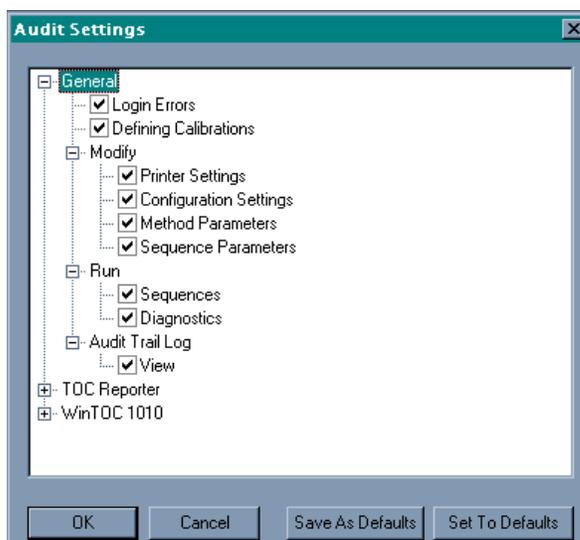


Figure 6.5. Auditing Settings window

3. Enable or disable which events are to be audited by clicking on the corresponding boxes.
4. To apply the current default settings, click **Set To Default**. This will load the current default settings.
5. To save the new settings as the default, click **Save As Defaults**.
6. After specifying audit events, click **OK** to return to the Auditing page.



7. The maximum file size of the auditing log can be set under **Audit Log Parameters**. Once the auditing log has reached the set Max Log Size, it will overwrite the oldest set of information.
8. To disable the auditing feature, click **Disable**.

## Viewing the Audit Trail

1. From the Security and Auditing Manager screen, go to the **File** menu and select **View Audit Trail**. The audit trail will be displayed (Figure 6.6.).

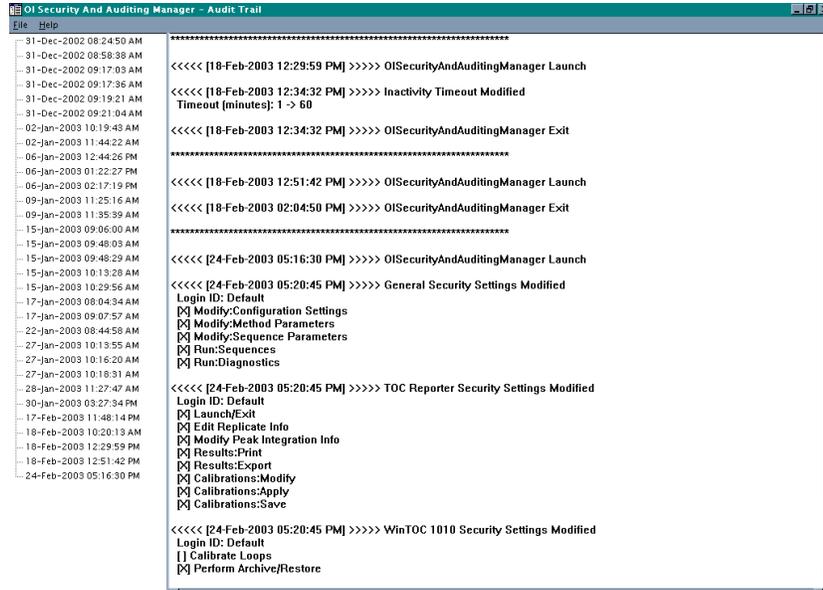


Figure 6.6. Audit trail

2. The date and time of each software change will be shown in the treeview on the left-hand side. Select the date and time to view the details on the right-hand side.
3. To print the audit trail, go to the **File** menu and select **Print**. This will send the audit trail to the default printer assigned in WinTOC.

**Note:** The audit trail is a secure, encrypted file that cannot be modified through WinTOC. It cannot be viewed, printed, modified, or opened with word processing programs.

## Company Information

The Company Info page allows the administrator to add and edit company information that can be displayed in reports (see “Using Report Viewer” on page 61 in Chapter 5), including the company logo.



1. Click the **Company Info** tab to access the Company Info page (Figure 6.7.).

Enter your company information for use in all generated reports:

Name: OI Analytical

Address 1: P O Box 9010

Address 2: College Station, TX

Phone Number: (800) 653-1711

Fax Number: (979) 690-0440

Email Address: www.oico.com

Logo: C:\Program Files\OI Analytical\OI Color Logo.bmp

Browse... Preview

Figure 6.7. Company Info page

2. Enter in the company information to use in reports.
3. A company logo may be added. The logo can be a Windows bitmap (\*.bmp), JPEG (\*.jpg), or TIFF image (\*.tif) file. The recommended size is 200 pixels wide by 100 pixels high. To add a logo, click **Browse** and select the logo file.
4. The company information can be used for reports after Security and Auditing Manager is closed.

## Defining Permissions

The administrator can select features to be enabled or disabled for certain users, depending on their security permissions levels.

1. From the Security page, select the user whose permissions are to be modified.



2. Click **Permissions**. This will access the Permissions window (Figure 6.8.).

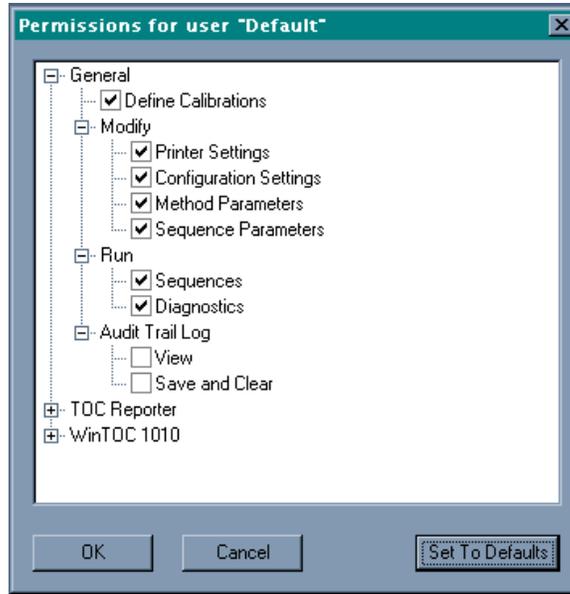


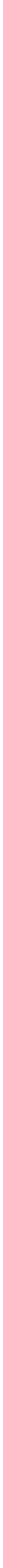
Figure 6.8. Permissions window

3. Enable or disable which features the user has access by clicking on the corresponding boxes.
4. To apply the default settings, click **Set To Defaults**. This will load the current default settings.
5. After specifying the user's permissions, click **OK** to return to the Security page.

## Disabling Security and Auditing Features ██████████

- To disable security features for WinTOC users, click **Disable** on the **Security** tab of the Security and Auditing Manager. All permission settings for all users are overridden and the full range of permissions in WinTOC and the TOC Reporter are granted.
- To disable audit trail generation, click **Disable** on the **Auditing** tab of the Security and Auditing Manager.

**Note:** If both security features and audit trail generation are disabled, WinTOC will start without a prompt for user name and password, will allow the user the maximum range of permissions, and will not create an audit trail.





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# Chapter 7

## Maintenance

This chapter discusses scheduled and nonscheduled maintenance of the Model 1010 TOC Analyzer that are performed using the WinTOC software. For a complete maintenance schedule and details, see the Model 1010 TOC Analyzer Operator's Manual.

### Routine Maintenance

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**CAUTION:** *If the NDIR baseline cannot be adjusted to the desired range, problems other than zero offset are likely.*

**CAUTION:** *Do not make adjustments with the GAIN potentiometer as this will affect the NDIR detector linearity.*

#### NDIR Zero

The NDIR detector zero (baseline) will fluctuate up or down during instrument inactivity. This is due to operational factors such as operating temperature, how long the NDIR case purge has been on to expel ambient CO<sub>2</sub>, or purity of gases (especially if oxygen is being used for POC analysis). However, under routine operating conditions, the baseline reading should be set between 4,000–8,000 for optimum range and linearity response. This adjustment should be checked after every 100 hours of operation (corresponds to gas service maintenance). To adjust the NDIR baseline:

1. Go to the Status screen.
2. With the Model 1010 in the standby state, remove the left bay cover to gain access to NDIR detector adjustments.
3. Slowly turn the OFFSET adjustment (on IR board) counterclockwise to increase baseline (positive shift) or clockwise to decrease baseline (negative shift) and set the output between 4,000–8,000.
4. Allow the Model 1010 to perform several automated analyses and recheck baseline with Model 1010 in the standby state. Make any adjustments if necessary as described above.
5. Replace the left bay cover.



## Sample Pump

This procedure applies to the loop sampling capability, which includes a peristaltic pump mounted inside the left bay. It is used to aspirate samples through the loop sampling inlet and the sample loop. The pump housing contains a length of tubing mounted in the housing. The tube is considered expendable because the tubing will eventually wear out.

Inspect the tubing after every 2,000 hours of operation. More frequent inspections may be necessary if running samples contain strong acids or bases.

1. Remove the plastic barb fitting from the end of the outlet leg (closest to outside of left bay) of the black Norprene<sup>®</sup> tube.
2. With a small, flat-blade screwdriver, carefully pry apart the teeth of the plastic retaining clamp on the inlet leg of the Norprene tube and remove the retaining clamp from the end of the tubing.
3. From the Status screen, go to the **Instrument** menu and select **Diagnostics**. This will access the Diagnostics screen.
4. Under the **Pumps** section, turn **ON** the **Sample Pump**.
5. While the pump is turning, pull the sample outlet leg to remove the tubing from the pump housing.
6. Under the **Pumps** section, turn **OFF** the **Sample Pump**.
7. Inspect the tubing for excessive wear, holes or cracks, and replace if these signs are evident. If the outside of the tube is dry or a replacement tube is being installed, lightly coat the outside wall that will be exposed to the pump housing with a silicone grease lubricant.

Installing tubing into the pump housing is the reverse of the above procedure. When installing the new pump tubing, the pump should only be turned on in one or two second increments to allow better control over feeding the pump tube into the housing.

## Nonscheduled Mechanical Maintenance

### Calibrating Reagent Pumps

This calibration applies to both the acid and oxidant pumps. The pumps can be identified by the color of the Teflon<sup>®</sup> lines running to and from the pumps. Acid pump lines are red and oxidant pump lines are green.

1. Remove the acid/oxidant line from the top of the digestion vessel (1/8" O.D. line with a red/green fitting).

**WARNING:** Phosphoric acid and sodium persulfate are corrosive substances; always wear appropriate chemical eye and skin protection when handling these materials.



2. Verify that the acid/oxidant bottle is filled and that the acid/oxidant line has been properly primed.
3. Connect the acid/oxidant fitting to a 1" piece of 1/16" O.D. x .030 I.D. Teflon tubing, using a 1/4-28 coupling.
4. From the Status screen, go to the **Instrument** menu and select **Diagnostics**. This will access the Diagnostics screen.
5. Under the **Pumps** section, program **Oxidant Pump** or **Acid Pump** for five times and click on **PUMP**.
6. Place the end of the tubing into a measuring vessel and press [ENTER].
7. When the pump stops pumping, measure the volume of the contents in the vessel using a 500- $\mu$ L syringe.
8. To adjust the pump volume, loosen the 1/2" locknut on the threaded shaft at the bottom of the pump.
9. If the volume of the vessel is more than 500  $\mu$ L, turn the shaft (1/4") below the pump clockwise. If the volume of the vessel is less than 500  $\mu$ L, turn the shaft counterclockwise.
10. Repeat the above steps until the volume dispensed for five strokes is between 0.475–0.525 mL.
11. Tighten the locknut and check the volume again.
12. Repeat this procedure for both reagent pumps.

### **Performing a System Leak Check**

1. From the Status screen, go to the **Instrument** menu and select **Diagnostics**. This will access the Diagnostics screen.
2. Under the **Miscellaneous** section, click on the **Leak Check** button to perform a leak check.
3. Follow the instructions on the screen.

**Note:** The Model 1010 Start-Up Kit contains a vent plug tube assembly (Part number 248864) that is designed to plug the vent port.

4. If the Model 1010 fails the leak check:



- Verify that the plug at the vent, labeled (6) in the flow diagram (Figure 7.1.), is not leaking.

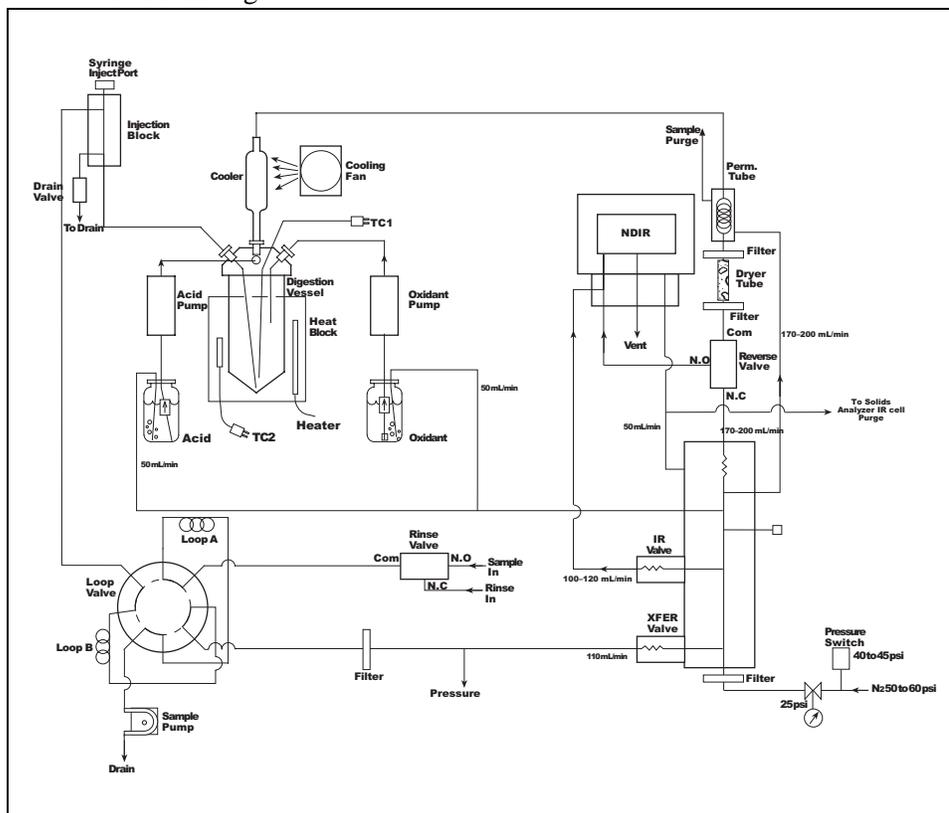


Figure 7.1. Model 1010 flow diagram

- If the plug is not leaking, block the flow at the filter (1).
- Rerun the leak check.
- If the leak check fails, the leak is between the gas inlet and the plug. Use the flow diagram and a Snoop<sup>®</sup> leak detector to locate the leak.
- If the leak check passes, remove the block at the filter (1) and block the flow at the sample loop valve (2).
- Rerun the leak check.
- If the leak check fails, the leak is between the filter (1) and the plug on the valve. Use the flow diagram and a Snoop leak detector to locate the leak.
- If the leak check passes, remove the block at the sample loop valve (2) and block the flow at the digestion vessel (3).
- Rerun the leak check.
- If the leak check fails, the leak is between the valve and the plug on the digestion vessel. Use the flow diagram and a Snoop leak detector to locate the leak.



- If the leak check passes, remove the block at the digestion vessel (3) and block the flow at the top of the condensation vessel (4).
- Rerun the leak check.
- If the leak check fails, the leak is between the inlet to the digestion vessel (3) and the top of the condensation vessel. Use the flow diagram and a Snoop leak detector to locate the leak.
- If the leak check passes, remove the block at the top of the condensation vessel (4) and block the flow between the dryer tube and the permeation tube (5).
- Rerun the leak check.
- If the leak check fails, the leak is between the top of the condensation vessel (4) and the permeation tube. Use the flow diagram and a Snoop leak detector to locate the leak.
- If the leak check passes, the leak is between the dryer tube (5) and the vent.
- Remove the block at the dryer tube and use the flow diagram and a Snoop leak detector to locate the leak.

## Changing Sample Loops

The Model 1010 contains an eight-port sample valve with a variety of different loop sizes available. Loop fittings and valve connections are color-coded to prevent incorrect connections.

1. Remove the left bay cover from the Model 1010.
2. Locate the two sample loops.
3. Locate the fittings (blue and red, respectively) on each loop.
4. Disconnect the blue and red fittings from the  $\frac{1}{4}$ -28 fittings in the eight-port sample valve.
5. Connect the new loops by screwing the blue fittings into ports 3 and 7 (loop B) and the red fittings into ports 1 and 5 (loop A) in the 8-port sample valve.
6. Replace the left bay cover.
7. From the Status screen, go to the **Setup** menu and select **Configuration**. This will access the Configuration screen.
8. Under the **Loop Volume** section, select the new size of the sample loop (**1 mL**, **5 mL**, **10 mL**, or **25 mL**).



## Calibrating Sample Loops

Sample loops installed on the Model 1010 other than the loops that came with the unit must be calibrated to ensure accurate sample volume.

1. From the Status screen, go to the **Setup** menu and select **Configuration**. This will access the Configuration screen.
2. Under the **Sample Introduction** section, select **Sipper**.
3. From the Configuration screen, go to the Loop Calibration screen by clicking **Loop Cal**.
4. Follow the instructions on the screen.

**Note:** The loop calibration routine for 1-mL and 5-mL loops on the Model 1010 fills the loop five times. Divide the liquid measurement by five for the actual volume. The 10-mL sample loops are filled twice (divide the liquid measured by two). The 25-mL loops are filled only once (no division is required).

**Note:** The sample loops must be matched as follows:

Table 7.1. Sample loop volume specifications

Sample Loop Volume (mL)	Loop Volume Specification (mL)	Difference Between Loops (mL)
1.00	±0.05	±0.010
5.00	±0.10	±0.020
10.00	±0.20	±0.040
25.00	±0.50	±0.125

5. Once the specification is met, enter the loop volume in the appropriate location in the **Actual Loop Volumes** section.



## Flow Adjustment

This procedure is used to verify proper gas flow through the Model 1010 flow paths.

1. Verify that the Model 1010 is not currently running an analysis and is in the standby state.
2. From the Status screen, go to the **Instrument** menu and select **Diagnostics**. This will access the Diagnostics screen.
3. Under the **Valves** section, turn on the **Transfer Valve** and turn off the **IR (NDIR) Valve**.
4. Connect a flowmeter to the fitting labeled “VENT” on the front panel of the Model 1010.
5. Verify that the flowmeter now reads  $110 \pm 1$  mL/min. This indicates proper transfer flow.
6. If the transfer flow is not within specification, adjust the main inlet regulator located on the floor of the chassis in the left valve bay of the Model 1010. Adjust until the flow is within range.
7. While still in the Diagnostics screen, turn on the **IR Valve** and verify that all other valves are in the off position.
8. Verify that the flowmeter reads  $110 \pm 10$  mL/min. This indicates proper NDIR flow. If not within specification, there may be a problem with the frit in the manifold. Contact the OI Analytical Technical Support Department for assistance.
9. Measure the reagent purge flow by connecting the flowmeter to the end of the reagent purge line ( $1/8$ " clear line in reagent bottle). The flow should be in the range of  $60 \pm 10$  mL/min. Repeat the procedure for each reagent.
10. Connect the flowmeter to the “purge out” line located on the front panel of the Model 1010.
11. The flowmeter should read  $225 \pm 25$  mL/min. If not, check for a tubing restriction. (This is the dry purge flow through the permeation tube.)
12. Connect the flowmeter to the sample drain (reverse valve) output line located on the Model 1010 back panel.
13. While still in the Diagnostics screen, turn on the **Drain Valve** and the **Reverse Valve**.
14. The flowmeter should read 170–200 mL/min. If not within specification, check the frit restriction in the manifold. Contact the OI Analytical Technical Support Department for assistance.



## Restrictions in the System

If the Model 1010 detects a restriction in the gas pathway, a warning screen appears. This warning only appears if the restriction causes a buildup of 15 psi of pressure. If this warning does appear, the condition must be remedied to prevent damage to the system. To locate the restriction:

1. Go to the Status screen.
2. Under the current readings section, in the bottom right-hand corner of the screen, view the **Pressure (psi):** display.
3. Use the flow diagram and disconnect tubing in the places described under “Performing a System Leak Check” on page 75 in this chapter, beginning at the vent.
4. Isolate the restriction and remove it.
5. Gas pressure should return to below 1.0 psi.



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## Chapter 8

# Troubleshooting

This chapter provides possible solutions to problems and error messages with WinTOC 1010. For additional assistance, contact OI Analytical Technical Support at (800) 336-1911 (USA/Canada) or (979) 690-1711

### Data Loss

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Data loss can occur in WinTOC during a run, if any program running under Windows (i.e., tape backup programs, DOS programs running in exclusive mode, or large print jobs) monopolizes the processor for more than two minutes. Windows is a cooperative multitasking operating system. Therefore, any program running under Windows that is not “well-behaved” can cause data loss.

### Keyboard Error

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If a keyboard error occurs, set up the Model 1010 without the keyboard installed by following these steps:

1. Connect the keyboard and monitor from the computer directly to the Model 1010. See the *Model 1010 Operator's Manual* for more information.
2. Power up the Model 1010.
3. During the memory check, press the [Del] key.
4. Select “Standard CMOS Setup.”
5. Scroll down using the arrow key to “Keyboard.”
6. Press [Pg Up] to change to “Not Installed.”
7. Press [Esc].
8. Select “Write to CMOS and Exit.”
9. Press [ENTER].
10. Press [Y] at “Write to CMOS and Exit (Y/N)?”
11. Press [ENTER].



**Note:** If this process does not remedy the keyboard error, contact OI Analytical Technical Support.



## Warning Screens

Warning Screens	Problem/Solution
Warning: Sample heater block over max temp.	The digestion vessel heater has overheated beyond its set point. Contact the OI Analytical Technical Support Department.
Warning: Low gas pressure.	The gas supply has dropped below the required pressure to operate the Model 1010. If the Model 1010 is running an analysis, it has subsequently stopped the analysis and drained the digestion vessel. Replenish the gas supply.
Warning: Attached 1010 printer error.	The printer is not able to print data. The Model 1010 will store up to ten pages of data in this mode. After the ten pages, the Model 1010 will stop any analysis and return to the standby state.
Warning: Possible IR detector failure.	The NDIR output has reached maximum output (65535) and remains at that point. See “Cleaning the Nondispersive Infrared (NDIR) Detector Sample Cell” in Chapter 5 of the Model 1010 <i>Operator’s Manual</i> .
Warning: Possible IR detector failure.	The NDIR output has reached zero (0) and remains at that point. See “Cleaning the Nondispersive Infrared (NDIR) Detector Sample Cell” in Chapter 5 of the Model 1010 <i>Operator’s Manual</i> .
Warning: Possible gas flow restriction.	The Model 1010 has detected a restriction in the system that could possibly cause a problem with the operation of the unit. See “Restrictions in the System” in Chapter 5 of the Model 1010 <i>Operator’s Manual</i> .
Warning: The analysis has exceeded the linear range (>130 µg C) of the analyzer.	The Model 1010 has detected a mass of carbon out of its linear range (125 µg C). The concentration and mass of the sample causing this display may not be accurate. See Chapter 4, “Operation,” of the Model 1010 <i>Operator’s Manual</i> for selecting the correct sample volume.
Warning: Autosampler is not calibrated.	The “Home” position on the Model 1051 Autosampler carousel needs to be calibrated.



Warning Screens	Problem/Solution
Warning: The IR signal is currently above the maximum allowed baseline (10,000).	The NDIR output is too high (greater than 10,000); as such, a sequence cannot be started before the IR baseline value settles down.

## WinTOC 1010 Messages

WinTOC messages that may be displayed are divided into four categories: User Notices, General Messages, Miscellaneous Messages, TOC Reporter Messages.

### User Notices

These messages are intended as helpful reminders for novice users and may be enabled or disabled on the Preferences screen. These messages do not necessarily indicate that a problem has occurred. All messages in this category will have the title “User Notice.” The body of the message will be followed by the user notice number. This number is intended to aid in tracking customer problem reports.

No.	Message	Comments
50	Message Not Found	Indicates an internal program error. Exit and restart WinTOC. If necessary, exit and restart Windows and reboot the Model 1010.
51	Turning off user notices disables a number of informational messages that may be helpful to novice WinTOC users. If you would like to continue seeing these messages, turn this option back on.	Displayed when User Notices are turned OFF in the Preferences Screen. Informational only.
52	Preacidification is on. Remove septum caps from vials and check for correct needle.	Displayed when Preacidification is turned on in the Configuration screen. The correct vial caps and needle must be used for this option to work correctly.
53	Septum piercing is on. Place septum caps on vials and check for correct needle.	Displayed when Septum Piercing is turned on in the Configuration screen. The correct vial caps and needle must be used for this option to work correctly.
54	The loop size has been changed to 1 mL. Verify that the 1-mL loops are installed.	Displayed when the loop size is changed in the Configuration screen. This is to verify that the hardware installed matches the configuration selected.



No.	Message	Comments
55	The loop size has been -changed to 5 mL. Verify that the 5mL loops are installed.	Displayed when the loop size is changed in the Configuration screen. This is to verify that the hardware installed matches the configuration selected.
56	The loop size has been changed to 10 mL. Verify that the 10-mL loops are installed.	Displayed when the loop size is changed in the Configuration screen. This is to verify that the hardware installed matches the configuration selected.
57	The loop size has been changed to 25 mL. Verify that the 25-mL loops are installed.	Displayed when the loop size is changed in the Configuration screen. This is to verify that the hardware installed matches the configuration selected.
58	Sample transfer times have been changed. The default values were chosen so that sufficient sample is drawn without excessive waste. Changing these times could have undesired effects.	Displayed when a sample transfer time is changed from the default value. An incorrect value can cause poor results or sample waste.
59	Pause between samples is on. WinTOC will pause for user confirmation before each sample.	Displayed when the pause option is turned on in the Configuration screen (available only for Sipper). Informational only.
60	Pause between samples is off. WinTOC will proceed from sample to sample without pausing.	Displayed when the pause option is turned off in the Configuration screen (available only for Sipper). Informational only.
61	The sample needle depth is less than 95%. This may reduce the amount of sample that may be successfully drawn from the vial.	Displayed when the sample needle depth is set to a small value. This could cause the Model 1010 to not be able to draw enough sample, even if enough liquid is actually present in the vial. However, this setting may be correct if the sample contains sediments.
62	The wash needle depth is less than 95%. This may reduce the amount of rinse water that may be successfully drawn from the wash station.	Displayed when the wash needle depth is changed to a small value. This could cause the Model 1010 to not be able to draw enough rinse water, even if enough liquid is actually present in the vial.



No.	Message	Comments
63	The TIC Blank value has been changed. The new value is outside the normal range of 40–200.	Displayed when the blank value is manually set to a number outside the normal range. An incorrect setting could cause poor results.
64	The TOC Blank value has been changed. The new value is outside the normal range of 50–250.	Displayed when the blank value is manually set to a number outside the normal range. An incorrect setting could cause poor results.
65	The TC Blank value has been changed. The new value is outside the normal range of 90–450.	Displayed when the blank value is manually set to a number outside the normal range. An incorrect setting could cause poor results.
66	The Response Factor has been changed. The new value is outside the normal range of 1.0–1.25.	Displayed when the response factor is manually set to a number outside the normal range. An incorrect setting could cause poor results.
67	The Linearization Coefficient has been changed. The new value is outside the normal range of 45000–65000.	Displayed in the Advanced Configuration dialog box when the indicated condition occurs. Intended to serve as a catch against an accidentally entered incorrect value. An incorrect setting can lead to poor results.
68	The 1-mL Loop A Actual Volume has been changed. The new value is outside the normal range of 0.95–1.05.	Displayed when the loop volume is set to a number outside the normal range.
69	The 1-mL Loop B Actual Volume has been changed. The new value is outside the normal range of 0.95–1.05.	Displayed when the loop volume is set to a number outside the normal range.
70	Manual naming is on. Running the current sequence will prompt for each data file name. The name should be entered before the next replicate completes. Either change the output setting or be present to enter the name.	Displayed when Data File Naming is set to Manual in the WinTOC Output screen. If the operator does not enter a name before the next replicate completes, results information will be lost.



No.	Message	Comments
71	All WinTOC outputs (run log, data file screen, and Windows printer) are off. WinTOC will produce no output for any runs.	Displayed when the operator turns off the last output type. This is not advisable, because WinTOC will not capture any results information. However, if the unit printer is attached, and is turned on in the Setting dialog box, the results will be output to that printer.
72	At least one sample in the sequence has user-entered values for reps/volume/name/blanks but the method name is Unknown. These samples will not be run.	Displayed if the indicated information in at least one line of the Sequence Table does not match the defaults specified in the Preference dialog for a sample that will not be run. A method name other than Unknown is required for a sample to be run. This is informational only, and is intended to catch cases where the operator thought a sample would be run, but then is not. If the defaults in the Preferences screen are changed, old sequences created with those defaults may give this message. This may be stopped by clearing all unused lines of the sequence.
73	Allow Editing has been set to 'Yes.' This will allow changes to the calibration which can result in a different response factor than the one generated by the unit from the standards actually run.	Displayed in the Calibration dialog box when the indicated condition occurs. This means that the operator can manually modify the calibration. Informational only.
74	A standard concentration has been changed. This will result in a different response factor than the one generated by the unit from the standards actually run.	Displayed in the Calibration dialog when the concentration is changed for a standard with area counts.
75	A standard has been manually specified as 'used' or 'unused.' This will result in a different response factor than the one generated by the unit from the standards actually run.	Displayed in the Calibration dialog when the indicated condition occurs. This means that the operator can manually modify the calibration. Informational only.



No.	Message	Comments
76	Making changes in the Edit Repts dialog will result in a different response factor than the one generated by the unit from the standards actually run.	Displayed in the Calibration dialog when the indicated condition occurs. This means that the operator can manually modify the calibration. Informational only.
77	The unit printer options have been changed. This will affect the output of the printer directly attached to the unit, not the printer attached to the Windows computer.	Displayed in the Settings dialog box when the indicated condition occurs. Informational only.
78	The date and/or time on the unit differs significantly from the date and/or time on the Windows computer.	Displayed when the time is changed in the Settings dialog or a run is started if the difference between the Windows computer time and the unit time is more than one hour. Upon connection, WinTOC automatically sets the unit date and time to match the Windows computer, so this will normally only be displayed if the operator sets the unit time and makes a mistake. If this message appears in other circumstances, a bad unit motherboard may have an out-of-control clock.
79	Manual RF has been turned on. This allows for a manual override of the calculated response factor.	Displayed in the Calibration dialog box when the indicated condition occurs. This means that the operator can manually set the response factor to a specific value. Informational only.
80	Manual RF has been turned off. The unit will automatically recalculate the response factor.	Displayed in the Calibration dialog box when the indicated condition occurs. This means that the response factor will be calculated automatically by the unit. Informational only.
81	Rinses Per Rep has been turned off. Rinses Per Rep should always be used for sample volumes less than 10 mL to improve reproducibility between replicates of the sample.	Displayed when rinses per rep is turned off. Not rinsing can cause carryover, which can cause poor reproducibility.



No.	Message	Comments
82	Rinses Per Sample has been turned off. Rinses Per Sample should always be used to help prevent carryover.	Displayed when rinses per sample is turned off. Not rinsing can cause carryover, which can cause poor reproducibility.
83	This sequence contains vial positions that are not available in the selected autosampler. These samples will not be run.	Displayed when a sequence is started that specifies vials that do not exist on the current autosampler. For example, the sequence may specify vial 50, which does not exist on the 12-vial autosampler. WinTOC will simply ignore the invalid vials.
84	The Start Pos/Vial # entered is out of range and has been adjusted.	The value entered on the Start Sequence screen for the starting position was not an allowed value and has been changed to an allowed value. The value must be greater than zero, no less than the position number of the first sample in the Sequence Table, and no greater than the stop position.
85	The Stop Pos/Vial # entered is out of range and has been adjusted.	The value entered on the Start Sequence screen for the stopping position was not an allowed value and has been changed to an allowed value. The value must be greater than 88, no greater than the position number of the first sample in the Sequence Table, and no less than the start position.
86	The Run Results window is nearing its capacity. The oldest results from this run will be removed from the display.	When running lengthy sequences, it is possible to encounter a Windows operating system limitation. This limitation restricts the amount of results information displayed in the Run Results window. WinTOC will remove the oldest sample results from the window to avoid the OS limitation.
87	The 5-mL Loop A Actual Volume has been changed. The new value is outside the normal range of 4900–5100 $\mu$ L.	



No.	Message	Comments
88	The 5-mL Loop B Actual Volume has been changed. The new value is outside the normal range of 4900–5100 $\mu\text{L}$ .	
89	The 10-mL Loop A Actual Volume has been changed. The new value is outside the normal range of 9800–10200 $\mu\text{L}$ .	
90	The 10-mL Loop B Actual Volume has been changed. The new value is outside the normal range of 9800–10200 $\mu\text{L}$ .	
91	The 25-mL Loop A Actual Volume has been changed. The new value is outside the normal range of 24500–25500 $\mu\text{L}$ .	
92	The 25-mL Loop B Actual Volume has been changed. The new value is outside the normal range of 24500–25500 $\mu\text{L}$ .	

## General Messages

These messages are used to indicate a variety of conditions, including error conditions, informational messages, etc. These messages cannot be turned off. The messages in this category have various titles, but the body of the message will be followed by the general message number. This number is intended to aid in tracking customer problem reports.

No.	Message	Comments
250	Message Not Found	Indicates an internal program error. Exit and restart WinTOC. If necessary, restart Windows and reboot the Model 1010.
251	There is not enough memory to perform the requested operation. Try closing any other open applications.	Displayed in a variety of situations if there is insufficient memory available. It may be necessary to close other applications and/or reboot the WinTOC computer.



No.	Message	Comments
252	Unable to completely transmit commands.	Displayed in a variety of situations if there are communications problems during a transmit. Confirm all serial cable connections and check for other software competing for the com port.
253	Unrecognized Autosampler Type	
254	Changes have been made. Save before continuing?	Displayed for methods, calibrations, and sequences if the operator closes the dialog box after making changes but has not saved. If “Yes” is selected, the software will prompt for a file-name.
255	Could not open the current calibration. Check the name in the Edit Calibration dialog.	The last calibration that the operator clicked OK to is no longer present. Select the Calibration dialog box from the Instrument menu, open a calibration, and click OK.
256	The value in the ‘To:’ field must be greater than or equal to the value in the ‘From:’ field.	In the Sequence dialog box, an improper Clear or Copy command is being attempted. WinTOC requires that the starting and ending lines be entered in ascending numerical order.
257	The values in the ‘To:’ and ‘From:’ fields must be no less than one and no greater than eighty-eight.	In the Sequence dialog box, a Clear or Copy command is being attempted with a line number that does not exist.
258	The input values may not define overlapping blocks.	In the Sequence dialog box, an improper Copy command is being attempted. WinTOC requires that the blocks do not overlap. For example, it is not possible to copy lines 1–3 to lines 2–4, but is it possible to copy to lines 4–6.



No.	Message	Comments
259	The input values must either define blocks of identical size, or the Source 'To:' field and the Source 'From:' field must be equal.	In the Sequence dialog box, an improper Copy command is being attempted. WinTOC requires that the blocks be of the same size or the source block be of one size. In this special case, the single source line is copied to all lines of the destination block. This is to allow very quick duplication of a general pattern.
260	The TOC firmware in this device is an older release that is not compatible with this version of WinTOC. Please call OI Analytical at 1-800-336-1911 to arrange a firmware upgrade.	The WinTOC and firmware versions do not match. Matching firmware and WinTOC is needed.
261	There are currently no methods to open.	An attempt was made to open a method when none existed. The operator must create a method.
262	There are currently no methods to delete.	An attempt was made to delete a method when none existed.
263	The specified method already exists. Do you want to overwrite it?	The operator selected Save As and specified an existing name.
264	Are you sure you want to permanently delete this method?	The operator is about to delete a method. If "yes" is selected, the method will be deleted. If a good method is accidentally deleted, an auto-backup file was created by WinTOC with the extension \$TC that may be restored using the Archive/Restore facility.
265	There are currently no sequences to open.	An attempt was made to open a sequence when none existed. The operator must create a sequence.
266	There are currently no sequences to delete.	An attempt was made to delete a sequence when none existed.
267	The specified sequence already exists. Do you want to overwrite it?	The operator selected Save As and specified an existing name.



No.	Message	Comments
268	Are you sure you want to permanently delete this sequence?	The operator is about to delete a sequence. If “Yes” is selected, the sequence will be deleted. If a good sequence is accidentally deleted, an auto-backup file was created by WinTOC with the extension \$TC that may be restored using the Archive/Restore facility.
269	There are currently no calibrations to open.	An attempt was made to open a calibration when none existed. The operator must create a calibration.
270	There are currently no calibrations to delete.	An attempt was made to delete a calibration when none exist.
271	The specified calibration already exists. Do you want to overwrite it?	The operator selected Save As and specified an existing name.
272	Are you sure you want to permanently delete this calibration?	The operator is about to delete a calibration. If “Yes” is selected, the calibration will be deleted. If a good calibration is accidentally deleted, an auto-backup file was created by WinTOC with the extension \$TC that may be restored using the Archive/Restore facility.
273	The current file is corrupt and cannot be read. This file should be deleted and recreated.	A method, sequence, or calibration file is unrecoverable. First, try restoring the appropriate \$TC auto-backup file. If that fails, try restoring the last archive (if available). If all else fails, delete the appropriate WTC file from the hard drive (Unfortunately, the operator will have to manually re-enter all information in this case).
274	File error. Could not open file.	A method, sequence, or calibration file is locked. Normally, exiting and restarting Windows will correct this problem.



No.	Message	Comments
275	File error - this contains corrupt header information and should be recreated.	A method, sequence, or calibration file is unrecoverable. First, try restoring the appropriate \$TC auto-backup file. If that fails, try restoring the last archive (if available). If all else fails, delete the appropriate WTC file from the hard drive (Unfortunately, the operator will have to manually re-enter all information in this case).
276	File error - this file was created by a newer version of WinTOC and may not function properly. Please contact OI Analytical to receive a newer version of WinTOC.	This indicates that both a new and an old version of WinTOC probably exist on the hard drive and the old version is being used to access data from the new version. Use the new version instead.
277	You must enter a name before you click OK.	This prevents saving a method, calibration, or sequence without a unique name.
278	Could not allocate data block.	Memory-related error. Restart Windows.
279	Could not lock data add record memory block.	Memory-related error. Restart Windows.
280	Could not lock data get record memory block.	Memory-related error. Restart Windows.
281	Could not free data memory block.	Memory-related error. Restart Windows.
282	Cannot perform a Leak Check while running an Offline copy of WinTOC.	Close WinTOC and restart on-line before performing a leak check.
283	Cannot perform a Leak Check while running. Finish run and retry.	Either abort the run or wait for it to complete before performing a leak check.
284	Manually position tray with needle over first vial and click Ok to calibrate, or Cancel to abort.	Displayed when Calibrate is clicked in the Diagnostics dialog box to calibrate the autosampler.
285	You must stop the current operation before closing this dialog.	The Diagnostics dialog box cannot be closed while a Drain operation is in progress. Click on the Drain button again to stop the operation, then close the Diagnostics dialog.



No.	Message	Comments
286	Print Fault: Unable to print. Check printer installation.	The Windows printer is incorrectly configured. Correct the printer configuration using the Print Manager (Windows 3.1x) or Printers (Windows 95) dialog box from the Control Panel in Windows.
287	Could not lock memory block.	Memory-related error. Restart Windows.
288	Could not lock allocate block.	Memory-related error. Restart Windows.
289	WinTOC could not load the default method 'default'.	The default method was deleted, either through the WinTOC delete function, or by deleting the MTH_10.WTC file. Save a new method by the name "default."
290	No more timers are available. Try closing any other open applications and restarting the sequence.	First close all open applications. If that fails, exit and restart Windows.
291	Could not find the method specified in the sequence. The current method on the unit will be used instead.	A method in the sequence is no longer present. Modify the sequence to use an existing method.
292	Move the sipper tube to the correct sample, then click OK to continue.	Displayed between samples when the Sample Introduction mode is set to "Sipper" and "Pause" is on. Position the sipper tube in the appropriate sample container.
293	Inject the sample, then click Ok to continue.	Displayed before each rep of a syringe sequence.
294	A timeout has occurred while waiting for over range check results. Choose Yes to continue waiting or No to skip over range checking for this sample.	Usually indicates a communications error. If the problem persists, take appropriate action to diagnose and correct RS-232 problems.
295	For Standard runs, the volume is set in the Edit Calibration dialog and cannot be changed here.	This message should never appear. It is a second-fault message in the Sequences dialog box.
296	The TIC Low Alarm cannot be greater than the TIC High Alarm.	Range checking message in the Settings dialog box.
297	The TIC High Alarm cannot be less than the TIC Low Alarm.	Range checking message in the Settings dialog box.



No.	Message	Comments
298	The TOC Low Alarm cannot be greater than the TOC High Alarm.	Range checking message in the Settings dialog box.
299	The TOC High Alarm cannot be less than the TOC Low Alarm.	Range checking message in the Settings dialog box.
300	The TC Low Alarm cannot be greater than the TC High Alarm.	Range checking message in the Settings dialog box.
301	The TC High Alarm cannot be less than the TC Low Alarm.	Range checking message in the Settings dialog box.
302	Unable to create the directory for the WinTOC data.	Usually indicates that the operator manually modified directories in File Manager or Explorer. Verify that a directory called "DATA10" exists in the TOC Reporter installation directory, and create one if it does not (e.g., C:\Program Files\OI Analytical\TOC Reporter\Data10).
303	When Run Log is checked, you must enter a Log File Name.	It is necessary to specify a Run Log filename when using the Run Log option.
304	Could not allocate QUEUE data area. WinTOC will start in Offline mode. Close all applications and restart Windows.	Memory-related error. Restart Windows.
305	Could not lock add QUEUE record memory block. WinTOC will switch to Offline mode. Close all applications and restart Windows.	Memory-related error. Restart Windows.
306	Could not lock QUEUE get record memory block. WinTOC will switch to Offline mode. Close all applications and restart Windows.	Memory-related error. Restart Windows.
307	Could not free QUEUE memory block. Close all applications and restart Windows.	Memory-related error. Restart Windows.
308	Communications with the attached device have failed. WinTOC will switch to Offline mode.	Check all serial cable connections. Verify that no other software is using the WinTOC com port. If necessary, exit WinTOC, and reboot the Model 1010 and restart WinTOC.



No.	Message	Comments
309	The Sequence table is empty. You must set the Current Sequence by entering the Sequence dialog, opening a sequence, and clicking OK.	Displayed when no current sequence is selected. Select or create a new sequence.
310	Could not find any methods to view.	View Methods was selected but no methods existed to view.
311	Could not unlock and free a memory block. Save all open work and restart Windows.	Memory-related error. Restart Windows.
312	Cannot load the SPIN.DLL Dynamic Link Library. If this problem persists, reinstall Win-TOC.	This is a necessary file for Win-TOC. The SPIN.DLL file should be in the Windows directory.
313	Unable to write to the specified calibration. Check the name in the Edit Calibration dialog.	The current calibration that was chosen cannot be found.
314	At least one volume (sample, over range, or rinse) in the current sequence is not a multiple of the current loop volume. This must be corrected before the sequence can be started.	The current hardware configuration does not match the current sequence (for example, trying to sample 3 mL with a 5-mL loop).
315	At least one total volume (sample volume times reps) in the current sequence is above the vial size for this autosampler. This must be corrected before the sequence can be started.	Check the sequence to run. At least one vial position needs updating to reduce the number of reps or the volume per rep.
316	The standards and/or check standards in this sequence will not run properly because there is a conflict between the calibration mode and the analysis mode. Are you sure you want to start the sequence?	The analysis mode selected in the Configuration screen does not match the standards defined for this calibration.



No.	Message	Comments
317	The IR signal is currently above the maximum allowed baseline (10,000).	The unit's NDIR may need time to stabilize. If the power was just turned on and the baseline is dropping, it should settle out fairly quickly. Otherwise, the baseline may need to be adjusted manually. (See the appropriate section in the manual for adjusting the NDIR baseline.) Allow at least 30 minutes of gas purge time after powering up the unit for stabilization.
318	Running the current sequence with Datafile Auto-naming will overwrite at least one data file. WinTOC will prompt for a name when this occurs. The name must be entered before the next replicate completes. Either change the output settings or be present to enter the name.	Automatic naming is selected, but data files already exist with the names that will be created. Change the filename prefix and index settings in the WinTOC Output dialog box or specify a different output directory.
319	At least one sample transfer time is zero. Check the times in the Advanced Configuration dialog.	Check for the indicated condition. Normally, going to the Advanced Configuration dialog box, selecting Reset to Defaults, and clicking on OK will correct this problem
320	There is currently a hardware error as identified in the Errors/ Alarms box on the Status screen. The currently running sequence will be aborted.	An error occurred that invalidates the results or prevents further analyses. See the WinTOC Status screen (errors/alarms section) to identify which error occurred, and take the appropriate action to correct the error.
321	There is currently a hardware error as identified in the Errors/ Alarms box on the Status screen. You must correct this error before starting a sequence.	An error occurred that would invalidate future results. See the WinTOC Status screen (errors/alarms section) to identify which error occurred, and take the appropriate action to correct the error.
322	Do you really want to abort the sequence?	Abort confirmation message.
323	Select OK to resume the sequence or Cancel to abort.	Only displayed while the sequence is paused. Select desired action.



No.	Message	Comments
324	WinTOC cannot communicate with the 1010 Analyzer. Check your cable and retry. Choose Yes to run Offline, or No to close WinTOC.	Check all serial cable connections. Verify that no other software is using the WinTOC com port. If necessary, exit WinTOC, and reboot the Model 1010 and restart WinTOC.
325	This will end your WinTOC session.	Exit confirmation message.
326	The attached device is not in state 'STANDBY' and may be performing an operation. Are you sure you want to close WinTOC? If you choose 'Yes', any run in progress will be Aborted.	An attempt is being made to close WinTOC while a run is in progress. Allow the sequence to complete normally or Abort; then exit.
327	The string 'Untitled' is reserved for indicating unnamed items. Enter a different name.	The name "Untitled" may not be specified by the operator for methods, sequences, or calibrations.
328	WinTOC could not load the specified Run Log Viewer. Check the viewer name in the Preferences dialog.	The Run Log Viewer could not be opened. Reinstall WinTOC or contact OI Analytical Technical Support.
329	WinTOC could not load the TOC Reporter. Close all open programs and restart Windows.	The file REPORT.EXE could not be started. Try restarting Windows or reinstalling WinTOC.
330	This disk does not contain a Firmware executable. Choose OK to continue, or cancel to insert another disk.	Verify that the correct disk is being used and retry the upgrade process.
331	Firmware upgraded successfully. To complete the process, insert the firmware disk in the unit, and cycle the power switch. Then, restart WinTOC in on-line mode.	The firmware upgrade process completed successfully. Completely power down the unit and boot off the upgraded floppy. Also close WinTOC and restart normally.
332	An error has occurred during the upgrade process. Please try again.	Verify that the correct disk is being used, and that the disk is not write-protected, and retry the upgrade process.
333	WinTOC could not start the replicate. Continue retrying?	WinTOC requested that a sequence be started, but the instrument did not start. Confirm all serial cable connections. If the problem persists, restart the unit.



No.	Message	Comments
334	The actual loop volumes for 1-mL loop A and 1-mL loop B must be within 10 $\mu$ L of each other.	
335	The actual loop volumes for 5-mL loop A and 5-mL loop B must be within 20 $\mu$ L of each other.	
336	The actual loop volumes for 10-mL loop A and 10-mL loop B must be within 40 $\mu$ L of each other.	
337	The actual loop volumes for 25-mL loop A and 25-mL loop B must be within 125 $\mu$ L of each other.	
338	The password field cannot be empty.	Enter in a password.
339	Incorrect password entered.	The password is incorrect for that ID.
340	The run cannot be started because the linearization coefficient is zero. Re-enter the linearization coefficient.	
343	An unexpected error occurred during login.	Run the Security and Auditing Manager and confirm all settings. Restart WinTOC.
345	Invalid Login ID.	Security is enabled, and the login ID is invalid. Check the login ID and try to log in again.
347	Incorrect Password.	Security is enabled, and the password entered is invalid. Check the password and try to login again.
348	This Login ID does not have Launch permission for WinTOC 1010.	Security is enabled, and this user ID does not have permission to run WinTOC 1010.
349	This Login ID does not have permission to access Advanced Method Parameters.	Security is enabled, and this user ID does not have permission to access advanced method parameters.



No.	Message	Comments
350	Unable to start audit trail viewer application.	The Run Log Viewer could not be opened. Reinstall WinTOC or contact OI Analytical Technical Support.

## Miscellaneous Messages

These are similar to General Messages but are not followed by a number. These messages cannot be turned off. These messages typically have situation-dependent information, such as a file name or error code inserted as part of the message. This information will be represented as “XXX” in the descriptions that follow.

Message	Comment
Archive file ‘XXX’ was restored to ‘XXX’.	Confirmation message. Displayed after an archive operation is performed.
Are you sure you want to restore? If you say ‘Yes’, all information in WinTOC file XXX will be overwritten with information from the selected archive.	Confirmation message displayed when a restore operation is specified.
Configuration Error: WinTOC is not configured for an instrument number XXX. Use the WinTOC Configuration Editor to configure a new instrument.	The operator may need to run the Configuration Editor. This message can also occur if the instrument number on the command line for the icon/shortcut is incorrect.
Could not open file XXX. The operation cannot proceed.	Displayed if an error occurs during an archive. This will happen if an attempt is made to restore a WTC file over itself. This is not advisable!
Error Creating Data File. Error Code = XXX	A file error occurred. Check the settings in the WinTOC Output dialog box first, then try to restart WinTOC, and then Windows.
Error Creating Report Log File: XXX. Error Code = XXX	A file error occurred. Check the settings in the WinTOC Output dialog box first, then try to restart WinTOC, and then Windows.
NOTICE: WinTOC XXX is already running.	The operator tried to start two copies of WinTOC by the same instrument number. If necessary, restart Windows.
The active firmware is not for the 1010 (firmware id XXX). Choose ‘Yes’ to start the 1010 firmware, ‘No’ to run WinTOC 1010 offline, or ‘Cancel’ to close WinTOC 1010.	Displayed if the operator was recently running the Solids Analyzer and now wants to run the Model 1010 or 1020A. Click on Yes if this is appropriate, otherwise, click on No.



Message	Comment
<p>The active firmware is not for the 1010 Module (firmware id XXX). This firmware is currently running. WinTOC 1010 can start the 1010 firmware, but this will stop the run in progress. Choose 'Yes' to start the 1010 firmware, 'No' to run WinTOC 1010 offline, or 'Cancel' to close WinTOC 1010.</p>	<p>Displayed if the operator was recently running the Solids Analyzer and now wants to run the Model 1010 or 1020A, but the Solids Analyzer is running an analysis. This may occur in the case of a power outage, or if the WinTOC PC crashes while a WinTOC run is in progress.</p>
<p>The firmware in this device (revision XXX) is incompatible with this version of WinTOC. Please call OI Analytical at 1-800-336-1911 to arrange an upgrade.</p>	<p>A mismatched version is currently installed. Install the current WinTOC version from diskette, or select Upgrade Firmware from the WinTOC Utilities menu to upgrade the firmware.</p>
<p>The type of the selected archive does not match the type of the file to be restored (XXX vs. XXX) This archive cannot be restored over this file.</p>	<p>An attempt was made to restore an incompatible file. For example, the operator attempted to restore methods over sequences.</p>
<p>The version of the selected archive does not match the type of the file to be restored (XXX vs. XXX) WinTOC may not be able to read the information from this archive. Are you sure you want to restore?</p>	<p>An attempt was made to mix files from different versions of WinTOC.</p>
<p>The XXX data file already exists. Choose Yes to overwrite, No to enter a new name for this file, or Cancel to skip saving data for this rep.</p>	<p>Select a new datafile name before the next replicate completes or data will be lost.</p>
<p>WinTOC file 'XXX' was archived to 'XXX'.</p>	<p>Confirmation message. Displayed when an archive operation is performed.</p>
<p>WinTOC is unable to transmit an initialization command. Make sure no other applications are using COM XXX</p>	<p>The port is already in use. Normally, this means the operator is trying to use the same port the mouse is using or that com port is used by an application such as WinFax or Palm HotSync.</p>



## TOC Reporter Messages

These are similar to Miscellaneous Messages but are displayed by the TOC Reporter.

Message	Comments
Apply current Response Factor to all open files?	Responding 'Yes' to this question will cause the recomputed response factor to be applied to all open result files. This will cause the mass and concentration values to change.
Cannot open file. Please try another file name or restart Windows.	The TOC Reporter is unable to open the requested file. Verify the file name and format.
Could not create calibration - insufficient memory.	Close any other Windows applications, and restart WinTOC.
Could not create calibration - unrecognized type.	The type of the calibration desired could not be determined
Could not create sample - insufficient memory.	Close any other Windows applications, and restart WinTOC.
Could not create sample - unrecognized type.	The type of the sample desired could not be determined.
Could not load font.	Close any other Windows applications, and restart WinTOC.
Could not load pen.	Close any other Windows applications, and restart WinTOC.
Could not open the file.	
Could not start the Audit Log Viewer.	The TOC Reporter cannot open the audit trail log or start the log viewer application. Restart Windows and try again. If this persists, reinstall WinTOC.
Error Creating TOC Reporter Audit Trail File: abc.log. Error Code = N.	Close any other Windows applications, and restart WinTOC.
File xxx.RLT is not a WinTOC result file.	The file format was not recognizable by the TOC Reporter. Either the selected file was not produced by WinTOC or it has been corrupted.
File error - this file was created by a newer version of WinTOC and may not function properly.	
File error. Could not open file.	



Message	Comments
Incorrect Password.	Security is enabled, and the password entered is invalid. Check the password and try to login again.
Invalid Instrument Type.	Security is enabled, and the security settings for this type of TOC unit could not be located. Check the security settings in the Security and Auditing Manager.
Invalid Login ID.	Security is enabled, and the username entered is invalid.
No more result (.RLT) files may be opened until one or more open files are closed.	The TOC Reporter does not allow an unlimited number of result files to be opened. Close some open files before opening others.
No rep is selected to apply changes to.	Select one or more reps before attempting to apply the changed integration parameters.
OIREG16.EXE failure.	The Windows registry may be corrupt, or the computer may be low on virtual memory. Close any other Windows applications, and restart WinTOC.
OIREG16.EXE WinExec failure.	Close any other Windows applications, and restart WinTOC.
Please refer to the TOC Reporter online manual for help.	An online manual for the TOC Reporter is now available in PDF format. To install it, insert the TOC 1010 CD-ROM and run the install utility.
Printer configuration error N.	Refer to your Windows documentation for more details.
The current file is corrupt and cannot be read. This file should be deleted and recreated.	
The export is complete.	This message indicates the data export operation was completed.
The file xxx.RLT does not match the current instrument type and will not be opened.	It is not possible to simultaneously open result files generated from more than one type of TOC Analyzer.
The file xxx.RLT is already loaded.	A result file cannot be loaded more than once into the TOC Reporter.
The file was updated to a new format. Please re-open it again.	



Message	Comments
The specified 1010 calibration already exists. Please enter a unique name.	Each TOC 1010 calibration must have a unique name.
The string 'Untitled' is reserved for indicating unnamed items. Enter a different name.	Methods, sequences, and calibrations cannot be named 'Untitled.'
The TOC Reporter cannot print. There is no printer installed.	A Windows printer must be installed and configured before the TOC Reporter can print.
The type of file xxx.RLT could not be read. This file may be corrupt.	The file format was not recognizable by the TOC Reporter. Either the selected file was not produced by Win-TOC or it has been corrupted.
There are currently no 1010 calibrations to open.	No calibrations have been defined.
This Login ID does not have Launch permission for TOC Reporter.	Security is enabled, and the username entered does not have permission to start the TOC Reporter. Run the Security and Auditing Manager to change permissions.
Too Many Result Files.	The TOC Reporter does not allow an unlimited number of result files to be opened. Select fewer files to be opened.
Unable to allocate global memory. Please close any other open applications.	Restart Windows.
Unable to Locate or Open File XXX.RLT. Please check that no other programs have this file loaded.	Close other applications, restart the TOC Reporter, or restart Windows.
Unexpected end of file. File XXX.RLT may be corrupt.	Some other applications may also use the extension RLT. This message may be displayed if the operator inadvertently tries to open another application file. Otherwise, the file is probably unrecoverable.
You must enter a name before you click OK.	Enter a valid filename, then click OK.



## Security and Auditing Manager Messages

This messages are displayed in the Security and Auditing Manager.

Message	Comments
Password not confirmed. Please re-enter password and confirmation.	The two passwords entered are not an exact match. Re-enter both the password and the confirmation.
This will alter current Audit settings for all categories. Continue?	Choosing OK here will change all current audit settings for this user to the defaults.
This will overwrite the current Auditing default settings. Continue?	Choosing OK here will change the default audit preferences
Error Opening Audit Trail File: X.LOG. Error Code = N	An error occurred opening the audit trail log file.
New password must be at least 1 character. Please re-enter new password.	Empty passwords are not allowed.
Current password is incorrect. Please re-enter current password.	An invalid password was entered.
New password not confirmed. Please re-enter new password and confirmation.	The new password must be entered twice to provide confirmation.
Password not verified. Please re-enter password and verification.	The new password must be entered twice to provide confirmation.
Unable to Launch Log Viewer	An error occurred while attempting to display the audit trail log.
This will alter current Security settings for all categories. Continue?	Choosing OK here will change all current security settings for this user to the defaults.
Delete User xxxx?	Choosing OK here will remove all information and permissions for the user id listed.
Password incorrect. Please re-enter password.	The administrator password entered is incorrect.
Incorrect password three times. Contact OI Analytical technical support.	After three tries entering the administrator password, the Security and Auditing Manager will terminate. Call OI Analytical Technical Support if the administrator password has been lost.



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