



BenchMark XT and BenchMark LT Operator Manual





BenchMark XT and BenchMark LT Operator Manual

BenchMark XT and BenchMark LT Operator Manual

Copyright

© 2003-2012 Ventana Medical Systems, Inc. All Rights Reserved. No portion of this operator manual may be copied, reproduced, or distributed by any means or for any purpose without the express prior written permission of Ventana Medical Systems, Inc. (Ventana). NexES Software Version 10.6, © 1996-2009 Ventana Medical Systems, Inc.

Trademark

BENCHMARK, NEXES, DISCOVERY, SLS, INFORM, VENTANA, and the VENTANA Logo are trademarks of Roche. All other trademarks are the property of their respective owners.

Licenses

Ventana's products may be governed by one or more license agreements, including third-party licenses. Users of the products or software discussed in this operator manual, including NexES Software Version 10.6, and other Ventana products are subject to the terms of such licenses. Other products, components, modules, features and/or functions referenced in this operator manual that are not part of the *BenchMark* base products or package of products discussed herein may not be received or used by any person unless the relevant license fees are paid and the relevant license agreements are duly executed.

Disclaimer and Waiver of Warranty

Ventana makes no warranty of any kind with regard to the material contained in this operator manual, including but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Receipt or use of the products discussed herein are subject to the product warranty, statement of intended use, and other regulatory information, if any, contained in this manual.

This publication is furnished "as is" and is for informational use only and should not be construed as a commitment of any kind by Ventana. Every effort has been made to ensure that the information contained in this operator manual is accurate as of the time of printing. However, Ventana shall not be liable for errors or omissions contained in this operator manual or for any damages, including incidental or consequential damages, in connection with the furnishing, performance, or use of the material in this operator manual.

Information in this operator manual is subject to change without notice. Ventana reserves the right to make any changes to this operator manual as necessary as part of ongoing product development. Users should check the latest version of this operator manual for any updates or additions to the information herein.

Governing Law

All copyrights, trademarks, patents, and license agreements shall be governed and construed in accordance with the laws of the State of Arizona and the laws of the United States, unless otherwise provided in agreements governing such copyrights, trademarks, patents, or licenses.

Contact



Ventana Medical Systems, Inc.
1910 E. Innovation Park Drive
Tucson, Arizona 85755
USA

+1 520 887 2155

+1 800 227 2155 (USA)



www.ventana.com



Roche Diagnostics GmbH
Sandhofer Strasse 116
D-68305 Mannheim
Germany

Compliance with Standards

The Product instrument is manufactured and certified to comply with the following safety standards:

EN 61010-1	Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 1: General requirements
IEC 61010-2-010	Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use, Part 2-010: Particular Requirements for Laboratory Equipment for the Heating of Materials
EN 61010-2-081	Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 2-081: Particular requirements for automatic and semi-automatic laboratory equipment for analysis and other purposes
EN 61010-2-101	Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 2-101: Particular requirements for in vitro diagnostic (IVD) medical equipment
EN 61326-1	Electrical equipment for measurement, control and laboratory use -
EN 61326-2-6	EMC requirements – Part 2-6: Particular requirements - In vitro diagnostic (IVD) medical equipment; IEC 61326-2-6:2005
IEC/EN 60825-1	Ed. 2:2007 Safety of laser products - Part 1: Equipment classification and requirements.

Federal Communications Commission (FCC) Information

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. Operation of this equipment in a residential area is likely to cause interference, in which case the user will be required to correct the interference at his own expense. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a different circuit from that into which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CAUTION: CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE WITH PART 15 OF THE FCC RULES COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

Canadian Department of Communications (DOC) Information

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatuses as set out in the Radio Frequency Regulations of the DOC.

INTENTIONALLY BLANK

Instrument Specifications

Physical Characteristics:		Stainer Assembly	
Size (W x D x H)	35" x 26" x 60.25" (89 x 66 x 153 cm)		
Weight	385 lbs (175 Kg)		
Clearances	Top: 15 inches (38.1 cm) Side: 4 inches (10.2 cm) Behind: 6 inches (15.2 cm)		
Electrical Characteristics:		USA / Japan (SM 750-700)	Europe (SM 750-700)
Voltage	100-120V~	230V~	
Current	6A	4A	
Frequency	50-60 Hz	50-60 Hz	
Power Connection	Cord suited to country.		
Environmental Requirements:			
BTU/Hr Output	400 BTU/Hour idle, 1000 BTU/Hour running.		
Room temperature	20-32°C (Note: the instrument may be unable to maintain proper reaction temperatures if laboratory ambient temperature exceeds the specified temperature range.)		
Humidity	20-90% rH, non-condensing.		
Elevation	0-6000 ft (1828 m) above sea level.		
Location	Flat, level surface. No direct sunlight or drafts. Remove from sources of direct heat and moisture. For indoor use only. Do not position the instrument so that it is difficult to remove the main plug from power.		
Temperature Control:			
Slide Heater Pad Temperature Range	37°C to 100°C ± 2.0°C		
General Characteristics			
Capability	IHC, ISH, FISH, and FITC slide processing Tech. spec. 1.2		
Slide Tray	Independent temperature control for each position (BenchMark XT instrument 1-30 slides, BenchMark LT instrument 1-20 slides)		
Reagent Carousel	35 reagent positions		
Slides	25 x 75 mm, 1 x 3 inches or 26 x 76 mm Superfrost Plus		
Modularity	1-8 systems may be controlled from one PC system.		
Water Quality	NCCLS type II water or equivalent (referred to as deionized water).		
Bulk Reagents	Up to seven bulk containers, 3- to 6-liter on-board containers.		
Configurations	Floor mounted using waste subassembly with 20-liter waste bottle.		
Certifications	CSA, CE.		

The power strip that accompanies the staining system should not be placed on the floor. Electrical hazard may occur if this power strip comes into contact with liquid. This power strip should be used to connect the computer components only in a dry environment.

Transportation and Storage

Transporting and storing the instrument is performed under the same conditions as stated in the Instrument Specifications.

Relocating the Instrument

Relocating the instrument should be performed only by Ventana personnel.

Installing the Instrument

Installation of the instrument should be performed only by Ventana personnel or its representatives.

IEC Installation Category

BenchMark XT and BenchMark LT belong in IEC Installation Category II, which is defined as local level, special equipment or parts of equipment, telecommunications, electronic, etc, with smaller transient voltages than Installation Category III.

Parts Supplied by Ventana

Fuses are supplied and installed by Ventana.

User-Replaceable Fuses

No fuses are user-replaceable.

Disposal at End of Useful Life

At the end of its useful life, this equipment must be disposed of in accordance with local and/or national environmental requirements.

Symbols



For In Vitro Diagnostic Use



Catalog Number



Serial Number



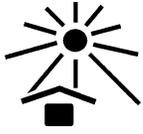
CE Mark



Mark of conformity to electrical safety standards issued by Canadian Standards Association (CSA)



Lot Number



Keep Out Of Direct Sunlight



Temperature Limitations



Single Use Only



Expiration Date



Caution, consult accompanying documents



Laser



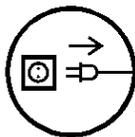
Hot Surface



Electric Shock



Electric Shock Hazard



Disconnect Power



Slip Hazard



Biological Risk



Pinch Hazard



Protective Earth



Separate collection for electrical and electronic equipment

INTENTIONALLY BLANK

Preface

The BenchMark XT and The BenchMark LT systems have hardware, software, and reagent components. This manual covers operation, safety information, and maintenance of the BenchMark XT and BenchMark LT systems. Details for each reagent product are covered in their respective package inserts.

The BenchMark LT accommodates 20 slides and the BenchMark XT 30 slides. Therefore, in some areas of this manual, figures or text referring to only one of the instruments may be used to illustrate or explain something that applies to both.

The BenchMark LT/XT full systems have a standard configuration: an advanced stainer; a slide printer; a computer with software, monitor and printer; and all associated cables, labels and connectors.

Intended Use

The BenchMark XT and BenchMark LT systems are intended to automatically stain histological or cytological specimens on microscope slides with specific immunohistochemistry or *in situ* hybridization reagents for *in vitro* diagnostic use.

INTENTIONALLY BLANK

TABLE OF CONTENTS

- Compliance with Standards v
- Federal Communications Commission (FCC) Information v
- Canadian Department of Communications (DOC) Information..... v
- Instrument Specifications vii**
 - Transportation and Storage viii
 - Relocating the Instrument viii
 - Installing the Instrument..... viii
 - IEC Installation Category viii
 - Parts Supplied by Ventana viii
 - User-Replaceable Fuses viii
 - Disposal at End of Useful Life viii
 - Symbols viii
- Preface..... xiii**
- Intended Use xiii**
- 1.0 HOW BENCHMARK XT AND BENCHMARK LT WORK..... 1**
 - Instrument Function 1
 - Carousel and Bar Codes..... 1
 - Dual Rinse Station 2
 - Jet Drain Station 3
 - Multispense Station 4
 - LCS Dispense Station..... 5
 - Air Knife Station..... 5
 - Mixing Stations 6
 - Temperature Control..... 7
 - Importance of Leveling 7
- 2.0 SAFETY INFORMATION 9**
 - Stainer Subassembly..... 9
 - Warning Labels..... 9
 - Caution: Hot Surface—Do Not Touch 9
 - Caution: Refer to Accompanying Documents 9

Caution: Risk of Electric Shock.....	10
Caution: Shock Hazard - Do not Expose to Water (ISO 3864).....	10
Caution: Disconnect Power Before Servicing.....	10
Caution: Laser on Board.....	10
Caution: Biological Risk.....	11
Caution: Pinch Hazard.....	11
Warning: Slip Hazard (ISO 3864/ANSIZ535.4).....	11
Safety Training.....	11
Safety Compliance.....	12
3.0 BENCHMARK XT AND BENCHMARK LT COMPONENTS.....	13
BenchMark XT and BenchMark LT Subassemblies.....	13
Accessories.....	13
The Stainer Subassembly.....	13
The Automated Fluidics Subassembly (AFS).....	14
Priming the System.....	16
The Waste Bottle Subassembly.....	17
Overflow Sensor.....	18
The Computer.....	18
NexES Software.....	19
4.0 BASIC INSTRUMENT OPERATION.....	21
Slides.....	21
What is a Run?.....	21
Hardware.....	21
Turning on the Instrument.....	21
Instrument Control Panel.....	22
Pulling Out the Slide Tray.....	23
Initialization before a Run.....	25
Removable Reagent Trays.....	25
Registration Wand for Kits and VENTANA Products.....	28
To Perform BenchMark XT/LT Cleaning.....	29
Manual Applications.....	29
Automatic and Manual Backup.....	29
Software.....	30
Reading Bar Codes.....	31
Exiting the Program.....	35
During a Run.....	35

	Monitoring Run Progress.....	35
	Viewing Run Times.....	36
	When Something Goes Wrong.....	37
	Post-Run Reports.....	38
	Print Report (Run Summary).....	40
5.0	BULK FLUIDS.....	43
	Bulk Bottle Removal and Installation.....	43
	Removing a Bulk Bottle.....	43
	Installing a Bulk Bottle.....	43
	EZ Prep (Position 1).....	44
	LCS (Position 2).....	45
	SSC (Position 3).....	45
	Reaction Buffer (Position 4).....	45
	CC1 (Position 5).....	46
	CC2 (Position 6).....	46
	Optional (Position 7).....	46
	Instructions for Installing and Maintaining Spigots.....	46
6.0	REGISTERING AND LOGGING REAGENTS.....	51
	VENTANA Reagents and Refillable Dispensers.....	51
	Customer Supplied Products.....	51
	Logging Customer Supplied Antibodies.....	52
	Log New Antibody Tab.....	54
	QC Notice.....	54
	Expiration and Received Dates.....	55
	Multiple Suppliers for the Same Antibody.....	55
	Log Antibody Tab.....	55
	Viewing and Deactivating Antibodies.....	56
	Logging Other Customer Supplied Reagents.....	57
	Log New Reagents Tab.....	59
	QC Notice.....	59
	Expiration and Received Dates.....	60
	Multiple Suppliers for the Same Reagent.....	60
	Log Reagents Tab.....	60
	Viewing and Deactivating Reagents.....	61
	Filling the Dispenser with the Reagent.....	63
	Filling an Empty (Never-Used) Dispenser.....	64

	Emptying and Refilling a Dispenser	66
	Refilling a Partially Filled Dispenser.....	69
7.0	PROTOCOL EDITING AND PRINTING	73
	Using the Protocol Editor	73
	Editing an Existing Protocol	74
	Creating a New Protocol.....	76
	Automating Your ISH Protocol	78
	General Information.....	78
	Bulk Solutions.....	78
	Slide Volume	78
	Deleting a Protocol	78
	Converting a Protocol	79
	Titration	82
	Reviewing the Steps in a Protocol	83
	Creating a Protocol Report	85
	Printing a Protocol Report.....	85
	Viewing a Protocol.....	86
	Printing a Protocol Usage Report	87
8.0	NAMES AND PASSWORDS.....	91
	Login and Sign-Off Passwords and Name	91
	Using Names without Passwords	92
	Administrator	92
	About Privileges.....	92
	The Most Important Privileges	93
	Entering and Changing Names and Passwords.....	93
	To Remove a User	95
	Disabling or Enabling Passwords	95
	Login Timeout.....	97
9.0	SYSTEM SETUP AND MAINTENANCE	99
	Setup Staining Modules.....	99
	Setup Host.....	103
	Host Options Tab.....	103
	Institution Tab	104
	Security Tab	105
	Slide Data Tab.....	106

Stainer Options Tab.....	107
VLM Options Tab—for Optimal Connectivity Solutions	108
SLS Options Tab	117
Keycodes.....	117
Staining Module Code Download.....	119
Archive NexES System Data	121
Freshening the Backup.....	123
About NexES Screen.....	124
Print Contact Report	126
Service Functions, the TESTS Button.....	129
Protected Procedures	130
10.0 SYSTEM MAP.....	131
FUNCTIONS BY BUTTON	132
FUNCTIONS BY USE CATEGORY	134
FUNCTIONS BY USE CATEGORY	136
11.0 PREVENTIVE MAINTENANCE.....	139
Opening the Instrument	139
Homing the Nozzle Plate and Reagent Carousel.....	140
Function	140
Use	140
Home Carousel.....	141
Function	141
Use	141
Jog Nozzle Plate.....	142
Function	142
Use	142
Jog Carousel	143
Function	143
Use	143
Vortex Mixer Test	144
Function	144
Use	144
Barcode Blowoff Test.....	146
Function	146
Use	146

Using Daily, Monthly, and Quarterly Checklists.....	147
Viewing Maintenance History.....	148
Logging Periodic Maintenance Tasks	151
Daily Checklist	156
Wipe External Surfaces	156
Pre-Run Checklist.....	156
Monthly Checklist.....	157
Rinse Each Bulk Fluid Container	157
Wash and Brush Slide Heater Pads.....	157
Wash and Brush Nozzles	158
Clean Bar Code Readers.....	160
Clean Waste Tub and Drain.....	162
Quarterly Checklist	162
Run Slide Heater Pad Temperature Verifiers.....	162
Run Scandisk (Older Systems).....	164
Run Scandisk (Newer Systems)	164
Defragment Hard Drive (Older Systems)	164
Defragment Hard Drive (Newer Systems).....	166
12.0 BENCHMARK XT AND BENCHMARK LT DECONTAMINATION	171
Decontaminate Instrument.....	171
Decontaminate Bulk Carboys	172
Decontaminate Bulk Fluid Bottles	172
Decontamination Method 1: Using the Single Source Container and Tubing Manifold.....	175
Decontamination Method 2: Using the AFM Bulk Bottles instead of the Tubing Manifold.....	186
13.0 THE EBAR PRINTER.....	199
Slide Labeling System Basics	199
Label Printing and Templates	199
Customizing Printing.....	199
The Labels.....	200
Tearing off Labels.....	200
Applying a Label to a Slide	200
Label Do's and Don'ts.....	200
Printer Components.....	201
Buttons and Indicators	203

Setup	204
Setting Up the Printer	204
Loading Label and Tag Stock	204
Ribbon Loading Instructions	206
Using The Ebar Printer	208
Power-on Utilities.....	208
Self Test Utility.....	208
Gap Sensor Calibration Utility	209
Printer Initialization	209
Printer Error Messages.....	209
Troubleshooting Guide	210
Mylar Shield Information	210
Using The Ebar II Printer	211
Loading the Ebar II Label Roll.....	212
Loading the Ebar II Ribbon.....	214
Setting up the Ebar II Printer.....	216
Ebar II Printer Maintenance	217
Ebar II Printer Operation and Troubleshooting.....	218
SLS Software.....	219
Starting and Exiting SLS.....	219
The Main Screen	220
Printing a Test Label.....	220
Anatomy of a Label.....	222
Printing with Pauses for Input	222
Exiting the Program	223
Printing Labels with SLS.....	223
Before You Print	223
Previewing a Label	226
Removing a Label.....	227
Adding a Label.....	227
Starting Fresh.....	228
Selecting History Labels	228
Caution for Laboratories with Multiple Systems	229
Start Printing.....	229
Entering Prompted Information.....	230
Monitoring Print Quality	232

If Something Goes Wrong While Printing.....	234
Running out of Labels.....	234
Missing Label on a Roll.....	234
Running out of Ribbon.....	235
14.0 SLS TEMPLATES: DESIGNING YOUR OWN LAYOUT.....	237
What Is a Template?.....	237
Using Extra Lines on the Label.....	237
Entering Information as You Print.....	237
Designing Labels with a Template.....	238
Creating or Modifying a Template.....	239
Template Fields.....	240
Edit Button and Field Properties.....	242
Fixed Text.....	244
Text.....	244
List.....	248
Date.....	254
Mask.....	255
15.0 ERROR MESSAGES.....	261

1.0 HOW BENCHMARK XT AND BENCHMARK LT WORK

Instrument Function

The BenchMark XT and BenchMark LT instruments automate the IHC and ISH staining processes. You need only to

- Load slides and reagents.
- Keep the computer informed of what you want to do.
- Start the process.
- Walk away until the slides are ready

The BenchMark XT and BenchMark LT instruments do the rest.

In this section, you will learn the basics that make BenchMark XT and BenchMark LT work. By understanding something about the instrument, you will gain confidence in its capabilities and be better able to diagnose a problem if one should occur.

The BenchMark XT and BenchMark LT instruments are composed of four main components that work together as a system:

- The computer and its software.
- The stainer subassembly.
- The automated fluidics subassembly (AFS).
 - The air compressor located in the AFS is controlled by the stainer subassembly.
 - The air compressor located in the AFS supplies pressurized air and bulk liquids to the stainer subassembly through plastic tubing.
 - The stainer subassembly will not work without air and bulk fluids.
- The waste bottle subassembly.
 - This subassembly consists of two large containers that collect liquid wastes during staining.

The BenchMark XT and BenchMark LT stainer subassemblies are where all of the slide processing operations are performed. They have:

- A reagent carousel.
- Motors.
- Nozzles.
- Tubing.
- Individual slide heater pads.
- Valves.
- A dispenser mechanism.
- Microcomputers.
- Two bar code readers.
- Other components.

Carousel and Bar Codes

The reagent carousel rotates above the slide tray.

- The reagent carousel holds 35 reagent dispensers in five reagent trays.
- BenchMark LT holds 20 slides.
- BenchMark XT holds 30 slides.

The systems keep track of slide and reagent dispenser locations by reading the bar code labels attached to both slides and reagent dispensers.

- The slide bar code specifies the protocol (a customized staining procedure) required for the slide.
- The reagent bar code tells the system what reagent or antibody a dispenser contains.

The reagent carousel and nozzle plate are rotated in timed steps. As a nozzle, mixer or dispense station passes over a slide, the controller triggers the function appropriate to the slide's protocol.

Dual Rinse Station

The first station encountered by a slide is the dual rinse nozzle.

- It is called dual rinse because there are actually two nozzles.
 - The two nozzles are two rows of holes that dispense liquid onto the slide.
 - The nozzles are angled so as to sweep the buffer from the tissue specimen over the edge of the slide.
- The purpose of the nozzles is to:
 - ” Wash the slide clean of any previously applied reagents or antibodies.
 - ” Leave a carefully controlled amount of buffer solution on the slide.



Figure 1. Dual Rinse Nozzles

Jet Drain Station

The second station encountered by a slide is the jet drain. The jet drain is a single row of holes that dispense EZ Prep, Reaction Buffer, or SSC to lower the residual slide volume.

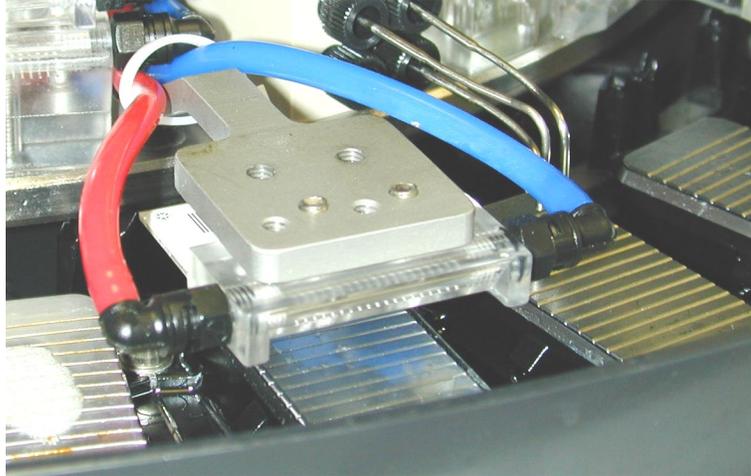


Figure 2. Jet Drain Nozzle

Multispense Station

The third station has four needle-like nozzles. One is for volume adjust and for the mixing of salt solutions for adjustments in the stringency. The three other nozzles are used for dispensing CC1, CC2, and Reaction Buffer.

Reagents and antibodies are diluted by the buffer solution remaining on the slide after rinsing.

- It is important to control this dilution.
 - So, after receiving a charge of buffer at the rinse station, the volume adjust station is positioned over the slide.
 - The action of the rinsing nozzle is quite vigorous, and varies slightly from one instrument to another.
 - The volume adjustment nozzle compensates for this variance by adding a calibrated amount of additional buffer to the slide.

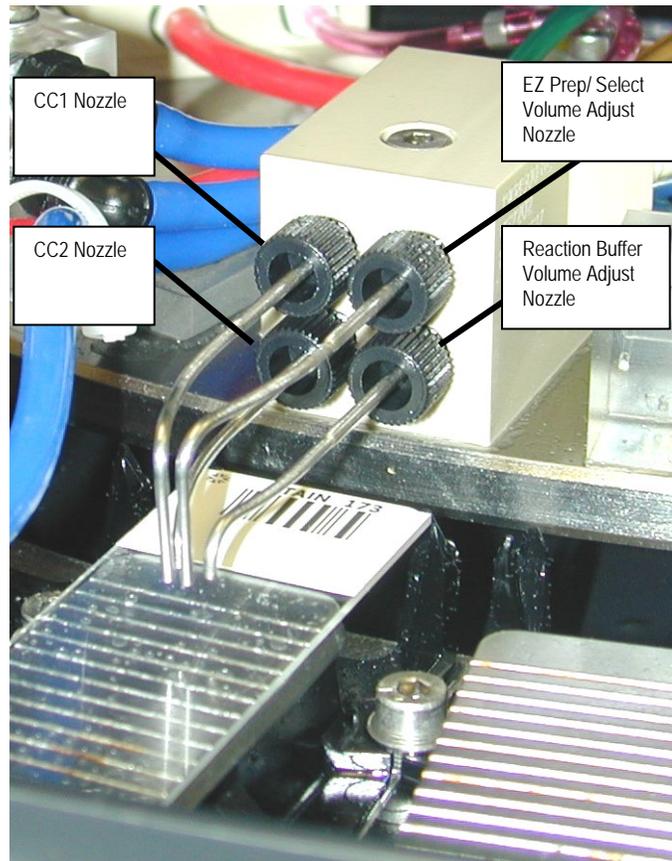


Figure 3. Volume Adjust and Stringency Adjust Nozzles

LCS Dispense Station

Directly after the volume adjust station, LCS is emitted by two nozzles at the LCS station shown in Figure 4.

- LCS is a light oil that floats over the surface of the buffer/reagent puddle on the slide.
- Just like a solid coverslip, the LCS prevents evaporation and forms a suitable environment for the chemistry.
- Unlike a glass coverslip, it can easily be washed away prior to each new step in the protocol.

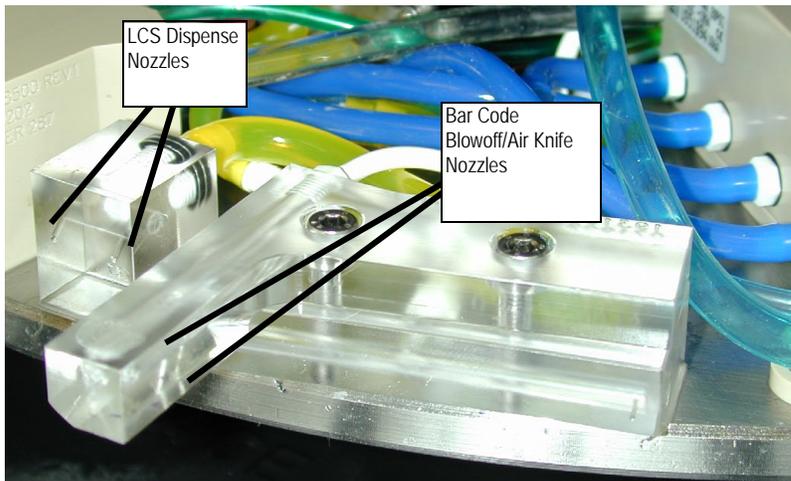


Figure 4. LCS Dispense Nozzles Air Knife and Nozzles

Air Knife Station

After LCS is applied, the air knife nozzle is rotated over the slide before the reagent in the dispenser is dispensed.

- As the air knife nozzle is positioned over the slide, air jets on the bottom of the arm (shown in Figure 4) sweep liquid from the bar code label.
- Another air jet centers the remainder of the puddle over the specimen.
- Everything is now in order for mixing and incubating the reactions necessary to produce a stain.

Mixing Stations

Mixing is performed by air jets called vortex mixers.

- The single inner mixer is located under the air knife.

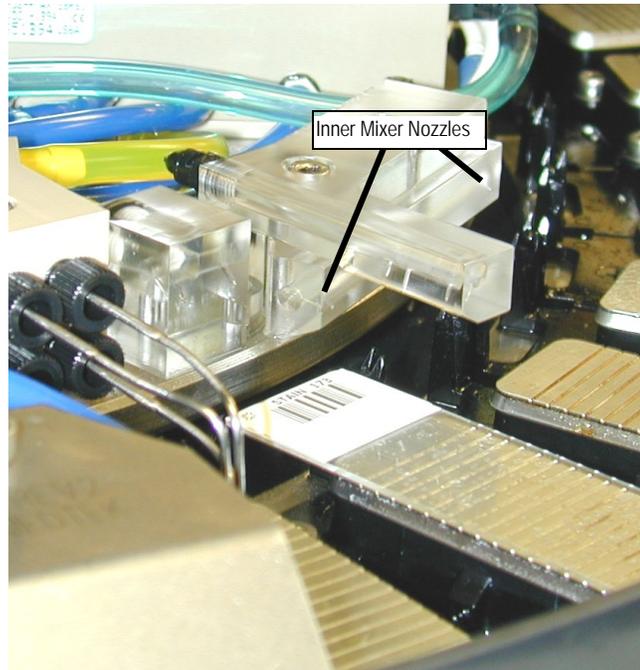


Figure 5. Inner Mixer

- The three outer mixers extend to the outer end of the slide.

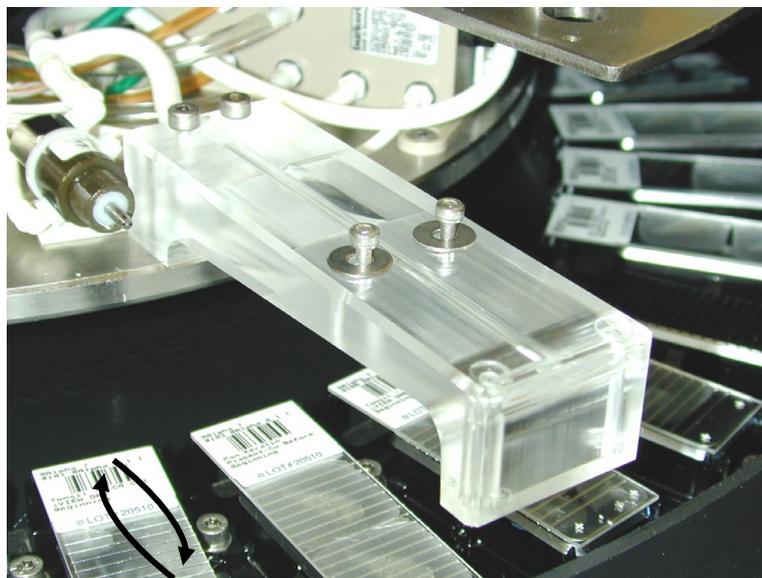


Figure 6. Outer Mixer

- The inner and outer vortex mixers create a gentle vortex effect over the liquid puddle on the slide.

- As the nozzle plate rotates, the vortex mixers swirl the liquid puddle on the slide clockwise, then counterclockwise at several stations.
- This stirring action:
 - “ Thoroughly mixes the reagents.
 - “ Provides uniform wetting of the specimen during incubation.

Temperature Control

Each slide position has a slide heater pad independently controlled by software and user protocols. Temperature is measured by a microcircuit embedded in the slide heater pad.

Importance of Leveling

As all of the previously described actions occur, with the washers washing, the nozzles and dispensers dispensing, and the vortex mixers stirring, the puddle has to remain intact over the specimen. It must not be spilling over the edge of the slide. So the instrument has to be level.

Leveling is accomplished by a Ventana representative during installation of the instrument.

INTENTIONALLY BLANK

2.0 SAFETY INFORMATION

Stainer Subassembly

No operator serviceable parts are inside the stainer subassembly.

WARNING: UNPLUG THE UNIT BEFORE RELOCATING IT.

WARNING: FOR CONTINUED PROTECTION AGAINST THE RISK OF FIRE, REPLACE THE FUSE ONLY WITH A FUSE OF THE SAME TYPE AND RATING.

WARNING: GOOD ELECTRICAL SAFETY PRACTICE SHOULD BE OBSERVED. IT IS RECOMMENDED THAT THE STAINER POWER STRIP NOT BE PLACED ON THE FLOOR AND THAT MATS BE PLACED AROUND THE STAINER TO AVOID RISK OF ELECTRICAL SHOCK IN THE EVENT OF REAGENT SPILLS OR LEAKS.

Warning Labels

The following warning labels are affixed to the instrument.

Caution: Hot Surface—Do Not Touch



Figure 7. Hot Surface Caution Label

Caution: Refer to Accompanying Documents

Consult accompanying document for proper use of this device (ISO 3864/ ANSI 535.4; ISO 15223:2000 (E) section 3.4).



Figure 8. Document Reference Caution Label

Caution: Risk of Electric Shock



Figure 9. Electric Shock Caution Label

Caution: Shock Hazard - Do not Expose to Water (ISO 3864)

This symbol indicates the potential for electrical shock if electrical components are exposed to fluid.



Figure 10. Electric Shock Hazard Label

Caution: Disconnect Power Before Servicing

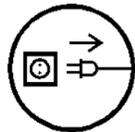


Figure 11. Disconnect Power Caution Label

Caution: Laser on Board

This instrument contains a Class 2 laser per IEC/EN 60825-1 Ed.2:2007.



Figure 12. Laser caution explanation label

CAUTION: Use of controls or adjustment or performance of procedures other than those specified herein may result in hazardous laser light exposure.

Diode laser power up to 1.7mW at 650-690 nm could be accessible in the interior.

Caution: Biological Risk



Figure 13. Biological Risk

Caution: Pinch Hazard



Figure 14. Pinch Hazard

Warning: Slip Hazard (ISO 3864/ANSIZ535.4)

A slip hazard is possible when the spigot is improperly installed or when the spigot handle is not in the “off” position when not in use. See the “Instructions for Installing and Maintaining Spigots” section for proper spigot installation and maintenance instructions. Waste overflow can cause slip hazards also.

WARNING: FAILURE TO EMPTY WASTE CONTAINER CAN LEAD TO OVERFLOW OF WASTE, WHICH CAN CAUSE HAZARDOUS CONDITIONS.

WARNING: GOOD ELECTRICAL SAFETY PRACTICE SHOULD BE OBSERVED. IT IS RECOMMENDED THAT THE STAINER POWER STRIP NOT BE PLACED ON THE FLOOR AND THAT MATS BE PLACED AROUND THE STAINER TO AVOID RISK OF ELECTRICAL SHOCK IN THE EVENT OF REAGENT SPILLS OR LEAKS.



Figure 15. Slip Hazard Label

Safety Training

All operators must be trained in the safe use of the instrument. After such training, operators must understand that:

- The instrument must be connected to a grounded outlet.
- The instrument must be connected to a voltage source that is in agreement with the rating label.
- Instruments not used in a manner specified by Ventana may impair protection provided by the equipment.
- Replacement of filters and tubing is determined by Ventana service personnel.
- Operators must keep their hands clear of the moving parts of the instrument.
 - This includes the reagent carousel, dispensers, and dispenser actuator.

- Operators must keep their hands clear of potential pinch points.
 - This includes the slide tray and reagent carousel.
- Operators must consult the Material Safety Data Sheets for safe handling and disposal of reagents used with the instrument.

Safety Compliance

All safety related regulations, local codes, and instructions that appear in the manual or on equipment must be observed to ensure personal safety and to prevent damage to either the instrument or equipment connected to it. If equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

3.0 BENCHMARK XT AND BENCHMARK LT COMPONENTS

BenchMark XT (Catalog No. 750-BMKXT-FS) and BenchMark LT (Catalog No. 750-BMKLT-FS) are modular systems, meaning that they have several subassemblies, each with a specific task. These subassemblies are identified and described in this section.



Figure 16. BenchMark XT

BenchMark XT and BenchMark LT Subassemblies

The function of each subassembly is summarized below.

Accessories

BenchMark XT and BenchMark LT each include:

- Accessory Kit #1 (Catalog No. 1963500).
- Accessory Kit #2 (Catalog No. 1981600).

The Stainer Subassembly

- Processes the slides.

- Contains a microcontroller board that enables it to run autonomously once it has received instructions from software running on the computer.



Figure 17. Stainer Subassembly

The Automated Fluidics Subassembly (AFS)

- Provides pressurized liquids and air to the stainer subassembly.
 - Note that the two Reaction Buffer bottles are linked by a balance tube.
 - The link allows the instrument to have access to a large supply of Reaction Buffer.
 - The instrument draws Reaction Buffer from only the left bottle.
 - The link allows the left bottle to supply Reaction Buffer from itself and also from the right bottle.
- This means that the Reaction Buffer will have to be replenished less frequently.
- Either bottle can be removed and refilled while the other one is left in place AS LONG AS THE INSTRUMENT IS NOT RUNNING.

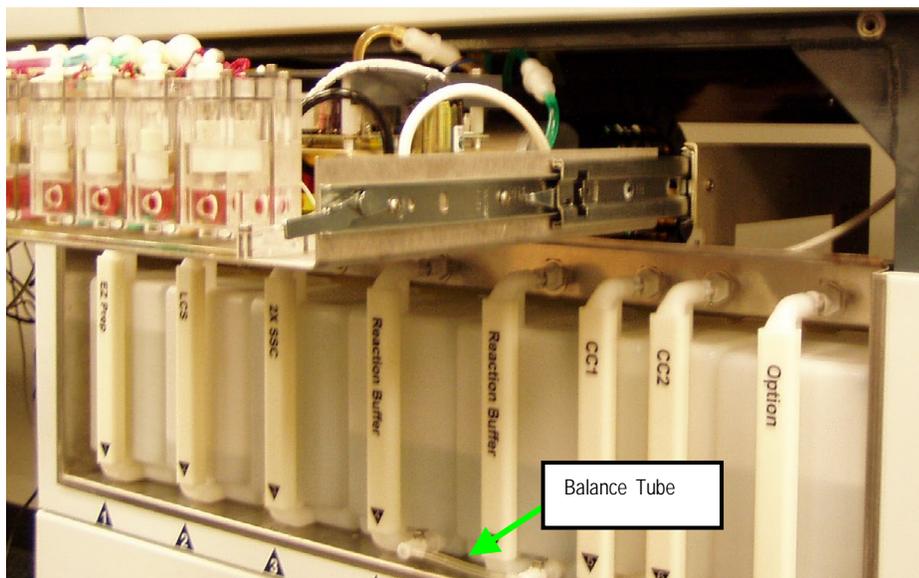


Figure 18. Automated Fluidics Subassembly

- The AFS incorporates the following assemblies:
 - Air compressor.
 - Bulk fluid supply bottles.
 - Reservoir assembly.

- The reservoir assembly is accessible only after the cover panel has been removed by removal of its five screws.

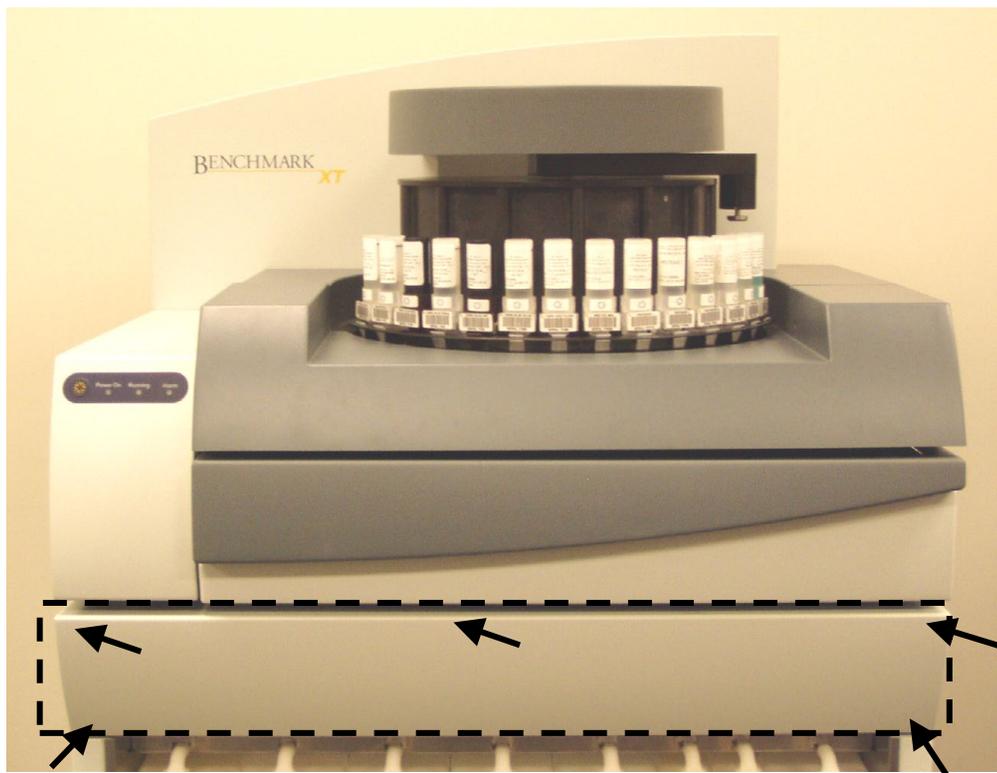


Figure 19. Reservoir Assembly Cover Panel

- The reservoir assembly and associated components can then slide out for easy access after unlatching the small handle at the end of each drawer slide.
- Note the latch on each side that must be raised in order to return the reservoir assembly to its original position inside the instrument.

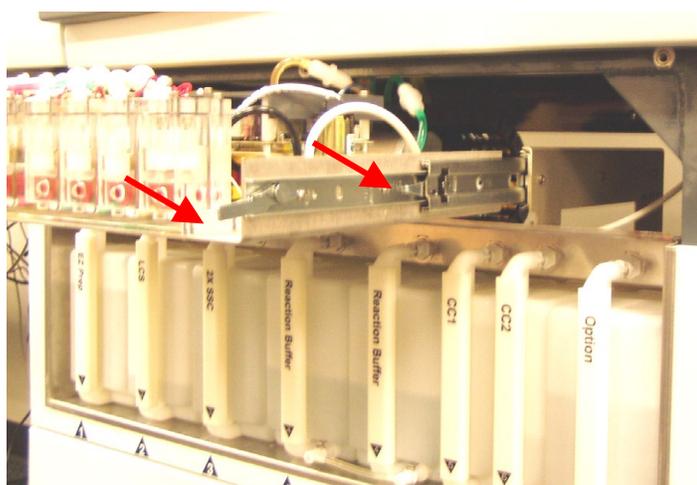


Figure 20. Reservoir Assembly and Latches

Priming the System

Function

- Empties the AFS reservoir.
- Fills the tubing with liquid from the buffer bottles in the AFS and stainer subassembly.
- Removes any air from the lines.

Use

- Any time the fluidics system is serviced.
- After the instrument has remained unused for an extended period.
- If any air is observed in the fluid lines.
 - Click the Tests button of the main NexES software screen to display the Test Task screen shown below.

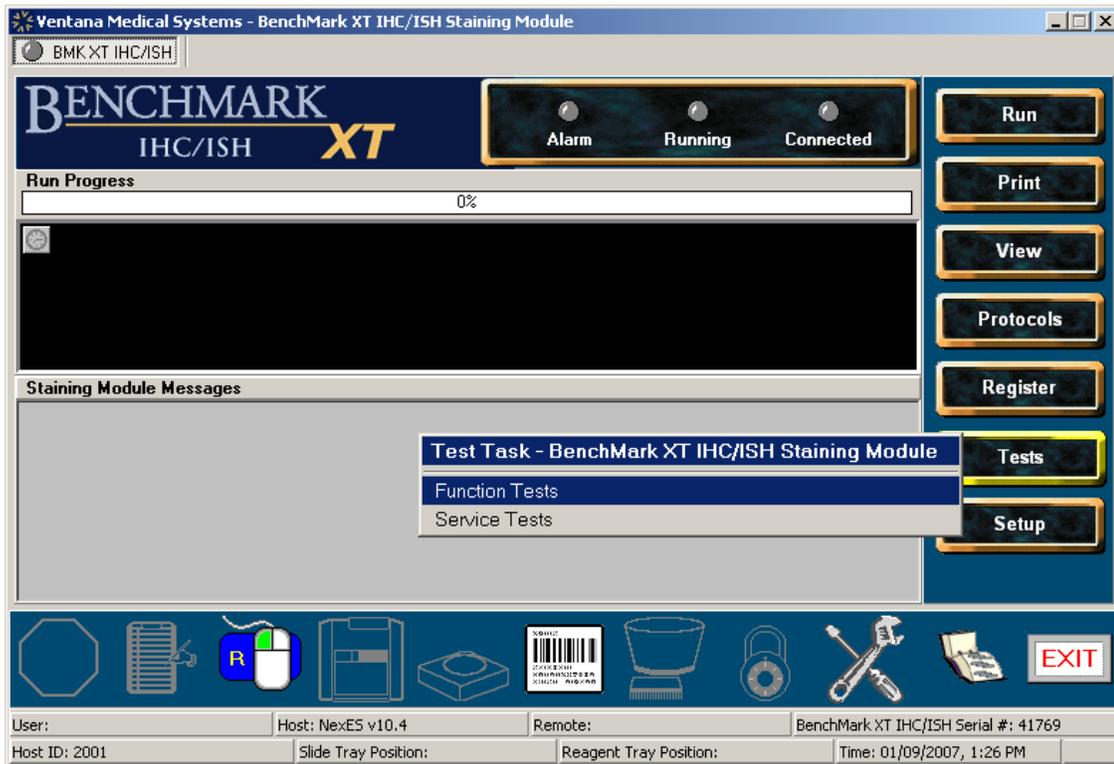


Figure 21. Selecting Function Tests

- Select Function Tests to display the Download Tests screen shown below.

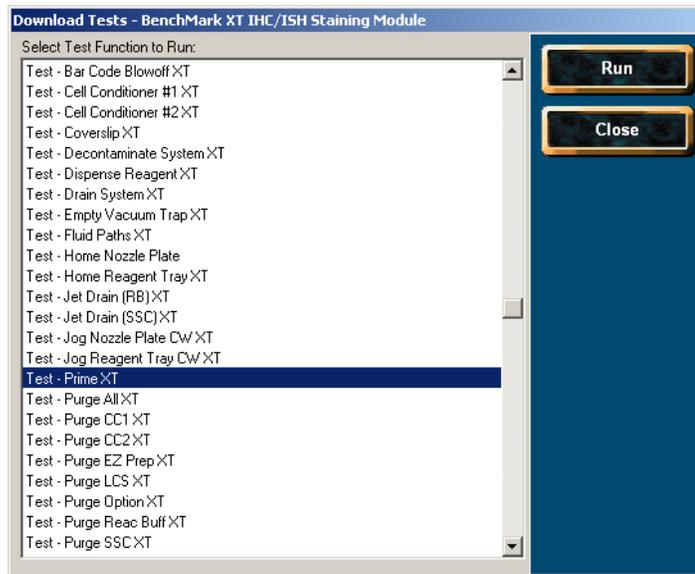


Figure 22. Selecting Test-Prime XT

- Select Test-Prime XT.
- Click Run.
 - “ Test-Prime XT needs to be run only once to completely remove all air from the system.

The Waste Bottle Subassembly

- Houses two 20-liter waste bottles that can receive waste liquids through a drain fitting and tubing on the stainer subassembly.
- The tubing from the stainer subassembly drains through only one waste bottle cap into the waste bottle.
 - “ The other waste bottle cap cannot be concurrently connected to the tubing from the stainer subassembly.
- Sensors detect the fluid level in the waste bottles.
- A software alert screen will notify the customer to empty the waste container or to sign off this alert before proceeding.

WARNING: FAILURE TO EMPTY WASTE CONTAINER CAN LEAD TO OVERFLOW OF WASTE, WHICH CAN CAUSE HAZARDOUS CONDITIONS.

When one waste bottle is full, it is a simple matter to switch the waste bottle caps so that the liquids are discharged into the empty waste bottle.



Figure 23. Waste Bottle Subassembly

Overflow Sensor

If, during a run, the waste tubing or fitting on the stainer subassembly becomes clogged, an error message will be displayed before the stainer subassembly tub overflows.

At this point, you can, if you wish, sign off the error and manage the overflow condition until the run is finished.

The Computer

- Runs the software on a Windows-based platform.
- Connects from one to as many as eight instruments by a communications cable.
 - The eight instruments may be any combination of BenchMark XT and BenchMark LT, BenchMark, NexES IHC, Special Stains, Discovery XT, or Discovery units.
- Supports the reagent registration wand.
- Uses a CD-ROM drive to upgrade the software.
- Includes a hardware key plugged into the back of its enclosure.
 - This key is used by the software for various quality control and database operations.
- Produces reports on a color ink-jet printer.
- Prints bar code labels.
- Comes equipped with either a zip drive or a USB flash drive that is used by the software for backing up files.
 - A zip disk or a USB flash drive must be used during normal operation of the software.

WARNING: ALWAYS BE SURE TO EXIT THE SOFTWARE FIRST, BEFORE TURNING OFF YOUR COMPUTER. FAILURE TO EXIT THE SOFTWARE BEFORE TURNING OFF THE COMPUTER CAN RESULT IN CORRUPTION OF IMPORTANT BENCHMARK XT AND BENCHMARK LT SYSTEM FILES.

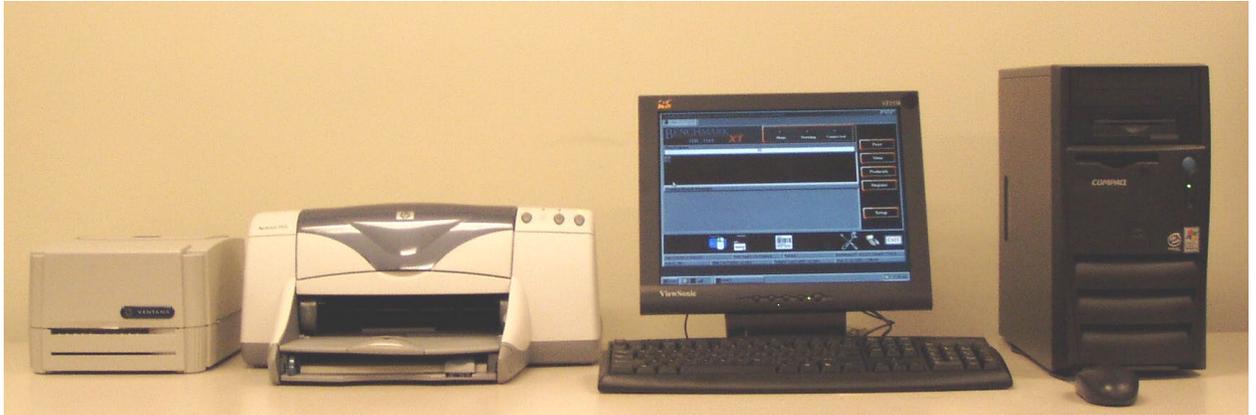


Figure 24. Computer System

NexES Software

The system is controlled and monitored by VENTANA's NexES computer software.

INTENTIONALLY BLANK

4.0 BASIC INSTRUMENT OPERATION

This section covers all of the basic physical operations you need to know about in order to operate the BenchMark XT and BenchMark LT stainer subassemblies. Refer to the “Software” section for detailed instructions on how to set up staining sequences and start a **run** from the computer screen.

Slides

The instrument is designed and validated to use 1” x 3”, 25 x 75 mm, and 26 x 76 mm Superfrost Plus charged slides for tissue sections, Tripath slides for the Tripath HPV application and Cytoc slides for the Cytoc LBP application. Slides other than those listed above should be validated by the customer and those validation records should be kept by the customer, in accordance with CAP/CLIA and other applicable regulatory guidelines.

What is a Run?

The instrument is said to be running when it is performing staining operations.

- Completion of a normal staining sequence is referred to as an instrument run, or just a **run**.
- A run that is successfully initialized but aborted before completion is also recorded as a run.
- Initialization is discussed under “Initialization Before a Run.”

Hardware

Turning on the Instrument

1. Turn on the power switch located behind the left door at the bottom front of the instrument.



Figure 25. Power Switch

2. The computer and software need to be started before the stainer subassembly can be used, but the order in which the various components are powered up is not important.
3. On the BenchMark XT and BenchMark LT main screens, the **Connected** light will illuminate green to indicate that the stainer subassembly and the computer program are communicating.
 - If you do not see the **Connected** light a minute or so after the units are powered up and the software is started, refer to the “Error Messages” section.

Instrument Control Panel

On the left front side of the cabinet, you will see the instrument control panel illustrated in Figure 27. This incorporates indicators that show the status of the instrument.



Figure 26. Instrument Control Panel

The instrument control panel has three lights and a button:

- Alarm.
 - It is most frequently used to signal error conditions.
 - “ Steady on, with beeps, indicates an error such as low pressure, high pressure, low temperature, high temperature, etc.
 - “ Flashing, with beeps, indicates manual titration time
 - Signals red when operator attention is required during instrument operation.
 - All alarms (except manual titration) need to be signed off before continuing.
- Running.
 - A yellow light illuminates to indicate that the instrument has received and is executing instructions from the software.
- Power On.
 - A green light indicates that the stainer subassembly has been powered up.
- User Button.
 - Behind the VENTANA logo is a membrane switch that is used for service operations and during titration.

Pulling Out the Slide Tray

At the front of the stainer subassembly is a panel that acts as a handle for pulling out the slide tray.

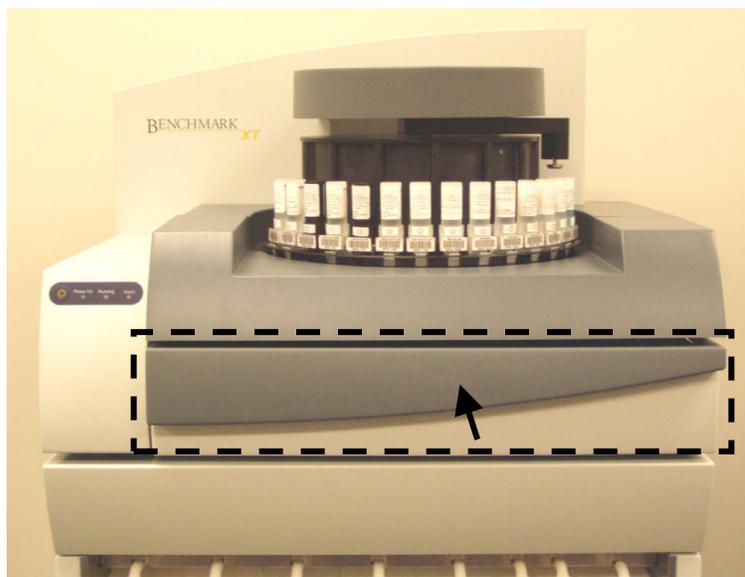


Figure 27. Slide Tray Handle



Figure 28. Slide Tray Pulled Out (BenchMark XT)

- The slide tray cannot be pulled out during a run except during titration.
 - This is because the slide tray rises so that the slides surround the nozzle plate.
 - When titration is required during the run, the instrument will pause and lower the slide tray.
 - The slide tray can then be pulled out for titration.

After titration, the slide tray should be pushed back in and the Run button pushed to resume the run.

It is good practice to perform the following tasks before each run.

- Inspect the power cord to see that it is in good condition.
- Make sure that the software's Clean function was run at the end of the previous run.
- Fill the EZ Prep, SSC, CC1, CC2, Reaction Buffer, and LCS bottles.
- Empty the waste bottle.

The BenchMark XT slide tray holds up to 30 slides and the BenchMark LT slide tray holds up to 20 slides.

- The slides can be loaded in any order.

Each slide has a bar code label that tells the instrument software what protocol should be applied to the slide at a given location on the slide tray.

- Slide holders are numbered 1 to 30
- You can see the raised numbers on the tub

To load a slide:

- Pull out the slide tray

CAUTION: Handle slides carefully to avoid injury. Use universal precautions to avoid potential bloodborne pathogen exposure.

- Referring to the figure below, position the slide on the slide heater pad, label facing up and inward.

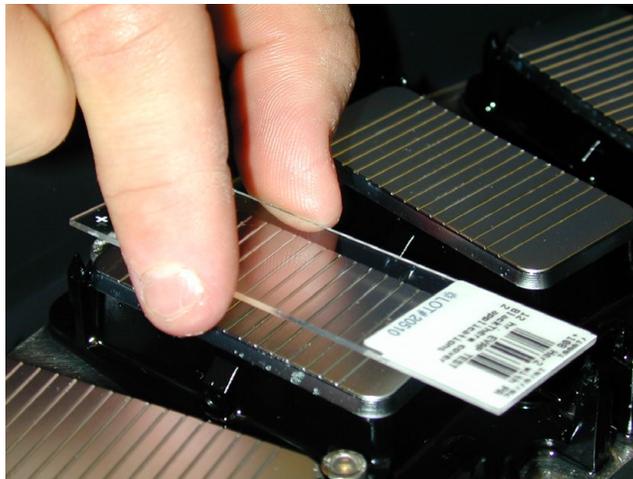


Figure 29. Mounting a Slide

- Each end of the slide is held in place by small posts
- UNLIKE OTHER VENTANA STAINING INSTRUMENTS, BENCHMARK XT/LT REQUIRES THAT THE BAR CODE END OF THE SLIDE BE TOWARD THE CENTER OF THE SLIDE TRAY

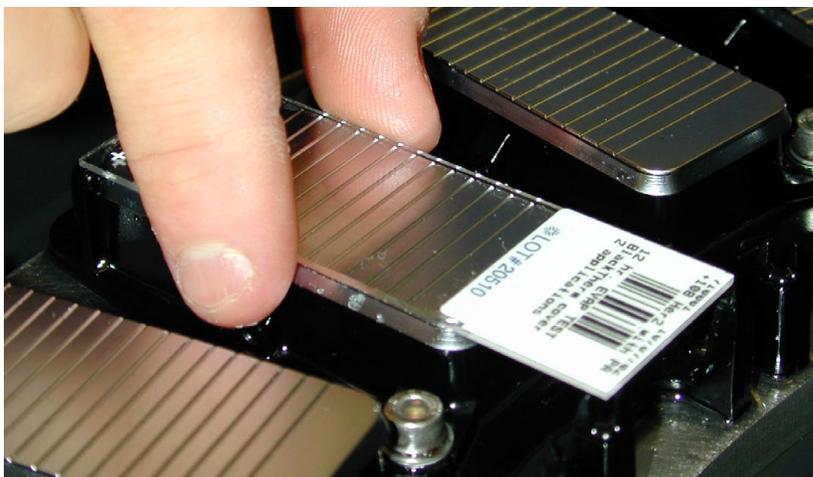


Figure 30. Slide Mounted

- Wiggle the slide and push it down to verify that it is seated on the slide heater pad

Initialization before a Run

When you initiate a staining run, a series of events occurs before staining actually begins. This is referred to as **initialization**. If something goes wrong during initialization you are advised and given an opportunity to correct the condition before staining actually commences.

- Staining will not commence until the system is satisfied that all initializations have completed successfully.

Initialization steps are summarized below:

- The system is pressurized and the slide tray rises into place.
 - If air pressure does not reach an operational level, you will be advised.
- The slide bar code labels are read.
 - The number of slides found is compared to the count entered into the software.
 - The software will protest if normal staining protocols are mixed with manual applications in the same run.
- The reagent bar code labels are read.
 - For some kits, reagent dispensers must be adjacent on the carousel.
 - The system checks to see that:
 - Each dispenser contains enough reagent to complete the run.
 - All of the reagents needed are:
 - § Present.
 - § Not expired.
- Bulk fluid levels are checked.
 - If a fluid is low, refill the bottle.
 - NOTE: The bottles cannot be removed if the system is pressurized.
- Waste level is checked.
 - If the waste bottle is full, empty it.

Removable Reagent Trays

Each of the five removable reagent trays holds seven reagent dispensers.



Figure 31. Reagent Tray without Dispensers



Figure 32. Reagent Tray with Dispensers

- The reagent trays should be stored on their magnetic tray holders.
- The magnetic tray holders help protect dispenser tips.
- When you are ready to use the instrument, remove the reagent trays from their magnetic tray holders and mount onto the drive wheel.
- Make sure that the dispensers are snapped into the holders.



Figure 33. Magnets in Tray Holder

To mount a reagent tray:

- First, remove the tray from the tray holder.

- There are two small magnets on the tray holder that are attracted to steel inserts in the tray.



Figure 34. Steel Inserts and Mounting Holes in Bottom of Reagent Tray

- There are also two mounting holes on the tray that slip onto large tray mounting studs on the carousel.

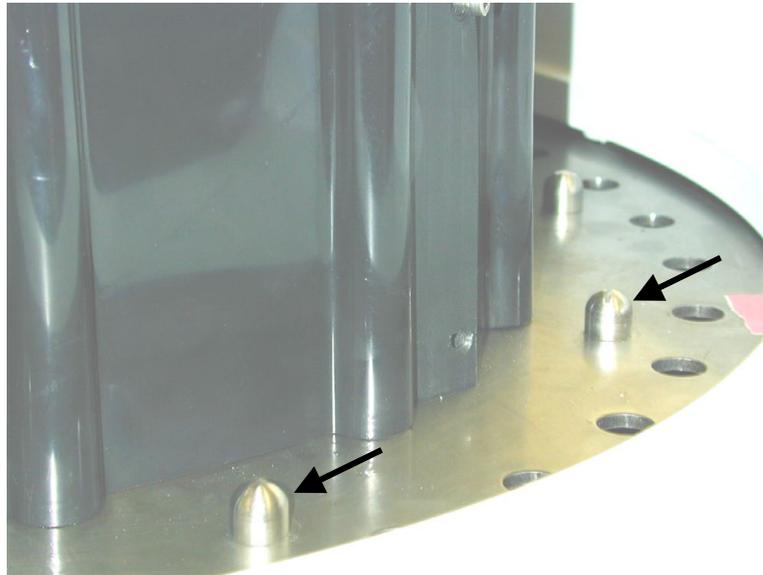


Figure 35. Reagent Tray Mounting Studs on Reagent Carousel

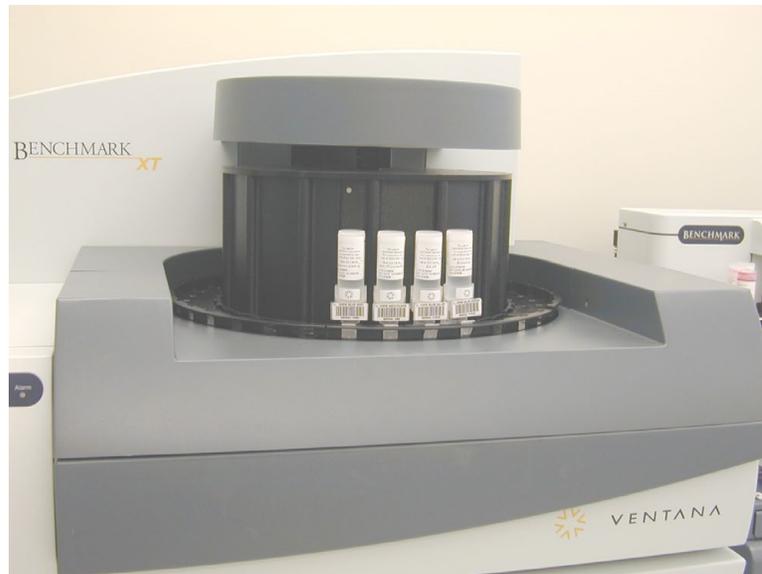


Figure 36. Reagent Tray Mounted on Reagent Carousel

Like the nozzle plate, the reagent carousel has a home position.

- This home position is maintained relative to the slide tray.
 - No dispenser should be removed during a run, as the instrument will not be able to re-read the barcodes after the run has started.
 - The reagent tray can be removed only during manual application.

Registration Wand for Kits and VENTANA Products

All VENTANA reagents, kits, antibodies, and bulk products are packaged with a memory button attached to the container. This labor saving device transfers to the computer program all the information needed to use the product, without keystrokes or errors.

Consult the “Registering and Logging Reagents” section in this manual for instructions on the software side of registration. The use of the reagent registration wand is illustrated below.



Figure 37. Using the Registration Wand

To Perform BenchMark XT/LT Cleaning



Figure 38. Clean Icon

1. Click on the Clean Icon.
2. Wait until the system finishes (the staining module's tab light turns to Green and the "Running" light is turned off).
 - This takes between ten and fifteen minutes.
3. You must then click the signoff icon.

Manual Applications

Manual applications are accomplished by creating a titration protocol using the BenchMark XT and BenchMark LT protocol editor software. See the "Protocol Editing and Printing" section.

Prepare and label your manual application slides and dilutions using standard laboratory practices.

- A manual application protocol stops the staining run at the appropriate time for manual application of antibodies to the titration slides.
 - The instrument will make beeping sounds and the alarm light will come on.
 - You will also see a message on the computer screen indicating that manual dispensing is required.
 - Slowly pull the slide tray open.
- It is important to dispense reagents properly onto the slides.
 - Hold the pipette at a 45° angle.
 - Insert the tip so it penetrates the liquid puddle on the slide.
 - Dispense gently so as not to spill reagents over the slide edges.
 - Take care not to accidentally draw liquid from the slide back into the pipette.

After all slides are pipetted:

- Slowly push the slide tray to its closed position.
- Restart the run by pressing the user button (the VENTANA logo on the instrument control panel).

Manual application protocols may not be run at the same time as non-manual application protocols.

- Attempting to do so will produce an error message:
 - "NexES Unsynchronized Run Display."

To avoid this message, do not forget to modify the protocol for negative controls to specify manual application before a manual application run.

After manual application is completed, these protocols should be converted back to automated application protocols.

Automatic and Manual Backup

Just before a run begins, NexES will automatically make a backup of all data files to the zip drive or USB flash drive. This is the display.

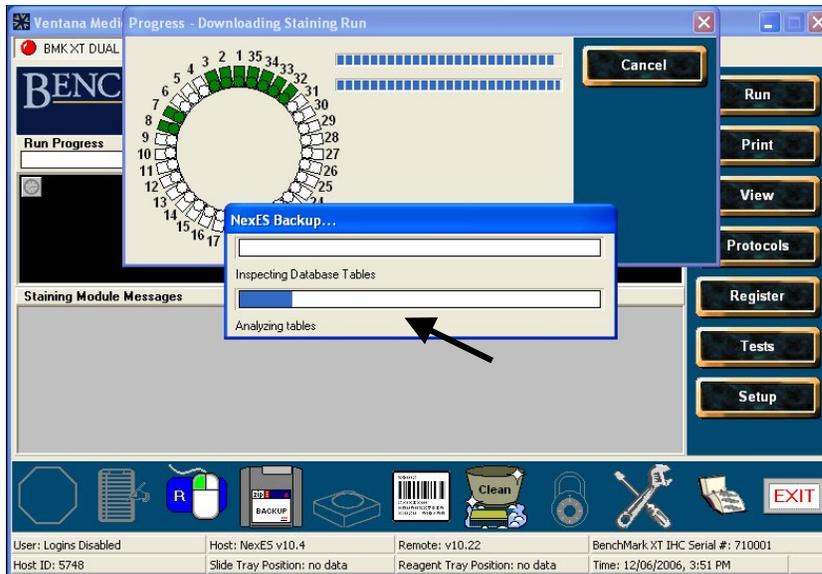


Figure 39. Automatic Backup Notification

Whenever system data has been changed, NexES indicates that a backup would be advisable by displaying the zip disk icon. If you click the icon, a backup will be initiated.

If the database has been altered, you do not click the backup icon, and you try to exit the program, NexES suggests a backup. It is best to always answer Yes and let NexES do its housekeeping chores.

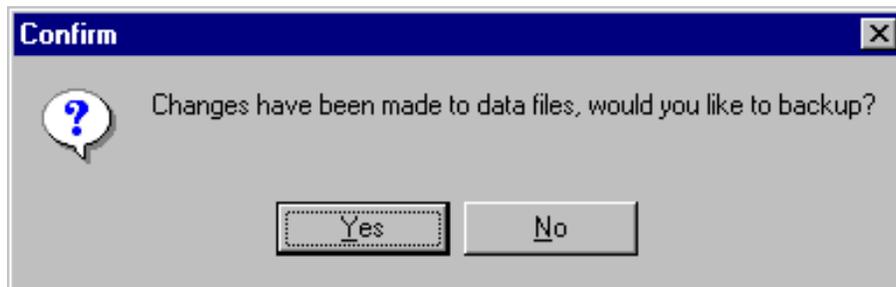


Figure 40. Backup Confirmation

Software

Before starting a run, you must:

- Apply bar code labels to slides.
- Load slides and required reagents into the staining module carousels.
- Check the bulk products.



Figure 41. Run Button

1. From the main screen, click **Run** to display the Pre-Run Checklist shown below.

- Note that the first three items are automatically verified.
2. Click the mouse in the check boxes to confirm that you have checked each of the list items.
 3. Enter the number of slides you have loaded.
 4. Click **Start Run** to initiate the run or **Close** to quit the run.

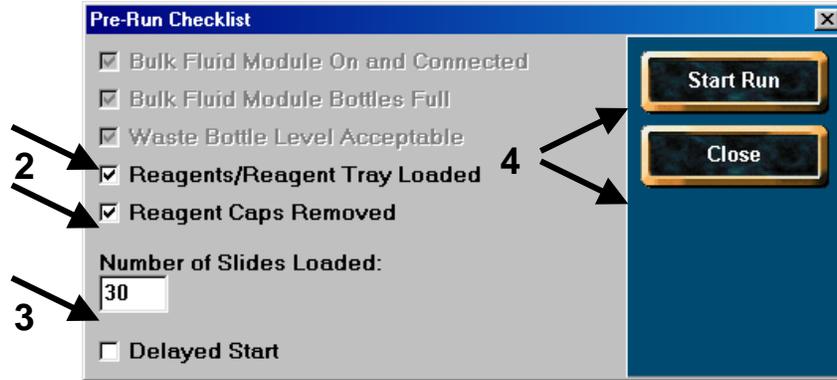


Figure 42. Pre-Run Checklist

During initialization, a **Cancel** button is displayed so you can end the run prematurely if you see something obviously amiss.

- The system keeps track of how many dispenses are used from each dispenser.
 - During initialization, nothing is dispensed, so if you use the **Cancel** button to stop a run, the dispenser drop counts are unaffected.
- After initialization, however, the consequences of stopping a run change.
 - The initialization status and **Cancel** button disappear and the staining module is now running autonomously, doing what it has been told to do.

Reading Bar Codes

On starting a run, the **Running** light comes on to tell you that the staining module has received instructions for the run. (In the following sections, the figures pertain to instruments with 30 slide positions and 35-dispenser reagent carousels.)

- The initial steps in staining involve pressurizing the system and obtaining bar codes from slides and reagent dispensers.

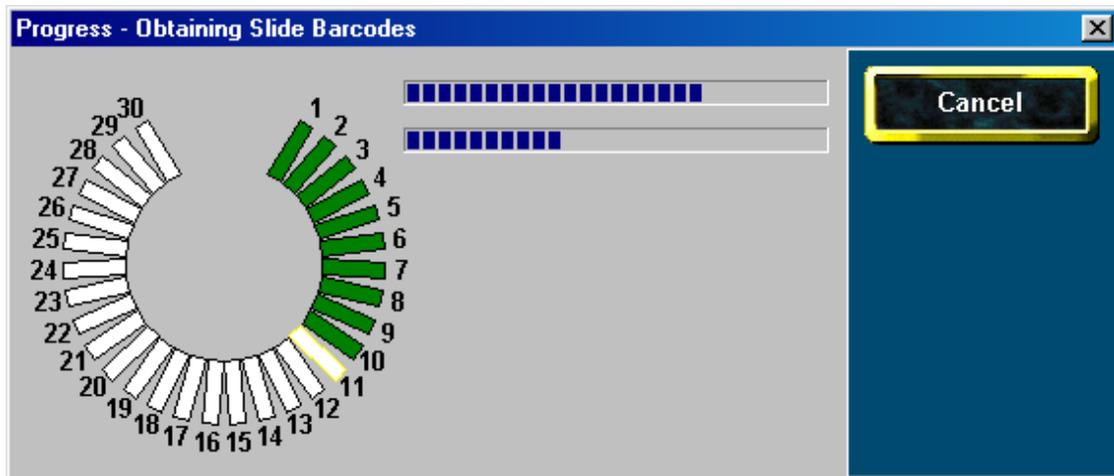


Figure 43. Obtaining Slide Bar Codes (BenchMark XT)

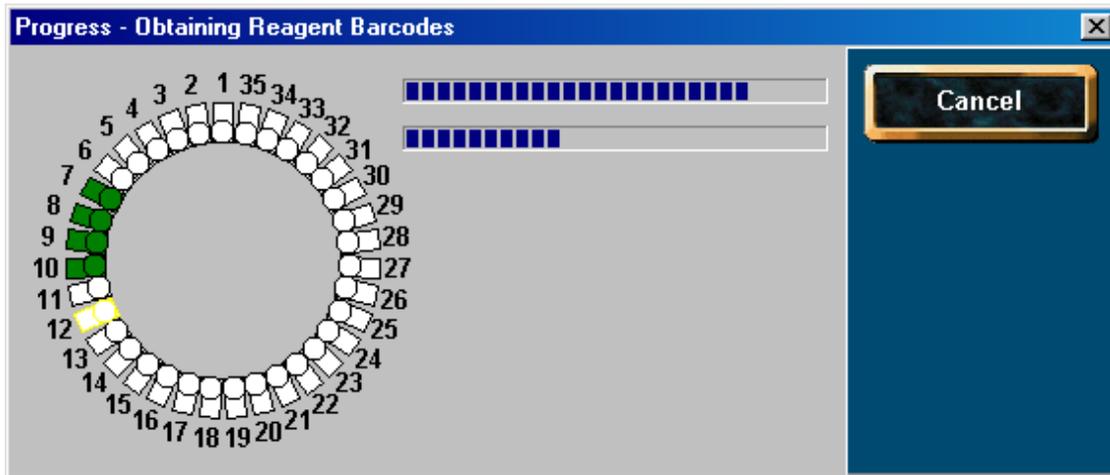


Figure 44. Obtaining Reagent Bar Codes

- While all this is happening, the bar code screen will display a progress box.
 - “ The initialization progress display shows, by the top bar, how close you are to completing all initialization steps.
 - “ The bottom bar shows progress in completing the current step, such as reading bar codes.
 - “ When the top bar extends to the right edge, the initialization is complete, the progress box will disappear, and the actual staining will begin.
- However, if the run fails to start for any reason, the pertinent screen shown below will appear and an alarm will sound (if your system is set up to sound an alarm).
 - Click the flashing red area or the Silence button to silence the alarm.
 - “ Check the Staining Module Messages area of the main screen to view error messages.
 - § You can click Cancel to cancel the run, or make corrections and click Retry or Cancel.

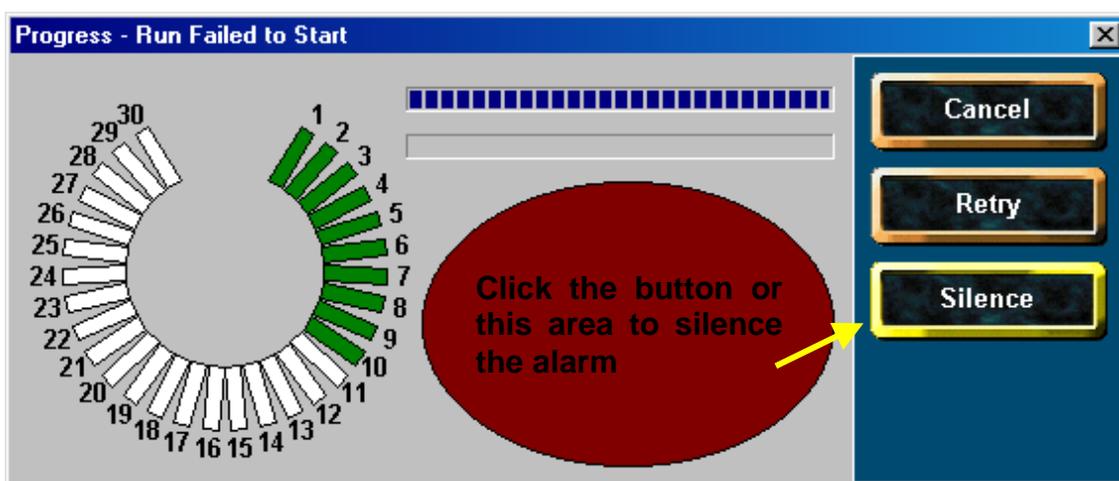


Figure 45. Run Failed to Start (BenchMark XT Slide Tray)

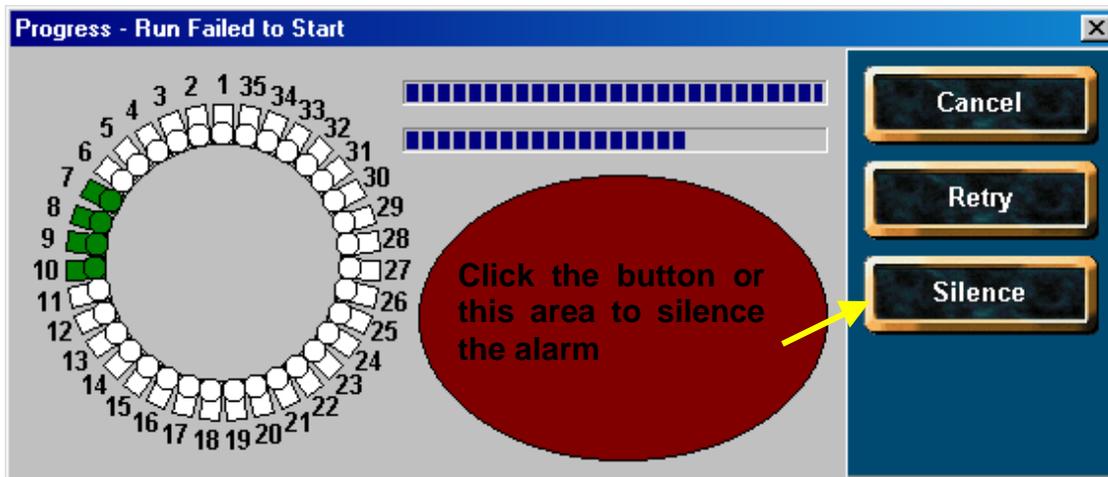


Figure 46. Run Failed to Start (Reagent Carousel)

NexES allows the use of more than one kit or reagent of the same type to be present on the reagent wheel and automatically selects which dispensers to use on each slide.

- The product (either reagent or kit) that will expire earlier must be used first, if there are enough remaining tests in the kit, for the slide under consideration.
- Dispensers from one kit may not be mixed with dispensers from another kit of the same type on any given slide.
- If any dispensers in a kit get sufficiently low that they cannot satisfy the next slide requirement for that kit, the next oldest kit (by expiration date) will be used.
- Products having the same expiration date will be prioritized for use with the product with fewest tests remaining being used first.

The Duplicate Product Usage Notification is a graphical representation of how all products will be dispensed on the run, but it is only displayed if multiple instances of the same product are planned.

- The screen permits the operator to check the information (tests remaining, expiration dates, etc.) for the products planned for use in the run.
- After observing the screen, the operator is permitted to continue the run as planned or to cancel it.

In the following example, the slide positions are indicated with the numbers 1-20 (BenchMark LT) across the display, with colored, horizontal bars beneath numbers 1-9 (representing the products that will be used on the nine slides on this staining run).

- Selecting a bar highlights it and displays information on the product in the lower section of the screen.
 - The top and bottom bars (red and green) represent products that will be used on all nine slides.
 - The middle (blue) bar is divided between slides 1-4, indicating that one instance of the product will be used on slides 1-4 and another will be used on slides 5-9.
- 1. The information shown at the bottom of the screen when the left portion of the middle (blue) bar is selected indicates that there are only four dispenses remaining in this dispenser of c-erbB-2, and all four of them will be used on this run (on slides 1-4).

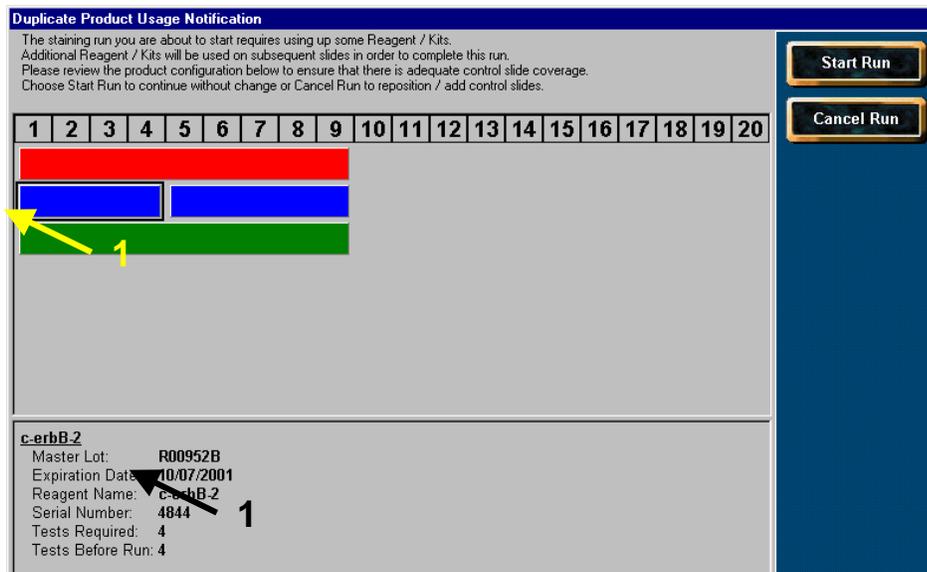


Figure 47. Duplicate Product #1

- The information shown when the right portion of the middle (blue) bar is selected indicates that there are 50 dispenses remaining in this dispenser of c-erbB-2, and five of them will be used on this run (on slides 5-9).

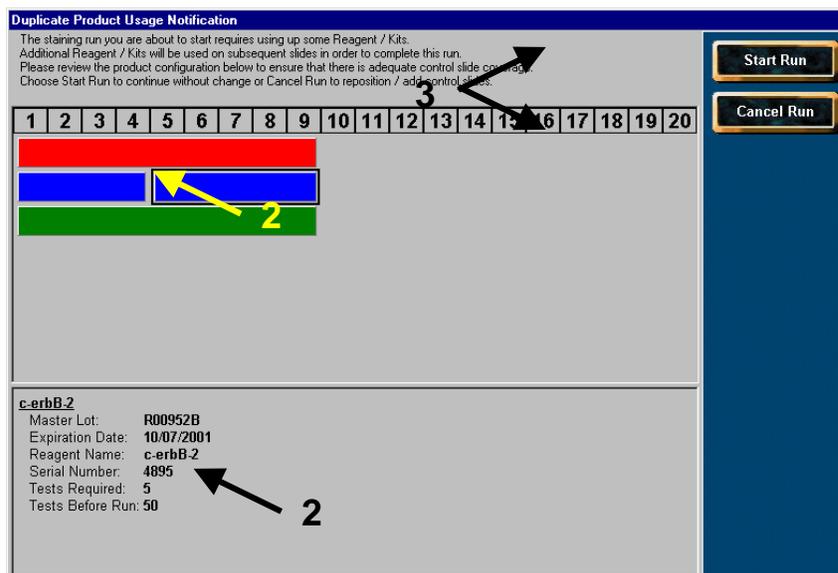


Figure 48. Duplicate Product #2

- Select the Start Run button if you are agreeable to the product dispenses.
 - Select Cancel Run if you need to reposition the slides or add more control slides.
- In the following example, eight slides are on the slide tray, but location 4 does not have a slide.
- The first dispenser of c-erbB-2 will be used on slides in locations 1-3, 5 and 6-8.
 - The second dispenser will be used for slides in locations 5-8.

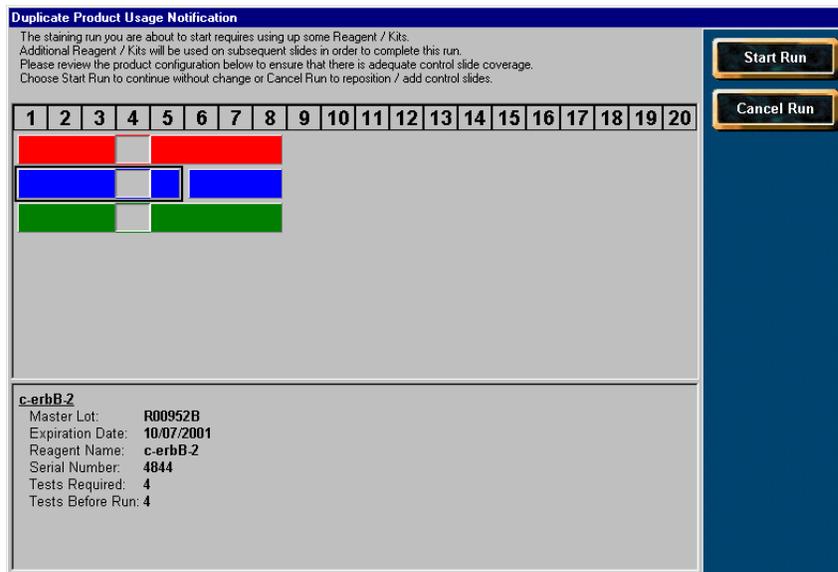


Figure 49. Empty Slide Location

Exiting the Program

The **EXIT** button at the bottom of the main screen lets you exit the program.



Figure 50. Exit Icon

- If you **EXIT** while a run is in progress, the run will not be interrupted.
 - However, if an error occurs (as indicated by the alarm light on the staining module), you will have to restart the program and sign off the error within five minutes or the run may be terminated.
 - ” Therefore, it is a good idea to leave the program running while staining.
 - § The “Error Messages” section identifies errors that will result in termination of the run.

During a Run

When a run has started successfully, the staining module will complete it even if the PC is disconnected.

- However, if a correctable error condition occurs, you will need to attend to it within five minutes or the run will be aborted.

Monitoring Run Progress

The main screen, shown below, has various features that let you monitor the progress of a run.

- To keep you informed during initialization and running, various messages will appear in the Staining Module Messages window.
 - These are messages received from the staining module; most of them indicate normal operation.
 - ” However, messages in red are error messages and must be attended to.
 - § The yellow **Sign Off** icon will light up when an error message is encountered. See the “Signing Off Messages” section.

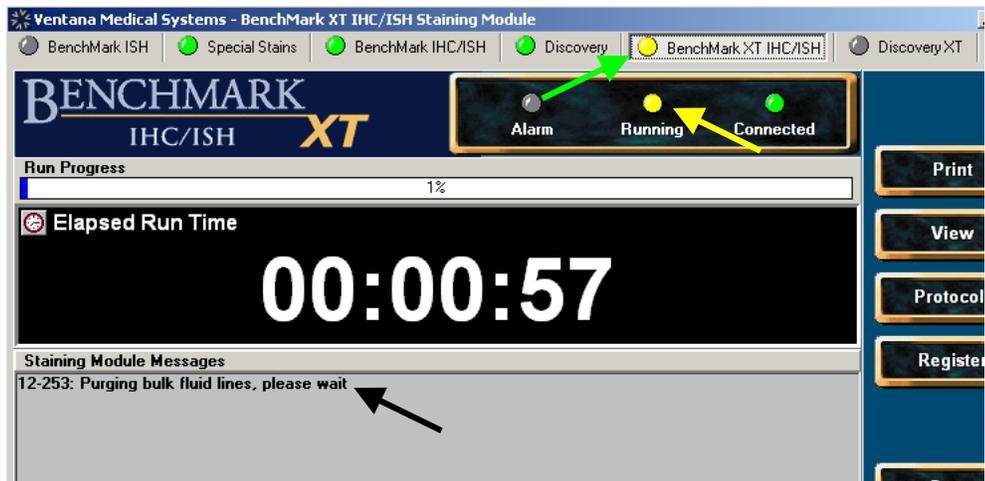


Figure 51. Run Progress (BenchMark XT)

- On starting a run, the **Running** light comes on to tell you that the staining module has received instructions for the run.
 - The initial steps in staining involve pressurizing the system and obtaining bar codes from slides and reagent dispensers.

Viewing Run Times

NexES tells you how far you have come and how soon a run will be completed. Run progress is displayed as a bar and a percentage of the run that is completed. You will also be able to view:

- Elapsed Run Time.
- Remaining Run Time.
- Remaining Time Until Next Titration/Manual Application.
- Estimated Completion Time.
- Estimated Time of Next Titration/Manual Application.

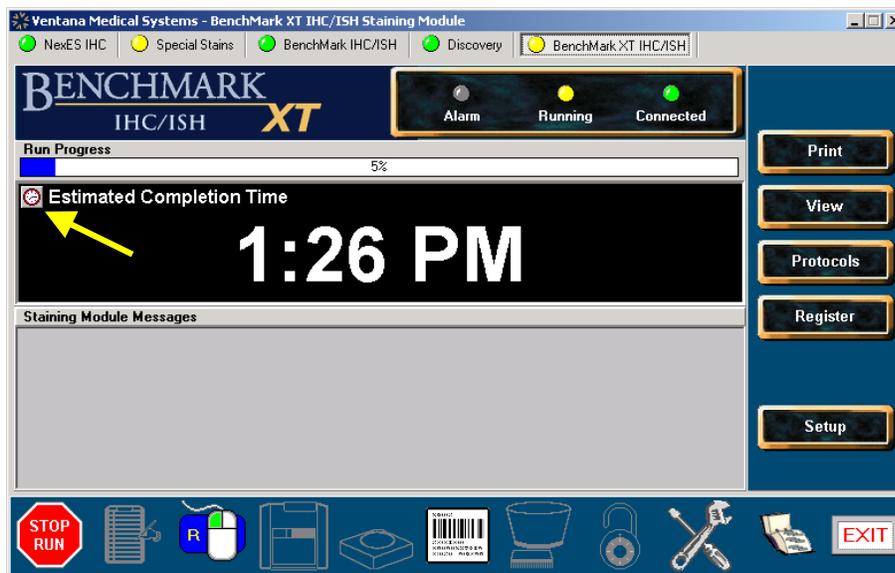


Figure 52. Indicated Time Selection Button (BenchMark XT)

To switch between the types of indicated times, click the button on the left and make your selection.

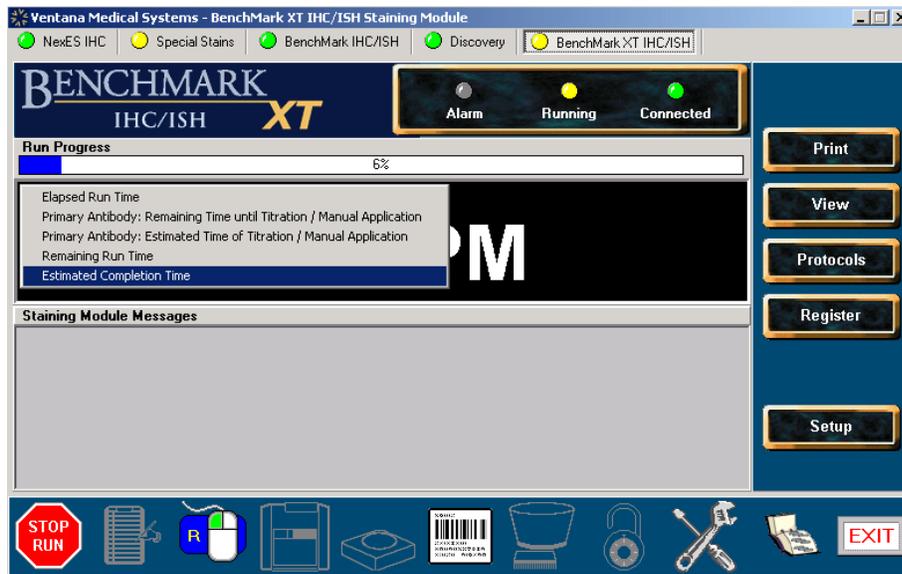


Figure 53. Selecting Type of Indicated Time (BenchMark XT)

When Something Goes Wrong

When something goes wrong:

- The light on the front panel of the staining module and on the corresponding module selection tab of the main software screen will turn red.
- The **Alarm** light on the main screen will also turn red.
- The staining module will also beep.
- A message on the main screen describes the error and may also suggest a solution.

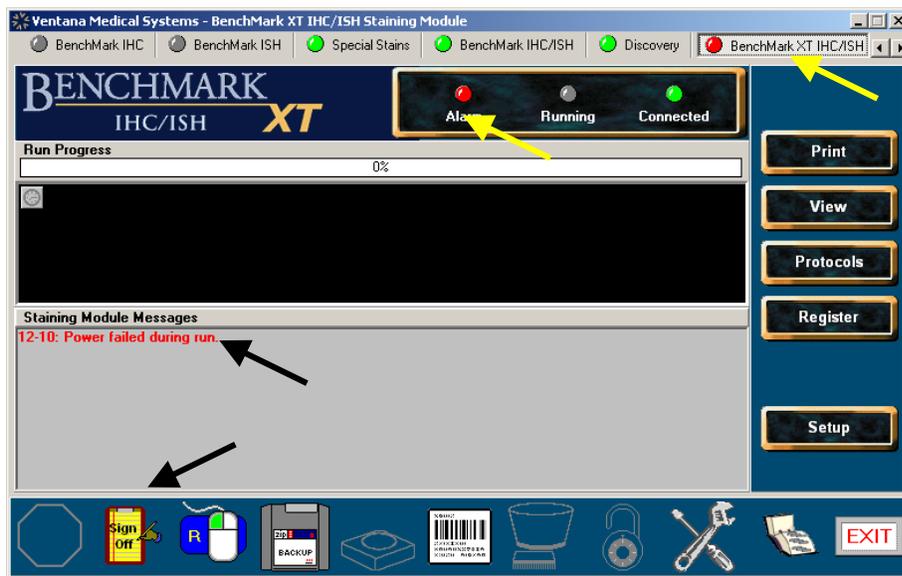


Figure 54. Alarm Indications (BenchMark XT)

Responding to staining module message is called signing off the message. Some messages are informational (such as “Staining Module ran to completion”), and some indicate that an error occurred (such as “Slide access door was opened during the run”).

- The **Sign Off** icon at the bottom of the main screen lights up.
 - You should attend to whatever caused the error, then click the **Sign Off** icon.
- Depending on the error condition, the run can usually continue from that point.
 - However, some errors are fatal to the run and require restarting from the beginning.
- The “Error Messages” section of this manual describes error conditions in detail.



Figure 55. Sign-Off Icon

You can manually stop a run at any time by clicking the **STOP RUN** (stop sign) icon on the main screen. Once a run has been stopped, however, you cannot resume where you left off and some reagent counts may have been debited. You will have to start a completely new run.



Figure 56. Stop Run Icon

If you click the **STOP RUN** icon after a run is started and initialized, some of the reagents may have been dispensed. This affects the drop count for each dispenser as follows:

- If only the first dispense step in the protocol was executed, then drops for the first reagent will be deducted.
 - Counts for subsequent (unused) protocol dispense steps are unaffected.
 - However, the total number of dispenses remaining in a kit are dictated by the least full dispenser.
- If, however, the second reagent scheduled for a slide has been dispensed, the system will then deduct the total number of drops that would have been used to complete the run for that slide, even if they were not actually used.

Post-Run Reports

After a run is completed, you can generate a report that details the reagents used, the protocol for each slide, and any error conditions encountered during the run. The report can be for a successful run or a stopped run. A run report can be generated for the last, or any previous run. You can choose between successful and stopped runs.

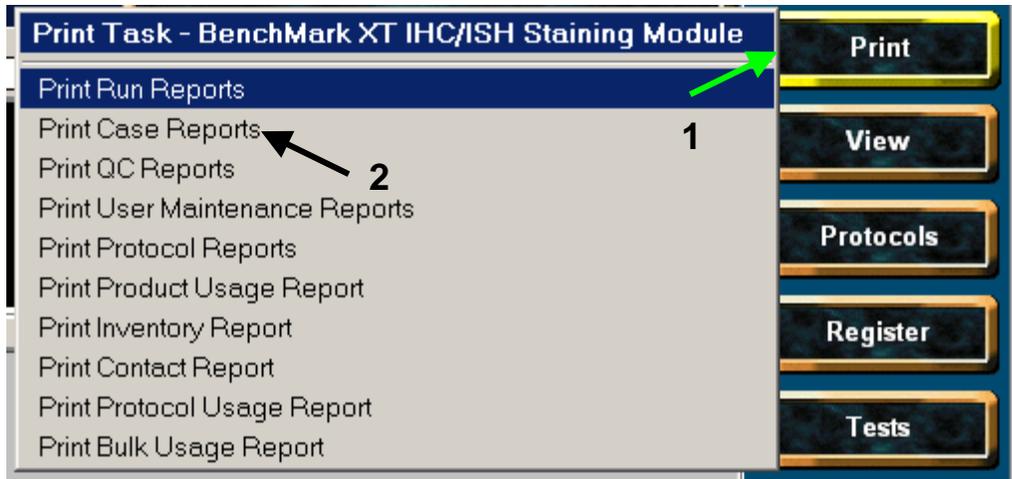


Figure 57. Selecting Print Run Reports

To create a run report:

1. Click the **Print** button.
2. From the menu, select **Print Run Reports** to display the Print Run Report screen shown below.
3. Select Successful Runs or Stopped Runs.
4. Select Print Report or Print Extended.
 - Select Print Report to print a summary of the run.
 - Select Print Extended to print a full report of the run.
5. Select the run for which you want to print a report.
 - The runs are ordered in descending order from most recent to least recent in the menu, so the latest run should be at the top.

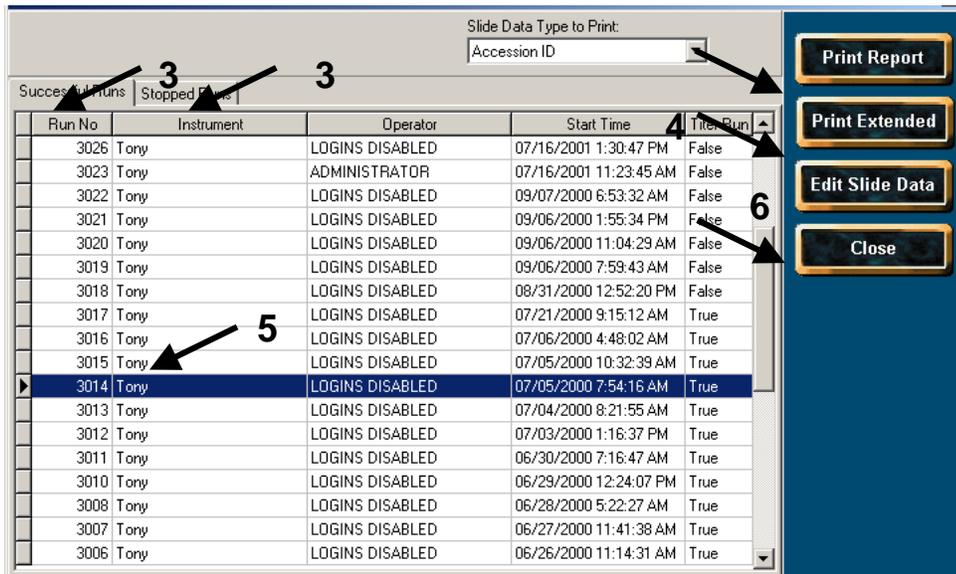


Figure 58. Selecting a Run

6. If you wish to edit slide data, click **Edit Slide Data** to display the Edit Slide Data screen shown below.

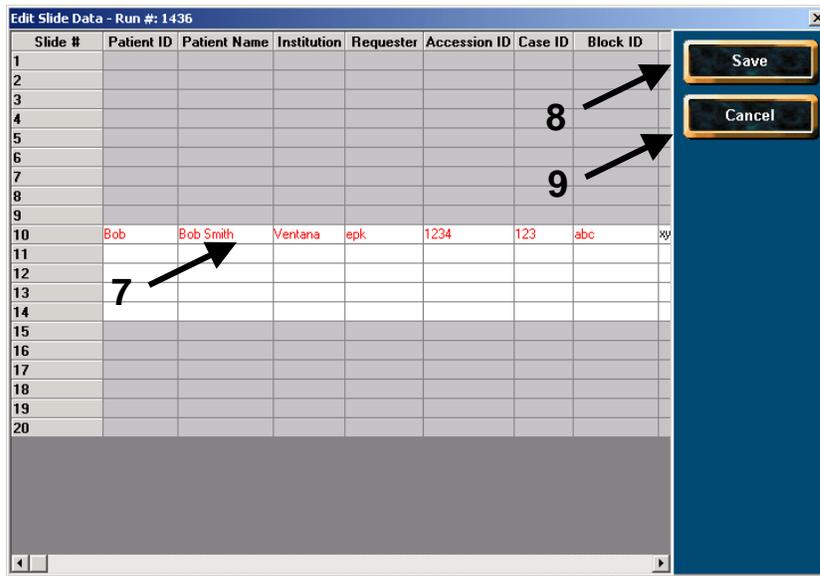


Figure 59. Edit Slide Data Screen

7. Select a cell to edit, then make desired changes.
 - Once you select a cell, the **Save** button will appear and the **Close** button will change to **Cancel**.
8. Click **Save** to save the changes and return to the Print Run Report screen.
9. Click **Close** to close the Print Run Report screen.

Although the Edit Slide Data screen can be used to enter slide demographic information, its real purpose is to correct errors that were entered via slide keycoding, which is further described in the “Keycoding” section. Further information regarding fields of the Slide Data tab used for keycoding can be found in the “Slide Data Tab” section.

Print Report (Run Summary)

The Run report can be described in five sections:

- The heading.
- The Usage Report.
- The Run Report.
- The System Messages.
- The footer.

- Reagents Dispensed—Dispenses of the reagent consumed during the run.
- Dispenses Remaining—Dispenses available for future tests.
- Dispenser Life (Refillable Dispensers)—For refillable BenchMark XT and BenchMark LT dispensers only, the remaining life of the dispenser.
- Lot #/Master Lot #—Specifies (for Ventana filled dispensers only) the lot number for an individual reagent or for all the dispensers in a kit.
 - For customer supplied reagents this field reports "USER."
- Expiration Date—The chemistry expiration date.

The **Protocol Detail** section has information on the slides used on the run:

- Slide Position—Carousel location of the slide.
- Protocol—Name of the protocol used for the slide.
- Protocol #—Protocol number corresponding to protocol, above.
- Accession #—For handwritten notation or keycode automatic printing of the accession number.
- Staining—For handwritten notation of positive or negative staining.
- Background—For handwritten notation of background staining.
- Comments—For handwritten comments.
- Sign Off—For handwritten sign off of the analyst reviewing the slide.

The **System Messages** section has the system information about the run:

- Message—Displays any conditions that required sign off that occurred during the run.
- Notification Time—Displays date and time that the message was issued.
- Sign Off—The User who Signed off the message (if logins are disabled, the name LOGINS DISABLED appears).

The **footer** information includes:

- Footnotes applicable to the report.
- The site information from the Setup Host menu.
- Date and time the report was printed.
- Page numbering for the report.

Additional information may be generated using the Extended Run Report.

- The heading.
- The Slide Information.
- The System Messages.
- The footer.

5.0 BULK FLUIDS

The bulk fluid bottles should be checked and refilled before each run. If the fluid levels are too low, a sensor on the AFS will cause a warning box to be displayed. You can check the warning box Yes choice to ignore the warning. Register each bulk fluid bottle in accordance with the instructions in the “Registering and Logging Reagents” section.

Bulk Bottle Removal and Installation

The bulk bottles interface with the instrument via a latching quick disconnect that couples the bottles to the instrument’s fluidics lines. The following instructions describe how to operate this coupling.

Removing a Bulk Bottle

(Bottles cannot be removed from the instrument during a run.)

- Fully depress the bottle’s latch release button and pull the bottle from the instrument.
- The latch will remain in the open position if the latch release button has been fully depressed.

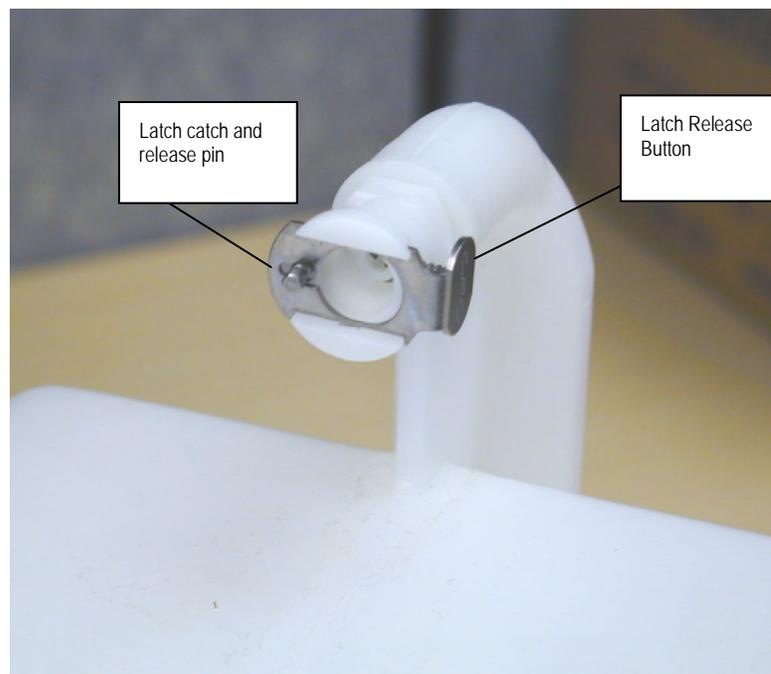


Figure 61. Latch Release Button on Bottle

Installing a Bulk Bottle

- Make sure that the bottle’s latch release button is in the fully depressed position.
- Place the bottle in the corresponding numbered position in the instrument.
- Push the bottle forward until it engages the mating coupling and insert the bottle until the latch releases and engages the coupling’s retaining groove.
 - Listen and feel for the click.

- The LCS #2 position's quick disconnect is reversed to prevent mixing with aqueous positions.

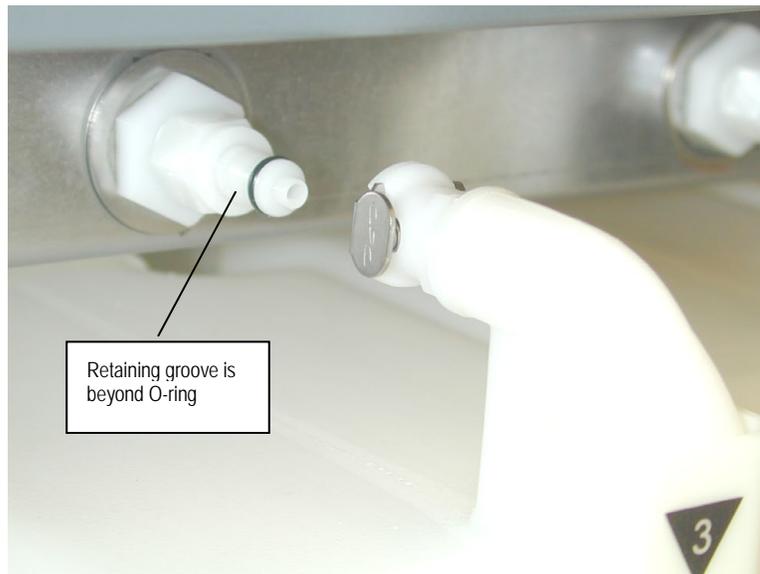


Figure 62. Engaging the Mating Coupling

EZ Prep (Position 1)

VENTANA EZ Prep comes in a two-liter bottle at 10x concentration or as a prediluted solution. The prediluted solution is used undiluted. The concentrate is diluted as described below.

- The concentrate is diluted with deionized water to make 20 liters of solution.
- A 20-liter graduated carboy is supplied for dilution and storage of the buffer solution.
- To ensure proper staining, the EZ Prep bottle in the automated fluidics subassembly must be filled (from the carboy) before each run.

To dilute the VENTANA EZ Prep concentrate:

- Make sure the spigot on the carboy is OFF.
 - See the “Instructions for Installing and Maintaining Spigots” section for proper spigot installation and maintenance instructions.
- Fill the carboy approximately three-quarters full with deionized water.
- Pour the contents of a two-liter 10x EZ Prep bottle into the carboy and swirl to mix.
- Add deionized water to fill the carboy to the 20-liter mark.
- Swirl the carboy to aid mixing.
 - Watch for the occurrence of air bubbles.
 - If a large quantity of bubbles develops, wait for them to disperse before completing the fill.
- Loosely screw the cap on the carboy.
 - If the cap is too tight, the solution will not dispense freely from the spigot.

LCS (Position 2)

LCS is supplied in two-liter bottles and used undiluted.

- You should refill the LCS bottle prior to each run.

CAUTION: LCS for BenchMark XT and BenchMark LT instruments is not the same as ES or Special Stains Liquid Coverslip (Low Temperature).

SSC (Position 3)

VENTANA 10xSSC comes in a two-liter bottle, and is five times the working concentration.

- The concentrate is diluted with deionized water to make ten liters of 2xSSC solution.
 - A 20-liter graduated carboy is supplied for dilution and storage of the buffer solution.
 - See the “Instructions for Installing and Maintaining Spigots” section for proper spigot installation and maintenance instructions.
- To ensure proper staining, the SSC solution bottle in the AFS must be filled (from the carboy) before each run.

To dilute the VENTANA 10xSSC concentrate:

- Make sure the spigot on the carboy is off.
- Fill the carboy approximately ½ full with deionized water.
- Pour TWO of the two-liter containers of 10xSSC concentrate into the carboy and swirl to mix.
- Add deionized water to fill the carboy to the 20-liter mark.
- Swirl the carboy to aid mixing.
 - Watch for the occurrence of air bubbles.
 - If a large quantity of bubbles develops, wait for them to disperse before completing the fill.
- Loosely screw the cap on the carboy.
 - If the cap is too tight, the solution will not dispense freely.

Reaction Buffer (Position 4)

VENTANA Reaction Buffer comes in a two-liter bottle at 10x concentration.

- The concentrate is diluted with deionized water to make 20 liters of the working solution.
 - A 20-liter graduated carboy is supplied for dilution and storage of the buffer solution.
 - See the “Instructions for Installing and Maintaining Spigots” section for proper spigot installation and maintenance instructions.
- To ensure proper staining, the two Reaction Buffer bottles in the automated fluidics subassembly must be filled (from the carboy) before each run.

CAUTION: Reaction Buffer for BenchMark XT and BenchMark LT instruments is not the same as Special Stains Wash Solution. Be careful not to interchange these solutions.

To dilute the VENTANA Reaction Buffer concentrate:

- Make sure the spigot on the carboy is OFF.
- Fill the carboy approximately three-quarters full with deionized water.
- Pour the contents of a two-liter 10x Reaction Buffer bottle into the carboy and swirl to mix.
- Add deionized water to fill the carboy to the 20-liter mark.
- Swirl the carboy to aid mixing.
 - Watch for the occurrence of air bubbles.
 - If a large quantity of bubbles develops, wait for them to disperse before completing the fill.

- Loosely screw the cap on the carboy.
 - If the cap is too tight, the solution will not dispense freely from the spigot.
- The pH of the diluted wash should be 7.6 ± 0.2 .
 - If the pH falls outside of this range, contact the Ventana Technical Consultation Center.

CC1 (Position 5)

CC1 is supplied in two-liter bottles.

- CC1 is used undiluted.
- You should refill the CC1 bottle as needed.

CC2 (Position 6)

CC2 is supplied in one-liter bottles.

- CC2 is used undiluted.
- You should refill the CC2 bottle as needed.
- If the CC2 solution is not used, the bottle must be filled with diluted Reaction Buffer to make the vacuum system operate properly.

Optional (Position 7)

The Optional feature is not available at this time. This bottle must be filled with diluted Reaction Buffer to make the vacuum system operate properly.

Instructions for Installing and Maintaining Spigots

The Spigot is shipped inside the carboy.

1. Remove the spigot from inside the carboy.



Figure 63. Packaged Spigot Removed from inside Carboy

2. Remove the cap or plug from the boss or threaded connector.



Figure 64. Cap on Carboy



Figure 65. Threaded Connector

3. Place the empty carboy on its back with the threaded connector facing up.
 - The following steps may be easier if the carboy is placed on the floor.
4. Place the spigot on the threaded connector.
5. Make sure that it is straight and turns easily.



Figure 66. Spigot Placed on Threaded Connector

6. Screw the spigot's locknut until it is firm.



Figure 67. Tightening the Spigot's Locknut

7. Push the spigot down on the connector to seat the O-ring.
 - On some bottles you may hear a popping sound; on other bottles you may not.
 - You will know the spigot body is seated properly when the locknut turns easily again.
8. Point the spout towards the bottom of the container and turn the lock nut until it is tight again.



Figure 68. Spigot Handle ON Position

9. Make sure the spigot handle is in the “off” position (the word “off” on the handle should be facing the front).



Figure 69. Spigot Handle OFF Position

- The carboy is now ready to use.

INTENTIONALLY BLANK

6.0 REGISTERING AND LOGGING REAGENTS

Registering is accomplished by applying the registration wand to the memory button of a Ventana-filled dispenser, kit, or bulk product container for BenchMark XT and BenchMark LT.

For Ventana supplied reagents, all of the reagent information is contained in the memory button attached to the package.

Logging is accomplished by entering data about products that the customer uses to fill VENTANA dispensers.

In either case, the software stores all the information about a dispenser, including the name of the reagent, the lot number, and how many drops remain in the dispenser.

- For example, the system has to know that the dispenser with serial number 49 contains DAKO WT-1 and that 250 drops are available for dispensing.

NexES identifies reagents used in a run by reading a bar code label on the reagent dispenser.

- The bar code label contains a single number.
 - The system uses this number to uniquely identify the reagent in the container.

VENTANA Reagents and Refillable Dispensers

For Ventana supplied reagents, all of the required information comes from the memory button attached to the package.

- Setup is easy.
 - In a single step, the registration wand is used to read data from the button and the product is registered and ready to use.
 - Follow the steps under, “Registering Ventana Products” to register VENTANA products, including customer-fillable dispensers.

Customer Supplied Products

If you buy a VENTANA dispenser and fill it with your own reagent or antibody, there are three steps necessary before you can use it:

1. Log—Your reagent, bulk product, or antibody must be made known to the system by logging it.
2. Register—The dispenser must be registered using the registration wand. See the “Registration Wand for Kits and Ventana Products” section.
3. Fill—The system must be told that the registered dispenser from step “1,” above, contains the reagent, antibody, or probe from step “2,” above.

Once you have performed these three steps, you can use the newly filled dispenser in the normal manner. However, an additional consideration may also apply.

- A customer-filled dispenser, unlike a Ventana-filled dispenser, can be initially under-filled and you can add more of the same reagent whenever you want.
 - This can be done so long as the dispenser’s lifetime limit (100 or 250 drops) has not been exceeded.
 - Of course, the software must be told whenever you add reagent to a dispenser.

You will need to visit the following software screens if you use your own reagents:

- Register Ventana Products—Use this to register the dispenser.
- Log Fillable Antibodies—Tells the system what (non-Ventana) antibodies you will be using.
- Log Fillable Reagents—Tells the system what (non-Ventana) reagents you will be using.

- Fill Ventana Dispenser—Tells the system to marry up a registered dispenser with a logged, customer-supplied antibody or reagent. This screen also permits you to add reagent to a partially used refillable dispenser.

These five screens are normally used in the order shown above, and are accessed via the Register button and Register Task menu shown below.

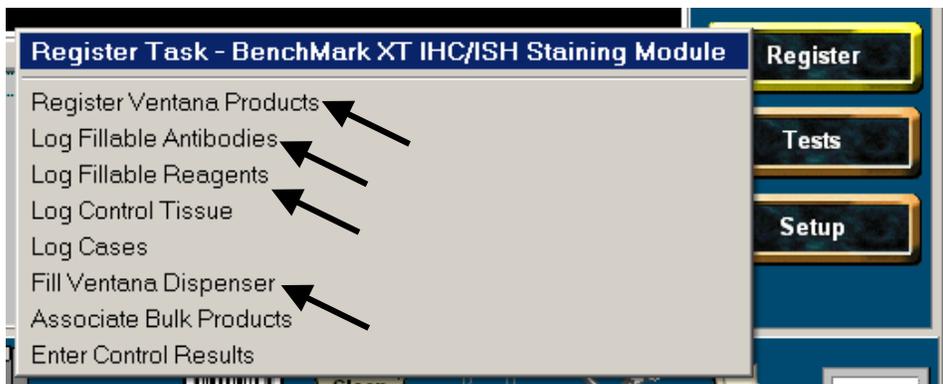


Figure 70. Register/Log/Fill Tasks

Logging Customer Supplied Antibodies

Customer-supplied antibodies used in refillable dispensers must be made known to the software.

- First, log the antibody as shown below.
- Then register the dispenser.
- The third step (see the “Filling the Dispenser with the Reagent” section) tells the software what antibody a particular dispenser contains.

The data fields for Log Fillable Antibodies include:

- Antibody Name, Lot Number, Concentration and Expiration Date are vital to the system.
- Manufacturer and Catalog Number are used in quality control reports.
- Other information is optional, but it is good practice to record everything that applies.

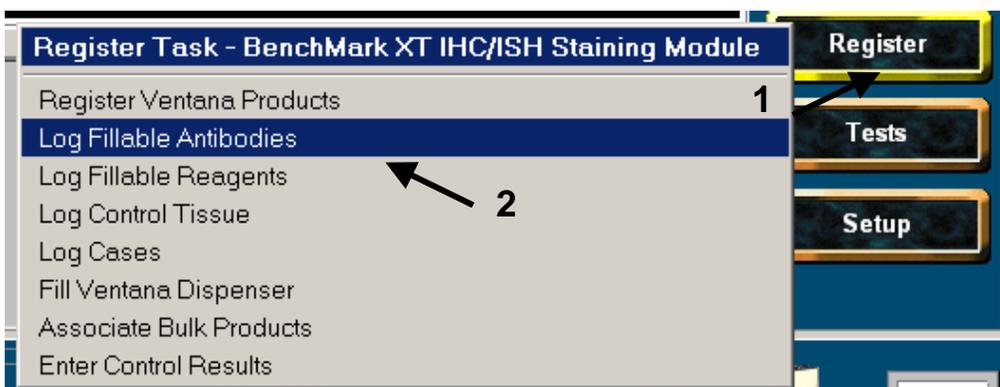


Figure 71. Selecting Log Fillable Antibodies

To register a customer-supplied antibody:

1. Click the **Register** button.

- From the menu, select **Log Fillable Antibodies** to display the Log Fillable Antibodies screen shown below.

Log Fillable Antibodies

Log Antibody | Log New Antibody

Select a Logged Antibody:

Antibody	Manufacturer	Catalog #	Clone
Antibody 1	Reagent Surplus	768-4672	N/A
Antibody c3	Antis R US	2454-3545	NA
Ploymer	VMSI	5415-145	NA
RF-40	VMSI	154-4546	NA

Lot Number:

Ig Concentration:

Concentration Unknown

μG/mL

Units:

μG/mL

g/l

mG/mL

μG/0.5 mL

mG/L

Expiration Date: 01/10/2008

Receive Date: 01/10/2007

View Antibodies

Close

Figure 72. Log Antibody Tab

- If you are logging a completely new antibody, click the **Log New Antibody** tab. This allows you to enter information that will be common to the current shipment as well as any future shipments.
 - Log New Antibody** is used to enter an antibody the very first time it is received.
- If the antibody you have received was previously logged, skip to the instructions in the “Log Antibody Tab” section.
 - Log Antibody** is used to enter additional shipments of a previously logged antibody.

Log New Antibody Tab

The screenshot shows a software window titled "Log Fillable Antibodies" with two tabs: "Log Antibody" and "Log New Antibody". The "Log New Antibody" tab is active. The form contains the following fields and controls:

- Antibody Name: Control1
- Manufacturer: Pharm1
- Catalog Number: 123
- Clone: (empty)
- Immunoglobulin Sub-Class: IgG (dropdown)
- Presentation: Ascites (dropdown)
- Species: Mouse (dropdown)
- Lot Number: 345
- Ig Concentration: Concentration Unknown, 4 µG/mL
- Units: µG/mL, g/l, mG/mL, µG/0.5 mL, mG/L
- Expiration Date: 01/10/2008
- Receive Date: 01/10/2007
- Buttons: "Receive" (highlighted in blue) and "Close"

Arrows labeled "1" and "2" point to the "Catalog Number" field and the "Receive" button, respectively.

Figure 73. Log New Antibody Tab

1. Enter this information only once for each antibody the first time it is received.
 - When any entry is made, a **Receive** button appears.
2. Click **Receive** after making and checking all your entries.
 - This saves the information.
3. You can now enter more antibodies or click **Close** to exit the screen.

QC Notice



Figure 74. QC Notice

When an antibody is received:

- NexES checks to see whether quality control information has been entered for this antibody's lot number.
 - If not, or if the previous QC failed, you will see the message above.

- Otherwise, the system will report that: “[Antibody Name] has been received and has already been QCed.”

Expiration and Received Dates

If you do not enter an expiration date, NexES uses, as a default, a one year expiration calculated from the date a shipment is received. If your reagent or antibody has a different expiration date, it is important to enter the correct date.

The Receive Date is assumed to be the date on which the product was logged and cannot be changed.

Multiple Suppliers for the Same Antibody

If you receive shipments of a given antibody from more than one manufacturer, you must name the antibodies differently for each.

- For example, if you receive XYZ from Antibodies-R-Us and also from Apex, the Antibodies-R-Us product should be called XYZ-A and the Apex product should be called XYZ-B, even if their specifications are identical.

Log Antibody Tab

Use this tab to enter a newly received shipment of an antibody you have received and registered before. Once a new antibody has been logged you do not need to re-enter the manufacturer name and catalog information. The **Log Antibody** tab is used to log shipments received for a previously registered catalog item.

1. Select from the menu the antibody you have received.

Log Fillable Antibodies

Log Antibody | Log New Antibody

Select a Logged Antibody:

Antibody	Manufacturer	Catalog #	Clone
Antibody 1	Reagent Surplus	768-4672	N/A
Antibody c3	Antis R US	2454-3545	NA
Control1	Pharm1	123	
Ploymer	VMSI	5415-145	
RF-40	VMSI	154-4546	NA

Lot Number: 345

Ig Concentration: Concentration Unknown 4 µG/mL

Units: µG/mL, g/l, mG/mL, µG/0.5 mL, mG/L

Expiration Date: 01/10/2008 Receive Date: 01/10/2007

Receive

Close

Figure 75. Log Antibody Tab (with Receive Button)

2. Enter the Lot Number, Concentration and Expiration Date for the new shipment.
 - When any entry is made, a Receive button appears.
3. Click **Receive** after making and checking all your entries.
 - This saves the information.

- You can now enter more antibodies or click **Close** to exit the screen.
4. NexES will tell you whether or not the lot number of the received shipment has previously been QCed.
- In the example, below, the shipment has not been QCed.
 - Click **OK** to continue.



Figure 76. QC Notice

Viewing and Deactivating Antibodies

Shipments of each antibody received can be viewed and optionally deactivated (deleted) from your current listing.

- “Deactivate” is the preferred term since, although the antibody is no longer visible in lists, a record has been kept in the database referring to prior uses of the antibody.
- Use the **Deactivate** button when an antibody lot number has been completely consumed or has become unusable.
- If you are not already there, display the Log Fillable Antibodies screen, then follow the steps below.

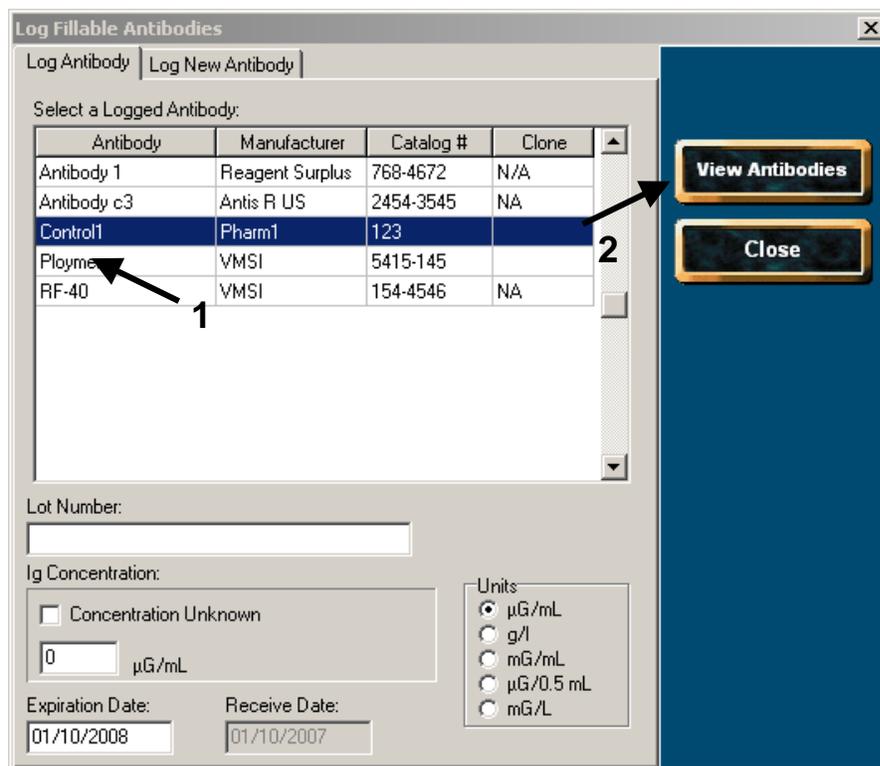


Figure 77. Log Fillable Antibodies

1. Under the **Log Antibody** tab, select an antibody to view or deactivate.
2. Click the **View Antibodies** button to display the View Antibodies screen shown below.

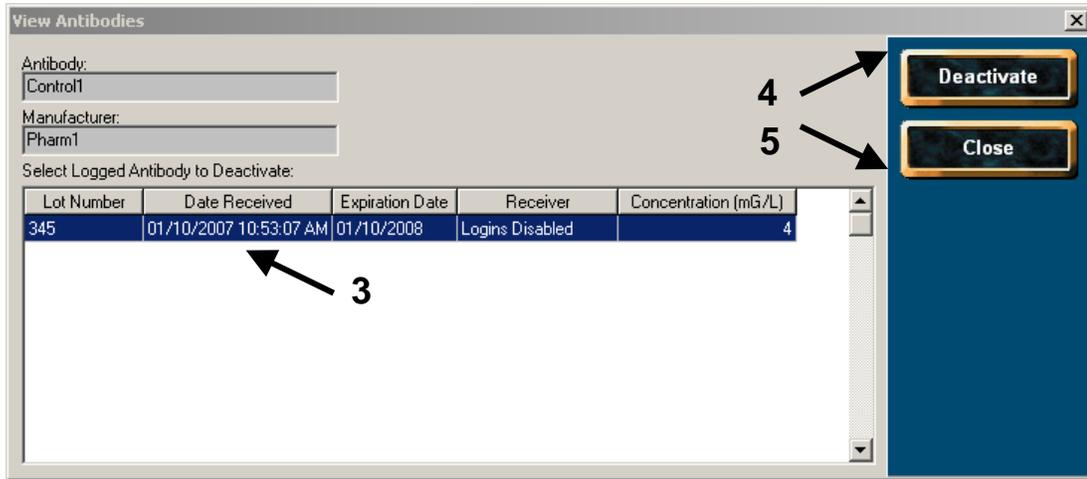


Figure 78. View Antibodies

3. Select the lot number you want to deactivate.
4. Click the **Deactivate** button.
 - If you deactivate an antibody, the program will ask you to confirm your intention before making it final.
5. OR, click **Close** to return without deactivating.

Logging Other Customer Supplied Reagents

Customer-supplied reagents used in refillable dispensers must be made known to the software.

- First, register the dispenser.
- Then log the reagent as shown below.
- The third step (“Filling the Dispenser with the Reagent”) tells the software what reagent a particular dispenser contains.

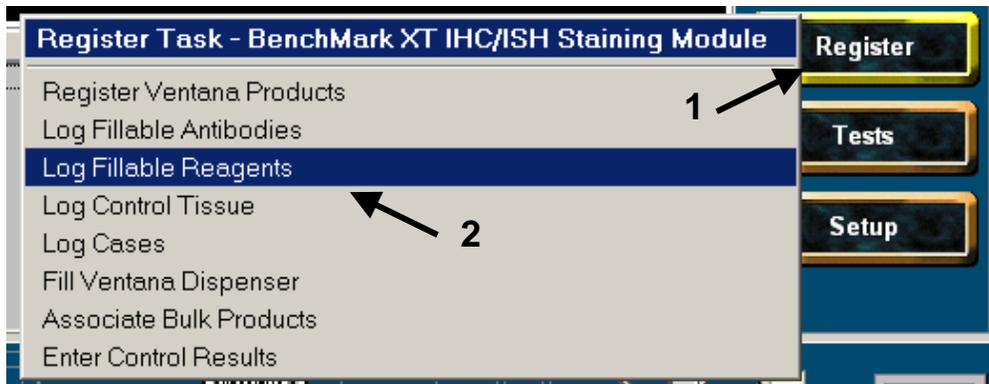


Figure 79. Selecting Log Fillable Reagents

The data fields for the Log Fillable Reagents screen include:

- Reagent Name, Lot Number, and Expiration Date are vital to the system.
- Manufacturer and Catalog Number are used in quality control reports.

To register a customer-supplied reagent:

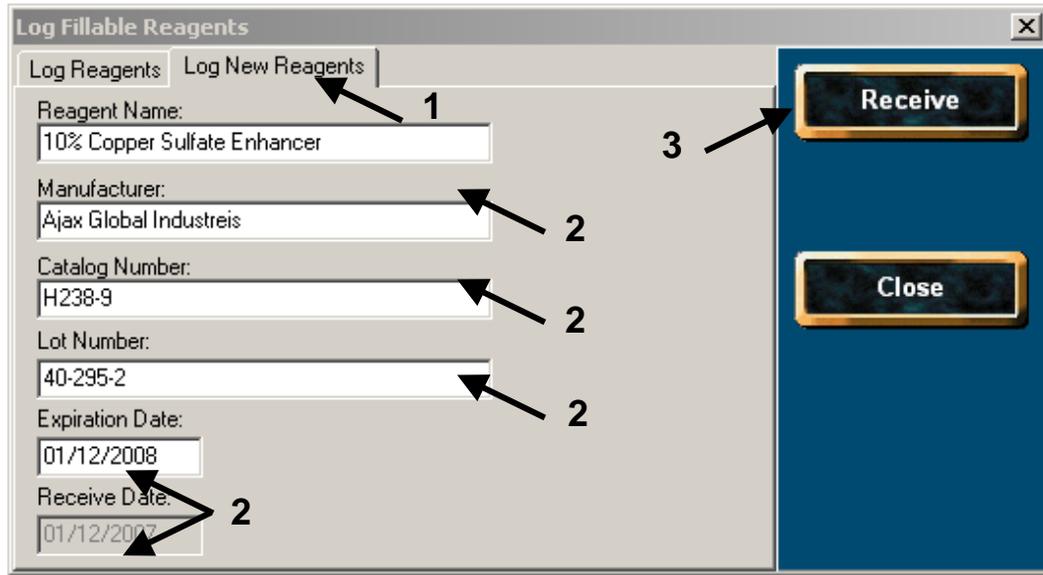
1. Click the **Register** button.
2. From the menu, select **Log Fillable Reagents** to display the Log Fillable Reagents screen shown below.

The screenshot shows a software window titled "Log Fillable Reagents". At the top, there are two tabs: "Log Reagents" and "Log New Reagents". The "Log Reagents" tab is selected. Below the tabs, there are several input fields: "Reagent Name" (containing "10% Copper Sulfate Enhancer"), "Manufacturer" (containing "Ajax Global Industrieis"), "Catalog Number" (containing "H238-9"), "Lot Number" (containing "40-295-2"), "Expiration Date" (containing "01/12/2008"), and "Receive Date" (containing "01/12/2007"). On the right side of the window, there are two buttons: "Receive" and "Close". Arrows labeled "3" and "4" point to the "Log New Reagents" and "Log Reagents" tabs respectively.

Figure 80. Log Fillable Reagents

3. If you are logging a completely new reagent, click the **Log New Reagents** tab. This allows you to enter information that will be common to the current shipment as well as any future shipments.
 - **Log New Reagents** is used to enter a reagent the very first time it is received.
4. If the reagent you have received was previously logged, skip to the instructions in "Log Reagents Tab."
 - **Log Reagents** is used to enter additional shipments of a previously logged reagent.

Log New Reagents Tab



The screenshot shows a window titled "Log Fillable Reagents" with two tabs: "Log Reagents" and "Log New Reagents". The "Log New Reagents" tab is active. It contains several text input fields with the following values: "Reagent Name: 10% Copper Sulfate Enhancer", "Manufacturer: Ajax Global Industrieis", "Catalog Number: H238-9", "Lot Number: 40-295-2", "Expiration Date: 01/12/2008", and "Receive Date: 01/12/2007". On the right side of the window, there are two buttons: "Receive" and "Close". Arrows indicate the following steps: 1. Select the "Log New Reagents" tab. 2. Enter information in the input fields. 3. Click the "Receive" button.

Figure 81. Log New Reagents

To log new reagents:

1. Select the **Log New Reagents** tab.
2. Enter this information only once for each reagent the first time it is received.
 - When any entry is made, a **Receive** button appears.
3. Click **Receive** after making and checking all your entries.
 - This saves the information.
 - You can now enter more reagents or click **Close** to exit the screen.

QC Notice



Figure 82. QC Notice

When a reagent is received:

- NexES checks to see whether quality control information has been entered for this reagent's lot number.
 - If not, or if the previous QC failed, you will see the message above.
 - Otherwise, the system will report that: "[Reagent Name] has been received and has already been QCed" as shown in the screen below.



Figure 83. Confirmation That QC Has already Been Performed

Expiration and Received Dates

If you do not enter an expiration date, NexES uses, as a default, a one year expiration calculated from the date a shipment is received. If your reagent has a different expiration date, it is important to enter the correct date. The Receive Date is assumed to be the date on which the product was logged and cannot be changed.

Multiple Suppliers for the Same Reagent

If you receive shipments of a given reagent from more than one manufacturer, you must name the reagents differently for each.

- For example, if you receive XYZ from Reagents-R-Us and also from Apex, the Reagents-R-Us product should be called XYZ-A and the Apex product should be called XYZ-B, even if their specifications are identical.

Log Reagents Tab

Use this tab to enter a newly received shipment of a reagent you have received and registered before. Once a new reagent has been logged, you do not need to re-enter the manufacturer name and catalog information. The **Log Reagents** tab is used to log shipments received for a previously registered catalog item.

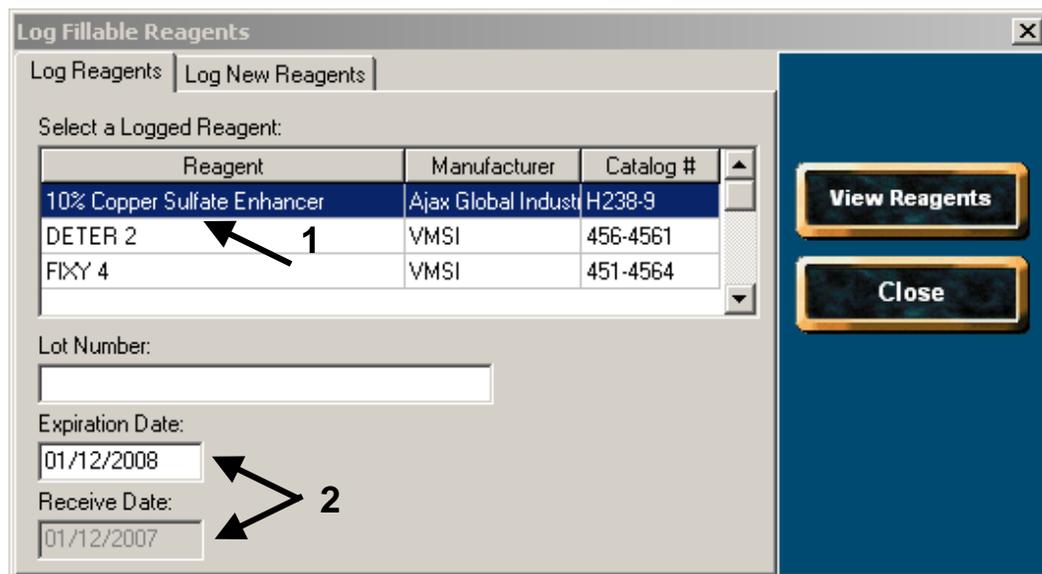


Figure 84. Log Reagents Tab (with View Reagents Button)

- Select from the list the reagent you have received.

2. Enter the Lot Number and Expiration Date for the new shipment.
 - When any entry is made, a **Receive** button appears as shown below.

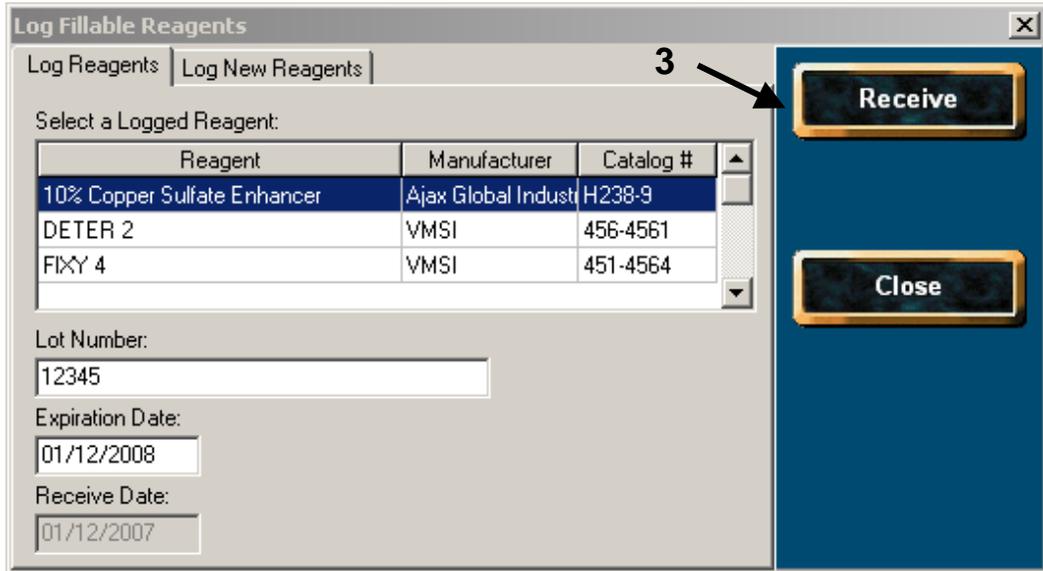


Figure 85. Log Reagents Tab (with Receive Button)

3. Click **Receive** after making and checking all your entries.
 - This saves the information.
 - You can now enter more reagents or click **Close** to exit the screen.
4. NexES will tell you whether or not the lot number of the received shipment has previously been QCed.
 - In the example, below, the shipment has not been QCed.
 - Click **OK** to continue.

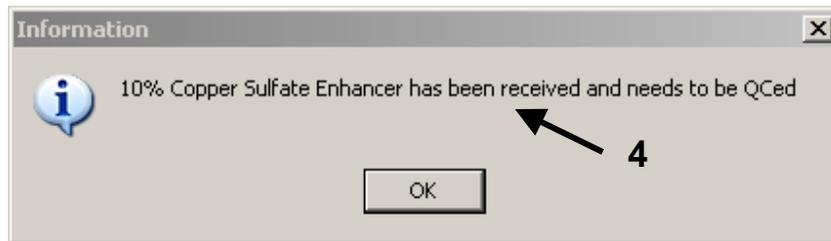


Figure 86. QC Notice

Viewing and Deactivating Reagents

Shipments of each reagent received can be viewed and optionally deactivated (deleted) from your current listing.

- “Deactivate” is the preferred term since, although the reagent is no longer visible in lists, a record has been kept in the database that refers to prior uses of the reagent.
- Use the **Deactivate** button when a reagent lot number has been completely consumed or has become unusable.

- If you are not already there, display the Log Fillable Reagents screen, then follow the steps below.

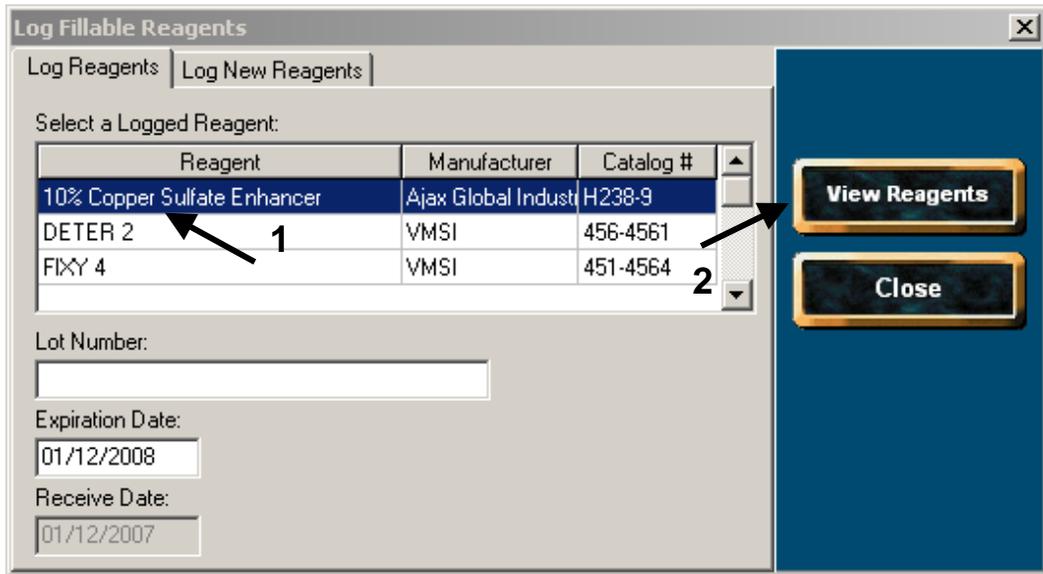


Figure 87. Log Reagents Tab

1. Under the **Log Reagents** tab, select a reagent to view or deactivate.
2. Click the **View Reagents** button to display the Deactivate Logged Reagent screen shown below.

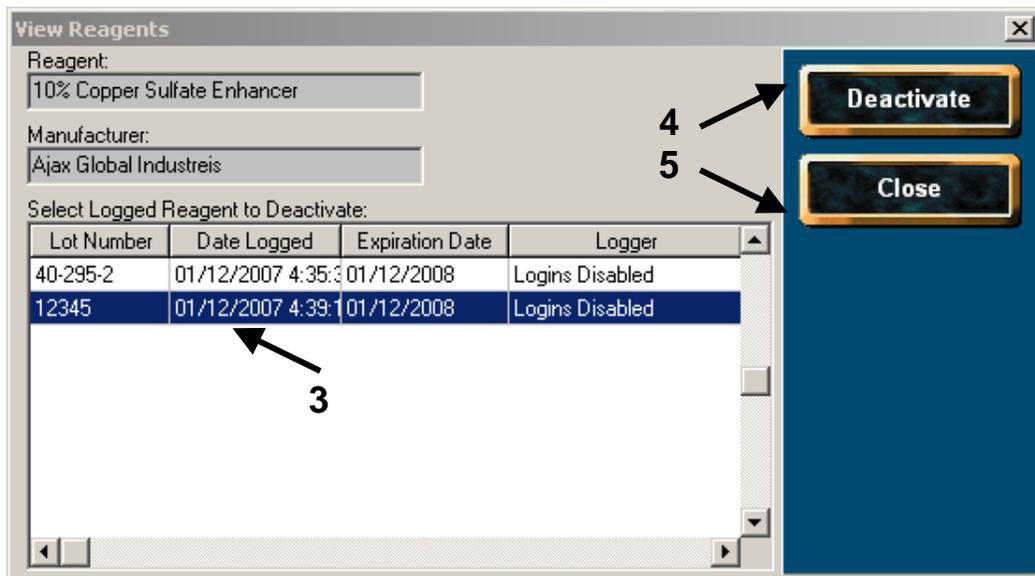


Figure 88. Deactivate Logged Reagent

3. Select the lot number you want to deactivate.
4. Click the **Deactivate** button.

- If you deactivate a reagent, the program will ask you to confirm your intention before making it final.
5. OR, click **Close** to return without deactivating.

Filling the Dispenser with the Reagent

Each time you wish to use a new user fillable dispenser in a run, you must visit the screen described in this section.

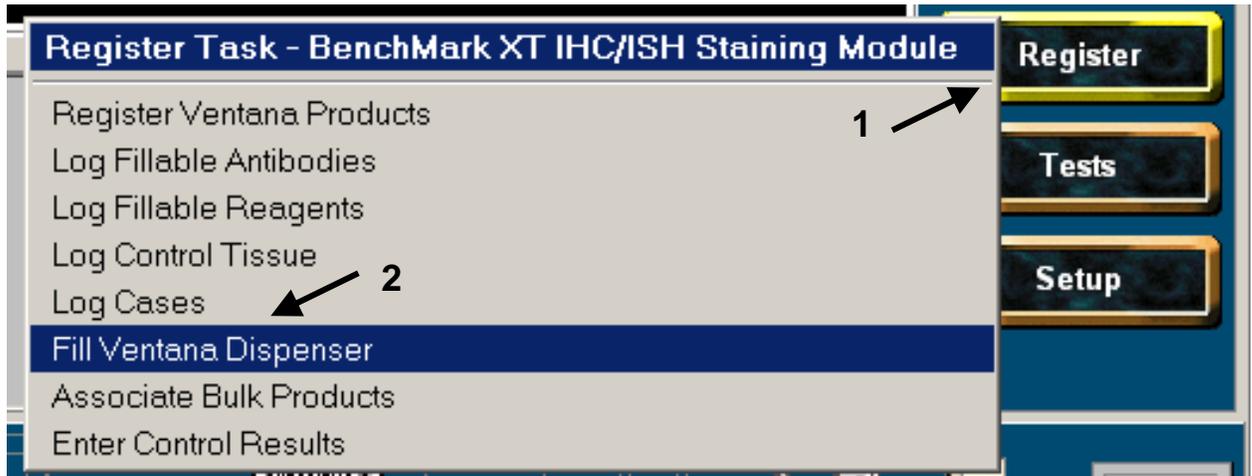


Figure 89. Selecting Fill Ventana Dispenser

To tell NexES what a specific dispenser contains:

1. Click the **Register** button.
2. From the menu, select **Fill Ventana Dispenser** to display the Fill Ventana Dispenser screen shown in the next figure.

Two lists are used.

- Each list has its own screen, although both say “Fill Ventana Dispenser” in the title bar.
 - The first screen lists dispensers.
 - The first screen also has tabs that correspond to the type of reagent you wish to fill the dispenser with.
 - “ Once a dispenser is selected for filling in the first screen, the second screen will be automatically displayed.
 - The second screen lists reagents for the tab you selected in the first screen and displays the dispenser you selected for filling in the first screen.
 - “ A field is also provided for an expiration date different from (and earlier than) the original reagent expiration.
 - Fields shown in yellow are “must-fill” fields.
 - “ This means that you cannot complete the process until you enter something into or otherwise change the content of the field.
 - § You must either accept or change the values in these fields before the current edits can be saved.
- It helps to understand that a dispenser can be used a limited number of times, no matter what you put into it.
 - You can add reagent to a partially used dispenser or you can empty out a dispenser and refill it with the same reagent if you wish.
 - “ Most dispensers have a useful service life of 250 dispenses before they must be discarded.

- A BenchMark XT and BenchMark LT “Prep Kit” dispenser has a limit of 100 dispenses before it must be discarded.
- Before using this screen, take note of the dispenser or dispensers you want to fill.
 - Note the dispenser name and serial number.
 - Note the name and lot number of the reagent that you will be putting into the dispenser.

Filling an Empty (Never-Used) Dispenser

Use this procedure to fill a VENTANA dispenser you have just received and registered.

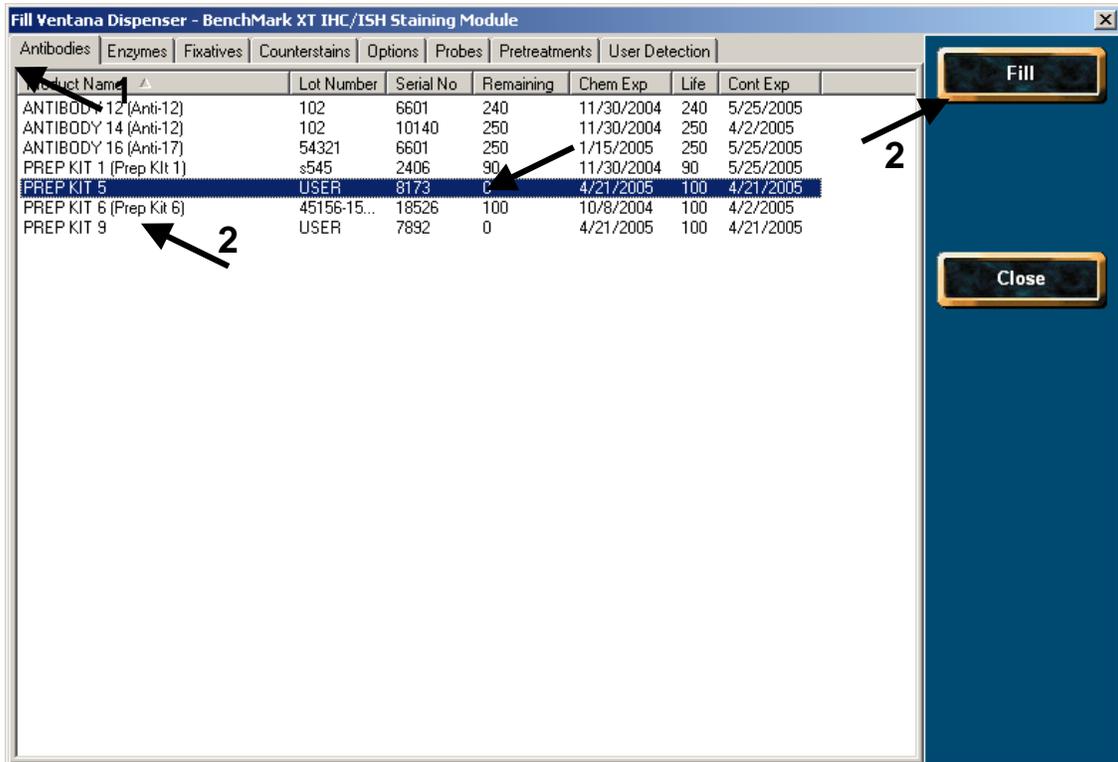


Figure 90. Selecting an Empty Dispenser

To fill an empty (never-used) dispenser

1. Select the tab that corresponds to the type of product you wish to fill the dispenser with.
2. Select the dispenser by highlighting its name and serial number in the dispenser list, then click Fill.
 - This action will display the selected dispenser and the list of products as shown below.
 - Note the Log Antibodies button in this example.
 - § This is for your convenience in case you have not yet logged the antibody you plan to fill the dispenser with.
 - Note that the Remaining column for an empty dispenser will read zero.

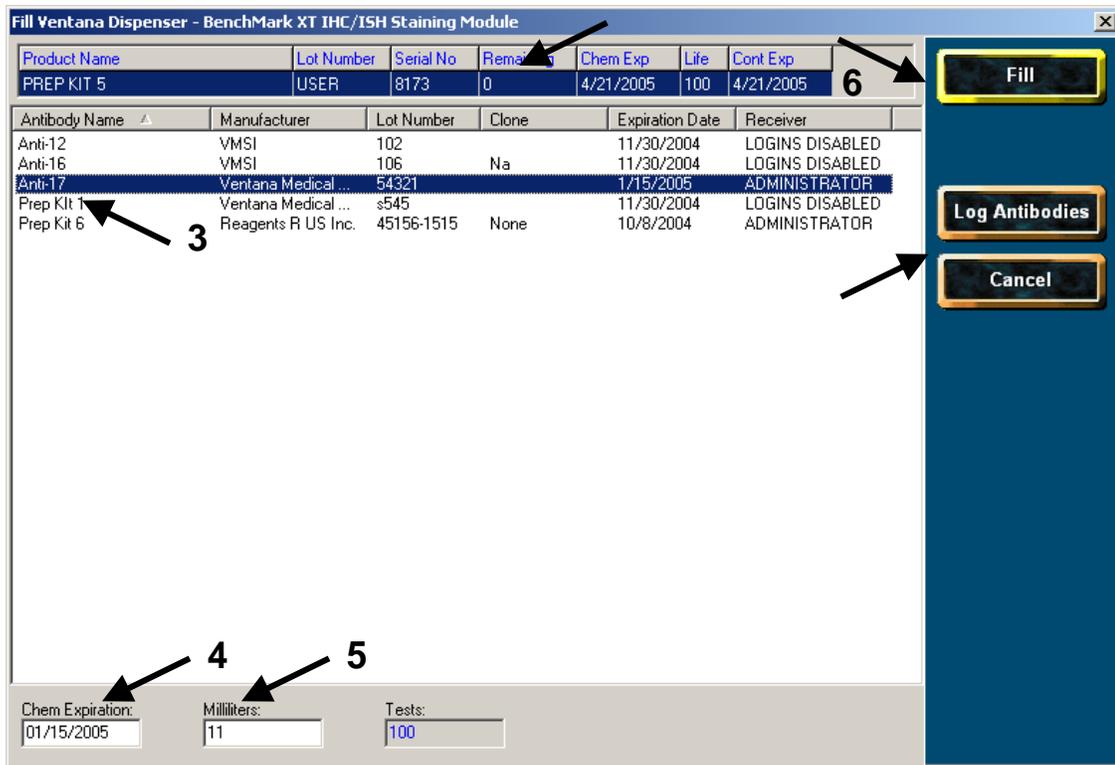


Figure 91. Selecting a Product

3. Highlight the product you wish to fill the dispenser with.
4. Specify the expiration date of the product you want to add to the dispenser.
5. Specify how much product you want to add to the dispenser.
6. Click the Fill button to finish the task and return to the first Fill Ventana Dispenser screen shown below.
 - Note that the Remaining column for the dispenser now shows the number of tests remaining.

Product Name	Lot Number	Serial No	Remaining	Chem Exp	Life	Cont Exp
ANTIBODY 12 (Anti-12)	102	6601	240	11/30/2004	240	5/25/2005
ANTIBODY 14 (Anti-12)	102	10140	250	11/30/2004	250	4/2/2005
ANTIBODY 16 (Anti-17)	54321	6601	250	1/15/2005	250	5/25/2005
PREP KIT 1 (Prep Kit 1)	s545	2406	90	11/30/2004	90	5/25/2005
PREP KIT 5	USER	8173	0	4/21/2005	100	4/21/2005
PREP KIT 6 (Prep Kit 6)	45156-15...	18526	100	10/8/2004	100	4/2/2005
PREP KIT 9	USER	7892	0	4/21/2005	100	4/21/2005

Figure 92. Tests Remaining after Filling

7. Fill the dispenser with the product.

Emptying and Refilling a Dispenser

Due to the risk of cross-contamination, Ventana strongly discourages re-use of any dispenser for a product other than the one it originally contained.

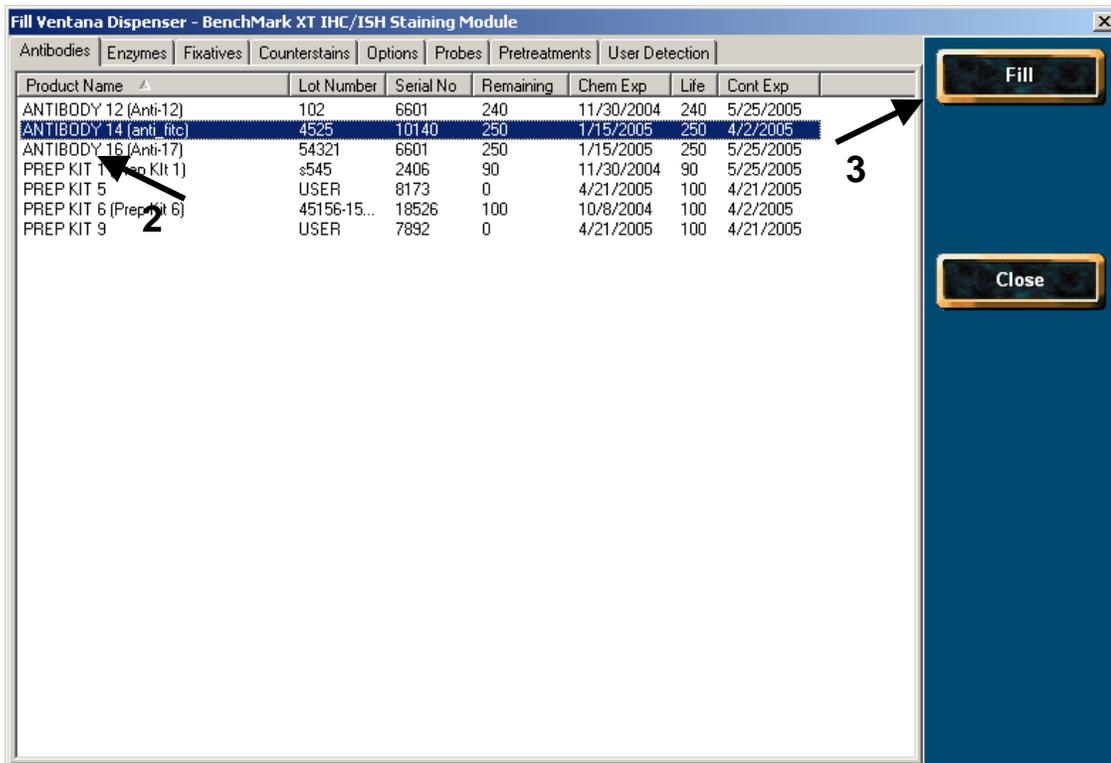


Figure 93. Emptying and Filling a Dispenser

To discard the current contents of a dispenser and re-fill it with a fresh charge of the same product:

1. Dispose of any remaining product.
2. Select the dispenser by highlighting its name and serial number in the dispenser list.
 - Note that the reagent lot number in this example is 4525.
3. Click Fill.
 - This action will display the selected dispenser and the list of products as shown below.
 - Because the selected dispenser had been filled previously, the Refill button replaces the Fill button.
4. Select the product (in the example below, the lot number of the new product is 36354654) you will use to fill the dispenser.
 - This action will display the selected dispenser and the list of products as shown below.

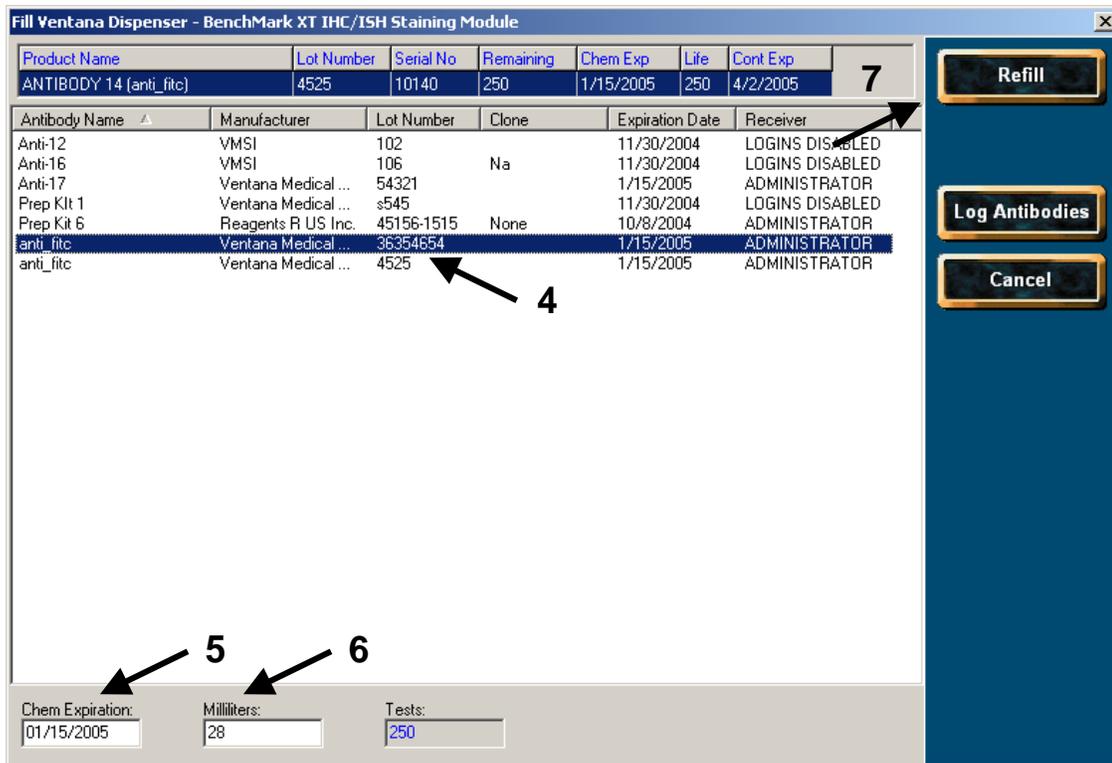


Figure 94. Selecting a New Product

5. Specify the expiration date of the product you want to add to the dispenser, or accept the displayed date by pressing the Enter key.
6. Specify how much product you want to add to the dispenser.
 - Note that the amount may be limited by the Tests Remaining for the dispenser.
 - To completely fill the dispenser (up to its remaining life), enter 9's in the Milliliters field until the number stops changing.
7. Click Refill to display the Confirm message below.

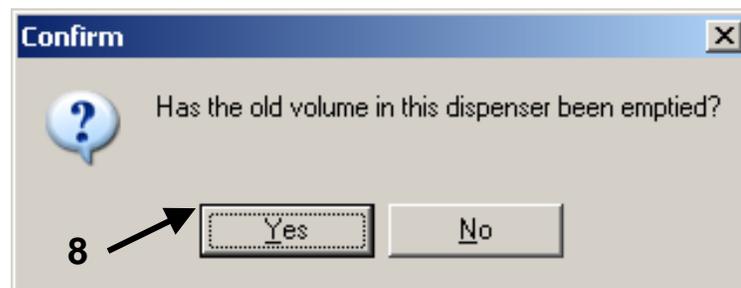


Figure 95. Confirm Screen

8. Click Yes to redisplay the dispenser list shown below.
 - Clicking No will allow you to add only enough new product to the product remaining in the dispenser to fill the dispenser to its limit.

- Note that in this example the product lot number is 36354654, the lot number of the new product.

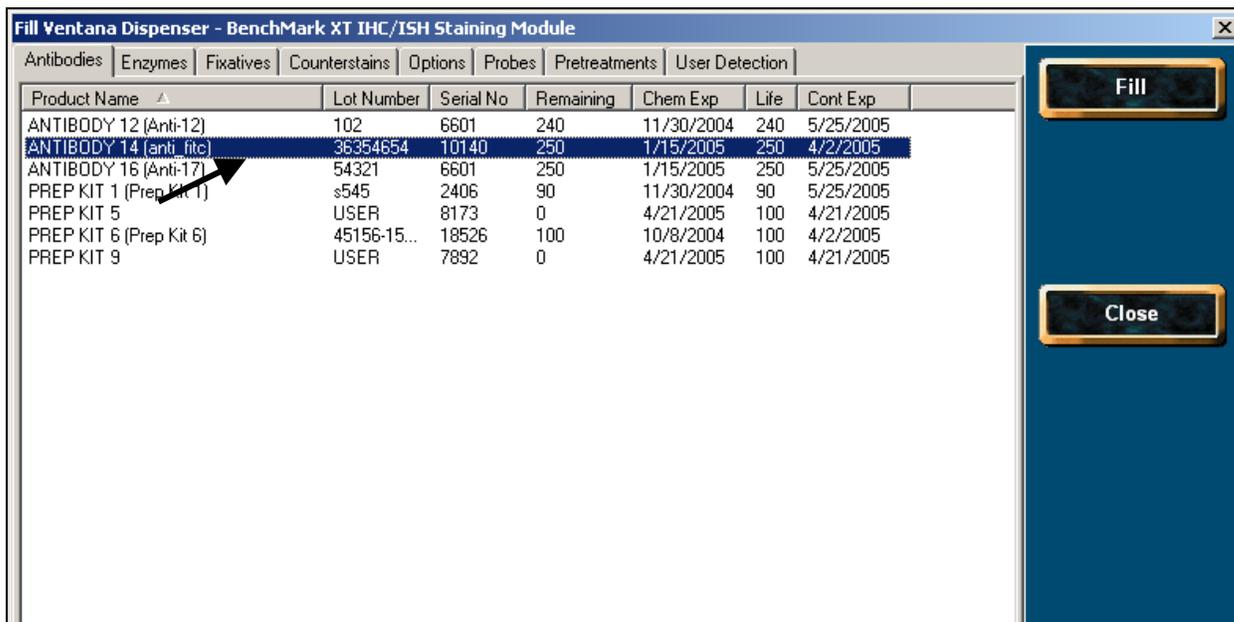


Figure 96. New Product in Dispenser

Refilling a Partially Filled Dispenser

Due to the risk of cross-contamination, Ventana strongly discourages re-use of any dispenser for a product other than the one it originally contained.

Use this procedure to add more product to top off a dispenser that was only partially filled.

- Note that you cannot add more product to a dispenser that was initially filled completely.
 - However, you can re-fill the dispenser to its previous remaining capacity.

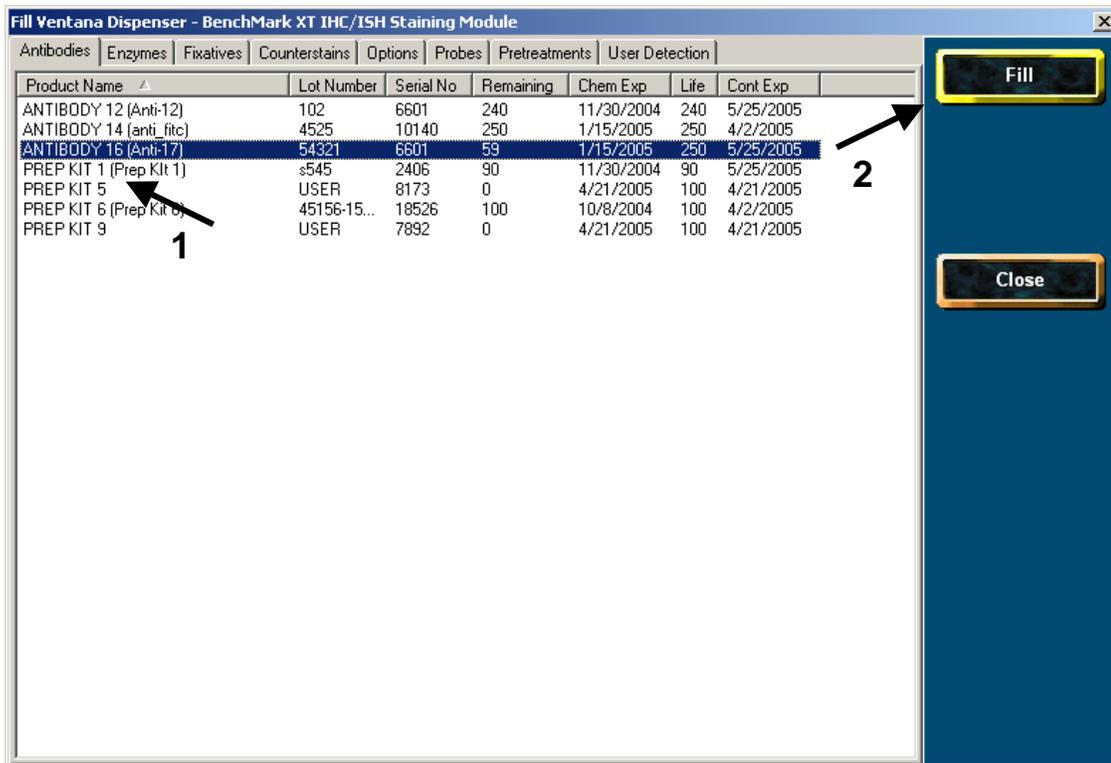


Figure 97. Selecting a Partially Filled Dispenser

To add more of the same product to a dispenser and re-fill it to its previous remaining capacity:

1. Select the dispenser by highlighting its name and serial number in the dispenser list.
 - Note that there are 59 tests in the Remaining column in the example above.
2. Click Fill.
 - This action will display the selected dispenser and the list of products as shown below.

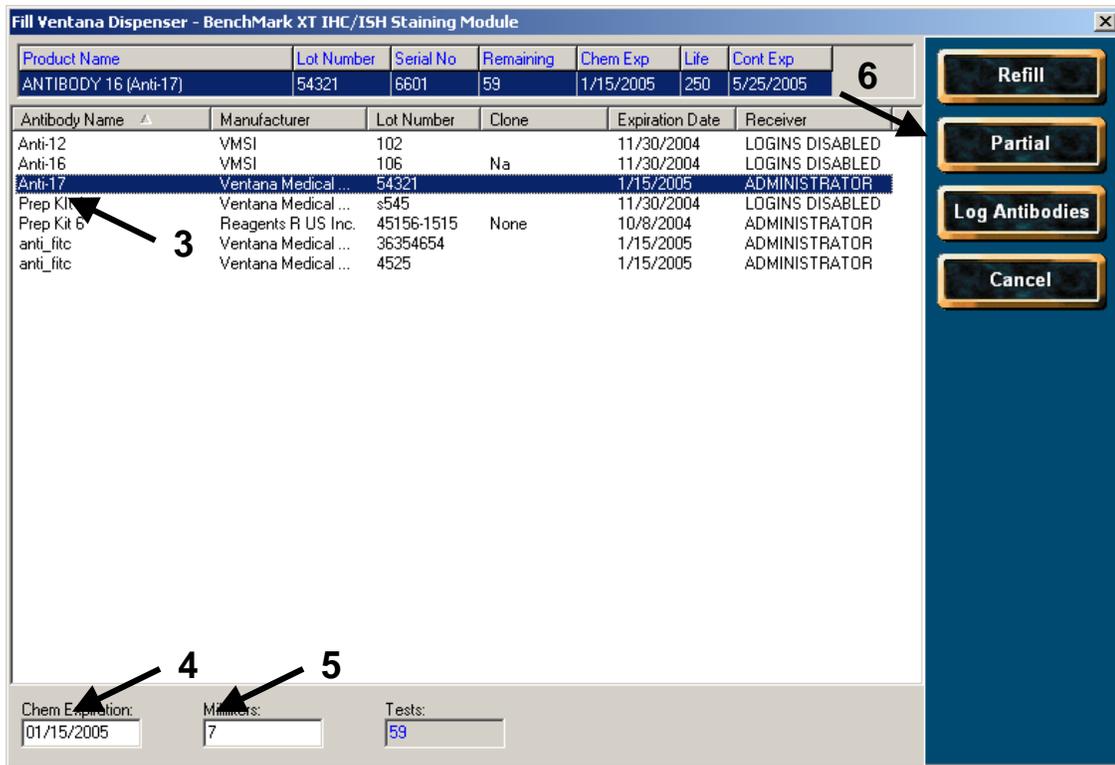


Figure 98. Selecting a Product for a Partially Filled Dispenser

- Because the selected dispenser had been filled previously, the Refill button replaces the Fill button.
 - Because the selected dispenser had been filled previously, the Partial button is also displayed.
3. Select the product you will use to fill the dispenser.
 4. Specify the expiration date of the product you want to add to the dispenser, or accept the displayed date by pressing the Enter key.
 - You can, if you wish, enter here an earlier product expiration date.
 - ” However this should not be later than the dispenser expiration date.
 5. Specify how much product you want to add to the dispenser.
 - Note that the amount may be limited by the number of tests in the dispenser’s Remaining column.
 - ” To completely fill the dispenser (up to the remaining life), enter 9’s in the Milliliters field until the number stops changing.
 6. Click **Partial**.
 7. If the number in the Milliliters field (after you click **Partial**) is larger than the Tests Remaining for the dispenser, you will be warned about how much you can actually put into the dispenser.
 - This will always be true if you have typed 9’s in the Enter Fill Amount field in step 5 above.

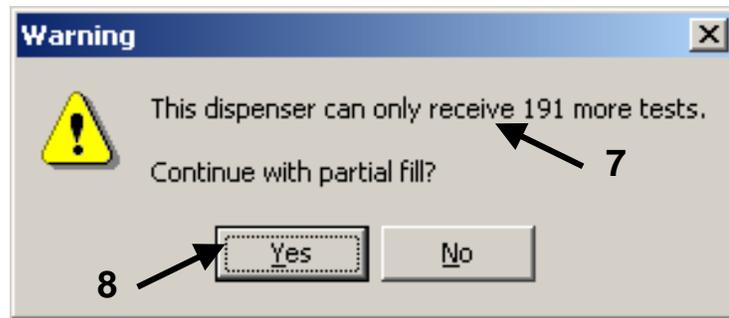


Figure 99. Partial Fill Warning

8. If this is acceptable, click **Yes**.
 - If it is not acceptable, click **No** and use another dispenser with more capacity.

7.0 PROTOCOL EDITING AND PRINTING

Because no two laboratories are exactly the same, a procedure can be modified in software through the use of a protocol. This section of the manual describes the creation and editing of BenchMark XT and BenchMark LT protocols.

Using the Protocol Editor

Use the protocol editor to create or modify protocols.



Figure 100. Selecting Create/Edit Protocol

To begin protocol editing:

1. Click the **Protocols** button on the main screen.
2. Then select Create/Edit Protocol to display the Protocol Editor screen shown in the next section.

Editing an Existing Protocol

Follow the steps in this section to edit an existing protocol.

The screenshot shows the 'NexES Protocol Editor - BenchMark IHC/ISH Staining Module' window. At the top, there are three main sections: 'Protocol', 'List Only Registered Products', and 'Procedure'. The 'Protocol' section has a dropdown menu for 'Name' (indicated by arrow 3) and a radio button for 'Number'. The 'List Only Registered Products' checkbox is checked (indicated by arrow 1). The 'Procedure' dropdown menu is set to 'BMK DAB Paraffin' (indicated by arrow 2). Below these are several protocol options, each with a checkbox and associated fields. The 'Enzyme' option is checked (indicated by arrow 4) and its fields, 'Enzyme' (PROTEASE 1 [2018]) and 'Incubation Time' (2 Minutes), are highlighted in yellow (indicated by arrow 5). The 'Antibody' option is also checked (indicated by arrow 4) and its fields, 'Antibody' (bc1-2 [2693]) and 'Incubation Time' (2 Minutes), are highlighted in yellow. Other options like 'Deparaffinization', 'Cell Conditioning', 'Option', 'Titration', 'Post Fixative', 'Amplify', 'A/B Block', and 'Counterstain' are unchecked. On the right side, there are 'Clear' and 'Close' buttons.

Figure 101. Protocol Editor

1. Check the List Only Registered Products box to display only those products which are registered on your computer.
2. From the Procedure drop-down menu at the upper right corner, select the procedure on which the protocol is based.
3. Select from the Protocol drop-down menu the protocol you want to edit.
 - Your screen will show the elements (options and their associated fields) of the staining run that you can change.
 - You can navigate from element to element with the Tab key or the Enter key.
4. To open a protocol option, click the check box.
 - The option will open for you to edit.
 - As you navigate from option to option, the option currently focused upon will have a faint dotted line surrounding it.
 - § Pressing the space bar will check the option's box and display its fields (if it has any).
5. In the example above, yellow indicates that you must make a selection to modify or confirm the Enzyme and Incubation Time, even if you leave them unchanged.

- Click the text to leave an item unchanged and change the yellow color to white.
 - All yellow fields must be changed to white in order for the **Save As** button to appear.
- 6. To make a change, click the arrowhead at the right of the field and select an item from the field's menu.
 - Another way to make a change is through incremental searching, whereby you:
 - Select the field.
 - Type the first few characters of the reagent name (not the prefix) or its four-digit product code.
 - Type the number of minutes of incubation time.
 - You can make as many changes as you desire, checking additional options or removing the check marks if you change your mind.

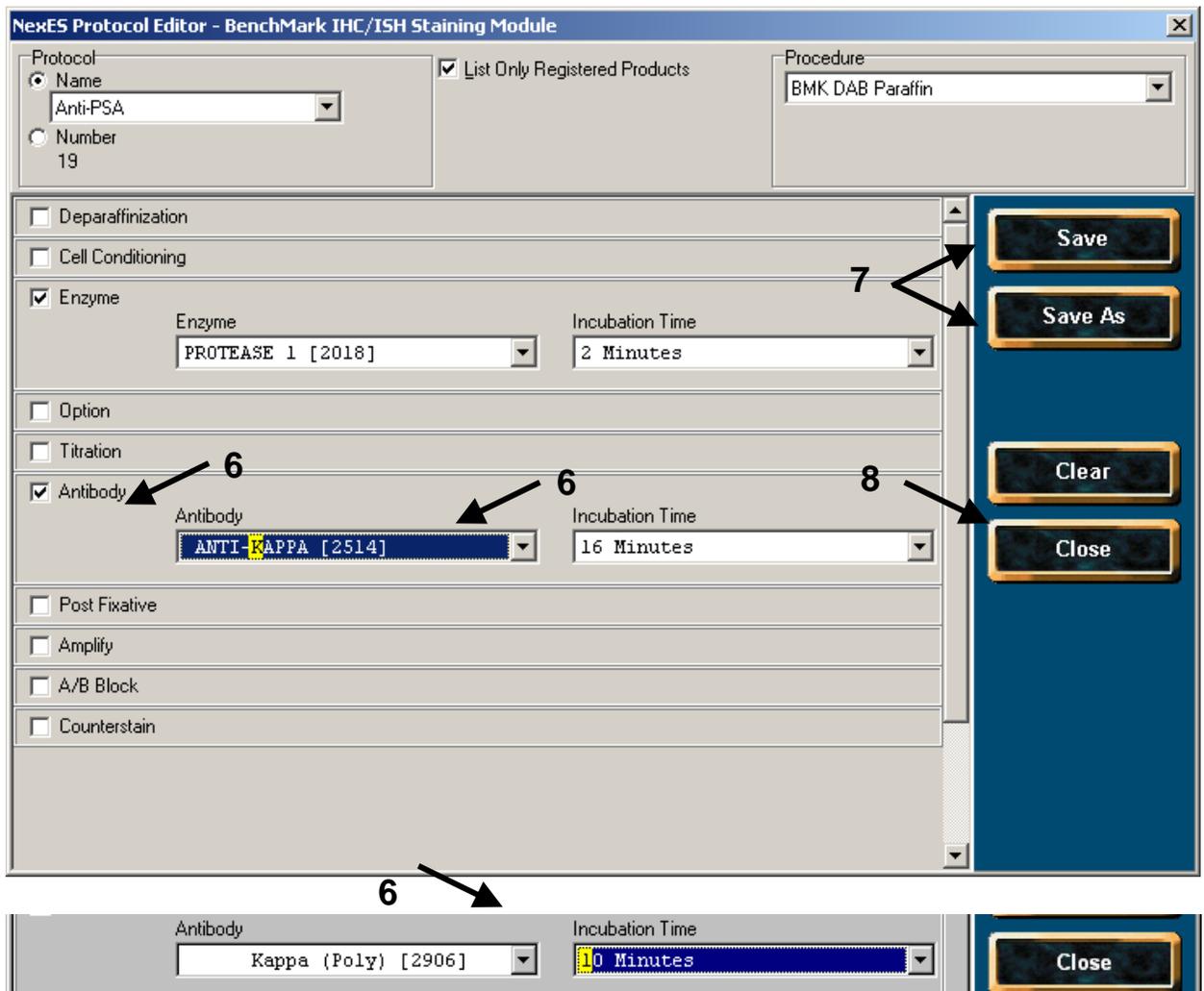


Figure 102. Incremental Searching and Selecting Save, Save As, or Clear

7. After editing a protocol you can choose to save it under the same or a different name, or you can discard the edits you have made.
 - Click the **Save** button to save the protocol under the same name and protocol number.

- Click the **Save As** button to store the edited protocol under a new name and protocol number. **Save As** is discussed in the next section.
8. Click **Clear** if you decide not to keep the changes you have made.
 9. The screen below is displayed by clicking **Clear**.
 - If you answer **Yes**, your recent edits (since the last save) will be discarded.
 - If you answer **No**, you are returned to the editing screen with edits still pending.

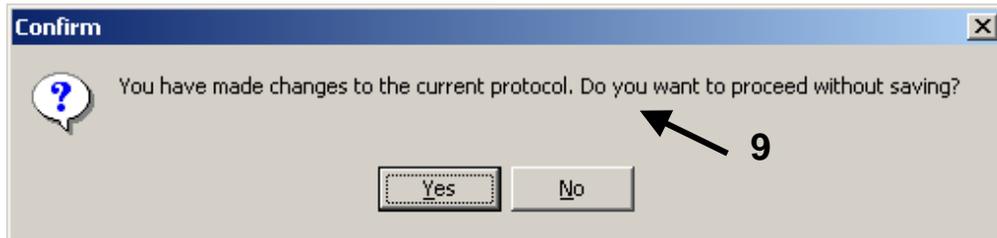


Figure 103. Protocol Edit Confirmation Prompt

Creating a New Protocol

Creating a new protocol is similar to editing an existing protocol except that the protocol has no name or number until you give it one by saving it using the **Save As** button.

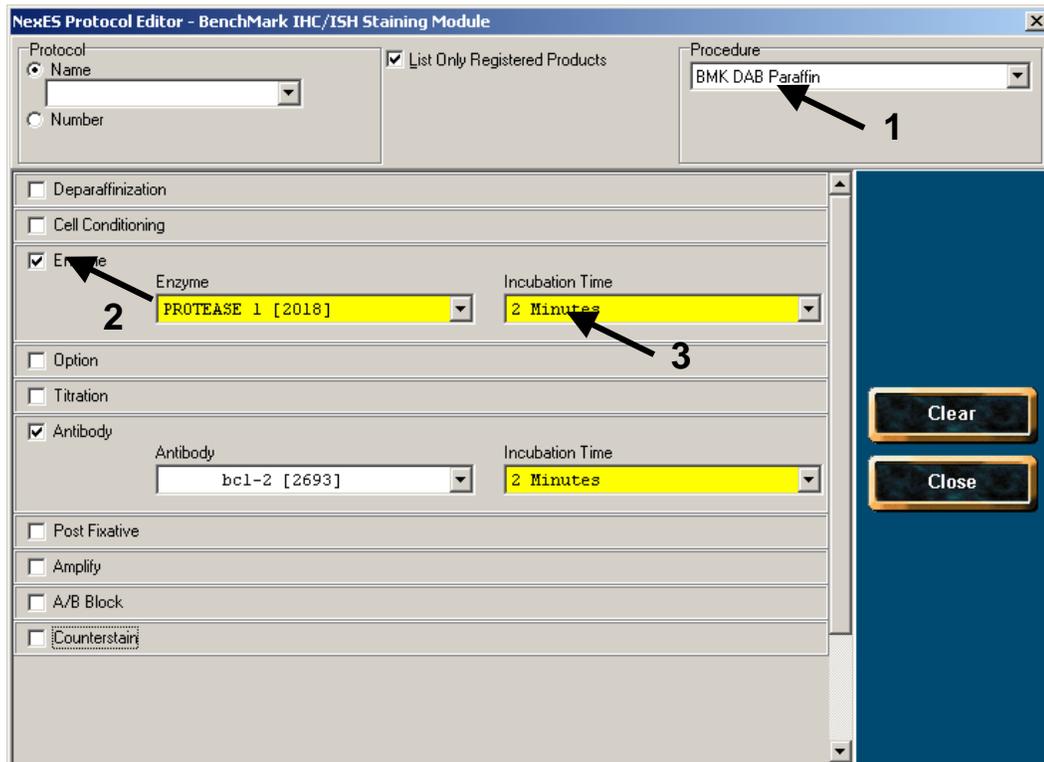


Figure 104. Creating a New Protocol

1. From the Procedure drop-down menu at the upper right corner, select the procedure on which the protocol is based.
2. To open a protocol option, click the check box.
 - The option will open for you to edit.
3. A yellow field indicates that you must make a selection to modify or confirm the data, even if you leave them unchanged.
 - Click the text to leave an item unchanged and change the yellow color to white.
 - All yellow fields must be changed to white in order for the **Save As** button to appear.
 - To make a change, select it from the list by clicking the arrowhead at the right of the field.
 - You can make as many changes as you desire, checking additional options or removing the check marks if you change your mind.

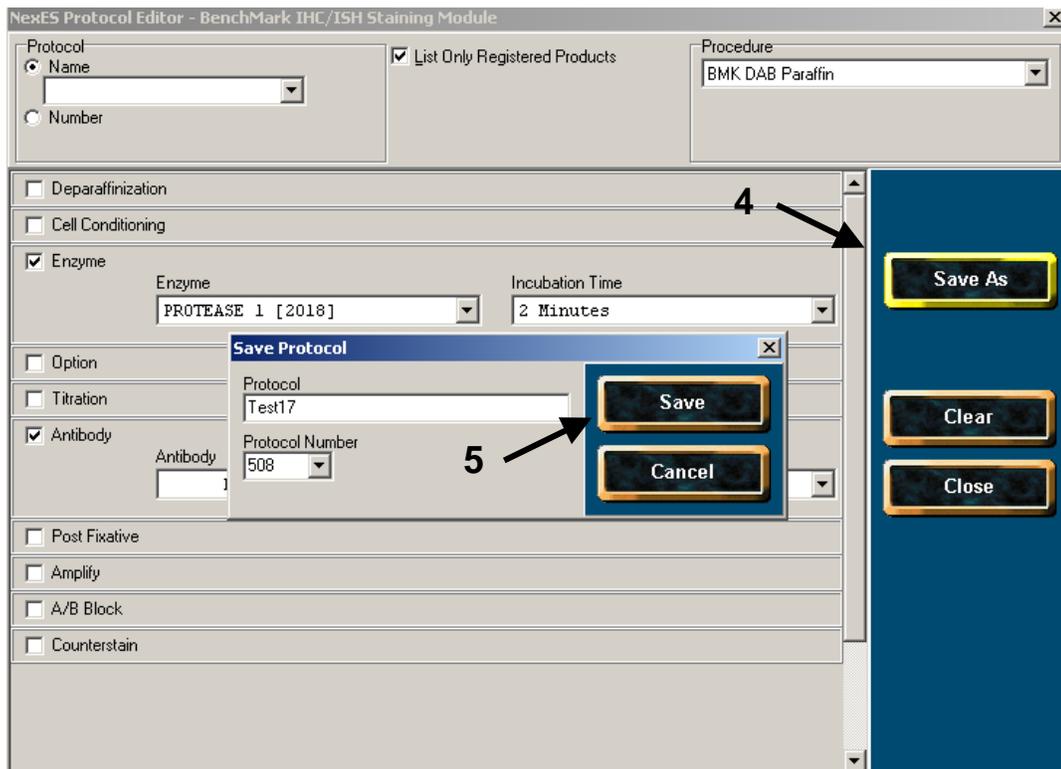


Figure 105. Save Protocol

4. Click the **Save As** button to store the new protocol under a new name and protocol number.
 - You can now enter a name and number for your new protocol.
 - The name you type will appear in the protocol list so you can recall it for editing later on.
 - You can choose any name you wish for the new protocol.
 - The protocol number is used on the slide bar code label to identify the protocol you have just created.
 - § If a number has an asterisk (*) beside it, this means that the protocol number is currently in use.
 - § When you re-use a protocol number (with an asterisk), the edits you have made completely replace any previous protocol with the same number, even if the names are different.

§ You can re-use the protocol number when editing an existing protocol, but choose an unused number when creating a new protocol.

5. After entering the protocol name and protocol number, click **Save**.
 - If the protocol number or name you have chosen will cause a protocol (including the current one) to be over-written, a message appears and you are asked to confirm your actual intent.

Automating Your ISH Protocol

This section is for assisting you in creating automated ISH protocols on the BenchMark XT instrument. The material herein is based on VENTANA's INFORM Probes *i*VIEW Blue procedure. The software allows you to customize the INFORM Probes *i*VIEW Blue procedure and save it as your own ISH protocol. Information on how to use the Protocol Editor can be found at the beginning of the "Automating Your IHC Protocol" section.

General Information

The enzyme activity may differ on BenchMark XT compared to a manual procedure due to mixing and optimized bulk solutions.

Bulk Solutions

ISH protocols such as The CMV, EBV, Kappa, Lambda, HER-2/neu, and HPV products require the following bulk solutions in the protocols.

- EZ Prep.
- LCS.
- 2XSSC.
- Reaction Buffer.

See the "Bulk Fluids" section in this manual for instructions on preparation of these fluids.

- CC2 is used for HPV III.

Slide Volume

For the Counterstain step, the dilution of reagent dispensed onto the slide is one part to three parts (four parts total).

Dispensers deliver 100 µl per dispense.

Deleting a Protocol

To delete a protocol, click the **Protocols** button and select **Manage Protocols** from the menu. Select the protocol name and number you wish to delete from the Manage Protocols list and click the **Delete** button. You will be asked to confirm before the deletion is final.



Figure 106. Selecting Manage Protocols

To delete a protocol:

1. Click the **Protocols** button.
2. Select **Manage Protocols** from the menu to display the Manage Protocols screen shown below
3. Select protocols by doing one of the following:
 - Selecting a single protocol with the mouse.

- Clicking the Select All button to select all protocols.
- Selecting multiple protocols with the Ctrl key and mouse, or the Shift key and arrow keys.
- Selecting protocols you do NOT wish to delete, then clicking the Invert Selection button to delete all unselected protocols.

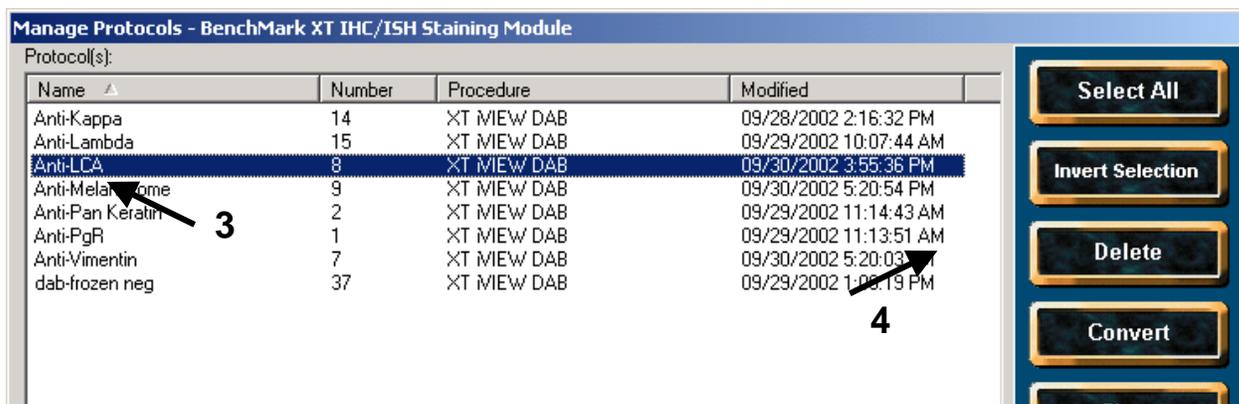


Figure 107. Deleting a Protocol

4. Click the **Delete** button.
 - You will be asked to confirm before the deletion is final.

Converting a Protocol

As Ventana upgrades its products, your laboratory may need to upgrade its existing protocols and procedures. Previously, this had to be done manually, one procedure at a time. The Convert feature automates this process.

To convert a protocol:

1. Click the **Protocols** button.
2. Select **Manage Protocols** from the menu to display the Manage Protocols screen shown below.

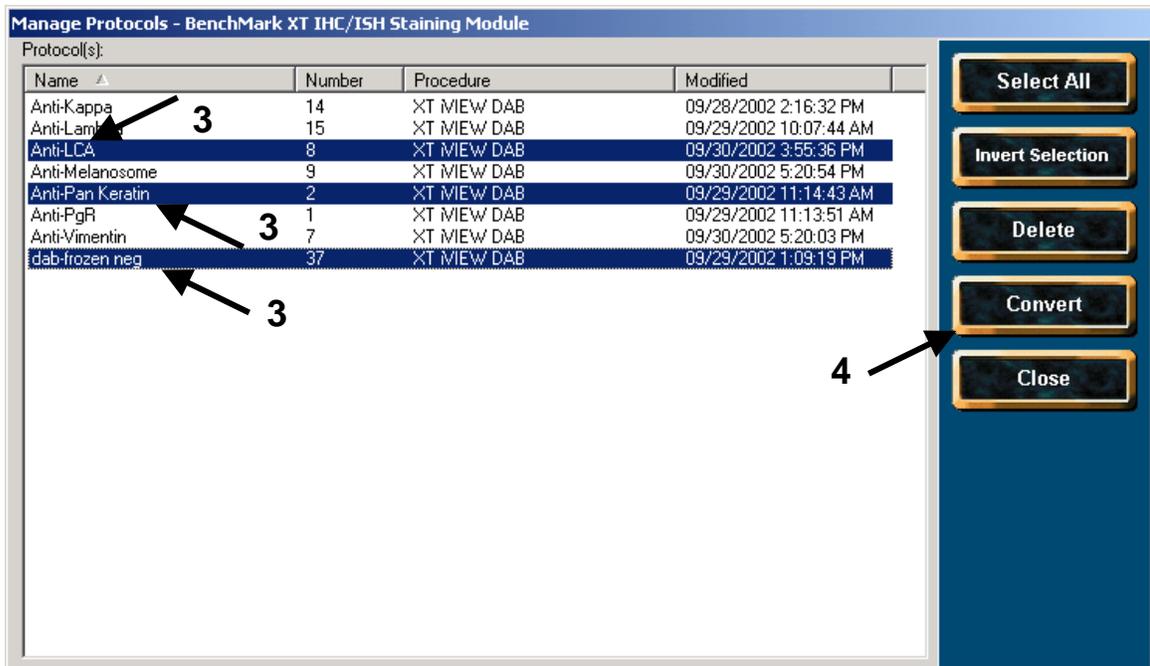


Figure 108. Selecting Protocols for Conversion

3. Select protocols you wish to convert by doing one of the following:
 - Clicking the Procedures column header to sort the procedure names so that like names are grouped together.
 - Selecting a single protocol with the mouse.
 - Clicking the Select All button to select all protocols.
 - Selecting multiple protocols with the Ctrl key and mouse, or the Shift key and arrow keys.
 - Selecting protocols you do NOT wish to convert, then clicking the Invert Selection button to convert all unselected protocols.
4. Click the Convert button to display the Convert box shown below.

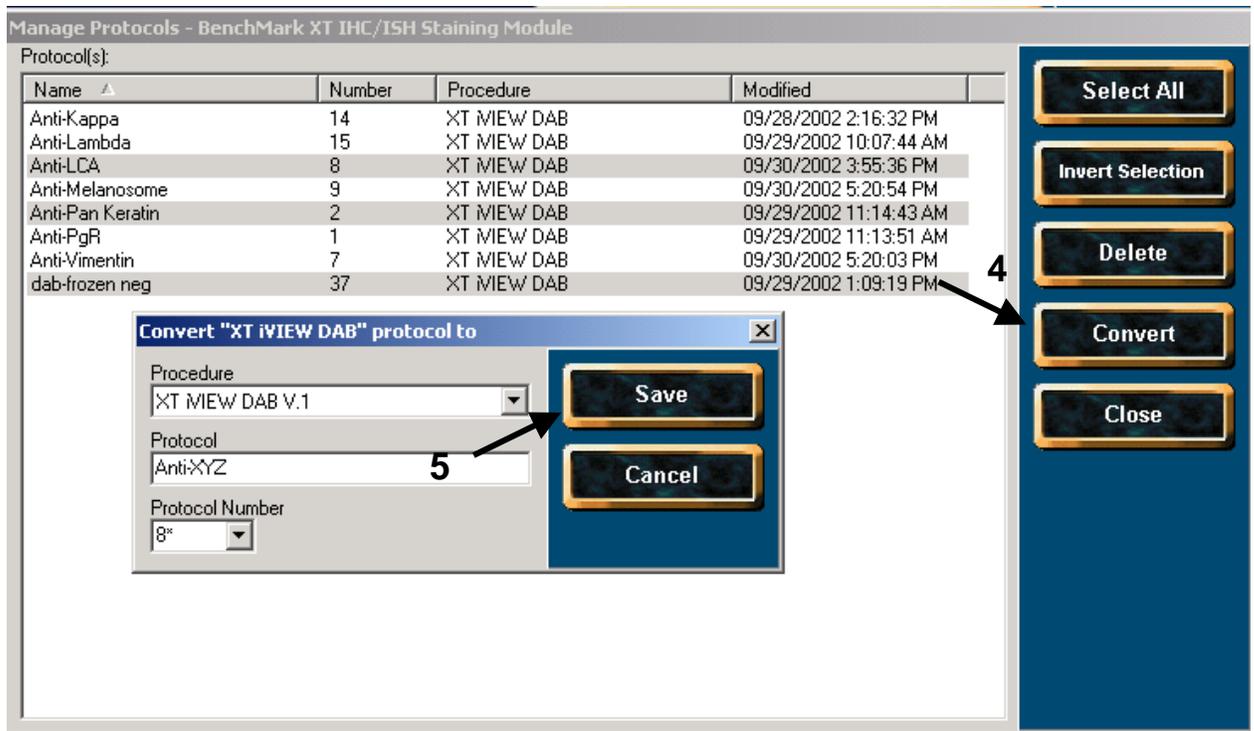


Figure 109. Converting Protocols

5. Click the **Save** button to replace the existing procedure with the new procedure and to display the Confirm box shown below.
 - To maintain the existing protocol and create a new one, type in a new protocol number and name that does not already exist.
 - To replace the existing protocol with the new one, create the new protocol, then delete the old one.

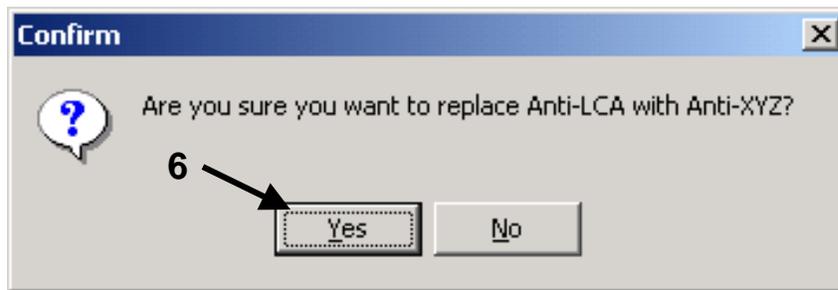


Figure 110. Confirming Protocol Conversion

6. Click Yes to confirm protocol conversion.
 - You will be prompted to confirm conversion for each protocol that you selected.

Titration

One of the protocol editing options is Titration, which can be performed for antibodies on BenchMark XT and BenchMark LT.

- This permits you to manually pipette antibodies with different dilutions onto slides during a run.
- The run will stop and a message will notify you when the pipetting step needs to be performed.
 - “ Note that a titration protocol cannot be run along with non-titration protocols at the same time.
 - “ The reference manual discusses titration procedures in detail.

Reviewing the Steps in a Protocol

You can print or view the details of a standard protocol or one you have created yourself in several ways. A Protocol Summary report showing the protocol steps is illustrated below.

Procedure: XT iVIEW DAB V.1 (Protocol Summary)
BenchMark XT IHC/ISH Staining Module
Ventana Medical Systems, 1910 Innovation Park Drive Tucson, AZ 85737

Protocol No	Protocol Name	Creation Date
7	Anti-Vimentin	01/09/2004

- 1 Paraffin [Selected]
- 2 Deparaffinization [Selected]
- 3 Cell Conditioning [Selected]
- 4 Ab Incubation Temperatures [Selected]
- 5 37 C Ab Inc. [Selected]
- 6 Antibody [Selected]
- 7 Apply One Drop of [ANTI-VIMENTIN] (Antibody), and Incubate for [0 Hr 4 Min]
- 8 Counterstain [Selected]
- 9 Apply One Drop of [HEMATOXYLIN] (Counterstain), Apply Coverslip, and Incubate for [4 Minutes]
- 10 Post Counterstain [Selected]
- 11 Apply One Drop of [BLUING REAGENT] (Post Counterstain), Apply Coverslip, and Incubate for [4 Minutes]

Page: 1

Figure 111. Protocol Summary Report

A Protocol Full Procedure report shows the whole procedure and protocol as illustrated below.

Print Preview

121 % | 1 | Close

Protocol # 7 : Anti-Vimentin (01/09/2004)
Procedure: XT IVIEW DAB V.1
BenchMark XT IHC/ISH Staining Module
Ventana Medical Systems, 1910 Innovation Park Drive Tucson, AZ 85737

Step No	Procedure Step
1	***** Select EZ Prep *****
2	***** Start Timed Steps *****
3	***** Mixers Off *****
4	Warmup Slide to 75 Deg C, and Incubate for 4 Minutes
5	Apply EZPrep Volume Adjust
6	Rinse Slide
7	Apply EZPrep Volume Adjust
8	Rinse Slide
9	Apply EZPrep Volume Adjust
10	Apply Coverslip
11	Warmup Slide to 76 Deg C, and Incubate for 4 Minutes
12	Rinse Slide
13	Apply Deapar Volume Adjust
14	Apply Coverslip
15	Disable Slide Heater
16	***** Mixers On *****
17	Disable Slide Heater
18	***** Select SSC Wash *****
19	Disable Slide Heater
20	Incubate for 8 Minutes
21	Rinse Slide
22	Adjust Slide Volume
23	Apply Coverslip
24	Rinse Slide With Reaction Buffer
25	Adjust Slide Volume With Reaction Buffer
26	Apply Coverslip
27	Warmup Slide to 37 Deg C, and Incubate for 4 Minutes
28	Rinse Slide With Reaction Buffer
29	Adjust Slide Volume With Reaction Buffer
30	Apply One Drop of I-VIEW INHIBITOR, Apply Coverslip, and Incubate for 4 Minutes
31	Rinse Slide With Reaction Buffer
32	Adjust Slide Volume With Reaction Buffer
33	Apply Coverslip
34	Warmup Slide to 37 Deg C, and Incubate for 4 Minutes
35	Rinse Slide With Reaction Buffer
36	Adjust Slide Volume With Reaction Buffer
37	Apply Coverslip

* one drop is one reagent dispense
Ventana Medical Systems, 1910 Innovation Park Drive Tucson, AZ 85737
NexES v9.10

Printed 01/09/2004 10:24:42 AM
Page 1 of 2

Page: 1

Figure 112. Protocol Full Procedure Report

Creating a Protocol Report

The protocol report screen can be accessed from either the **Print** button on the main screen or by using the protocol editor's **Print** button.

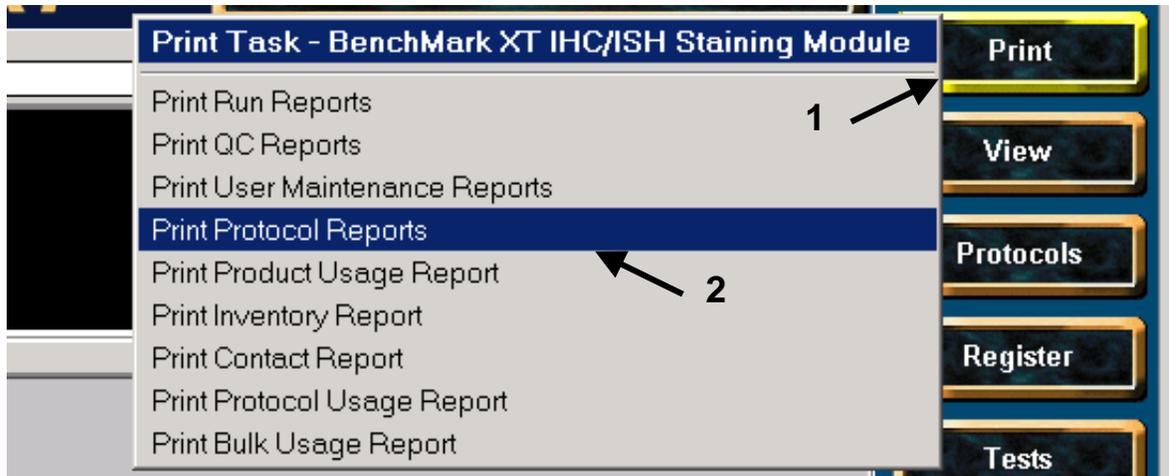


Figure 113. Selecting Print Protocol Reports

To create a protocol report:

1. Click the **Print** button.
2. Select Print Protocol Reports from the menu to display the Print Protocol Report screen shown in the next section.

Printing a Protocol Report

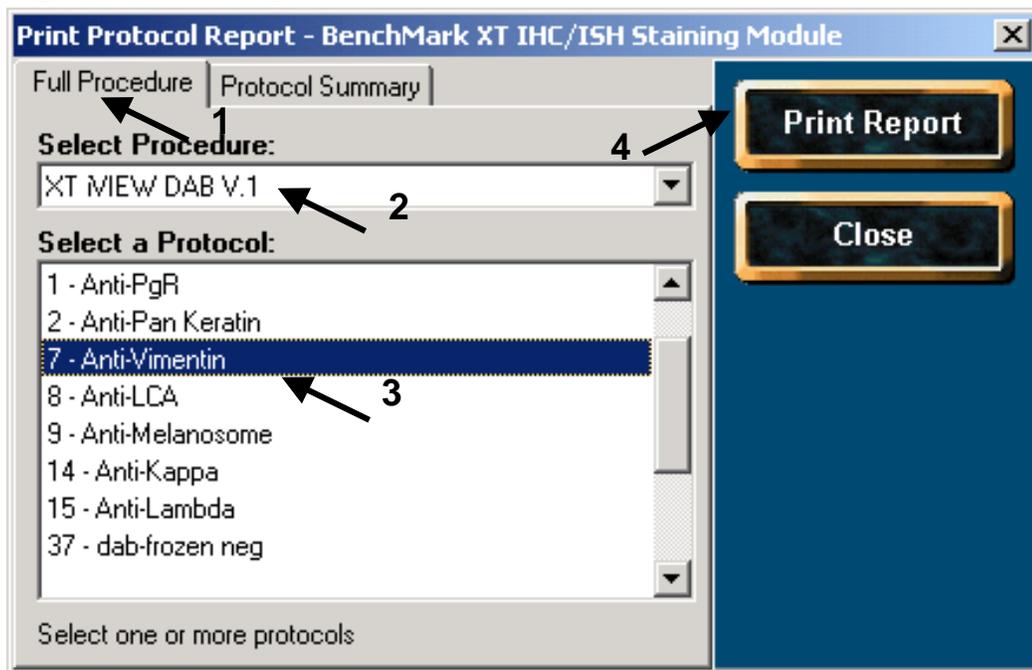


Figure 114. Full Procedure Tab

1. Select the Full Procedure tab or the Protocol Summary tab.
 - Selecting the **Full Procedure** tab will let you print all steps in a single protocol.
 - To select multiple Full Procedures, hold down the Ctrl key while you select the protocols.
 - Selecting the **Protocol Summary** tab will let you print a summary of one or more protocols.
 - To print a summary of more than one protocol, hold down the Ctrl key while you select the protocols.
2. Select the procedure.
3. Select the protocol or protocols.
 - If no protocols exist for the selected procedure, a message indicating that will appear in the Select a Protocol window, and the **Print Report** button will not be present.
4. Click Print Report.
 - All reports are first displayed on the Print Preview screen.
 - You do not have to print the report on paper, but may do so by clicking the printer icon in the upper left corner of the screen.

Viewing a Protocol

You can view a protocol's steps without printing a report.

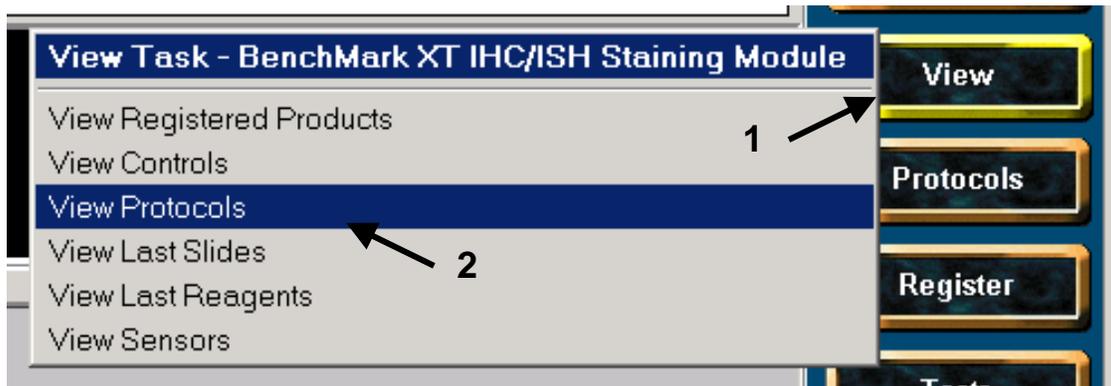


Figure 115. Selecting View Protocols

To view a protocol:

1. Click the **View** button.
2. Select View Protocols from the menu to display the View Protocols screen shown below.

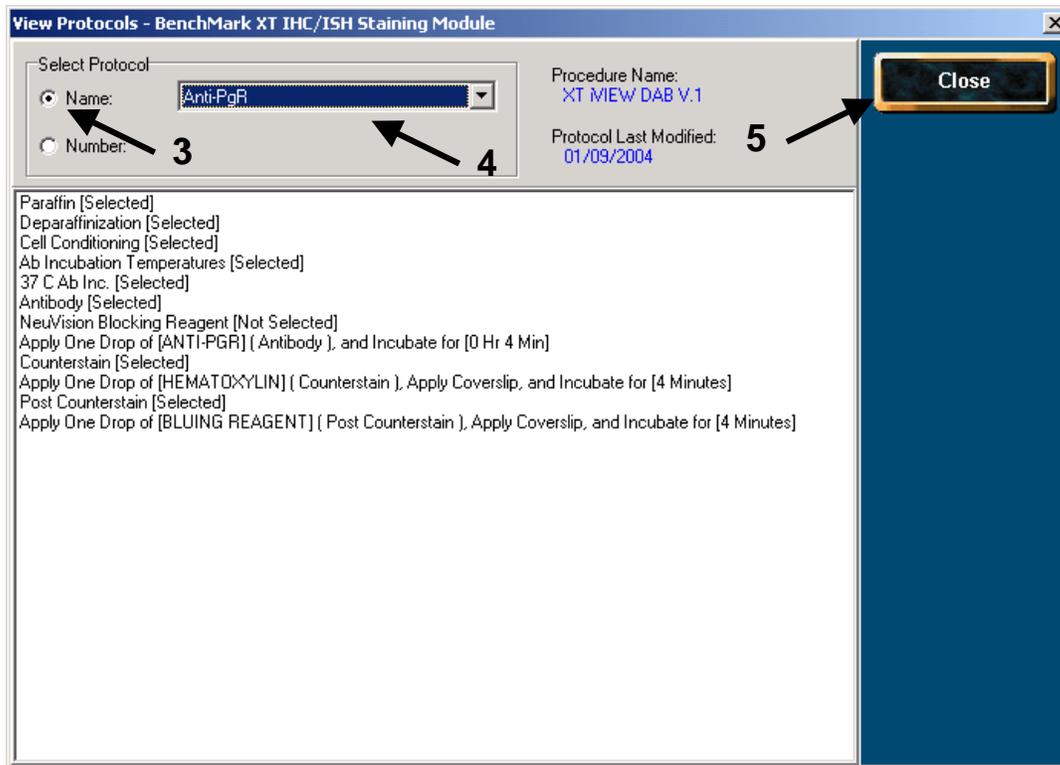


Figure 116. View Protocols

3. Click the **Name** button if you want to view the protocol by its name or click the **Number** button if you want to view the protocol by its number.
4. Select the name or number from the dropdown list box.
5. Click **Close** to return to the main screen.

Printing a Protocol Usage Report

The Protocol Usage Report tells you how many slides have been run using a particular protocol for a defined period.

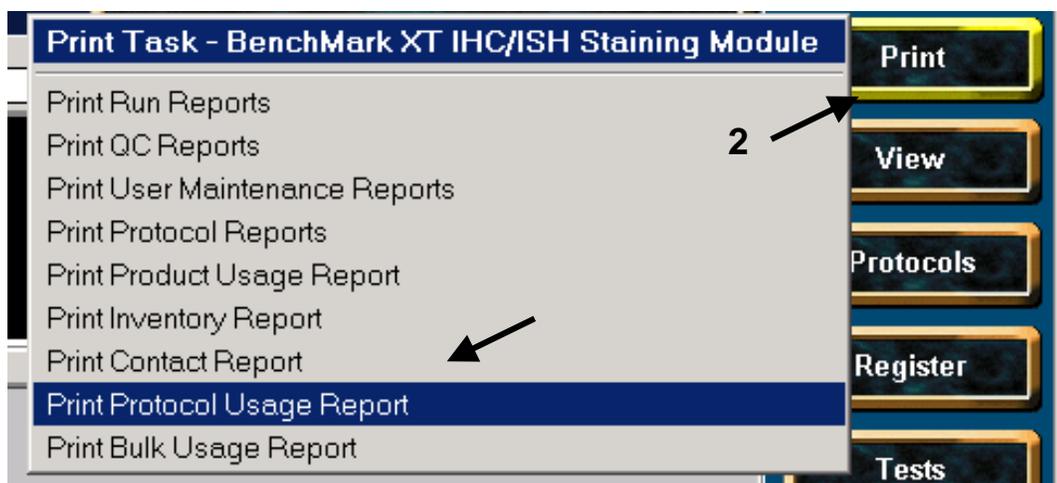


Figure 117. Selecting Print Protocol Usage Report

To print a Protocol Usage Report:

1. Select the staining module at the top of the main screen.
2. Click the Print button.
3. Select **Print Protocol Usage Report** from the list to display the Protocol Usage Report screen below, from which you can print protocol usage data.

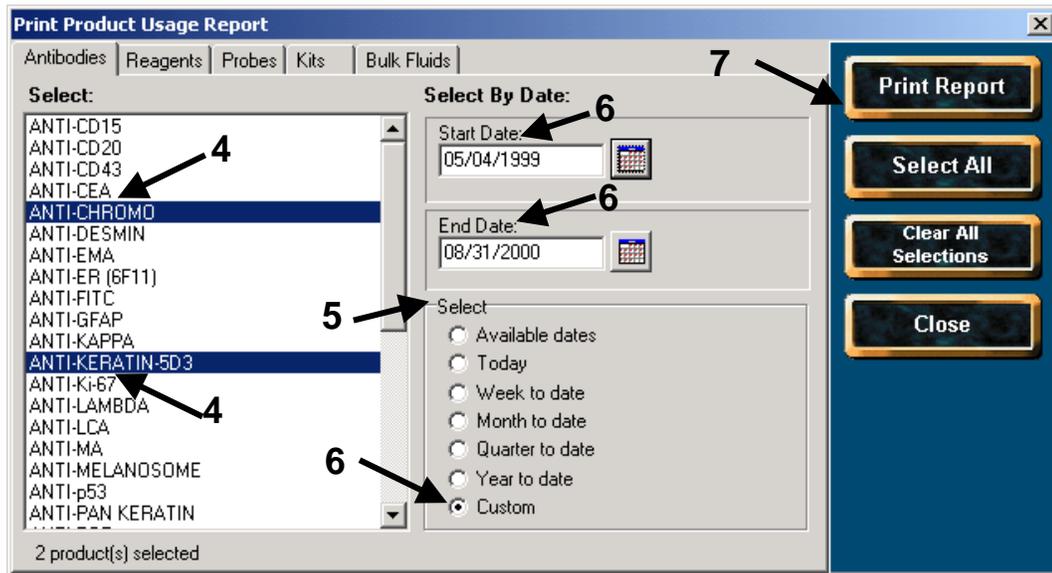


Figure 118. Protocol Usage Report

4. Select the protocol or protocols for which you want usage data.
5. You can select one of the following predefined date ranges:
 - **Available dates**—Displays data for usage of the protocol for all dates that the protocol was used.
 - **Today**—Displays data for usage of the protocol for today only.
 - **Week to date**—Displays data for usage of the protocol from the beginning of this week (week is Sunday through Saturday).
 - **Month to date**—Displays data for usage of the protocol from the beginning of this month.
 - **Quarter to date**—Displays data for usage of the protocol from the beginning of this quarter.
 - **Year to date**—Displays data for usage of the protocol from the beginning of this year.
6. As an alternative, you can select Custom and then type in the Start Date and End Date, or click the calendar icon in either field to display the Select Date box.
 - The Select Date box will display a calendar for selecting the Start Date or End Date.
 - Select the Start Date or End Date.
 - Click **OK**.



Figure 119. Select Date Box

7. Click Print Report to display the Protocol Usage Report for the date range.
 - Click the printer icon to print the report.

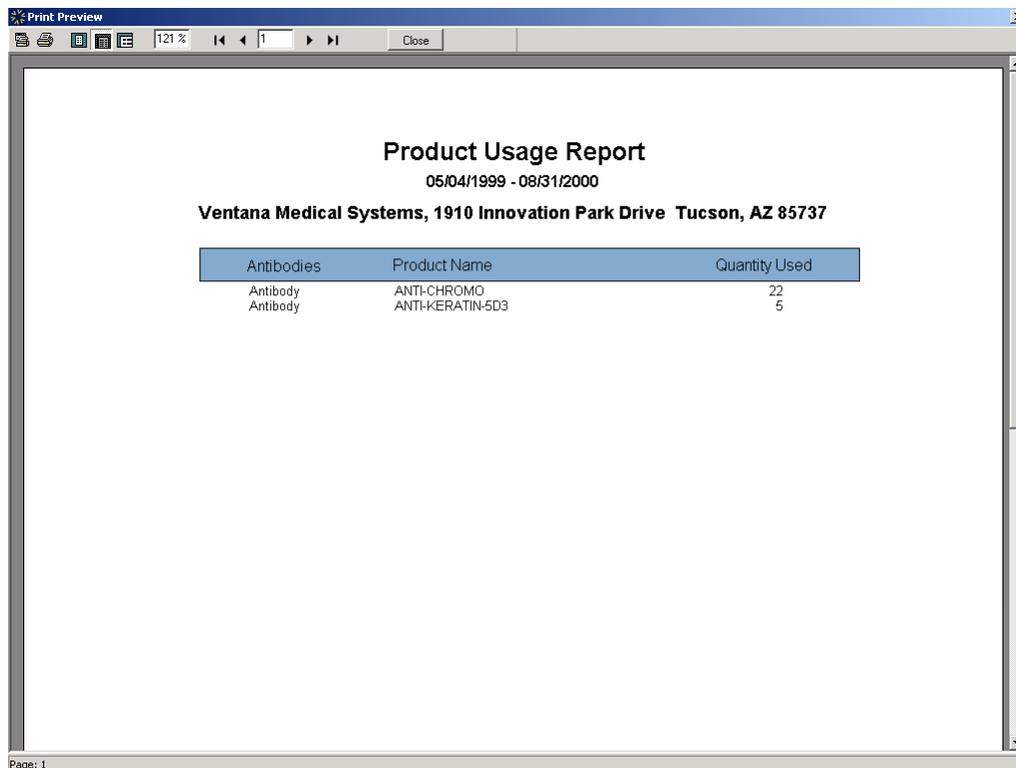


Figure 120. Printed Protocol Usage Report

8.0 NAMES AND PASSWORDS

NexES software implements an optional system of operator names and passwords.

- Each operator of the system can be named and assigned one or two passwords.
 - The passwords control access to various system functions and reports.
 - The names provide a means of tracking who has signed off on various procedures and error conditions.
- You can use names and passwords, names only, or neither.
 - However, you cannot use passwords without names.
- The software is shipped with password checking disabled.

Login and Sign-Off Passwords and Name

Two passwords, for login and sign-off, can be assigned to each operator.

- For a given operator, the passwords can be the same or different, and each is optional.

A login password or name restricts access to various software screens and reports.

- Privileges are discussed later in this section.



Figure 121. Login Password

When password checking is enabled, the form above will appear whenever an operator tries to access a password protected feature of the program after the time limit has expired. (See the “Login Timeout” section for definitions of time limits.)

The name must always be entered, but the password is optional.

- When you type a password, NexES substitutes an asterisk (*) for each keystroke, instead of the letters you enter.
 - This way, someone looking over your shoulder will not learn your password.
- Click Continue after filling in the required information.

When password checking is enabled, some menu items will simply not be displayed to users not authorized to access them.

A Sign Off password, if used, must be entered before an operator can “sign off” an error condition after a staining run has actually started.

- The password and name are also used (if enabled) when approving quality control results.
 - See the “When Something Goes Wrong” section for a discussion of errors and signing off.



Figure 122. Sign Off Password

- The example above is a signoff by “Jim,” who has also entered a password.
 - If a password has not been defined for “Jim,” then he can enter just his name and click Continue.

Using Names without Passwords

As previously mentioned, names can be used without passwords.

- This provides a method of tracking who has signed off on certain conditions and tests, without the extra effort of entering passwords.
 - Of course, there is no security, since anyone can type in a name.
- This suggests a rule:
 - If you use a password for any operator, you should give passwords to all operators.
 - Because, if one operator can access the system by name only, then anyone else who knows the name will have the same access.

Administrator

There is a default account called “ADMINISTRATOR.”

- Only this account can disable password checking, once enabled.
- The ADMINISTRATOR account cannot be deleted and will always have full privileges no matter what you try.
- Only this account can only edit templates in SLS.

About Privileges

The list of password protected privileges is shown below.

1. Staining Run.
2. Print Run Reports.
3. Print QC Reports.
4. Print Maintenance Reports.
5. Print Protocol Reports.
6. Print Product Usage Report.
7. Print Inventory Report.
8. Print Contact Report.
9. Print Protocol Usage Report.
10. View Registered Products.
11. View Controls.
12. View Protocols.

13. View Last Slides.
14. View Last Reagents.
15. View Sensors.
16. Create/Edit Protocol.
17. Delete Protocol.
18. Register Ventana Products.
19. Log Bulk Products.
20. Log Fillable Probes.
21. Log Fillable Antibodies.
22. Log Fillable Reagents.
23. Log Control Tissue.
24. Log Cases.
25. Fill Ventana Dispenser.
26. Associate Bulk Products.
27. Enter Control Results.
28. Function Tests.
29. Service Tests.
30. Setup Users.
31. Setup Staining Modules.
32. Setup Host.
33. Staining Module Code Download.
34. Activate Protected Procedures.
35. Preventive Maintenance.
36. Archive NexES System Data.
37. About NexES.

The Most Important Privileges

If you decide to use passwords, the most important privileges are Setup Users and Setup Host.

- Anyone authorized to enter these two screens can easily grant himself access to any function previously denied.
- They can even change the passwords and names of other users.

Thus, these two privileges should be granted only to trusted operators and denied to everyone else.

Only the ADMINISTRATOR can turn off password checking.

Entering and Changing Names and Passwords

After passwords have been enabled, the following must be done by someone with the privilege to set up users. However, if you have just received the system, passwords will be disabled and anyone can do the steps below.

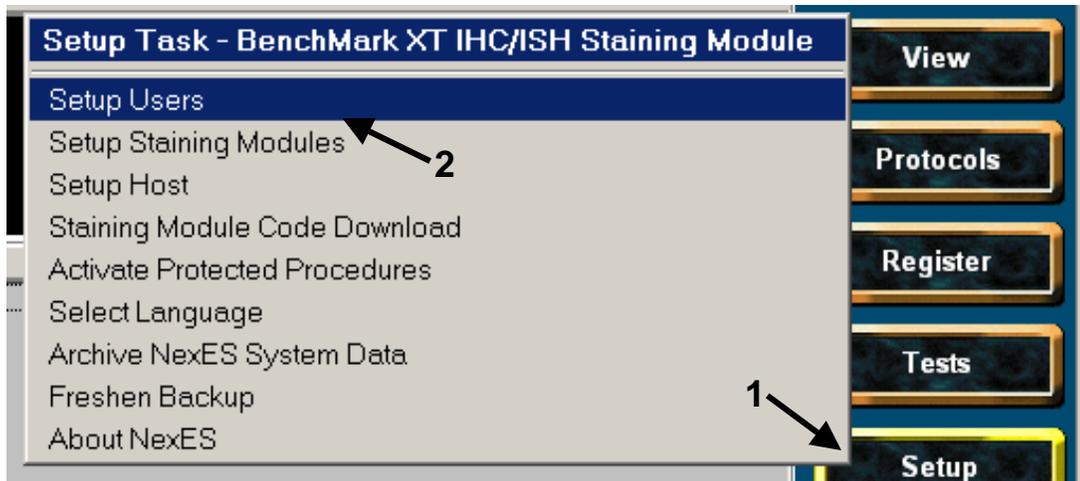


Figure 123. Selecting Setup Users

To add a user:

1. Click the Setup button.
2. From the menu, select Setup Users to display the Set Up Users screen shown below.

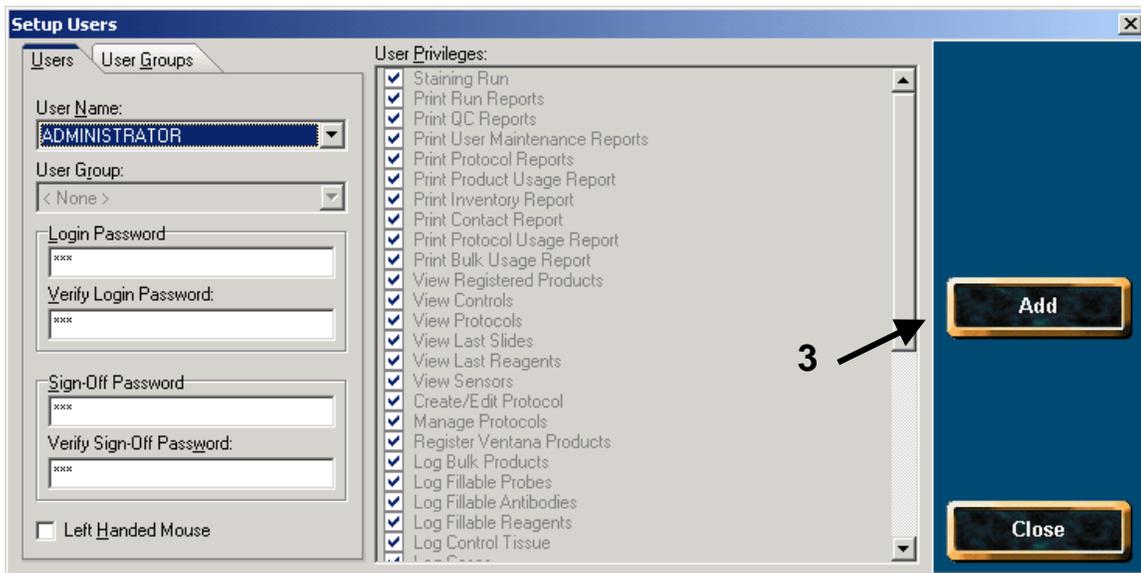


Figure 124. Setup Users Screen

3. Click Add to make space for a new user.
4. Fill in the User Name and Passwords.
5. Click the Set All button to check (enable) all user privileges.
6. Click the check boxes to enable or disable privileges.
7. Click the Save button and answer Yes when asked to confirm the save.
8. Click the Close button to leave the screen when all operator names, passwords and privileges have been entered and saved.

To Remove a User

Referring to the preceding figure:

1. Select the user's operator's name from the User Name drop-down list.
2. Then click the Delete button.
 - The Confirm box shown below will be displayed.

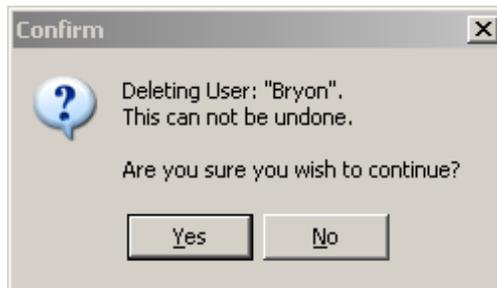


Figure 125. Confirm Box

- If you click Yes, both the user operator and password are gone forever from the list, but any signoffs recorded with the name remain in the database, intact and unchanged.
- However, be aware that:
 - § You cannot delete yourself.
 - § Administrator privileges cannot be changed.
 - § The Administrator cannot be deleted.

Disabling or Enabling Passwords

Passwords are effective only if they have been enabled. (The capability to use passwords is enabled before the instrument leaves the factory.) Once enabled, passwords cannot be disabled except by the Administrator. The Setup Host screen contains, among other things, a Security tab with a field for disabling all passwords. You can toggle this field to enable or disable all passwords.

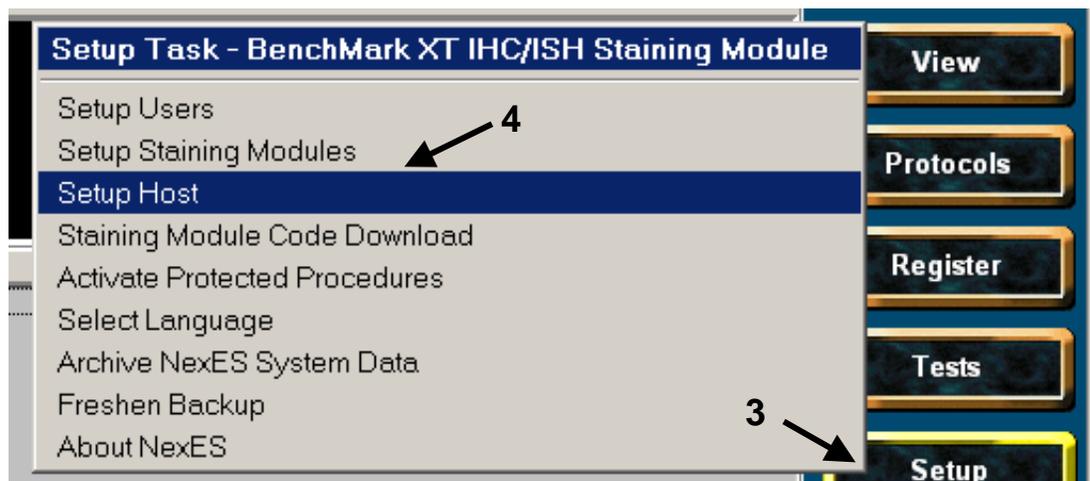


Figure 126. Selecting Setup Host

To enable or disable all passwords:

1. Log in to NexES with the name ADMINISTRATOR.
 - If you are currently logged in with another name, click on the green Lock icon at the bottom of the Main screen and the system will log you out, closing the Lock icon and turning it red.
 - Then click on the red Lock icon to get the Login Password screen.
2. Once you are logged on, the lock icon will turn green.
3. Click the Setup button.
4. From the menu, select Setup Host to display the Setup Host screen shown below.

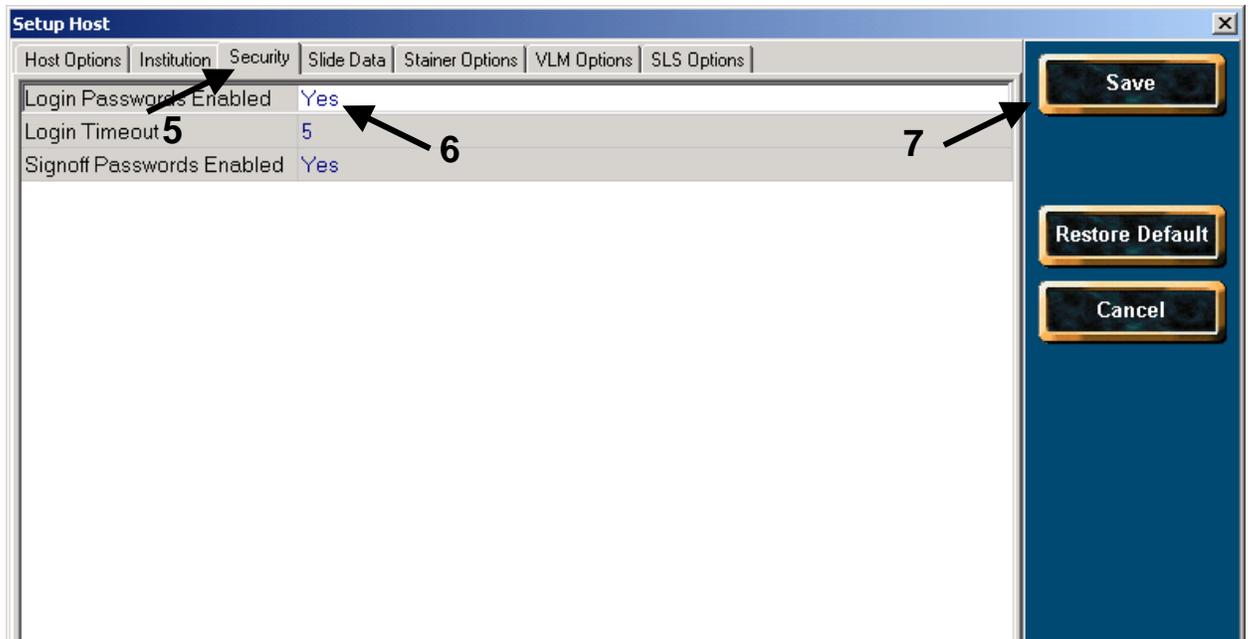


Figure 127. Passwords Enabled Field

5. Click the Security tab.
6. Click the Passwords Enabled field to change its setting and to display the Save button.
7. Click Save to save your entries (or Close if you change your mind).
 - You can click Restore Default to return the setting to its default Yes setting.
 - If you wish to be temporarily logged off during a short absence, you can click the lock icon, which will then turn red.
 - Any user action will then re-display the login screen.



Figure 128. Lock Icon

Login Timeout

When passwords have been enabled and there has been no activity at the NexES main screen for a specified length of time, the system will log the user out.

- The length of time before Login Timeout can be changed.
- The default (factory setting) is five minutes.

To change the length of time before Login Timeout occurs:

1. Click the Setup button.
2. From the menu, select Setup Host to display the Setup Host screen shown below.

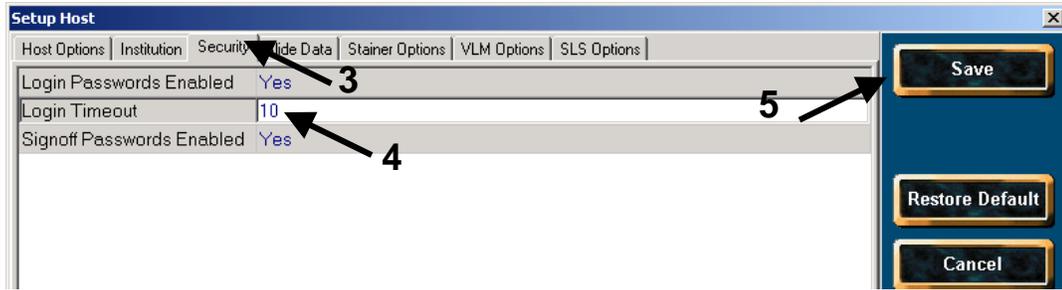


Figure 129. Login Timeout Field

3. Click the Security tab.
4. Click the Login Timeout field to highlight it, then type in the number of minutes (from 1 to 999) before Login Timeout should occur.
 - Changing this field will display the Save button.
5. Click Save to save your entries (or Close if you change your mind).
 - You can click Restore Default to return the setting to its default setting of five minutes.

INTENTIONALLY BLANK

9.0 SYSTEM SETUP AND MAINTENANCE

This section covers functions that are used to configure and customize the system. Scheduled preventive maintenance and software upgrading are also discussed.

Setup Staining Modules

NexES software can control one to eight staining modules.

- The setup routines enable you to specify how many staining modules are connected and to give each module a friendly name.

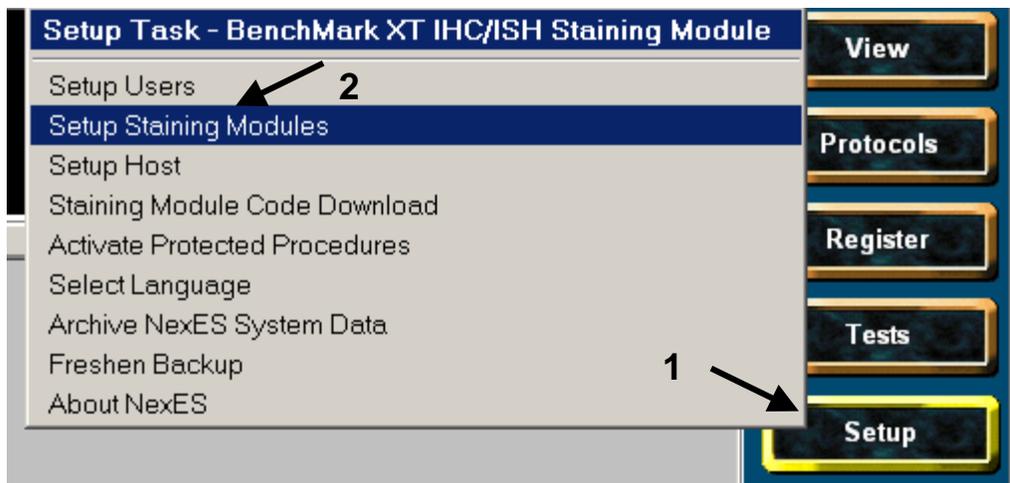


Figure 130. Selecting Setup Staining Modules

To set up the staining module:

1. Click the Setup button.
2. From the menu, select Setup Staining Modules to display the Setup Staining Modules screen shown below.

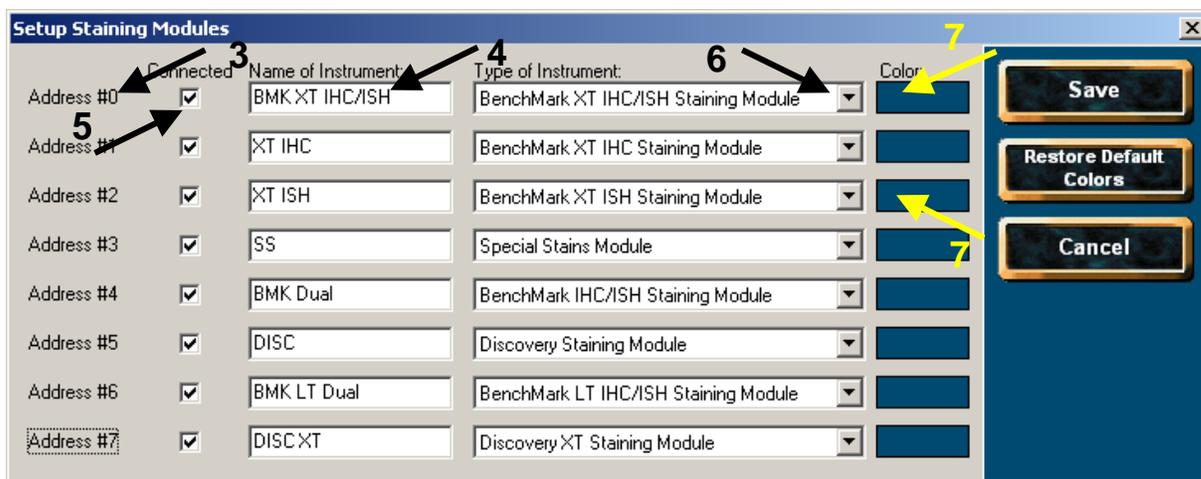


Figure 131. Setup Staining Modules Screen

3. Select an Address.
 - Each staining module has an address that is set by a switch within the staining module during installation.
 - “ Each address has a number between 0 and 7.
 - § The software communicates with a staining module by sending messages over the communications cable to this address.
4. Enter a name in the Name of Instrument field.
 - Each staining module can have a unique name that will appear in the corresponding field on the main screen.
 - “ The name will also appear in the headings of printed reports.
 - It is recommended that you refrain from changing the name of a module after you have begun to use it routinely.
 - “ Otherwise, you may encounter a long forgotten name in a report, which is not harmful, but may be confusing.
5. Click the Connected check mark ON if you have a staining module with the specified address.
 - You can name a module you do not yet have.
6. Click the arrow in the Type of Instrument field to open up a menu; then select the type of instrument: NexES IHC, Special Stains, Discovery, BenchMark XT, etc. from the menu.
7. If you have several instruments connected to the host computer, you can assign a different screen background color to each one.
 - Having a different background color for each instrument will help prevent inadvertent use of the wrong instrument.
 - “ Click the color bar of the instrument for which you wish to change the background color of the software screen.

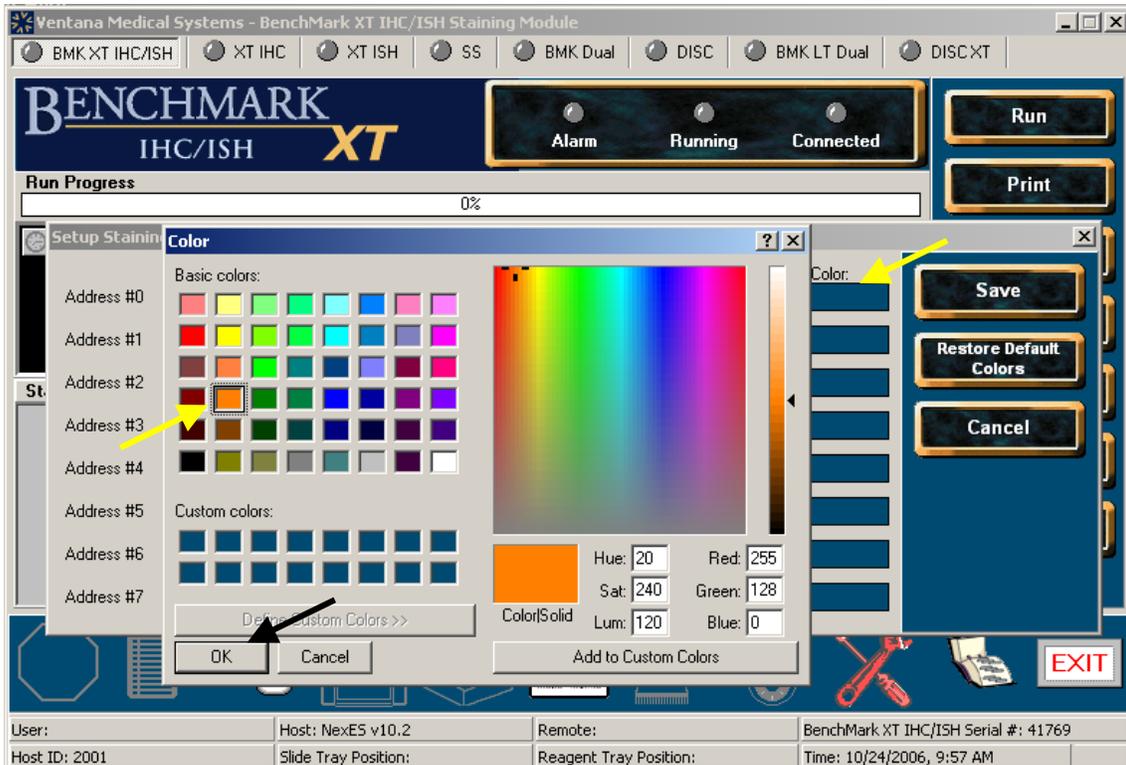


Figure 132. Changing Background Color

- § This will display the Color selection box.
- Click the color you want.
- Click OK to close the Color selection box, change the color bar and display the Save button.

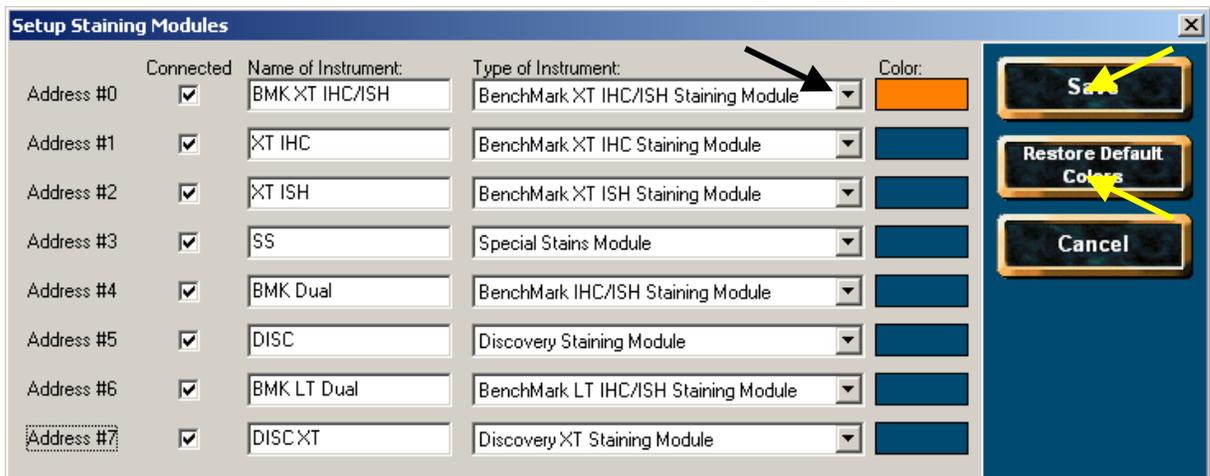


Figure 133. Background Color Changed

- You can click Restore Default Colors to restore the original background color to all instruments.

8. Click Save after naming and describing each instrument you will be using or click Cancel to end the session.
 - After you save or cancel the session, the Save button will disappear, the Cancel button will change to Close, and the new background color will appear as shown below.

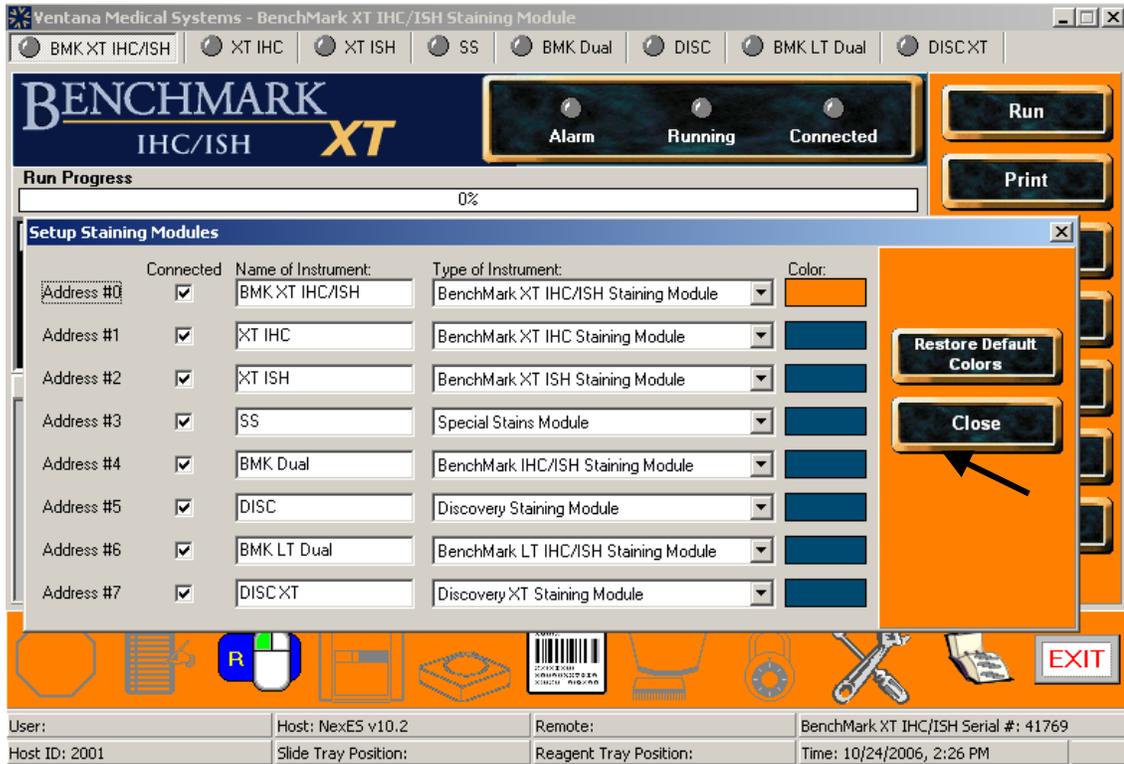


Figure 134. New Background Color

9. Click Close to accept the new background color and close the Setup Staining Modules screen.

Setup Host

The Setup Host selection allows you to enter or modify global settings for the NexES instruments in your system.

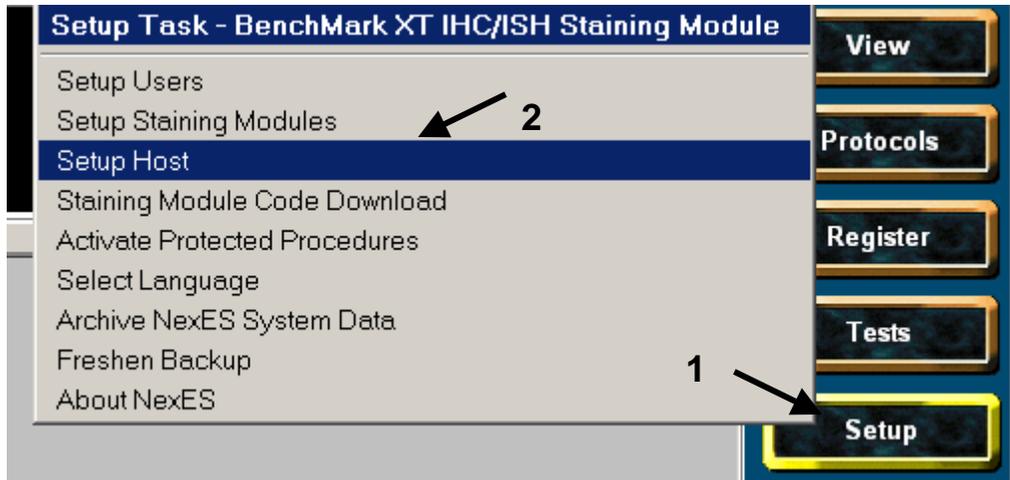


Figure 135. Selecting Setup Host

To change global settings:

1. Click the Setup button.
2. From the menu, select Setup Host to display the Setup Host screen shown below.

Host Options Tab

The Host Options tab gives you the ability to enable or disable context hints for any VENTANA staining instrument and bulk fluid tracking for BenchMark XT/LT Discovery instruments, along with several other features. To enable or disable these features:

1. Click the Host Options tab to display its fields.
2. Click a field to highlight it, then double-click its setting to toggle it from Yes to No or vice versa.
 - This will display the Save button.
 - In the example below, the Yes value will automatically check the List Only Registered Products box in the Protocol Editor screen.

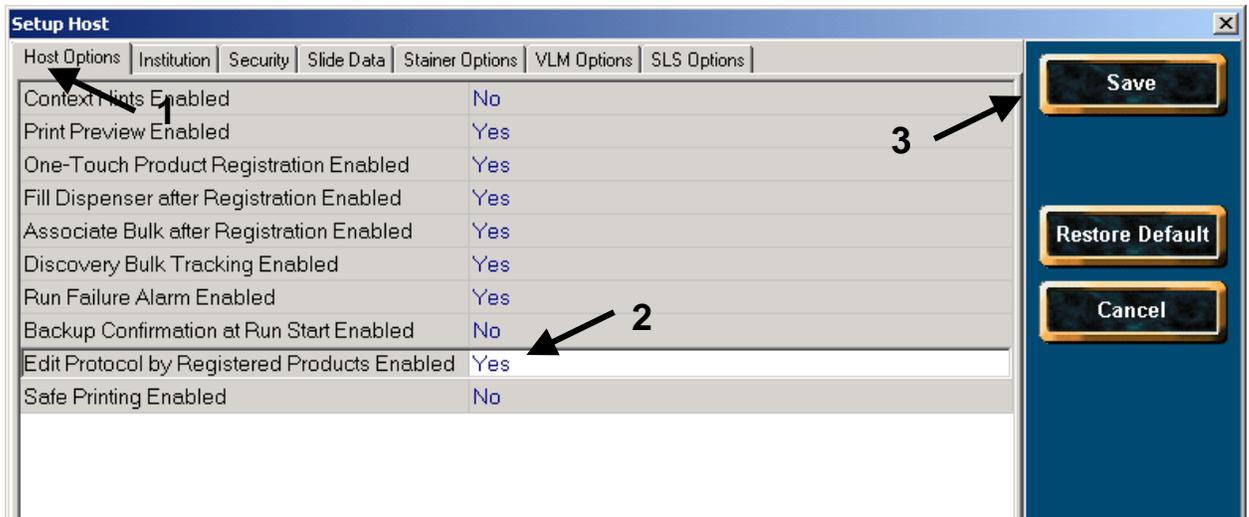


Figure 136. Selecting Host Options Tab

3. Click Save to save your entries (or Cancel if you change your mind).
 - You can click Restore Default to return the fields to their default settings.

Institution Tab

The Institution tab has three fields with information about the institution where the system is located. This information will be printed out on certain reports.

To change information in the Institution tab:

1. Click the Institution tab if it is not displaying its fields.
2. Click the Institution Name, Institution Location 1, or Institution Location 2 to highlight the field, then double-click and change the field's information as desired.
 - This will display the Save button.
 - The name and address information entered here is used in the headings of reports produced by the software.

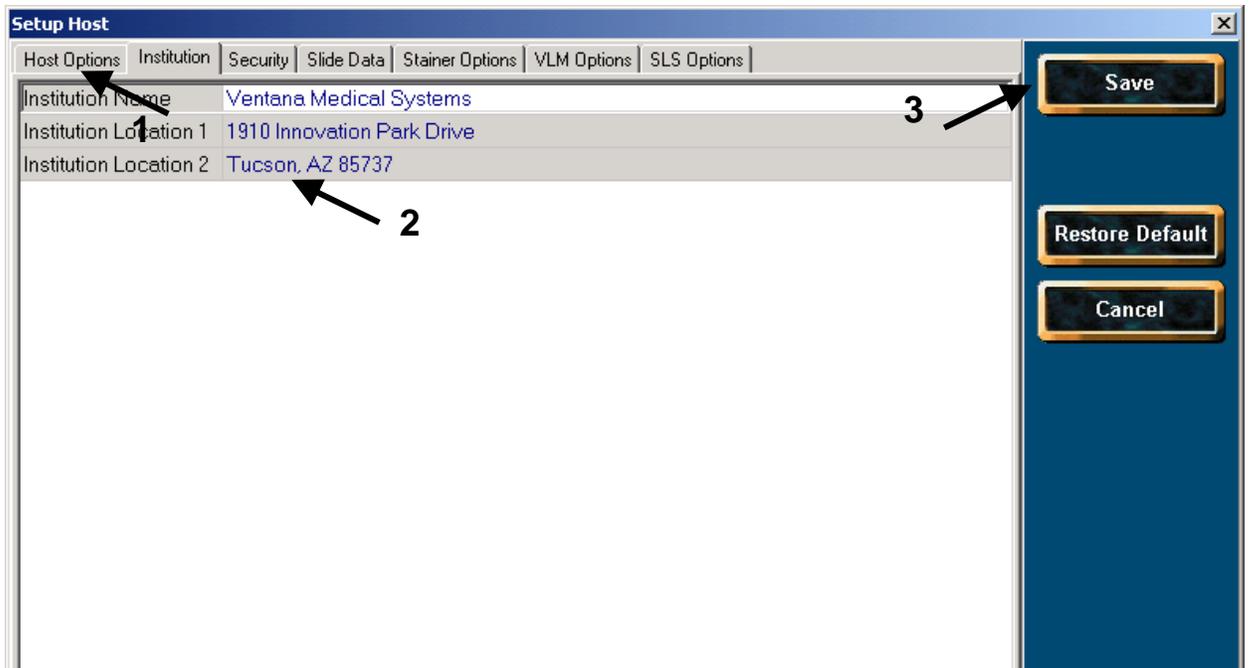


Figure 137. Selecting Institution Tab

3. Click Save to save your entries (or Close if you change your mind).
 - You can click Restore Default to return the fields to their default settings of blank fields.

Security Tab

The Security tab gives you the ability to enable or disable passwords and signoffs, and to change the login timeout (the length of the period of no activity before automatic logout). To change these features:

1. Click the Security tab to display its fields.
2. Double-click the setting in the Login Passwords Enabled field or the Signoff Passwords Enabled field to toggle it from Yes to No or vice versa.
 - This will display the Save button.
3. Click the Login Timeout field, then double-click and change the field's information as desired.
 - Press the Tab key or the Enter key to display the Save button.

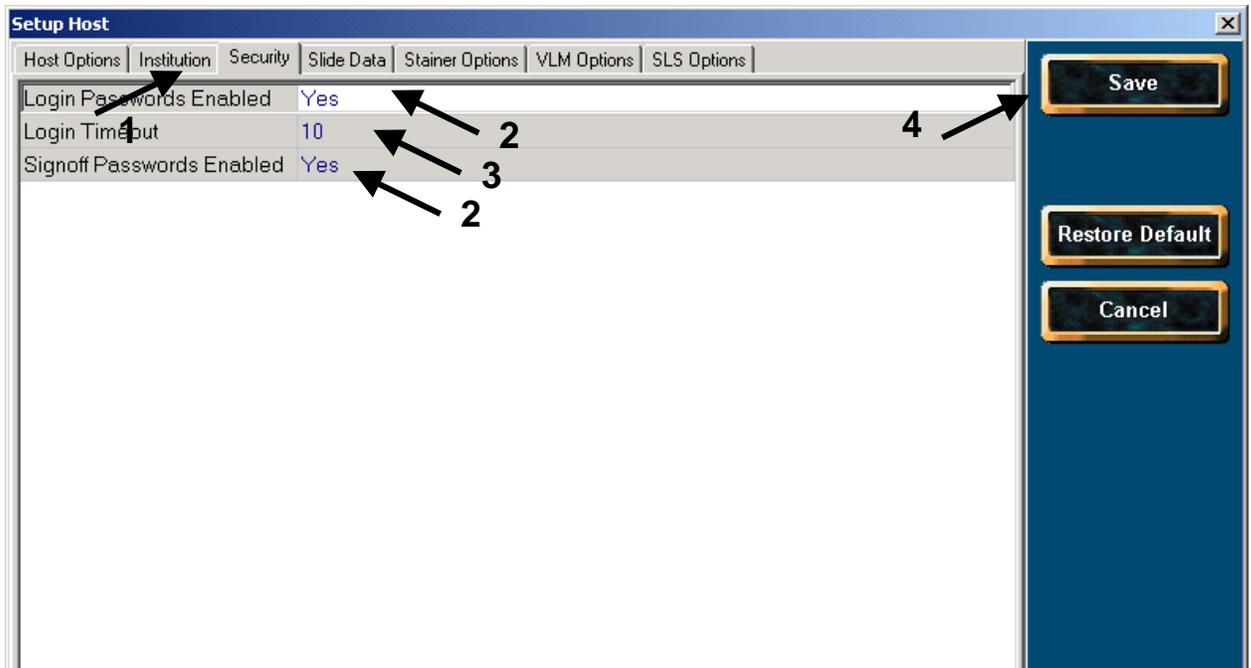


Figure 138. Selecting Security Tab

4. Click Save to save your entries (or Cancel if you change your mind)
 - You can click Restore Default to return the fields to their default settings.

Slide Data Tab

The Slide Data tab gives you the ability to give aliases to slide data information fields. These fields are related to keycoding, which is further described in the “Keycodes” section. Keycoding options are available at the bottom of the SLS Options tab, which is described in the “SLS Options Tab” section. To change alias fields:

1. Click the Slide Data tab to display its fields.
2. Click any field to open it for editing.
 - This will display the Save button.
 - Type an alias for the field.

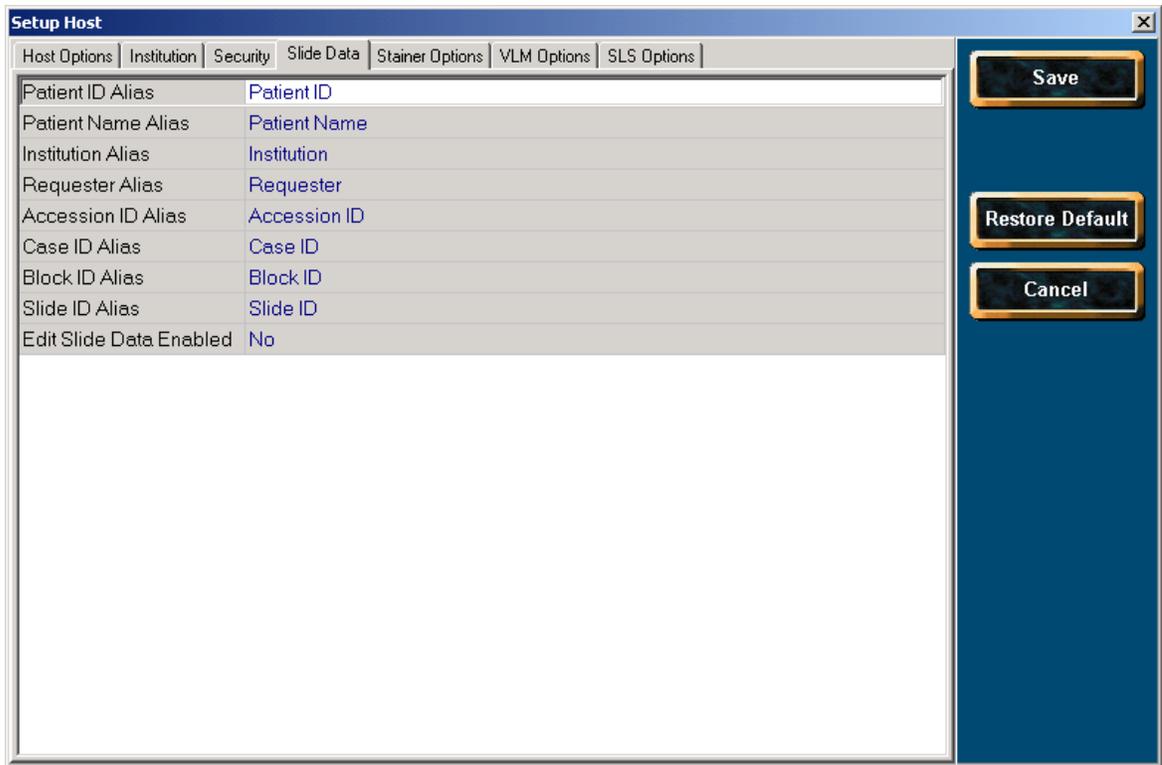


Figure 139. Selecting Slide Data Tab

3. Click Save to save your entries (or Cancel if you change your mind).
 - You can click Restore Default to return the fields to their default settings.

Stainer Options Tab

The Stainer Options tab gives you the ability to enable or disable the beep that signals the end of a run. To change this feature:

1. Click the Slide Data tab to display its fields.
2. Double-click the End of Run Beep Enabled field to toggle it from Yes to No or vice versa.
 - This will display the Save button.

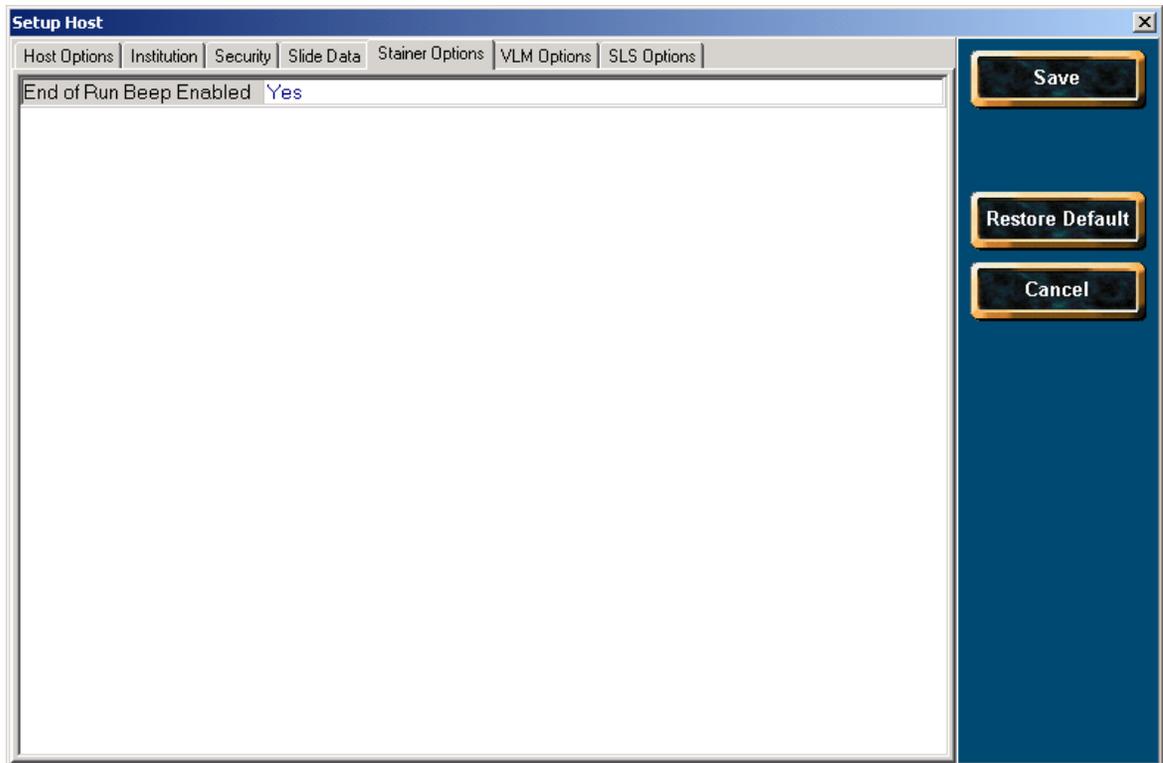


Figure 140. Selecting Stainer Options Tab

3. Click Save to save your entries (or Cancel if you change your mind).
 - You can click Restore Default to return the fields to their default settings.

VLM Options Tab—for Optimal Connectivity Solutions

Keycoding options are available at the bottom of the VLM Options tab. Keycoding is further described in the “Keycodes” section, and gives you the ability to retrieve information from fields you specify in the Slide Data tab, which is further described in the “Slide Data Tab” section.

The VLM Options tab allows you to set options for the VENTANA Lab Manager (VLM), an optional software application that permits: central management, LIS interface, and VIAS connectivity. The default VLM Options tab is shown below.

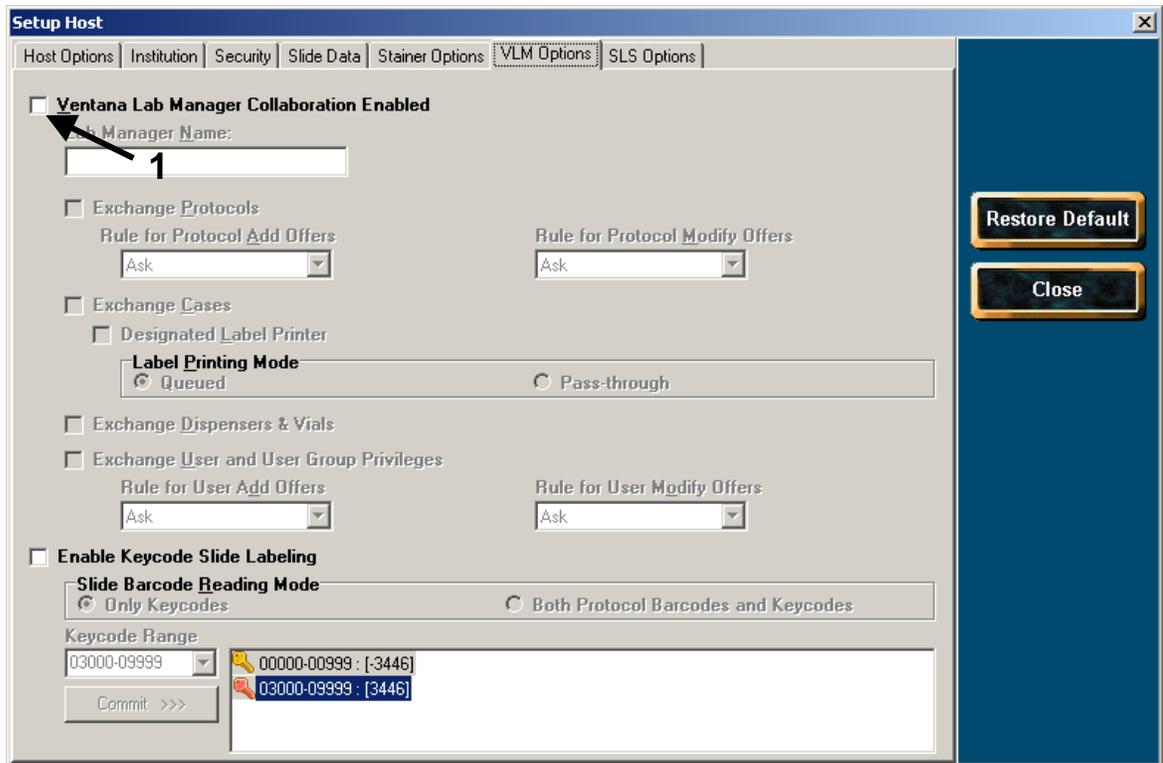


Figure 141. Default VLM Options Tab

To enable communication and the sharing of data

1. Check the Ventana Lab Manager Collaboration Enabled box to activate the VLM Options tab check boxes as shown below.
 - This will cause the Save button to appear.

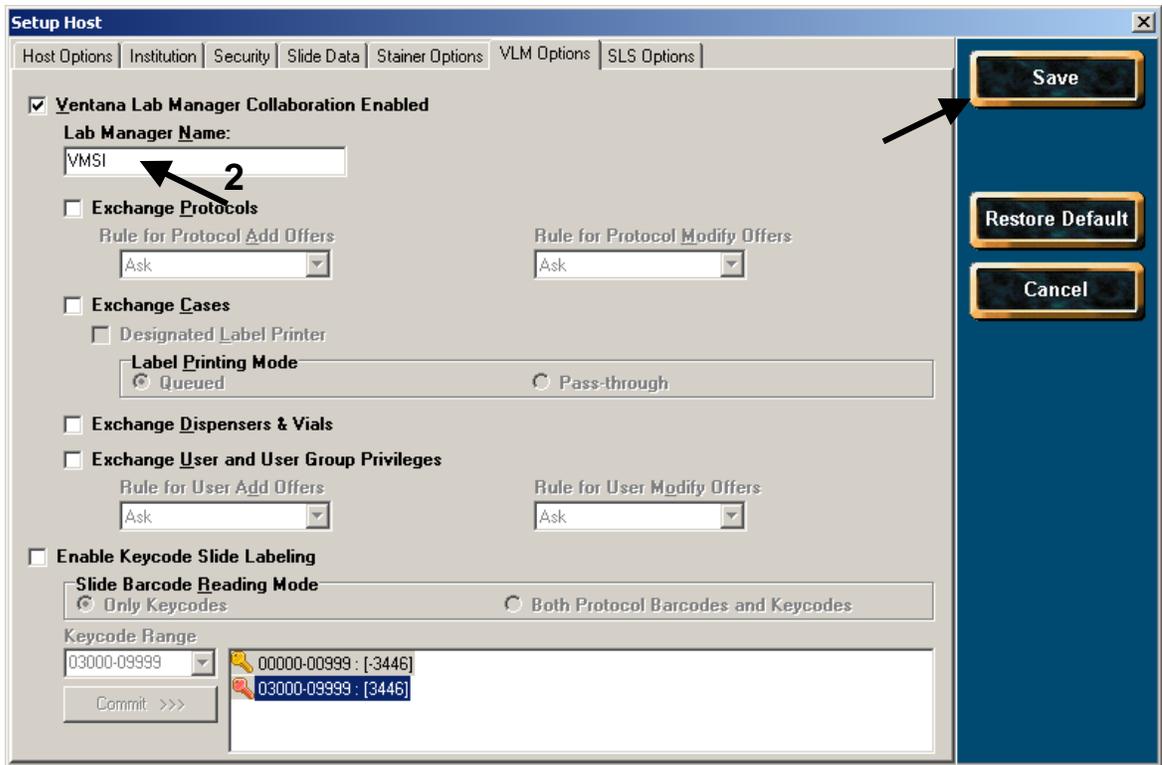


Figure 142. Enabling the VLM

2. Type a name for your VLM in the Lab Manager Name field of the VLM Options tab as shown above.
 - This is the name that will be recognized by the VLM software application.
 - You can check the box of each option whose function you wish to activate, as shown below.

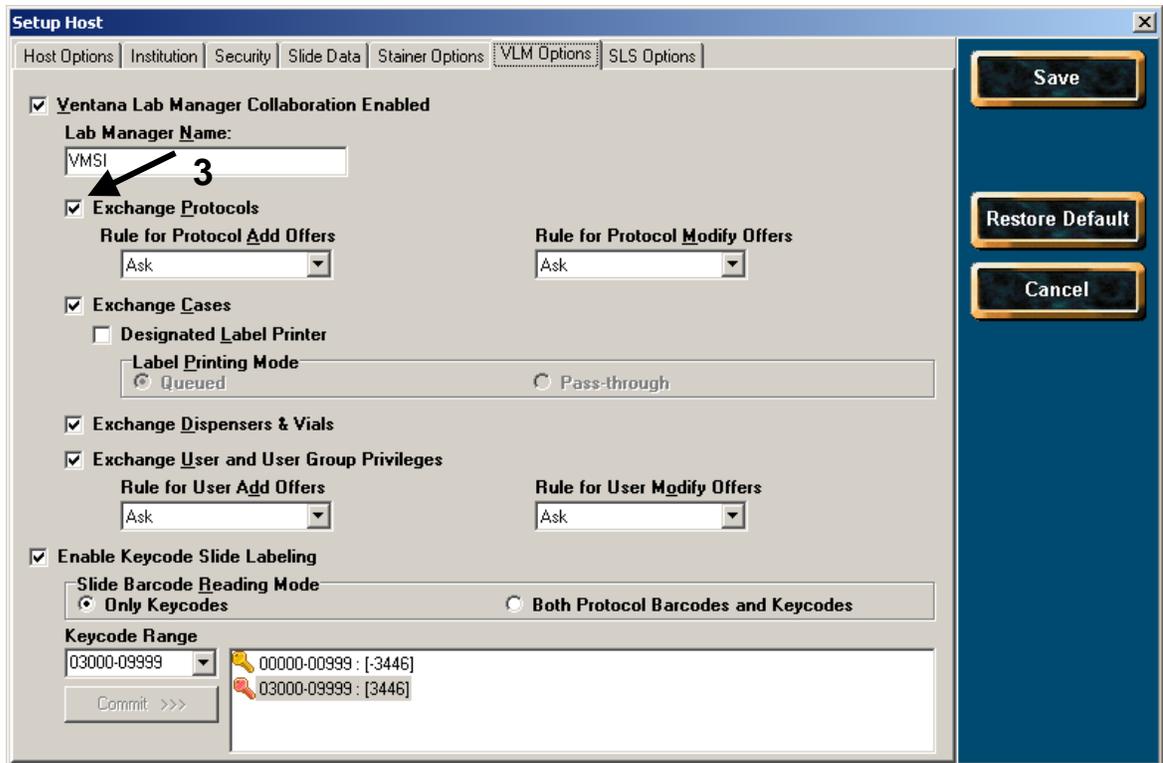


Figure 143. Activating VLM Options

3. Check Exchange Protocols to share protocols created on another host computer.
4. Use the dropdown menu in the Rule for Protocols Add Offers window shown below to give instructions for accepting protocols created on another host computer.

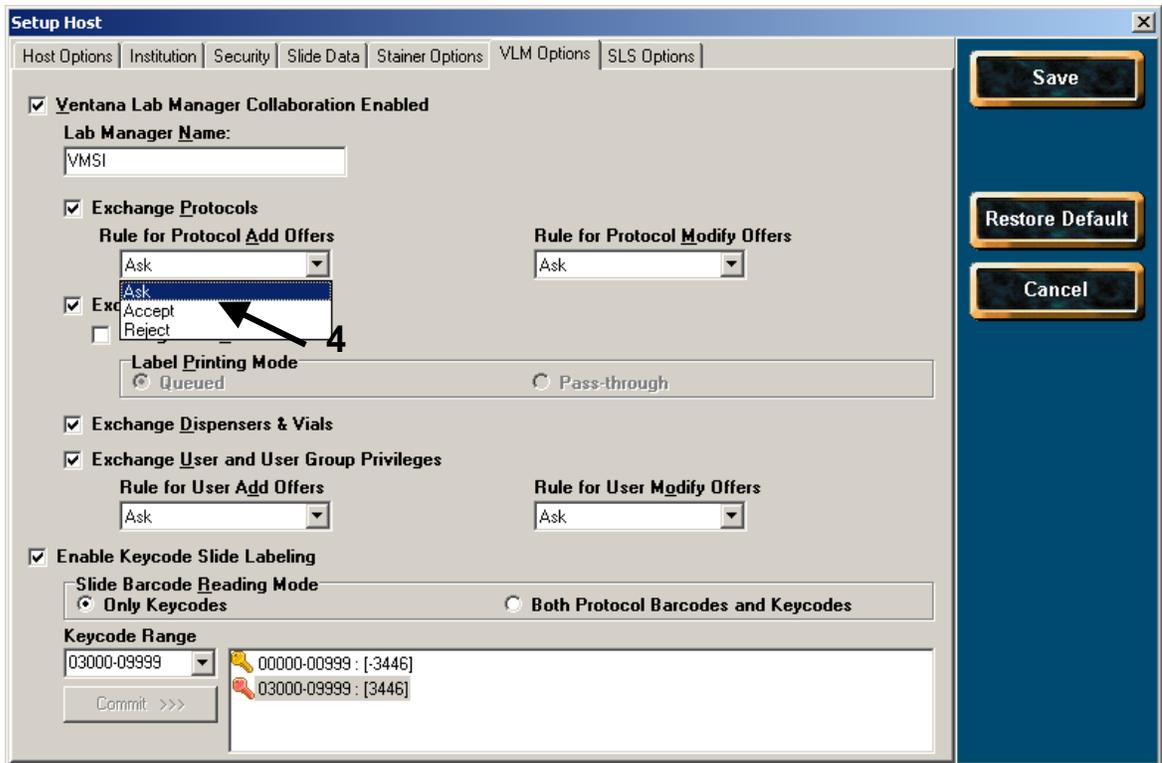


Figure 144. Selecting Rules for Protocols Add Offers

- Select Ask to always be prompted to ask for instructions for added/new protocols from another host computer.
 - Select Accept to always accept added/new protocols from another host computer.
 - Select Reject to never accept added/new protocols from another host computer.
5. Use the dropdown menu in the Rule for Protocols Modify Offers window shown below to give instructions for accepting protocol modifications created on another host computer.

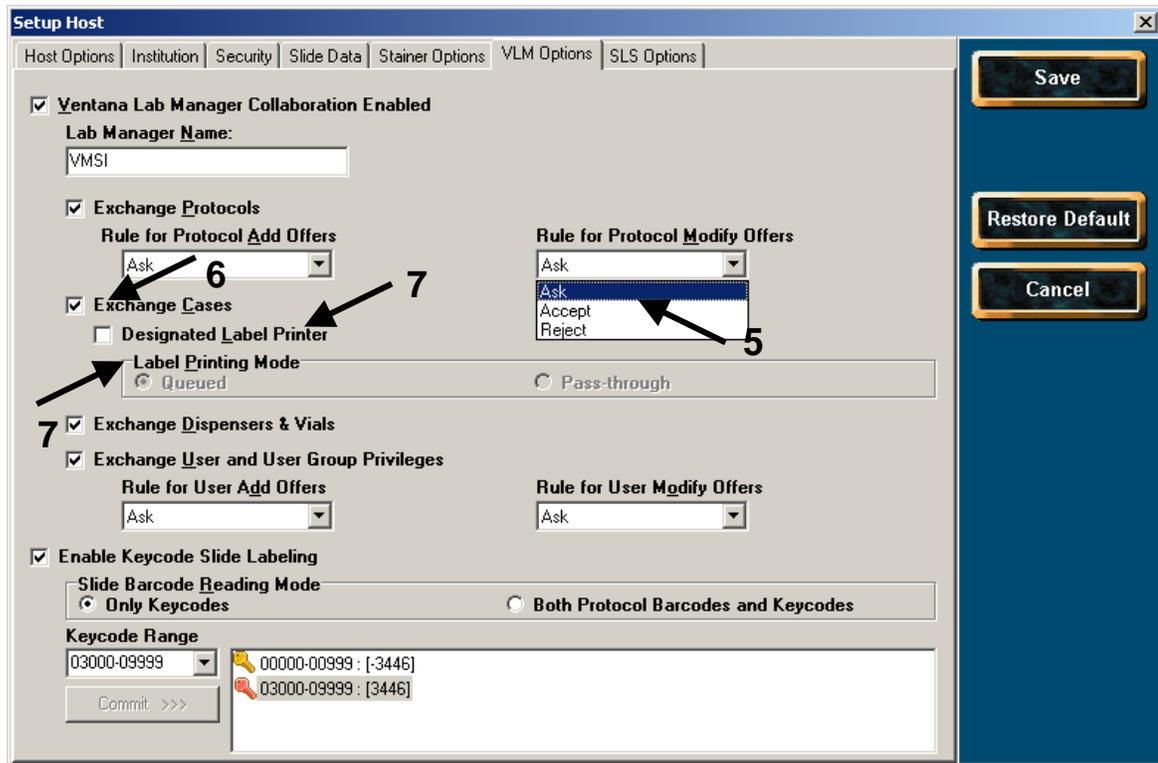


Figure 145. Selecting Rules for Protocols Modify Offers

- Select Ask to always be prompted to ask for instructions for modified protocols from another host computer.
 - Select Accept to always accept modified protocols from another host computer.
 - Select Reject to never accept modified protocols from another host computer.
6. Check Exchange Cases to share cases created on another host computer.
 7. Select Designated Label Printer if you wish to designate your host for printing of queued labels generated via the VENTANA Interface Point (please contact Ventana for further information on the Ventana Interface Point).
 - If you select Designated Label Printer, you must select the Label Printing Mode.
 - “ If you select Queued, the labels generated by the VENTANA Interface Point will remain in the queue until selected and printed.
 - “ You can select labels for printing from the Select Cases list, which can be displayed by selecting Print VLM Case Labels from the SLS icon’s Label Printing menu shown below.



Figure 146. Label Printing Menu

§ The Select Cases list shown below is generated via the VENTANA Interface Point (please contact Ventana for further information on the VENTANA Interface Point).

Protocol No	Protocol Name	Patient ID	Patient Name	Institution	Requester	Access
44	PSA	365-9854	JOHNSON, C...	VMSI	DR R. SWIFT	325-1;
44	PSA	958-9657	HAULSTEEN,...	VMSI	DR W. SMEED	325-1;
41	CD-5	352-9542	WILLIAMS, B...	JOHNS ...	DR R. SWIFT	325-1;
41	CD-5	359-98521	JOHNSON, C...	VMSI	DR R. SWIFT	325-1;
36	MELANASOME-T	352-9542	WILLIAMS, B...	JOHNS ...	DR R. SWIFT	325-1;
33	HER2/NEU ENH	123-45-6...	SMITH, KENNY	JOHNS ...	DR T. HOUSE	352-9;
32	NEGATIVE CONTROL...	123-45-6...	SMITH, KENNY	JOHNS ...	DR T. HOUSE	352-9;
32	NEGATIVE CONTROL...	123-45-6...	SMITH, KENNY	JOHNS ...	DR T. HOUSE	352-9;
28	ANTI-KERATIN-AE1	123-45-6...	JOHNSON, B...	JOHNS ...	DR T. HOUSE	S04-6

Figure 147. Select Cases List

- § You can select the cases you wish to print, then click the Print button.
 - Select Pass-through to automatically print all the labels in the queue through the designated printer.
8. Check Exchange Dispensers & Vials to share data regarding dispensers or vials created on another host computer as shown below.

Figure 148. Selecting Exchange Dispensers...and Exchange Users...

9. Check Exchange Users & User Group Privileges to share data regarding users and privileges created on another host computer as shown above.
10. Use the dropdown menu in the Rule for User Add Offers window shown above to give instructions for accepting users and user groups assigned by another host computer.
 - Select Ask to always be prompted to ask for instructions for added users and user groups assigned by another host computer.
 - Select Accept to always accept added users and user groups assigned by another host computer.
 - Select Reject to never accept added users and user groups assigned by another host computer.
 - ” If you rename a user or a user group, the old name will be deleted and the new name will be added.
11. Use the dropdown menu in the Rule for User Modify Offers window shown below to give instructions for accepting user and user group modifications created on another host computer.

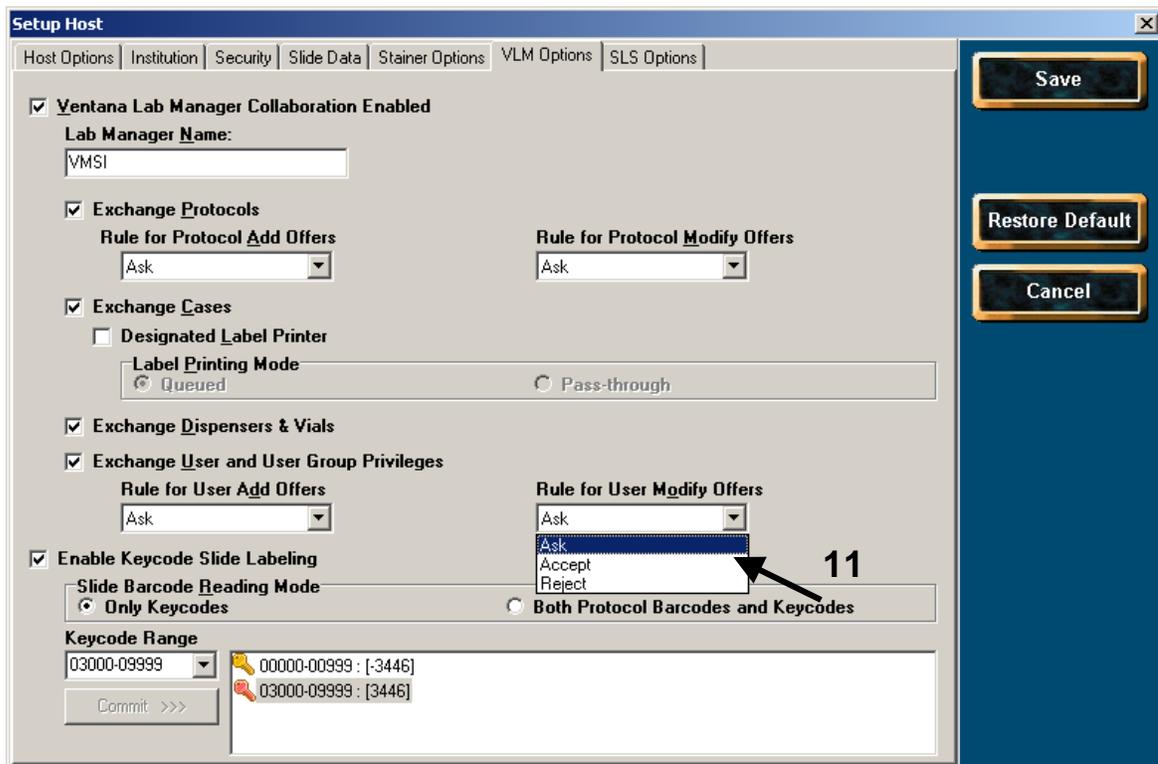


Figure 149. Selecting Rules for Users Modify Offers

- Select Ask to always be prompted to ask for instructions for modified user and user groups from another host computer.
 - Select Accept to always accept modified user and user groups from another host computer.
 - Select Reject to never accept modified user and user groups from another host computer.
12. Check Enable Keycode Slide Labeling as shown below to make the aliases of the data fields of the Slide Data Tab available for selection from the dropdown menu of the Slide Data Type window of the Field Properties screen.
 - See the “Edit Button and Field Properties” section.
 - Keycoding is further described in the “Keycodes” section.
 - ” Keycoding gives you the ability to retrieve information from fields you specify in the Slide Data tab, which is further described in the “Slide Data Tab” section.

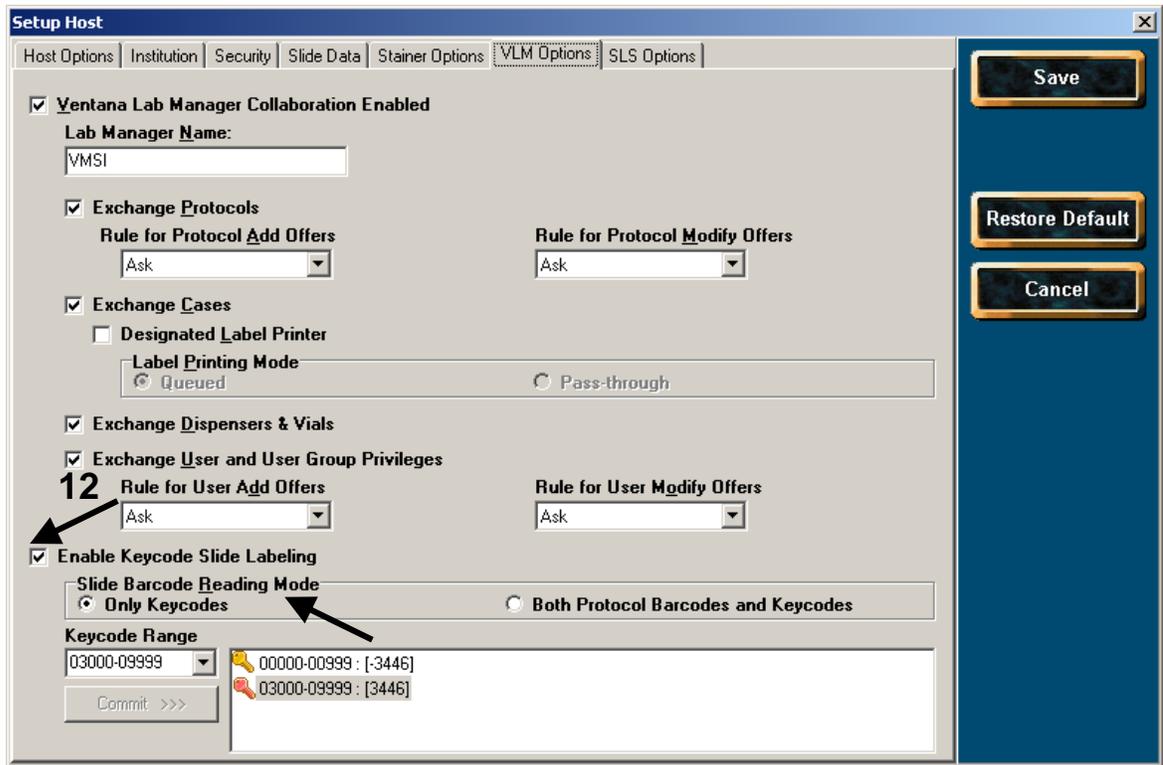


Figure 150. Selecting Enable Keycode Slide Labeling

- If you select Enable Keycode Slide Labeling, you must select one of the Slide Barcode Reading Modes.
 - Selecting the Only Keycodes radio button will allow the instrument to read only keycoded labels.
 - Selecting the Both Protocol Barcodes and Keycodes radio button will allow the instrument to read both protocol bar codes and keycoded labels.
 - § Selecting the Both Protocol Barcodes and Keycodes radio button may decrease the reliability of the reading of slide bar codes at the start of the run.

To cause the Label Printing menu to appear when the SLS icon shown below is selected

- The VENTANA Lab Manager Collaboration Enabled box must be checked.
- A valid Lab Manager Name must be in the Lab Manager Name field.
- Exchange Cases must be checked.
- If any of the requirements above are absent, the VENTANA SLS main screen will be displayed when the SLS icon is selected.

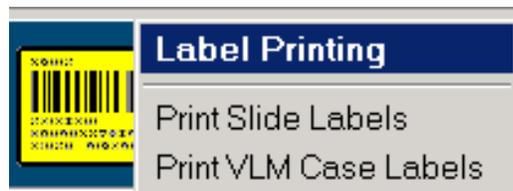


Figure 151. Label Printing Menu

SLS Options Tab

The SLS Options tab is further described in the “Printing a Test Label” section.

Keycodes

NexES gathers the following categories of information regarding individual slides:

- Patient ID.
- Patient Name.
- Institution.
- Requester.
- Accession ID.
- Case ID.
- Block ID.
- Slide ID.

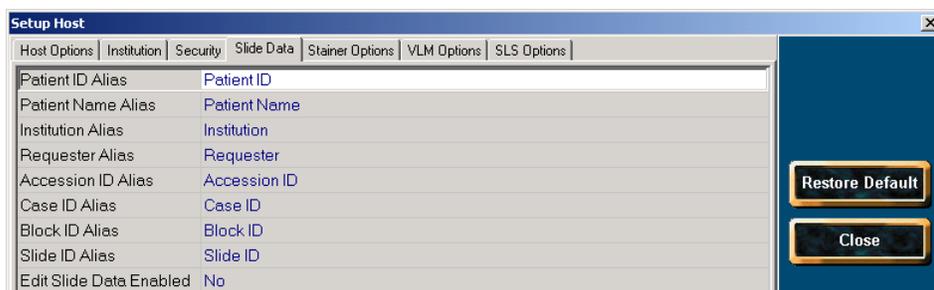


Figure 152. Slide Data Tab of Setup Host Screen

These categories are listed in the Slide Data tab of the Setup Host screen. Each category can be assigned another name or “alias” in the Slide Data tab shown above.

- This information can be made available for run reports through the keycode function that automatically assigns a keycode to each slide.
 - Keycodes are assigned by first checking the Enable Keycode Slide Labeling option in the VLM Options tab of the Setup Host screen shown below. (The Setup Host screen can be displayed by clicking the Configure button of the main SLS screen or selecting Setup Host from the NexES Setup menu.)

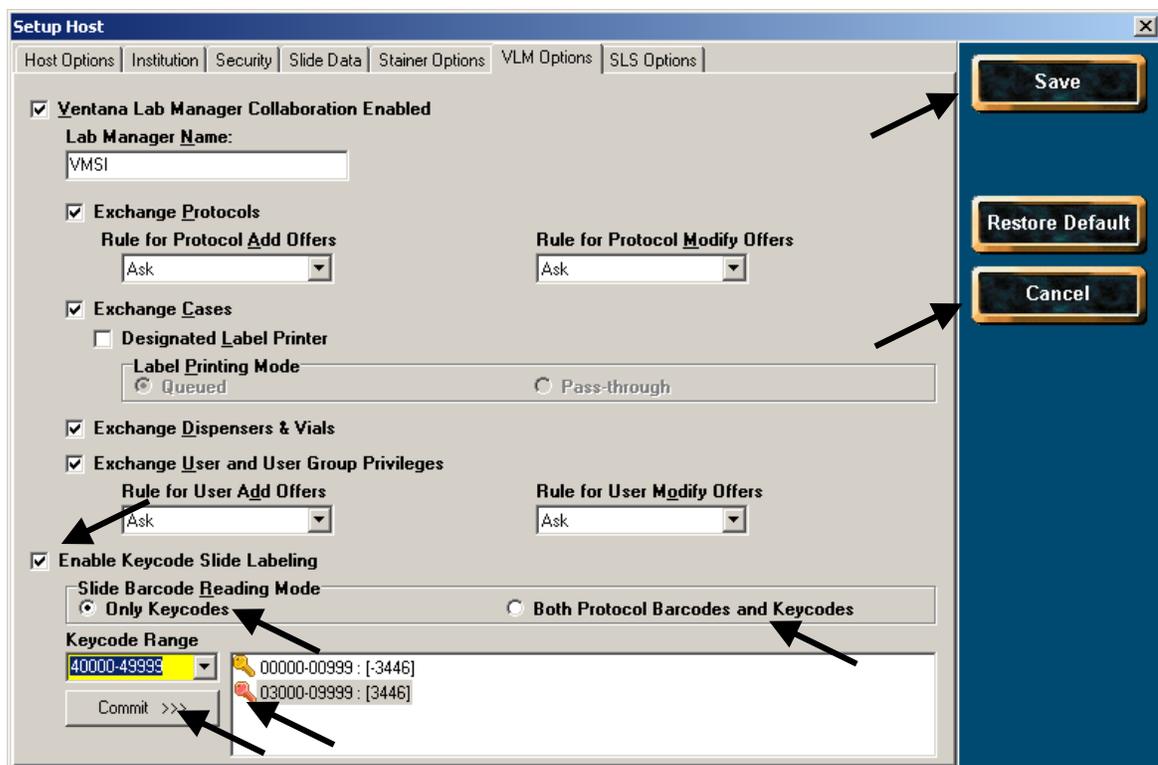


Figure 153. Selecting Keycode Options from the VLM Options Tab

- Selecting the Only Keycodes radio button will allow the instrument to read only keycodes for printing on labels.
- Selecting the Both Protocol Barcodes and Keycodes radio button will allow the instrument to read both protocol bar codes and keycodes for printing on labels.
 - § Selecting the Both Protocol Barcodes and Keycodes radio button may decrease the reliability of the reading of slide bar codes at the start of the run.
- Up to 100,000 keycodes can be assigned for use to any number of interconnected host computers, each of which may have any number of staining instruments.
- When a keycode is deleted or used in a completed run, it becomes available for re-assignment.
 - Any range of keycodes from zero through 99,999 can be assigned to each host computer, providing that the same keycodes are not assigned to more than one host computer.
 - You can assign a range of keycodes to a host computer by typing in the range in the Keycode Range dropdown window shown above.
 - § After you type in the keycode range for the host computer and click the Commit button, the range and the host computer's identifier will be displayed to the right of a red key symbol as shown above.
 - § Keycode ranges for other host computers will be displayed to the right of a gold key symbol.
- After you assign a range of keycodes to a host computer, click Save to keep the changes.
 - § After you click Save, the Cancel button will change to Close.
 - § You must then click Close to return to the main SLS screen, which will now display the Keycodes button shown below.

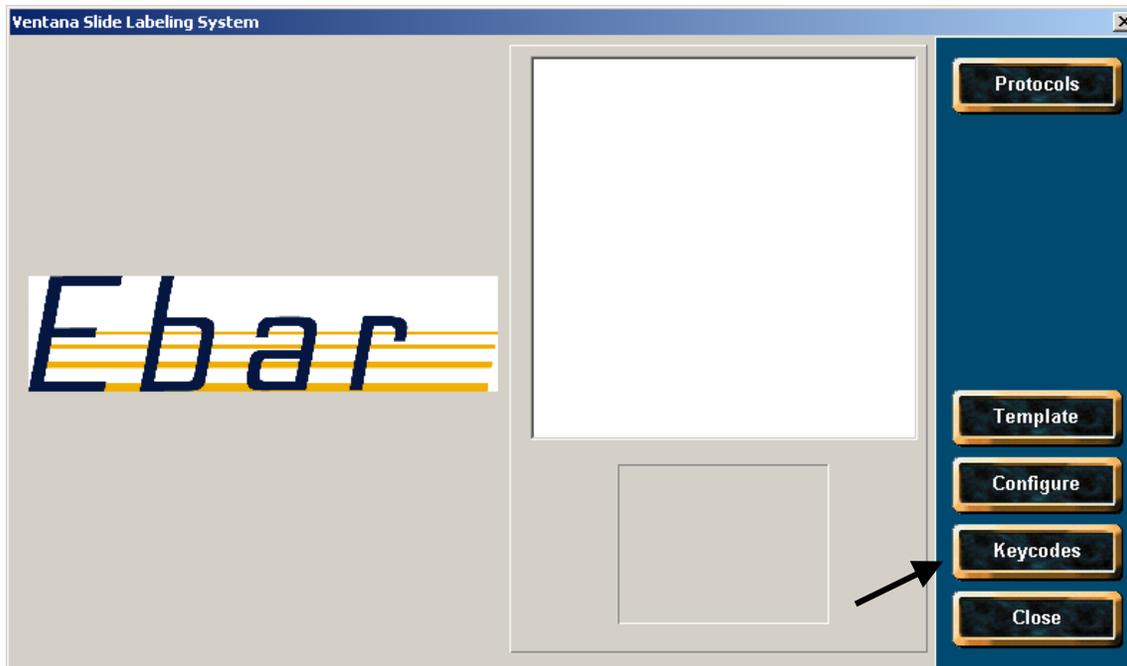


Figure 154. Keycodes Button

Click Keycodes to display the Manage Keycodes screen shown below. A keycode and its related information automatically appear in the Manage Keycodes screen until the slide with that keycode has gone through a staining run. Although a keycode is automatically deleted after its slide has completed a staining run, there may be times when a slide is not run, or the keycoded slide label has been damaged, misprinted, or lost. In such an instance, you can delete a keycode in order to make it available for use on another slide label.

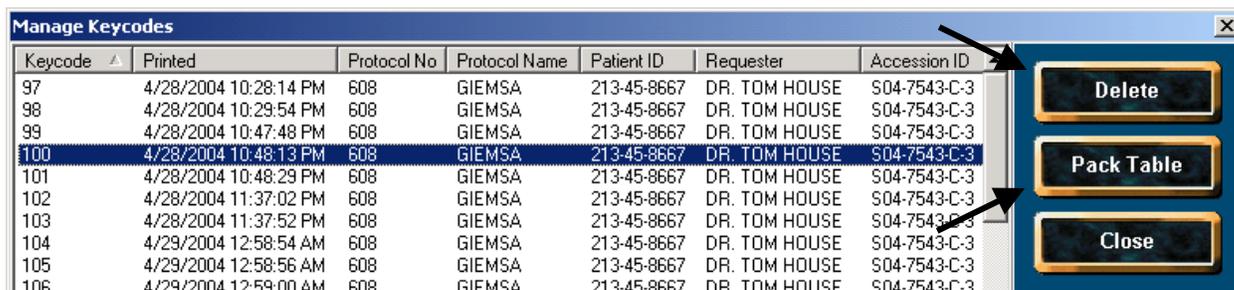


Figure 155. Manage Keycodes Screen

- To delete a keycode, highlight it, then click Delete, which will make it available for reassignment.
 - You can select multiple keycodes with the Ctrl key and mouse, or the Shift key and arrow keys.
 - Although the keycode's data will have been deleted, its empty record will remain.
 - You can click the Pack Table button to delete empty records in order to reduce the amount of data that has to be transferred to the backup zip drive or USB flash drive.

Staining Module Code Download

When you receive a new software distribution from Ventana, it might include software that needs to be installed into the staining module's microcontroller.

- The NexES program knows when an update is needed.
 - You will be advised via the message below to perform the remote code download when the instrument's name tab is selected.
1. Clicking OK will take you directly to the Staining Module Code Download screen.

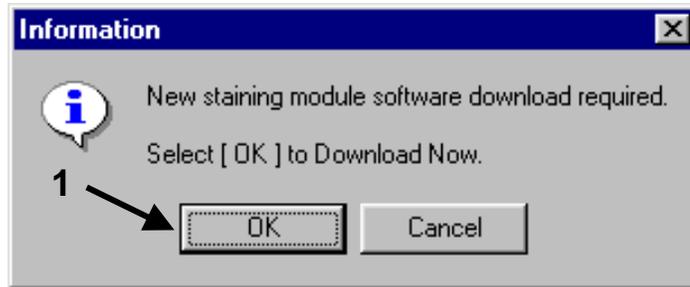


Figure 156. Download Prompt

- A separate download is needed for each staining module you have connected.
2. Click the Download button on the Staining Module Code Download screen to download the code.



Figure 157. Staining Module Code Download

3. Click the OK button after you receive acknowledgment that the download has been verified.



Figure 158. Download Verification

If you cancel the Download Prompt, you will still need to install the new microcontroller software before you perform a staining run. To install the new microcontroller software:

1. Click the Setup button.

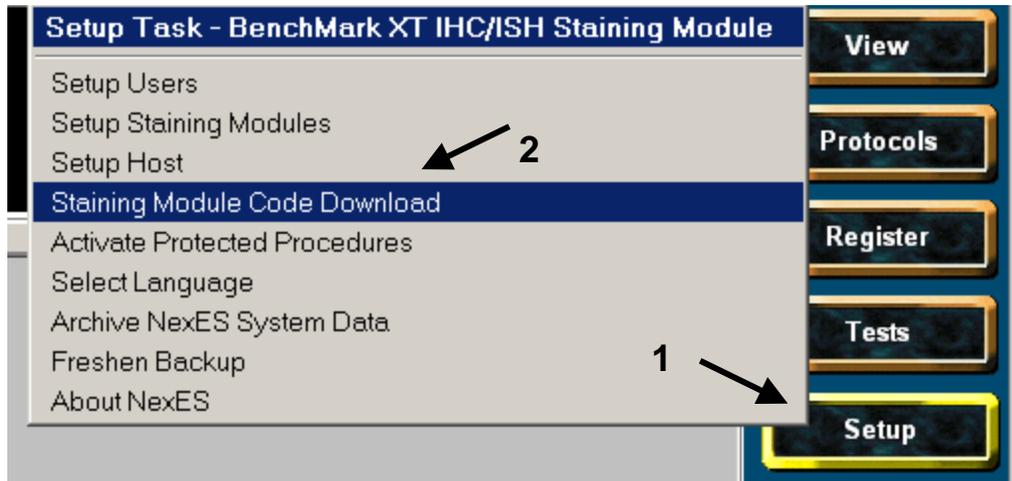


Figure 159. Selecting Staining Module Code Download

2. From the menu, select Staining Module Code Download to display the Staining Module Code Download screen.
3. Follow the instructions in the previous paragraphs for the Staining Module Download screen.

Archive NexES System Data

As more and more run data is generated, NexES will tend to run more slowly because all historical data is processed during a run. By archiving old data onto a blank zip disk or USB flash drive, only recent data is processed during a run, making the run faster.

To archive NexES system data:

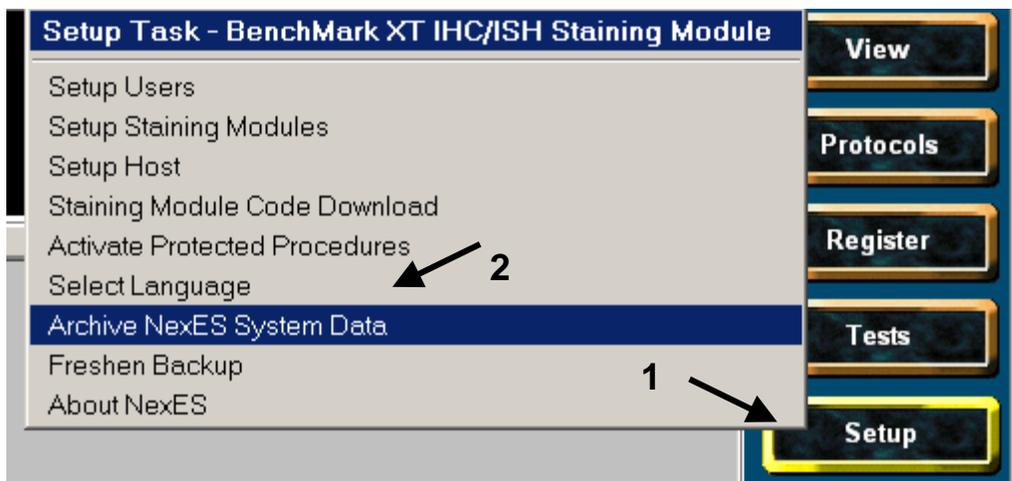


Figure 160. Selecting Archive NexES System Data

1. Click the Setup button.

- From the list, select Archive NexES System Data to display the Archive NexES System Data screen shown below.

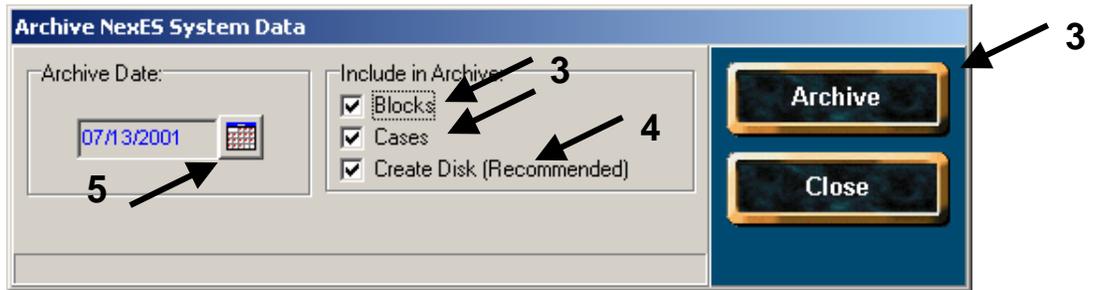


Figure 161. Archive NexES System Data Screen

- Select Blocks and Cases, or both, to include in archive.
NOTE: If you do not want to save your historical data, you can uncheck Create Disk, and the system will not create the archive disk before purging historical data before the selected date.
- In the Archive Date box, click the calendar icon to display the calendar shown below.

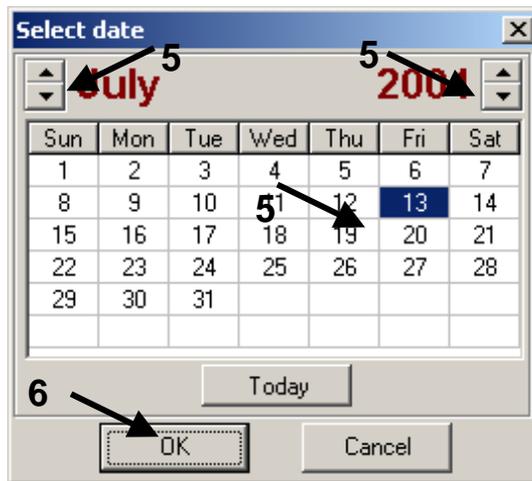


Figure 162. Select Date Box

- Use the arrows to select a month and year, then select the day of that month as the date before which data will be archived.
- Click OK to start the backup process as evidenced by the appearance of the two screens below.



Figure 163. Copying System Data Screen

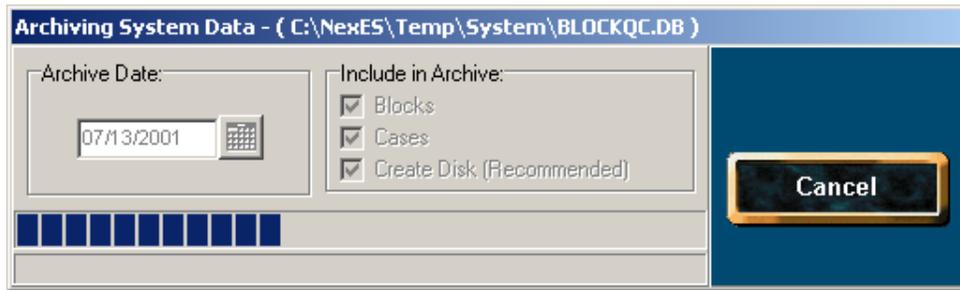


Figure 164. Archiving System Data Screen

Freshening the Backup

If the Backup icon is highlighted, selecting Freshen Backup from the Setup menu or clicking the Backup icon will cause NexES to compare its latest data with the zip disk or USB flash drive's data, and update them as required.

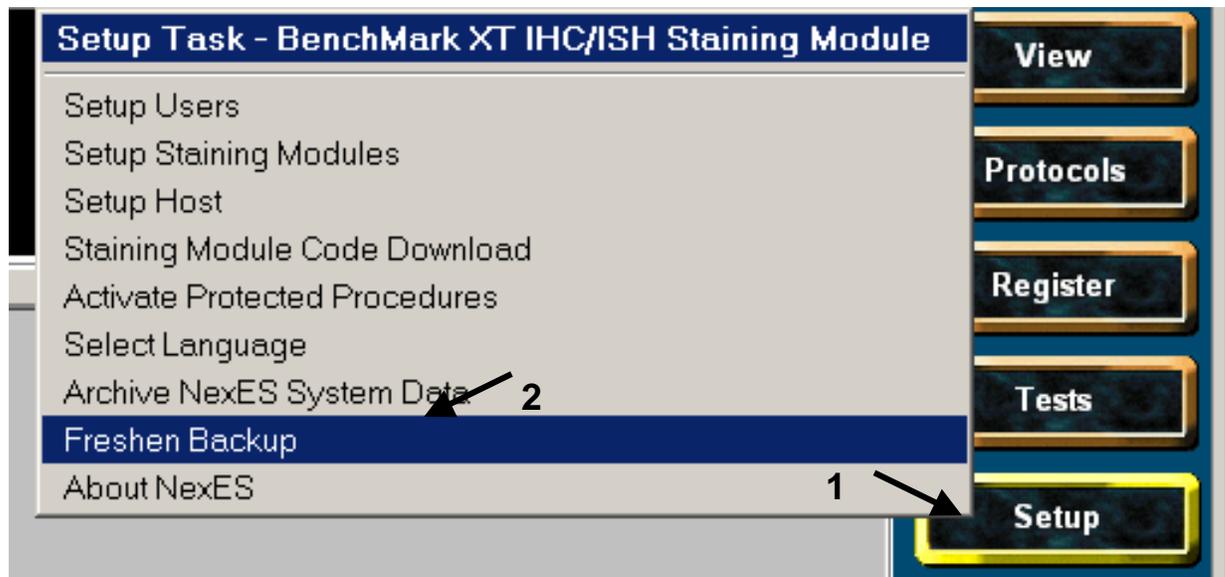


Figure 165. Selecting Freshen Backup

About NexES Screen

The About NexES screen provides information about the NexES software, the computer, and the staining modules.

You must enter information about your system through the About NexES screen.

- This is so that if you need technical support, you will be able to print out the information and fax it to Ventana in order to expedite the support.

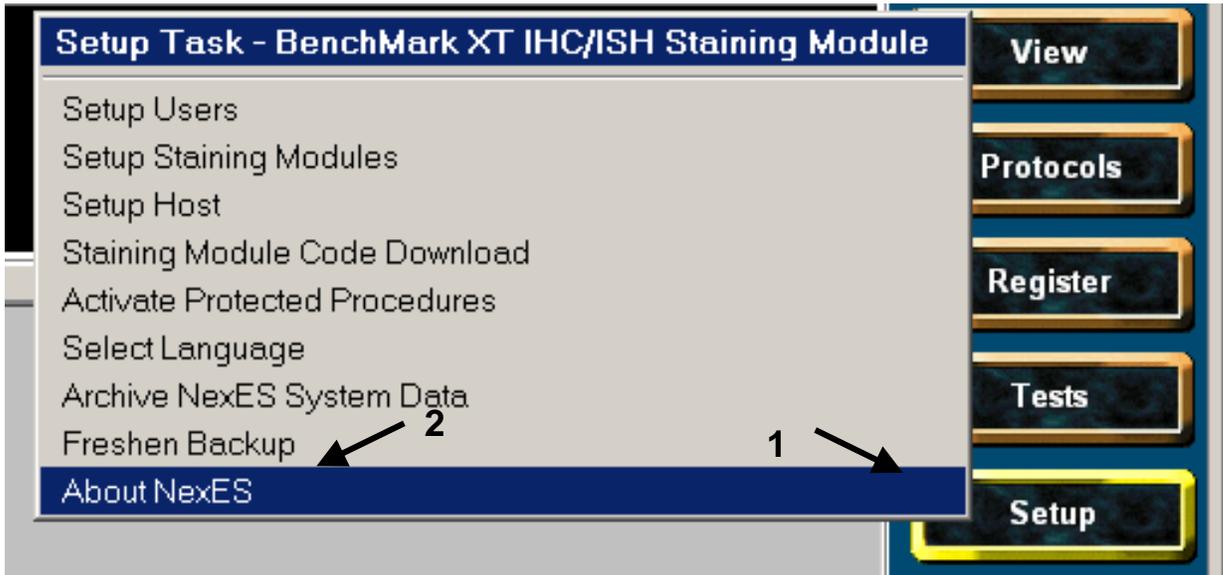


Figure 166. Selecting About NexES

To display the About NexES screen:

1. Click the Setup button.
2. From the menu, select About NexES to display the About NexES screen shown below.

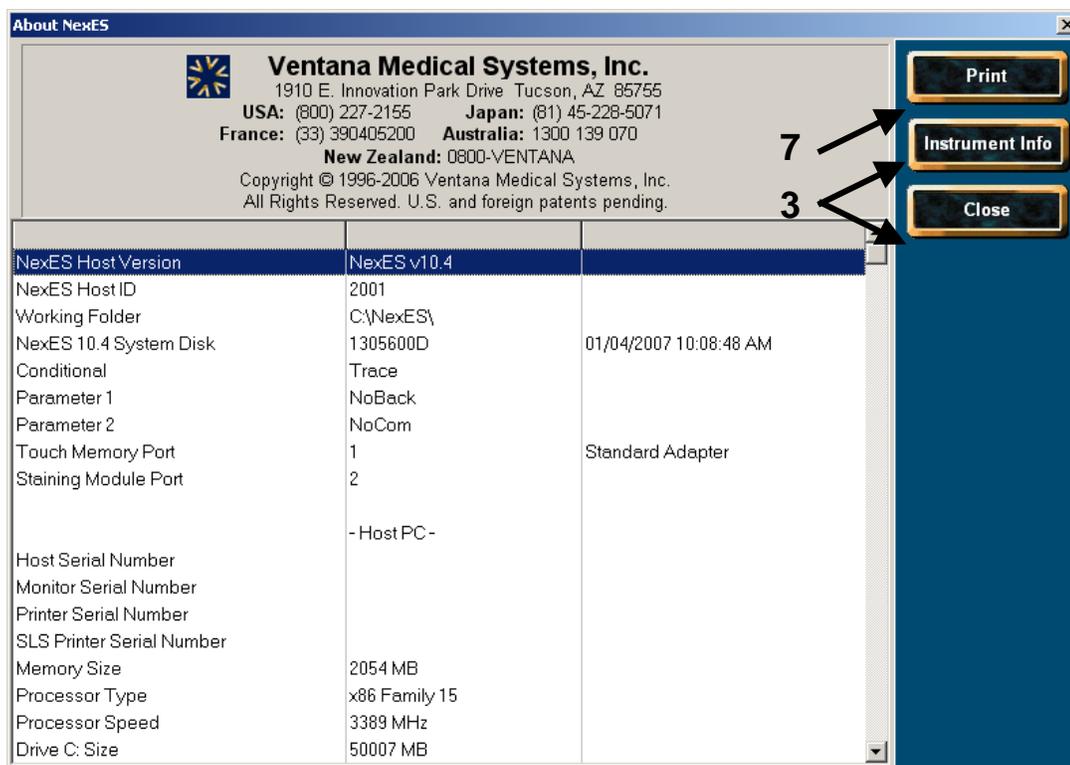


Figure 167. About NexES

- You can click Close to close the About NexES screen or click Instrument Info to display the Instrument Information screen below.

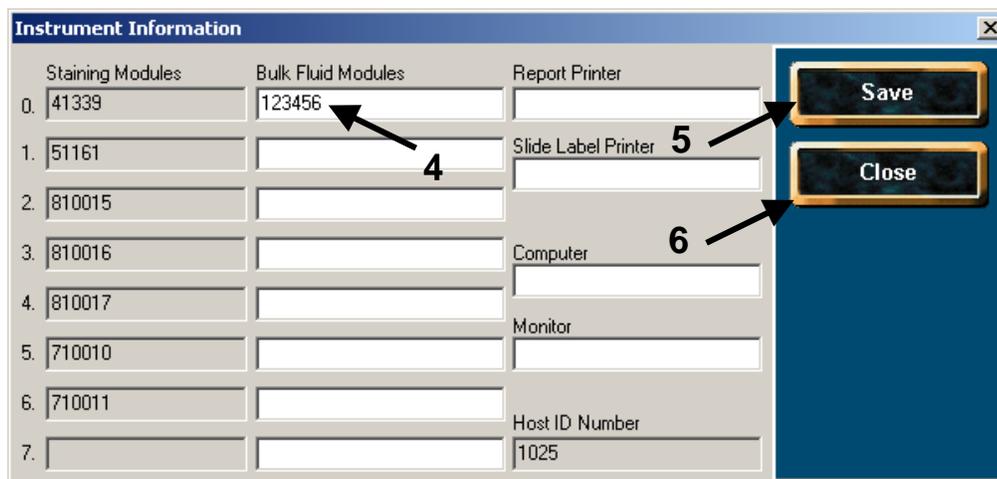


Figure 168. Instrument Information

- For each Staining Module, enter the serial numbers of the associated equipment in the second and third columns.
 - This action will cause the Save button to appear.
- Click the Save button only after you have entered all the data.

- Once you have entered and saved the information via the Instrument Information screen, the Save button will disappear.
6. Click the Close button to close the Instrument Information screen.
 7. You will be able to click the Print button of the About NexES screen to print the information displayed in the columns.
 - Then you will be able to fax this information to Ventana if you need technical support.

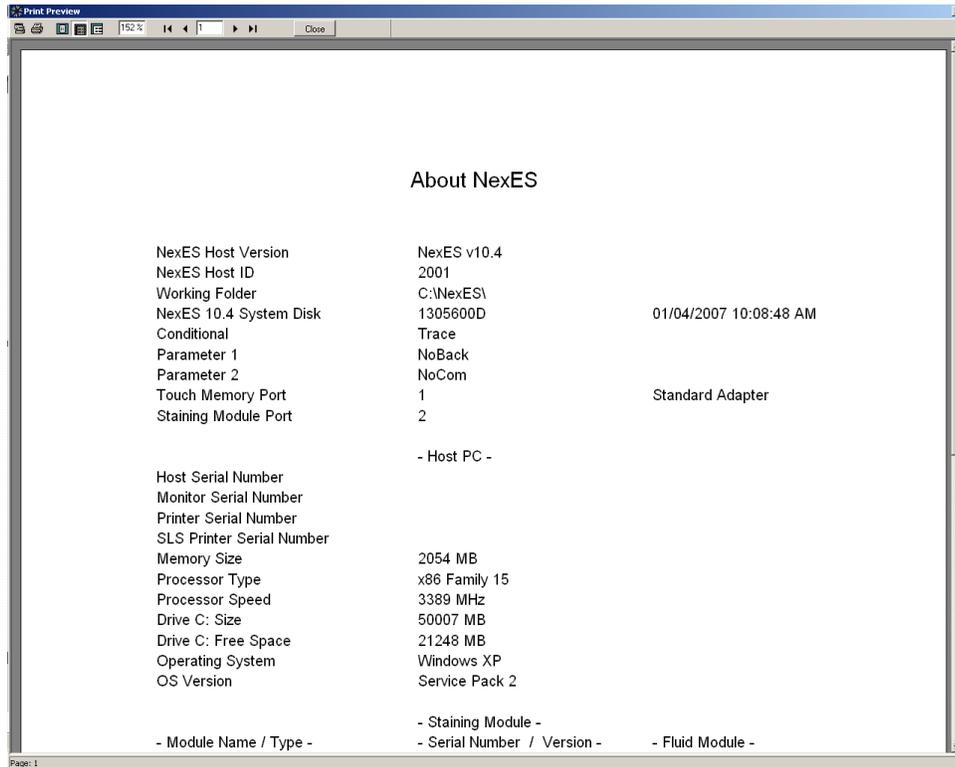


Figure 169. About NexES Report

Print Contact Report

The Contact Report displays information that you have entered regarding whom to contact with regard to your system and your tasks.



Figure 170. Contact Icon

1. To enter contact information for the first time, click the Contact icon to display the Contact Edit tab of the Contact Management screen shown below.

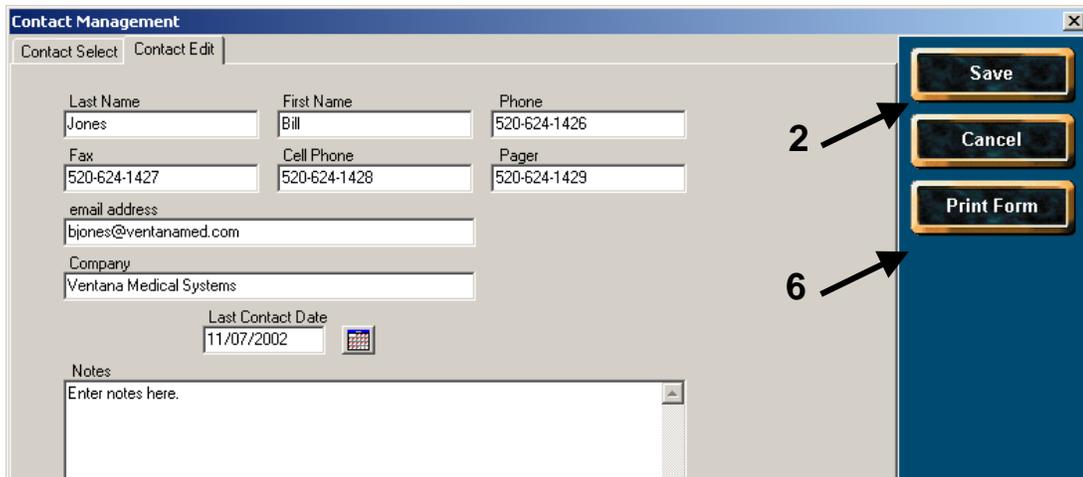


Figure 171. Contact Edit Tab

2. Enter contact information, then click Save to display the Contact Select tab of the Contact Management screen shown below.

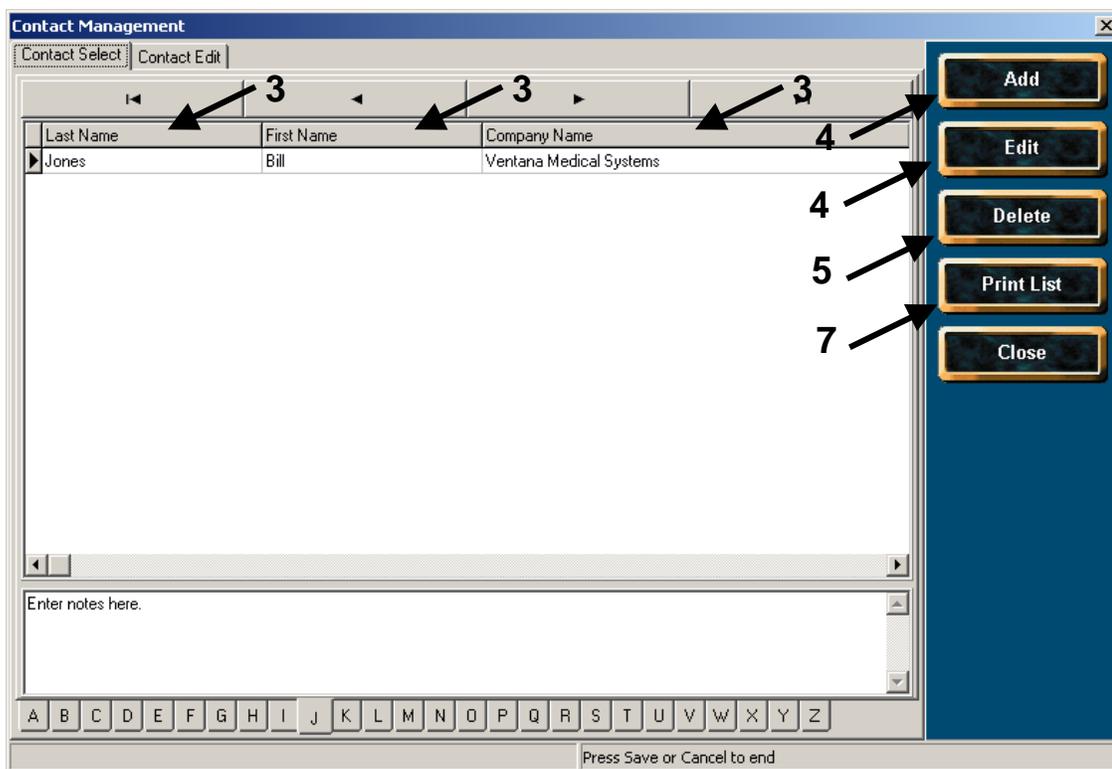


Figure 172. Contact Select Tab

3. Double-click the Contact Select tab's column headers to resort the data.
 - The resorting will carry over into the printed Contact List.
4. To add or edit a contact, click Add or Edit to display the Contact Edit tab, then enter and save the information.

5. To delete a contact, select the contact you wish to delete, then click the Delete button to display the Confirm Contact Delete box.
 - Click Yes to delete the data.



Figure 173. Confirm Contact Delete

6. You can select a contact in Contact Edit tab, then click Print Form to display the Contact Print Preview screen shown below.
 - Click the printer icon in the upper left hand corner to print the data.

Contact	
Last Name	First Name
Jones	Bill
Phone	Fax
520-624-1426	520-624-1427
Cell Phone	Pager
520-624-1428	520-624-1429
Company	
Ventana Medical Systems	
Email Address	
bjones@ventanamed.com	
Last Contact Date	
11/07/2002	
Notes	
Enter notes here.	

Figure 174. Contact Form for Printing

7. To print the contact list, click Print List to display the list below.
 - Click the printer icon in the upper left hand corner to print the data.

NexES Contact List			
Last Name	First Name	Company	Phone
Jones Cell Phone - 520-624-1428 Fax - 520-624-1427	Bill	Ventana Medical Systems Pager - 520-624-1429 Last Contact - 11/07/2002	520-624-1426 E-Mail - bjones@ventanamed.com

Figure 175. Contact List for Printing

- You can also print the Contact Report from the main screen.

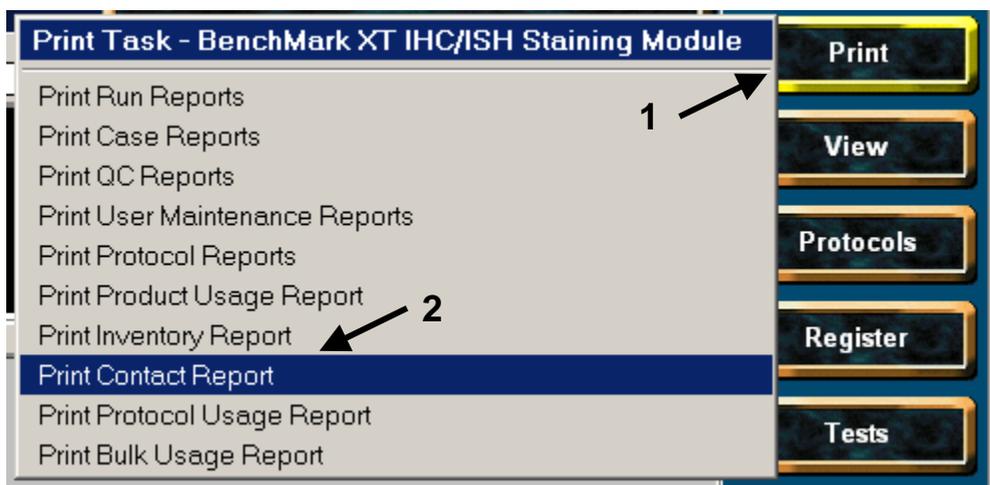


Figure 176. Selecting Print Contact Report

- To print the Contact List from the main screen, click the Print button.
- From the menu, select Print Contact Report to display the NexES Contact List.

Service Functions, the TESTS Button

The Tests button provides access to Function Tests and Service Tests.

- These functions do not have any use in normal operation of the instrument.

Tests includes two menu selections:

- Function Tests—A variety of test routines that will exercise one or more instrument functions, such as rotating the carousels, opening rinse nozzle valves, etc.
- Service Tests—The service tests provide for low-level control of various valves and functions within the hardware.
- Service tests are used only by Ventana field service and telephone technical support.

If there is a problem with the hardware, you may be instructed to perform one or more of these tests under supervision from Ventana technical support personnel.

Protected Procedures

Under the Setup button menu, the Activate Protected Procedures selection enables protected and research type procedures to be executed. An activation code obtained from Ventana is required.

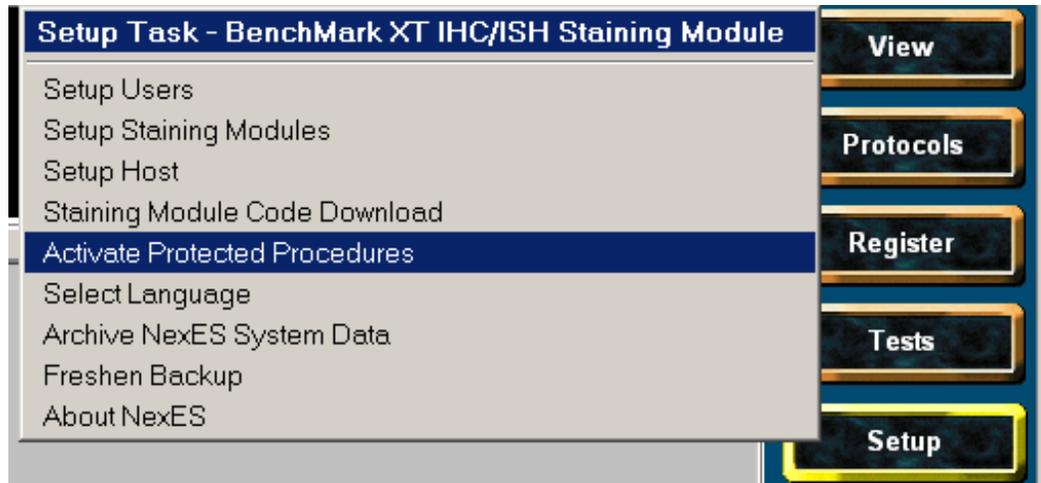


Figure 177. Selecting Activate Protected Procedures

10.0 SYSTEM MAP

Use the tables in this section to find screens you need to use.

The tables show functions for each of the buttons on the main screen. The menus or screens accessed by clicking the button are listed. The Use column indicates the principal use of the screen. The first table is organized by button, the second table is organized by use.

The use categories are:

- Run—Those functions relating to actually running stains on the system.
- Inventory—Functions helping to keep track of supplies used by the NexES system.
- QC—Quality control functions for reagents, antibodies, kits, tissue, bulk products, etc.
- PM—Creating and maintaining hardware preventive maintenance records.
- Protocol—Editing, displaying and reporting protocols.
- Setup—Functions relating to configuring the system, updating software, and setting user authorizations and passwords.
- Tests—Screens used by Ventana service personnel in diagnosing system hardware problems.
- Other—Other useful features.

Data from some screens, those that register or log products, for example, may be used for multiple purposes, such as running tests and quality control. (However, since the data is essential to running, and a run must occur before quality control, they are categorized in the run category.)

FUNCTIONS BY BUTTON

Button	Menu Items or Screen	Use	Description
RUN			
	Pre-run Checklist	Run	Initiates a staining module run.
PRINT			
	Print Run Report	Run	Print report after a run.
	Print QC Reports	QC	Multiple quality control reports.
	Print Maintenance Reports	PM	Preventive maintenance report.
	Print Protocol Reports	Protocol	Prints out protocols.
	Print Product Usage Report	Inventory	Dispenser usage in tests by type of dispenser over specified timeframe.
	Print Inventory Report	Inventory	Inventory of dispensers with tests remaining in each.
	Print Contact Report	Other	Prints out contact information.
	Print Protocol Usage Report	Protocol	Lists the number of slides run using a specific protocol.
	Print Bulk Usage Report	Inventory	Provides data about bulk product usage for a particular stainer during a specific time period.
VIEW			
	View Registered Products	Inventory	Lists all dispensers and the number of tests remaining in each.
	View Controls	QC	Shows logged, active control tissue blocks.
	View Protocols	Protocol	Summary view of protocols.
	View Last Slides	Run	List of slides from last run by slide position, protocol name and number.
	View Last Reagents	Run	List of reagents used in last run by tray position and other reagent information.
	View Sensors	Run	Displays staining module temperatures and air pressure during a run.
PROTOCOLS			
	Create/Edit Protocol	Protocol	For creating and editing protocols.
	Delete Protocol	Protocol	Deleting a protocol.
REGISTER			
	Register Ventana Products	Run	Get information from VENTANA package via registration wand.

Button	Menu Items or Screen	Use	Description
	Log Bulk Products	QC	Enter logging information for bulk products.
	Log Fillable Probes	Run	Record customer supplied probes.
	Log Fillable Antibodies	Run	Record customer supplied antibodies.
	Log Fillable Reagents	Run	Record customer supplied reagents.
	Log Control Tissue	QC	Record information on tissue blocks and cuts for slides.
	Log Cases	QC	Record accession numbers and ordering physicians.
	Fill Ventana Dispenser	Run	Fill customer supplied reagent or antibody with a dispenser.
	Associate Bulk Products	Run	Associate bulk products with a stainer
	Enter Control Results	QC	Record results from a quality control run.
TESTS			
	Function Tests	Test	Exercise various staining module functions.
	Service Tests	Test	Ventana service use.
SETUP			
	Setup Users	Setup	Set up user names, passwords and authorize system usage.
	Setup Staining Modules	Setup	Tell software what staining modules are connected. Configure software accordingly.
	Setup Host	Setup	Enter information to appear in headings of reports and enable passwords.
	Staining Module Code Download	Setup	Send updated software to staining module after a software upgrade.
	Activate Protected Procedures	Run	Enable running of protected procedures.
	Archive NexES System Data		Archive old data to keep recent run data from becoming too large.
	Freshen Backup	Run	Update zip disk or USB flash drive as required.
	About NexES	Setup	View information about NexES version and about staining modules.

FUNCTIONS BY USE CATEGORY

Use	Button	Menu Items or Screen	Description
RUN			
	RUN	Pre-run Checklist	Initiates a staining module run.
	REGISTER	Register Ventana Products	Get information from VENTANA package via registration wand.
	REGISTER	Log Fillable Probes	Record customer supplied probes.
	REGISTER	Log Fillable Antibodies	Record customer supplied antibodies.
	REGISTER	Log Fillable Reagents	Record customer supplied reagents.
	REGISTER	Fill Ventana Dispenser	Fill customer supplied reagent or antibody with a dispenser.
	PRINT	Print Run Report	Print report after a run.
	VIEW	View Last Slides	List of slides from last run by slide position, protocol name and number.
	VIEW	View Last Reagents	List of reagents used in last run by tray position and other reagent information.
	VIEW	View Sensors	Displays staining module temperatures and air pressure during a run.
PROTOCOL			
	PROTOCOL	Create/Edit Protocol	For creating and editing protocols.
	PROTOCOL	Delete Protocol	Deleting a protocol.
	PRINT	Print Protocol Reports	Prints out protocols.
	VIEW	View Protocols	Summary view of protocols.
	PRINT	Print Protocol Usage Report	Lists the number of slides run using a specific protocol.
QC			
	REGISTER	Log Bulk Products	Enter logging information for bulk products.
	REGISTER	Log Control Tissue	Record information on tissue blocks and cuts for slides.
	REGISTER	Log Cases	Record accession numbers and ordering physicians.
	REGISTER	Enter Control Results	Record results from a quality control run.
	PRINT	Print QC Reports	Multiple quality control reports.
	VIEW	View Controls	Shows logged, active control tissue blocks.
INVENTORY			
	PRINT	Print Product Usage Report	Dispenser usage in tests by type of

Use	Button	Menu Items or Screen	Description
			dispenser over specified timeframe.
	PRINT	Print Inventory Report	Inventory of dispensers with tests remaining in each.
	VIEW	View Registered Products	Lists all dispensers and the number of tests remaining in each.
	PRINT	Print Bulk Usage Report	Provides data about bulk product usage for a particular stainer during a specific time period.
PM			
	SETUP	Preventive Maintenance	Record hardware preventive maintenance activities.
	PRINT	Print Maintenance Reports	Preventive maintenance report.
OTHER			
	PRINT	Print Contact Reports	Prints out contact information.
SETUP			
	SETUP	Setup Users	Set up user names, passwords and authorize system usage.
	SETUP	Setup Staining Modules	Tell software what staining modules are connected. Configure software accordingly.
	SETUP	Setup Host	Enter information to appear in headings of reports and enable passwords.
	SETUP	Staining Module Code Download	Send updated software to staining module after a software upgrade.
	SETUP	Activate Protected Procedures	Enable running of protected procedures.
	SETUP	Archive NexES System Data	Archive old data to keep recent run data from becoming too large.
	SETUP	Freshen Backup	Update zip disk or USB flash drive as required.
	SETUP	About NexES	View information about NexES version and about staining modules.
TEST			
	TESTS	Function Tests	Exercise various staining module functions.
	TESTS	Service Tests	Ventana service use.

FUNCTIONS BY USE CATEGORY

Use	Button	Menu Items or Screen	Description
RUN			
	RUN	Pre-run Checklist	Initiates a staining module run.
	REGISTER	Register Ventana Products	Get information from VENTANA package via registration wand.
	REGISTER	Log Fillable Probes	Record customer supplied probes.
	REGISTER	Log Fillable Antibodies	Record customer supplied antibodies.
	REGISTER	Log Fillable Reagents	Record customer supplied reagents.
	REGISTER	Fill Ventana Dispenser	Fill customer supplied reagent or antibody with a dispenser.
	PRINT	Print Run Report	Print report after a run.
	VIEW	View Last Slides	List of slides from last run by slide position, protocol name and number.
	VIEW	View Last Reagents	List of reagents used in last run by tray position and other reagent information.
	VIEW	View Sensors	Displays staining module temperatures and air pressure during a run.
PROTOCOL			
	PROTOCOL	Create/Edit Protocol	For creating and editing protocols.
	PROTOCOL	Delete Protocol	Deleting a protocol.
	PRINT	Print Protocol Reports	Prints out protocols.
	VIEW	View Protocols	Summary view of protocols.
	PRINT	Print Protocol Usage Report	Lists the number of slides run using a specific protocol.
QC			
	REGISTER	Log Bulk Products	Enter logging information for bulk products.
	REGISTER	Log Control Tissue	Record information on tissue blocks and cuts for slides.
	REGISTER	Log Cases	Record accession numbers and ordering physicians.
	REGISTER	Enter Control Results	Record results from a quality control run.
	PRINT	Print QC Reports	Multiple quality control reports.
	VIEW	View Controls	Shows logged, active control tissue blocks.
INVENTORY			
	PRINT	Print Product Usage Report	Dispenser usage in tests by type of dispenser over specified timeframe.

Use	Button	Menu Items or Screen	Description
	PRINT	Print Inventory Report	Inventory of dispensers with tests remaining in each.
	VIEW	View Registered Products	Lists all dispensers and the number of tests remaining in each.
	PRINT	Print Bulk Usage Report	Provides data about bulk product usage for a particular stainer during a specific time period.
PM			
	SETUP	Preventive Maintenance	Record hardware preventive maintenance activities.
	PRINT	Print Maintenance Reports	Preventive maintenance report.
OTHER			
	PRINT	Print Contact Reports	Prints out contact information.
SETUP			
	SETUP	Setup Users	Set up user names, passwords and authorize system usage.
	SETUP	Setup Staining Modules	Tell software what staining modules are connected. Configure software accordingly.
	SETUP	Setup Host	Enter information to appear in headings of reports and enable passwords.
	SETUP	Staining Module Code Download	Send updated software to staining module after a software upgrade.
	SETUP	Activate Protected Procedures	Enable running of protected procedures.
	SETUP	Archive NexES System Data	Archive old data to keep recent run data from becoming too large.
	SETUP	Freshen Backup	Update zip disk or USB flash drive as required.
	SETUP	About NexES	View information about NexES version and about staining modules.
TEST			
	TESTS	Function Tests	Exercise various staining module functions.
	TESTS	Service Tests	Ventana service use.

INTENTIONALLY BLANK

11.0 PREVENTIVE MAINTENANCE

This section covers cleaning, disinfecting, and system checks. System preventive maintenance schedules are supported in the software with Daily, Monthly, and Quarterly checklists described below.

You should establish and follow a systematic routine for cleaning the instrument, depending on the usage.

Although the cleaning operations are summarized in the figures, each of the several parts that require periodic cleaning is discussed separately along with **precautions needed to avoid instrument damage**.

Opening the Instrument

You will need to pull the slide tray out to perform maintenance and cleaning of the instrument.

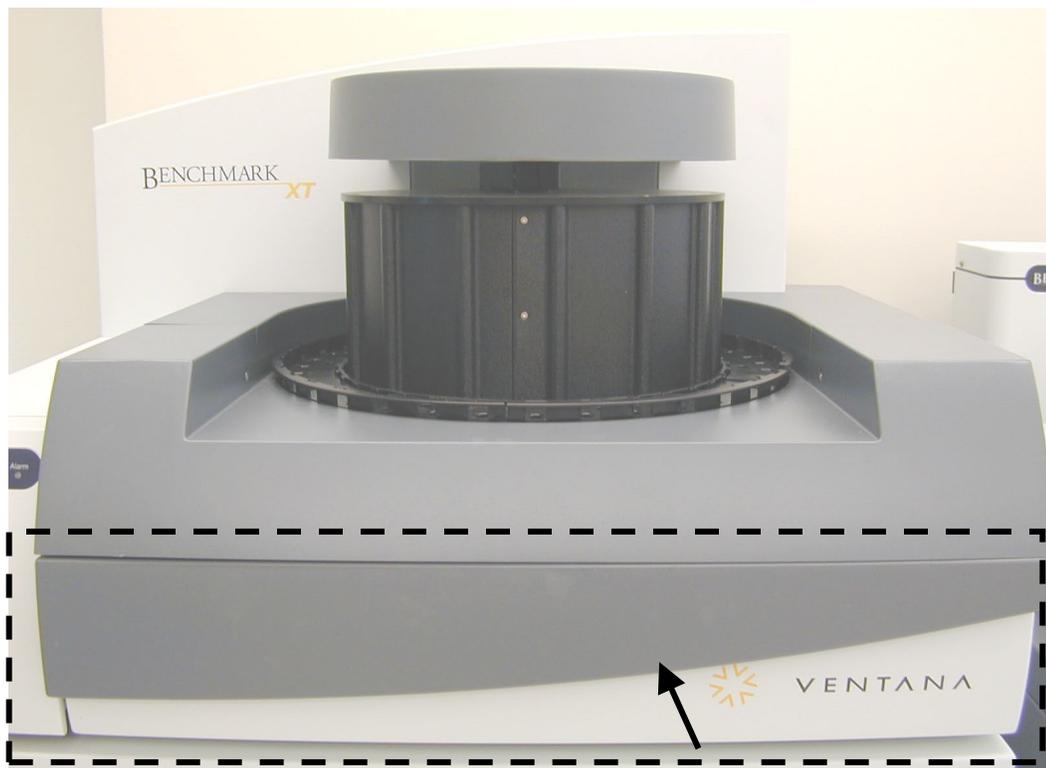


Figure 178. Slide Tray Handle



Figure 179. Slide Tray Pulled Out (BenchMark XT)

Homing the Nozzle Plate and Reagent Carousel

After the required protocol for each slide is read (from the slide bar codes) and recorded, the instrument keeps track of the nozzle plate and the reagent carousel's dispensers relative to a home position indicated by a sensor on the slide tray.

- The home position serves as a reference to ensure that the nozzle plate and reagent carousel are positioned properly when washing, dispensing, and mixing operations are performed.

Function

- The software instructs the nozzle plate to seek the home position.

Use

- To diagnose problems in the homing sensor and nozzle plate assembly.

To home the nozzle plate:

- Follow the steps to the Download Tests screen.
- Select Test-Home Nozzle Plate from the menu, then click the Run button.
 - The test instructions are sent to the stainer subassembly.
 - When they arrive safely, the yellow "Running" status light on the control panel will glow.
- To repeat the test, press the user button under the Ventana logo.

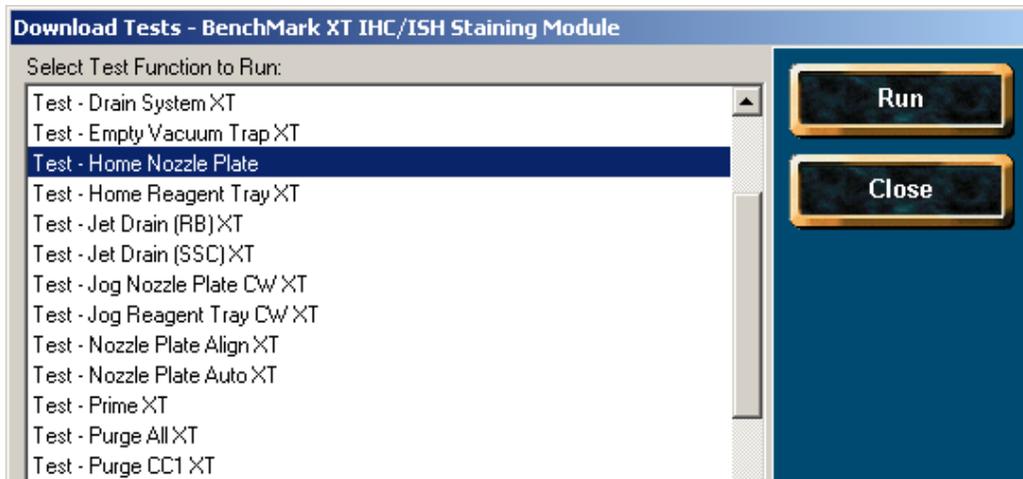


Figure 180. Selecting Test-Home Nozzle Plate

Home Carousel

Function

- The software instructs the carousel to seek the home position.

Use

- To diagnose problems in the homing sensor and carousel drive assembly.

To home the reagent tray:

- Follow the steps to the Download Tests screen.
- Select Test-Home Reagent Tray XT from the menu, then click the Run button.
 - The test instructions are sent to the stainer subassembly.
 - When they arrive safely, the yellow “Running” status light on the control panel will glow.
 - To repeat the test, press the user button (under the VENTANA logo).

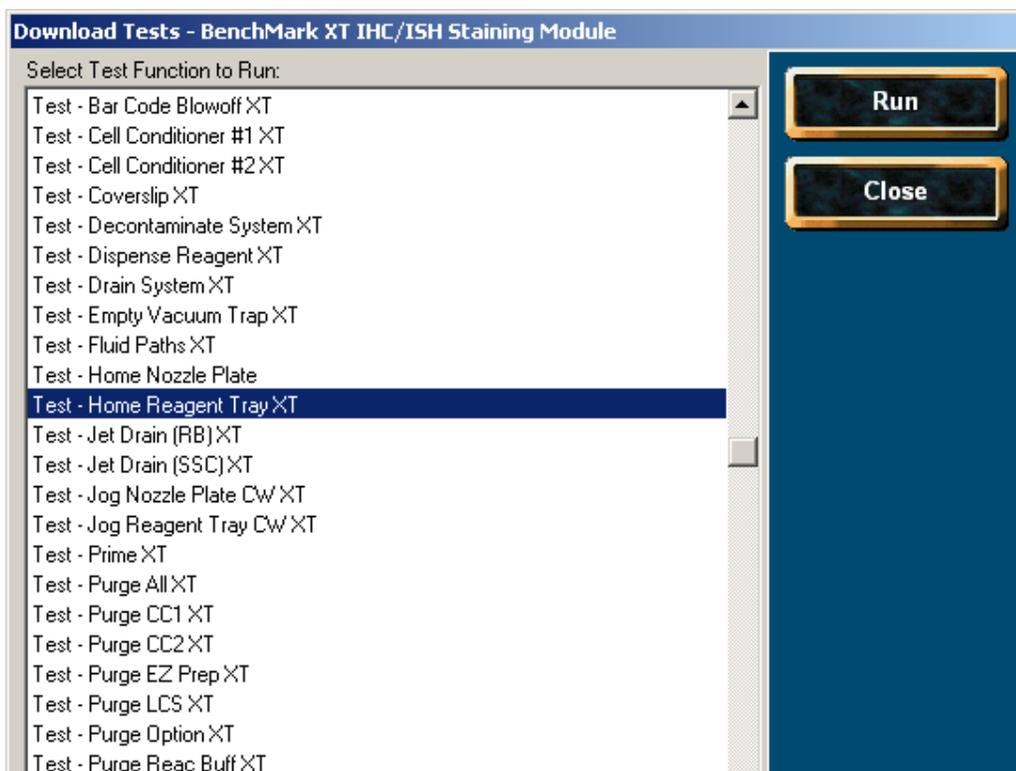


Figure 181. Selecting Test-Home Reagent Tray XT

Jog Nozzle Plate

Function

- The software moves the nozzle plate one position each time the button is pushed, up to 35 times.

Use

- Checks the alignment of the nozzle plate.
 - After homing the nozzle plate, you can jog it repeatedly to evaluate whether it is positioning the nozzles properly.
 - If a drive belt or some other mechanical component is worn, the nozzle plate may not correctly index each time it is jogged.
 - § You will suspect this condition if you see the error message “Nozzle plate position incorrect during the run,” which indicates a possible problem with the nozzle plate.

To jog the nozzle plate:

- Home the nozzle plate (see the “Homing the Nozzle Plate and Reagent Carousel” section).
- Follow the steps to the Download Tests screen.
- Select Test-Jog Nozzle Plate CW XT from the menu, then click the Run button.
 - The test instructions are sent to the stainer subassembly.
 - When they arrive safely, the yellow “Running” status light on the control panel will glow.
 - To repeat the test, press the user button (under the VENTANA logo).

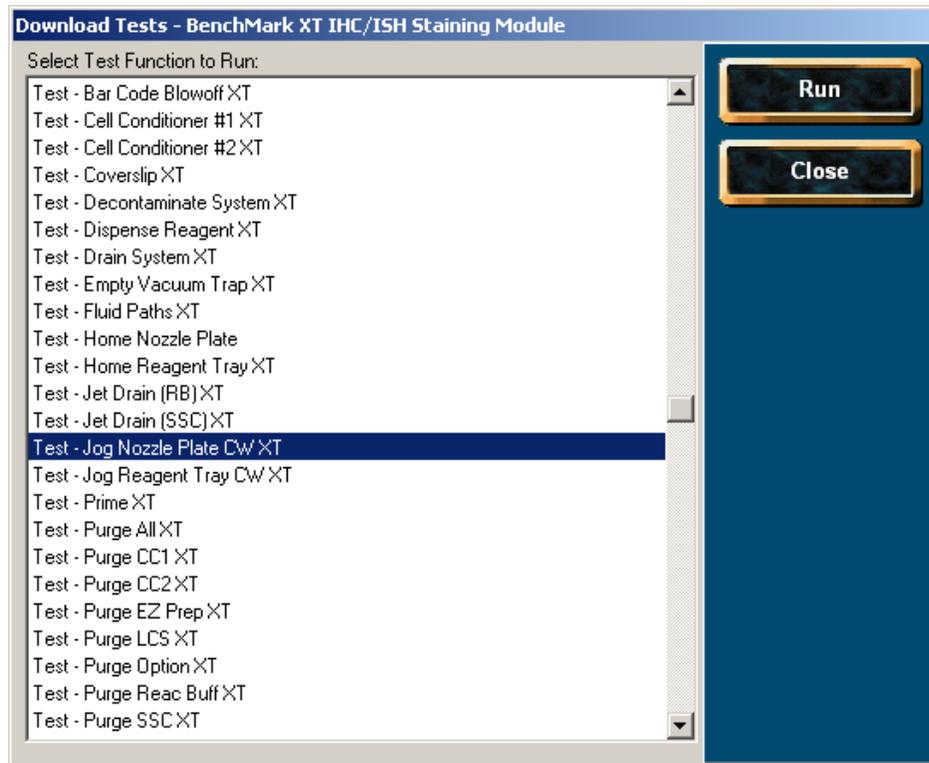


Figure 182. Selecting Test-Jog Nozzle Plate CW XT

Jog Carousel

Function

The software rotates the carousel to the next station.

Use

- After homing the carousel, you can jog it repeatedly to evaluate whether it is positioning reagent dispensers properly.
- If a drive belt or some other mechanical component is worn, the carousel may not correctly index each time it is jogged.
 - You will suspect this condition if you see the error message “Reagent tray position incorrect during the run,” which indicates a possible problem with the reagent carousel.

To jog the carousel:

- Home the carousel (see the “Home Carousel” section).
- Follow the steps to the Download Tests screen.
- Select Test-Jog Reagent Tray CW XT from the menu, then click the Run button.
 - The test instructions are sent to the stainer subassembly.
 - When they arrive safely, the yellow “Running” status light on the control panel will glow.
- To repeat the test, press the user button under (the VENTANA logo).

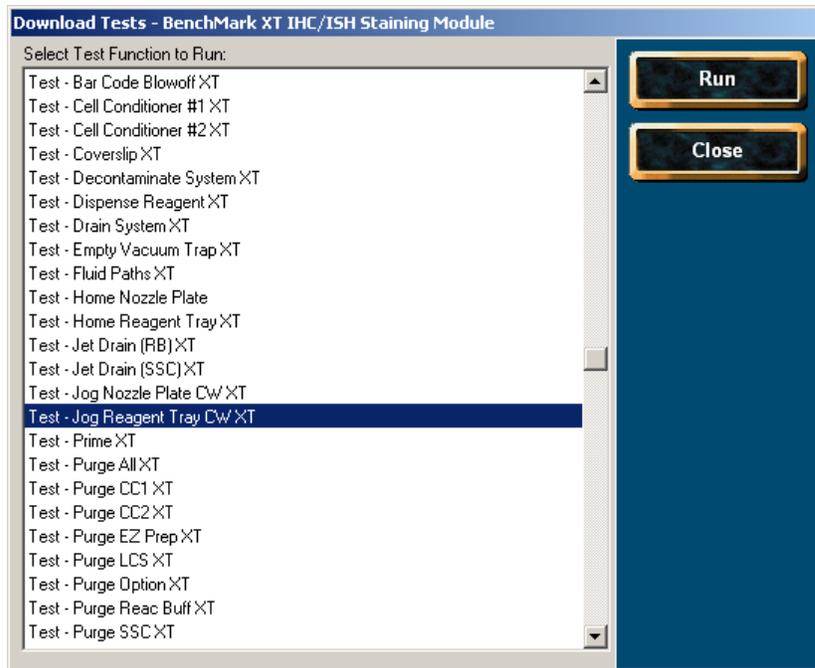


Figure 183. Selecting Test-Jog Reagent Tray CW XT

Vortex Mixer Test

The front cover, drip shields, and splash guards must be removed for this test as described in the “Wash and Brush Nozzles” section.

Function

- The software exercises many of the instrument’s functions, including:
 - Washing.
 - Volume Adjust.
 - LCS Application.
 - Air Knife.
 - Vortex Mixing.

Use

- To verify visually that each of the above functions is working.
- Before starting the test, mount a clean slide with bar code label in position #15.
- By adding a drop of hematoxylin to the slide (after the air knife passes it) you can observe the swirling action produced by the vortex mixers.
 - The vortex mixers are air jets directed at the surface of the slide.
 - The mixers are located on the nozzle plate, adjacent to the slides, which rotates, making a complete revolution every four minutes.

To test the vortex mixers, follow the instructions below rather than prompts from the software. Consider the process to be a dialogue between you and the instrument.

USER:

1. Place a slide at position #15.
2. Follow the steps to the Download Tests screen.
3. Select Test-Vortex Mix XT from the menu, then click the Run button.
 - The test instructions are sent to the stainer subassembly.
 - “ When they arrive safely, the yellow “Running” status light on the control panel will glow.

INSTRUMENT:

4. The software will then:

- Turn on the compressor and pressurize the system.
- Turn on the vortex mixers.
- Prompt you to press the user button under (the VENTANA logo).

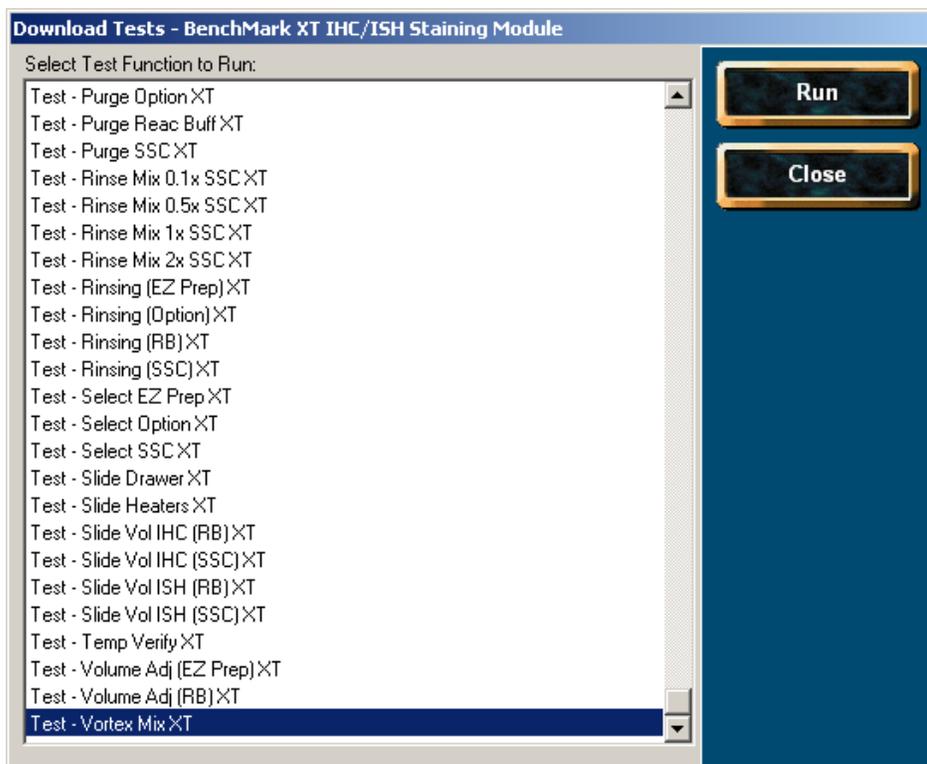


Figure 184. Selecting Test-Vortex Mix XT

USER:

5. You must then:
 - PRESS THE USER BUTTON AT THIS POINT.

INSTRUMENT:

6. Next, the software will:
 - Lift the slide tray.
 - Home the nozzle plate.
 - Move the dual rinse nozzles to slide #15 and rinse the slide.
 - Move the volume adjust nozzle to slide #15 and adjust the slide volume.
 - Move the coverslip nozzle to slide #15 and coverslip the slide.
 - Turn on the bar code blowoff, move the nozzle plate forward one position, and then turn off the bar code blowoff.
 - Move each vortex mixer nozzle to slide #15 and dwell for six seconds.

Barcode Blowoff Test

Function

- The software causes these components to function in order to test bar code blowoff.
 - Dual rinse nozzles.
 - Volume Adjust needle.
 - LCS nozzles.
 - Air Knife.

Use

- To ensure that the air knife clears liquid from the slide label.

Start the Bar Code Blowoff test sequence with the slide tray open.

- Mount a slide with bar code label at position #15.
- After you start the test, the first operation you will observe is washing.
 - The dual rinse nozzle will emit short bursts of buffer from upper and lower nozzles.
 - The streams from these nozzles should be emitted from all the holes in the row and should all hit the surface of the slide below the bar code label.
 - § Note that the upper and lower nozzles are aimed differently.
 - The sequence is concluded with a sustained burst from both nozzles at once.
 - If you are not doing a mixing test, just reach out and feel it during the dispense sequence.
 - Volume adjust dispenses a stream of buffer from the needle on the block to the right of the wash nozzles.
 - LCS is emitted from two holes in the air knife/LCS nozzle assembly.
 - Verify that both holes are emitting.
 - Verify that the streams land on the bar code label, near the bottom edge, and that they are centered.
 - The LCS should then flow over the entire surface of the slide.
 - The air knife is an air jet operation designed to clear liquid from the slide label.
 - You can hear the air jets.
 - After the air knife.
 - The label should be cleared of liquid.
 - The LCS puddle should be separated slightly from the edge of the label.
 - Just after the air knife operation is when you apply a drop of hematoxylin to observe mixing.
 - A pipette or a VENTANA dispenser may be used for this purpose.
 - Observe mixing.
 - You can repeat the test by pressing the user button.

To test the bar code blowoff, follow the instructions below rather prompts from the software. Consider the process to be a dialogue between you and the instrument.

USER:

1. Follow the steps to the Download Tests screen.
2. Then select Test-Bar Code Blowoff XT from the menu, then click the Run button.
 - The test instructions are sent to the stainer subassembly.
 - When they arrive safely, the yellow “Running” status light on the control panel will glow.

INSTRUMENT:

3. The software will then:
 - Turn on the compressor and pressurize the system.
 - Lift the slide tray.
 - Home the nozzle plate.
 - Prompt you to press the user button under the VENTANA logo.

USER:

4. You must then:
 - PRESS THE USER BUTTON AT THIS POINT.

INSTRUMENT:

5. Next, the software will:
 - Move the dual rinse nozzles to slide #15 and rinse the slide.
 - Move the multispense nozzle to slide #15 and adjust the slide volume.
 - Move the coverslip nozzle to slide #15 and coverslip the slide.
 - Turn on the bar code blowoff, move the nozzle plate forward one position, and then turn off the bar code blowoff.
 - Move the dual rinse nozzles to slide #13 and wait.

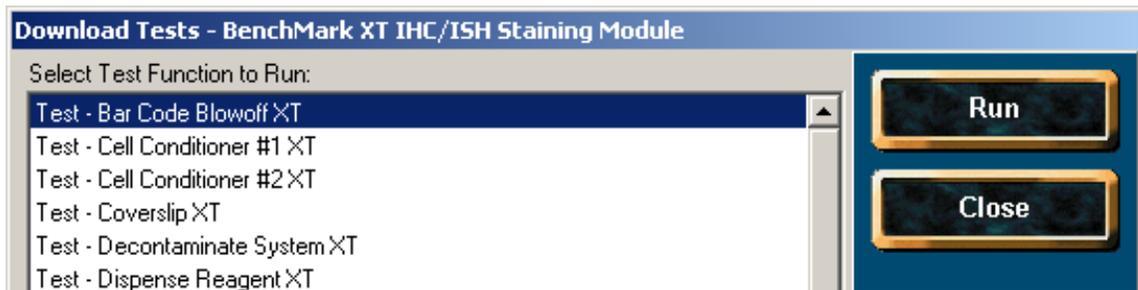


Figure 185. Selecting Test- Bar Code Blowoff XT

Using Daily, Monthly, and Quarterly Checklists

You must use the software to log scheduled maintenance tasks after you have performed them. You can also view maintenance history.

- Click the Maintenance icon on the main screen to display the Maintenance menu shown below.

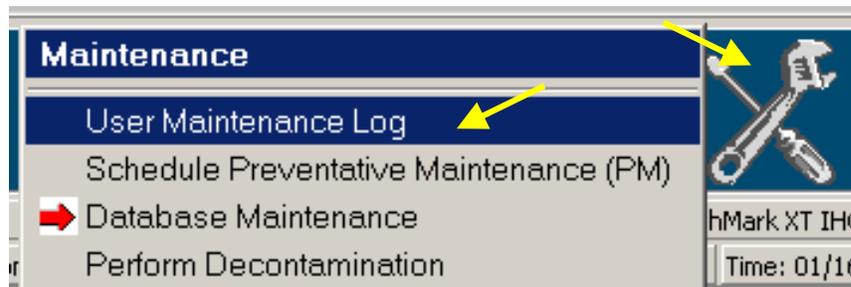


Figure 186. Selecting User Maintenance Log

- Then select User Maintenance Log from the menu to display the User Maintenance screen shown below.

Viewing Maintenance History

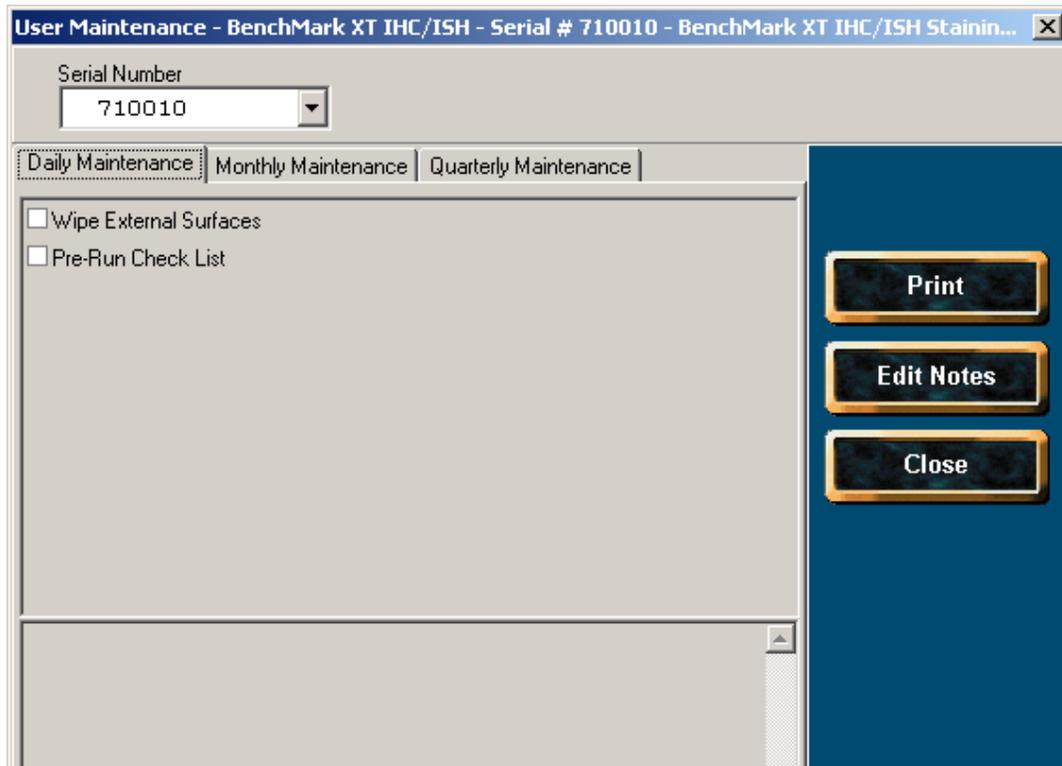


Figure 187. User Maintenance Screen

If you wish to view a history of maintenance performed on a particular instrument:

- Select the instrument's serial number.
 - The default selection is the instrument currently selected at the top of the main screen.
- Select one of the periodic maintenance tabs.
 - Daily Maintenance.
 - Monthly Maintenance.
 - Quarterly Maintenance.
- Click the Print button to display the Print User Maintenance Report screen shown below

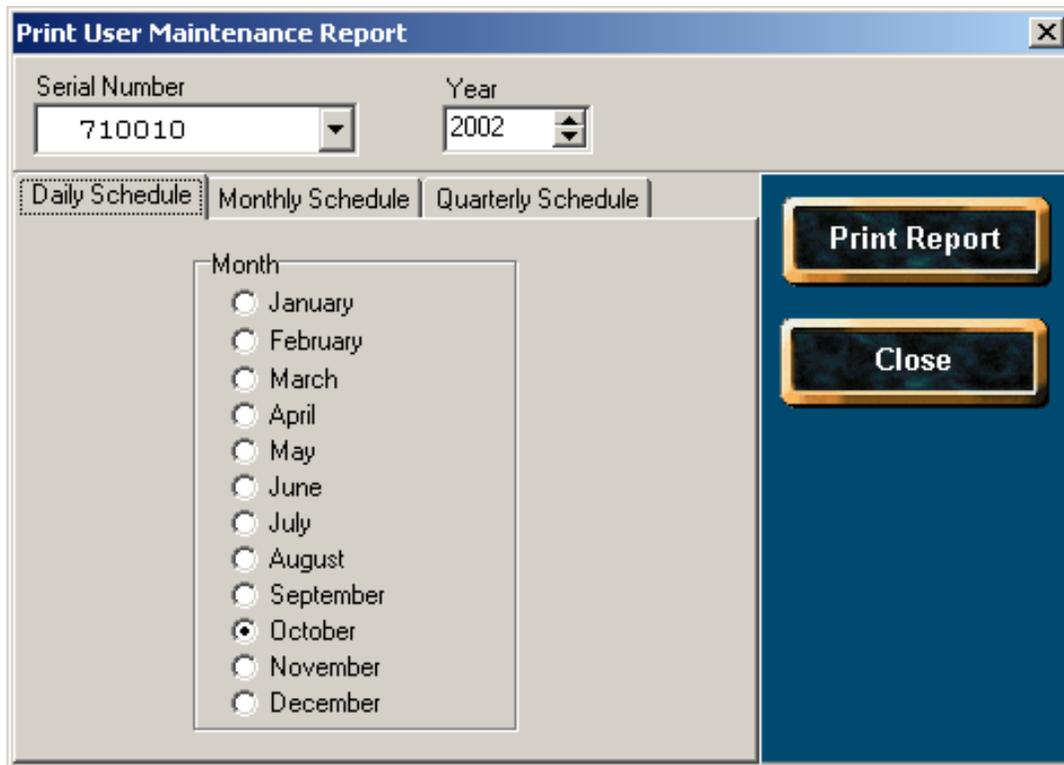


Figure 188. Print User Maintenance Report Screen

- The Daily Schedule is the default periodic maintenance tab and the current month year are the default history time period.
 - From this screen, you can select a different instrument, a different periodic maintenance tab, and a different month or year, if you wish.
- Click the Print Report button to display the Print Preview screen shown below.
 - The Print Preview screen will display a check mark for each task that was completed for a particular day.

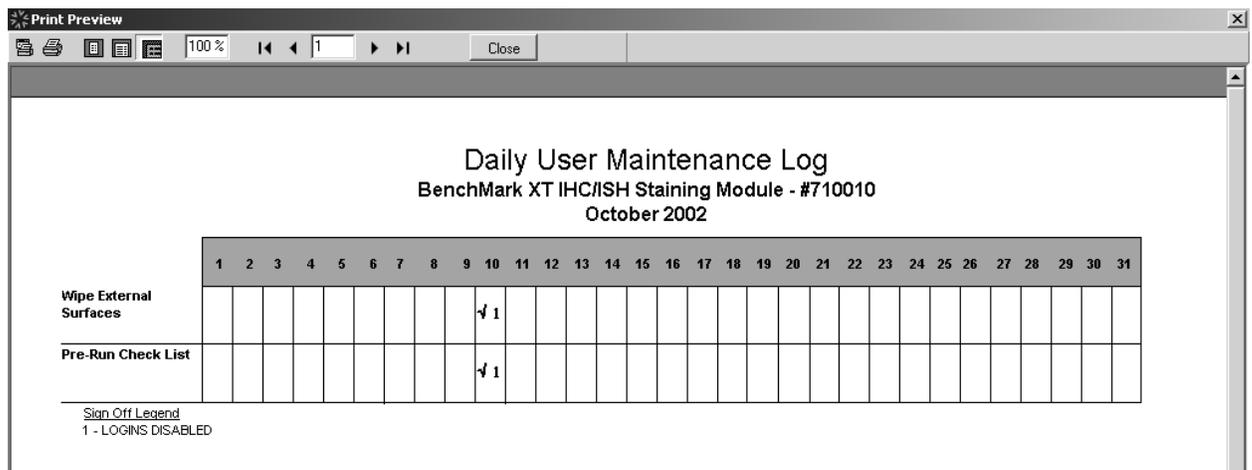


Figure 189. Print Preview Screen

- To zoom the Print Preview screen, click any of the zoom icons.
- To scroll the pages, click any scroll button.

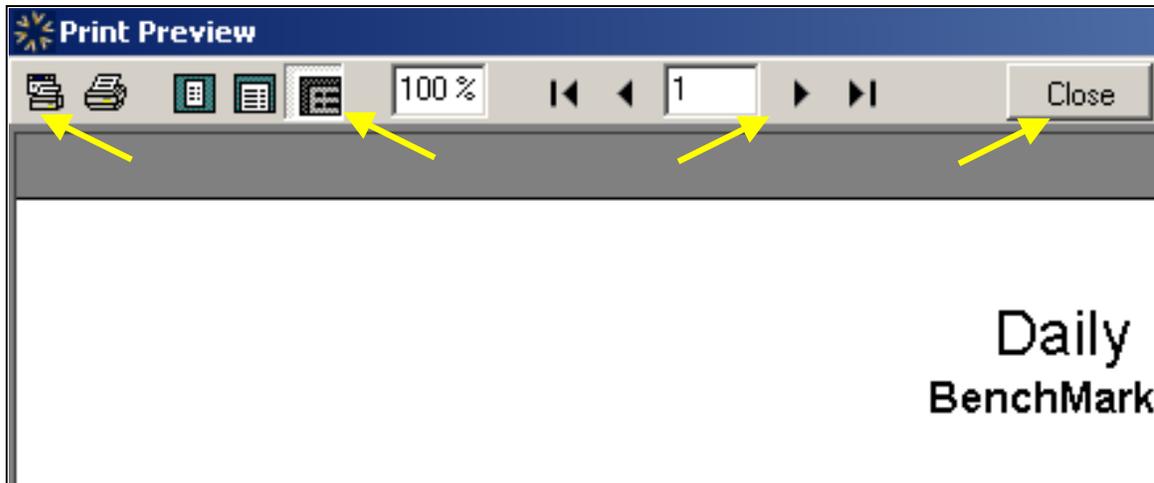


Figure 190. Print Preview Screen Toolbar

- Click Close to close the Print Preview screen and return to the Print User Maintenance Report screen shown below.
 - From this screen, you can select a different instrument's serial number, a different periodic maintenance tab, and a different month or year, if you wish.

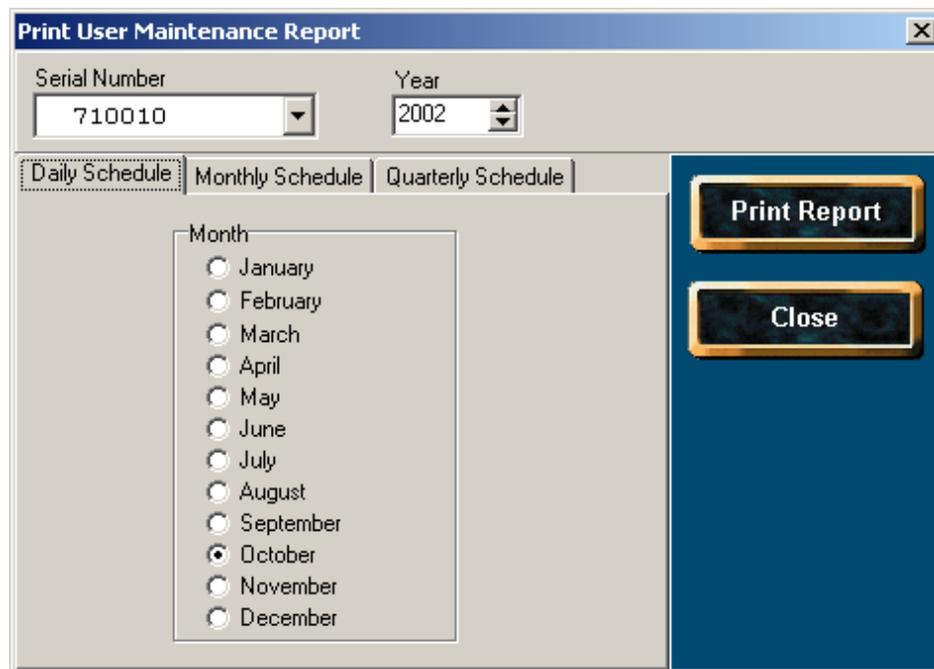


Figure 191. Print User Maintenance Report Screen

- Click Close to close the log and return to the User Maintenance screen shown below.

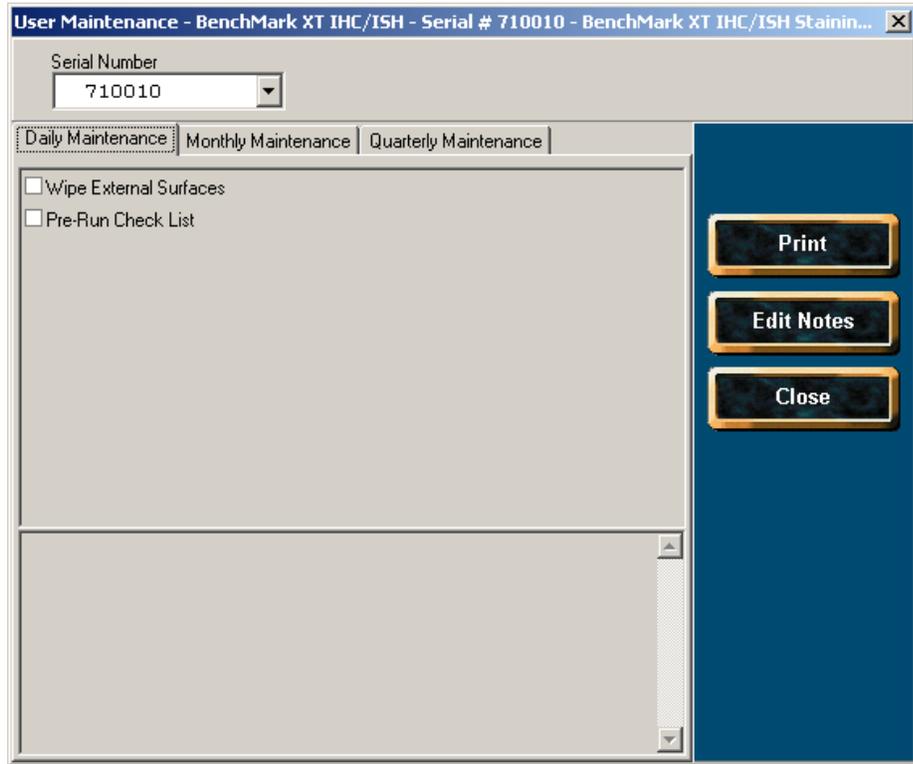


Figure 192. User Maintenance Screen

Logging Periodic Maintenance Tasks

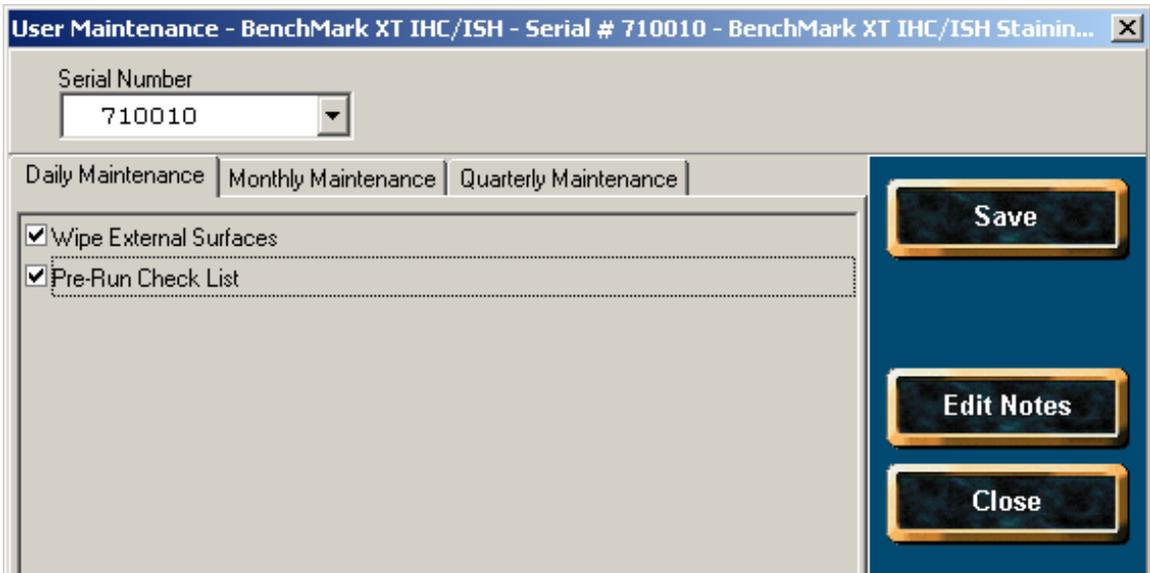


Figure 193. Checking Daily Maintenance Tasks

To log required periodic maintenance tasks, check each task after you complete it.

- As soon as you check a task, the Save button will appear.
 - The Print button will disappear.
- After you have checked the required tasks, click the Save button to display the Confirm box shown below.

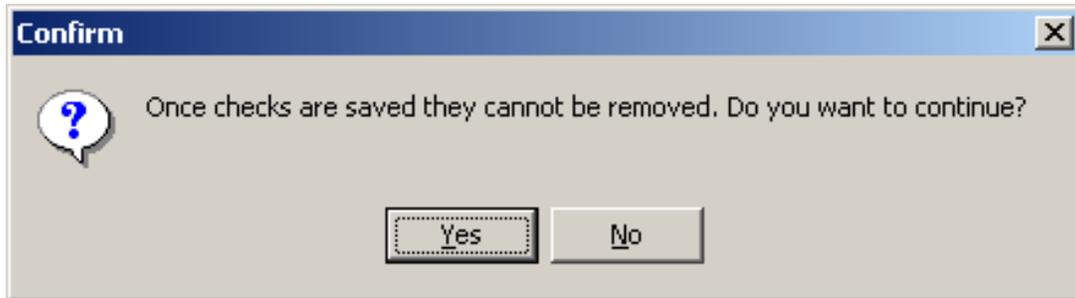


Figure 194. Maintenance Tasks Confirm Box

- Click Yes to re-display the User Maintenance screen without the Save button as shown below.

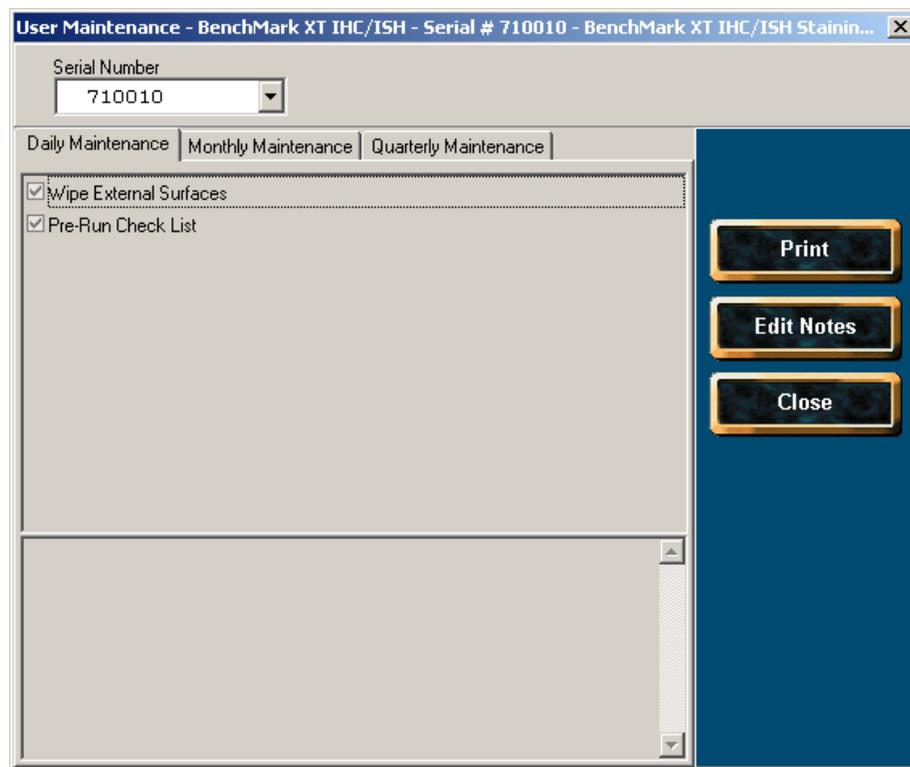


Figure 195. User Maintenance Screen

- At your option, select the Daily Maintenance, Monthly Maintenance or Quarterly Maintenance tab.
- Check each task after you have performed it.
- As soon as you check a task, the Save button will appear

- The Print button will disappear.
- If you wish to view or add notes about the tasks, click the Edit Notes button to display the Maintenance Notes screen.

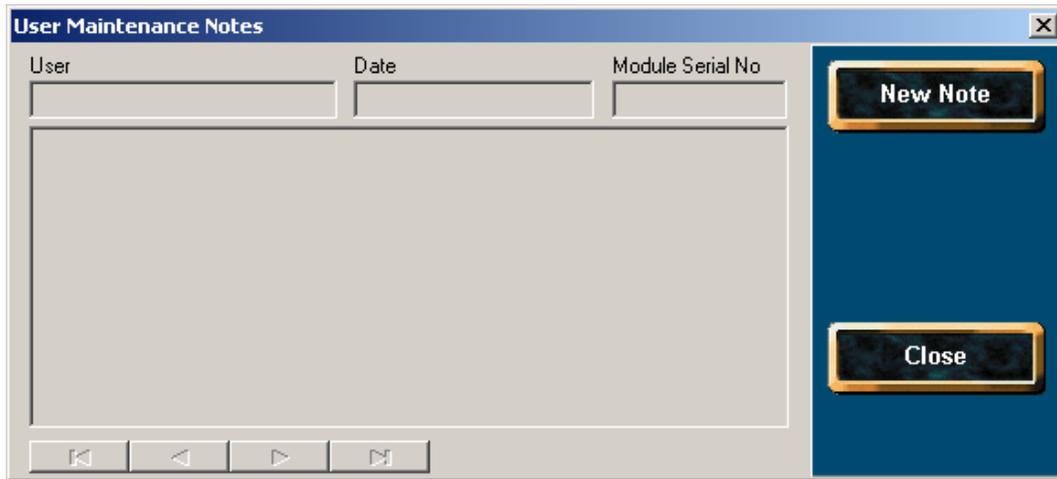


Figure 196. User Maintenance Notes Screen

- If you wish to add notes, click the New Note button to display the Save button as shown below.
- The New Note button will disappear.

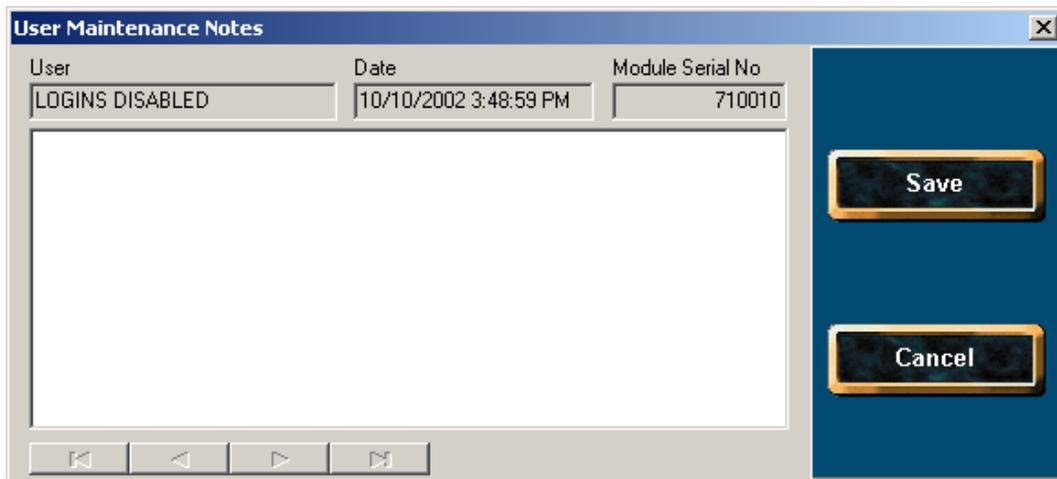


Figure 197. User Maintenance Notes Screen with Save Button

- Type your notes as shown below.

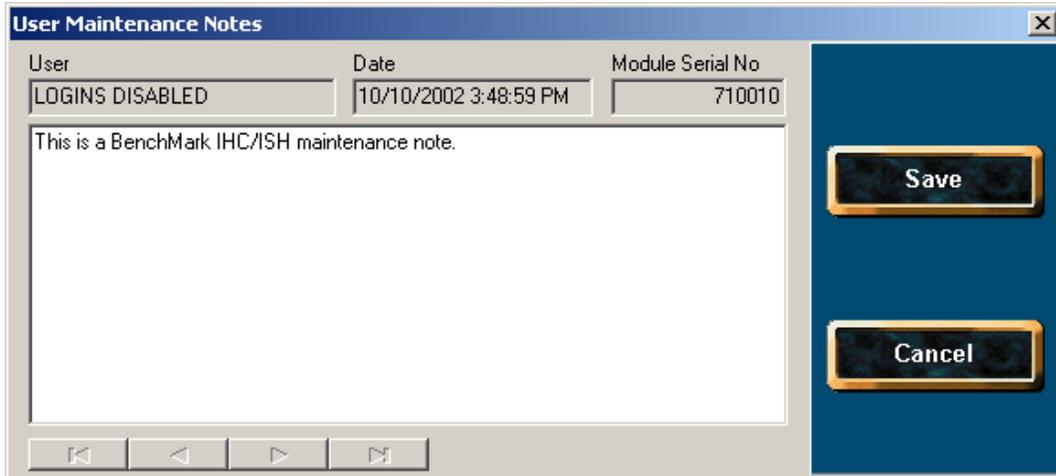


Figure 198. Completed User Maintenance Note

- Click the Save button to save your notes and display the screen below.

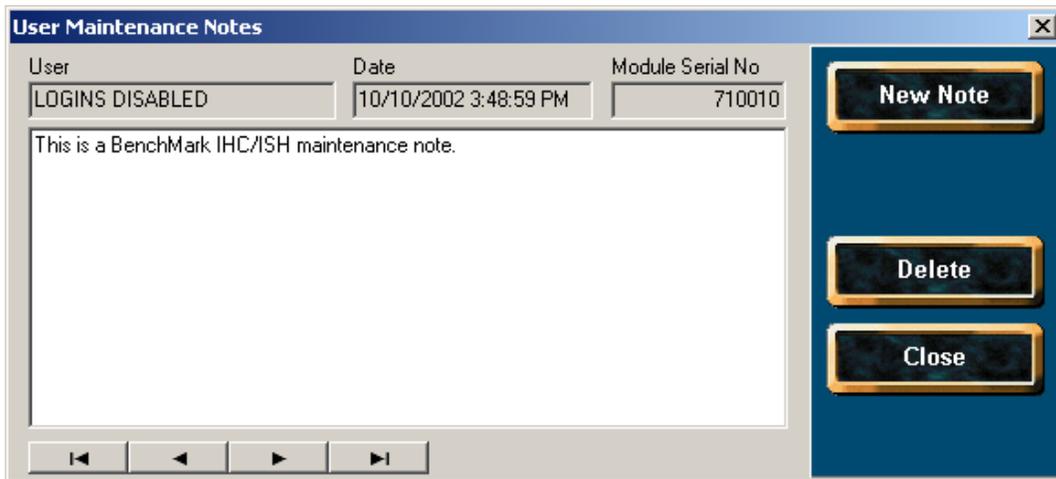


Figure 199. User Maintenance Notes Screen after Saving

- Click the Close button to close the screen and redisplay the User Maintenance screen.

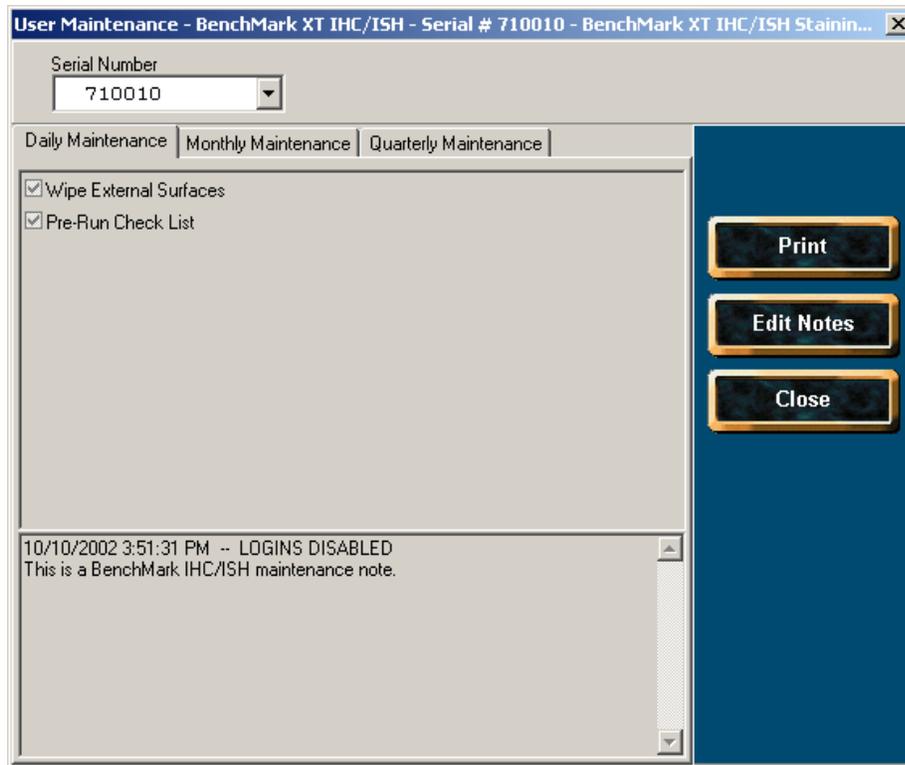


Figure 200. Maintenance Note and Print Button Displayed

- Click the Print button to preview, then print the log for the tab you select.
- Click the Edit Notes button to display maintenance notes in the User Maintenance Notes screen for editing.

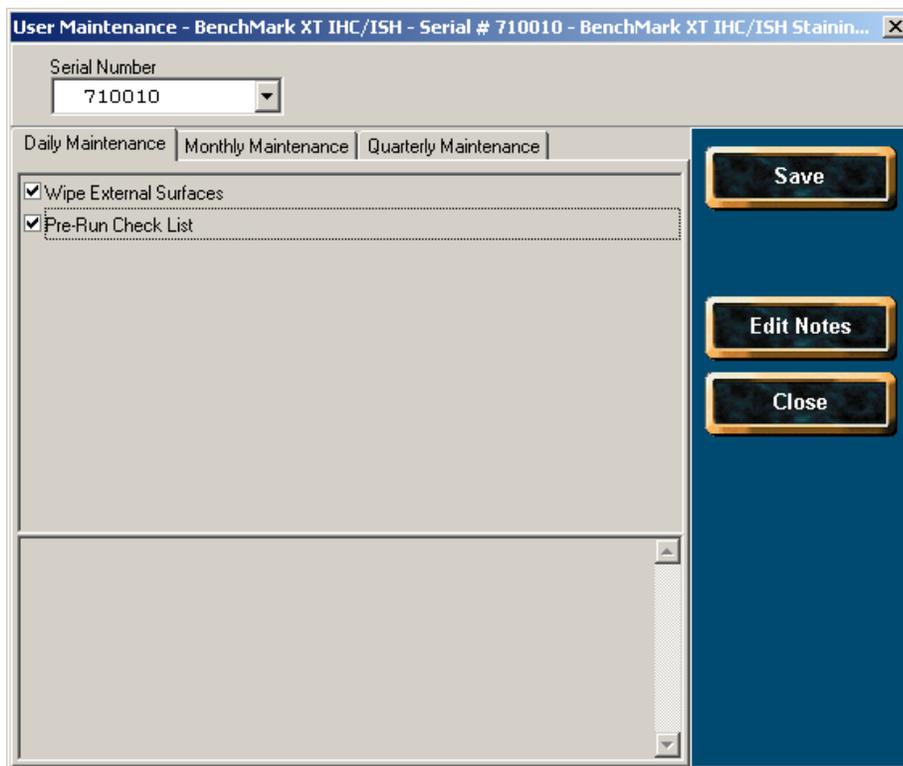
Daily Checklist

Wipe External Surfaces

1. Wipe external surfaces with a soft, damp cloth.
2. Remove the reagent racks and wipe the racks and carousel with a soft, damp cloth.

Pre-Run Checklist

Go through the pre-run checklist before every run (see the “Operator Actions before a Run” section).



The screenshot shows a software window titled "User Maintenance - BenchMark XT IHC/ISH - Serial # 710010 - BenchMark XT IHC/ISH Stainin...". At the top, there is a "Serial Number" dropdown menu set to "710010". Below this are three tabs: "Daily Maintenance", "Monthly Maintenance", and "Quarterly Maintenance". The "Daily Maintenance" tab is active and contains a checklist with two items: "Wipe External Surfaces" and "Pre-Run Check List", both of which are checked. To the right of the checklist are three buttons: "Save", "Edit Notes", and "Close".

Figure 201. Daily Checklist

Monthly Checklist

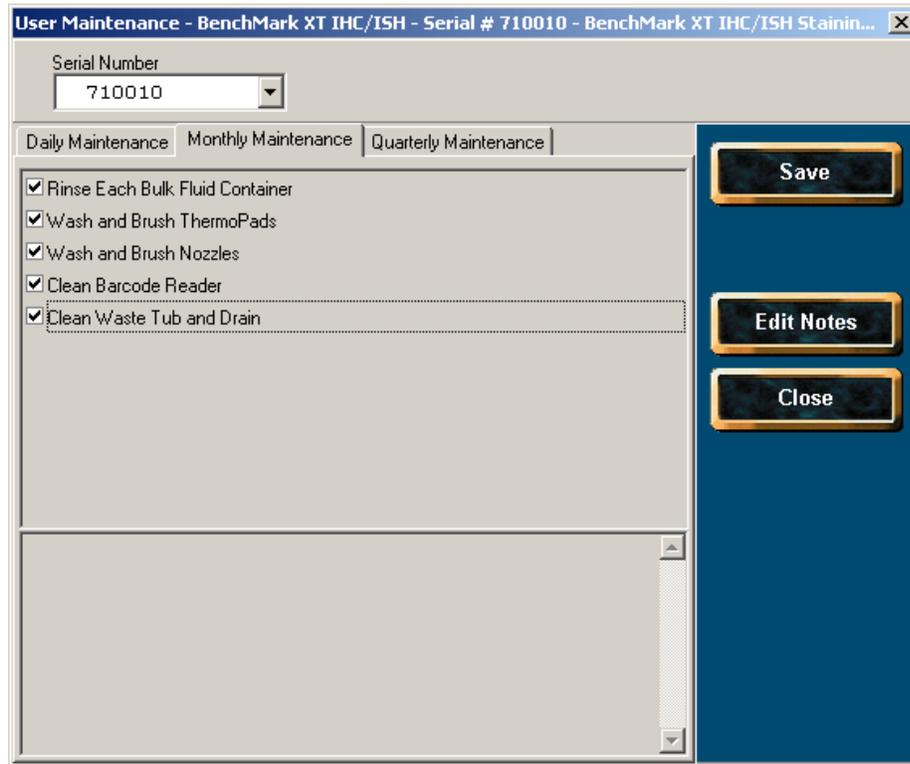


Figure 202. Monthly Checklist

The following sections describe the tasks listed in the monthly checklist.

Rinse Each Bulk Fluid Container

- Empty the residual fluids out of the EZ Prep, SSC, CC1, CC2, Optional, and Reaction Buffer bottles.
- Rinse the bottles with deionized water (except for the LCS bottle).
- Refill the bottles with their original fluids.

Wash and Brush Slide Heater Pads

WARNING: BLEACH SHOULD NEVER BE USED TO CLEAN, SANITIZE, OR DISINFECT ANY PART OF THE BENCHMARK XT/LT INSTRUMENT. BLEACH HAS CORROSIVE PROPERTIES WHICH MAY ALTER THE PERFORMANCE OR FUNCTION OF YOUR STAINING INSTRUMENT.

Beneath the slide tray is a black plastic tub that collects excess liquids during staining.

- It routes the excess liquids through a drain hose into the waste bottle subassembly.
- The tub will drain quite well during normal staining.
 - However, if you suddenly pour too much liquid into the tub, the water simply cannot escape quickly enough, and you may have an overflow.
 - Additionally, there are electronic sensors below the tub that could be damaged.

The following are the slide heater pad cleaning precautions.

- Turn off the instrument before performing this task.

- Empty the waste bottle before cleaning the instrument.
- Use a small container and pour water carefully.
- Try not to splash and splatter too much when washing the slide tray or other components.
- Keep an eye on the tub.
 - If it is not draining, stop pouring.

Normal cleaning is as follows.

1. First, wet the slide heater pads.
 - Gently pour hot tap water on the slide heater pads.
2. Prepare a soapy water solution, using warm tap water and liquid dishwashing detergent.
3. Using the soapy water solution and the instrument cleaning brush supplied with the system, lightly brush the slide heater pad.
4. Rinse again with hot water.

Wash and Brush Nozzles

You will have to access the nozzle plate in order to wash and brush the nozzles, and clean the slide bar code reader. To access the nozzle plate, you must first **TURN OFF THE INSTRUMENT**. Then you must remove the staining subassembly's cover after removing the two screws that hold it in place as shown below.

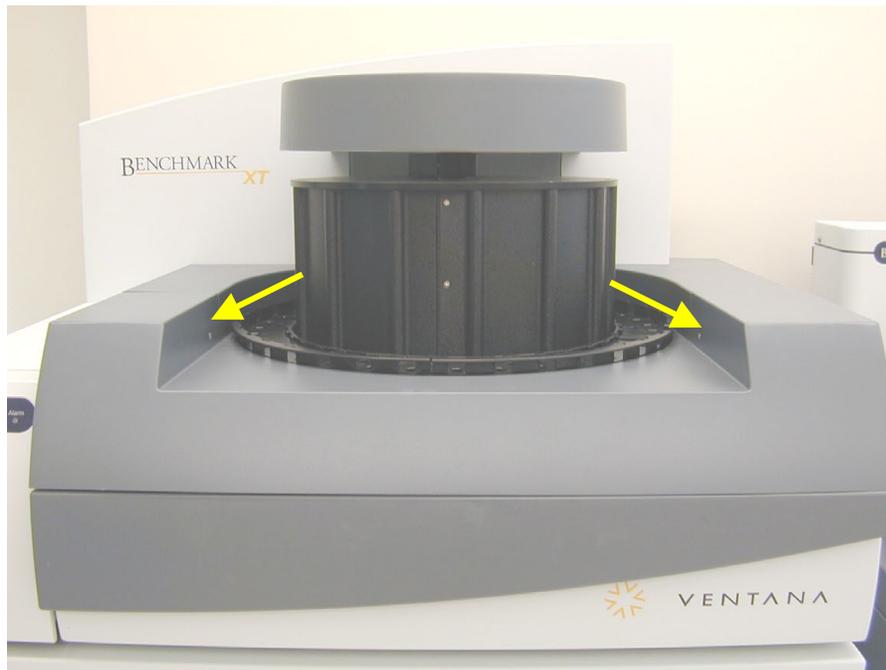


Figure 203. Stainer Subassembly's Cover and Screws

Next, you will have to use an Allen wrench to loosen the four screws that hold the two drip shields in place over the nozzle plate as shown below.

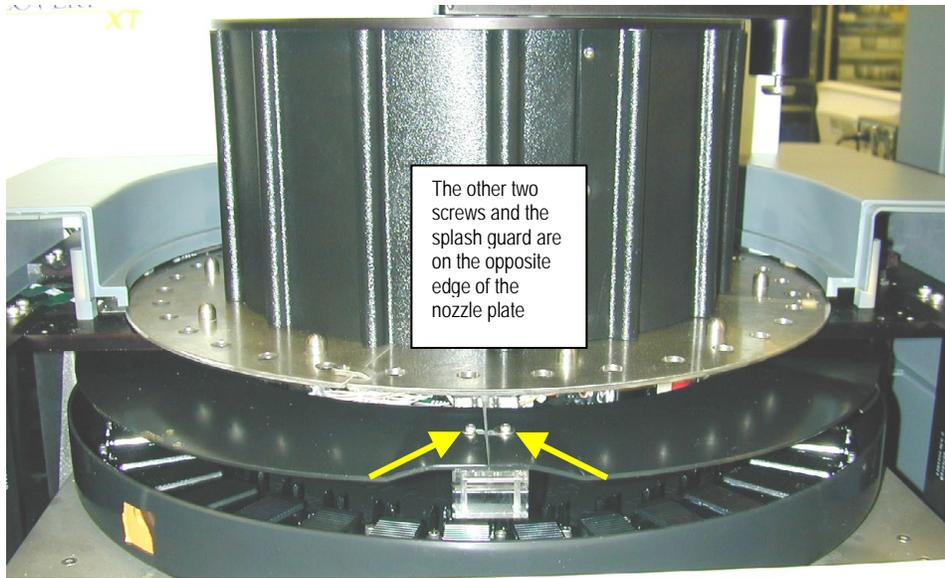


Figure 204. Drip Shields and Screws

After you have loosened the four screws, you must remove the drip shields to expose the nozzles and the slide bar code reader as shown below.

You must also remove the splash guard that shields the Dual Rinse and Jet Drain.

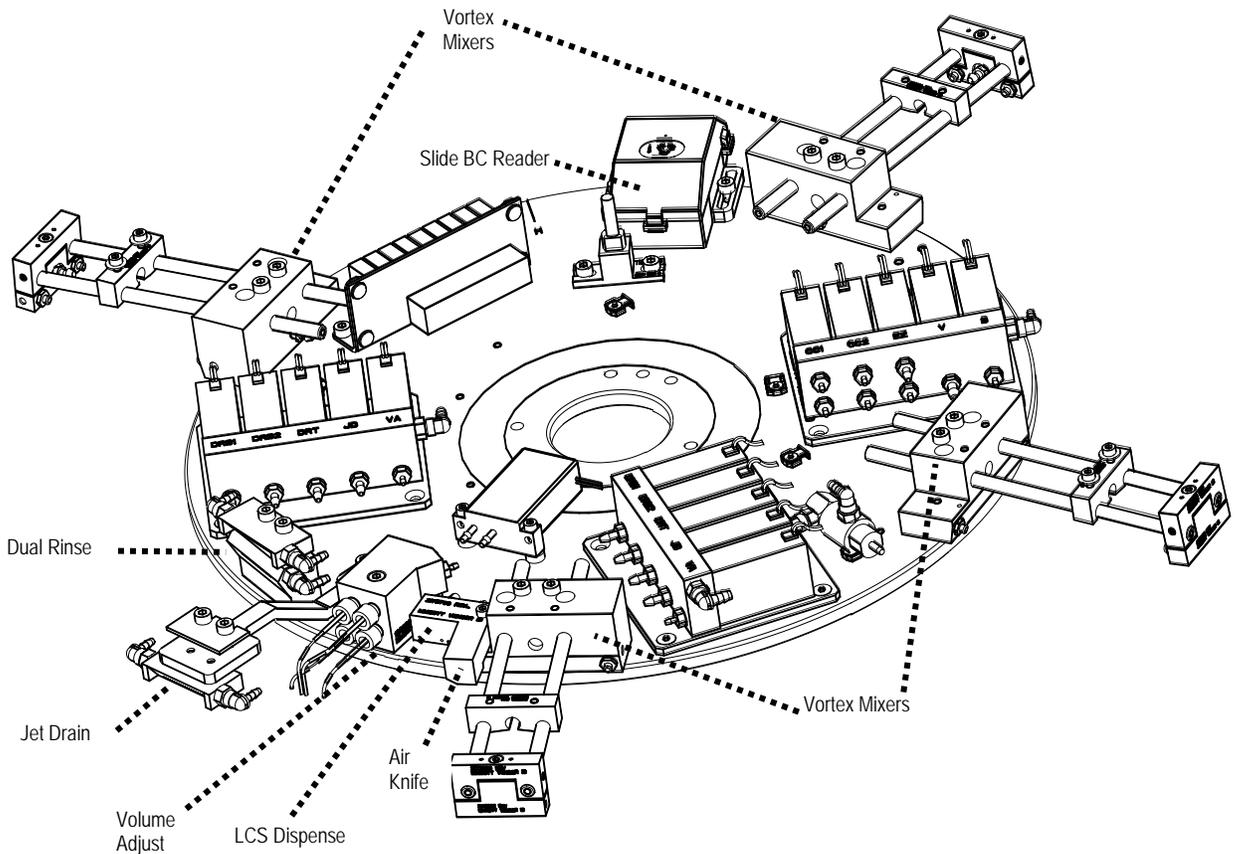


Figure 205. Nozzle Plate Assembly

Clean the nozzles as follows, then dry them with a soft cloth or paper towel:

- Dual Rinse—Gently brush the two rows of holes with soapy water, then wipe with a soft cloth and rinse with warm water.
- Jet Drain—Gently brush the row of holes with soapy water, then wipe with a soft cloth and rinse with warm water.
- Volume Adjust—Wipe the Volume Adjust, CC1, CC2, and Reaction Buffer needles with soapy water, then wipe with a soft cloth and rinse with warm water.
 - Take special care not to bend the needles.
- Air Knife—Wipe the underside with soapy water, then wipe with a soft cloth and rinse with warm water.
- LCS Dispense—Gently brush the two holes with soapy water, then wipe with a soft cloth and rinse with warm water.
- Outer and Inner Vortex Mixers—Wipe the front with soapy water, then wipe with a soft cloth and rinse with warm water.

Clean Bar Code Readers

Leave cleaning of lens of the slide bar code reader and the lens of the reagent bar code reader for last, in case other cleaning causes splashes or splatters. **Turn off the instrument before performing this task.**

- To access the slide bar code reader, you must first expose the nozzle plate as described in the previous section.
- Wipe the dispense hole and the area around it with a soft cloth dipped in soapy water solution.

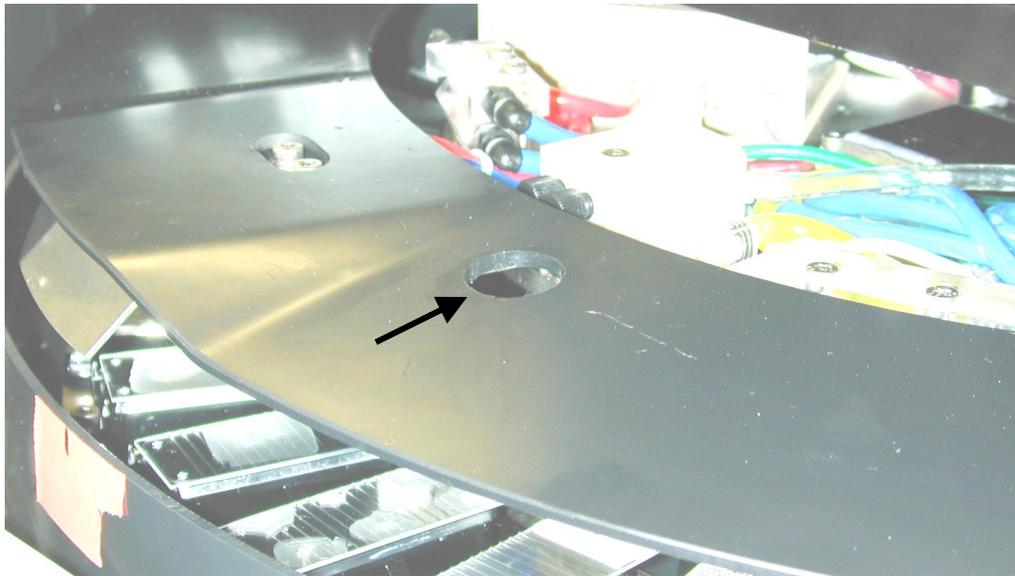


Figure 206. Dispense Hole

- Be sure to use **lens cleaning tissue**, not gauze or paper towels when cleaning the each bar code reader's lens
 - These can easily be damaged by abrasion.
- Use a flashlight to locate the reagent bar code reader lens opposite the rear of the carousel.
 - Figure 209 shows the reagent bar code reader and lens.
 - Figure 210 shows the slide bar code reader and lens.
- Do not use window or glass cleaning sprays on these components.

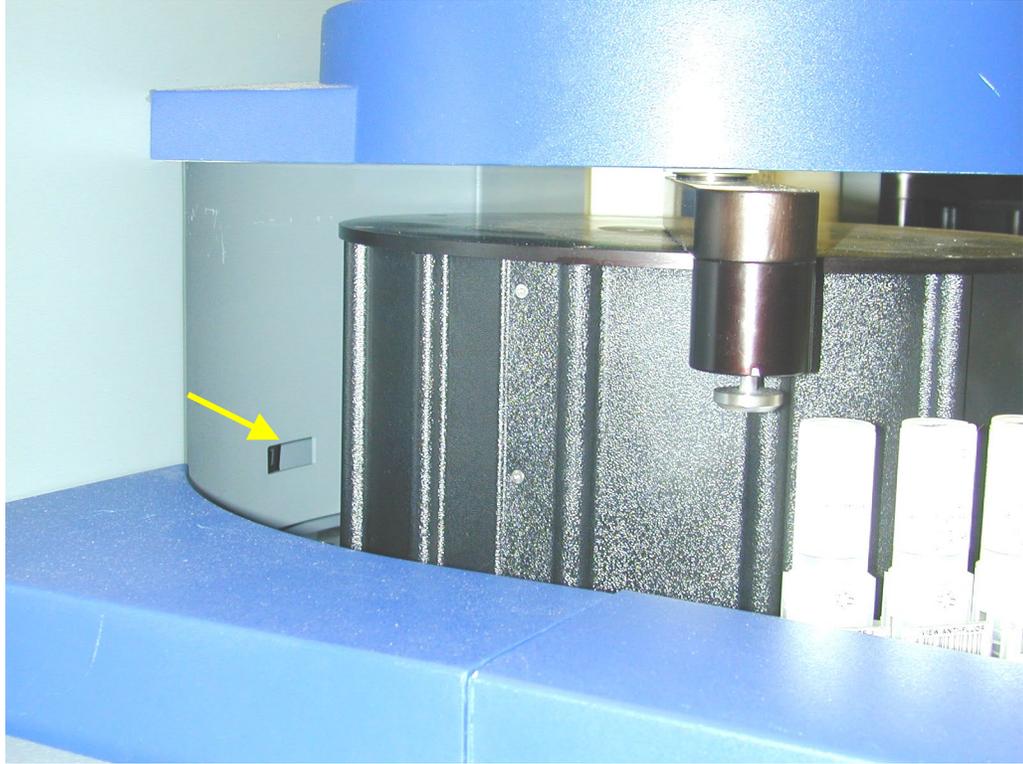


Figure 207. Reagent Bar Code Reader and Lens

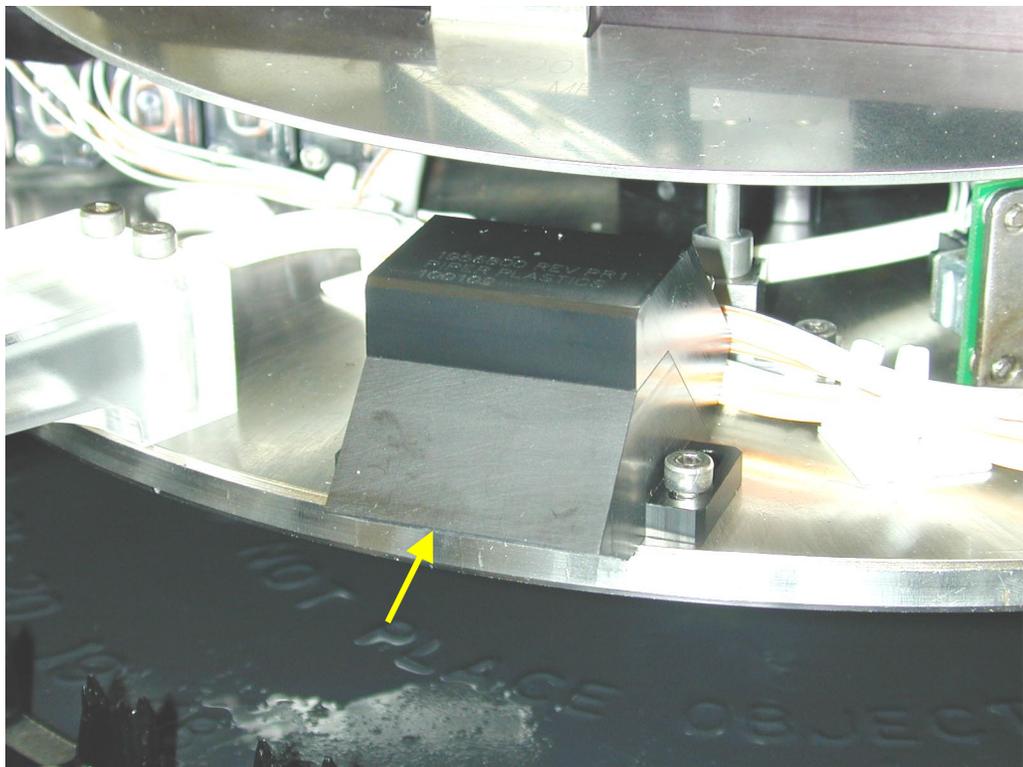


Figure 208. Slide Bar Code Reader and Lens

- Re-install the drip shields and splash guard after cleaning the slide bar code reader.

Clean Waste Tub and Drain

- Turn off the instrument before performing this task.
- Pour warm soapy water into the tub.
- Pour water into the tub to rinse.

Quarterly Checklist

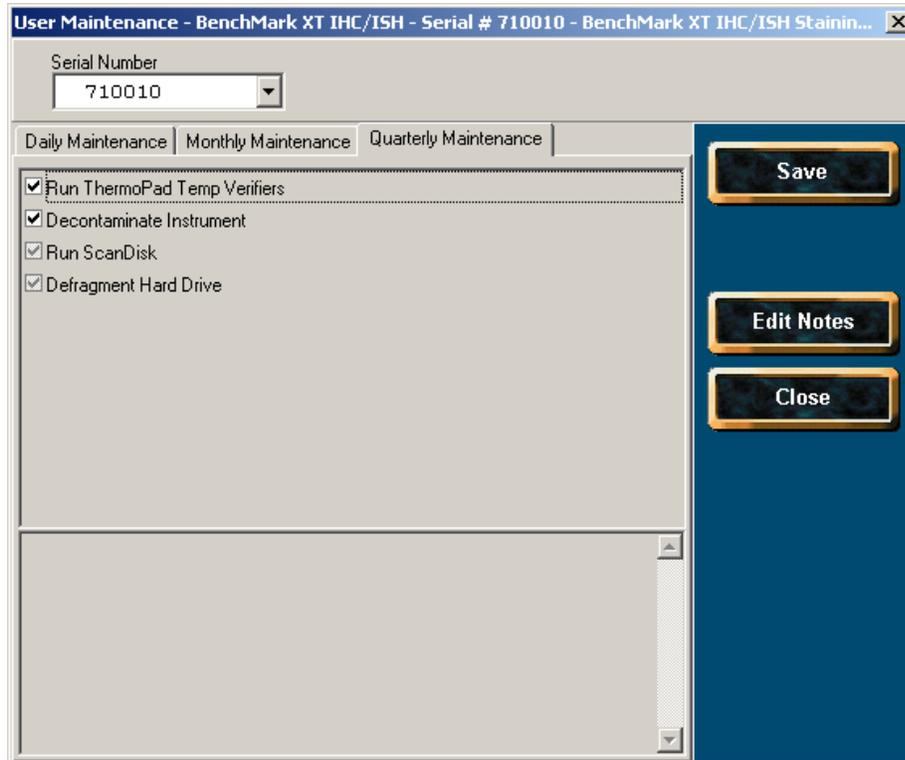


Figure 209. Quarterly Checklist

The following sections describe the tasks listed in the quarterly checklist.

Run Slide Heater Pad Temperature Verifiers

This test is designed to allow the user to check the heater temperatures through the use of temperature verification slides.

NOTE: Do not store the finished temperature verification slides on top of each other without first cleaning the oil off the bottom of each of the slides. Oil will cause the temperature indicators to turn black. Do not run finished slides through any automatic coverslipper. Solvents will cause the temperature indicators to turn black.

1. Load all temperature verification slides onto the instrument.
2. Be sure to close the door while the test is running.
3. Click the Test button to display the Test Task screen.



Figure 210. Test Task Screen

- Then select Function Tests from the screen to display the Download Tests screen.

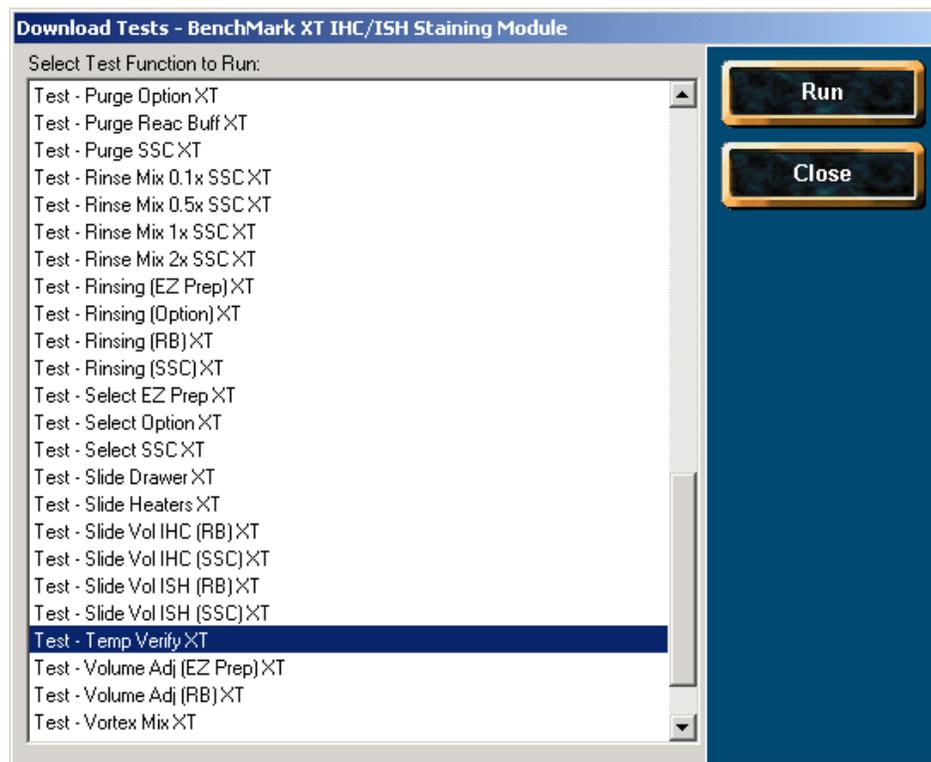


Figure 211. Selecting Test – Temp Verify XT

- Select Test – Temp Verify XT.
- Click the Run button.
- All positions are heated to 96° C for 12 minutes and cooled.
- The bar on each slide indicating 93° C should have turned black while the bar indicating 99° C should have remained unchanged.

Run Scandisk (Older Systems)

Use the steps below to run Scandisk.

1. Click the Start button, then select Run to display the Run screen shown below.



Figure 212. Run Scandisk (Older Systems)

2. Type scandisk in the window.
3. Click OK and let the program run to completion.

Run Scandisk (Newer Systems)

Use the steps below to run Scandisk.

1. Click the Start button, then select Run to display the Run screen shown below.

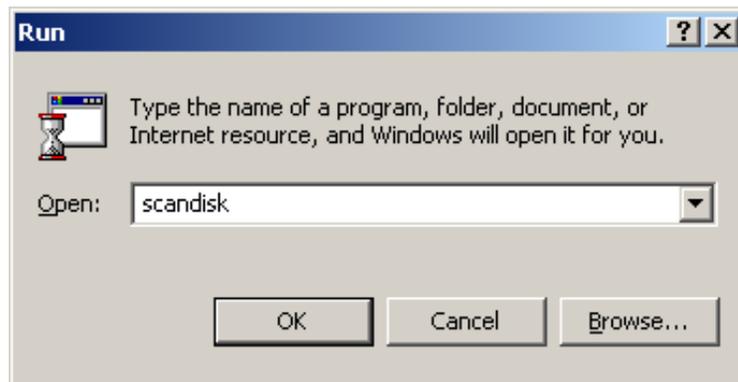


Figure 213. Run Scandisk (Newer Systems)

2. Type scandisk in the window.
3. Click OK and let the program run to completion.

Defragment Hard Drive (Older Systems)

A typical procedure for defragmenting the computer's hard drive follows below.

- In the Windows Explorer, select the C: drive as shown below.

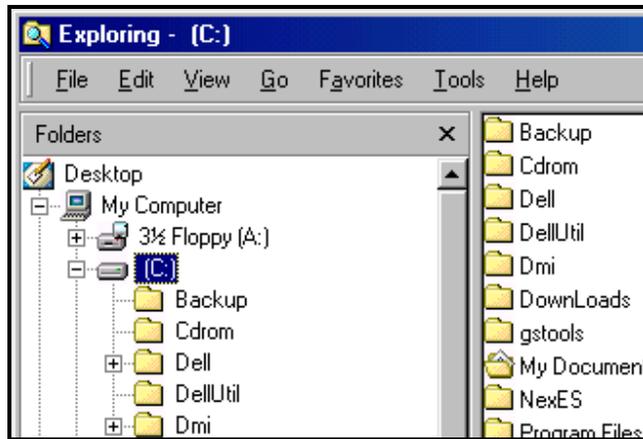


Figure 214. Selecting the C: Drive (Older Systems)

- From the File menu, select Properties as shown below.

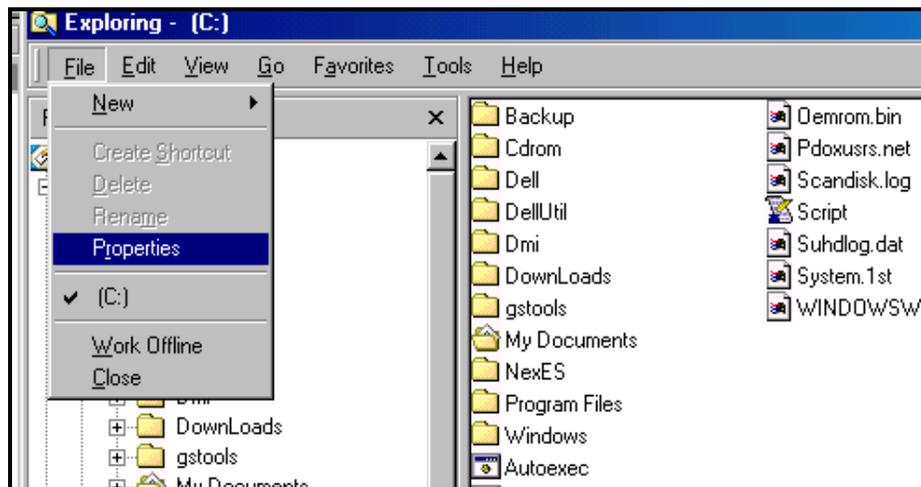


Figure 215. Selecting Properties (Older Systems)

- After the Properties screen appears, select the Tools tab as shown below.

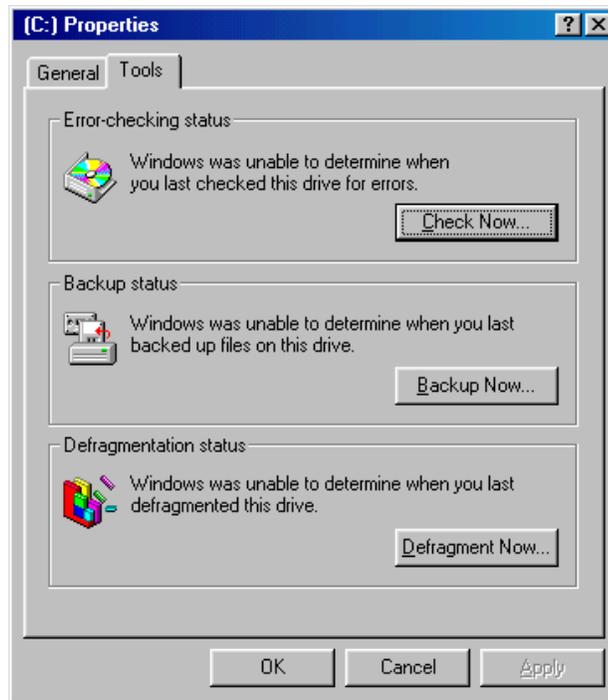


Figure 216. Selecting Tools Tab and Defragment Now Button (Older Systems)

- Click the Defragment Now button shown above to display the Defragmenting screen shown below, then let the defragmenting process run to completion.
- It is necessary to defragment the hard drive only once each quarter, regardless of how many staining modules it controls.

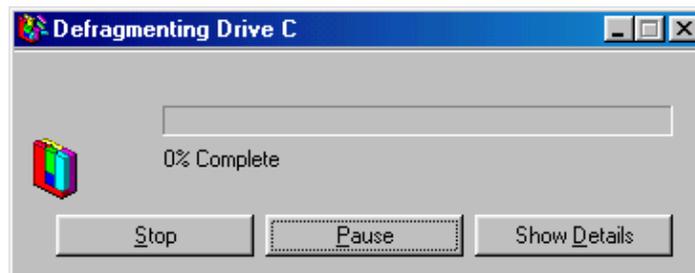


Figure 217. Defragmenting Screen (Older Systems)

Defragment Hard Drive (Newer Systems)

A typical procedure for defragmenting the computer's hard drive follows below.

- In the Windows Explorer, select the C: drive as shown below.

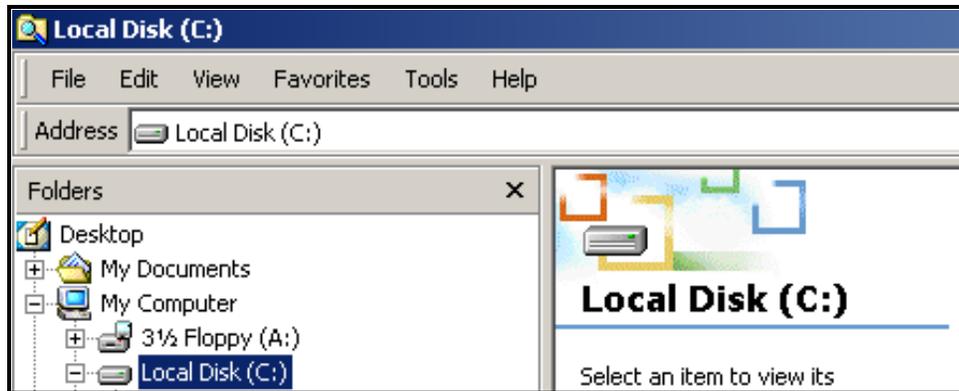


Figure 218. Selecting the C: Drive (Newer Systems)

- From the File menu, select Properties as shown below.

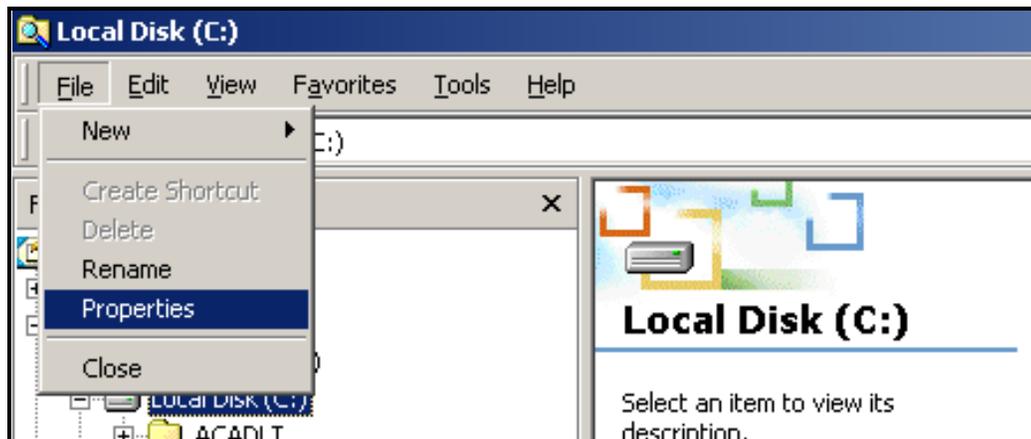


Figure 219. Selecting Properties (Newer Systems)

- After the Properties screen appears, select the Tools tab as shown below.



Figure 220. Selecting Tools Tab and Defragment Now Button (Newer Systems)

- Click the Defragment Now button shown above to display the Defragmenting screen shown below.

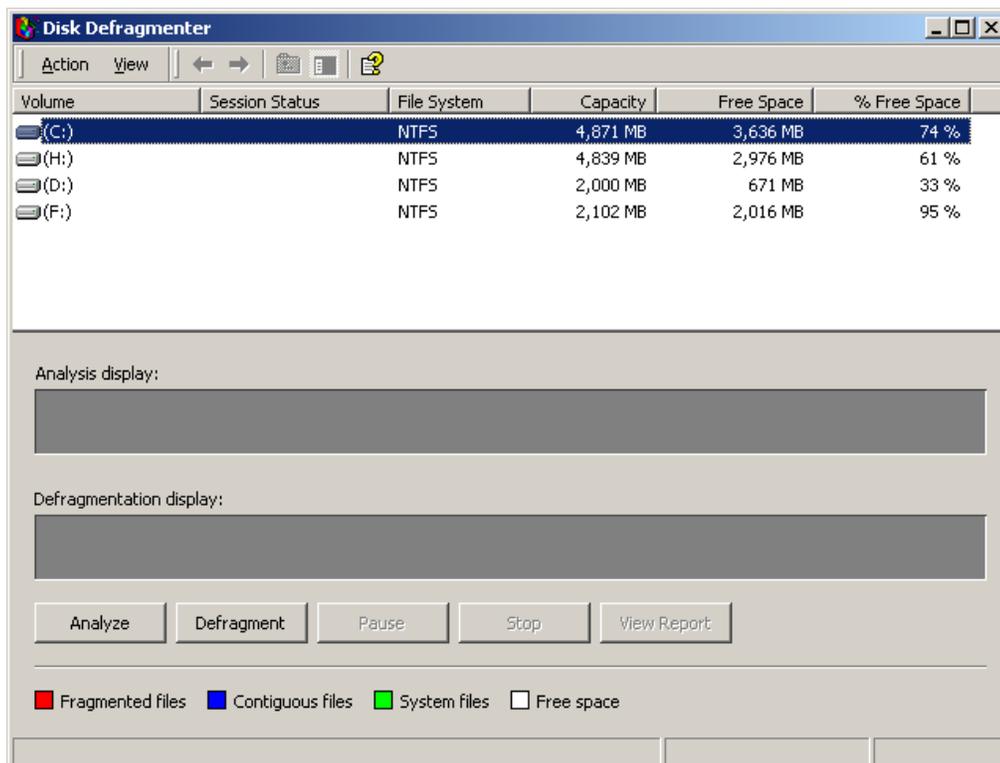


Figure 221. Disk Defragmenter Screen

- Click the Defragment button shown above, then let the defragmenting process run to completion as shown in the Analysis display and Defragmentation display below.

- It is necessary to defragment the hard drive only once each quarter, regardless of how many staining modules it controls.

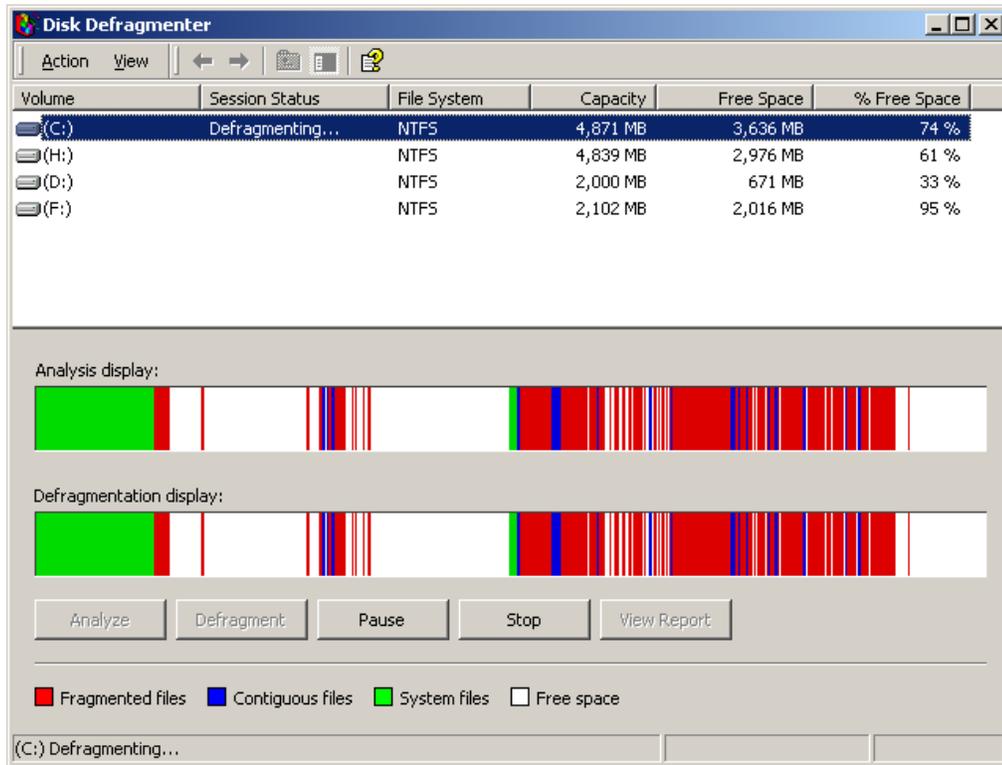


Figure 222. Analysis Display and Defragmentation Display

- After the disk has been defragmented, the confirmation message shown below will be displayed.

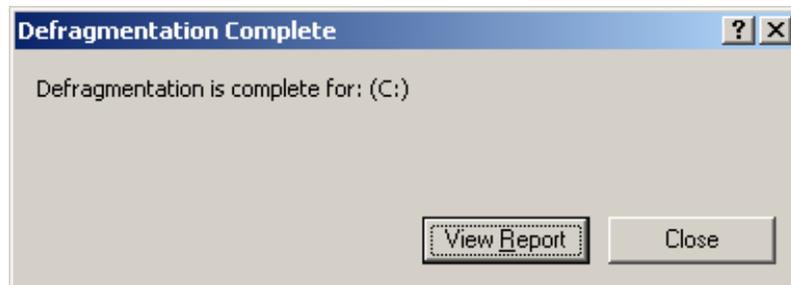


Figure 223. Defragmentation Confirmation Message

INTENTIONALLY BLANK

12.0 BENCHMARK XT AND BENCHMARK LT DECONTAMINATION

Decontaminate Instrument

Disinfectant solution has been found suitable for disinfecting the stainer subassembly and other system components.

- This also inhibits the growth of mold, mildew and fungi.
- Use the manufacturer's recommended dilution.

We recommend disinfecting of the instrument and the exterior surfaces of all system components as follows. **Turn off the instrument before performing this task.**

- **The dispense hole** is located in the drip shield as shown in Figure 225.
 - Wipe the dispense hole and the area around it with a soft cloth dipped in Disinfectant solution

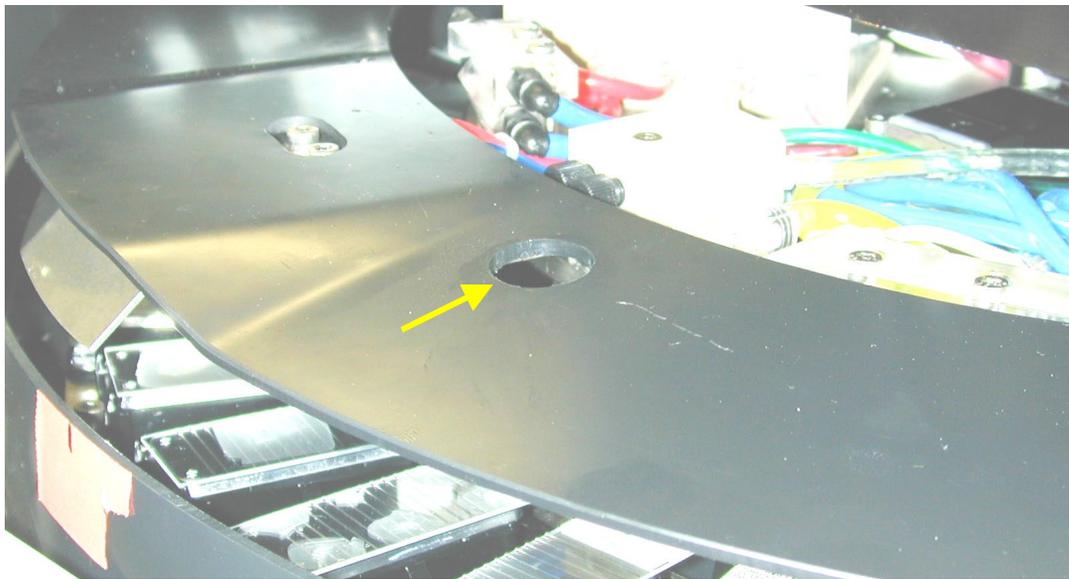


Figure 224. Decontaminating the Dispense Hole

- **The waste bottle subassembly** can be continuously disinfected by adding 40 ml. of Disinfectant solution **concentrate** (before use) each time it is emptied.
- **For the stainer subassembly interior**, use the same procedures described for cleaning the slide heater pads.
 - After wetting and brushing with Disinfectant solution, allow the disinfectant to stand for ten minutes before rinsing or using the instrument.
- **For exterior surfaces** of the stainer subassembly, automated fluidics subassembly, and the exterior of bulk fluid bottles, wipe with diluted Disinfectant solution using gauze or a soft cloth.
 - Allow to air dry for 10 minutes.

Decontaminate Bulk Carboys

1. Place 2 liters of disinfectant working solution in each of the bulk solution carboys.



Figure 225. Placing Disinfectant Solution in Carboy

2. Swish fluid around inside the containers until all surfaces are wet and leave for at least 10 minutes.
 - This solution can be used for the remaining disinfection steps.
3. Before refilling the carboys with new bulk fluid solutions, make sure to rinse out the carboys thoroughly with type II water until Disinfectant solution odor is gone.
 - This usually requires at least three rinses.

Decontaminate Bulk Fluid Bottles

1. Empty the residual fluids out of the EZ Prep, SSC, CC1, CC2, Optional, and Reaction Buffer bottles.
2. **DO NOT EMPTY LCS BOTTLE UNLESS INSTRUCTED BY VENTANA TECHNICAL SUPPORT PERSONNEL.**



Figure 226. Emptying Residual Fluids from Bulk Fluid Bottles

3. Place 500 – 750 mls of disinfectant working solution in each of the bulk solution bottles.



Figure 227. Refilling Bulk Fluid Bottles with Fresh Bulk Fluids

4. Swish fluid around inside the containers until all surfaces are wet and leave for at least 10 minutes.
5. Before refilling the bottles with new bulk fluid solutions thoroughly rinse the bottles with type II water until Disinfectant solution odor is gone.
 - This usually requires at least three rinses.
6. Refill the bottles with fresh bulk fluids.

Decontamination Method 1: Using the Single Source Container and Tubing Manifold

The estimated Total Procedure Time is 60 minutes.

Test Function Step	Technician Time	Instrument Time	Reagent usage / Waste produced
Disconnect AFM Bottles	2 min.		Site dependent
Connect Tubing Manifold and place open end in Disinfectant solution			
Instrument performing disinfectant cleaning	Disinfect AFM Bottles (15min)	6 min.	2L
Instrument exposure time of 10 minutes		10 min.	
Disconnect and rinse tubing manifold	5 min.		
Connect Tubing Manifold and place open end in deionized water solution			
Instrument performing deionized water rinsing		6 min.	2L
Disconnect tubing manifold	5 min.		
Fill AFM bottles with Fresh VENTANA Bulk Reagents, shake to coat inside and reinsert			(User dependent)
Instrument priming Bulk Reagents		10 min.	1.5L
Decontamination Complete	27 min.	32 min.	5.5L

Figure 228. Method 1 Procedure Summary Time Table

The estimated Total Procedure Time is 60 minutes, and requires the following steps

1. If necessary, empty any fluid in the waste reservoir and replace the waste reservoir (this procedure will generate about 6L of waste in the instrument).
2. Remove all AFM bottles except #2, the Liquid Coverslip, which will not be cleaned during this procedure.
3. Attach the decontamination tubing manifold to the AFM fittings matching the numbered tubes with their corresponding bulk reagent ports 1, 3, 4 and 5-7
 - Make sure that the quick connects have snapped into place.
4. Use the funnel to pour at least 3L of the disinfectant solution into a container.
5. Place the container of disinfectant solution on the floor in front of the instrument.
6. Insert the long end of the tubing manifold into the container of disinfectant solution.
 - Make sure that end of tube is at the bottom of the container.
7. The container may be raised if the tubing is not long enough.
8. Check that the NexES software is running, the instrument is powered on and connected.

CAUTION: It is recommended that you do not exit the NexES software while Decontamination is in progress.

9. Click on the flashing maintenance icon in the lower utility bar of the NexES main screen.
 - The Maintenance icon will flash every 90 days to remind the user to perform decontamination.

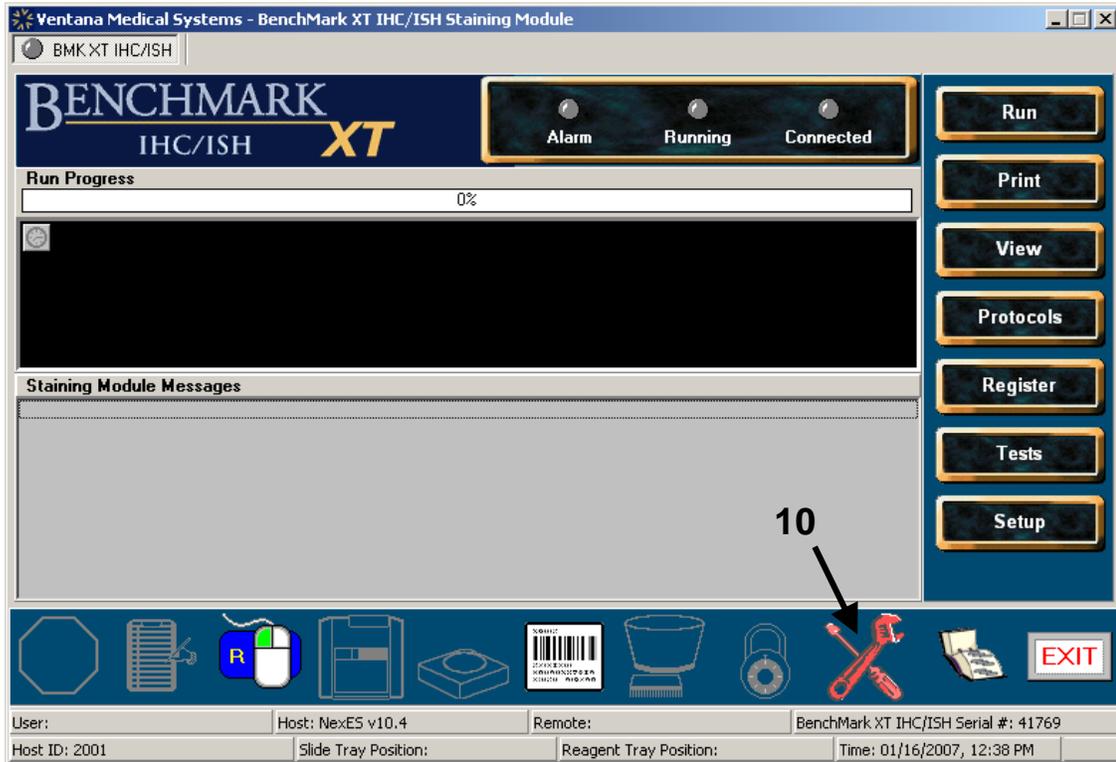


Figure 229. Maintenance Icon

10. Click on the Perform Decontamination function with the red arrow next to it.



Figure 230. Selecting Perform Decontamination

- At this point you can follow all instrument system prompts through the entire procedure.
 - The following steps show what these prompts look like and how the instrument communicates the status of the procedure.
11. When the message box below appears; click Yes to proceed.

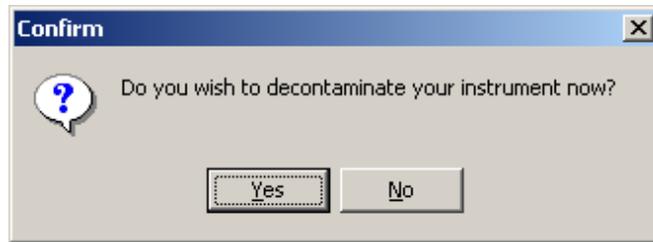


Figure 231. Confirming Perform Decontamination

12. When the message box below appears; click No to proceed with the tubing manifold method.

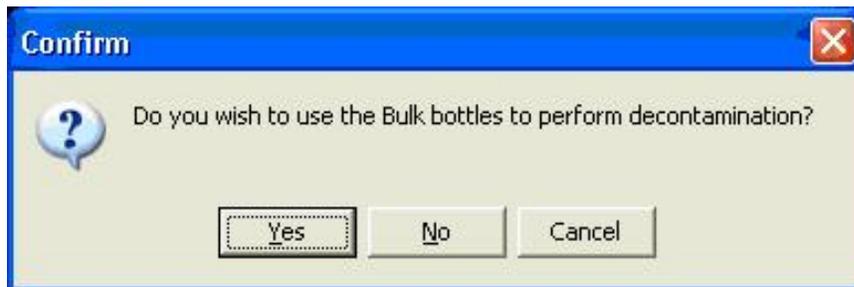


Figure 232. Clicking No to Use the Tubing Manifold

13. When the message box below appears; click OK after you have connected the tubing manifold and placed the end in your container of disinfectant.

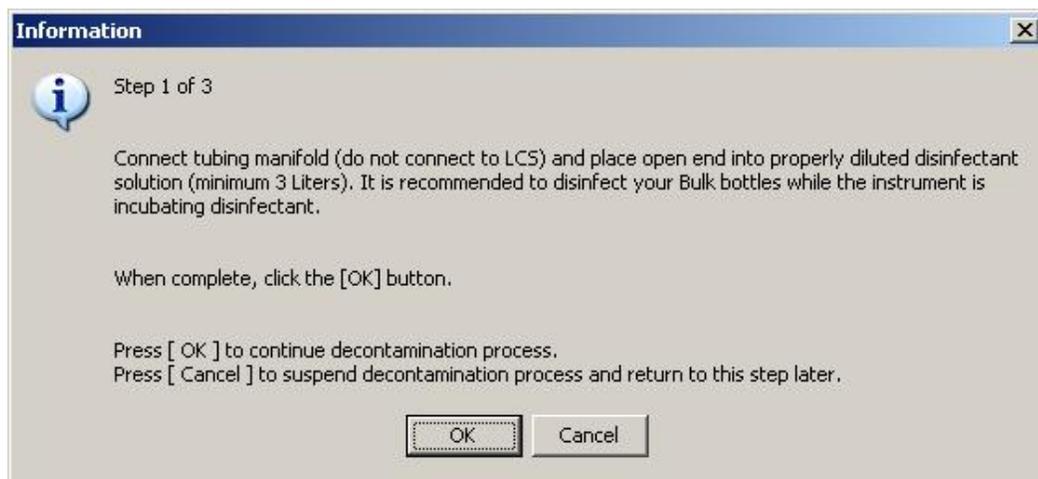


Figure 233. Information about Decontamination Step 1 of 3

- The system will now exchange the reagent currently in the instrument with the disinfectant and then soak the exposed hardware for an additional ten minutes.
- This step takes approximately 16 minutes.
- § Upon completion of this step, the instrument will alert the user with two beeps.

§ At this point, the user could allow the disinfectant to remain in the instrument for a longer period before proceeding to the next step.

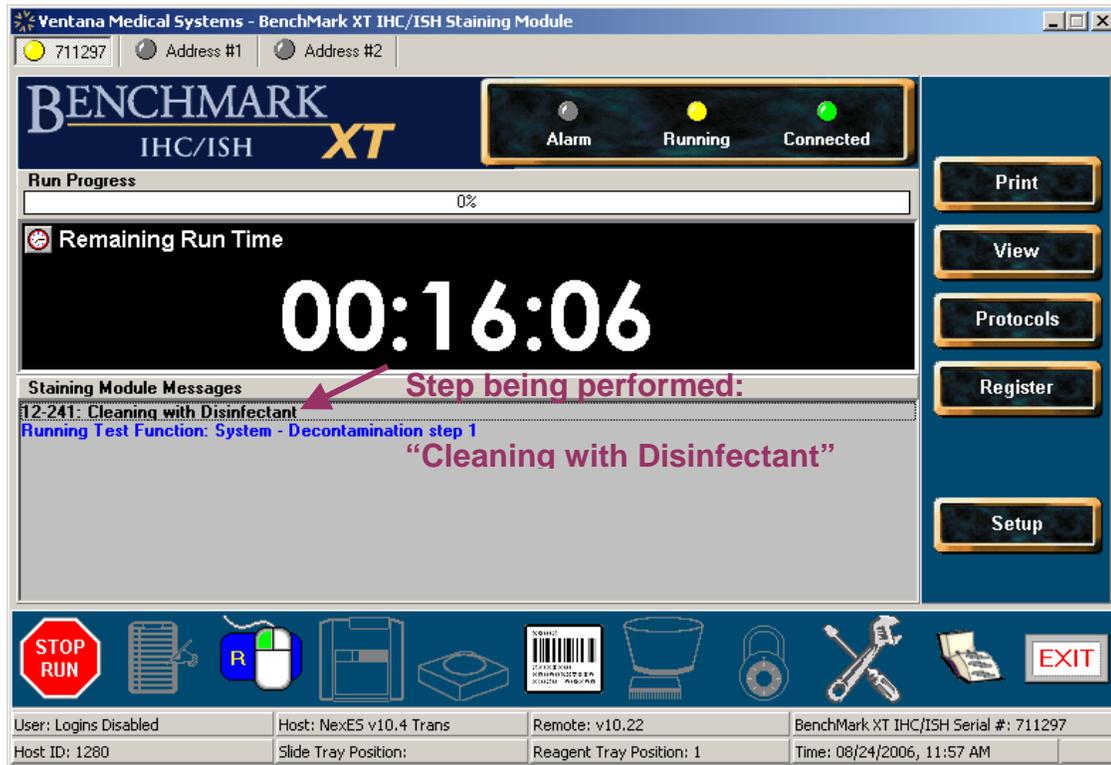


Figure 234. Indication of Cleaning with Disinfectant



Figure 235. Indication of Incubating Disinfectant

14. While the test function is running, disinfect your AFM bulk reagent bottles and large 20L carboys as described in the two sections “Decontaminate Bulk Carboys” and “Decontaminate Bulk Fluid Bottles.”
15. Click the writing tablet icon in the lower utility bar to sign off the completion of Decontamination step 1.

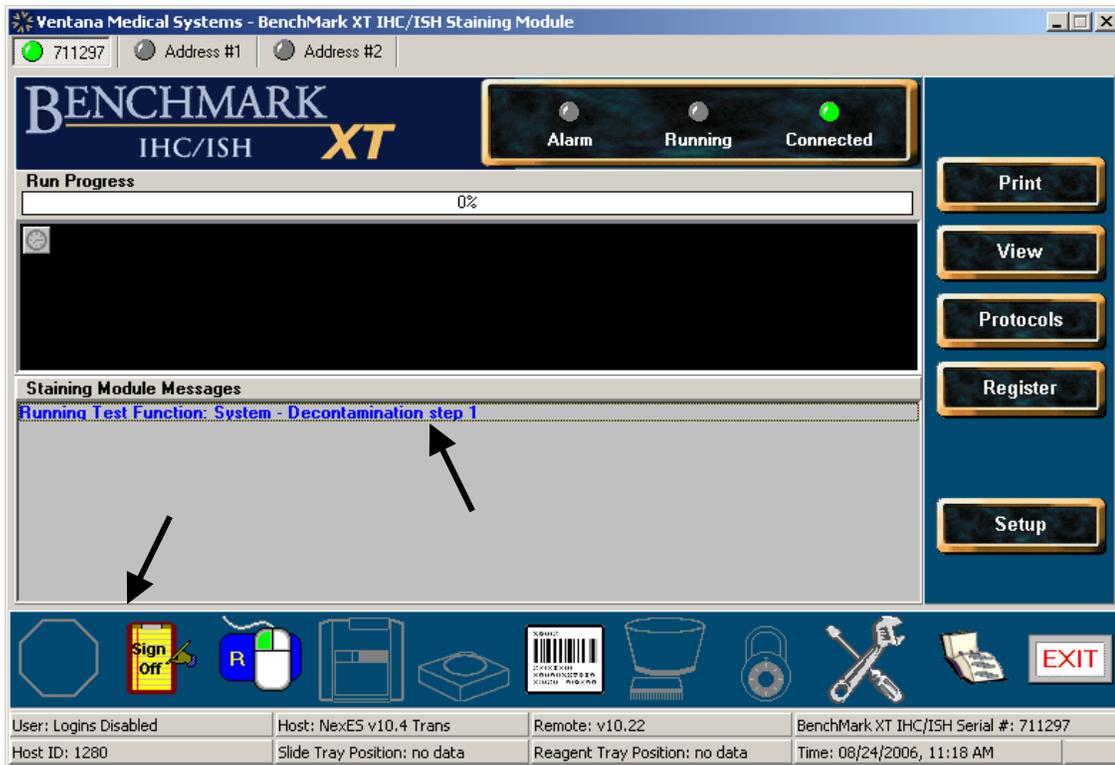


Figure 236. Signing Off Decontamination Step 1

16. When the message box below appears; click OK after you have
 - Removed the tubing manifold.
 - Rinsed clean the tubing manifold.
 - Placed the open end into your container with at least 3 L of deionized water.

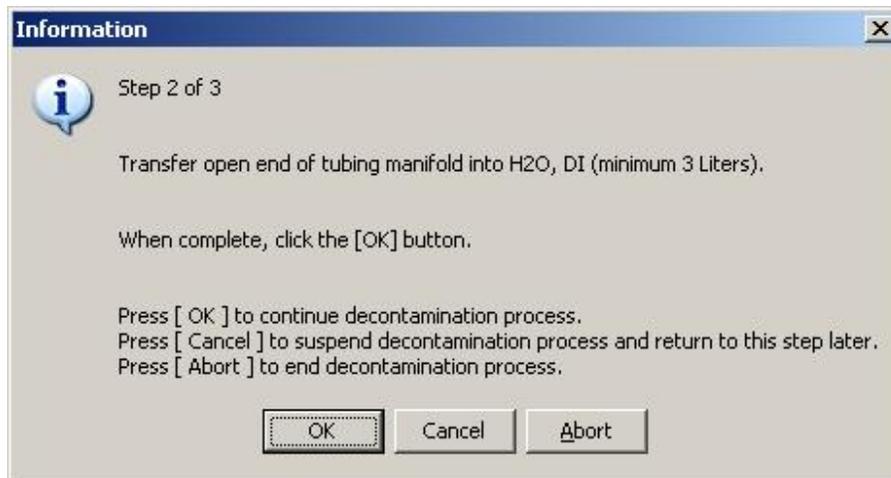


Figure 237. Information about Decontamination Process Step 2 of 3

- The system will now exchange the disinfectant currently in the instrument with the deionized water.
 - This step takes approximately six minutes.

§ Upon completion of this step, the instrument will alert the user with two beeps.

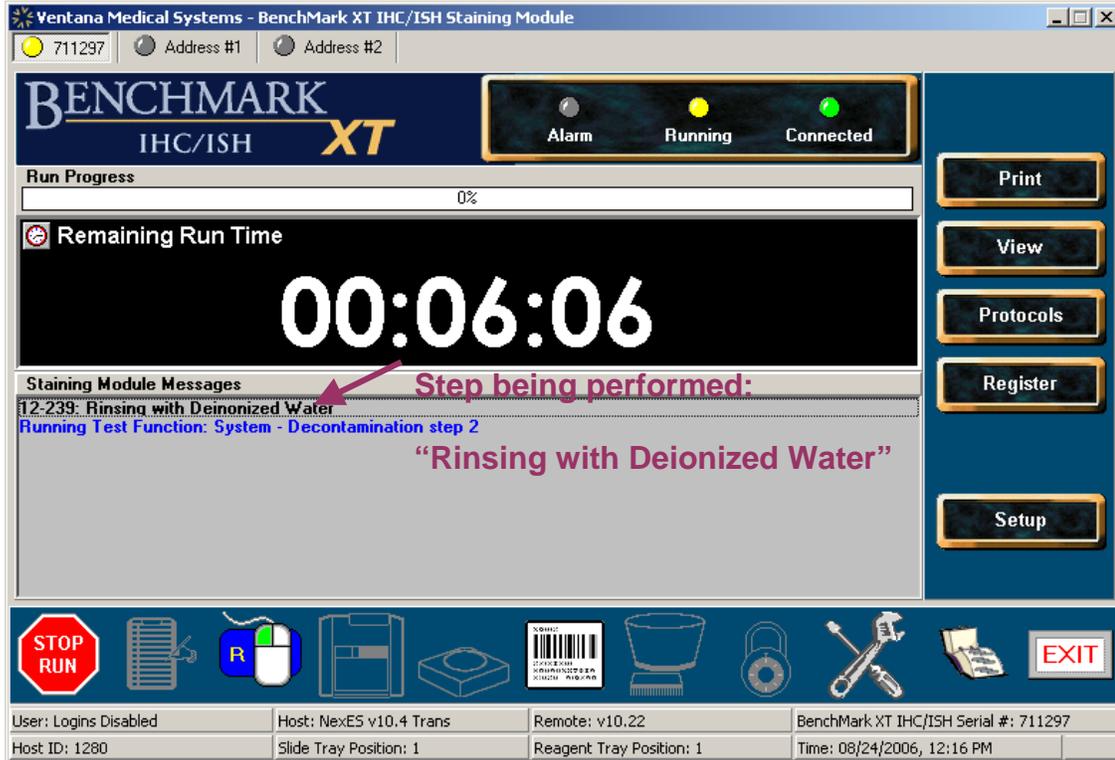


Figure 238. Indication of Rinsing with Deionized Water

17. Click the writing tablet icon in the lower utility bar to sign off the completion of Decontamination step 2.

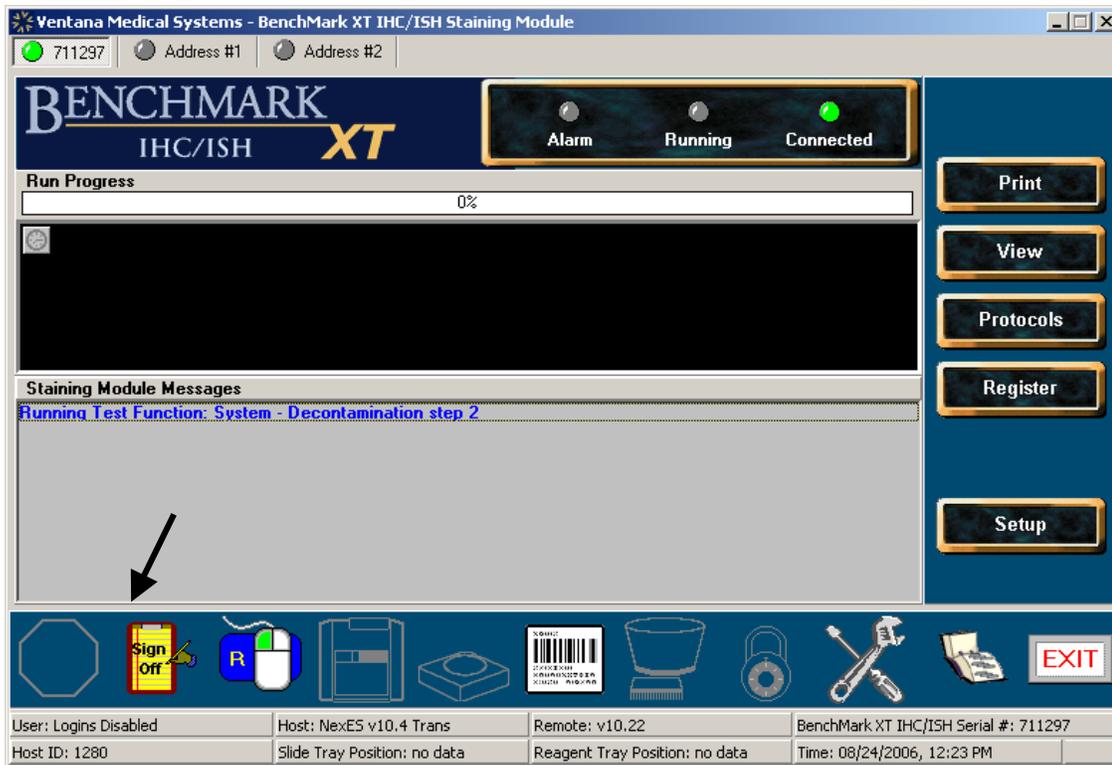


Figure 239. Signing Off Decontamination Step 2

18. When the message box below will appears; click OK after you have:
- Removed the tubing manifold.
 - Refilled your AFM bulk reagent bottles.
 - Reinserted them into the instrument.

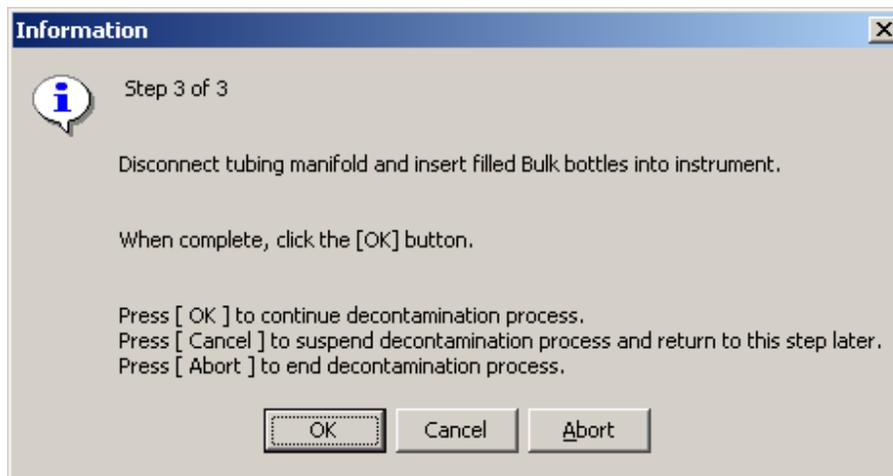


Figure 240. Information about Decontamination Step 3 of 3

- The system will now exchange the deionized water currently in the instrument with fresh reagents.

- ” This step takes approximately ten minutes.
- § Upon completion of this step, the instrument will alert the user with two beeps.

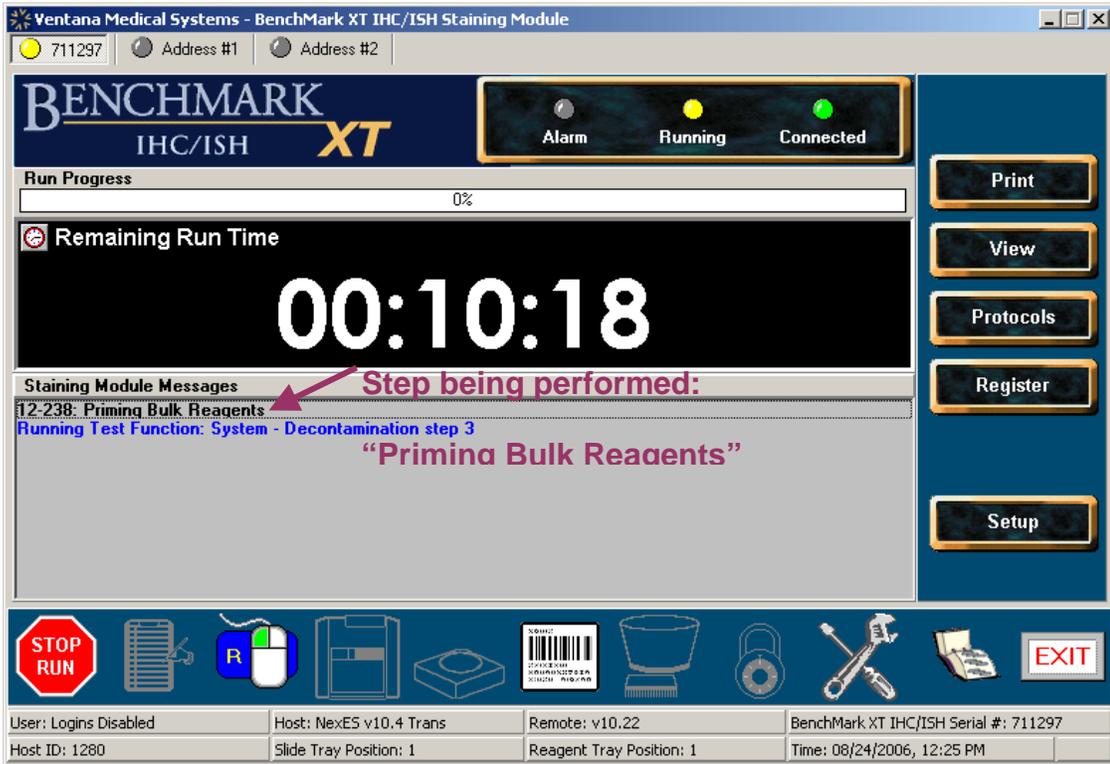


Figure 241. Indication of Priming Bulk Reagents

19. Click the writing tablet icon in the lower utility bar to sign off the completion of Decontamination step 3.

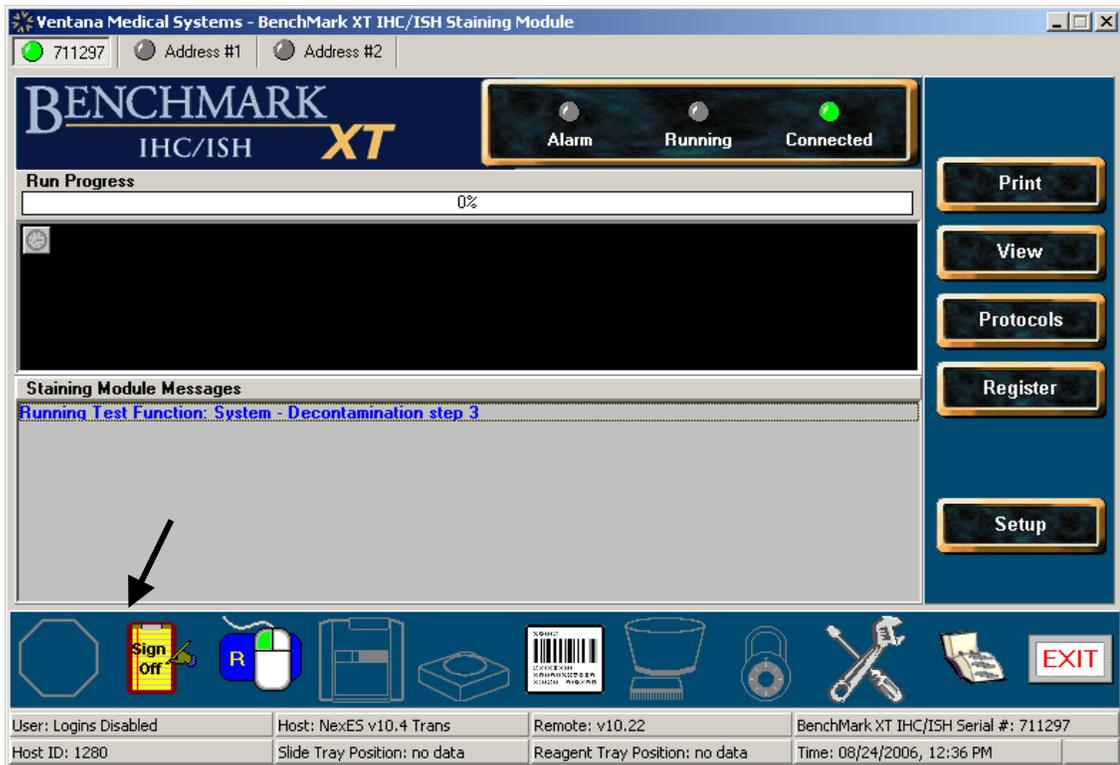


Figure 242. Signing Off Decontamination Step 3

20. When the message box below appears; click OK to finalize the decontamination procedure.
 - Your maintenance icon will have stopped flashing and your instrument is ready for use.

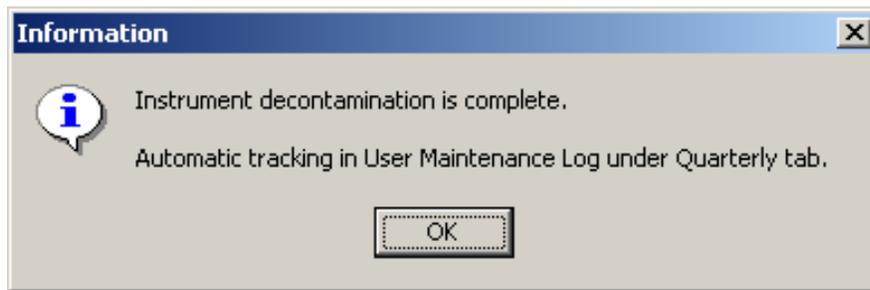


Figure 243. Information about Completion of Decontamination

21. You can verify that the Quarterly User Maintenance Log reflects the performance date of the decontamination procedure by clicking the Print button on the main NexES screen, then selecting Print User Maintenance Reports.

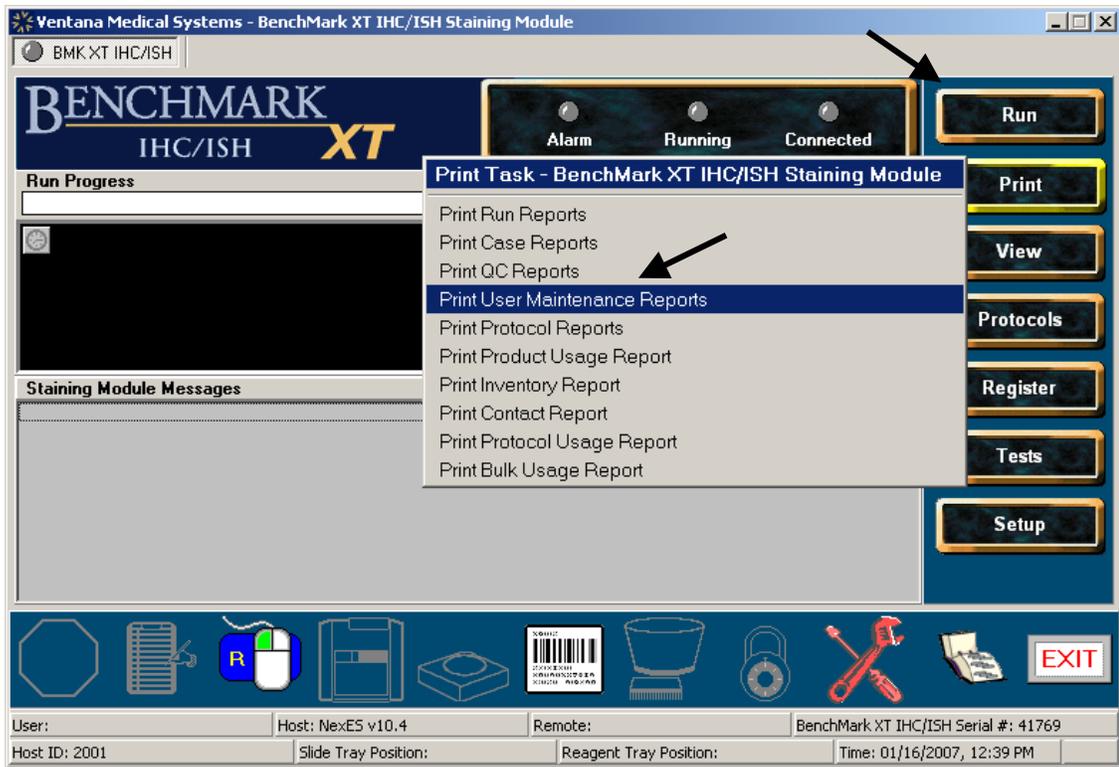


Figure 244. Selecting Print User Maintenance Reports

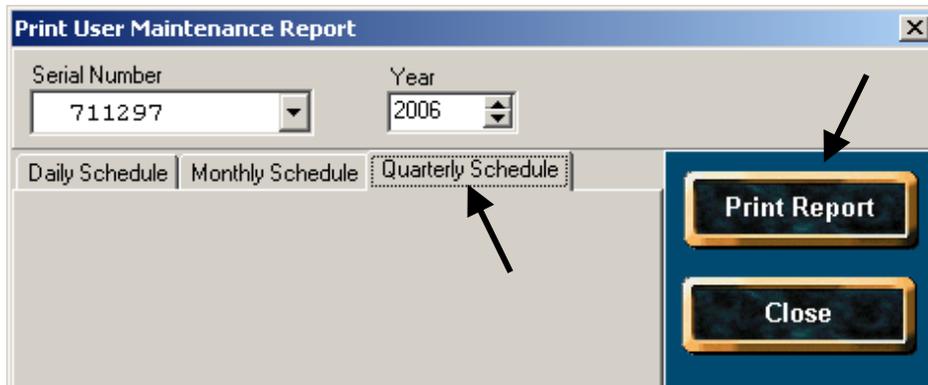


Figure 245. Print User Maintenance Report Screen

22. Select the Quarterly Schedule tab, then click Print Report to display the Quarterly User Maintenance Log shown below.

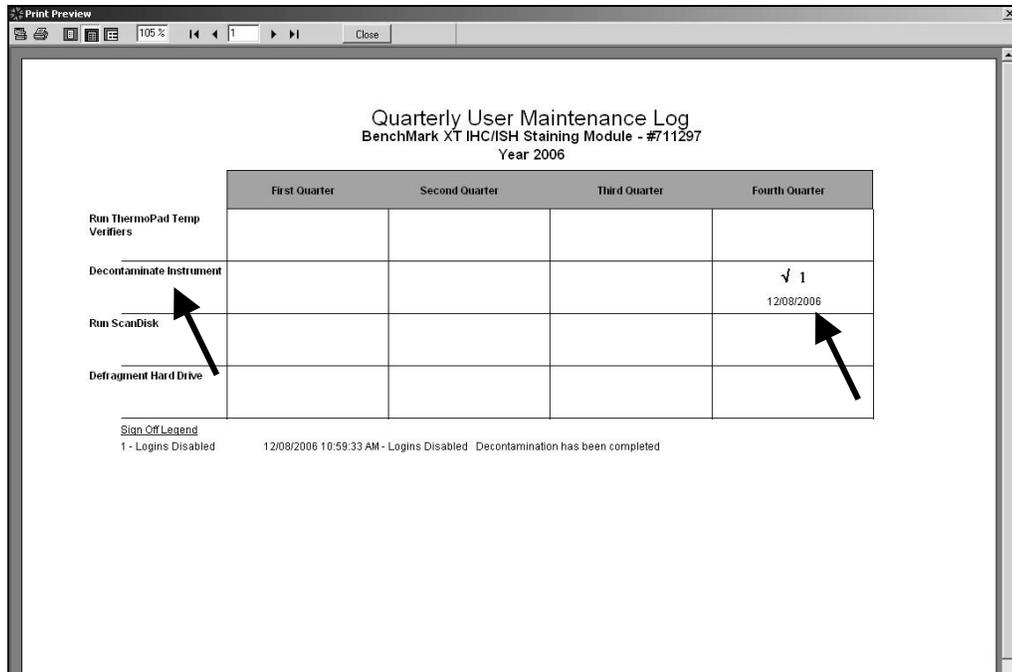


Figure 246. Quarterly User Maintenance Log Screen

Decontamination Method 2: Using the AFM Bulk Bottles instead of the Tubing Manifold

The estimated Total Procedure Time is 50-60 minutes.

Test Function Step	Technician Time	Instrument Time	Reagent usage / Waste produced
Empty AFM Bottles	5 min.		Site dependent
Fill AFM bottles half full with Disinfectant solution, shake to coat inside and reinsert			
Instrument performing disinfectant cleaning		6 min.	2L
Instrument exposure time of 10 minutes		10 min.	
Empty AFM Bottles	5 min.		
Fill AFM bottles half full with Disinfectant solution, shake to coat inside and reinsert			
Instrument performing deionized water rinsing		6 min.	2L
Empty AFM Bottles	5 min.		
Fill AFM bottles with Fresh VENTANA Bulk Reagents, shake to coat inside and reinsert			
Instrument priming Bulk Reagents		10 min.	1.5L
Decontamination Complete	15 min.	32 min.	5.5L

Figure 247. Method 2 Procedure Summary Time Table

The estimated Total Procedure Time is 50-60 minutes, and requires the following steps

1. If necessary, empty any fluid in the waste reservoir and replace the waste reservoir (this procedure will generate about 6L of waste in the instrument).
2. In the large carboy, make at least 10 L of disinfectant solution per the manufactures recommended concentration and mix well (Disinfectant solution is 1:256).
3. Check that the NexES software is running, the instrument is powered on and connected.

CAUTION: It is recommended that you do not exit the NexES software while Decontamination is in progress.

4. Click on the flashing maintenance icon in the lower utility bar of the NexES main screen.

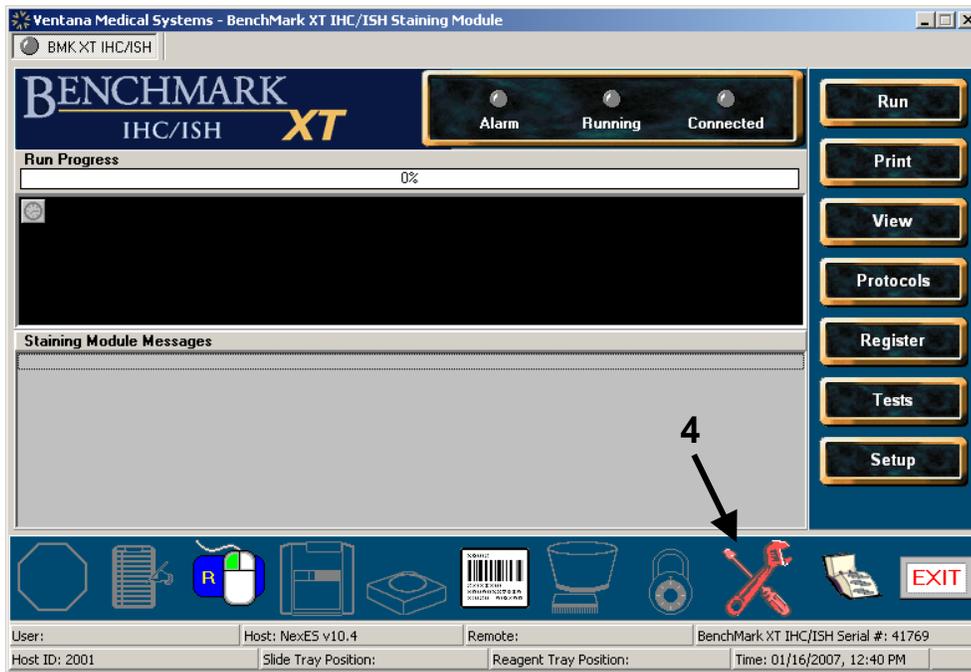


Figure 248. Maintenance Icon

5. Click on the Perform Decontamination function with the red arrow next to it.



Figure 249. Selecting Perform Decontamination

- At this point you can follow all instrument system prompts through the entire procedure.

- The following steps show what these prompts look like and how the instrument communicates the status of the procedure.
6. When the message box below appears; click Yes to proceed.

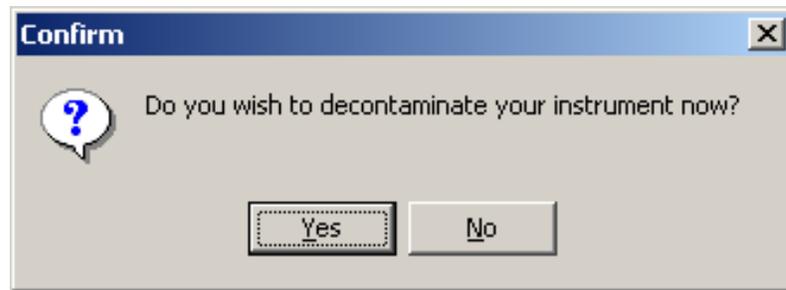


Figure 250. Confirming Perform Decontamination

7. When the message box below appears; click Yes to proceed with the AFM bulk reagent bottle method.

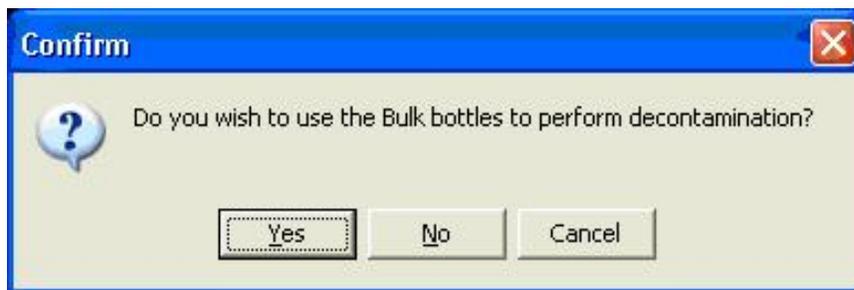


Figure 251. Clicking Yes to Use Bulk Bottle Method

8. When the message box below appears; click OK after you have
 - Drained any reagents from the AFM bulk bottles.
 - Rinsed the bottles at least two times with deionized water to remove the residual reagents.
 - Filled each of the seven AFM bottles (excluding LCS) with at least 1 L of the disinfectant solution.
 - Replaced the cap on all AFM bottles and shaken or inverted each bottle with the intent of coating the entire interior of the bottle with the disinfectant solution.
 - Cover the air vent hole in the center of each cap with a gloved hand.

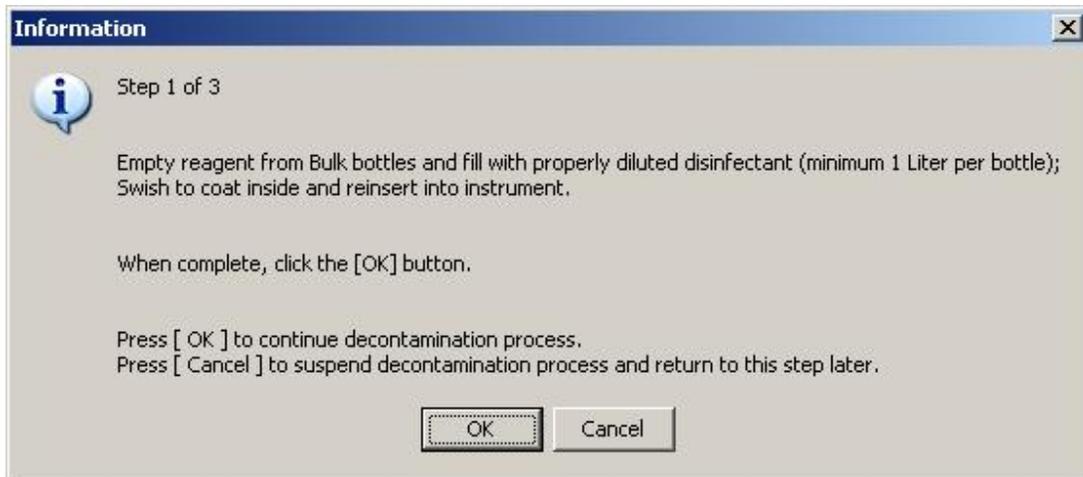


Figure 252. Information about Decontamination Step 1 of 3

- The system will now exchange the reagent currently in the instrument with the disinfectant and then soak the exposed hardware for an additional ten minutes.
 - “ This step takes approximately 16 minutes.
 - § Upon completion of this step, the instrument will alert the user with two beeps.
 - § At this point, the user could allow the disinfectant to remain in the instrument for a longer period before proceeding to the next step.

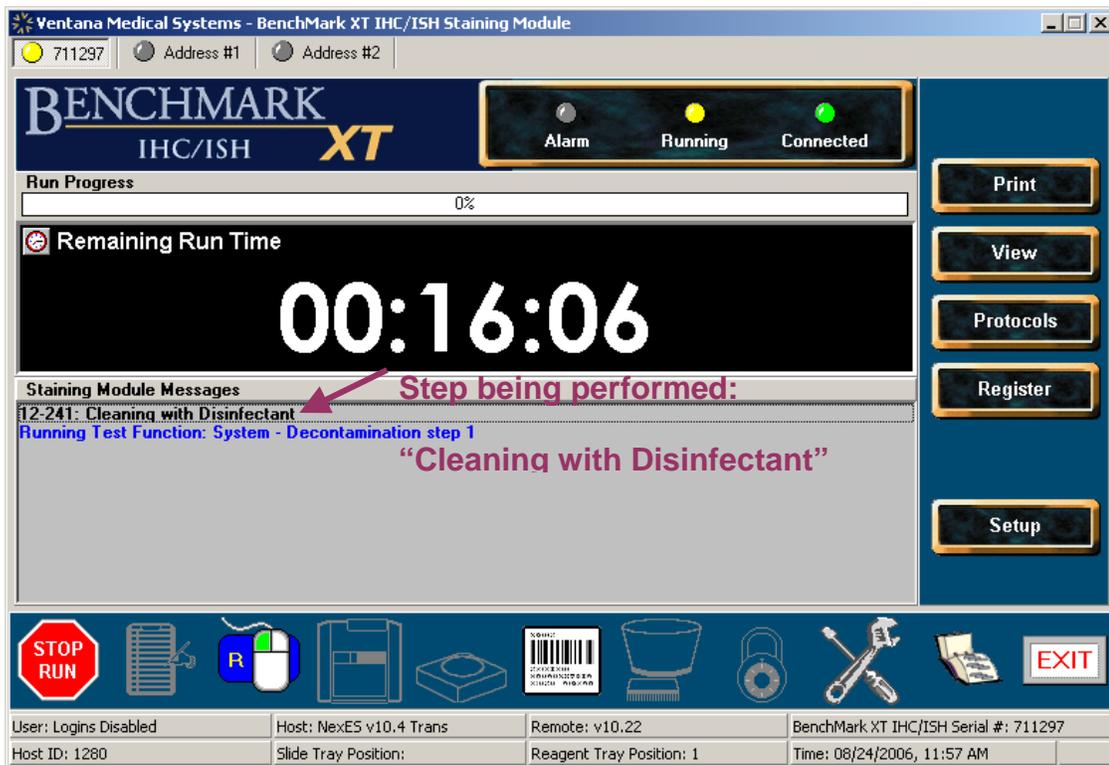


Figure 253. Indication of Cleaning with Disinfectant

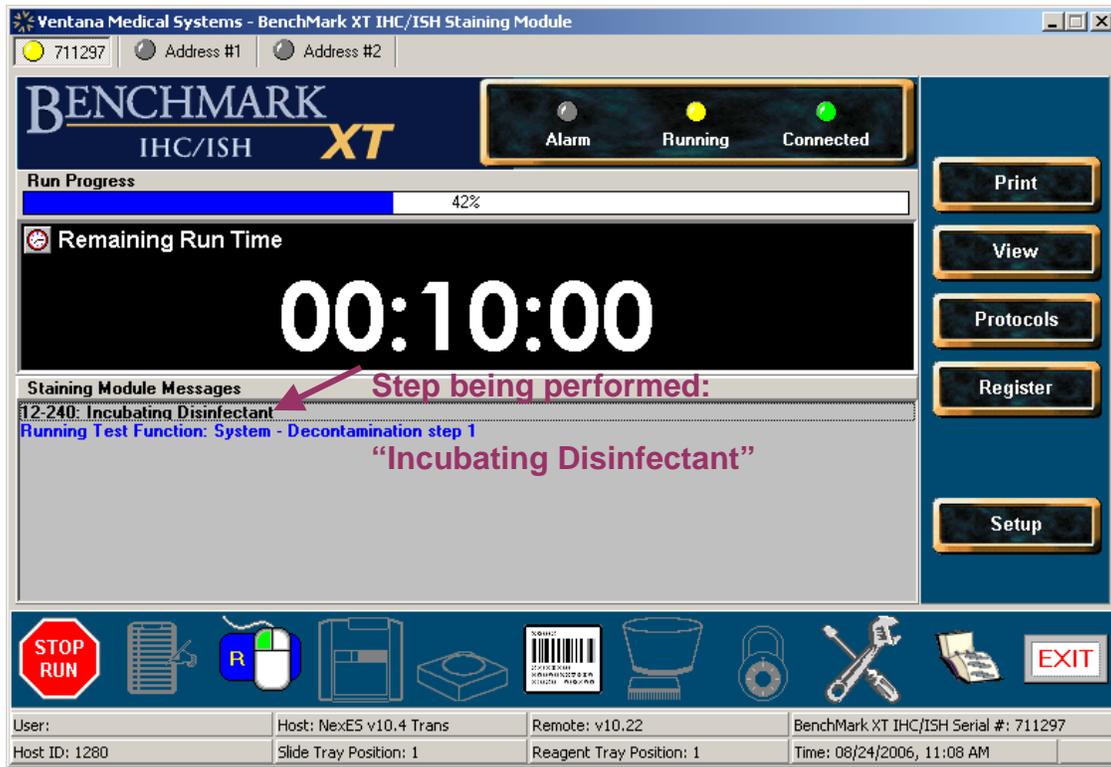


Figure 254. Indication of Incubating Disinfectant

9. Click the writing tablet icon in the lower utility bar to sign off the completion of Decontamination step 1.

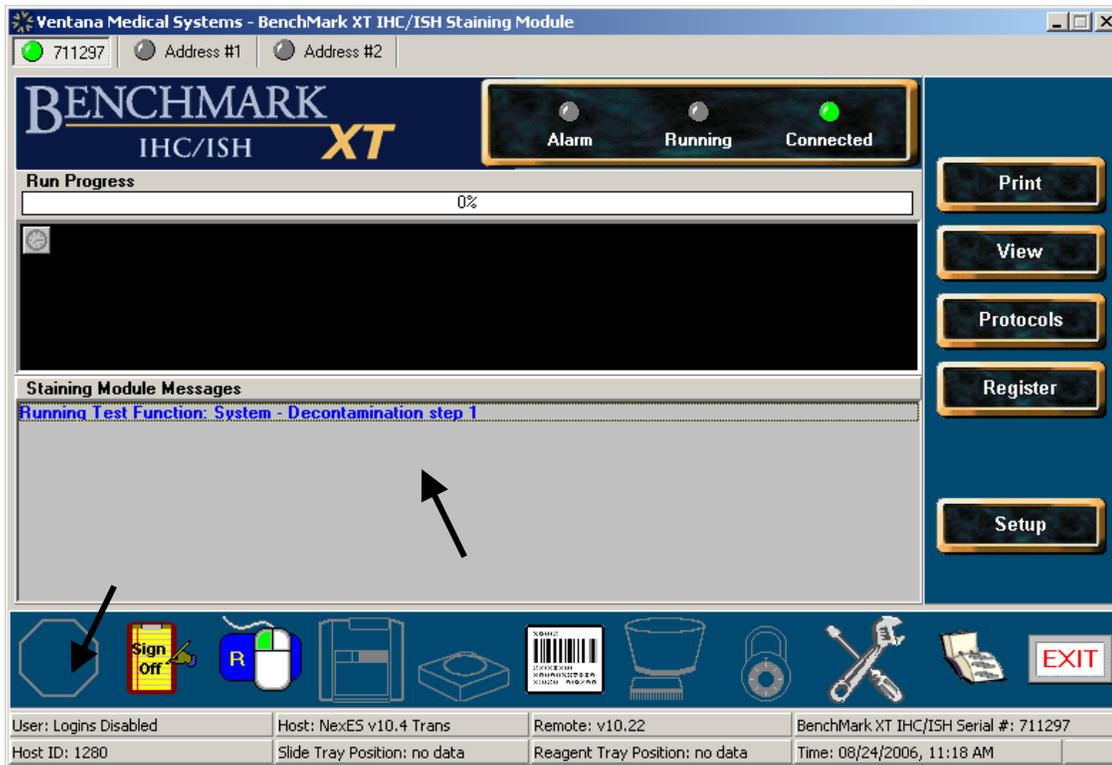


Figure 255. Signing Off Decontamination Step 1

10. When the message box below appears; click OK after you have
 - Drained the disinfectant solution from the AFM bulk bottles.
 - Rinsed the bottles at least two times with deionized water to remove the residual disinfectant.
 - Filled each of the seven AFM bottles (excluding LCS) with at least 1 L of deionized water.
 - Replaced the cap on all AFM bottles and shaken or inverted each bottle with the intent of coating the entire interior of the bottle with the disinfectant solution.
 - “ Cover the air vent hole in the center of each cap with a gloved hand.

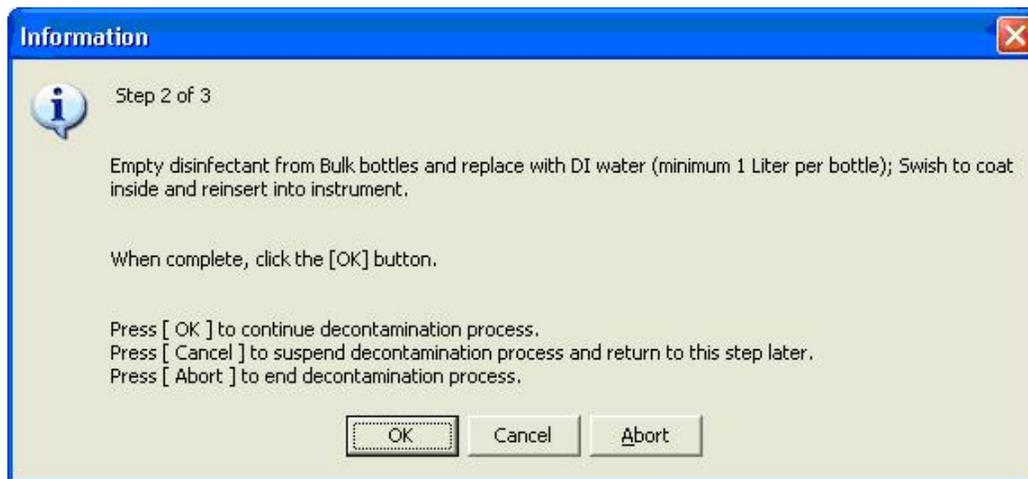


Figure 256. Information about Decontamination Process Step 2 of 3

- The system will now exchange the disinfectant currently in the instrument with the deionized water.
 - “ This step takes approximately six minutes.
 - § Upon completion of this step, the instrument will alert the user with two beeps.

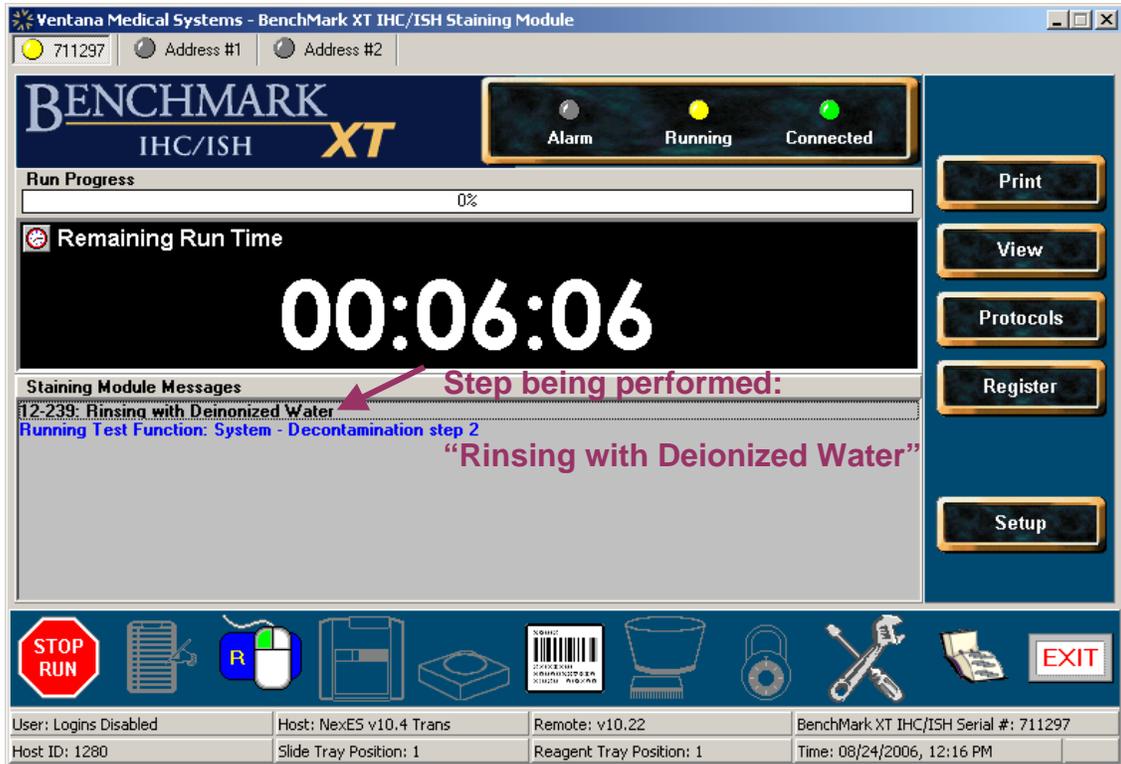


Figure 257. Indication of Rinsing with Deionized Water

11. Click the writing tablet icon in the lower utility bar to sign off the completion of Decontamination step 2.

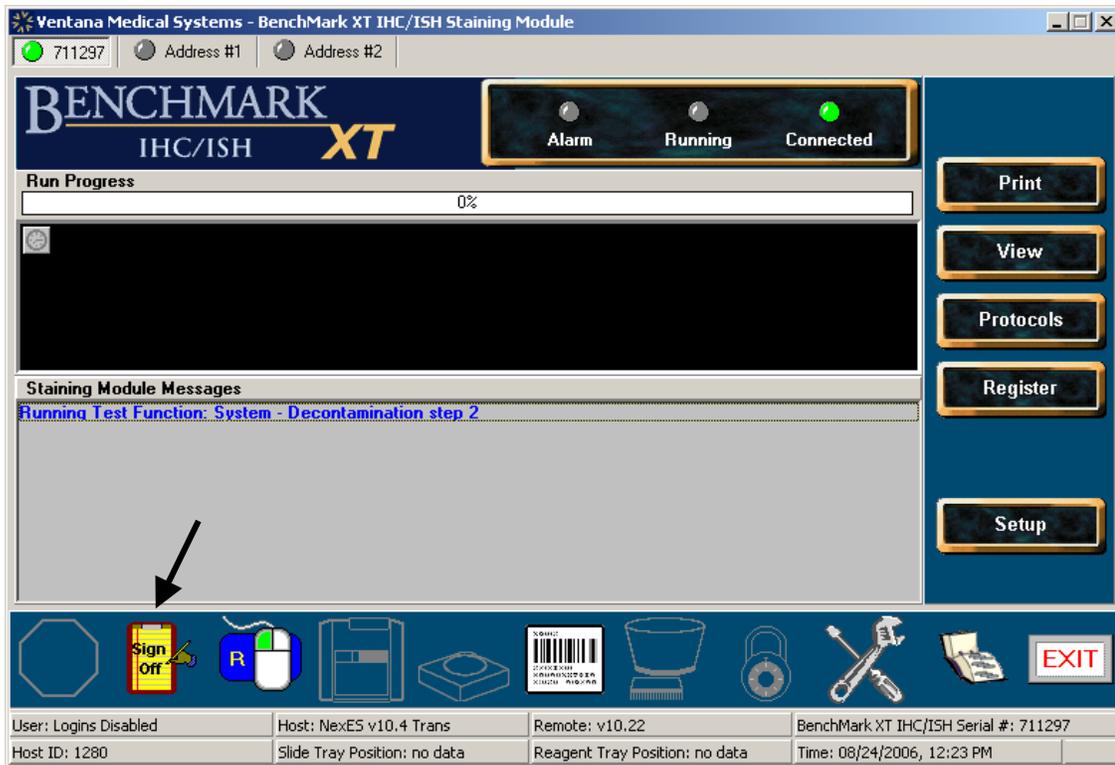


Figure 258. Signing Off Decontamination Step 2

12. When the message box below appears; click OK after you have:

- Drained the deionized water from the AFM bottles.
- Filled each of the seven AFM bottles (excluding LCS) with your fresh reagents.

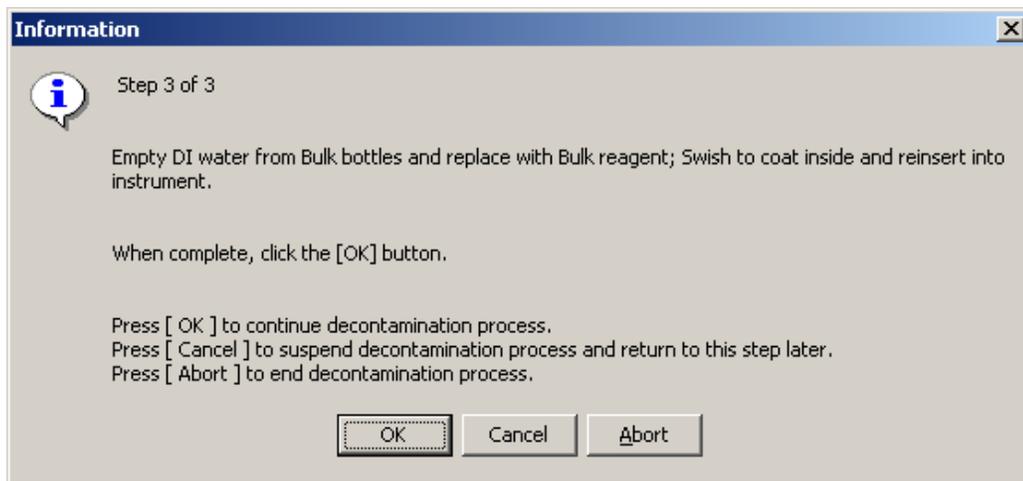


Figure 259. Information about Decontamination Step 3 of 3

- The system will now exchange the deionized water currently in the instrument with fresh reagents.

- ” This step takes approximately ten minutes.
- § Upon completion of this step, the instrument will alert the user with two beeps.

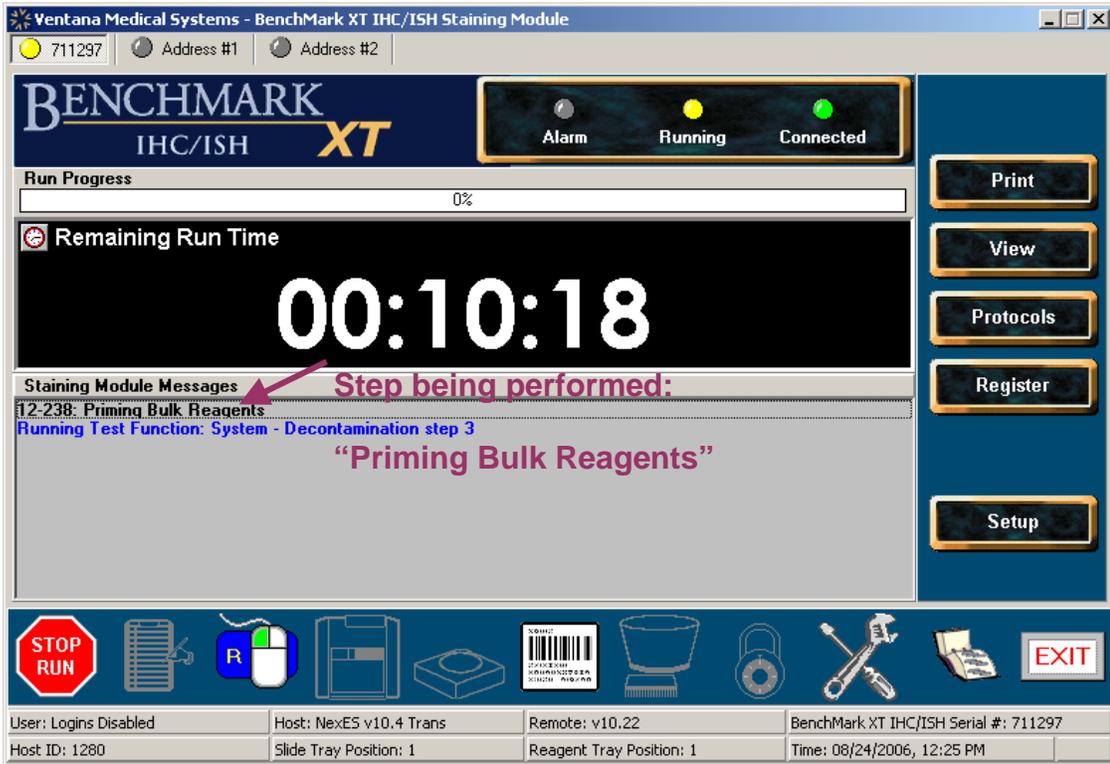


Figure 260. Indication of Priming Bulk Reagents

13. Click the writing tablet icon in the lower utility bar to sign off the completion of Decontamination step 3.

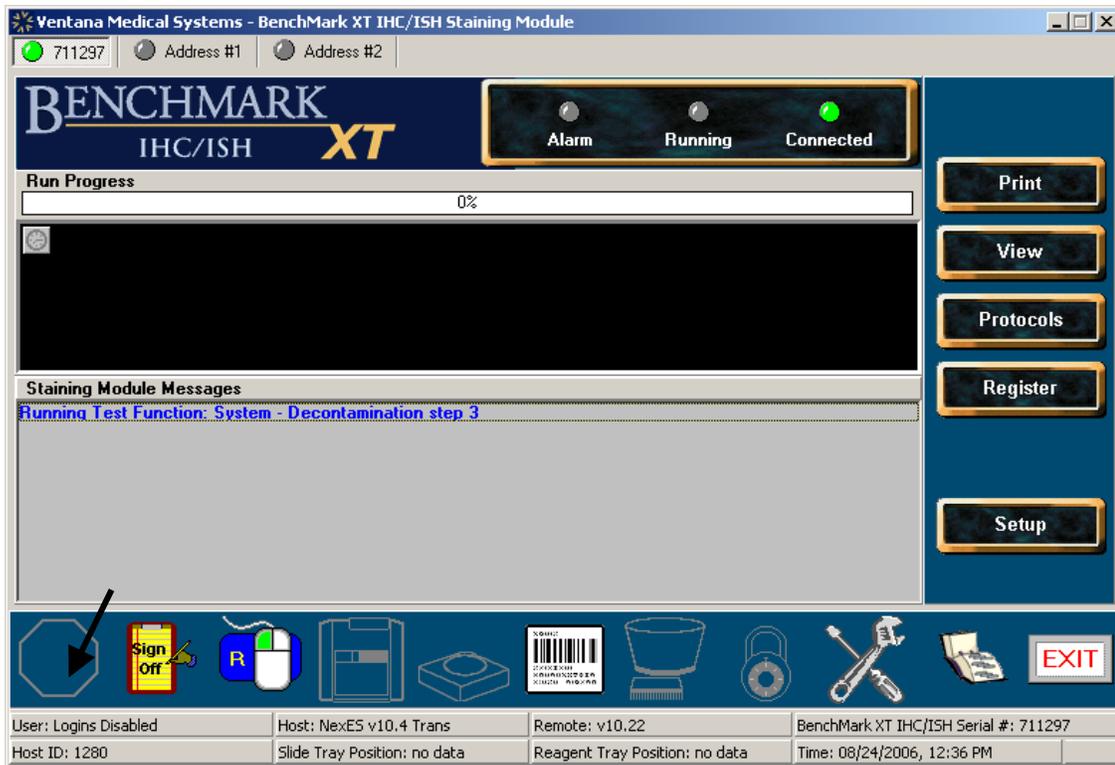


Figure 261. Signing Off Decontamination Step 3

14. When the message box below appears; click OK to finalize the decontamination procedure.
 - Your maintenance icon will have stopped flashing and your instrument is ready for use.

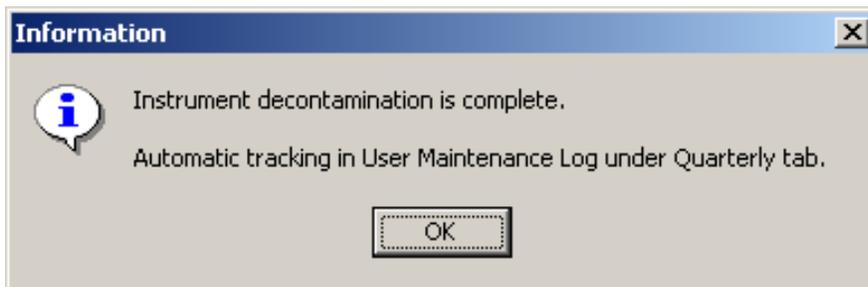


Figure 262. Information about Completion of Decontamination

15. You can verify that the Quarterly User Maintenance Log reflects the performance date of the decontamination procedure by clicking the Print button on the main NexES screen, then selecting Print User Maintenance Reports.

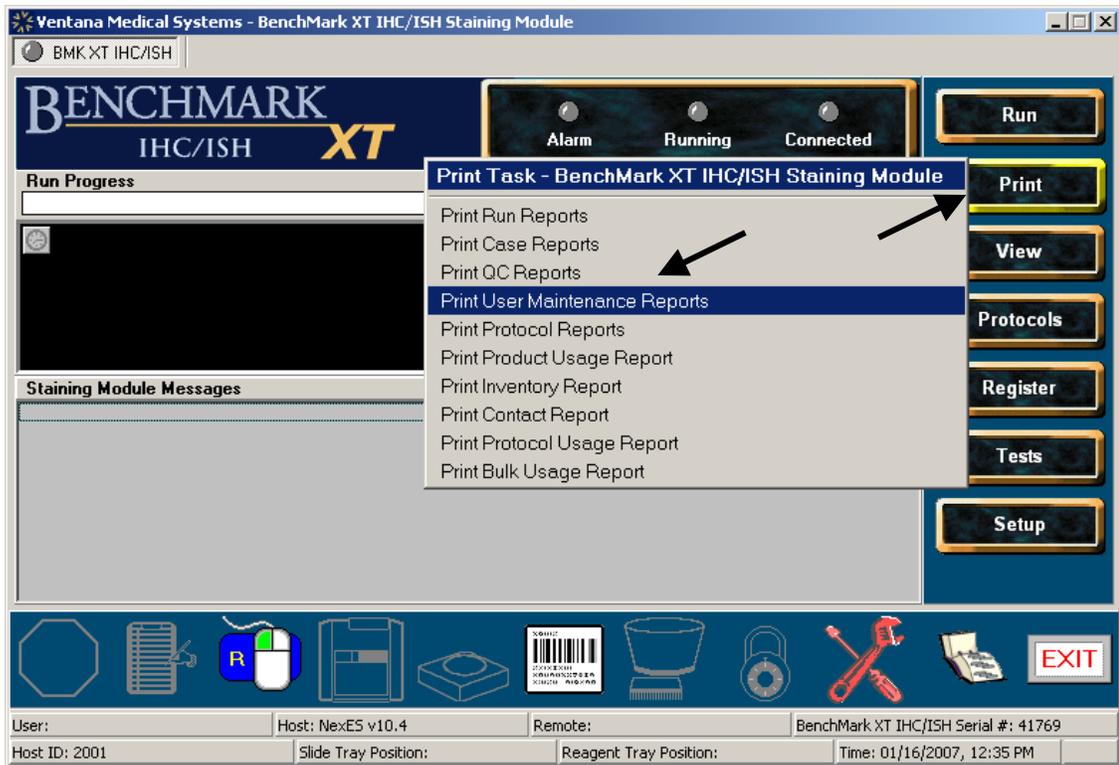


Figure 263. Selecting Print User Maintenance Reports

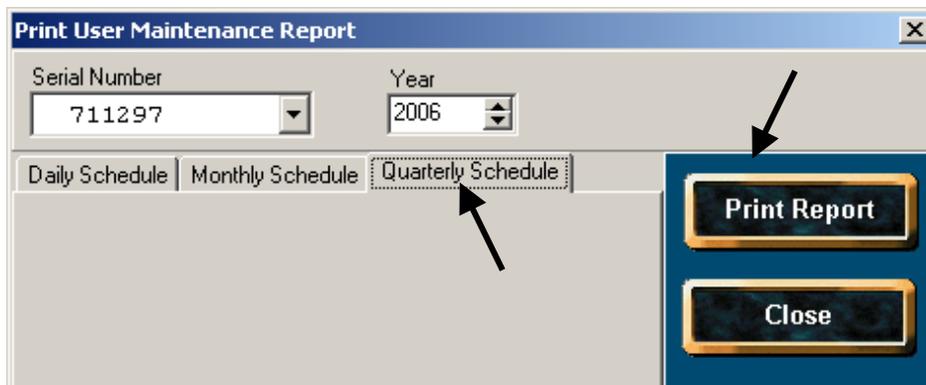


Figure 266. Print User Maintenance Report Screen

16. Select the Quarterly Schedule tab, then click Print Report to display the Quarterly User Maintenance Log shown below.

Print Preview

105 %

Close

Quarterly User Maintenance Log

BenchMark XT IHC/ISH Staining Module - #711297
Year 2006

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Run ThermoPad Temp Verifiers				
Decontaminate Instrument				√ 1 12/08/2006
Run ScanDisk				
Defragment Hard Drive				

[Sign Off Legend](#)
1 - Logins Disabled 12/08/2006 10:59:33 AM - Logins Disabled Decontamination has been completed

Figure 264. Quarterly User Maintenance Log Screen

INTENTIONALLY BLANK

13.0 THE EBAR PRINTER

The Ebar printer offers both thermal transfer and direct thermal printing at selectable speeds of 1.5, 2.0 and 3.0 inches per second. It can accept a wide range of media, including roll feed, die-cut, and fan-fold labels or tags for both thermal transfer and direct thermal printing. Fonts and bar codes can be printed in any one of four directions.

The Ebar printer uses roll labels and a **thermal transfer** ribbon.

- This process produces a consistent, high quality image by melting a wax based ink from a ribbon directly onto the label.
- After each label is printed, the ribbon is advanced past the used portion.
 - This way, each label uses a fresh part of the ribbon, ensuring a sharp image.

Before using the printer, you will need to know how to change the ribbon and load a roll of labels. Each of these operations is described in the sections that follow.

Slide Labeling System Basics

The VENTANA Slide Labeling System (SLS) creates customized slide labels suitable for use with VENTANA BenchMark XT and BenchMark LT instruments.

- These labels contain, at minimum, a protocol name and a bar code.
- You can also create customized slide labels without bar codes for other uses.

Labels can be designed to suit a wide variety of needs and preferences.

- A label can contain up to four lines of information in addition to the basic bar code and protocol name.
 - You can use this additional space for such things as the current date, accession number, patient name, etc.
- Once a label design has been created, it is saved as a *template* and reused to print more labels of the same type.

Label Printing and Templates

Labels can be selected for printing using one or more of the following methods.

- Individually by protocol.
 - The SLS has access to the staining module databases, so you can choose protocols from a list.
- As a series by panel.
 - You can group protocols into panels and create multiple labels for each panel.
- Individually from a list of previously printed labels.
 - A list of labels you have printed before is maintained, so these can be re-printed later with minimal effort.

Customizing Printing

After selecting one or multiple labels using the above methods, you then start printing.

- If you so desire, the program will stop before printing a label and ask you to enter some variable information.
 - A patient name would be an example.
 - An accession number would be another example.
- You can completely customize printing as you design or modify a label template.
- Note that when printing a series of labels, each label may have a different template.

- The system remembers which template goes with which protocol.

The Labels

VENTANA slide labels come with an adhesive backed transparent flap.

- After a label is printed, the adhesive backing is peeled away and the transparent flap is folded over the label to seal the printed side.
- The label can then be peeled from the backing and applied to a slide.

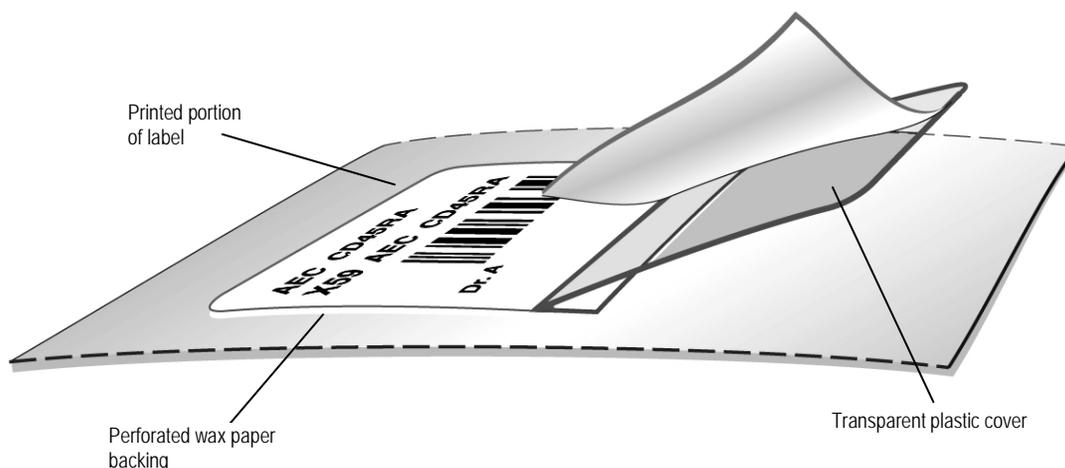


Figure 265. SLS Label

Tearing off Labels

There is a correct way to tear off labels:

- Pull the label up against the serrated tear bar on the cover of the printer.
- Tearing downward or outward will probably result in a ragged label and misalignment of the next batch you print.

Applying a Label to a Slide

Each VENTANA slide label has a transparent flap that protects the printing.

You can add hand-written notations to a label using a fine point, permanent marking pen.

- Do not apply notations to the transparent flap.
- This might negatively affect bar code reading and staining operations.

After printing the label:

- Remove the adhesive backing from the flap and fold the transparent cover over the label.
- Apply the flap from the bottom (attached) edge toward the top edge to expel any air bubbles as it seals.
- Air bubbles under the flap can cause bar code reading problems.

Label Do's and Don'ts

- Labels may be applied before de-paraffinizing with solvents.
- Apply the label to the frosted area of the slide.
- Ensure that the label does not extend past any edge of the slide.

- Misapplication of the label may result in reduced staining quality.
- Store labels at 70-90° F.
 - Labels stored at higher or lower temperatures may not be usable through the expiration date marked on each roll.
- We recommend that you always apply labels **after** baking or microwave treatments.
- Exercise special care to secure the “lot number” portion of the label tightly to the slide.
 - This is necessary for proper functioning of BenchMark XT and BenchMark LT.
- Exposure of the label to Xylene should be limited to the minimum necessary for optimal tissue processing (15 minutes maximum).
- Do not let a coverslip overlap the label.
 - The coverslip will not seal and will eventually fall off.
 - Most automated coverslip lengths are adjustable.
 - See your user’s manual or contact the manufacturer for more information.
- Do not trim the lot number portion of the label.

Printer Components

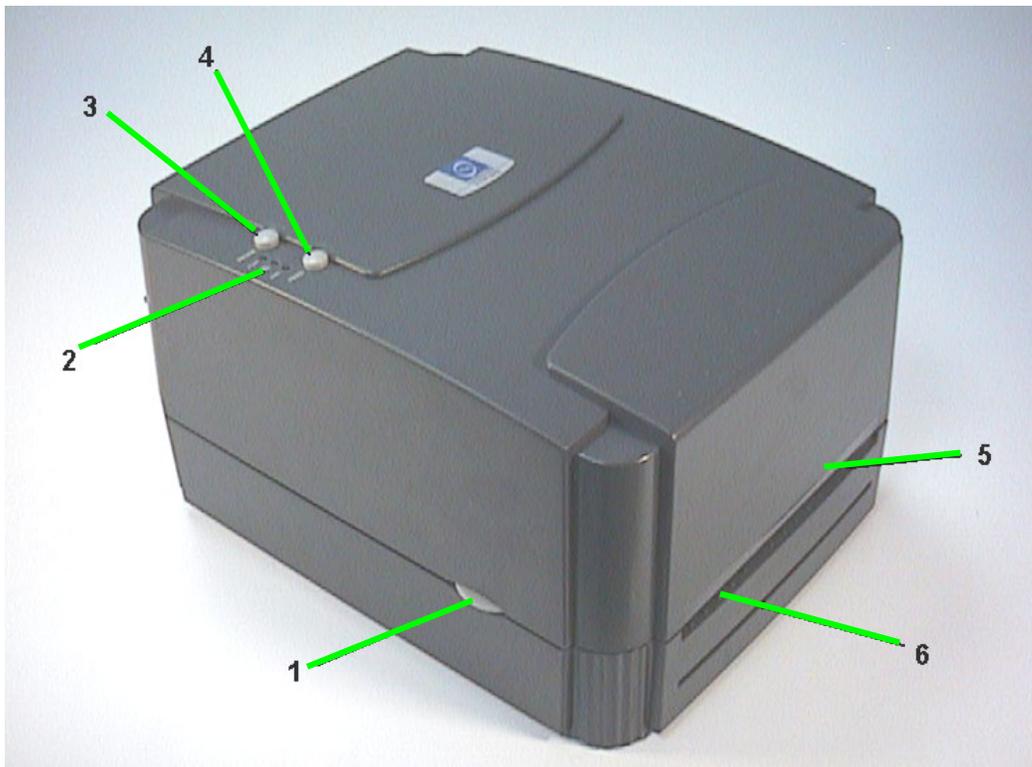


Figure 266. Top Front View

1. Cover Release Button.
2. PWR., ON-LINE and ERR. Indicators.
3. PAUSE Button.
4. FEED Button.
5. Label Dispense Opening.
6. Backing Paper Opening (for use with self-peeling function).

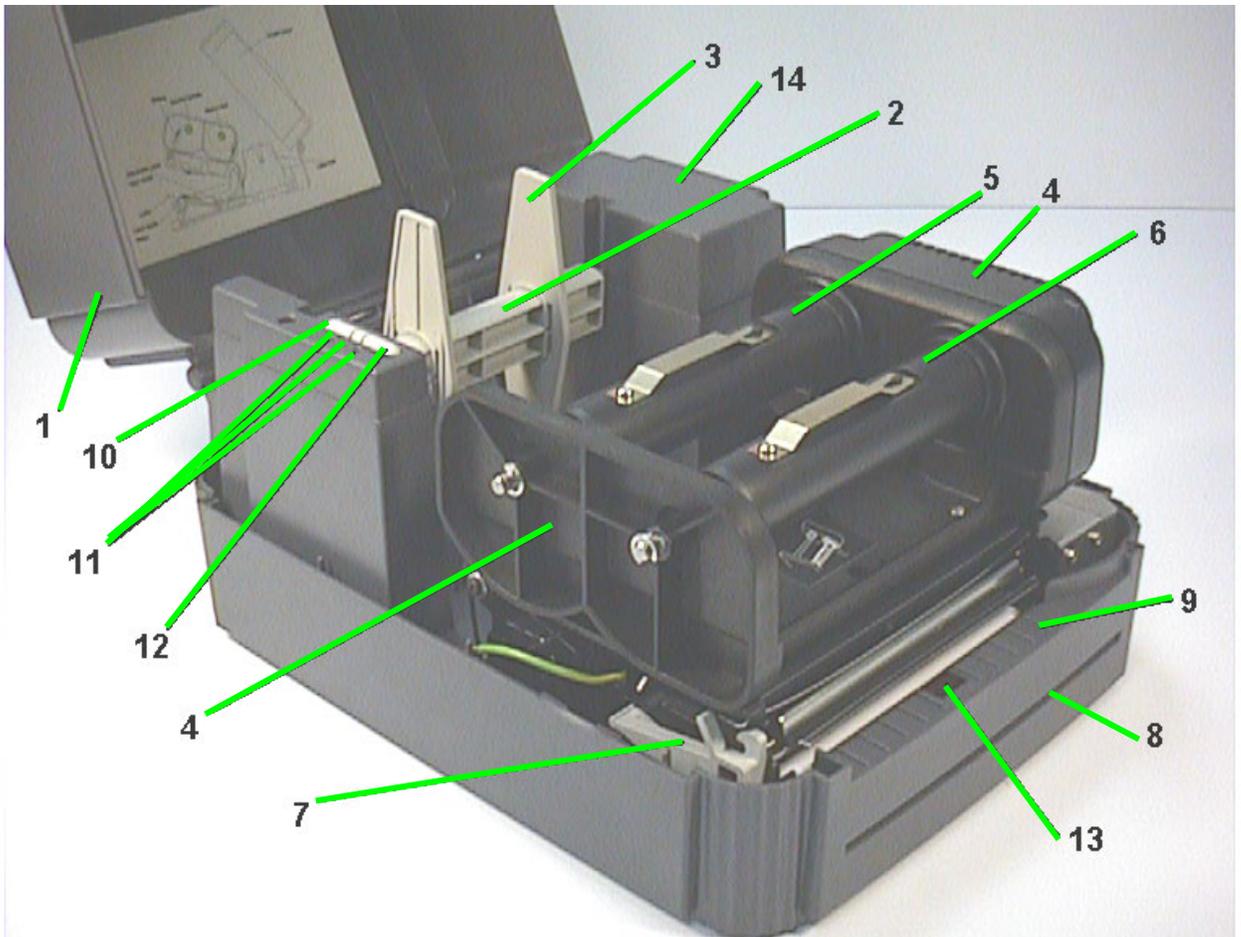


Figure 267. Interior View

1. Printer Cover (in open position).
2. Label Supply Roll Spindle.
3. Fixing Tabs.
4. Ribbon Mechanism.
5. Ribbon Supply Spindle.
6. Ribbon Rewind Spindle.
7. Printer Carriage Release Lever.
8. Backing Paper Opening.
9. Detachable Front Panel.
10. PAUSE Button.
11. PWR., ON-LINE, ERR. Indicators.
12. FEED Button.
13. Peel-Off Sensor.
14. Memory Module Slot (with cover on).

Buttons and Indicators

- **PWR. (POWER) Indicator**—The green PWR. indicator illuminates when the POWER switch is turned on.
- **ON-LINE Indicator**—The green ON-LINE indicator illuminates when the printer is ready to print.
 - When the PAUSE button is pressed, the ON-LINE indicator flashes.
- **ERR. Indicator (Error/Paper Empty)**—The red ERR. indicator illuminates in the event of a printer error, such as memory error, syntax error, and so forth. For a full list of error messages, please refer to “Printer Error Messages.”
- **PAUSE Button**—The PAUSE button allows the user to stop a print job and then continue the printing with a second depression of the button. When the PAUSE button is pressed:
 - The printer stops printing after printing the label.
 - The PAUSE LED flashes.
 - The printer holds all data in memory.
 - This allows for trouble-free replacement of label stock and thermal transfer ribbon.
 - A second depression of the PAUSE button will restart the printer.

§ Note: If the PAUSE button is held down for more than three seconds, the printer will be reset and all data of the previous printing job will be lost.
- **FEED Button**—Press the FEED button to feed the label to the beginning of the next label.

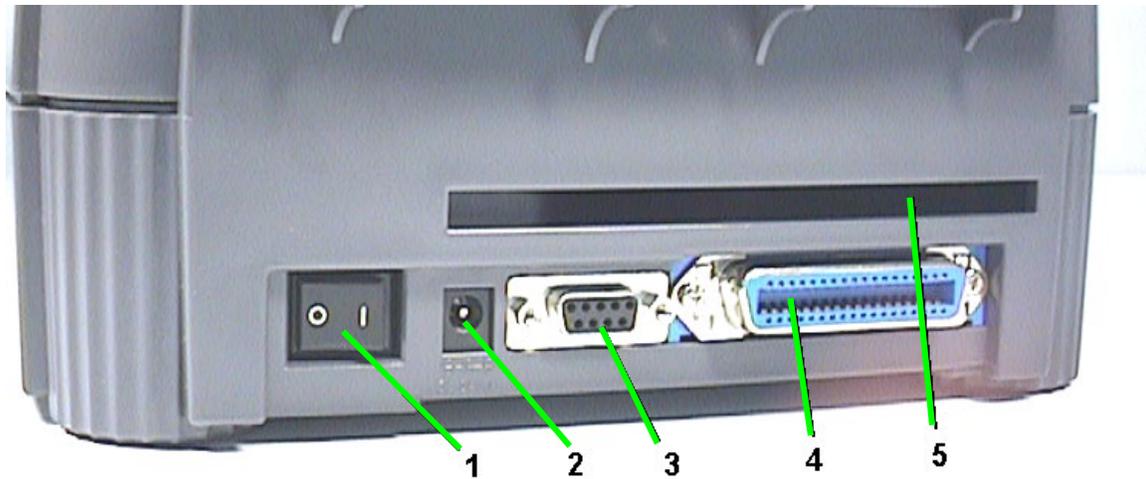


Figure 268. Rear View

1. Power On/Off Switch.
2. Power Supply Connector.
3. RS-232 DB-9 Interface Connector.
4. Centronics Interface Connector.
5. Label Insert Opening (for use with external labels).

Setup

Setting Up the Printer

1. Place the printer on a flat, secure surface.
2. Make sure the **POWER** switch is off.
3. Connect the printer to the computer mainframe with the provided RS-232C or Centronics cable.
4. Plug the power cord into the power supply connector at the rear of the printer.
5. Plug the power cord into a properly grounded receptacle.

Loading Label and Tag Stock

1. Open the printer cover.
2. Disengage the printer carriage by pulling the printer carriage release lever on the left side of the platen.
3. Slide the label supply roll spindle through the core of a label roll and attach the fixing tabs onto the spindle.
4. Place the label roll into the label roll mount.
5. Feed the label under the carriage and over the platen.
6. Adjust the label guide to fit the width of the label roll.
7. Engage the printer carriage.
8. Wind the label roll until it becomes adequately taut.
9. Close the printer cover and press the **FEED** button three or four times until the green **ON-LINE** indicator illuminates.
10. When the printer is out of ribbon or media, the **ON-LINE** LED will not illuminate and the **ERR.** LED will flash.
 - Reload the ribbon or media without turning off the printer power.
 - Press the **FEED** button three or four times until the **ON-LINE** LED illuminates.
 - “ The printing job will be resumed without data loss.

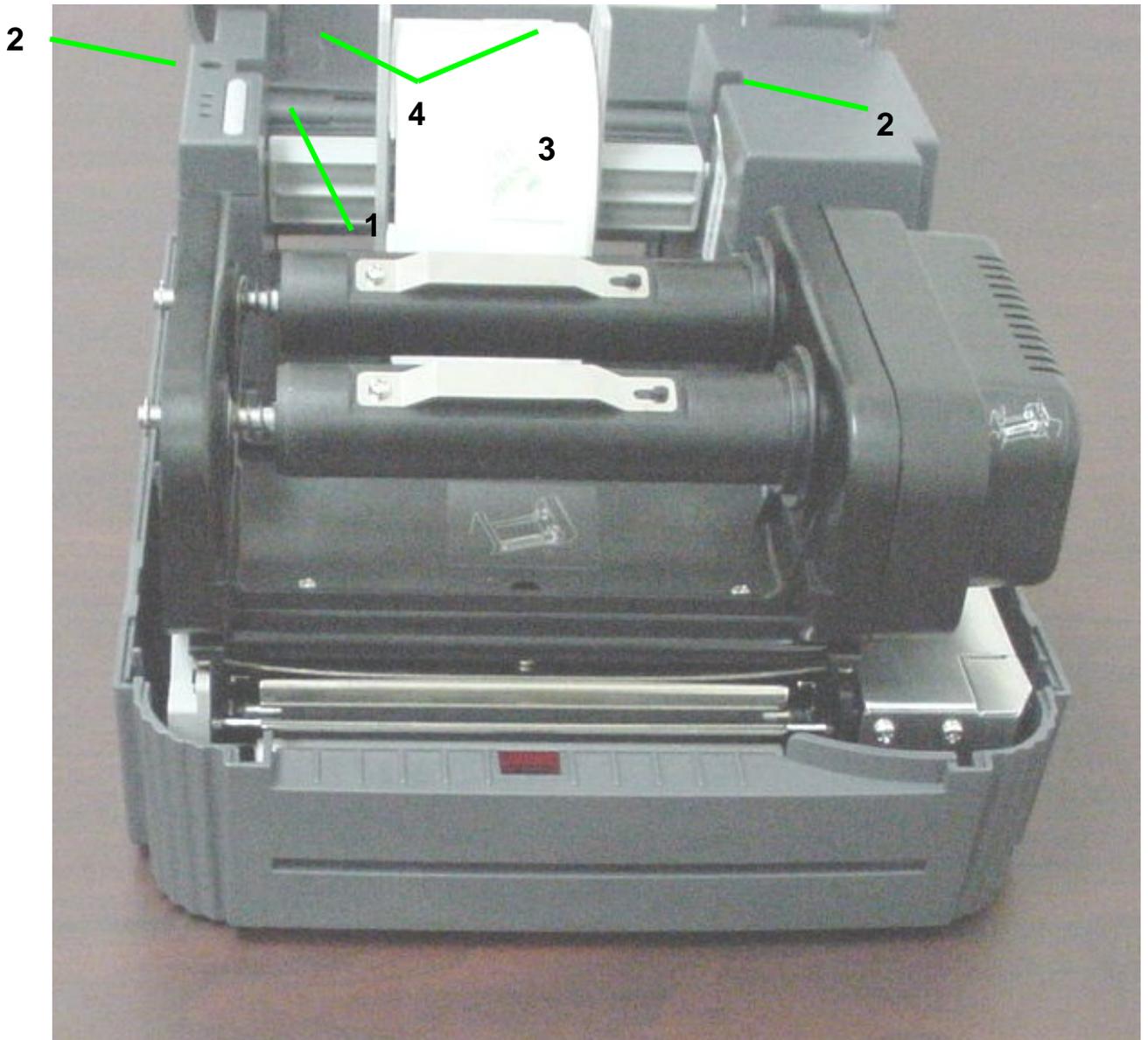


Figure 269. Mounting the Label Supply Roll

1. Label Supply Roll Spindle.
2. Label Roll Mount.
3. Label Roll.
4. Fixing Tabs.

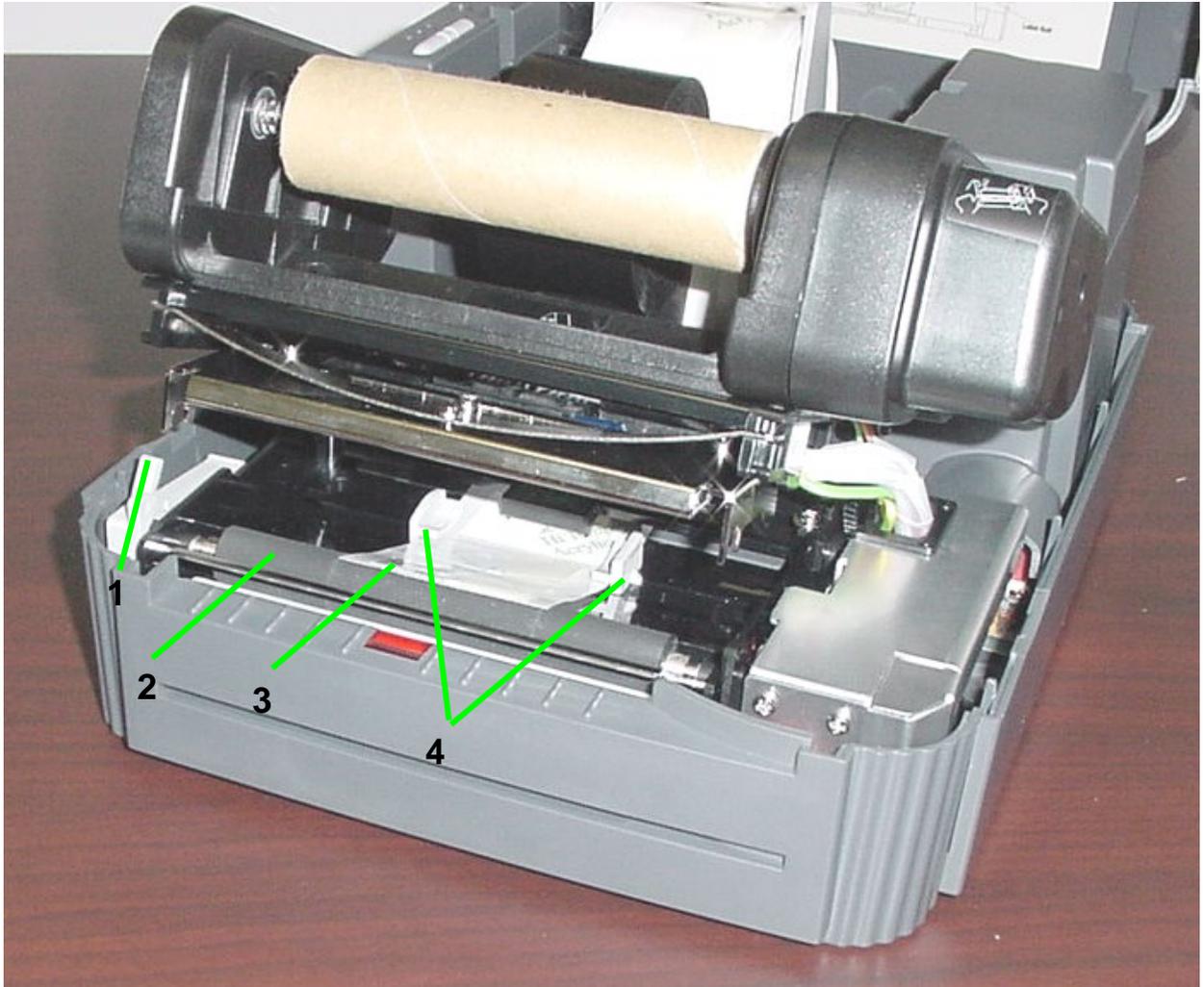


Figure 270. Feeding Labels Through the Adjustable Label Guide

1. Printer Carriage Release Lever.
2. Platen.
3. Label Media.
4. Adjustable Label Guide.

Ribbon Loading Instructions

Ribbon installation can greatly affect the print quality obtained from the Ebar printer. The ribbon must be aligned so that it covers the bar code label print area. This is accomplished by aligning the left side of the ribbon core with the #4 graduation on the ribbon supply spindle.

1. Place an empty paper core on the ribbon rewind spindle.
2. Install the ribbon on the ribbon supply spindle.
3. Disengage the printer carriage.
4. Pull the ribbon leader to the front from beneath the printer carriage.
5. Attach the ribbon leader to the ribbon rewind paper core.

6. Rotate the ribbon rewind roller until the ribbon leader is thoroughly, firmly encompassed by the black section of the ribbon.
7. Engage the printer carriage.
8. Close the printer cover and press the FEED button until the green ON-LINE LED illuminates.

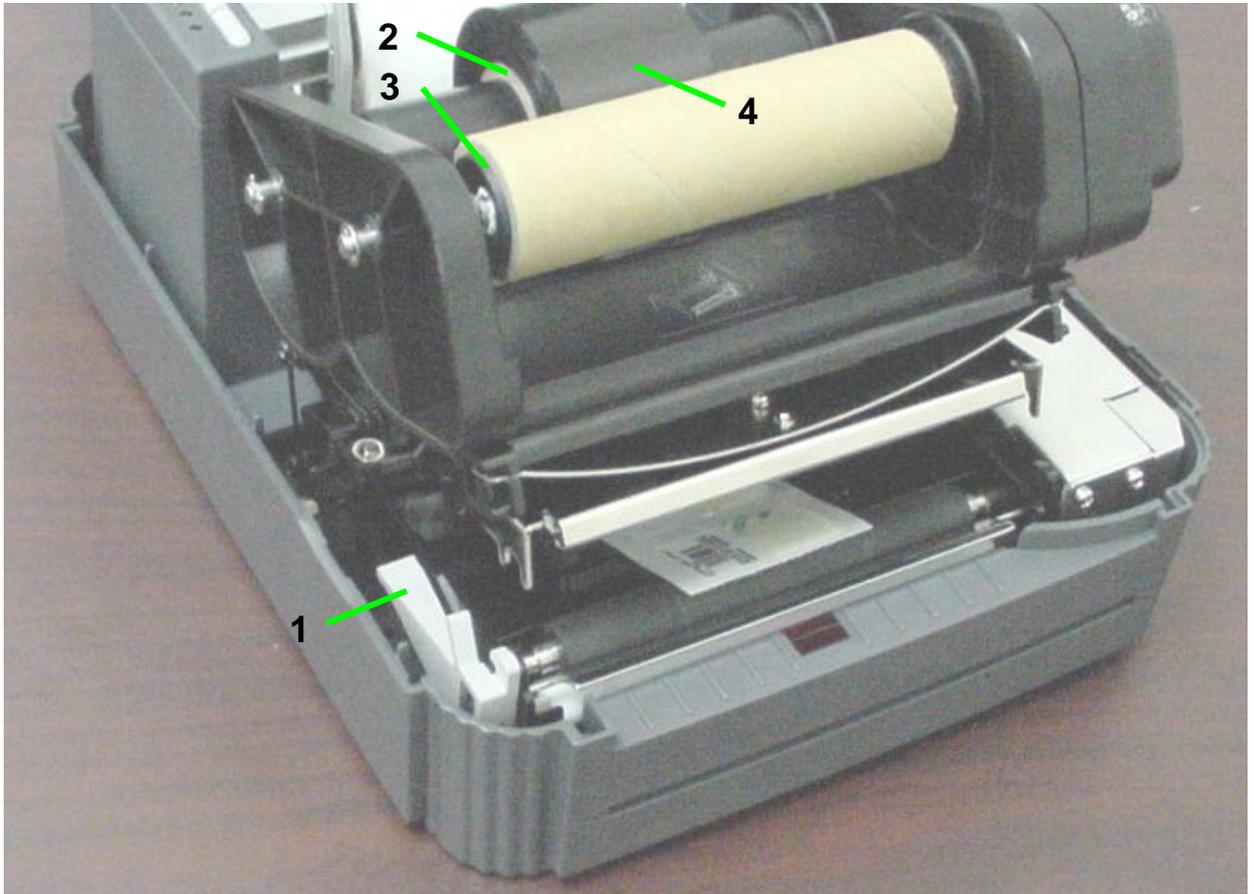


Figure 271. Placement of the Ribbon Supply Roll

1. Printer Carriage Release Lever.
2. Ribbon Supply Spindle.
3. Ribbon Rewind Spindle.
4. Thermal Transfer Ribbon.



Figure 272. Installation of Label Stock and Thermal Transfer Ribbon

Using The Ebar Printer

Power-on Utilities

There are three power-on utilities to set up and test the Ebar hardware. These utilities are activated by pressing the **FEED** or **PAUSE** button and turning on the printer power simultaneously. The utilities are listed as below:

1. Self-test.
2. Gap sensor calibration.
3. Printer initialization.

Self Test Utility

You must install a wide ribbon and wide labels in order to perform the self test. Contact Ventana for more information.

Install the label first. Press the **FEED** button and then turn on the printer power. Do not release the **FEED** button until the printer feeds labels. The printer performs the following items:

1. Calibrate label pitch.
2. Print out thermal print head check pattern.
3. Print the internal settings.
4. Enter dump mode.

Gap Sensor Calibration Utility

This utility is used to calibrate the sensitivity of gap sensor. Users may have to calibrate the gap sensor for two reasons:

1. The media is being changed to a new type.
2. Initialize the printer.
 - **NOTE:** The ERR. LED may flash if gap sensor is not calibrated properly.

Please follow the steps below to calibrate the gap sensor:

1. Turn off the printer power and install blank labels (without any logo or character) on printer.
2. Hold down the PAUSE button then turn on printer power.
3. Release PAUSE button when the printer feeds labels.
4. Do not turn off printer power until the printer stops and two green LEDs light illuminate.

Printer Initialization

Printer initialization clears all downloaded files resident in flash memory, and sets printer parameters to default values.

Please follow the steps below to initialize the printer:

1. Turn off the printer power.
2. Hold down the PAUSE and FEED buttons and turn on the printer power.
3. Do not release the buttons until the three LEDs flash in turn.
 - **NOTE:** The printing method (thermal transfer or thermal direct printing) will be set automatically at the activation of printer power.
 - **NOTE:** When printer initialization is done, make sure that you calibrate the gap sensor again.

Printer Error Messages

- Syntax Error.
 - The command format is incorrect.
 - The serial port setting is incorrect.
- Out of Range.
 - Numeric input is too large to be processed.
 - The input string is too long to be stored.
 - The size of the text or bar code exceeds that of the label.
- Download Error.
 - The download file format is incorrect.
 - There is not enough memory to store the file.
- Stack Overflow.
 - A mathematical expression is too complicated.
 - ” Divide it into several expressions.
 - The nested routine is too deep.
- Memory Error.
 - Too many variables defined.
- RS-232 Error.
 - The serial port setting is incorrect.
- File not Found.
 - Cannot open the file specified. Download the file again.
- Type Mismatch.
 - Variable type mismatch.
- Gap not Found.
 - Cannot detect label gap.
 - ” Calibrate the label again.

- Can not read from / write to the real time clock.

Troubleshooting Guide

The following guide lists some of the most common problems that may be encountered when operating the Ebar bar code printer. If the printer still does not function after all suggested solutions have been invoked, please contact Ventana for assistance.

Problem	Solution
Several blank labels are ejected, or rubbing noise occurs, or won't feed labels	Label became detached and is stuck in feed path; remove the label and/or mylar shield. See the "Mylar Shield Information" section.
Ribbon does not advance or rewind	Check the setting of print method. (SET RIBBON ON)
Poor print quality	Clean the thermal print head. Adjust the print density setting. Ribbon and media are not compatible.
Power indicator does not illuminate	Check the power cord to see whether it is properly connected.
ON-LINE indicator is off	Out of paper or out of ribbon. Calibrate the sensitivity of the gap sensor.
ERR. Indicator is on	Command syntax is not correct. Rewind ribbon paper core is not installed. Serial port baud rate setting is not correct.
Continuous feeding when printing labels	Calibrate the gap sensor.

Mylar Shield Information

Due to the inherent design and manufacturing of the flap labels, it may be necessary to clean the Ebar printer periodically in the area of the gap sensor. Failure to do so may cause the Ebar printer to eject several blank labels, followed by its ceasing to function and its RED light turning on. In the event of this type of failure, you will need to follow the instructions below.

1. Locate the printer on/off switch and turn the printer off.
2. Open the cover of the printer assembly and release the ribbon assembly, using the green lever on the left.
3. Remove the roll of labels from the printer.
4. Visually inspect the area under the small circuit board for any label material that may have become stuck in this area.
 - Remove any residual material that may be in this area.
 - NOTE: If your Ebar printer has a mylar strip in this area, remove it and discard.
5. Take a new mylar strip and remove its adhesive cover.
6. Feed the new mylar strip (Catalog number 1829000) through the green label guides of the printer.
7. Align the front edge of the mylar strip with the plastic edge before and just in back of the platen (black rubber roller).
8. You must now calibrate the gap sensor as follows:

- Reload the label roll.
 - Press down on the ribbon assembly until it is locked in place.
 - Close the printer cover.
 - While holding down the PAUSE button, turn on the printer power.
 - As soon as labels begin to feed through the printer, release the PAUSE button.
 - Run two or three test labels to assure proper alignment.
9. The Ebar printer is now ready to use.

Using The Ebar II Printer

The **Ebar™ II** printer is a specially designed, high speed slide label printer for use with VENTANA Advanced Staining Systems. It will provide simple, efficient and reliable on-demand slide label printing.

NOTE: The Ebar II printer is controlled by the same SLS software as the printer previously supplied by Ventana.



Figure 273. Ebar II Printer

The **Ebar™ II** printer is for use with the following VENTANA Advanced Staining Systems:

- Benchmark, Benchmark XT, Benchmark LT
- NexES Special Stains, NexES IHC
- Discovery , Discovery XT

Loading the Ebar II Label Roll

1. Slide a roll of VMSI labels (A) onto the label spindle (B). Ensure that the label orientation and roll unwind direction are correct (see photo). Slide the label spindle tabs (C) onto the label spindle (B). Use the scale marks (D) on the label spindle (B) to center the label roll (A) and the tabs (C).

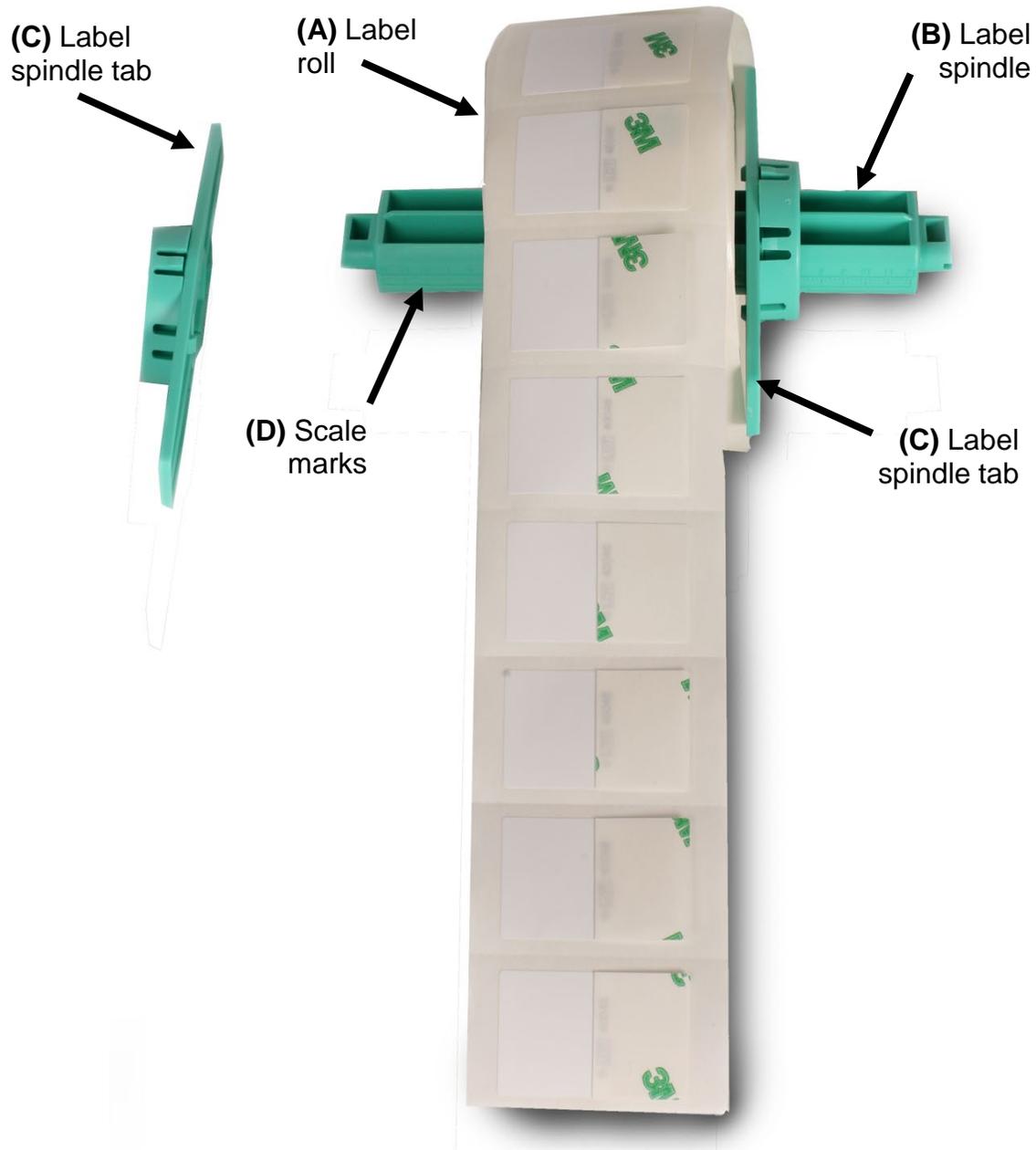


Figure 274. Loading the Label Roll

2. Open the printer top cover by pulling the levers (E) on each side toward the front of the printer and lifting the top cover slowly until it passes the first stop position (F).

- NOTE: to hold the cover open at position 2, you must lift the cover higher than the stopping point at position 1 and gently lower to stopping point 2 (F).
3. Place the label spindle (B) and label roll (A) into the label spindle mounts (G) so that the labels roll from the top of the roll, not the bottom.

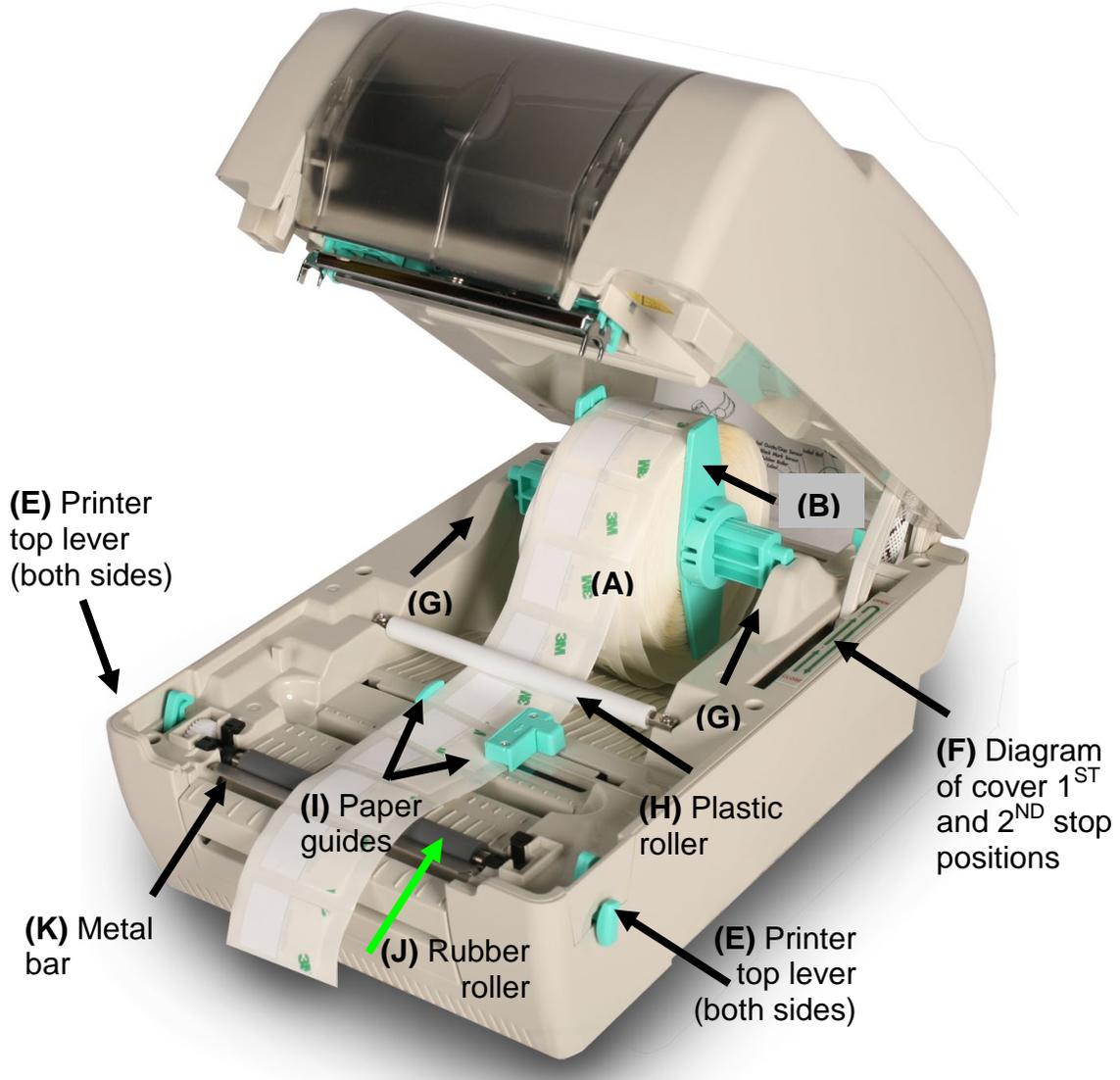


Figure 275. Installing the Label Roll

4. Thread the roll of labels (A), label side up, under the plastic roller (H), between the paper guides (I), and over the rubber roller (J) and the metal bar (K). Adjust the paper guides (I) so that they touch the edges of the label roll (A).
5. Close the printer top cover by lifting the cover all the way up, then closing it slowly. DO NOT LET THE TOP COVER FREE FALL, AND DO NOT FORCE THE TOP COVER CLOSED.

Loading the Ebar II Ribbon

1. Push down on the ribbon access window (L) to unlock, open and raise it.
2. Slide a ribbon (M) onto the ribbon supply spindle (N) so that the ribbon will roll from the bottom. Center the ribbon (M) on the metal roll portion of the ribbon supply spindle (N).

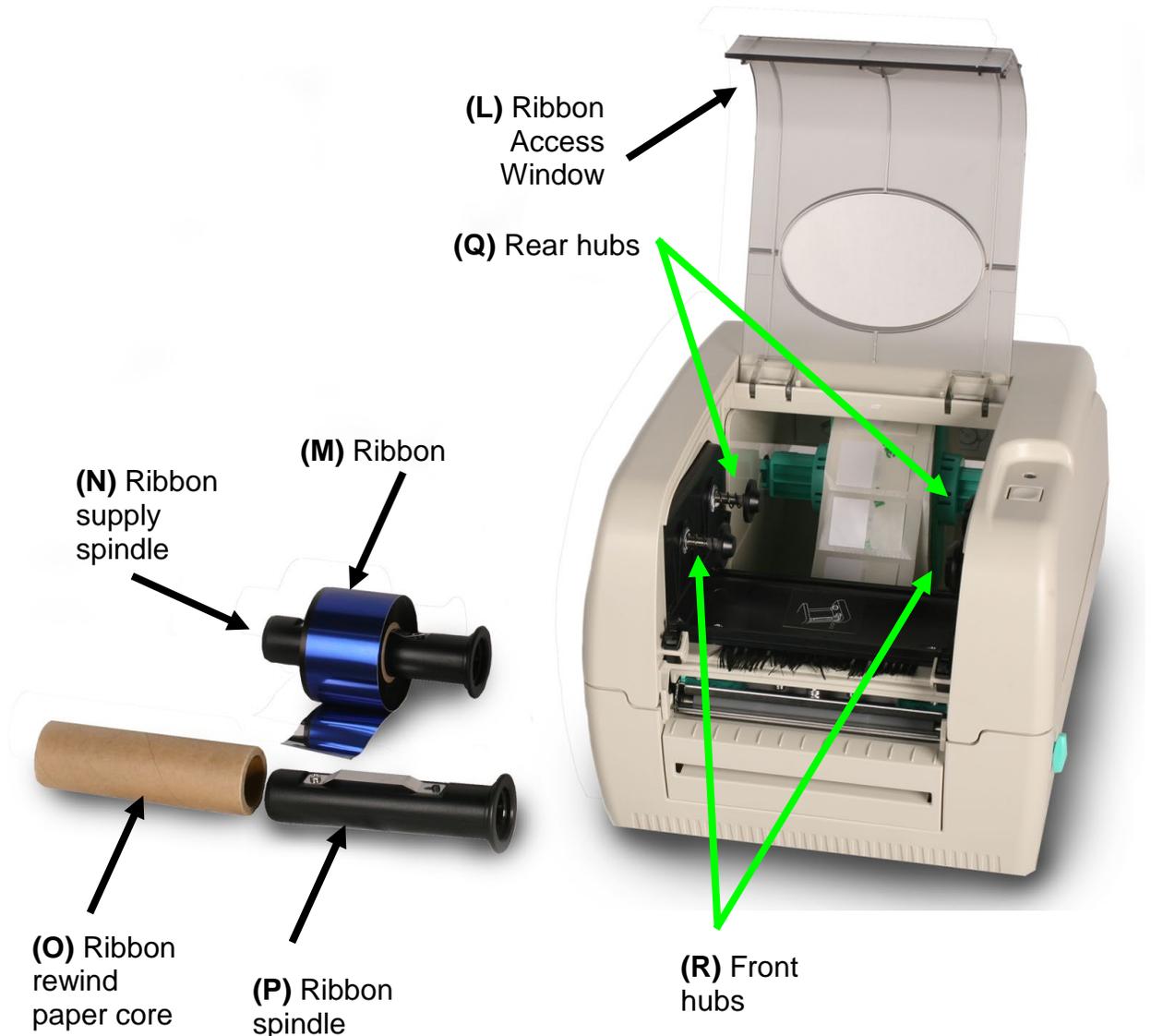


Figure 276. Loading the Ribbon

3. Slide a ribbon rewind paper core (O) onto the ribbon spindle (P).
4. Fit the ribbon supply spindle(N) on the rear hubs (Q).
5. Open the printer top cover by pulling the levers (E) on each side toward the front of the printer and lifting the top cover slowly until it passes the first stop position (F).
6. The ribbon (M) should hang freely from the ribbon supply spindle (N) toward the label roll (A).

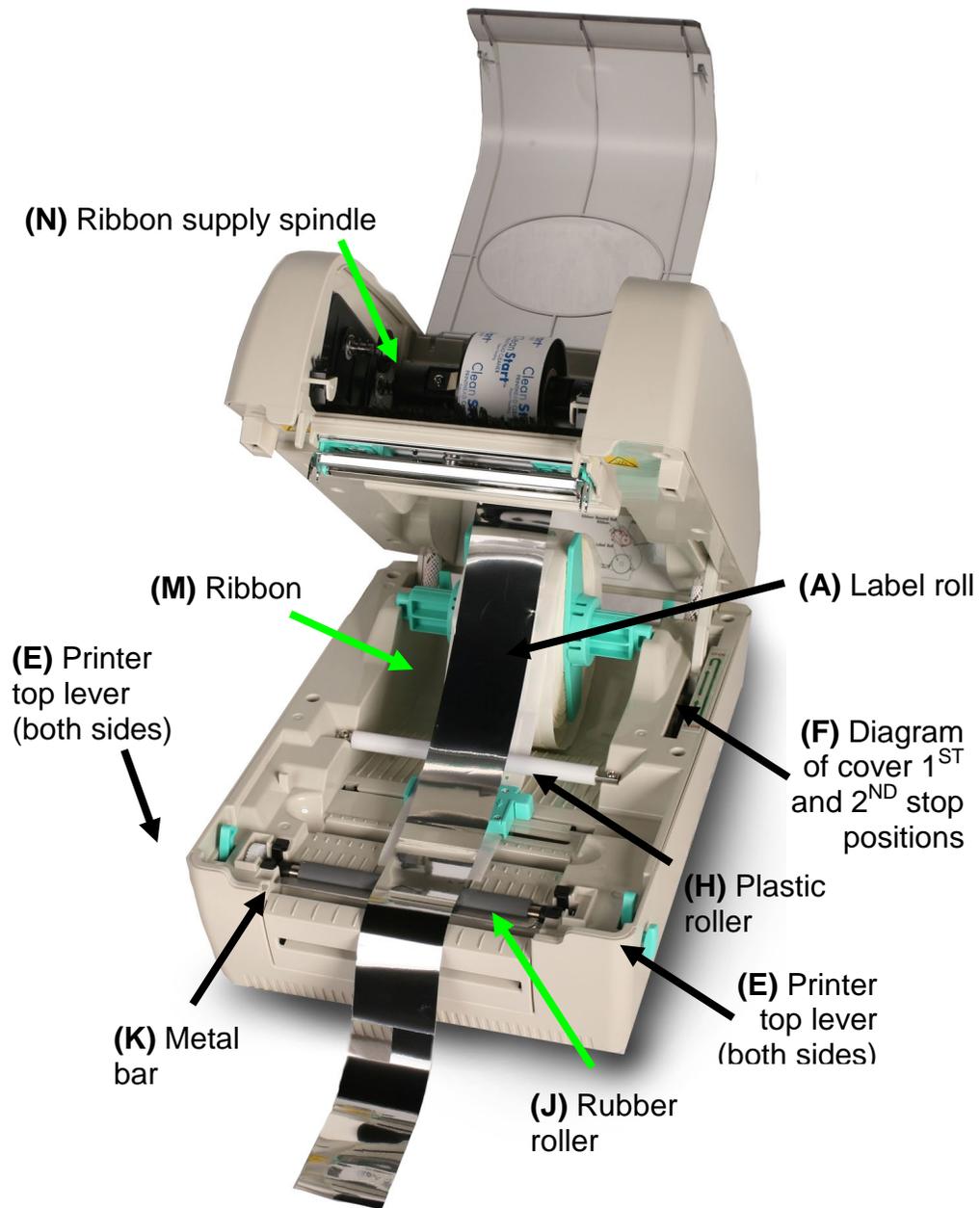


Figure 277. Installing the Ribbon

7. Guide the ribbon (M) over the plastic roller (H), rubber roller (J), and metal bar (K).
8. Close the printer top cover by lifting the cover all the way up, then closing it slowly. **DO NOT LET THE TOP COVER FREE FALL, AND DO NOT FORCE THE TOP COVER CLOSED.**
9. Place the ribbon rewind paper core (O) on the front hubs (R), then attach the ribbon (M) to the ribbon rewind paper core (O) with tape.

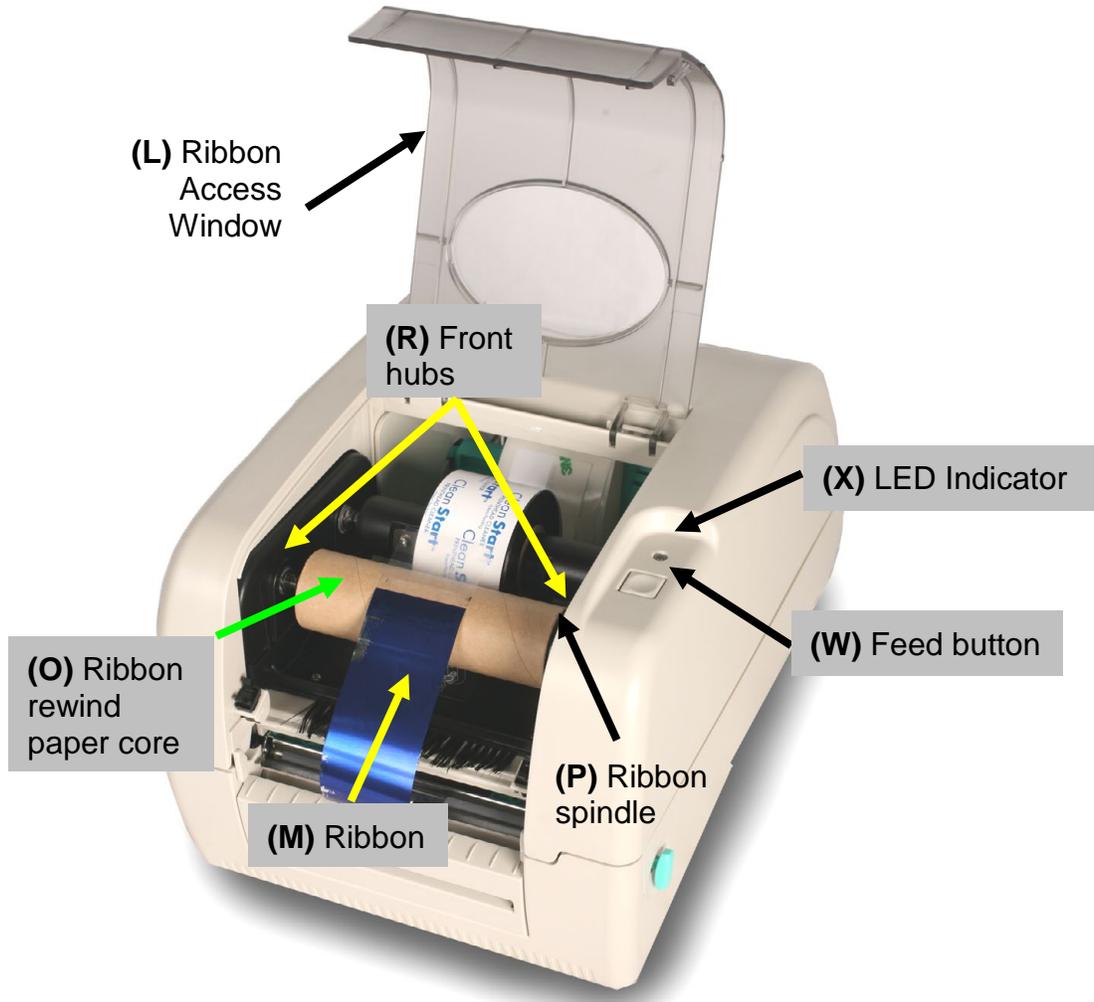


Figure 278. Attaching the Ribbon

10. Rotate the ribbon rewind paper core **(O)** by hand until the ribbon rewind paper core **(O)** is thoroughly and firmly encompassed by the black section of the ribbon **(M)**, then close the ribbon access window **(L)**.

Setting up the Ebar II Printer

1. Place the printer on a flat, secure surface.
2. Make sure the power switch **(S)** is off.
3. Connect the printer to the system computer **(T)** with the system computer cable.

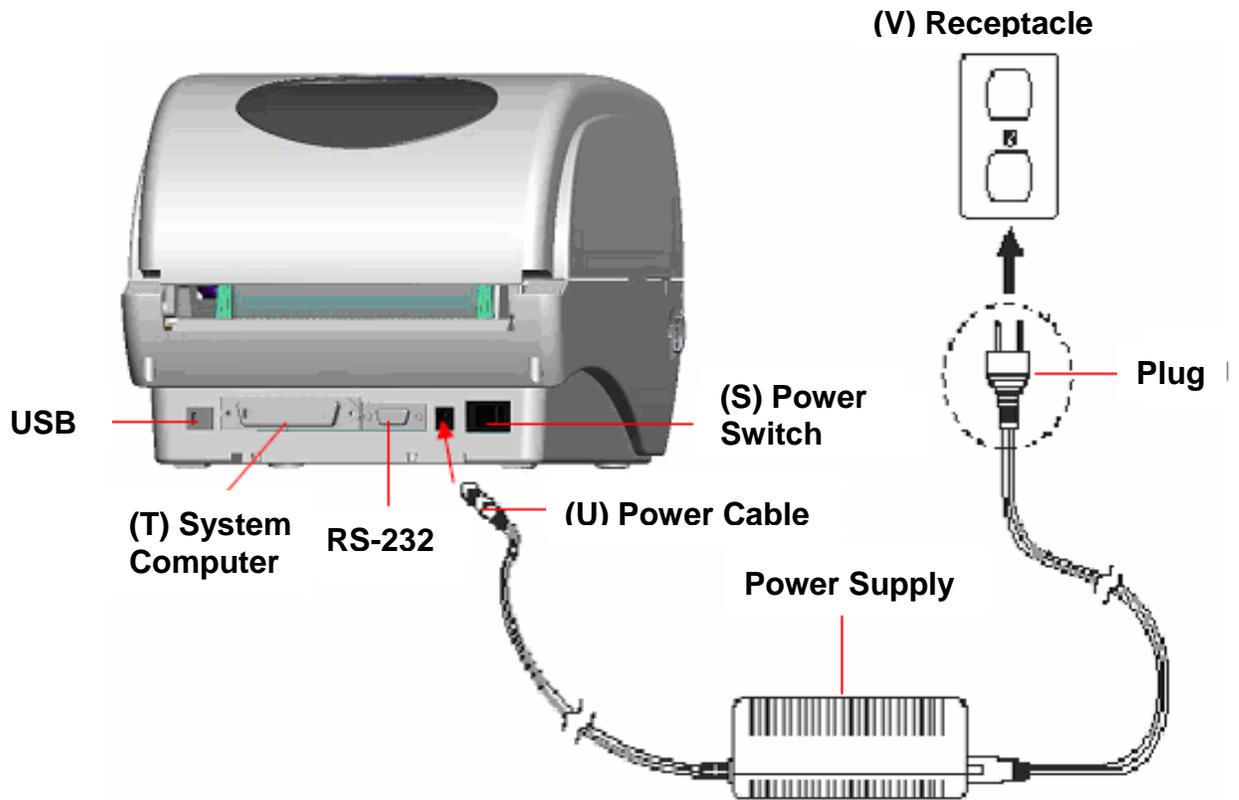


Figure 279. Setting up the Printer

4. Plug the power cable (U) into the power supply connector at the rear of the printer
5. Plug the power cable (U) into a properly grounded receptacle (V).
6. Press and hold the feed button (W) while you turn on the power switch (S).
7. Release the feed button (W) when the LED (X) turns red after first turning orange.
 - The printer will feed labels and calibrate the sensor.
 - LED indication: orange-> **red (5 blinks)**.
8. If you wish to print a test label, refer to the “Printing a Test Label” and “Monitoring Print Quality” sections.

Ebar II Printer Maintenance

Cleaning the printer requires the following:

- Materials
 - Cleaning swabs
 - Lint free cloth
- Periodicity
 - Clean the printer head when loading a new ribbon.
 - Clean the rubber roller, exterior and interior as necessary.
- Cleaning Process
 - Printer head
 - “ Allow the printer head cool for 1 minute.
 - “ Use a cleaning swab to wipe the print elements.
 - Rubber roller

- Rotate the rubber roller and wipe it thoroughly with 70% alcohol and a cleaning swab or lint free cloth.
- Exterior
 - Wipe the exterior of the printer with a water dampened lint free cloth.
- Interior
 - Brush or gently blow out with air.

Ebar II Printer Operation and Troubleshooting

Printer Function	When Used	Procedure/Description
(X) LED indicator	Indicates printer status.	Green: power is on, ready for use. Orange: detecting label and ribbon status. Red: error (e.g., ribbon or label empty).
Feed labels	Test for proper label feeding.	Press the feed button (W) to feed one label.
Pause a printing job	Pause printing if the labels misprint, are misaligned, the label information is incorrect, etc.	Press the feed button (W) to pause printing. Press the feed button (W) again to resume printing.
Calibrate the gap/black mark sensing	Calibrate the printer sensors.	Turn off the power switch (S) . Press and hold the feed button (W) while you turn on the power switch (S) . Release the feed button (W) when the LED (X) turns red after first turning orange. The printer will feed labels and calibrate the sensor. LED indication: orange -> red (5 blinks)
Initialize printer by clearing DRAM memory and restoring factory defaults.	Initialize the printer and restore factory defaults if it is not printing barcodes or fonts correctly, or if other irregularities occur.	Turn off the power switch (S) . Press and hold the feed button (W) while you turn on the power switch (S) . Release the feed button (W) when the LED (X) turns green and blinks 5 times. The printer configuration will be restored to defaults. ALWAYS do the gap/black sensing calibration after initialization. LED indication: orange -> red (5 blinks) -> orange (5 blinks) -> green (5 blinks)
Print Quality	Labels continuously feeding.	Initialize and adjust the Gap/Black Mark sensing.
	No print on labels.	Check loading of the ribbon.
	Poor print quality.	Ensure the covers are properly closed. Clean the print head. Adjust the print density.

Printer Function	When Used	Procedure/Description
Other	Contact and additional reference.	For further information, contact Ventana Medical Systems. A manufacturer's user manual is available from www.TSC.com .

SLS Software

Starting and Exiting SLS

SLS is started from within the NexES desktop PC software.

NOTE: The same SLS software that controls the printer previously supplied by Ventana also controls the Ebar II printer.

- To start SLS, click the slide label icon at the bottom of the main screen.



Figure 280. SLS Icon

The Main Screen

The main SLS screen is shown below.

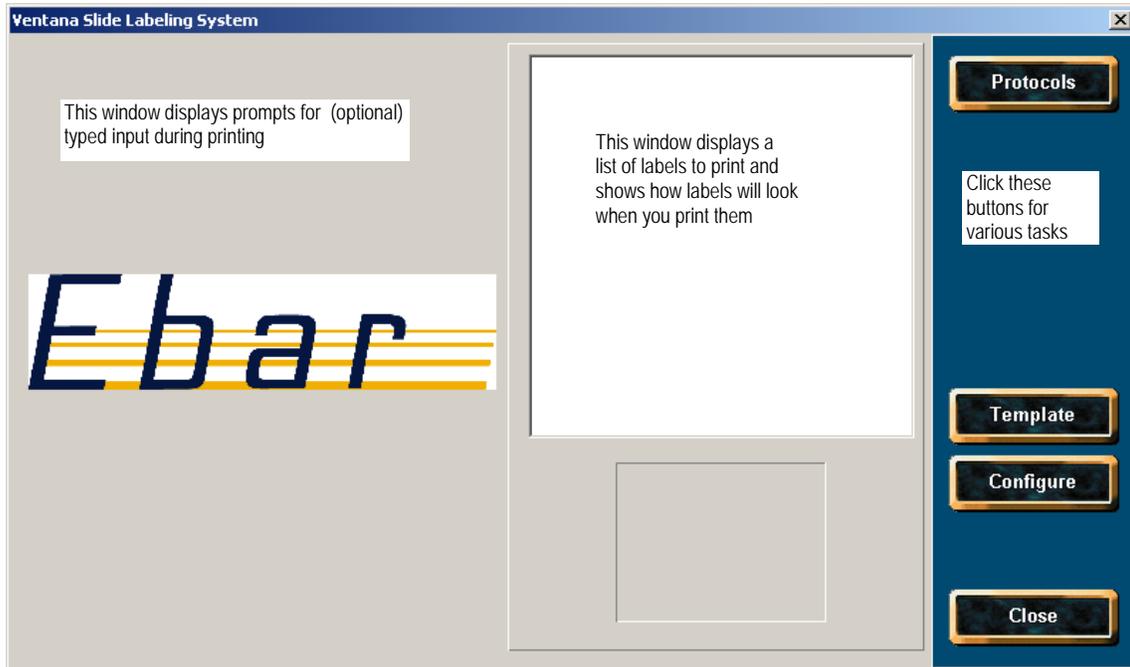


Figure 281. SLS Main Screen

Click the buttons to access the following features of the program.

- **Protocols**—to select what specific slide labels you want to print.
- **Template**—to specify how a label should look, what additional text it will contain, and what information, if any, is required from the operator when the label is printed.
- **Configure**—to enable you to print a test label, make adjustments to alignment, orientation, density, or print speed; keep track of ribbon and label usage, and otherwise administer your labeling system.
- **Close**—to leave the labeling system and return to the screen you saw before starting it up.

Printing a Test Label

Just to see if your SLS printer and software are properly installed, print a test label.

1. Before printing, make sure that
 - The SLS printer is hooked up and turned on.
 - Ribbon and labels are installed in the printer.
 - The top cover of the printer is latched shut.



Figure 282. Configure Button

2. Click the **Configure** button on the main screen to display the default SLS Options tab of the Setup Host screen.
3. To print a test label, click the **Test** button on the Configuration screen.
4. To return to the main screen, click the **Close** button.

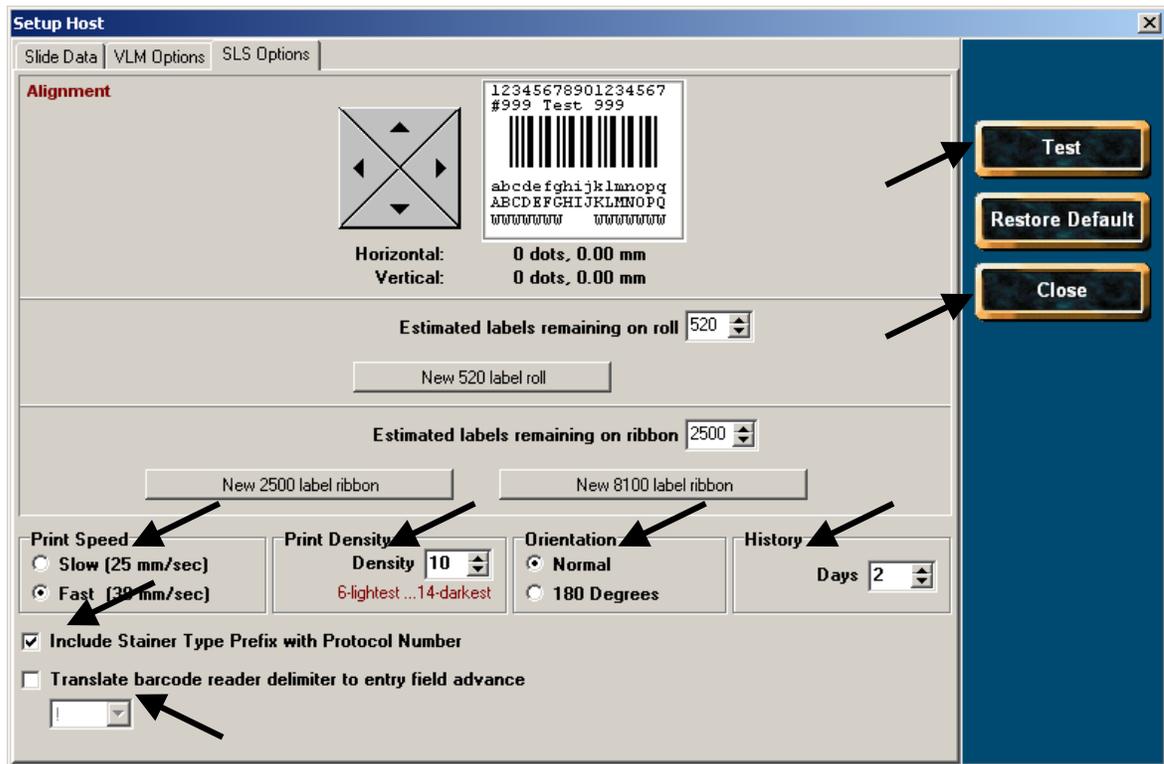


Figure 283. SLS Options Tab of the Configuration Screen

The following print options are available:

- Print Speed: Fast is recommended.
- Print Density: If the print head has deteriorated to the point of causing faint printing, increase the Density.
- Orientation: Allows you to print labels upside down.
- History: SLS will store labels for the number of days selected.

- Include Stainer Type Prefix with Protocol Number: See the “Caution for Laboratories with Multiple Systems” section.
- Translate Barcode Reader Delimiter to Entry Field Advance: Allows you to automatically advance to the next template field when using a scanner for entering data into fields.

Anatomy of a Label

A test label is illustrated below.

- There are portions of the label you can customize.
- Other portions are reserved for special purposes.

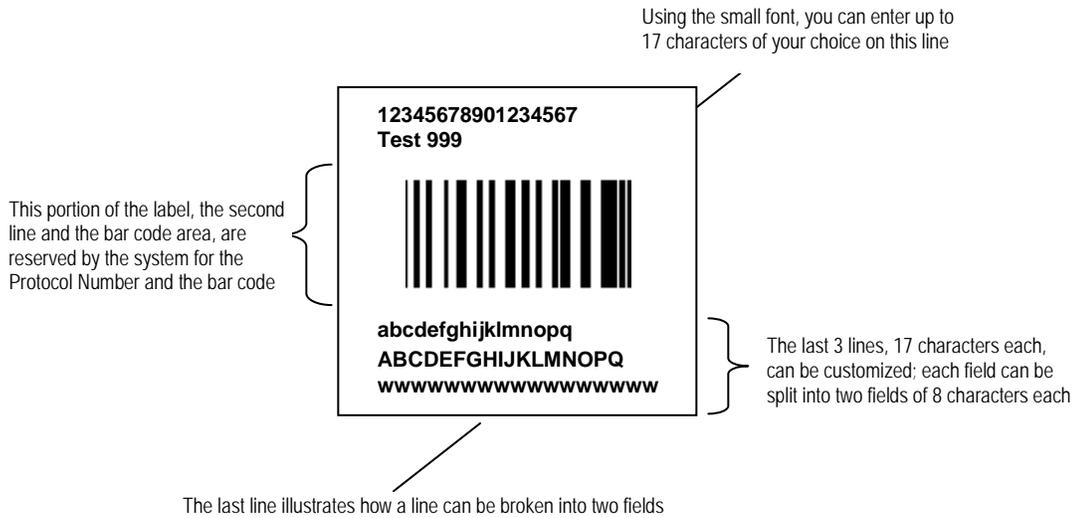


Figure 284. Label Components

Two font sizes are provided: Small and Large. The large font cannot print on the line shown above the bar code in the figure. Refer to the table for maximum character counts in each font.

	Small	Large
Characters per single line	17	15
Characters per 2-column half line	8	7
Lines above bar code	1	0
Lines below bar code	3	3

Dates displayed in split (half) fields will be formatted without separators, e.g., “Feb 8, 2000” becomes “020800” on the label, even if the template specifies otherwise.

Printing with Pauses for Input

SLS has the ability to pause printing.

- This is so that label information can be entered from the keyboard for use on a label or series of labels.

The general plan is to design a label with all of the common information built into the design.

- This way, printing requires no further attention.
 - However, information that cannot be anticipated in the design template needs to be added to the label at the time of printing.
 - For example, a patient name would not be built into the template.

SLS provides you with a flexible and easy to use method for entering information prior to printing a label or a series of labels.

- The program advises the operator with a prompt, telling what information needs to be entered.
 - Then it waits for the needed input before printing is resumed.

In combination with the program's ability to handle sequential numbering or lettering and automatic date stamping, its operator prompted input capability makes SLS a remarkably flexible tool.

Exiting the Program

Click the **Close** button on the main screen to leave the program. If you entered the program from the Windows desktop, you will return there; or if entered through the SLS icon within NexES, then the NexES screen is redisplayed.

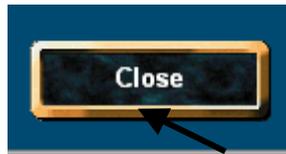


Figure 285. Close Button

Printing Labels with SLS

Before You Print

After you select labels to print in the Protocols section of the Select Slide Labels screen, a screen will appear similar to the one shown below.

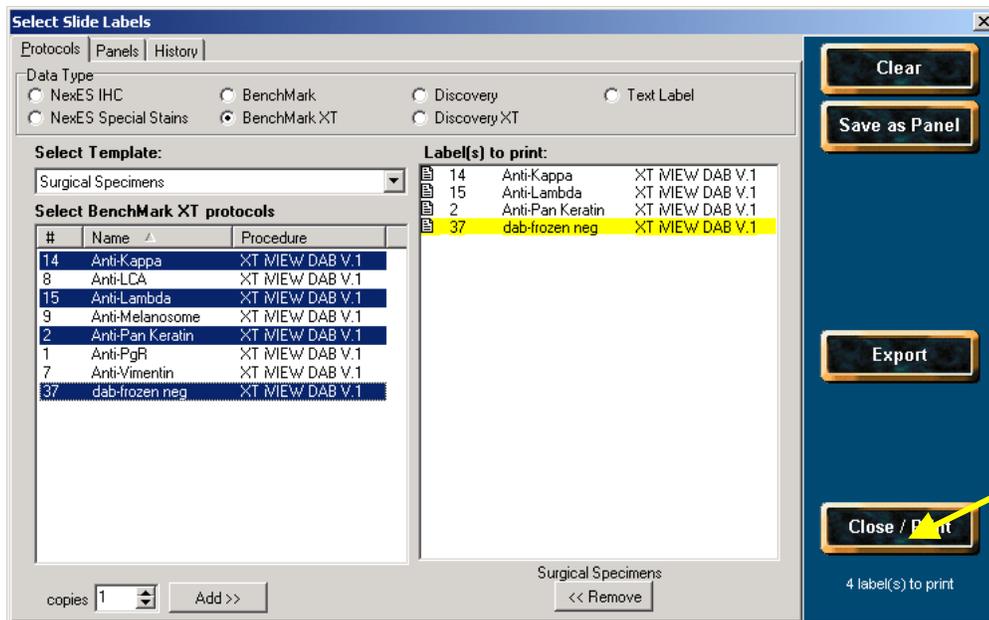


Figure 286. Select Slide Labels Screen

From this screen, you can click the **Close/Print** button to display the Ventana Slide Labeling System screen. Once the Ventana Slide Labeling System screen is displayed, you will probably have to enter information into its highlighted fields before previewing or printing of the labels can be accomplished. Fields highlighted in yellow require data entry.

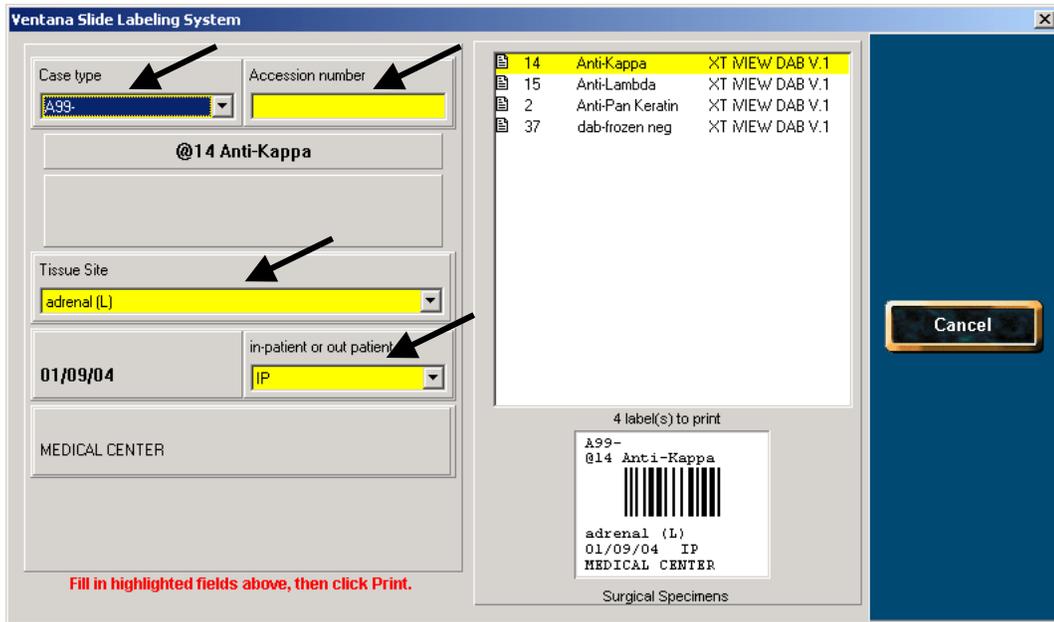


Figure 287. Ventana Slide Labeling System Screen

Once you have entered information into the highlighted fields, the **Print** button will appear, allowing you to print directly from this screen.

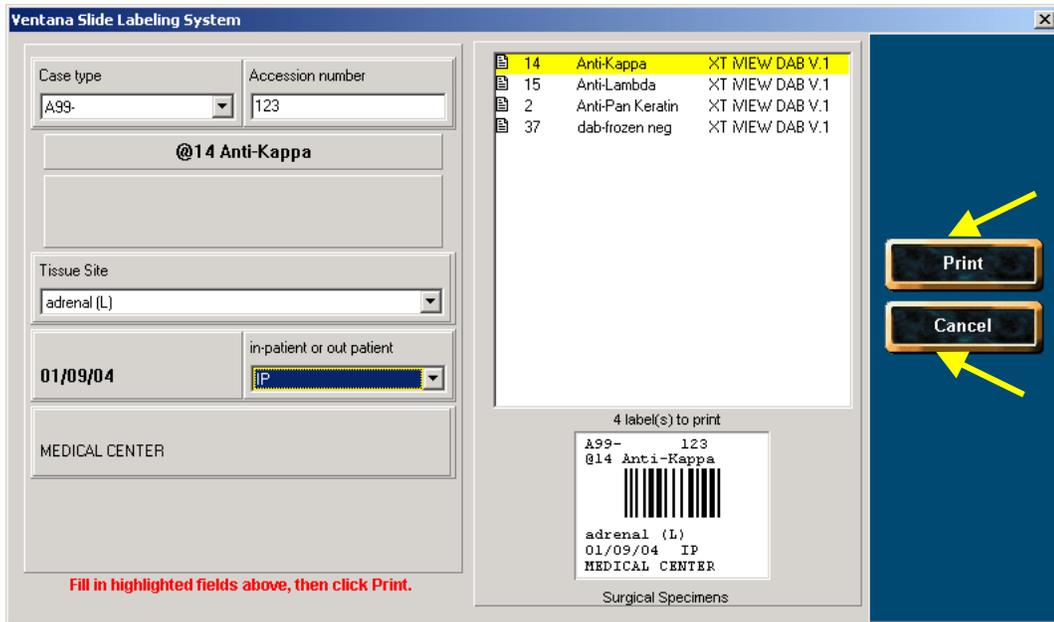


Figure 288. Clicking Print or Cancel

However, you can forgo entering information into its fields and just click **Cancel** to display other buttons that will give you more options shown below.

Alternatively, once you have entered information into the fields, you can either click Print to print the labels, or click Cancel to display other buttons that will give you more options as shown below.

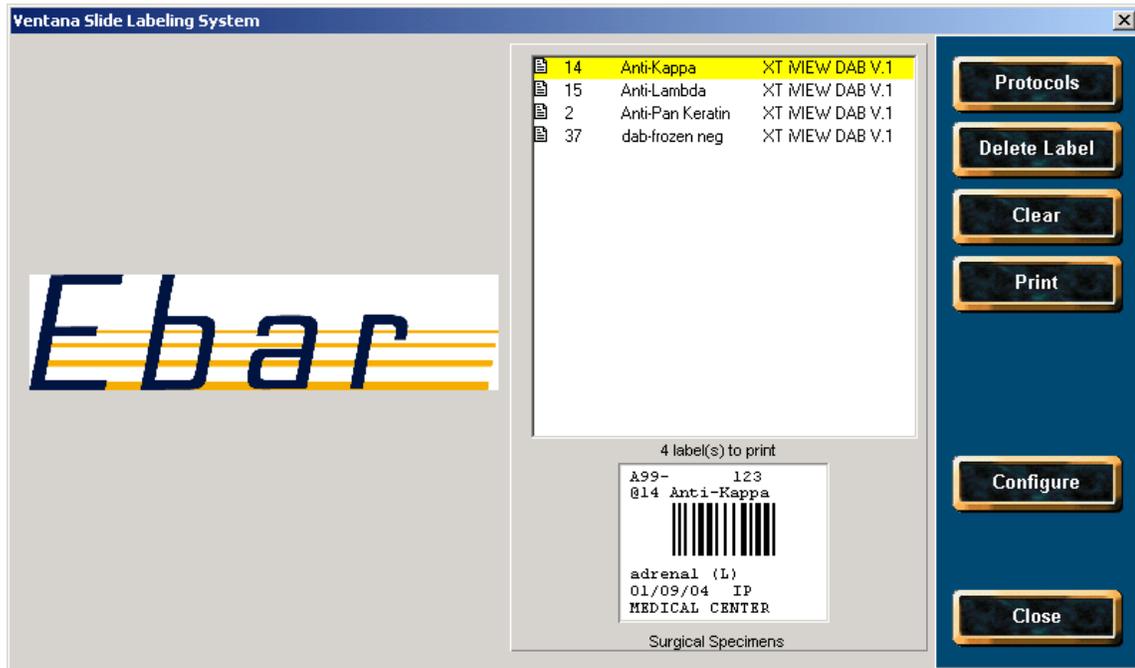


Figure 289. Clicking Cancel to Display More Options

At this point, you can:

- Click **Protocols** to display the Protocols tab of the Select Slide Labels screen.
- Click **Delete Label** to delete any highlighted label.
- Click **Clear** to clear the slide label list.
- Click **Print** to print all the labels listed on the screen.
- Click **Configure** to change the SLS settings.
- Click **Close** to exit the SLS.

Previewing a Label

At the main SLS screen, click any label in the list to see its preview image. To preview labels in a panel, double-click the panel name (which displays each of its labels). You can also preview them by highlighting them.

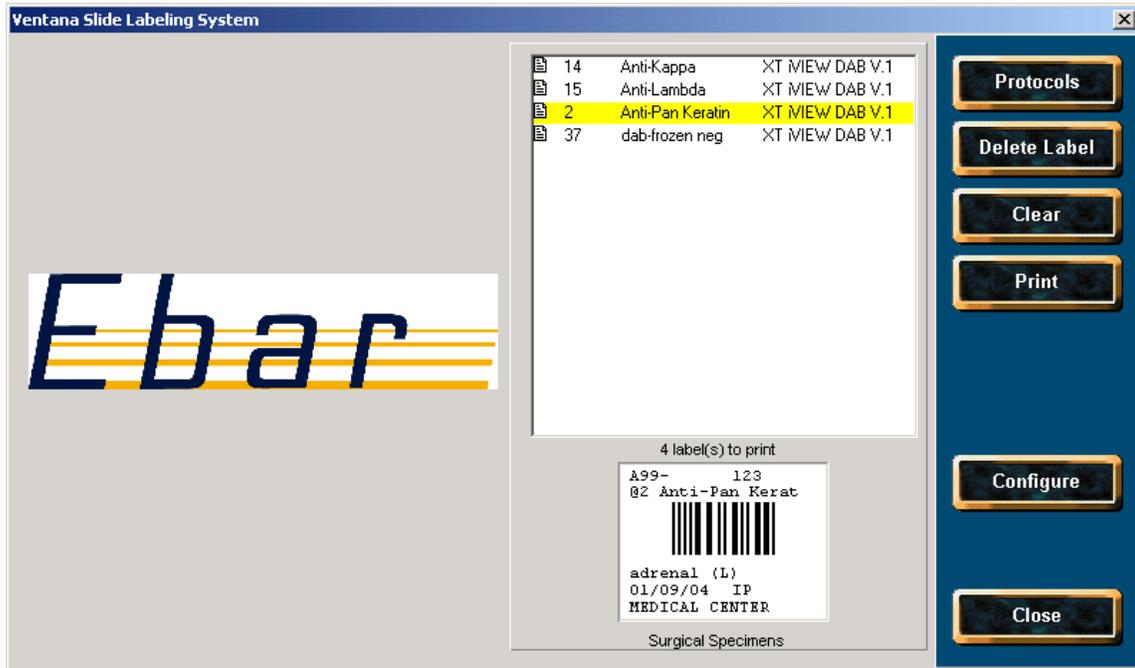


Figure 290. Label Previewing

Removing a Label

If you decide you do not want to print a particular label after all

- Highlight its name with a mouse click.
- Click the **Delete Label** button.

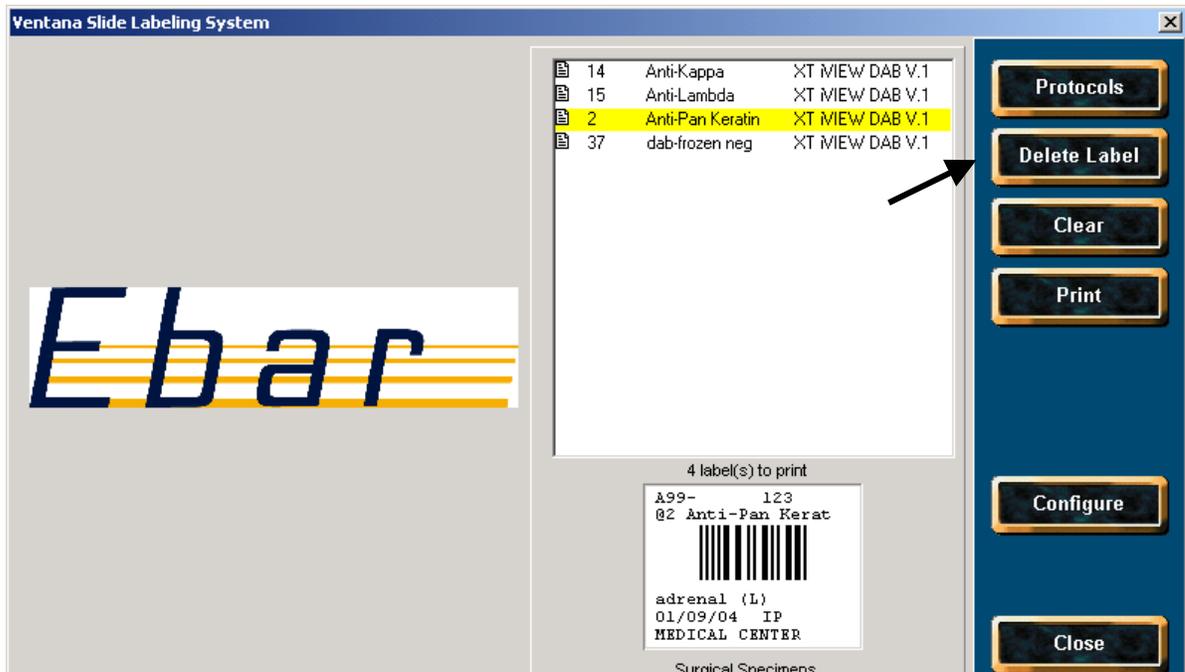


Figure 291. Removing a Label from the Print List

The software wants to know if this is really what you want, so you can confirm or change your mind using the box below. Click **Yes** to go ahead and remove the label from the list of labels to print, or **No** if you change your mind. Note that deleting a label simply removes it from the list of labels to be printed, not from the labeling system database.

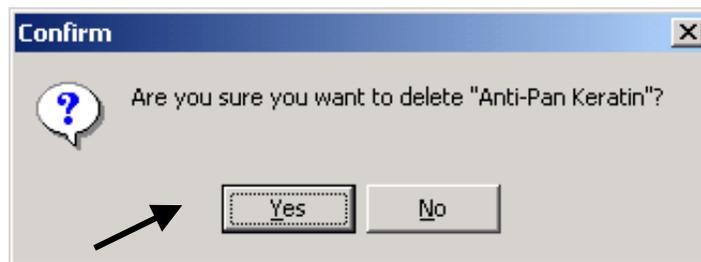


Figure 292. Confirm Removing a Label from the Print List

Adding a Label

After reviewing the list, perhaps you have skipped a label you really want to print. You can go back to the Protocols screen and add the new label without losing the current list.

Starting Fresh

If this is an exercise, it is easy to flush out the list without printing anything. Just click the convenient Clear button.

Selecting History Labels

The History tab lets you reproduce labels you have recently printed.

- If the template requires operator input, you can choose to print the label with the previously supplied information.
- As an alternative, you can enter new information when you print the label.

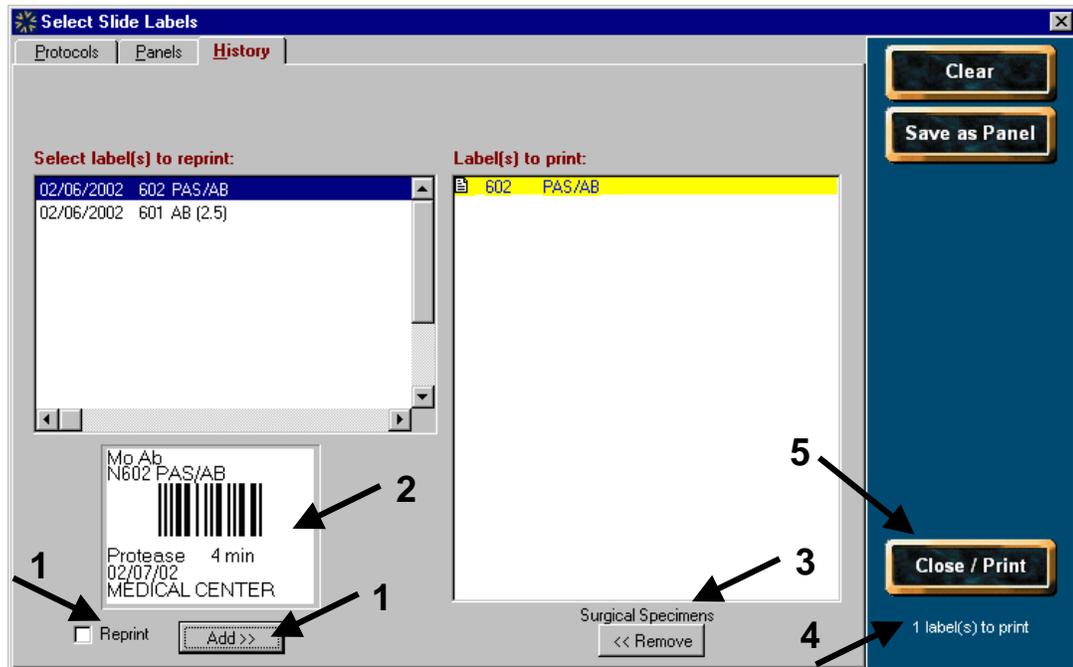


Figure 293. Selecting History

The Reprint check box, if checked, will allow the label to be printed with the previously entered information (if keycodes are enabled, a new keycode will be issued for the duplicated slide data).

- If Reprint is not checked, you may be prompted (depending on the template) to enter new information when the label is reprinted.
 - You must check or uncheck Reprint before selecting the label.
 - In the Labels to print list a reprint label is blue and a non-reprint label is black.
1. The label selected by the Add>> button will be reprinted exactly as it was last time.
 - Otherwise, you may be prompted to enter additional information when the label is printed.
 2. The preview shows how the label looked when last printed.
 3. The name of the template that will be used to print the label currently highlighted in the Labels to print list is displayed below the Labels to print list.
 4. The number of labels currently selected from this tab and any other tabs is shown here.
 5. Click the Close/Print button to quit building the list or select another tab to continue adding to the print list.

Caution for Laboratories with Multiple Systems

The History tab lets you reproduce labels that you have recently printed using each label's previous template. If the template requires operator input, you can choose to print the label with the previously supplied information or you can enter new information when you print the label.

If the "Include Stainer Type Prefix..." checkbox in the SLS Options tab is checked, SLS prints an identifying initial on each bar code label preceding the protocol number, as follows:

+	BenchMark
L	BenchMark LT
@	BenchMark XT
O	Discovery
(TBD)	Discovery LT
θ	Discovery XT
#	NexES IHC
S	NexES Special Stains

To further avoid confusion, Ventana strongly recommends that laboratories with more than one type of VENTANA instrument use separate protocol bar code numbers with each type of instrument. For example, a laboratory with both BenchMark and Discovery might want to utilize protocol bar code numbers 1-99 for BenchMark tests and 101-199 for Discovery tests.

When the Ventana Lab Manager Collaboration Enabled and Enable Keycode Slide Labeling options in the VLM Options tab are checked, and the Reprint check box is checked, a new keycode will be issued for the duplicated slide data.

Start Printing

When you click the **Print** button:

- The space on the left is occupied by the prompts area.
- This is where you enter information specific to a label or a group of labels you are printing.
 - ” If none of the templates requires operator input, the window will blink while the labels print.

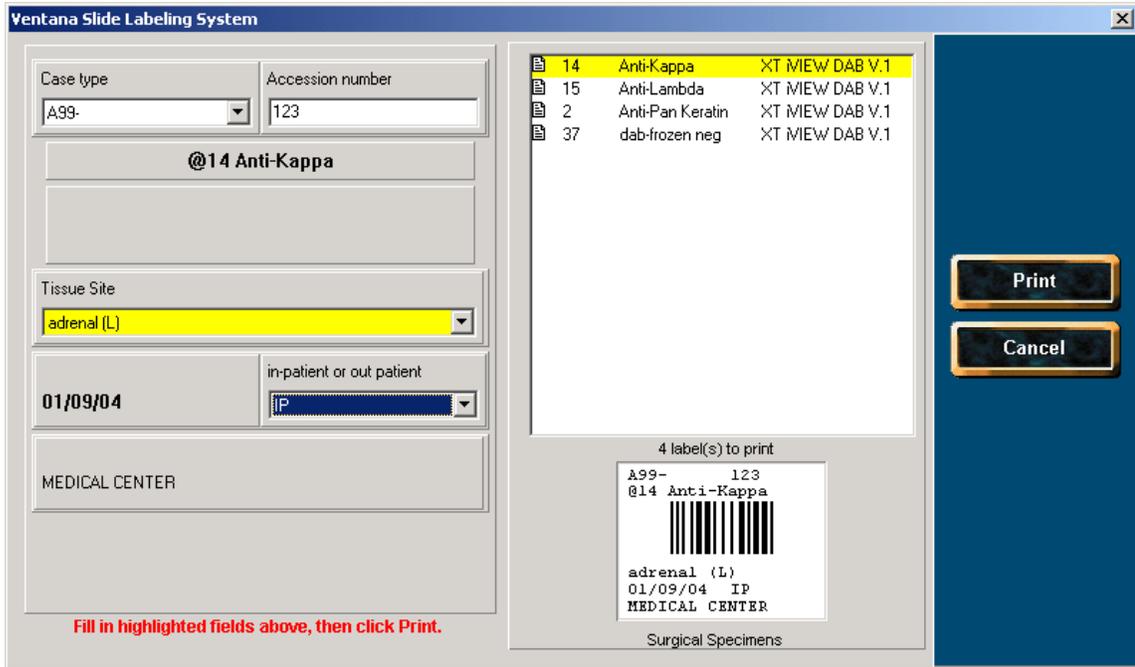


Figure 294. Label Prompts Area

However, if any label (as specified by its template) requires entry of information, it may pause for such entry

- A series of prompts will appear in the window.
- The software requires you to enter all of the needed information before the label will print.
- For some kinds of prompts you can simply accept a default that is already shown.
 - Others require something to be entered, as explained in “Templates” and in the next section.

Entering Prompted Information

Any field shown in yellow must receive an entry before the current label will print.

In the example, below, we are entering a Case Type from a list we have created before. Refer to the “List” section to create your own list menus.

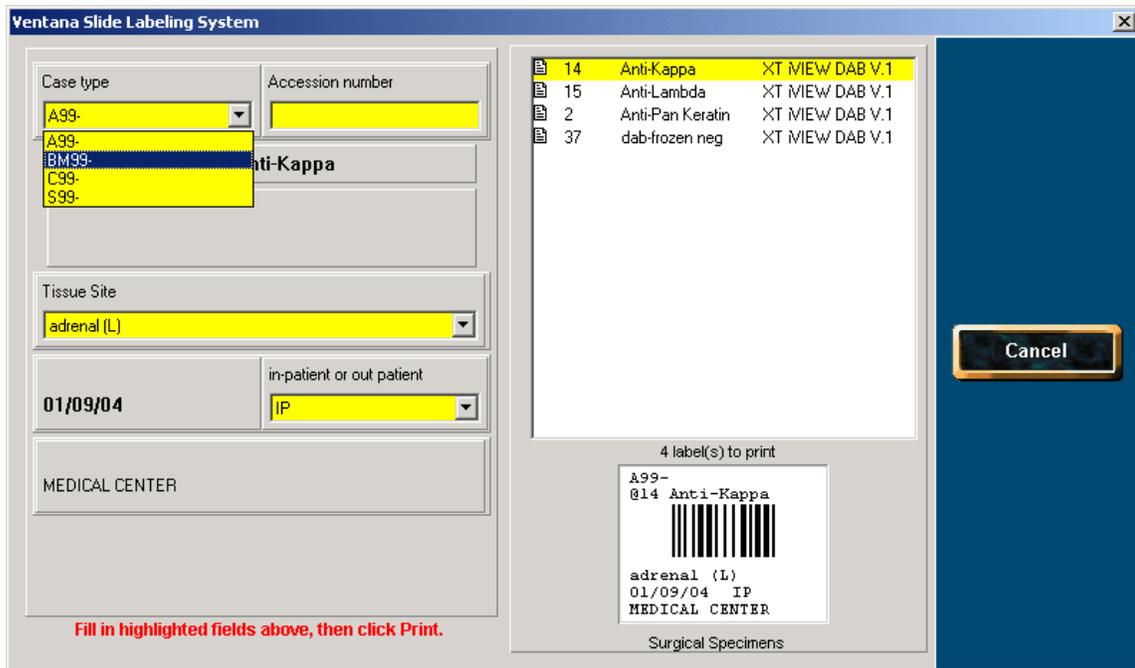


Figure 295. Entering a Case Type

- After the highlighted fields are filled in, the **Print** button will be displayed.
- Click the **Print** button.
- You will have to repeat the entry and **Print** procedure, above, for each label or series of labels that requires manual entry of information.
 - At each label.
 - At each panel.
 - At the start of each print job.

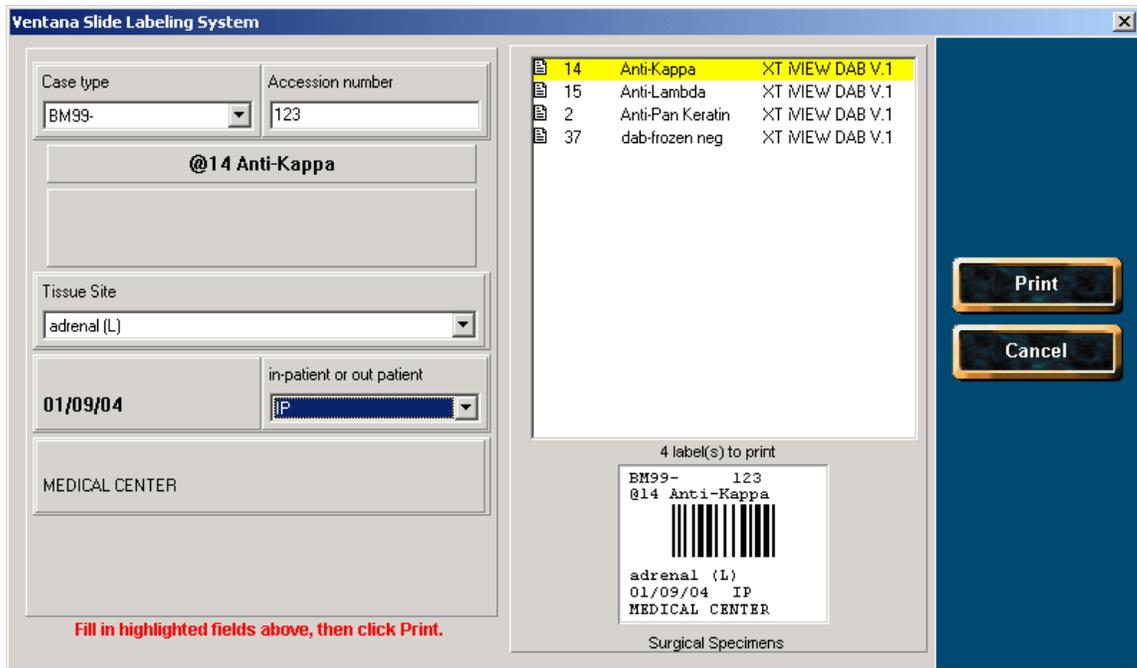


Figure 296. Highlighted Fields Filled In

Monitoring Print Quality

There are several adjustments you can make in the software to ensure that the label printing is clear and properly positioned.

Click the **Configure** button on the main screen to display the Setup Host screen.

The Setup Host screen implements a variety of system functions. It defaults to the **SLS Options** tab, which is used to control print quality.

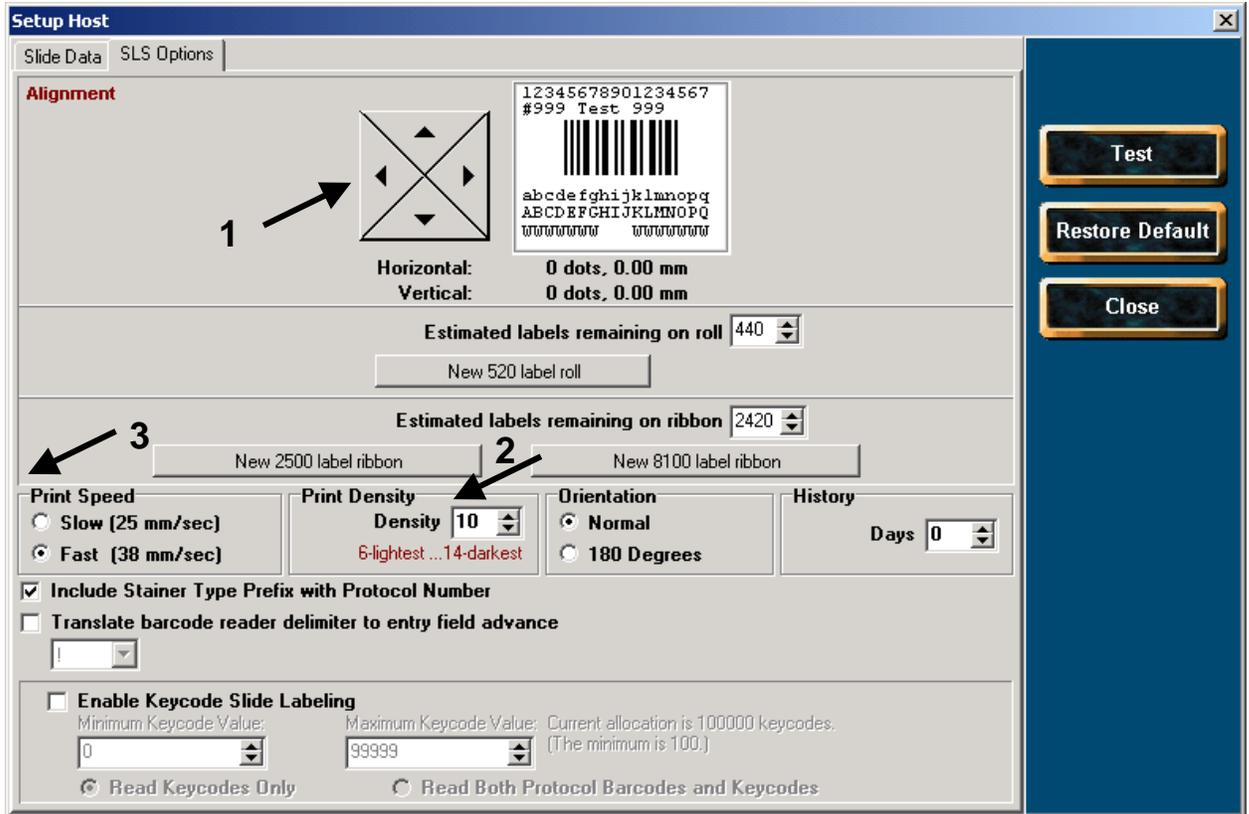


Figure 297. SLS Options Tab

There are three adjustments you can make. Use the **Test** button to print test labels while you make the adjustments.

1. **Alignment**—This adjustment allows you to position text and the bar code on the label stock.
 - Arrows adjust (center) the image up, down, left and right on the label.
 - Click the appropriate arrow for a small adjustment.
 - Click multiple times if necessary.
 - § Directions are relative to the way the text is read, not the way it comes out of the printer.

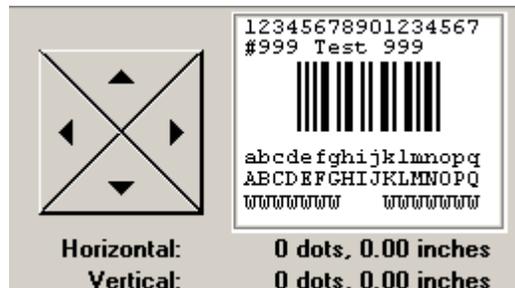


Figure 298. Alignment Tool

2. **Print Density**—This adjusts the density setting for optimum print quality.

- Settings can range from 6 (lowest) to 14 (highest).
 - ” The factory default is 10.
 - ” Density settings above 11 may compromise bar code readability.
 - § Therefore, be sure to test the bar codes on a NexES instrument after you make the adjustments.
 - Density and print speed are interrelated, so read the paragraph on **Print Speed** below.
3. **Print Speed**—This adjustment can be set to Fast or Slow.
- Fast speed not only prints more quickly, but also more quietly than Slow speed.
 - ” However, if you cannot get acceptable quality with the highest density setting, try Slow speed and readjust the density.

In Japan or other countries having 100 volt AC power, the Slow speed setting may be necessary to achieve satisfactory print quality.

If Something Goes Wrong While Printing

Most all of the mishaps that may occur while printing can be recovered from without loss of labels.

- The system simply stops printing and gives you the opportunity to fix the problem before continuing.
- If something more mysterious happens, refer to the “Troubleshooting Guide” section.

Running out of Labels

Before you run out of labels, SLS will issue a warning—providing you have been diligent about using the label counter feature.



Figure 299. Label Roll Confirm Box

If you answer **OK**, above, or you run out because the label counter has been improperly set, you can still recover. The program will pause and show the message in the following figure.

You can install a new roll of labels following the instructions in “Loading Label and Tag Stock.” The print job will continue where you left off.

No Need For Alarm

Do not be alarmed if the printer starts printing immediately after the new labels are fed. Printing speed is slow enough so you can remount the label roll and close the cover while this is going on.

Missing Label on a Roll

Sometimes a roll may have a missing label, especially after clearing a printer jam. **This is not a problem.** The status light on top of the printer will glow red.

Just tap the feed button one or more times until the status light glows green. Printing will then resume.

Running out of Ribbon

Use the ribbon counter and heed the message box pictured below.

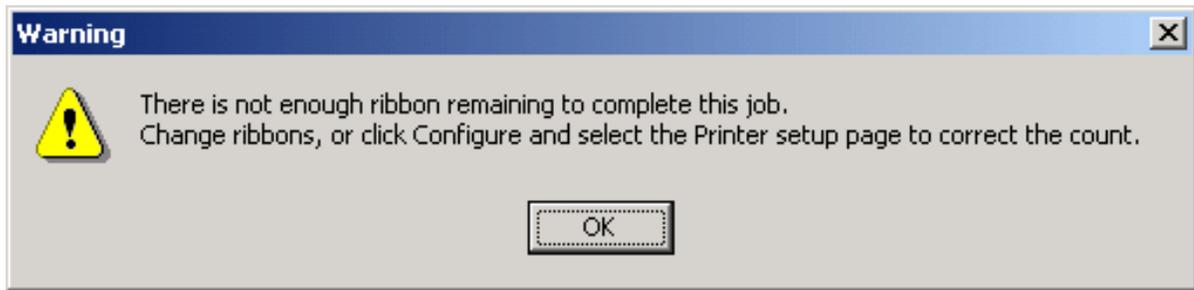


Figure 300. Out of Ribbon Confirm Box

INTENTIONALLY BLANK

14.0 SLS TEMPLATES: DESIGNING YOUR OWN LAYOUT

What Is a Template?

A template specifies what you want a label to display and how you want it to look.

- Rather than specifying how each and every label should be printed, you create a template or pattern.
- You then tell the program to use this template when printing a label or labels.

In addition to specifying what text you want on a label, you can also specify:

- Large or small font size.
- Single or double fields.
 - A double field splits a full width field into two half-width fields.
- Waiting for operator input before every label, panel or print job.
- A prompt that the program will display to the operator when waiting for an input, e.g., “Enter patient name...”
- The current date that will be printed on each label.
- An automatically incrementing sequential number or letter that will be printed on each label.

If the Design Label screen shown in the next section did not exist, you would have to be a computer programmer to accomplish all this.

SLS can maintain as many templates as you need.

- However, you should not have an excessive number.
 - The recommended maximum is about 25.
 - As you add templates beyond 25, the program’s operation will slow down noticeably.

Using Extra Lines on the Label

Slide labels for VENTANA staining modules require a label with only two features: a bar code and a protocol name. The rest of the label’s real estate is available for your own purposes.

Entering Information as You Print

Some information on a label will remain constant and never change.

- The following information can be created by the program itself.
 - Current date.
 - Incrementing numbers.
 - Incrementing letters.
- For some categories of information, however, such as a patient’s name, there is no alternative to typing it in just before the label is printed.

The program tells us what kind of information it expects us to type on the keyboard.

- This kind of request is called a prompt.
 - The SLS software enables you, the designer, to specify what prompts you want to be shown on the screen when the label needs hand-entered information before printing.

Designing Labels with a Template

To start creating a template:

1. Click the Template button on the SLS main screen to display the Design Label screen.
 - The Template button is displayed only when the window of the SLS main screen is blank.
 - The Design Label screen is organized like the label itself, as there is
 - A bar code in the middle.
 - The Protocol Name above the bar code.
 - One user-defined line above the bar code (small font only).
 - Three user-defined lines below the bar code.

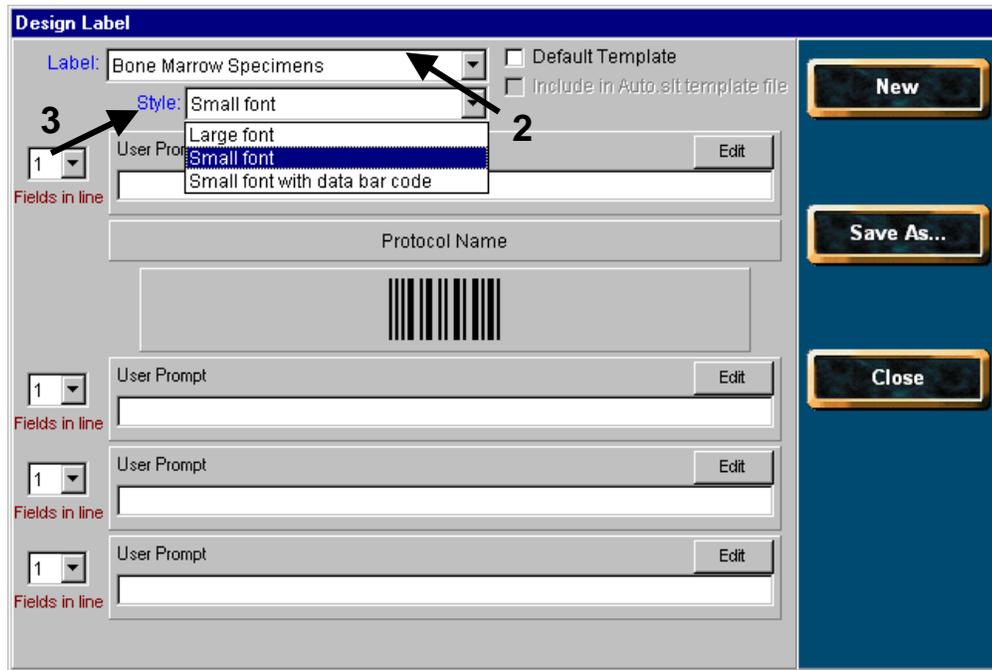


Figure 301. Design Label Screen

2. The Label Name field is the name of the template.
 - You assign this name when you click the Save As... button.
 - An existing name can be selected for editing using the dropdown menu.
 - Alternatively, you can click the New button to start from scratch.
3. The Style field enables you to specify a large font, small font, or small font with a data bar code for the label.
 - Using the large font, there are three text fields available for your use.
 - All three lines are below the bar code.
 - § All three are defined and edited in the same way.
 - Using the small font, there are four text fields available for your use.
 - One line is above the bar code.
 - Three lines are below the bar code.
 - § All four are defined and edited in the same way.
 - Using the small font with a data bar code, there are two text fields available for your use.

- One line is above the bar code, and one line is below the bar code.
 - § Both are defined and edited in the same way.
4. Auto printing is an advanced feature and is disabled by default.
 - For information about Auto printing, download <ftp://ftp.vmsisupport.com/pub/sls/AutoPrint.zip>.

Creating or Modifying a Template

A new template can be based on modification to an existing template, or you can create a template from scratch.

To create a new template:

1. Click the New button to clear the Label field at the top of the form and display User Prompt fields described in the “Template Fields” section.
 - You will name the new template when you click the Save As... button later on.

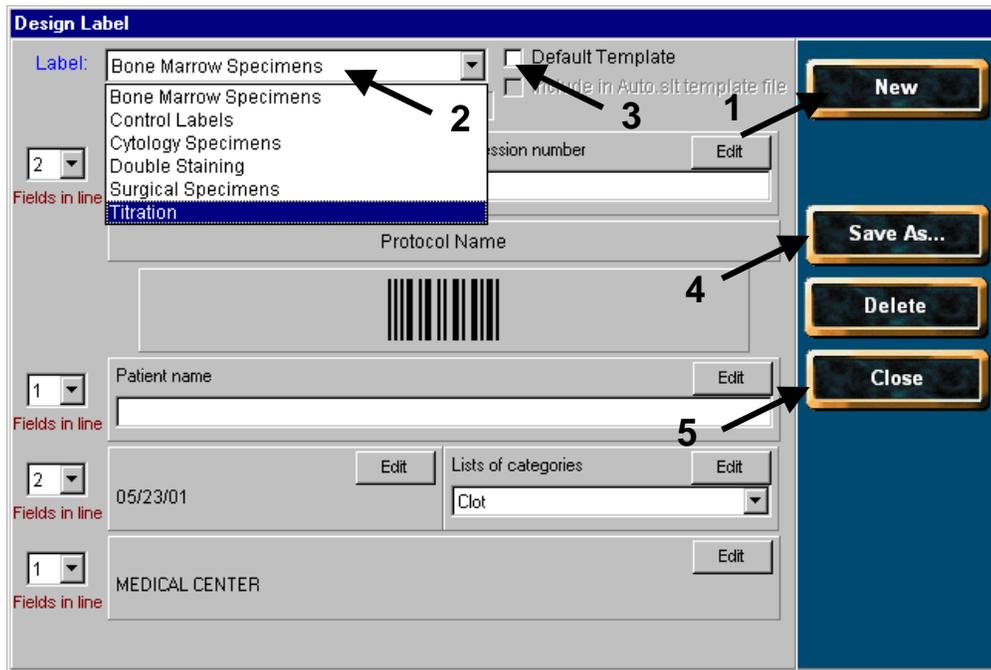


Figure 302. Creating a New Template

To modify an existing template:

1. Click the arrow to open up the menu, then select the template’s name.
2. To save the template as the default template, check the Default Template check box.
 - If the check box is gray and unselectable, then the current template is the default template.
3. When you finish creating or editing a template, click the Save As button to save the changes and to name the new or modified template.
 - If it is a modification, you can save it using the same name it had before, overwriting the old version.



Figure 303. Label Template Name

4. After saving a template, return to the main screen by clicking Close.

Template Fields

1. Click the Template button of the main screen, then click the New button of the Design Label screen to clear the Label field at the top of the form and display the User Prompt fields.
 - The Template button is displayed only when the window of the SLS main screen is blank.

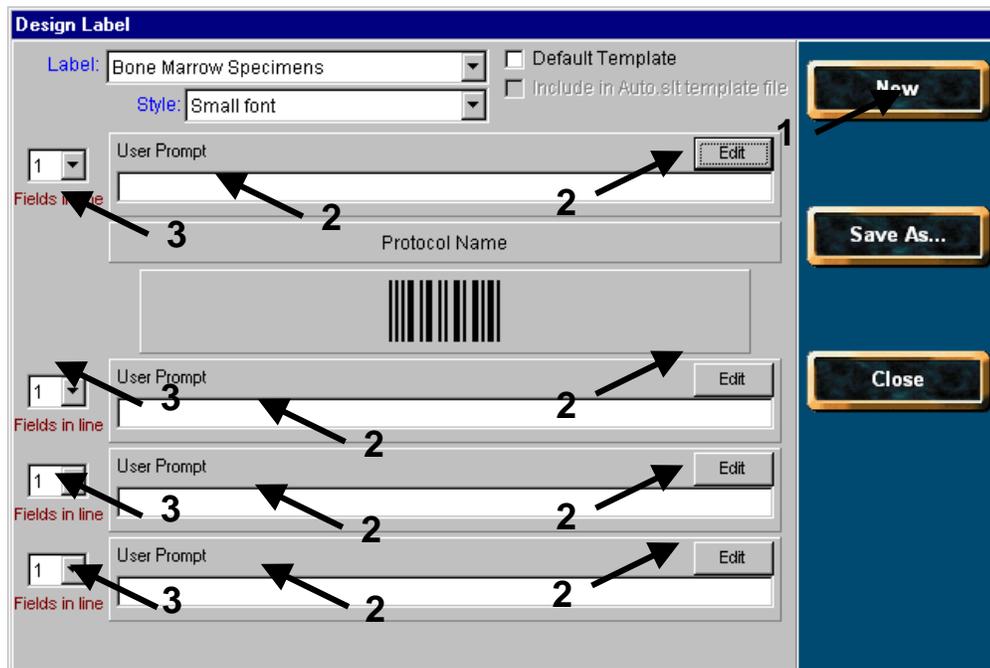


Figure 304. User Prompt Fields

2. The four User Prompt fields on the Design Label screen are shown above.
 - On the label itself, these four fields correspond to:
 - The single line above the bar code (small font only).
 - The three lines below the bar code.
 - Each of the four User Prompt fields has its own Edit button.
3. The Fields in Line dropdown menu for each of the User Prompt fields allows you to specify how many fields each User Prompt line will contain according the following choices:
 - 0 means that no fields will be on the line.



Figure 305. No Fields

- 1 means that there will be one field of 17 characters (small font) or 15 characters (large font).

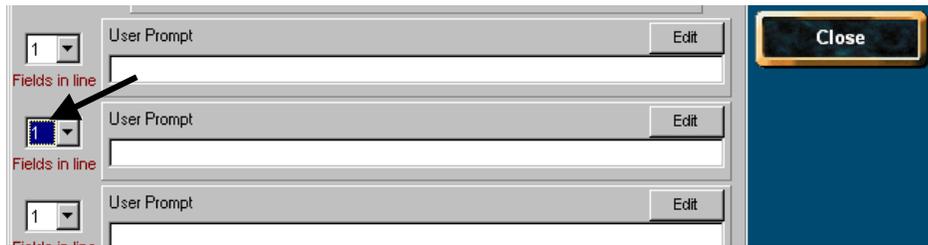


Figure 306. One Field

- 2 means that the line will be split into two equal size fields of eight characters each (small font) or seven characters (large font), each with its own Edit button.

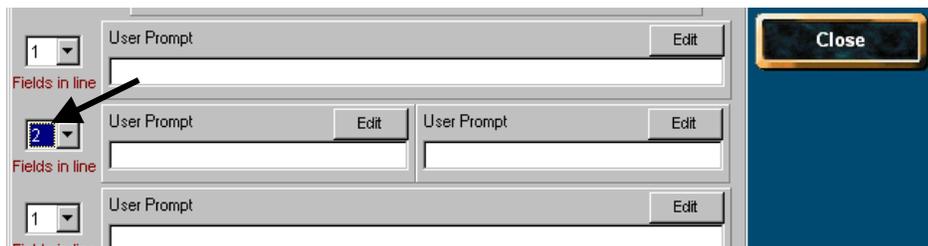


Figure 307. Two Fields

Edit Button and Field Properties

Each User Prompt field has an Edit button that enables you to specify how you want the field to appear and act with regard to the field name and the field content.

You can click the Edit button of each field to display the Field Properties screen for that field.

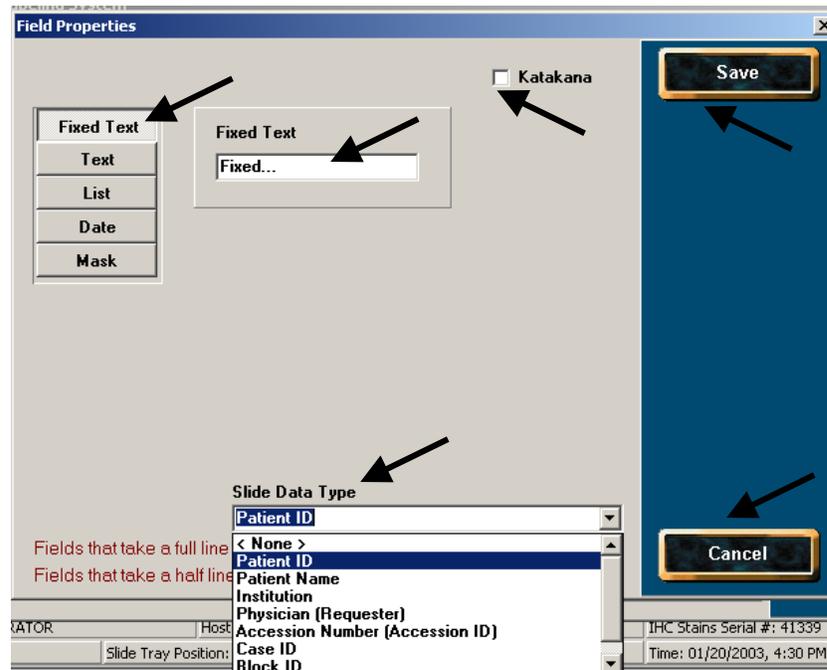


Figure 308. Entering Fixed Text in Field Properties Screen

The Field Properties screen allows you to edit field prompt text and field content text for the field whose Edit button you have clicked, according to the following Field Properties selections.

- Fixed Text—the text displayed is what will occupy the field when the label is printed.
- Text—text that is entered through the keyboard at the time the label is printed.
- List—allows the operator to pick the field’s contents from a menu of words or phrases you specify.
- Date—displays the date the label is printed.
- Mask—a combination of fixed text and automatically incrementing numbers or letters and/or the current date in a choice of formats.

If you have checked the Enable Keycode Slide Labeling option of the VLM Options tab, the aliases of the data fields of the Slide Data tab will be available for selection from the dropdown menu of the Slide Data Type window.

Keycoding is further described in the “Keycodes” section, and gives you the ability to retrieve information from fields you specify in the Slide Data tab, which is further described in the “Slide Data Tab” section.

After you have edited the text, you can click:

- Save to save your changes.
- Cancel to discard your changes.

Check the Katakana box to print the field using the Japanese Katakana character set. The screen display will not change.

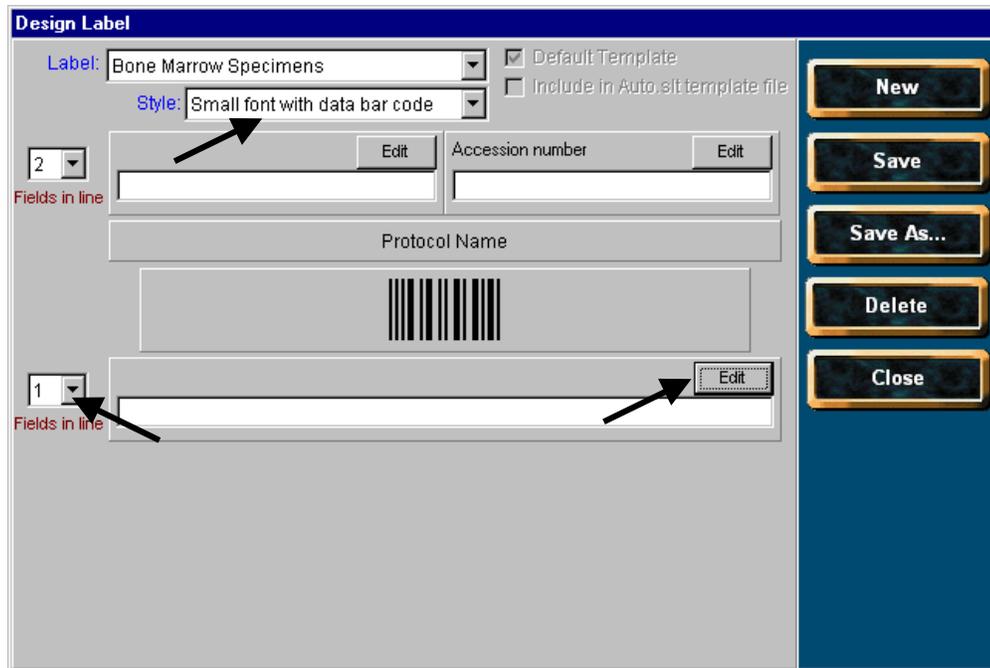


Figure 309. Requirements for Displaying Print as Bar Code Selection Field

If you have selected Small font with data bar code in the Style field of the Design Label screen, and are editing a single-field line below the bar code, the Print as barcode selection field will appear as shown below (if the Katakana check box is not checked).

- The allowable symbologies are I 2 of 5 or Code 128.

You can type digits in the Fixed Text window that will appear as bar code on the label; however,

- The Print as barcode selection field will be automatically hidden if you check the Katakana check box.
- The Print as barcode selection field will be automatically displayed if you uncheck the Katakana check box.
- In other words, the Katakana check box and the Print as barcode selection field are mutually exclusive.

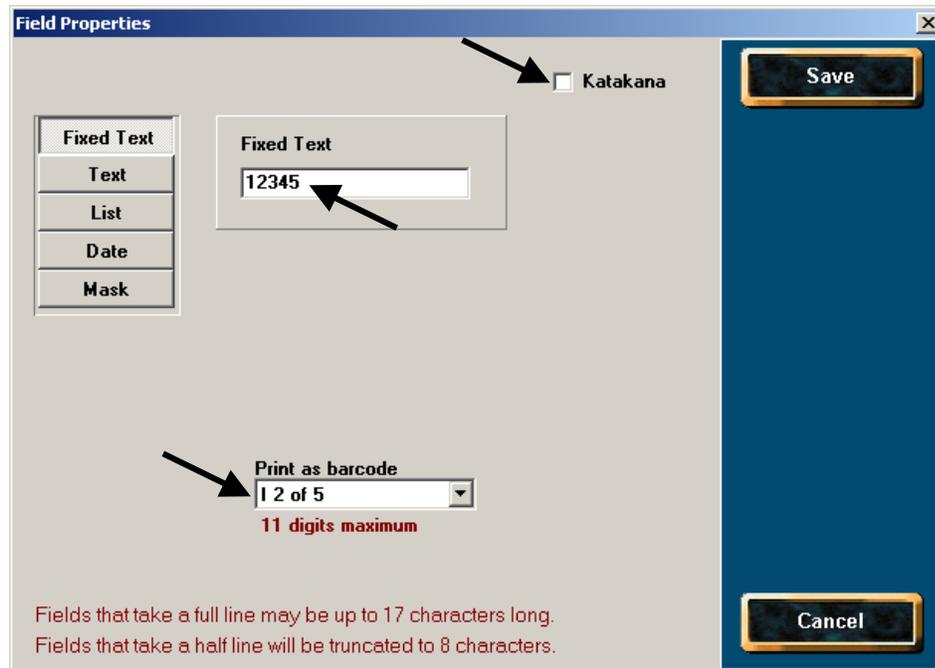


Figure 310. Print as Barcode Selection Field

Fixed Text

The text displayed will occupy the field when the label is printed.

- No operator entry is permitted.
- If this option is selected, the User Prompt is redundant and disappears.

Text

This refers to text that is entered through the keyboard at the time the label is printed.

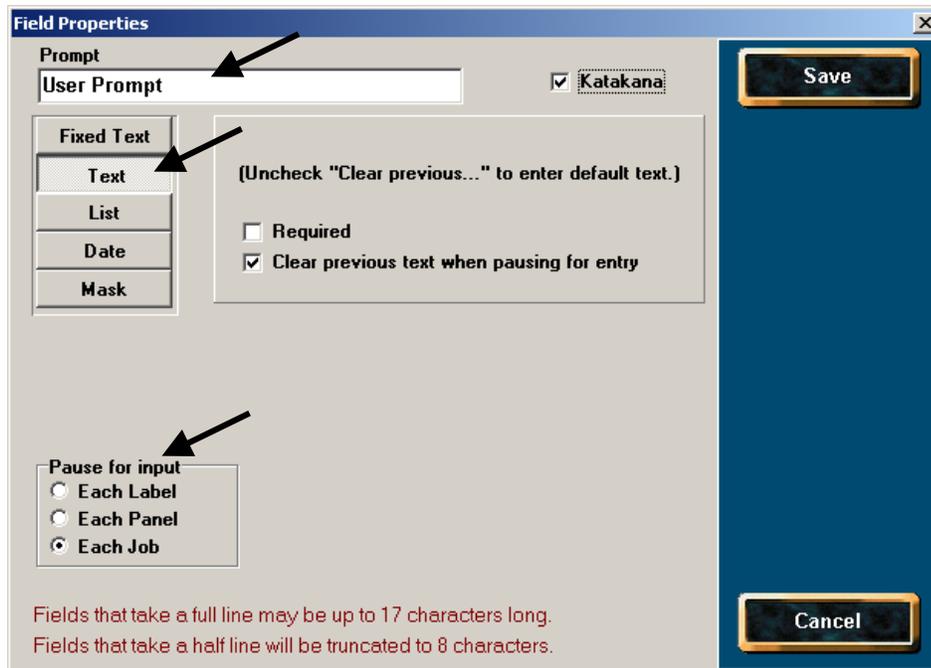


Figure 311. Entering Prompt Text in Field Properties Screen

If you have a label field that usually, but not always, contains a particular word or phrase, you can enter the most common text as a default.

- This means that the program will pause printing at the appropriate interval and allow you to either override the default (by typing in something new) or accept it as is.

You must understand how to use the following check boxes.

- A space character qualifies as non-blank.
- Thus, if both boxes are checked, the operator must enter something at each pause.
- If the Clear previous... check is not present, the field is permitted to contain a default, which is text that can either be accepted as is or changed by the operator.
 - “ The text entered for a field becomes the new default for that field until you exit and restart the program.
 - “ On restarting the program, the default reverts to whatever is in the template.

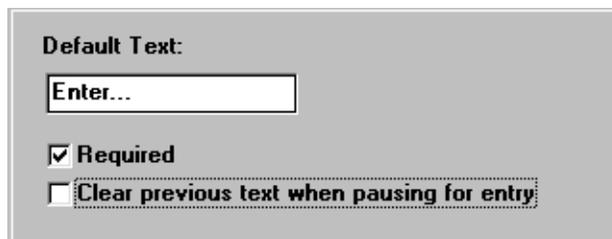


Figure 312. Entering Default Text in Field Properties Screen

To enter default text into the field shown above:

- First, uncheck the Clear previous... check box.
- Double-click Enter... under Default Text, which marks the current content.

- Press the backspace key to clear the field.
- Type in the text you want to be the default.
- Note that default text is optional, so you may leave the field blank if you wish.
 - If you do this, the first text you enter when printing becomes the default for that session, or until changed.

Pause for input tells the program where and when it should stop printing to let you enter text for each field of each template.

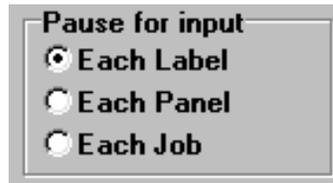


Figure 313. Pause for Input

- Depending on your needs, you may want to enter new information at the beginning of each job, each panel or each label.
- Note that the pause option applies individually to each field of each template.
- For labels containing only fixed text, dates, or a mask, no pause is needed.
 - Pause for input applies to only the Text and List selections in the Field Properties screen.

Within the **Text** selection, there are three possibilities with regard to entering text:

- **First possibility**—the field is blank and the text will be entered from the keyboard when the label prints.



Figure 314. Entering Prompt in Field Properties Screen

- In the figure above, the prompt “Enter Patient Name:” has been entered.
- The resultant prompt appears in the Design Label screen as illustrated below.
 - “ The prompt will not appear on the label.

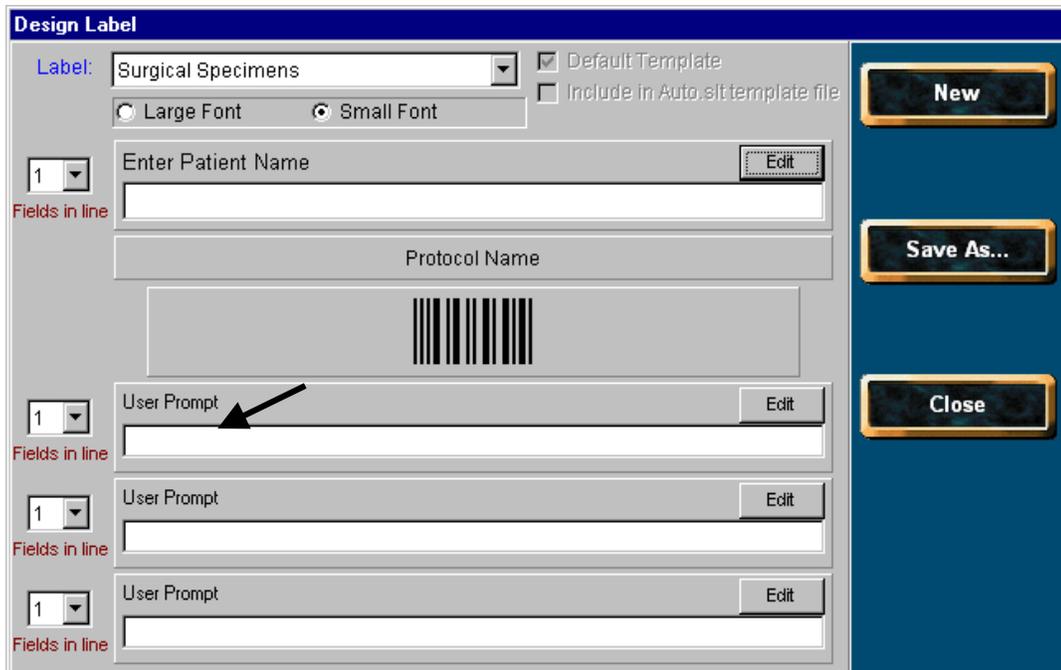


Figure 315. Prompt in Design Label Screen

- **Second possibility**—the field is filled with some default text which may either be accepted as is, edited, or replaced when the label is printed.

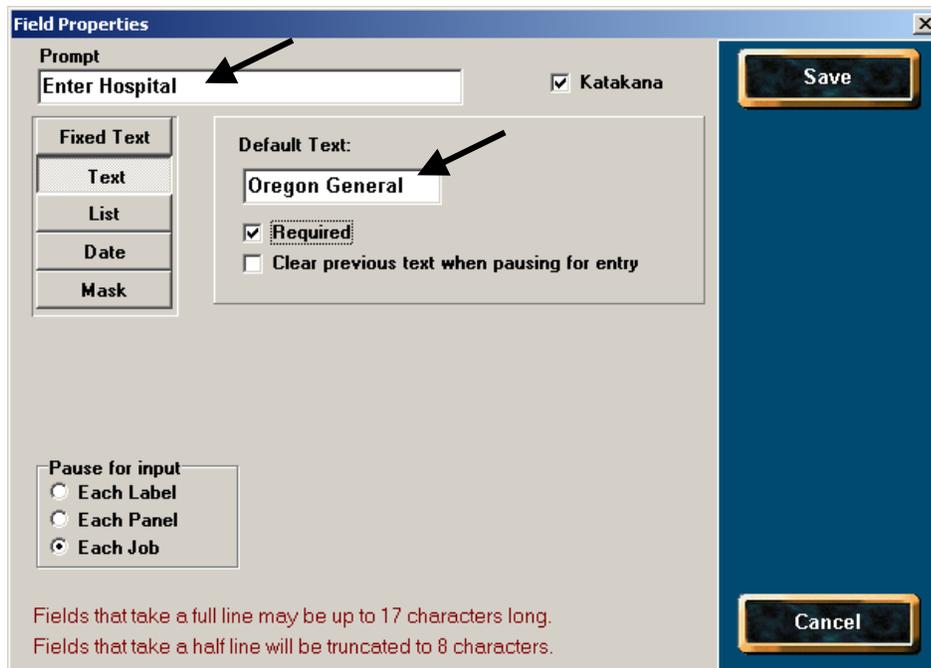


Figure 316. Entering Default Text in Field Properties Screen

- The example, above, shows a hospital name, which is usually, but not always, “Oregon General.”
 - “ Each time a label is printed, “Oregon General” is automatically shown in the “Enter Hospital” field unless something else is typed in over it.
 - “ Note that the **Required** box must be checked.



Figure 317. New Default Text in Design Label Screen

- **Third possibility**—the field is filled with the text entered for a prior label printed using the same template **any time since the program was started**.
 - When the program is shut down and restarted, the field will be blank or will contain the original default, if any, from the template.
 - This is useful when a series of labels needs to be generated with some common information, such as an accession number, that you only need to enter once.
 - For example:
 - “ The template specifies a default of “Oregon General;” you print label #1 with this default.
 - “ You enter “Tucson Heart,” for the content of label #2.
 - “ Label #3 and all subsequent labels say “Tucson Heart” until such time as you either change the text or exit and restart the program.

List

This selection allows you to:

- Pick the field’s contents from a menu of words or phrases you specify rather typing text at the keyboard.
- Create your own lists.
- Edit an existing list.
- Delete a list.

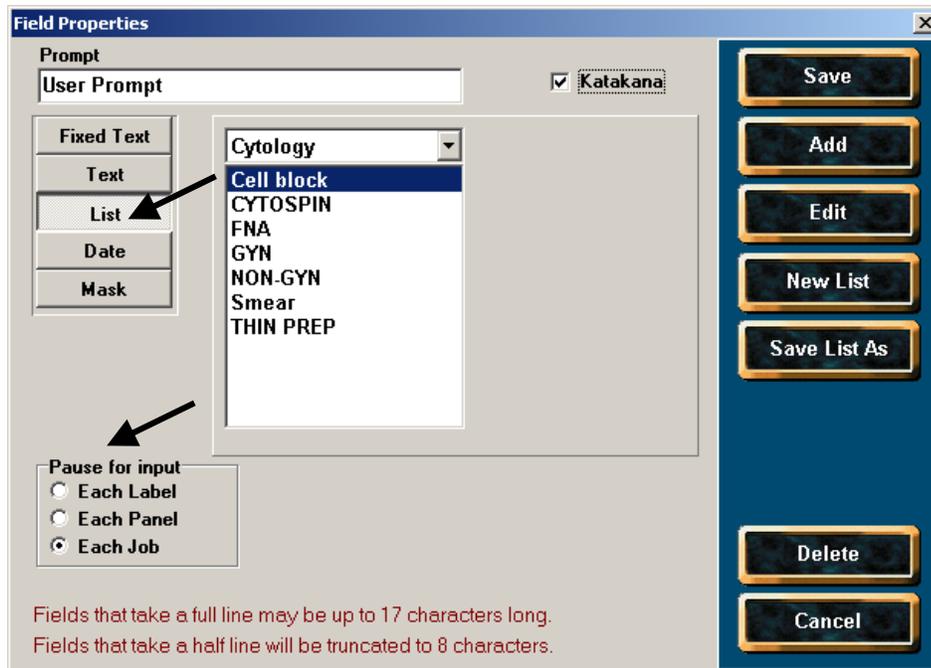


Figure 318. Field Properties Screen for List

Pause for input tells the program where and when it should stop printing to let you enter text for each field of each template.

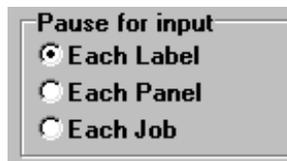


Figure 319. Pause for Input

- Depending on your needs, you may want to enter new information at the beginning of each job, each panel or each label.
- Note that the pause option applies individually to each field of each template.
- For labels containing only fixed text, dates, or a mask, no pause is needed.
 - **Pause for input** applies to only the **Text** and **List** selections in the Field Properties screen.

You can review the choices for the List selection by opening up the menu.

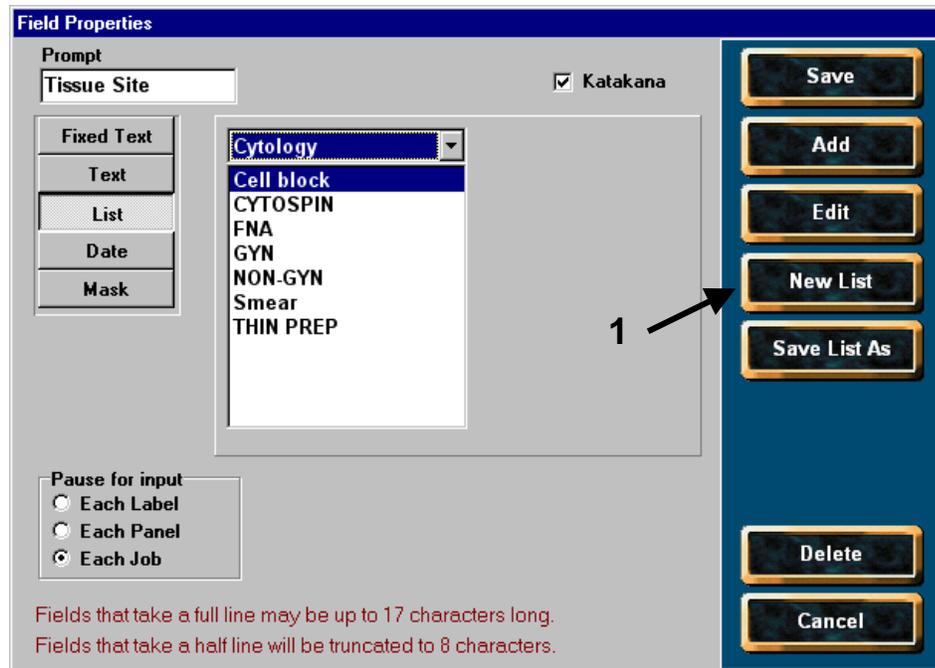


Figure 320. List Menu

To create a new list:

1. Click the New List button to display the New List Name box.
 - You will be asked to give the new list a name.

2. Type in a list name.
 - In this example, we have typed the name “My List.”



Figure 321. New List Name

3. Click OK to display My List in the Field Properties screen.
 - The **Cancel** button lets you change your mind about creating a new list.
 - Note that My List has no members.

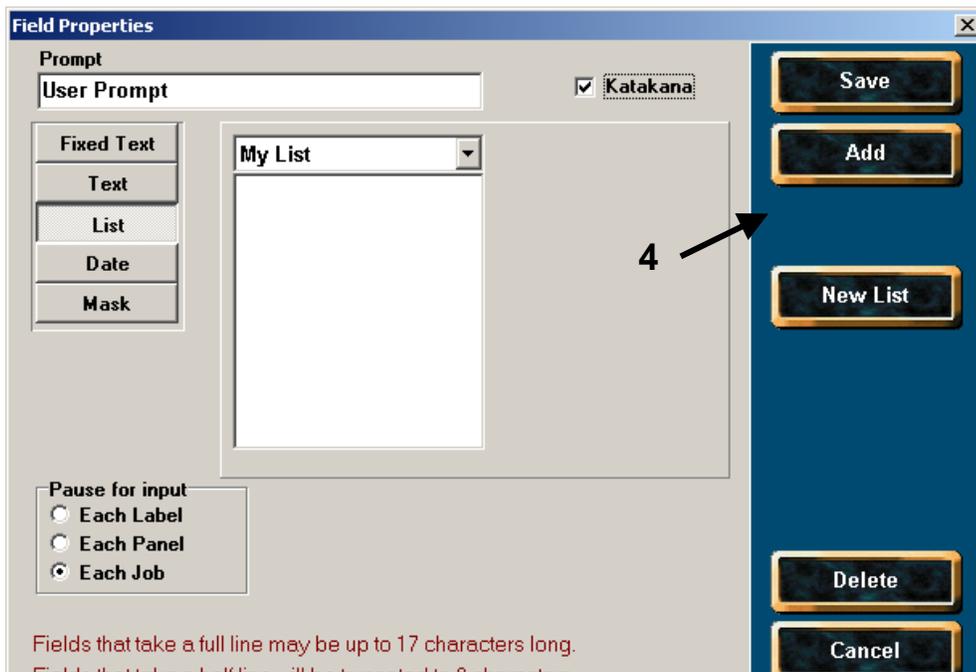


Figure 322. Empty List

4. Click the Add button to add a member to the list.
 - A new field will appear on the Field Properties screen.
 - ” This is where you type the new member of your list.

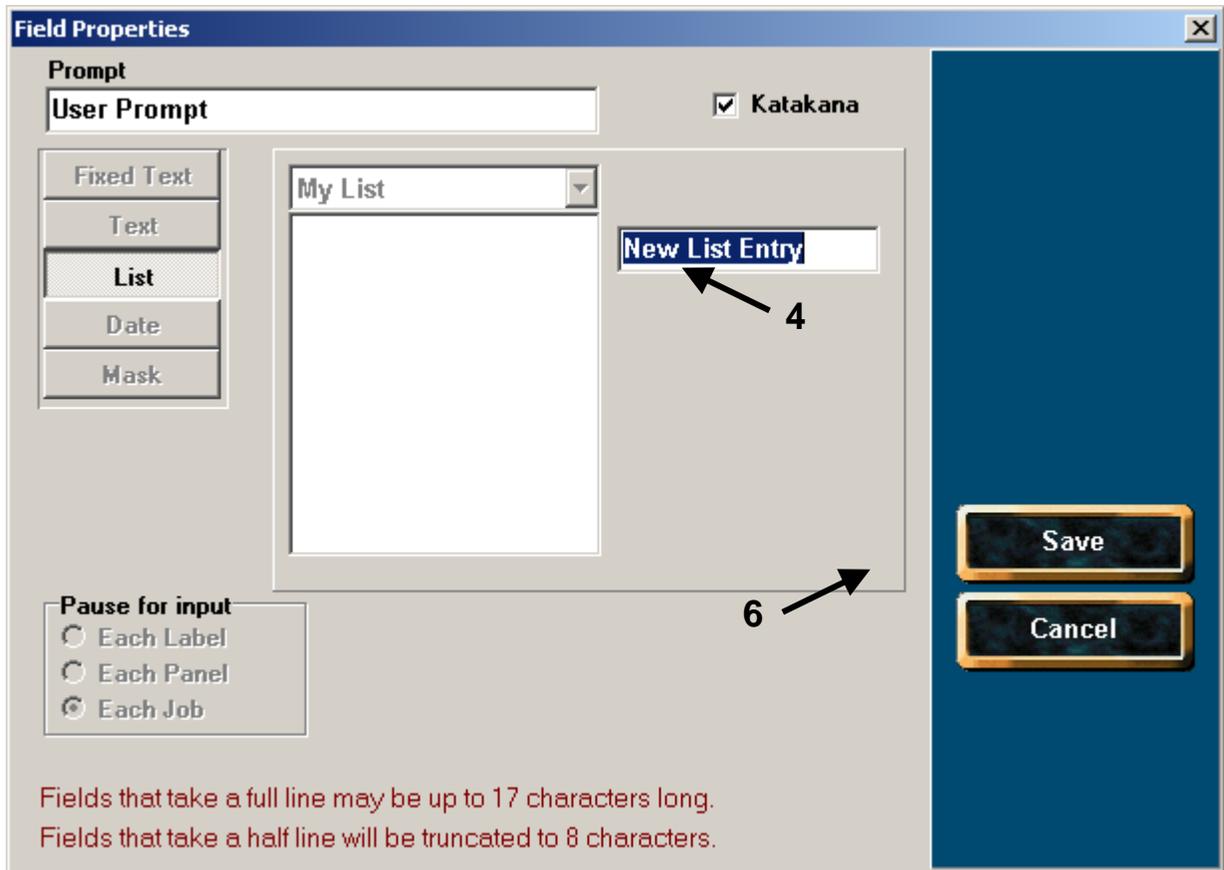


Figure 323. Typing a New List Entry

5. Repeat the previous step for each new member of your list.
6. After each entry, click the **Save** button to save your entry to the list and display the other Field Properties buttons.
 - You can click **Cancel** to discard your entry.

To edit an existing list:

1. To change something previously entered, pick from the list menu the item you want to change.

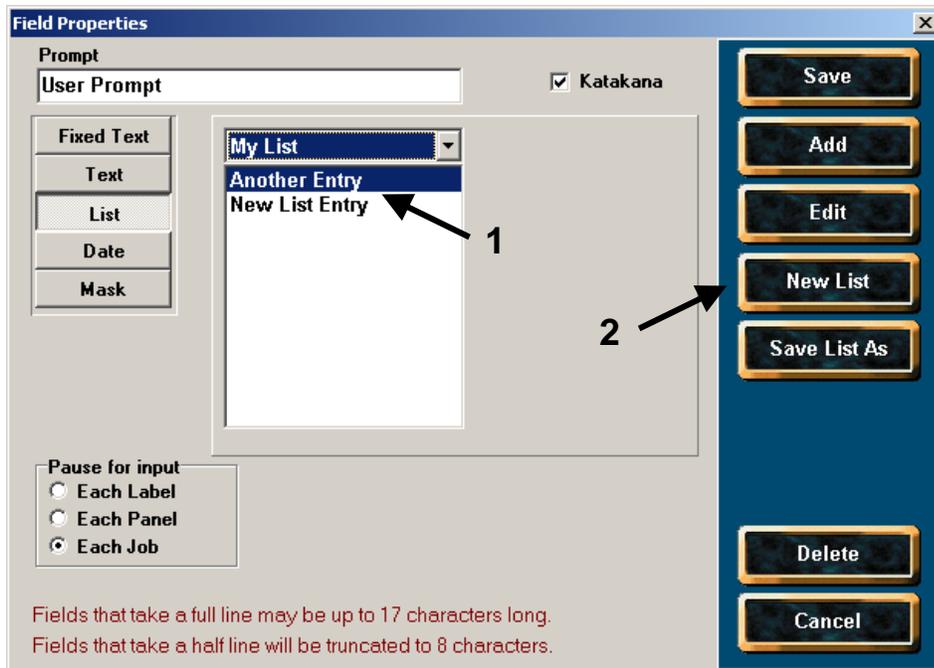


Figure 324. Preparing to Edit a List Item

2. Click the Edit button to display the New List Entry field.
3. Edit the List Entry.

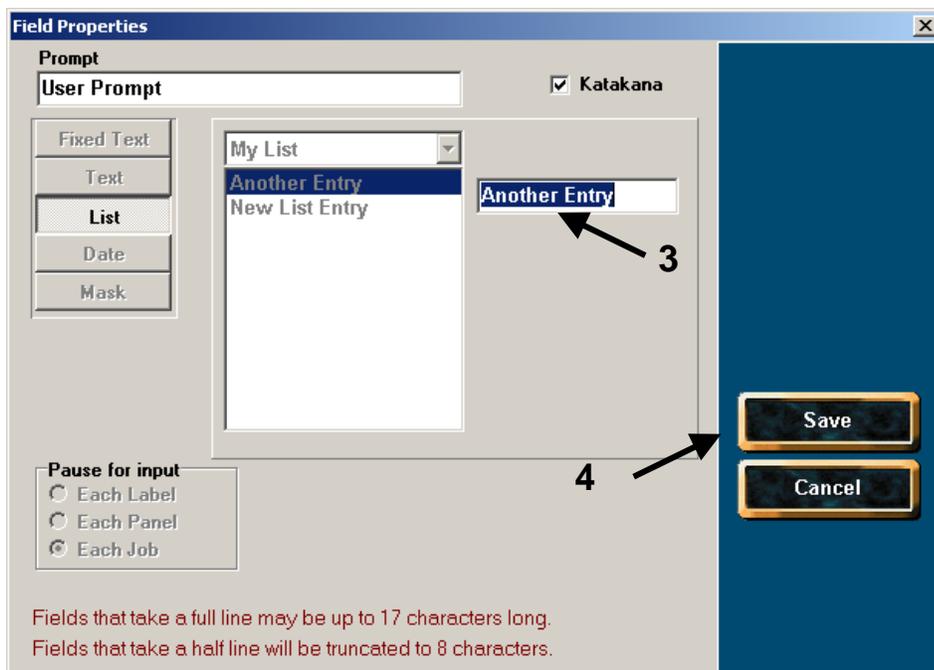


Figure 325. Editing a List Item

4. Click Save to keep the edit and display the other Field Properties buttons, or Cancel to discard it.

To delete a list:

1. If you want to delete a list or an item on a list
 - Click the **Delete** button to display the Delete screen.
 - Select the list or item.

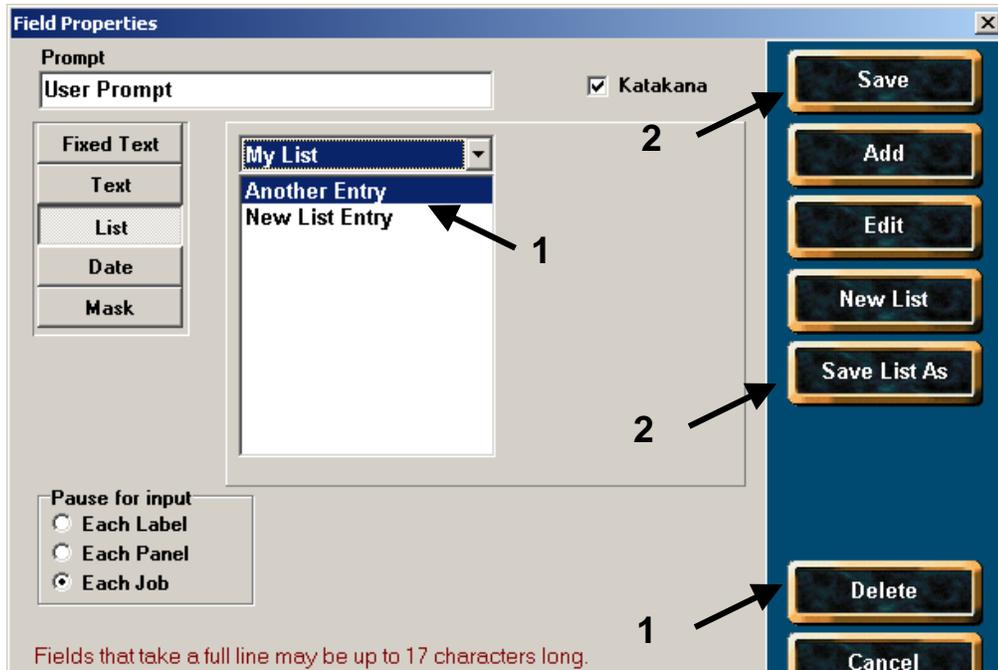


Figure 326. Selecting a List for Deletion

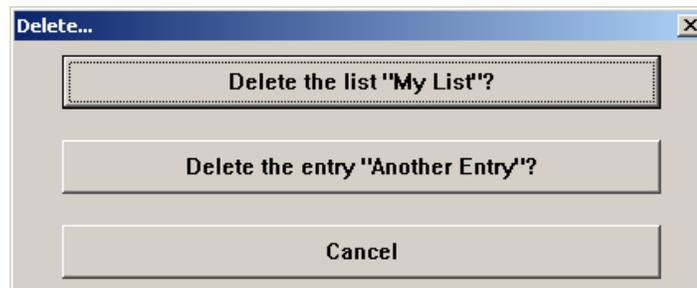


Figure 327. Delete List or List Entry

2. After your list is built and edited, click the Save or Save List As button to quit editing and save the results.

Date

This selection allows you to display the date the label is printed.

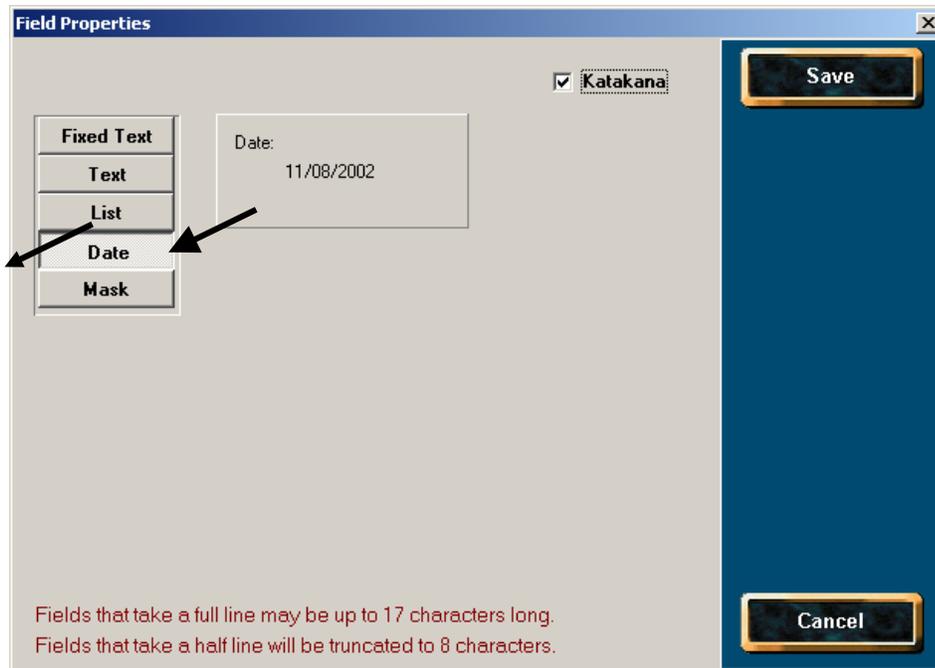


Figure 328. Field Properties Screen for Date

Mask

This selection allows you to enter a combination of fixed text and automatically incrementing numbers or letters and/or the current date in any order you choose.

- These symbols, along with any fixed text, are collectively referred to as a mask.
- Components of the mask are added by clicking buttons as shown in the figure below.



Figure 329. Field Properties Screen for Mask

The example above contains:

- A two digit incrementing number starting with “10.”
- An incrementing letter starting with “e.”
- The current date.

To create a mask:

1. Click the Mask button.
 - You can click the buttons in any desired sequence to build the mask step by step.
 - Each new element is added to the mask to the right of the one preceding it.

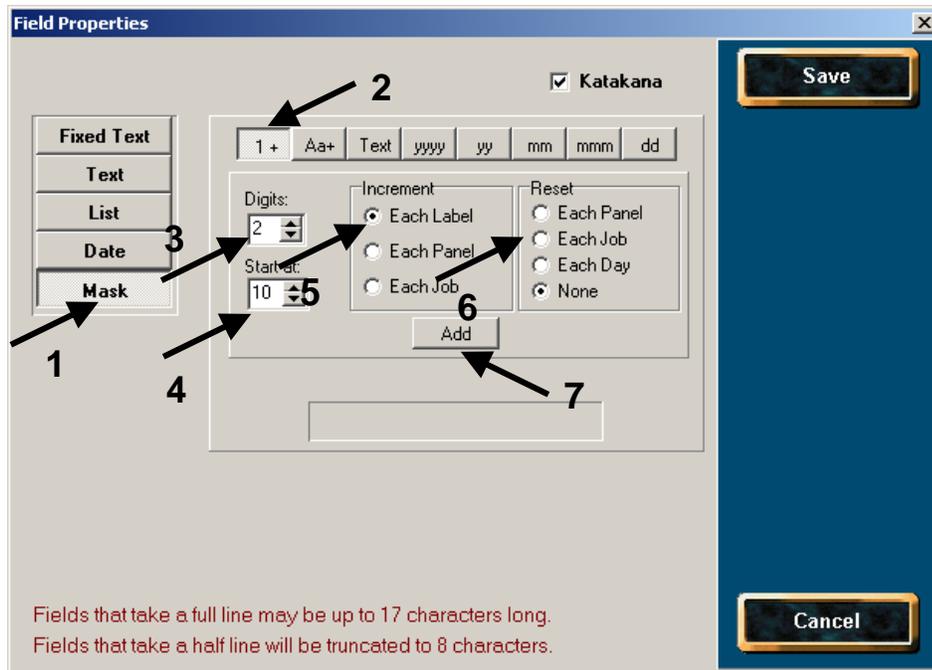


Figure 330. Adding an Incrementing Number

To add incrementing numbers to a mask:

1. Click the 1+ button.
2. Specify the number of digits for the incrementing number, up to five digits.
3. Specify the number to start at (10 in this example).
4. Specify when to increment the number.
 - Each Label.
 - Each Panel.
 - Each Job.
5. Specify when to reset the incrementing number to the Start at (10 in this example) value.
 - Each Panel.
 - Each Job.
 - Each Day.
 - None.
6. Click Add.
 - This will display your entry as shown below.

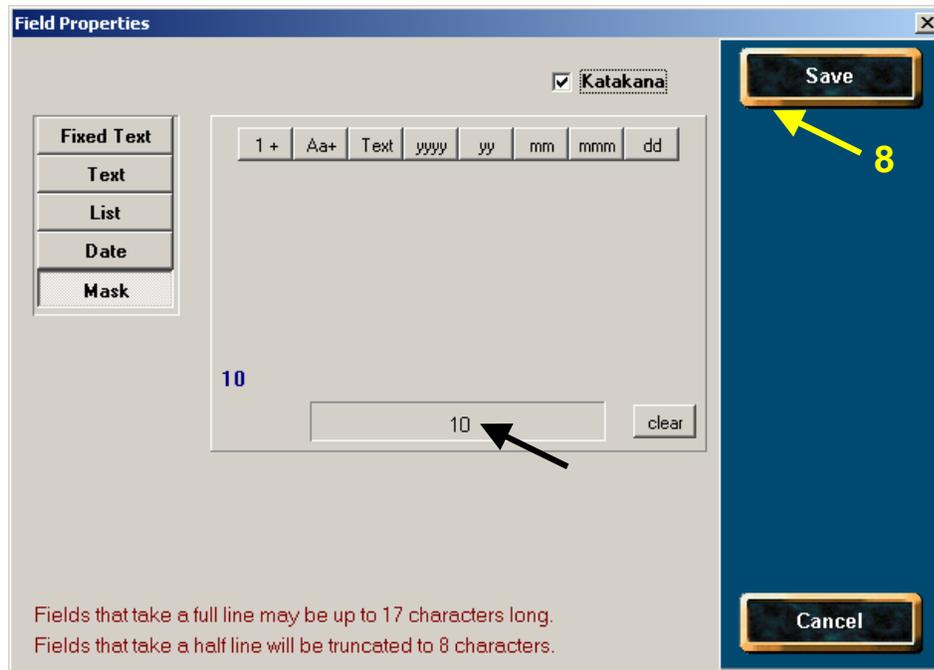


Figure 331. Incrementing Number Added

7. Click Save to save your changes and display the Design Label screen, or click Cancel to discard your changes.

To add incrementing letters to a mask:

1. Click the Mask button.
2. Click the Aa+ button.
3. Specify the letter to start at (“e” in this example).
 - Specify upper or lower case.
4. Specify when to increment the letter.
 - Each Label.
 - Each Panel.
 - Each Job.
5. Specify when to reset the incrementing letter to the Start at (“e” in this example) value.
 - Each Panel.
 - Each Job.
 - Each Day.
 - None.
6. Click Add.

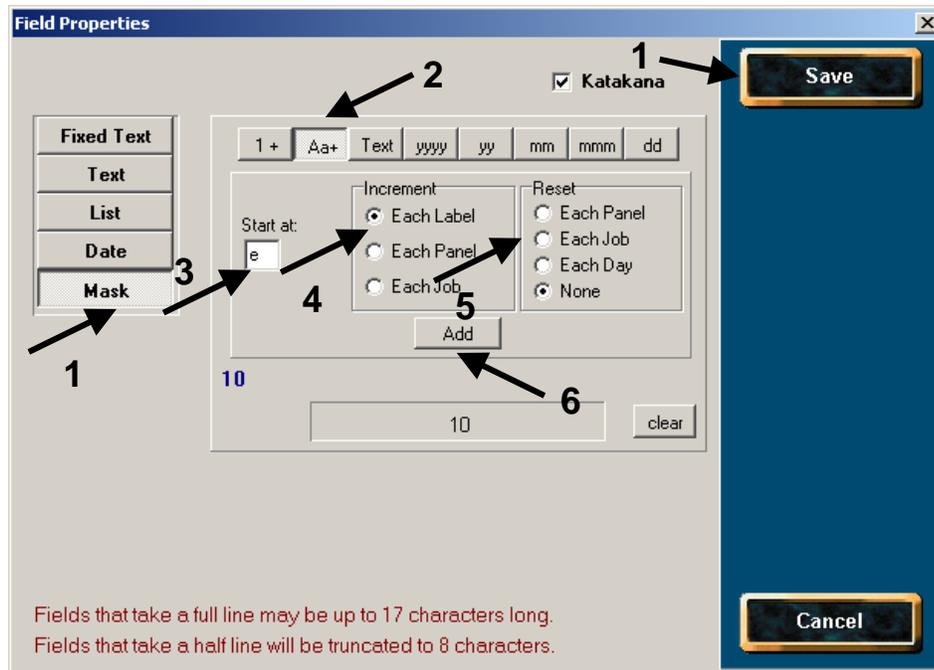


Figure 332. Adding an Incrementing Letter

- This will display your entry as shown below.

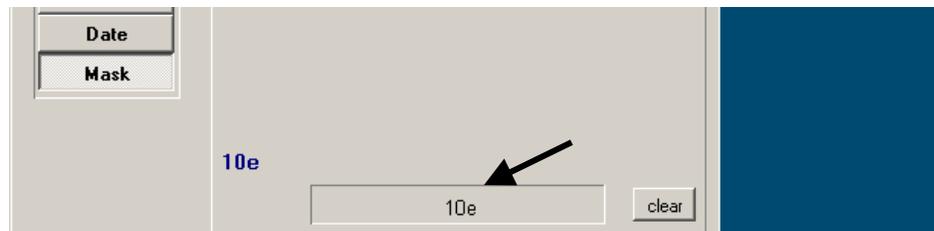


Figure 333. Incrementing Letter Added

7. Click Save to save your changes and display the Design Label screen, or click Cancel to discard your changes.

To add text to a mask:

1. Click the Mask button.
2. Click the **Text** button.
3. Type the text (“Date:” in this example).

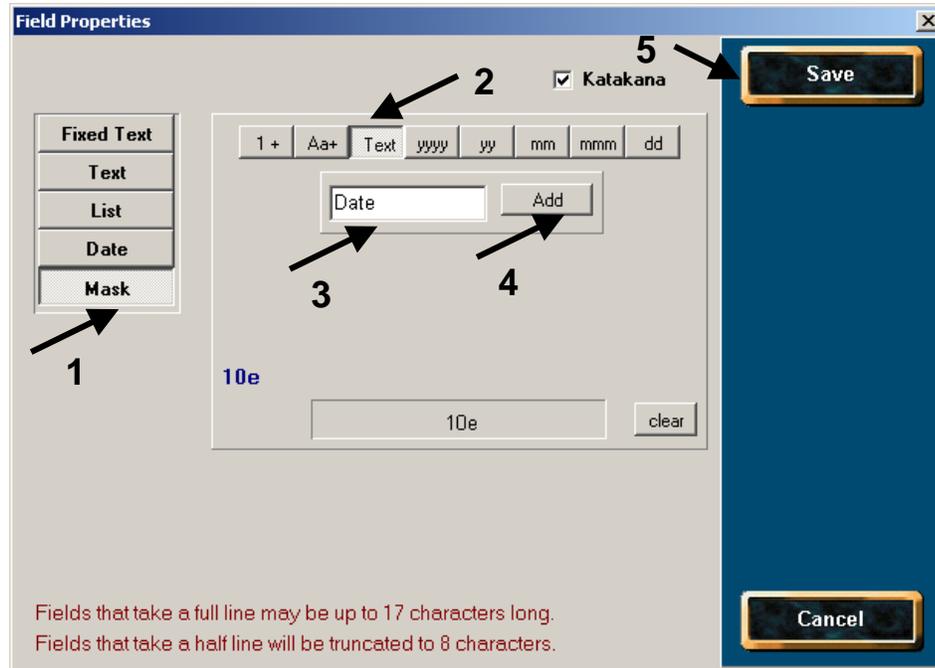


Figure 334. Adding Text

4. Click Add.
 - This will display your entry as shown below.

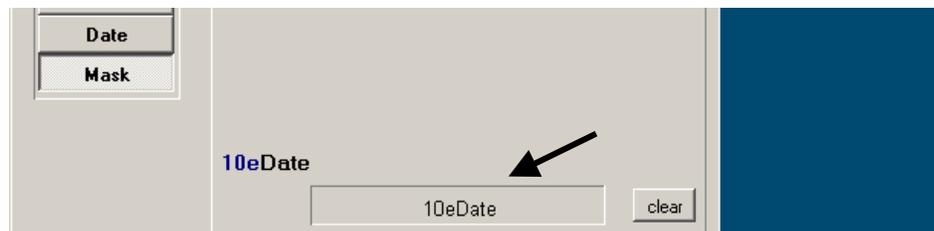


Figure 335. Text Added

5. Click Save to save your changes and display the Design Label screen, or click Cancel to discard your changes.

To add a formatted date to a mask:

1. Click the Mask button.
2. Click one of the month buttons to display the month.
 - In this example, mmm will produce a three letter month.
 - mm would produce a two-digit month.
3. Click dd to display the day (from system clock) of the month.
 - You can use the Text button to add spaces or punctuation.

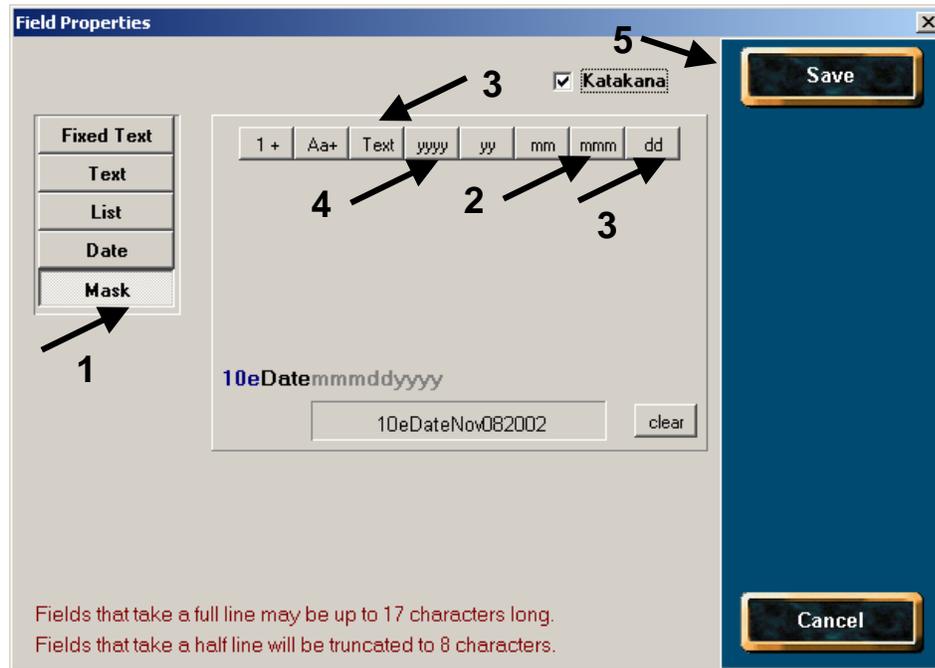


Figure 336. Formatted Date Added

4. Click one of the year buttons to display the year.
 - In this example, yyyy will produce a four-digit year.
 - yy would produce a two-digit year.
5. Click Save to save your changes and display the Design Label screen, or click Cancel to discard your changes.

15.0 ERROR MESSAGES

Error Class	Error No.	Message	Probable Cause	Possible Solution
1	2	The Date/Time was out of range and could not be stored, Reenter.	Contact Ventana.	Contact Ventana.
1	3	Hardware key missing from back of host computer.	Contact Ventana.	Contact Ventana.
1	4	Error encountered reading hardware key.	Contact Ventana.	Contact Ventana.
1	6	Error encountered reading hardware key.	Contact Ventana.	Contact Ventana.
1	8	Error in setting System Time from Hasp Key.	Contact Ventana.	Contact Ventana.
1	9	Time in the hardware key is not advancing! Contact Ventana for a replacement.	Contact Ventana.	Contact Ventana.
1	11	Hardware key missing from back of host computer.	Contact Ventana.	Contact Ventana.
1	12	Error encountered reading hardware key.	Contact Ventana.	Contact Ventana.
2	1	Bad Touch Memory, contact Ventana.	Contact Ventana.	Contact Ventana.
2	3	Seal has already been burned by another NexES Host XXXXX.	Contact Ventana.	Contact Ventana.
2	4	Seal has already been burned by this NexES system too long ago, contact Ventana.	Contact Ventana.	Contact Ventana.
2	5	The touch memory has been changed after reading its contents.	Contact Ventana.	Contact Ventana.
3	1	Communication failure attempting to upgrade software, Retry.	Communications was interrupted during download.	Try the download again, if this still fails, contact Ventana.
3	3	The new staining module software was not loaded correctly, Retry.	The staining module detected that the new program was corrupt.	Try the download again, if this still fails, contact Ventana.
3	4	Instrument Not Communicating, Run Terminated.	Contact Ventana.	Contact Ventana.

Error Class	Error No.	Message	Probable Cause	Possible Solution
3	6	Bulk Fluid Module not communicating. Check power and cable.	The Automatic Fluidics Module is not connected properly to the staining module or not turned on.	Ensure AFM is turned on. Ensure the cable is plugged in securely to both the AFM and the staining module.
3	7	Invalid or Missing Serial Number! Please, turn on the staining module to acquire its Serial Number.	Staining Module not turned on or communication failure.	Turn on Staining Module. Check Cable connecting staining module and PC. Contact Ventana if problem persists.
3	8	Button wand could not be detected. You will not be able to register products. Please check the connections!	Button wand disconnected from PC.	Check Cable connecting button wand and PC. Contact Ventana if problem persists.
3	9	Button wand software is wrong version. You will not be able to register products. Please notify Ventana.	Contact Ventana.	Contact Ventana.
4	2	XXXX is not a valid Staining Module serial number. Contact Ventana technical support before starting another run on this Staining Module.	Contact Ventana.	Contact Ventana.
5	2	Slide number is invalid, Please Re-enter.	A slide number was not entered or is too small or large.	Enter a number between 1 and 20. It must match the number of slides on the staining module's slide tray.
5	3	One or more of the checklist questions have not been checked.	You have not checked off the required boxes to indicate that you have completed the proper steps.	Complete the actions in the list and check the boxes when they are complete.
5	6	The Starting Date is invalid!	Invalid date.	Reenter date.
5	7	The Ending Date is invalid!	Invalid date.	Reenter date.
5	8	The Ending Date precedes Starting Date!	Ending date is earlier than starting date.	Reenter dates.

Error Class	Error No.	Message	Probable Cause	Possible Solution
5	10	At least one Staining Module must be connected.	Staining Module not turned on or communication failure.	Turn on Staining Module. Check Cable connecting staining module and PC. Contact Ventana if problem persists.
5	17	You must select at least one product!	No product was selected on the Product Usage form.	Select a product.
5	18	Product usage is unavailable for specified dates. Try a different selection criterion.	Selection criteria used produced no data.	Try different selection criteria.
5	26	Bulk: XXXX has already been registered.	Contact Ventana.	Contact Ventana.
5	41	Block: XXXX has already been registered.	Contact Ventana.	Contact Ventana.
5	58	Antibody: XXXX has already been registered.	Contact Ventana.	Contact Ventana.
5	58	Enter a valid Antibody Name.	Contact Ventana.	Contact Ventana.
5	58	Enter a valid Name of an Antibody Manufacturer.	Contact Ventana.	Contact Ventana.
5	64	The following Bulk Fluid Module bottles are not full: XXXXXXXXXX Proceed anyway?	The bottles listed are not filled to their fill level.	Fill the listed bottles, or if you are sure you have enough for your run, click 'Yes' to proceed with the current levels.
5	64	The following AFM bottles are not full: XXXXXXXXXX. Proceed anyway?	The bottle(s) are not pushed all the way in.	Ensure the bottle(s) are seated correctly in the AFM.
5	64	The following AFM bottles are not full: XXXXXXXXXX. Proceed anyway?	The level sensor behind the bottle is not adjusted properly or has failed.	Adjust or replace the level sensor.
5	65	Waste level is too high. Please empty it.	The waste bottle is full.	Empty it.
5	65	Waste level is too high. Please empty it.	The level sensor is not adjusted properly or has failed.	Adjust or replace the level sensor.
5	67	Please close the staining module door and try again.	The staining module door is not closed.	Close it.
5	67	Please close the staining module door and try again.	The door sensor is not operating correctly.	Fix it.

Error Class	Error No.	Message	Probable Cause	Possible Solution
5	79	This series overlaps a series that has already been received.	Contact Ventana.	Contact Ventana.
5	81	The following Automated Fluidics Module bottles are not full: XXXXXXXXXX Proceed anyway?	The bottle(s) are not pushed all the way in.	Ensure the bottle(s) are seated correctly in the AFM.
5	81	The following Automated Fluidics Module bottles are not full: XXXXXXXXXX Proceed anyway?	The level sensor behind the bottle is not adjusted properly or has failed.	Adjust or replace the level sensor.
5	81	The following Automated Fluidics Module bottles are not full: XXXXXXXXXX Proceed anyway?	The bottles listed are not filled to their fill level.	Fill the listed bottles, or if you are sure you have enough for your run, click 'Yes' to proceed with the current levels.
5	82	Case: XXXX has already been registered for XXXXX.	Contact Ventana.	Contact Ventana.
5	86	Invalid Date Range! Dates must be between January 1, 1997 and the current date. The start date must not be after the end date.	The start date is after the end date	Enter a start date that is at or after Jan 1, 1997 and before or equal to the end date.
5	86	Invalid Date Range! Dates must be between January 1, 1997 and the current date. The start date must not be after the end date.	The start or end date is invalid.	Valid dates are between Jan 1, 1997 and today's date. Future dates are not allowed.
5	86	Invalid Date Range! Dates must be between January 1, 1997 and the current date. The start date must not be after the end date.	The date is malformed.	Enter the date in the manner shown. Other ways may be accepted, but interpreted incorrectly.
5	88	Waste level is too high. Please empty it.	The waste bottle is full.	Empty it.
5	101	Dispenser Usage is not available for Special Stain Cleaning Kits.	Inventory request for cleaning kit.	Not a meaningful request.
5	102	The Archive Procedure has failed. Existing system data is still intact.	Archive process failed to complete.	Ensure no staining runs are in progress. Perform Archive process again. Contact Ventana if problem persists.

Error Class	Error No.	Message	Probable Cause	Possible Solution
5	111	The Archive Procedure canceled. Existing system data is still intact.	Archive process was canceled by the User.	Perform Archive process again.
5	117	The Starting Date is invalid!	Invalid date.	Reenter date.
5	118	The Ending Date is invalid!	Invalid date.	Reenter date.
5	119	The Ending Date precedes Starting Date!	Ending date is earlier than starting date.	Reenter dates.
6	1	Rule operand: XXXXXX only valid in a recipe step.	This should not normally occur.	This could indicate database corruption or an internal software error.
6	2	Rule operand argument: XXXXX missing from Argument database.	This should not normally occur.	This could indicate database corruption or an internal software error.
6	3	Rule operand: XXXX missing from Argument database.	This should not normally occur.	This could indicate database corruption or an internal software error.
6	5	Rule action: XXXX missing from Argument database.	This should not normally occur.	This could indicate database corruption or an internal software error.
6	6	Rule action argument: XXXX missing from Argument database.	This should not normally occur.	This could indicate database corruption or an internal software error.
6	7	Rule block: XXXX has no rules.	This should not normally occur.	This could indicate database corruption or an internal software error.
6	8	Rule block name cannot be blank.	This should not normally occur.	This could indicate database corruption or an internal software error.
6	9	Argument: XXXX of type: XXXX missing from argument database.	This should not normally occur.	This could indicate database corruption or an internal software error.
6	10	Invalid program step: XXXX.	This should not normally occur.	This could indicate database corruption or an internal software error.

Error Class	Error No.	Message	Probable Cause	Possible Solution
6	11	Macro step: XXXX not in macro function database.	This should not normally occur.	This could indicate database corruption or an internal software error.
6	12	Error processing sub macro: XXXX.	This should not normally occur.	This could indicate database corruption or an internal software error.
6	13	Error in system rule block: XXXX.	This should not normally occur.	This could indicate database corruption or an internal software error.
6	14	System run-generating object not ready to start now.	This should not normally occur.	This could indicate database corruption or an internal software error.
6	15	Blank system or test block name.	This should not normally occur.	This could indicate database corruption or an internal software error.
6	16	Macro function: XXXX is not valid in a macro.	This should not normally occur.	This could indicate database corruption or an internal software error.
6	17	Could not locate macro step arg: XXXX in the ARGUMENT database.	This should not normally occur.	This could indicate database corruption or an internal software error.
6	18	Could not locate macro step: XXXX in the MACRFUNC database.	This should not normally occur.	This could indicate database corruption or an internal software error.
6	19	Sub macro: XXXX is missing from macro step database.	This should not normally occur.	This could indicate database corruption or an internal software error.
6	20	Sub macro name cannot be blank.	This should not normally occur.	This could indicate database corruption or an internal software error.
6	21	Invalid incubation time: XXXX.	Incubation time no longer valid.	Reprogram protocol(s) to use valid incubation times.

Error Class	Error No.	Message	Probable Cause	Possible Solution
6	22	Maximum staining run macros exceeded.	Requested run is too complex to perform.	This error should not normally occur. Call for software support.
6	23	No slides found to run.	There were no bar codes found to perform the run on.	This should not normally occur. If it does it could indicate an internal software error or an error in the Bar codes database.
6	24	Invalid number of slides to run: XXXX.	There were more bar codes than the maximum number slides found to run.	This should not normally occur. If it does it could indicate that there is a problem with the Bar codes database or there are multiple protocols with the same number in the Protocol database.
6	25	Protocol for slide position #XXXX unassigned.	The bar code for the slide in the reported position does not have a protocol assigned to it.	Check the slide in the reported position and ensure that a protocol is defined for the bar code on that slide.
6	26	Protocol for slide position #XXXX has no recipe assigned.	This should not normally occur.	Reprogram the reported protocol.
6	27	Invalid slide position #XXXX.	Slide position number from bar codes read was outside of the range of 1 to 20.	This should not normally occur. This could indicate database corruption or an internal software error.
6	28	Error allocating memory for Protocol item.	Windows memory limit reached or Windows is experiencing problems.	Exit NexES and restart. If still having problems, shut down and restart Windows.
6	29	Too many Protocol items.	There were more items found in the protocol database than the maximum number of recipe steps.	This should not normally occur. This could indicate database corruption or an internal software error.

Error Class	Error No.	Message	Probable Cause	Possible Solution
6	30	Invalid reagent position #XXXX.	Reagent position number from bar codes read was outside of the range of 1 to 25.	This should not normally occur. This could indicate database corruption or an internal software error.
6	31	Reagent missing in Argument database, product code: XXXX.	An attempt was made to run with a dispenser that the system cannot identify.	Ensure that the dispenser has been registered into the NexES software.
6	32	XXXX dispenser #XXXXX missing from Dispenser database.	An attempt was made to run with a dispenser that has not been registered.	Ensure that the dispenser has been registered into the NexES software.
6	33	Recipe XXXX missing.	An attempt was made to run a protocol for which the recipe is no longer on the system.	This may occur if a software supplement had been installed which delivered new recipes for which protocols were created.
6	34	Recipe step constructor not assigned.	This error should not normally happen.	This could indicate database corruption or an internal software error.
6	35	Recipe step destructor not assigned.	This error should not normally happen.	This could indicate database corruption or an internal software error.
6	36	Recipe rule constructor not assigned.	This error should not normally happen.	This could indicate database corruption or an internal software error.
6	37	Recipe step constructor/destructor XXXX has no macro steps.	This error should not normally happen.	This could indicate database corruption or an internal software error.
6	38	Error allocating memory for Recipe step.	Windows memory limit reached or Windows is experiencing problems.	Exit NexES and restart. If still having problems, shutdown and restart Windows.
6	39	Too many Recipe steps.	There are too many steps in one of the Recipes (Procedures) you are attempting to run.	Contact Ventana for support.

Error Class	Error No.	Message	Probable Cause	Possible Solution
6	40	Recipe XXXX has non-consecutive steps in it.	This should not normally occur.	This could indicate database corruption or an internal software error.
6	41	Recipe XXXX has an invalid recipe step #XXXX.	This should not normally occur.	This could indicate database corruption or an internal software error.
6	42	Recipe XXXX has no steps.	This should not normally occur.	This could indicate database corruption or an internal software error.
6	43	Recipe step XXX is missing in the Function file.	This should not normally occur.	This could indicate database corruption or an internal software error.
6	44	Missing Recipe Function: XXXX.	A protocol is calling for a recipe function that is not present in the RecpFunc database.	This could indicate database corruption. It might also occur if a recipe function is removed from the system after protocols have been set that use it.
6	45	Internal error processing recipe step XXXX, in recipe XXXX.	This should not normally occur.	This could indicate database corruption or an internal software error.
6	46	Protocol step missing for required recipe step XXXX, in recipe XXXX.	This can occur if new software installed new recipes for which protocols existed but are now incomplete.	Edit the protocols in the run. Look for yellow boxes on screen that indicate incomplete protocols. Resave the protocol once all required fields are completed.
6	47	Protocols in run are incompatible with each other.	The protocols in the run may be requesting bottle selects that are conflicting with each other.	All bottle selects for all slides in a run must be the same, since they globally affect instrument operations. Remove or reprogram slides with the conflicting bottle selects and restart the run.

Error Class	Error No.	Message	Probable Cause	Possible Solution
6	47	Protocols in run are incompatible with each other.	You may be trying to run a titration protocol at the same time as a non-titration protocol.	Remove slides so that either all slides are running titrations or none are.
6	48	Protocol #XXXX has a blank reagent name.	This should not normally occur.	This could indicate database corruption. Editing and resaving the protocol might correct the problem.
6	49	Recipe XXXX Step #XXXX has a blank reagent name.	This should not normally occur.	This could indicate database corruption or an internal software error.
6	50	Unbalanced manual application or titration protocols.	This indicates that the time from the man app or titration step to the end of the run is not the same for all protocols.	This problem can occur if a recipe is not written correctly in regards to recipe sync steps. Contact Ventana for assistance.
6	51	Macro step XXXX has an invalid macro function number: XXXX.	This should not normally occur.	This could indicate database corruption or an internal software error.
6	52	Macro step XXXX has no match in the macro function database.	This should not normally occur.	This could indicate database corruption or an internal software error.
6	53	Unexpected macro step in macro block XXXX.	This should not normally occur.	This could indicate database corruption or an internal software error.
6	54	Function XXXX has no macro steps, required by all non-sync steps.	This should not normally occur.	This could indicate database corruption or an internal software error.
6	55	Missing argument for Function XXXX.	This should not normally occur.	This could indicate database corruption or an internal software error.
6	56	Macro XXXX is missing in the Macros file.	This should not normally occur.	This could indicate database corruption or an internal software error.

Error Class	Error No.	Message	Probable Cause	Possible Solution
6	57	Error processing sub macro: XXXX.	This should not normally occur.	This could indicate database corruption or an internal software error.
6	58	Maximum staining run size exceeded.	This could indicate database corruption or an internal software error.	It is possible for database corruption to cause this error if an improper large number of steps is required by recipe steps.
6	58	Maximum staining run size exceeded.	The run contains too many steps for the staining module to perform.	There is a high but limited number of steps that can be downloaded to a staining module in a run. This error should be reported to Ventana along with as much information about what protocols the staining module was being asked to run. Normally there is ample space for the steps required to perform the largest possible run.
6	59	Function : XXXX contains function #XXXX, which is invalid in a recipe sync step.	This should not normally occur.	This could indicate database corruption or an internal software error.
6	61	Macro step : XXXX contains macro function: XXXX which is invalid in a recipe constructor/destructor step.	This should not normally occur.	This could indicate database corruption or an internal software error.
6	62	XXXX missing in Argument file.	This should not normally occur.	This could indicate database corruption or an internal software error.
6	62	Could not locate argument: XXXX of type: XXXX in the argument database.	This should not normally occur.	This could indicate database corruption or an internal software error.
6	63	Could not locate macro function: XXXX in the macro function database.	This should not normally occur.	This could indicate database corruption or an internal software error.

Error Class	Error No.	Message	Probable Cause	Possible Solution
6	64	Temperature setpoint missing.	This can occur if a protocol contains a temperature that is no longer valid on the system.	Examine all protocols in the run and click on temperature setting boxes to ensure that all temperatures in the protocols are valid.
6	64	Temperature setpoint missing.	This might indicate database corruption.	
6	65	Recipe step: XXXX contains function #XXXX which is invalid in a recipe step.	This should not normally occur.	This could indicate database corruption or an internal software error.
6	66	XXXX, #XXXX dispenser missing from tray.	This will occur if a dispenser from a kit required by the run is missing from the reagent carousel.	Locate the dispenser reported by this error and place it on the reagent carousel.
6	67	Not enough of reagent XXXX to perform run.	The combined tests remaining of all dispensers of the reported reagent on the carousel are not enough for the run.	Place another dispenser of the reported reagent on the reagent carousel so that the system may use it.
6	68	Reagent XXXX missing from tray.	There are no dispensers, not even empty ones, containing the reported reagent, which is required to complete the run.	Place a dispenser containing the reported reagent on the reagent carousel and restart the run.
6	69	Dispensers XXXX, #XXXX and XXXX, #XXXX must be beside each other.	Dispensers misplaced on the reagent carousel.	Make sure that the dispensers noted in the error message are beside each. Restart the run.
6	70	Errors in recipe constructor rule block: XXXX.	This should not normally occur.	This could indicate database corruption or an internal software error.
6	71	Errors in recipe sync rule block: XXXX.	This should not normally occur.	This could indicate database corruption or an internal software error.
6	72	Macro 0 generating object not ready to start now.	Internal software error. Possible executable corruption.	Contact Ventana for support.

Error Class	Error No.	Message	Probable Cause	Possible Solution
6	73	Invalid instrument ID XXXX.	The instrument id is unknown to this software.	This should not normally occur. Reboot staining module and host computer and restart.
6	74	Blank instrument name.	Each staining module must have a non-blank name.	Ensure that the instrument name is assigned and is non-blank. Restart the run.
6	75	Duplicate XXXX #XXXX dispensers on tray.	The exact same reagent bar code label was read more than once. The reagent carousel drive system might be faulty.	Restart the run and observe that the reagent carousel rotates normally.
6	78	Dispenser x, Serial #y has expired and can not be used in this run.	The reagents on the reagent carousel are expired	Remove expired reagent and replace with a reagent that is not expired.
7	1	XXXX has no associated cases.	Contact Ventana.	Contact Ventana.
7	4	This dispenser is owned by another host and cannot be filled at this time.	Another NexES Host system has ownership of the dispenser.	Wait for the other NexES Host system to relinquish ownership. Force ownership via access code from Ventana. Contact Ventana if the problem persists.
7	5	This dispenser is in use on an instrument and cannot be filled at this time.	Another NexES Host system is currently using the dispenser.	Wait for the other NexES Host system to relinquish ownership. Contact Ventana if the problem persists.
7	6	Product usage data unavailable!	Internal program error.	Contact Ventana.
7	7	There are no pre-registered requesters.	Contact Ventana.	Contact Ventana.
7	13	There are no pre-registered bulk products.	Contact Ventana.	Contact Ventana.
7	14	There are no pre-registered probes.	Contact Ventana.	Contact Ventana.
7	15	There are no pre-registered reagents.	Contact Ventana.	Contact Ventana.

Error Class	Error No.	Message	Probable Cause	Possible Solution
7	16	There are no pre-registered blocks.	Contact Ventana.	Contact Ventana.
7	17	There were no received dispenser types to match the received reagents.	Contact Ventana.	Contact Ventana.
7	18	There are no pre-registered antibodies.	Contact Ventana.	Contact Ventana.
7	19	There are no runs to QC at this time.	Contact Ventana.	Contact Ventana.
7	20	Incorrect Cutoff Date.	Incorrect date entry.	Reenter
7	21	Backup was cancelled prior to completion.	Backup process was cancelled by the User.	Perform Backup process again.
7	23	Database integrity error in Contacts database.	Internal program error.	Contact Ventana.
7	24	Incorrect Frequency in Preventive Maintenance Notes.	Internal program error.	Contact Ventana.
7	27	Inventory Database is Empty.	No dispensers have been registered yet.	
7	48	Database Integrity Error: XXXXX	Internal program error.	Contact Ventana.
7	58	There is no system data to archive.	No run data exists for the dates entered.	Change date range for Archive.
7	59	All staining run(s) must be complete before performing an archive.	Archive was attempted while a staining run is in progress	Wait until all staining runs are complete before executing and Archive of the system.
7	60	There are no runs to print at this time.	No run data exists for the dates entered.	Change date range.
7	61	No tests were run with this dispenser	Dispenser has not been used in a staining run on this Host system	
7	63	No runs have used this bulk fluid	Bulk product has not been used in a staining run on this Host system	
7	64	There were no runs which used bulk in the date range selected.	No run data exists for the dates entered.	Change date range.
7	66	Keycode allocation failed. Delete unused Keycodes from Manage Keycodes. Press [Abort] to abort print job. Press [Ignore] to generate a standard protocol barcode.	Range of keycodes has been exhausted.	Delete unused keycodes. Change range of keycode allocation.
8	3	Both a Last and a First Name are required	First or Last name of Contact information was left blank	Reenter data.

Error Class	Error No.	Message	Probable Cause	Possible Solution
8	6	File can not be opened, Call Ventana	Internal program error.	Contact Ventana.
8	7	Failed to Encrypt "XXXX" table with Archive Password	Internal program error.	Contact Ventana.
8	8	Failed to copy tables to temporary folder	Internal program error.	Contact Ventana.
8	9	Failed to copy tables from temporary folder	Internal program error.	Contact Ventana.
8	10	SQL Error Deleting Runs.	Internal program error.	Contact Ventana.
8	12	SQL Error Deleting from Dispense Table.	Internal program error.	Contact Ventana.
8	15	Could not gain ownership of Dispenser(s).	Internal program error.	Contact Ventana.
8	15	Could not locate Dispenser in table.	Internal program error.	Contact Ventana.
8	15	Could not locate Kit Dispensers in table.	Internal program error.	Contact Ventana.
8	37	Error packing table.	Internal program error.	Contact Ventana.
9	1	Probe: XXXX has already been registered.	Contact Ventana.	Contact Ventana.
9	2	Reagent: XXXX has already been registered.	Contact Ventana.	Contact Ventana.
9	2	Reagent: XXXX has already been registered.	Contact Ventana.	Contact Ventana.
9	4	XXXX is an invalid bulk product, contact Ventana	Contact Ventana.	Contact Ventana.
9	6	Can not proceed with staining run at this time. You must register the following product(s) before proceeding.	Product needed for staining run is not registered	Register product and start the staining run.
10	2	There are no contacts recorded.	No contacts have been entered	
11	2	NexES Com Port conflict, returning to defaults.	Contact Ventana.	Contact Ventana.
11	3	NexES Host Software Requires A 100MByte Backup Disk To Run.	Contact Ventana.	Contact Ventana.
11	4	NexES Host could not backup the data files.	Contact Ventana.	Contact Ventana.
11	5	Unable to launch SLS. Contact Ventana.	Contact Ventana.	Contact Ventana.
12	0	Staining module program ran to completion.	Contact Ventana.	Contact Ventana.
12	1	Slide heat is too high.	Contact Ventana.	Contact Ventana.
12	2	Rinse heat is too low.	Contact Ventana.	Contact Ventana.
12	3	Slide access door was opened during the run.	Contact Ventana.	Contact Ventana.

Error Class	Error No.	Message	Probable Cause	Possible Solution
12	4	Titering failed due to absence of reagent tray.	Contact Ventana.	Contact Ventana.
12	5	Pressure is too low.	Contact Ventana.	Contact Ventana.
12	6	Pressure is too high.	Contact Ventana.	Contact Ventana.
12	7	Pressurizing time exceeded. Check that bottle caps are tight.	Contact Ventana.	Contact Ventana.
12	8	Purging failed to complete within the required time limit.	Contact Ventana.	Contact Ventana.
12	9	Time limit for existing exception expired.	Contact Ventana.	Contact Ventana.
12	10	Power failed during run.	Contact Ventana.	Contact Ventana.
12	11	Slide heat exceeded the absolute maximum temperature.	Contact Ventana.	Contact Ventana.
12	12	Slide heat temperature sensor is bad or not connected.	Contact Ventana.	Contact Ventana.
12	13	Rinse heat exceeded the absolute maximum temperature.	Contact Ventana.	Contact Ventana.
12	14	Rinse heat temperature sensor is bad or not connected.	Contact Ventana.	Contact Ventana.
12	15	Pressure exceeded absolute maximum limit.	Contact Ventana.	Contact Ventana.
12	16	Slide tray failed to find home position.	Contact Ventana.	Contact Ventana.
12	17	Reagent tray failed to find home position or tray is missing.	Contact Ventana.	Contact Ventana.
12	19	Fluid in tub exceeded maximum level.	Contact Ventana.	Contact Ventana.
12	22	AFM communications error. Check power and cables.	Contact Ventana.	Contact Ventana.
12	23	User aborted run before normal completion.	Contact Ventana.	Contact Ventana.
12	24	Slide tray position incorrect during the run.	Contact Ventana.	Contact Ventana.
12	25	Reagent tray position incorrect during the run.	Contact Ventana.	Contact Ventana.
12	32	Dispense pump failed to find home position.	Contact Ventana.	Contact Ventana.
12	33	Pump was on home unexpectedly during burn-in.	Contact Ventana.	Contact Ventana.
12	34	Pump was off home unexpectedly during burn-in.	Contact Ventana.	Contact Ventana.
12	35	Reaction buffer reservoir failed to prime.	Contact Ventana.	Contact Ventana.

Error Class	Error No.	Message	Probable Cause	Possible Solution
12	36	SSC reservoir failed to prime.	Contact Ventana.	Contact Ventana.
12	37	EZ Prep reservoir failed to prime.	Contact Ventana.	Contact Ventana.
12	38	Cell conditioner #2 reservoir failed to prime.	Contact Ventana.	Contact Ventana.
12	39	Cell conditioner #1 reservoir failed to prime.	Contact Ventana.	Contact Ventana.
12	40	LCS reservoir failed to prime.	Contact Ventana.	Contact Ventana.
12	41	Optional reservoir failed to prime.	Contact Ventana.	Contact Ventana.
12	42	Vacuum trap is full of fluid.	Contact Ventana.	Contact Ventana.
12	43	Reaction buffer reservoir failed to recharge itself in time.	Contact Ventana.	Contact Ventana.
12	44	SSC reservoir failed to recharge itself in time.	Contact Ventana.	Contact Ventana.
12	45	EZ Prep reservoir failed to recharge itself in time.	Contact Ventana.	Contact Ventana.
12	46	Cell conditioner #2 reservoir failed to recharge itself in time.	Contact Ventana.	Contact Ventana.
12	47	Cell conditioner #1 reservoir failed to recharge itself in time.	Contact Ventana.	Contact Ventana.
12	48	LCS reservoir failed to recharge itself in time.	Contact Ventana.	Contact Ventana.
12	49	Optional reservoir failed to recharge itself in time.	Contact Ventana.	Contact Ventana.
12	50	Waste container is full.	Contact Ventana.	Contact Ventana.
12	51	Slide heater error.	Contact Ventana.	Contact Ventana.
12	52	Smart carousel communications error.	Contact Ventana.	Contact Ventana.
12	53	Slide tray check at end of run indicated minor misalignment.	Contact Ventana.	Contact Ventana.
12	54	Slide tray check at end of run indicated major misalignment.	Contact Ventana.	Contact Ventana.
12	55	Reagent tray check at end of run indicated minor misalignment.	Contact Ventana.	Contact Ventana.
12	56	Reagent tray check at end of run indicated major misalignment.	Contact Ventana.	Contact Ventana.
12	57	Dispense pump check at end of run indicated minor misalignment.	Contact Ventana.	Contact Ventana.
12	58	Dispense pump check at end of run indicated major misalignment.	Contact Ventana.	Contact Ventana.

Error Class	Error No.	Message	Probable Cause	Possible Solution
12	59	Priming operation completed.	Contact Ventana.	Contact Ventana.
12	60	Cleaning operation completed.	Contact Ventana.	Contact Ventana.
12	62	Slide tray failed to raise up in time	Contact Ventana.	Contact Ventana.
12	63	Run stopped due to heater(s) abnormally hot. If this situation persists, call for service	Contact Ventana.	Contact Ventana.
12	64	Slide tray incorrectly detected in the up position. Check for jammed slide tray or bad slide tray up switch.	Contact Ventana.	Contact Ventana.
12	130	Slide #21 temperature control error (too low).	Contact Ventana.	Contact Ventana.
12	131	Slide #22 temperature control error (too low).	Contact Ventana.	Contact Ventana.
12	132	Slide #23 temperature control error (too low).	Contact Ventana.	Contact Ventana.
12	133	Slide #24 temperature control error (too low).	Contact Ventana.	Contact Ventana.
12	134	Slide #25 temperature control error (too low).	Contact Ventana.	Contact Ventana.
12	135	Slide #26 temperature control error (too low).	Contact Ventana.	Contact Ventana.
12	136	Slide #27 temperature control error (too low).	Contact Ventana.	Contact Ventana.
12	137	Slide #28 temperature control error (too low).	Contact Ventana.	Contact Ventana.
12	138	Slide #29 temperature control error (too low).	Contact Ventana.	Contact Ventana.
12	139	Slide #30 temperature control error (too low).	Contact Ventana.	Contact Ventana.
12	140	Slide #21 temperature control error (too high).	Contact Ventana.	Contact Ventana.
12	141	Slide #22 temperature control error (too high).	Contact Ventana.	Contact Ventana.
12	142	Slide #23 temperature control error (too high).	Contact Ventana.	Contact Ventana.
12	143	Slide #24 temperature control error (too high).	Contact Ventana.	Contact Ventana.
12	144	Slide #25 temperature control error (too high).	Contact Ventana.	Contact Ventana.

Error Class	Error No.	Message	Probable Cause	Possible Solution
12	145	Slide #26 temperature control error (too high).	Contact Ventana.	Contact Ventana.
12	146	Slide #27 temperature control error (too high).	Contact Ventana.	Contact Ventana.
12	147	Slide #28 temperature control error (too high).	Contact Ventana.	Contact Ventana.
12	148	Slide #29 temperature control error (too high).	Contact Ventana.	Contact Ventana.
12	149	Slide #30 temperature control error (too high).	Contact Ventana.	Contact Ventana.
12	150	Slide #21 temperature sensor bad or disconnected	Contact Ventana.	Contact Ventana.
12	151	Slide #22 temperature sensor bad or disconnected	Contact Ventana.	Contact Ventana.
12	152	Slide #23 temperature sensor bad or disconnected	Contact Ventana.	Contact Ventana.
12	153	Slide #24 temperature sensor bad or disconnected	Contact Ventana.	Contact Ventana.
12	154	Slide #25 temperature sensor bad or disconnected	Contact Ventana.	Contact Ventana.
12	155	Slide #26 temperature sensor bad or disconnected	Contact Ventana.	Contact Ventana.
12	156	Slide #27 temperature sensor bad or disconnected	Contact Ventana.	Contact Ventana.
12	157	Slide #28 temperature sensor bad or disconnected	Contact Ventana.	Contact Ventana.
12	158	Slide #29 temperature sensor bad or disconnected	Contact Ventana.	Contact Ventana.
12	159	Slide #30 temperature sensor bad or disconnected	Contact Ventana.	Contact Ventana.
12	160	Slide #1 temperature control error (too low).	Contact Ventana.	Contact Ventana.
12	161	Slide #2 temperature control error (too low).	Contact Ventana.	Contact Ventana.
12	162	Slide #3 temperature control error (too low).	Contact Ventana.	Contact Ventana.
12	163	Slide #4 temperature control error (too low).	Contact Ventana.	Contact Ventana.
12	164	Slide #5 temperature control error (too low).	Contact Ventana.	Contact Ventana.

Error Class	Error No.	Message	Probable Cause	Possible Solution
12	165	Slide #6 temperature control error (too low).	Contact Ventana.	Contact Ventana.
12	166	Slide #7 temperature control error (too low).	Contact Ventana.	Contact Ventana.
12	167	Slide #8 temperature control error (too low).	Contact Ventana.	Contact Ventana.
12	168	Slide #9 temperature control error (too low).	Contact Ventana.	Contact Ventana.
12	169	Slide #10 temperature control error (too low).	Contact Ventana.	Contact Ventana.
12	170	Slide #11 temperature control error (too low).	Contact Ventana.	Contact Ventana.
12	171	Slide #12 temperature control error (too low).	Contact Ventana.	Contact Ventana.
12	172	Slide #13 temperature control error (too low).	Contact Ventana.	Contact Ventana.
12	173	Slide #14 temperature control error (too low).	Contact Ventana.	Contact Ventana.
12	174	Slide #15 temperature control error (too low).	Contact Ventana.	Contact Ventana.
12	175	Slide #16 temperature control error (too low).	Contact Ventana.	Contact Ventana.
12	176	Slide #17 temperature control error (too low).	Contact Ventana.	Contact Ventana.
12	177	Slide #18 temperature control error (too low).	Contact Ventana.	Contact Ventana.
12	178	Slide #19 temperature control error (too low).	Contact Ventana.	Contact Ventana.
12	179	Slide #20 temperature control error (too low).	Contact Ventana.	Contact Ventana.
12	180	Slide #1 temperature control error (too high).	Contact Ventana.	Contact Ventana.
12	181	Slide #2 temperature control error (too high).	Contact Ventana.	Contact Ventana.
12	182	Slide #3 temperature control error (too high).	Contact Ventana.	Contact Ventana.
12	183	Slide #4 temperature control error (too high).	Contact Ventana.	Contact Ventana.
12	184	Slide #5 temperature control error (too high).	Contact Ventana.	Contact Ventana.

Error Class	Error No.	Message	Probable Cause	Possible Solution
12	185	Slide #6 temperature control error (too high).	Contact Ventana.	Contact Ventana.
12	186	Slide #7 temperature control error (too high).	Contact Ventana.	Contact Ventana.
12	187	Slide #8 temperature control error (too high).	Contact Ventana.	Contact Ventana.
12	188	Slide #9 temperature control error (too high).	Contact Ventana.	Contact Ventana.
12	189	Slide #10 temperature control error (too high).	Contact Ventana.	Contact Ventana.
12	190	Slide #11 temperature control error (too high).	Contact Ventana.	Contact Ventana.
12	191	Slide #12 temperature control error (too high).	Contact Ventana.	Contact Ventana.
12	192	Slide #13 temperature control error (too high).	Contact Ventana.	Contact Ventana.
12	193	Slide #14 temperature control error (too high).	Contact Ventana.	Contact Ventana.
12	194	Slide #15 temperature control error (too high).	Contact Ventana.	Contact Ventana.
12	195	Slide #16 temperature control error (too high).	Contact Ventana.	Contact Ventana.
12	196	Slide #17 temperature control error (too high).	Contact Ventana.	Contact Ventana.
12	197	Slide #18 temperature control error (too high).	Contact Ventana.	Contact Ventana.
12	198	Slide #19 temperature control error (too high).	Contact Ventana.	Contact Ventana.
12	199	Slide #20 temperature control error (too high).	Contact Ventana.	Contact Ventana.
12	200	Slide #1 temperature sensor bad or disconnected.	Contact Ventana.	Contact Ventana.
12	201	Slide #2 temperature sensor bad or disconnected.	Contact Ventana.	Contact Ventana.
12	202	Slide #3 temperature sensor bad or disconnected.	Contact Ventana.	Contact Ventana.
12	203	Slide #4 temperature sensor bad or disconnected.	Contact Ventana.	Contact Ventana.
12	204	Slide #5 temperature sensor bad or disconnected.	Contact Ventana.	Contact Ventana.

Error Class	Error No.	Message	Probable Cause	Possible Solution
12	205	Slide #6 temperature sensor bad or disconnected.	Contact Ventana.	Contact Ventana.
12	206	Slide #7 temperature sensor bad or disconnected.	Contact Ventana.	Contact Ventana.
12	207	Slide #8 temperature sensor bad or disconnected.	Contact Ventana.	Contact Ventana.
12	208	Slide #9 temperature sensor bad or disconnected.	Contact Ventana.	Contact Ventana.
12	209	Slide #10 temperature sensor bad or disconnected.	Contact Ventana.	Contact Ventana.
12	210	Slide #11 temperature sensor bad or disconnected.	Contact Ventana.	Contact Ventana.
12	211	Slide #12 temperature sensor bad or disconnected.	Contact Ventana.	Contact Ventana.
12	212	Slide #13 temperature sensor bad or disconnected.	Contact Ventana.	Contact Ventana.
12	213	Slide #14 temperature sensor bad or disconnected.	Contact Ventana.	Contact Ventana.
12	214	Slide #15 temperature sensor bad or disconnected.	Contact Ventana.	Contact Ventana.
12	215	Slide #16 temperature sensor bad or disconnected.	Contact Ventana.	Contact Ventana.
12	216	Slide #17 temperature sensor bad or disconnected.	Contact Ventana.	Contact Ventana.
12	217	Slide #18 temperature sensor bad or disconnected.	Contact Ventana.	Contact Ventana.
12	218	Slide #19 temperature sensor bad or disconnected.	Contact Ventana.	Contact Ventana.
12	219	Slide #20 temperature sensor bad or disconnected.	Contact Ventana.	Contact Ventana.
12	220	Waste container was full during run	Empty waste container.	
13	2	No slides found, run terminated	No case slides found on the slide carousel.	Place slides on slide carousel and start run. Contact Ventana.
13	3	Barcode read Aborted with Error Code XXXX	Contact Ventana.	Contact Ventana.
13	4	Barcode read Timed Out, Please Retry.	Misread of slide label.	Restart run.
13	5	Barcode read Aborted with Bad Format error, Please Retry.	Misread of slide label.	Restart run.

Error Class	Error No.	Message	Probable Cause	Possible Solution
13	6	Barcode Reader Did Not Initialize, Please Retry.	Misread of slide label.	Restart run.
13	7	Slide Barcode Check Digit Error, Restart Run	Misread of slide label.	Restart run.
13	8	Invalid Barcode. Clean mirror and/or lens, then Restart Run	Misread of slide label.	Restart run.
13	9	Barcode Trigger Failed, Please Retry.	Misread of slide label.	Restart run.
13	10	XXXX with Serial #XXXX at Position XXXX is a duplicate product, please remove from tray.	Duplicate dispensers on the reagent carousel	Remove duplicate product from reagent carousel and start run.
13	11	Barcode read Error Code %d, Retrying...	Misread of Reagent label.	Restart run.
13	12	Barcode read Timed Out, Retrying...	Misread of Reagent label.	Restart run.
13	13	Barcode read Bad Format, Retrying...	Misread of Reagent label.	Restart run.
13	14	Unknown Bar Code Reader Type, run terminated	Contact Ventana.	Contact Ventana.
13	15	Keycode Bar Code on Slide at Position XXXX could not be Resolved.	Unable to read slide label	Contact Ventana.
13	18	Could not acquire Ownership of all Case Slide(s)	Case slide is in use by another NexES Host system	Wait until other NexES Host system is done with case slide. Force ownership acquisition with access code from Ventana.
14	1	Hardware key missing from back of host computer	HASP key is not attached to PC	Reattach and start NexES.
14	3	Slide at position #XXXX is on a faulty heater.	Contact Ventana.	Contact Ventana.
14	4	Protocol #XXXX at slide position #XXXX is not defined for this instrument type.	Protocol is not created for the selected staining module	Create protocol and restart staining run.
14	5	Slide Barcode Count Mismatch, check View Slides for those found	Designated number of slides does not match actual slide count on carousel.	Enter correct number of slides and restart the staining run.
14	6	Run Aborted. Not acknowledged by remote. Error Code XXXX, Please Retry.	Contact Ventana.	Contact Ventana.

Error Class	Error No.	Message	Probable Cause	Possible Solution
14	7	Run Download Timed Out, Restart Run	Restart staining run	
14	8	Run Download Aborted with Bad Format Code %d, Please Retry.	Contact Ventana.	Contact Ventana.
14	9	The following slide heater(s) are faulty and require service. Press [Abort] to terminate run. Press [Ignore] to continue.	Contact Ventana.	Contact Ventana.
14	10	Run Download Aborted, Restart Run	Restart staining run	
14	11	Run Download Aborted, Restart Run	Restart staining run	
14	12	Test Function Aborted, Restart Run	Restart staining run	
14	13	The following slide heater(s) are faulty and require service. Press [Abort] to terminate run. Press [Ignore] to continue.	Contact Ventana.	Contact Ventana.
14	20	Run exceeds desired delayed start time. Run starting immediately.	Contact Ventana.	Contact Ventana.
14	21	Run exceeds desired delayed completion time. Run starting immediately.	Contact Ventana.	Contact Ventana.
14	22	Database version fields are out of date. Please shutdown and restart NexES.	Contact Ventana.	Contact Ventana.
14	23	Database ownership version fields are out of date. Please shutdown and restart NexES.	Contact Ventana.	Contact Ventana.
99	1	XXXX Unable to fix. Table may be corrupted.	Contact Ventana.	Contact Ventana.
99	2	Fixing Archive data to your Live system may cause undesirable results.' 'This action is not recommended!	Contact Ventana.	Contact Ventana.
99	3	XXXX Unable to fix. Table may be corrupted.	Contact Ventana.	Contact Ventana.
99	7	The Zip file already exists. Overwrite?	A file from a previous autozip is still present.	Rename the old file if you wish to keep it. Otherwise, click 'yes' to automatically overwrite the file. Note: This dialog is not really an 'error.'
99	8	Error reading data from hardware key.	Contact Ventana.	Contact Ventana.

