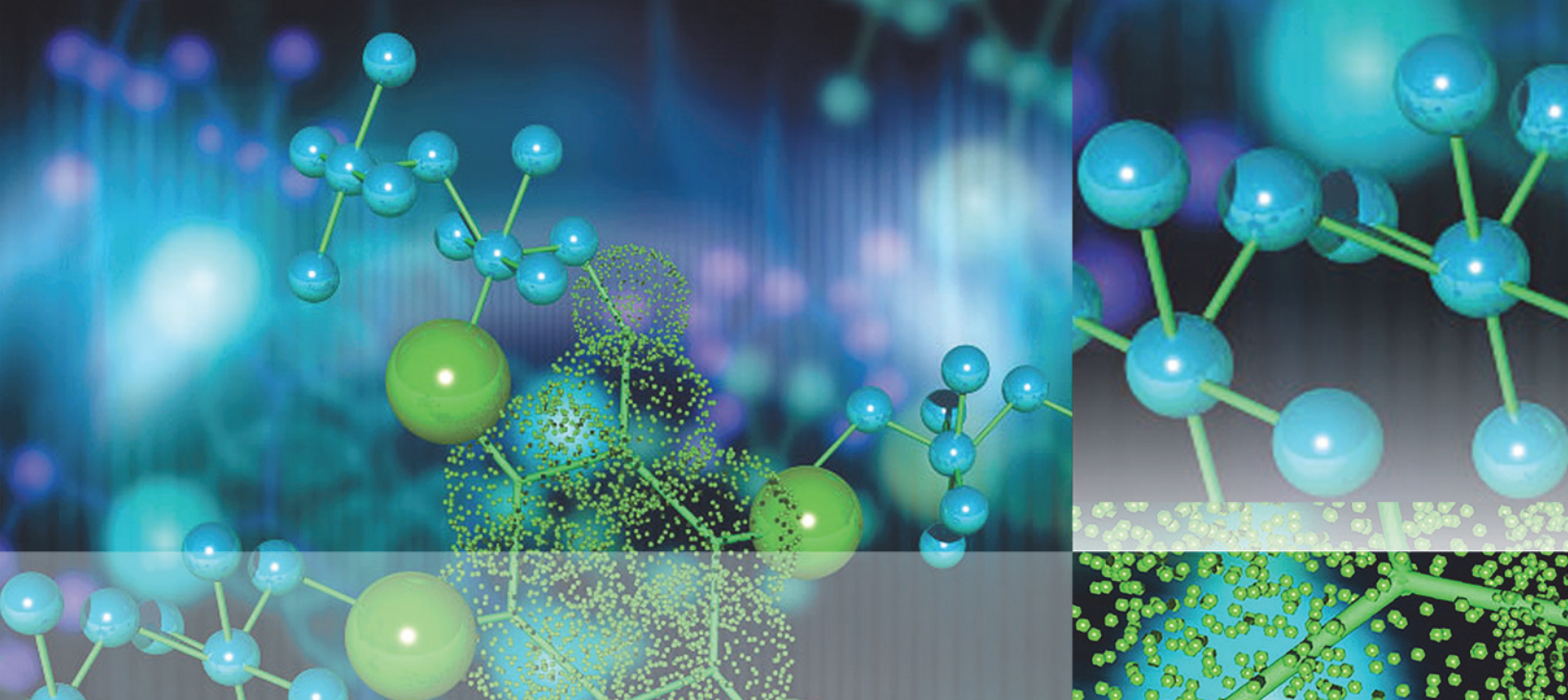




Virtuoso Vial Identification System

User Guide

XX20933-E 02/14S Revision A July 2014

Thermo
SCIENTIFIC

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Touch-screen software version: 1.01 and later

For Research Use Only. Not for use in diagnostic procedures.

Regulatory Compliance

Thermo Fisher Scientific performs complete testing and evaluation of its products to ensure full compliance with applicable domestic and international regulations. When the system is delivered to you, it meets all pertinent electromagnetic compatibility (EMC) and safety standards as described in the next section or sections by product name.

Changes that you make to your system may void compliance with one or more of these EMC and safety standards. Changes to your system include replacing a part or adding components, options, or peripherals not specifically authorized and qualified by Thermo Fisher Scientific. To ensure continued compliance with EMC and safety standards, replacement parts and additional components, options, and peripherals must be ordered from Thermo Fisher Scientific or one of its authorized representatives.

EMC Directive 2004/108/EC

EMC compliance has been evaluated by Intertek Testing and Certification Ltd. (United Kingdom).

EN 55011:2009, A1: 2010

EN 61000-3-2: 2006, A2: 2009

EN 61000-3-3: 2008

EN 61000-4-2: 2009

EN 61000-4-3: 2006, A1: 2008, A2: 2010

EN 61000-4-4: 2004, A1: 2010

EN 61000-4-5: 2006

EN 61000-4-6: 2009

EN 61000-4-8: 2010

EN 61000-4-11: 2004

IEC 61326-1: 2012

CFR 47, FCC Part 15, Subpart B, Class A: 2009

Low Voltage Safety Compliance

This device complies with Low Voltage Directive 2006/95/EC and harmonized standard IEC 61010-1:2010 (3rd Edition).

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THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRE OPERATION.



CAUTION Read and understand the various precautionary notes, signs, and symbols contained inside this manual pertaining to the safe use and operation of this product before using the device.

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- WEEE product class
- Name of the manufacturer or distributor (where you purchased the product)
- Number of product pieces, and the estimated total weight and volume
- Pick-up address and contact person (include contact information)
- Appropriate pick-up time
- Declaration of decontamination, stating that all hazardous fluids or material have been removed from the product

For additional information about the Restriction on Hazardous Substances (RoHS) Directive for the European Union, search for RoHS on the Thermo Fisher Scientific European language websites.

IMPORTANT This recycling program is **not** for biological hazard products or for products that have been medically contaminated. You must treat these types of products as biohazard waste and dispose of them in accordance with your local regulations.

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Preface

The *Virtuoso Vial Identification System User Guide* describes how to operate the Thermo Scientific™ Virtuoso™ Vial Identification System to print custom label information directly onto a Thermo Scientific Virtuoso glass vial.

Contents

- [Accessories](#)
- [Cautions and Special Notices](#)
- [Safety Precautions](#)
- [Contacting Us](#)

Accessories

The Virtuoso Vial Identification System ships with the following accessories ([Table 1](#)).

Table 1. Virtuoso accessories

Accessory	Quantity	Part number
Virtuoso 9 mm wide opening screw thread vial, 2 mL, clear glass with V-patch and ivory polytetrafluoroethylene (PTFE)/red rubber septum	1	60180-VT401
Power supply assembly: • AC power adapter • Power supply cord	1	SP50008
Virtuoso multivial holder, 33 cm (13 in.) long (empty, holds 10 vials), and vial guide attachment	2	60180-VT501
Virtuoso replacement tape	1	60180-VT500
Virtuoso vial collection tray	2	60180-VT502

Cautions and Special Notices

Make sure you follow the cautions and special notices presented in this guide. Cautions and special notices appear in boxes; those concerning safety or possible system damage also have corresponding caution symbols.

This guide uses the following types of cautions and special notices.



CAUTION Highlights hazards to humans, property, or the environment. Each CAUTION notice is accompanied by an appropriate CAUTION symbol.



CAUTION Risk of electric shock. This system uses voltages that can cause electric shock and/or personal injury. Before servicing, shut down the system and disconnect it from line power. While operating the system, keep covers on.



CAUTION Trip obstacle: Be aware of cords or other objects located on the floor.

IMPORTANT Highlights information necessary to prevent damage to software, loss of data, or invalid test results; or might contain information that is critical for optimal performance of the system.

Note Highlights information of general interest.

Tip Highlights helpful information that can make a task easier.

Safety Precautions

Follow your company's established laboratory practices and safety methods. Observe the following safety precautions when you operate or service the Virtuoso Vial Identification System.



CAUTION

- Do **not** attempt to operate the system with removed panels or covers or with any obvious damage to the system or the ac power adapter.
- Unplug the power cord before servicing the system.



CAUTION Heed these precautions to avoid personal injury or damage to the system:

- Operate the system as specified in this guide only.
- Do **not** perform any servicing other than that contained in this user guide unless you are qualified to do so.



CAUTION Use only Thermo Scientific replacement parts and accessories with this system. For details, see [Chapter 8, "Replaceable Parts."](#)

Contacting Us

There are several ways to contact Thermo Fisher Scientific for the information you need.

For this Thermo Scientific product	Contact method
Technical Support	• Go to www.thermoscientific.com/chromexpert —or— • Go to www.thermoscientific.com/support, click Contact Us, select the Servicing a Product option, and then type Virtuoso in the box that appears. Use the phone number, email address, or online form to contact Technical Support.
User Documentation	• Email—to send feedback directly to Technical Publications: techpubs-lcms@thermofisher.com • Web—to complete a survey about this Thermo Scientific document: www.surveymonkey.com/s/PQM6P62

Getting Connected

This chapter describes the laboratory requirements and how to set up the Virtuoso Vial Identification System.

Contents

- [Laboratory Requirements](#)
- [Installing the Virtuoso Vial Identification System](#)

Laboratory Requirements

This section describes the laboratory requirements.

- [Line Power](#)
- [Earth Ground](#)
- [Electrical Wall Outlet](#)
- [Environmental Requirements](#)

Line Power

The quality of line power (ac mains power system) delivered to the system can affect its performance and longevity. To ensure that the system performs optimally and is not damaged by line power fluctuations, verify that the laboratory's electrical supply complies with all power quality requirements.

You are responsible for providing a power source of acceptable quality to operate the system.



CAUTION To support compliance and safety requirements, all devices connected between the power source and the system must be certified by recognized organizations for your country or region (for example, UL, CSA, SEMKO, VDE, or TÜV).

For the Virtuoso system, use only those parts provided with your order. If you need replacement parts, contact your local Thermo Fisher Scientific sales representative or see [Chapter 8, “Replaceable Parts.”](#)

Earth Ground

Make sure that the earth ground connections in the laboratory are hardwired to the same ground used for the main circuit breaker panel. Multiple external ground points can cause noise current to flow through the ground loop that is formed.

Electrical Wall Outlet

Make sure that the electrical wall outlet intended for the Virtuoso system is suitably rated and connects to earth ground. To prevent overloading the outlets, select outlets with a load rating that is suitable for the expected total current per outlet.



CAUTION To avoid an electric shock, always have a certified electrician install any new wall outlets.

Environmental Requirements

To ensure proper performance of the Virtuoso system, verify the environmental specifications listed in [Table 2](#).

Table 2. Environmental requirements

Item	Specification
Altitude	Up to 2000 m (1.24 miles)
Pollution degree	2
Relative humidity (RH)	Maximum 80% RH for temperatures up to 31 °C (88 °F) decreasing linearly to 50% RH at 40 °C (104 °F)
Temperature	- Operating range: 5–40 °C (41–104 °F) - Recommended range: 15–30 °C (59–86 °F) Performance might deteriorate if you operate the system outside the recommended range. - Storage range: –25 to 45 °C (–13 to 113 °F) Store at these extreme low and high temperatures for short periods only.
Transient overvoltage category	II

Installing the Virtuoso Vial Identification System

This section describes how to install the Virtuoso system in the designated laboratory.

- [Assembling the Virtuoso System](#)
- [Connecting the Virtuoso System to Line Power](#)
- [Disconnecting the Virtuoso System from Line Power](#)

Assembling the Virtuoso System

Before you start labeling vials, insert the collection tray to the right side of the system base. You can optionally insert the multivial holder into the vial guide at the top of the system. For assembly locations, see [Figure 1](#) on [page 6](#).

Connecting the Virtuoso System to Line Power

Place the system on a clean surface near a user-accessible wall outlet. Have the power supply assembly available (see [“Accessories”](#) on [page ix](#)).



CAUTION To avoid an electric shock, always use a detachable power cord that is appropriate for your country or region.

❖ To connect the Virtuoso system to line power

1. If it is not already connected, connect the detachable power cord to the ac power adapter.
2. Connect the output cable to the input power socket located on the back of the system.
3. Plug the power cord into a suitably rated, earth-grounded electrical wall outlet.
4. Turn on the system by pressing the power button located on the back.

The system turns on and the initialization process starts, which takes approximately 30–45 seconds.



CAUTION After you complete the cord and cable connections, route them so that they are not a trip hazard.

Disconnecting the Virtuoso System from Line Power

Use the following procedure when you must shut down the system.

❖ To disconnect the Virtuoso system from line power

1. Turn off the system by pressing the power button located on the back for 5 seconds.
2. Unplug the ac adapter unit from the wall outlet, and then you can disconnect the output cable from the system.

Getting Started

This chapter describes the basic features of the Virtuoso Vial Identification System and how to print a test label on a Thermo Scientific Virtuoso glass vial.

Contents

- [Functional Description](#)
- [Touch Screen](#)
- [Back Panel](#)
- [Vial Printer Test](#)

Functional Description

The Virtuoso Vial Identification System, shown in [Figure 1](#), is a compact printer that prints custom label information directly on the white label on the Virtuoso glass vial. The approximate size of the main label area is 17.5 mm (0.7 in.) wide by 13 mm (0.5 in.) high. Printed labels can contain barcodes and text—use the predefined label templates or create your own templates for repeated use. You operate the printer and create the label information from the touch-screen display.

To print on one vial or multiple vials from a defined sequence, you can load either one vial or up to 10 vials at a time by connecting the multivial holder to the top of the system. Each label takes approximately 5 seconds to print, and each finished vial collects in the tray at the base below the display.

The system emits a sound when you tap the display keys, scan a barcode, or trigger a warning (for example, tapping an incorrect key or inserting the vial upside down).

The back of the system has two Type 2.0 USB ports. Use these ports if you want to export the system settings to a USB drive. (Cables and devices are not provided.) For additional information, see [“Settings Menu”](#) on [page 26](#).

Figure 1. Virtuoso Vial Identification System



For information about creating and editing labels, see [Chapter 3](#) and [Chapter 4](#), respectively. For information about printing on vials, see [Chapter 5](#). For information about using the administrator setup menus, see [Chapter 6](#).

Touch Screen

You control the Virtuoso Vial Identification System through the pressure-sensitive monitor screen (touch-screen display) that detects a stylus or finger pressure (even while wearing gloves) and sends the corresponding commands to the built-in computer.

Note When a software upgrade becomes available, Thermo Fisher Scientific sends the registered owner a notification email message.

Here are a few examples of what you can do on the touch-screen display:

- Edit vial data.
- Create, edit, and save single labels, sequences of labels, and custom label templates.
- Set data fields to automatically increment.

- Set templates to accept input data from scanned barcodes or laboratory information management systems (LIMSs).
- Design and edit custom templates that use different fonts, barcode types, or graphics.
- Print on individual vials, on a sequence of vials, or on individual vials within a sequence.
- Edit and delete vial labels within a sequence.
- Save a sequence of vials as a protocol for repeated use.

Icons and Keyboard

In most cases, you tap an icon on the touch screen to carry out a specific command. As you move from screen to screen, the icons change to display the screen-specific commands. For descriptions of the various icons, see [Appendix A, “Icons.”](#)

When a screen requires text or numeric input, it displays a keyboard.

- To move horizontally, tap the **Back** and **Forward** arrow keys.
- To move to the next line, tap **TAB**.
- To enter an uppercase letter, tap **CASE**.
- To delete the character, tap **DEL**.

Error Messages

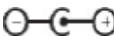
The touch screen shows error messages in a sub-window. Some of the messages require user interaction to clear the condition. The others disappear after a given period of time. Common conditions that trigger an error message include the following:

- Vial is not found.
- Vial is not a Thermo Scientific Virtuoso vial.
- Multivial holder is empty, which applies only when the holder is connected.
- Possible mechanical fault condition.

Back Panel

Table 3 describes the Virtuoso system's back panel connections. These signal connections are suitable only for connections to equipment meeting the requirements of clause 6.3 of IEC 61010-1 or SELV (safety extra-low voltage) requirements of IEC 60950-1:2014.

Table 3. Back panel connections

Image	Description
	On/Off power button Turns the system on and off.
	USB-to-PC Connects a Microsoft™ Windows™ computer or gateway application to the Virtuoso system.
	Network Connects a computer running the gateway to the Virtuoso system.
	USB ports (Type 2.0) Connects a USB drive or an external keyboard to the Virtuoso system.
	Accessory interface Connects the system controlled accessories.
	24 Vdc input Connects the ac power adapter to the Virtuoso system.

Vial Printer Test

Before you start normal operation of the Virtuoso Vial Identification System, test the label printing and scanning functions.

- [Printing a Test Vial](#)
- [Scanning the Test Vial Label](#)

Printing a Test Vial



CAUTION Be aware that using vials other than the 2 mL Thermo Scientific Virtuoso glass vials might permanently damage the Virtuoso Vial Identification System.

❖ To print a test vial

1. Follow the procedures in “[Installing the Virtuoso Vial Identification System](#)” on [page 3](#).

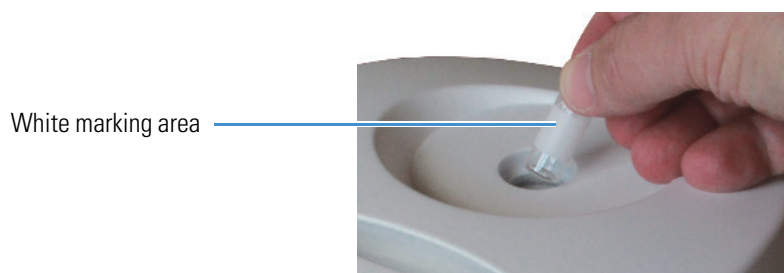
The Home screen displays the default single vial template ([Figure 4](#)).

2. Ensure the following for the new glass sample vial:
 - Measures overall 12 × 32 mm (0.5 × 1.26 in.)
 - Contains a white, Virtuoso-designed marking area.
3. Place the bottom of the vial into the top vial guide (or an attached multivial holder) and let it drop into the system ([Figure 2](#)).



CAUTION To avoid damaging the system, do not force the vial into the opening.

Figure 2. Dropping the new, empty vial into the system



If you have the correct vial type, the system prints a barcode on the marking area ([Figure 3](#)) and releases the vial into the collection tray. If the vial is upside down, the system emits a warning sound and passes the vial through the system unprinted.

Figure 3. Printed vial label with attached cap



Continue to the next section, “[Scanning the Test Vial Label](#),” to complete the print test.

Scanning the Test Vial Label

❖ To scan the test vial

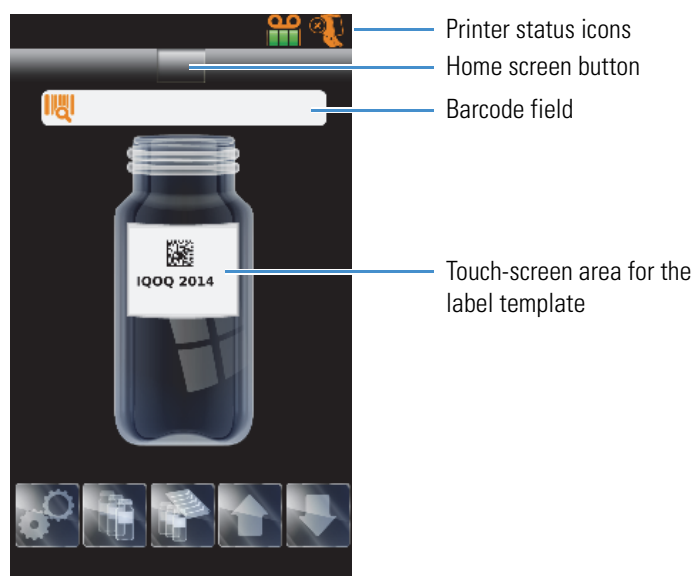
1. With the barcode facing upward, place the test vial under the left side of the display.

The screen displays blue target lines to help align the vial under the scanner.

2. Do one of the following:

- If the scanner can read the barcode, the data appears in the barcode field at the top of the screen (Figure 4). Keep the test vial as a record of this test.

Figure 4. Home screen



—or—

- If the scanner cannot read the barcode, check that the printing tape is correctly loaded and is not loose (see “[Replacing the Printer Tape](#)” on [page 47](#)). Then, print another test vial (see “[Printing a Test Vial](#)” on [page 9](#)).

If after a few attempts the scanner cannot read the barcode, contact Thermo Fisher Scientific Technical Support; see “[Contacting Us](#)” on [page xi](#).

Creating Labels, Sequences, and Protocols

This chapter describes how to create a vial label and a vial sequence, how to save a vial sequence as a protocol, and how to select a protocol.

Tip See [page 51](#) for icon descriptions.

Contents

- [Creating a Vial Label](#)
- [Creating a Vial Sequence](#)
- [Saving a Vial Sequence as a Protocol](#)
- [Selecting a Saved Protocol](#)

Creating a Vial Label

Use the following procedure to create a single vial label.

❖ To create a vial label

1. Make sure that the Home screen displays a single vial (default template).
2. Do any of the tasks described in [Table 4](#).

Table 4. Possible tasks

Task	Procedure	Icon
Edit the label data field.	See “Editing the Label Data Fields” on page 17 .	–
Change the label template.	See “Changing the Template” on page 18 .	
Print the vial label.	See “Printing a Vial Label” on page 22 .	–

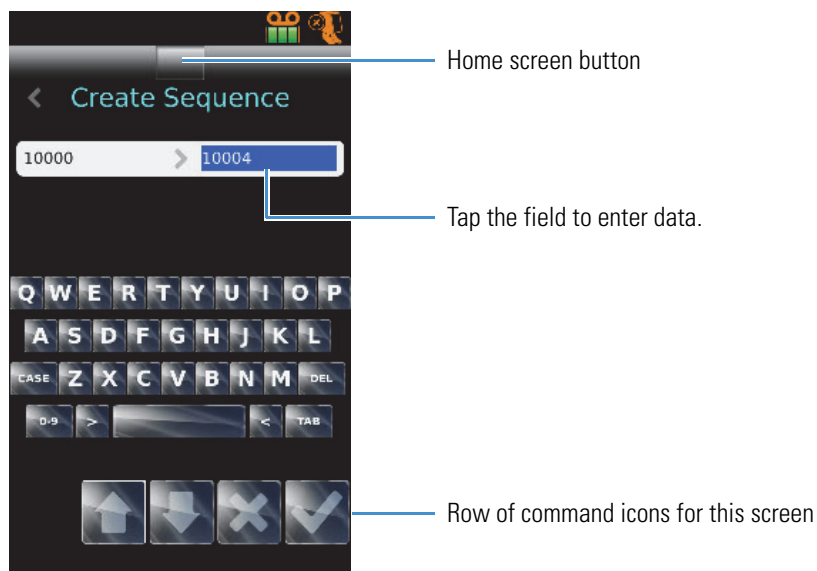
Creating a Vial Sequence

Use the following procedure to create a series (sequence) of two or more vial labels. You can optionally save the sequence as a protocol (see the next section).

❖ To create a vial sequence

1. On the Home screen, tap the **Sequence** icon, , to display the Create Sequence screen.
2. Tap the right side of the data field and enter the last value for the sequence ([Figure 5](#)).

Figure 5. Create Sequence screen



3. Do one of the following:
 - To accept the sequence range, tap the **Accept** icon, .
 - The Home screen appears with a graphic representation of the sequence ([Figure 6](#)).
 - To exit without saving and return to the previous screen, tap the **Cancel** icon, .
 - The system does not save the sequence data when you cancel the function.

Figure 6. Vial sequence



Tap the **Forward** arrow to advance to the next label in the sequence.

4. Do one of the tasks described in [Table 5](#).

Table 5. Possible tasks

Task	Procedure	Icon
Save the sequence as a protocol.	See “ Saving a Vial Sequence as a Protocol ” on page 14.	
Print one or more vial labels in the sequence.	See Chapter 5, “Printing Labels on Vials.”	—
Exit the Sequence function and return to the previous screen.	Tap the Cancel icon.	
Delete a vial from the sequence.	See “ Deleting a Vial from a Sequence ” on page 20.	

Saving a Vial Sequence as a Protocol

Use the following procedure to save a sequence of vials as a protocol with a unique name.

❖ To save a vial sequence as a protocol

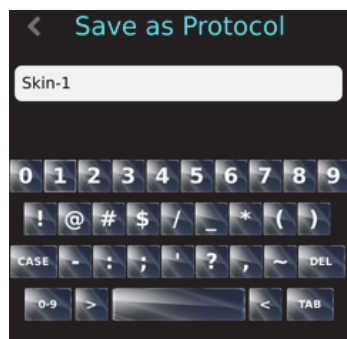
1. Display the vial sequence and make sure that the label data is correct (Figure 7).

Figure 7. Vial sequence



2. Tap the **Protocol** icon, , to display the Save As Protocol screen (Figure 8).

Figure 8. Save As Protocol screen



3. Type a unique protocol name (for example, **Skin-1**).
4. Do one of the following:

- To save the protocol name, tap the **Accept** icon, .

The Home screen appears with a graphic representation of the saved protocol.

- To exit without saving and return to the previous screen, tap the **Cancel** icon, .

The system does not save the protocol name when you cancel the function.

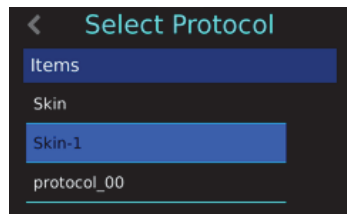
Selecting a Saved Protocol

Use the following procedure to display a protocol (vial sequence) that was previously saved.

❖ To select a protocol

1. On the Home screen, tap the **Protocol** icon, , to display the Select Protocol screen (Figure 9).

Figure 9. Select Protocol screen



2. From the list of protocols, tap the protocol name that you want (for this example, **Skin-1**).
3. Do one of the following:
 - To select the protocol, tap the **Accept** icon, . The Home screen appears with a graphic representation of the selected protocol.
 - To exit without saving and return to the previous screen, tap the **Cancel** icon, . The system does not select the protocol when you cancel the function.

Editing Labels, Sequences, and Protocols

This chapter describes how to edit the label data field, edit any vial in a sequence, delete any vial in a sequence, and change the default vial template.

Tip See [page 51](#) for icon descriptions.

Contents

- [Editing the Label Data Fields](#)
- [Changing the Template](#)
- [Editing a Vial in a Sequence](#)
- [Deleting a Vial from a Sequence](#)

Editing the Label Data Fields

Use the following procedure to edit the label data field.

❖ To edit a label data field

1. On the Home screen, tap the label to display the edit screen ([Figure 10](#)).
2. Use the keyboard to edit the label, and then tap the **Accept** icon, .

Changing the Template

Use the following procedure to change the default template to a different format.

❖ To change the label template

1. On the Home screen, tap the label to display the edit screen (Figure 10).

Figure 10. Label edit screen (text and barcode example)



2. Tap the **Template** icon, , to display the Select Template screen (Figure 11).

Figure 11. Select Template screen



3. From the list of templates, tap the template name that you want to select (for example, **template_01**).
4. Tap the **Accept** icon, .

The data appears in the new template format. If there was a barcode, it converts to the applicable alphanumeric characters (Figure 12).

Figure 12. Label data converted to the new template



Editing a Vial in a Sequence

Use the following procedure to edit any vial in a vial sequence.

❖ To edit a vial label in a vial sequence

1. On the Home screen, display the vial sequence (Figure 13).

Figure 13. Vial sequence (example)



Tap the **Forward** arrow to advance to the next label in the sequence.

2. Tap the **Back** or **Forward** arrow to display the vial that you want to edit.
3. Tap the label to display the edit screen.
4. Do any of the tasks described in Table 6.

Table 6. Possible tasks

Task	Procedure	Icon
Edit the label data field.	See “Editing the Label Data Fields” on page 17.	—
Change the label template.	See “Changing the Template” on page 18.	

5. When you are ready, tap the **Accept** icon, .

Deleting a Vial from a Sequence

Use the following procedure to delete one or more vials from a sequence. Then, you can save the sequence to the same or a new name.

❖ To delete a vial from a sequence

1. Display the vial sequence (Figure 13 on page 19).
2. Tap the **Back** or **Forward** arrow to display the vial that you want to delete (for example, vial 10 001).
3. Tap the **Delete** icon, .

The Home screen displays the next vial in the sequence (Figure 14).

Figure 14. Vial sequence adjusted after deleting vial 10 001



4. Repeat this procedure as needed to delete any other vials from the sequence.

Printing Labels on Vials

This chapter describes how to print individual vial labels, an entire sequence of vial labels, or specific vial labels within a sequence.



CAUTION Be aware that using vials other than the 2 mL Thermo Scientific Virtuoso glass vials might permanently damage the Virtuoso Vial Identification System.

Tip See [page 51](#) for icon descriptions.

Contents

- [Printing a Vial Label](#)
- [Printing a Sequence of Vial Labels](#)
- [Printing a Vial Label Within a Sequence](#)

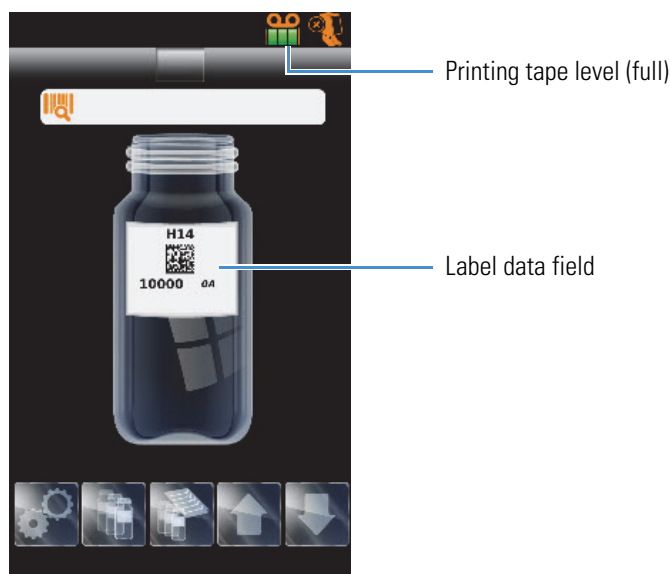
Printing a Vial Label

Use the following procedure to print a label on one vial.

❖ To print one vial label

1. On the Home screen, display the single vial ([Figure 15](#)).

Figure 15. Single vial—label data field (example H14 10 000 0A)



2. Place the bottom of the vial into the top vial guide (or multivial holder) and let it drop into the system ([Figure 2](#) on [page 9](#)).

The system releases the printed vial into the collection tray. If you previously set the label field to automatically increase to the next value, the label field on the screen increases to the next value (for example, [Figure 16](#) displays 10 001).

Figure 16. Adjusted single label data field (example H14 10 001 0A)



Printing a Sequence of Vial Labels

Use the following procedure to print a sequence of vial labels. You can load each vial into the system one at a time or use the multivial holder to automatically load the vials.

❖ To print a sequence of vials

1. Display the vial sequence (Figure 13 on page 19).
2. Do one of the following:
 - Manually load each vial into the system. Place the bottom of the vial into the top vial guide and let it drop into the system.

The system releases the printed vial into the collection tray. The Home screen displays the next vial in the sequence.

- Automatically load the vials into the system as follows:
 - i. Install up to 10 vials into the multivial holder—top opening first.
 - ii. Attach the vial guide to the open end of the filled holder.
 - iii. Turn the holder over and insert it into the system's top opening.

The system releases each printed vial into the collection tray.

Printing a Vial Label Within a Sequence

Use the following procedure to print a specific vial label within a sequence.

❖ To print a specific vial label within a sequence

1. On the Home screen, display the vial sequence.
2. Tap the **Back** or **Forward** arrow to display the vial that you want to print (for example, Figure 17 displays vial 10 001).

Figure 17. Selected vial 10 001 in the vial sequence



The selected vial is 10 001.
Vial 10 002 is next in the sequence
(shown behind/right).

5 Printing Labels on Vials

Printing a Vial Label Within a Sequence

3. Place the bottom of the vial into the top vial guide (or multivial holder) and let it drop into the system.

The system releases the printed vial into the collection tray. The display changes back to the first vial in the sequence with the printed vial no longer shown (Figure 18).

Figure 18. Vial sequence adjusted after printing vial 10 001



The selected vial is 10 000.
Vial 10 002 is now next in the
sequence (shown behind/right).

Administrator Settings

This chapter describes the administrator Settings menu for the Virtuoso Vial Identification System.

Tip See [page 51](#) for icon descriptions.

Contents

- [Settings Menu](#)
- [General Menu](#)
- [Data Menu](#)
- [Using the Data Commands](#)

❖ To display the Settings menu

On the Home screen, tap the **Setup** icon, , to display the Settings menu ([Figure 19](#)).

Figure 19. Settings menu screen



IMPORTANT When you open the Settings menu, the Home screen returns to a single vial image with the default data.

Settings Menu

Table 7 shows the main screens under the Settings menu and applicable procedures.

Table 7. Screens under the Settings menu (Sheet 1 of 3)

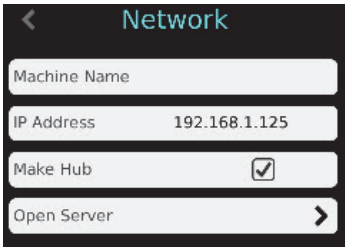
Name	Screen	Description
Network		Shows information for a network connection. (The Make Hub feature is reserved for future use.)
WiFi	WiFi is off (default).  WiFi is on, but not connected.  WiFi is on and connected. 	Use the WiFi screen to turn on and connect to a WiFi network. ❖ To connect to a WiFi network 1. Tap the WiFi On check box. 2. From the list of networks, tap a network name to open the Enter WiFi Key screen. 3. Type the key (password), and then tap the Accept icon, . ❖ To disconnect from a WiFi network Clear the WiFi On check box.

Table 7. Screens under the Settings menu (Sheet 2 of 3)

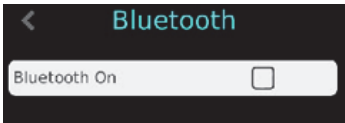
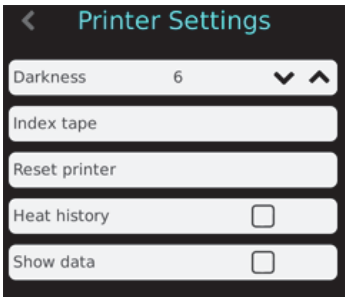
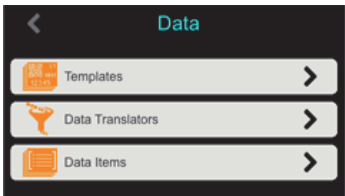
Name	Screen	Description
Bluetooth™	Bluetooth is off (default).  Bluetooth is on. 	Use the Bluetooth connection to send printer settings from one Virtuoso system to another. ❖ To link both systems through a Bluetooth connection - For each system, tap the Bluetooth On check box. The display shows a list of devices after a slight delay. - From the list of devices, tap the name or designation of the other system. - Tap the Accept icon, . ❖ To send the printer settings to the other system Tap Clone. After the other system receives the new printer settings, the In Tray icon, , appears at the top of its screen. For instructions on how to install the settings on the other system, see page 29. ❖ To turn off the Bluetooth connection Clear the Bluetooth On check box.
General		For information about these categories, see Table 8 on page 29.
User	—	Configure the system to require that a user log in manually or with their company badge before they can print any vials.

Table 7. Screens under the Settings menu (Sheet 3 of 3)

Name	Screen	Description
Printer		Use the Printer screen to set the label text darkness, reset the printer, and access other options.
Data		For information about these categories, see Table 9 on page 31. For instructions, see “Using the Data Commands” on page 31.

General Menu

Table 8 shows the main screens under the [General](#) menu and applicable procedures.

Table 8. Screens under the General menu (Sheet 1 of 2)

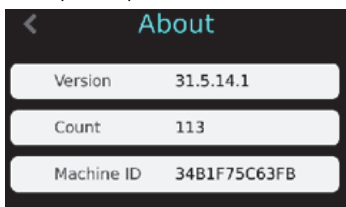
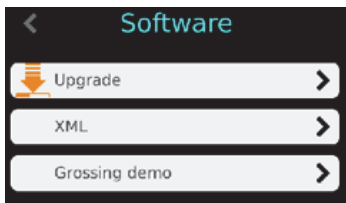
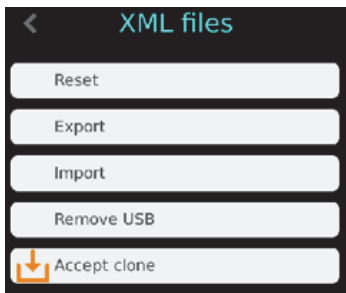
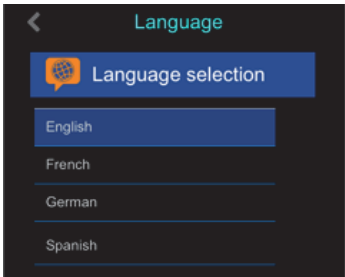
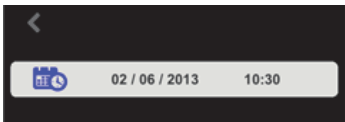
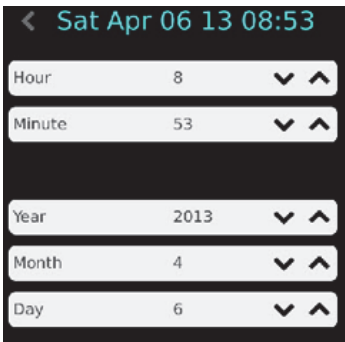
Name	Screen	Description
About	Example only. 	Shows the software version number, number of printed vial labels, and the system ID number.
Software	 	Use the Software screen to upgrade the system software or to install printer settings from another system (see “To send the printer settings to the other system” on page 27). ❖ To upgrade the touch-screen software 1. Connect a USB drive to the system’s USB port. 2. Choose Upgrade, and then tap Yes on the confirmation screen to upgrade the software file. The system restarts after installing the file. ❖ To export the printer settings (XML file) 1. Connect a USB drive to the system’s USB port. 2. Choose XML > Export, and then tap Yes on the confirmation screen to export the XML file to the USB device in a folder named XML. ❖ To manually install the new printer settings (XML file) 1. Connect the USB drive that contains the XML file to the system’s USB port. 2. Choose XML > Import, and then tap Yes on the confirmation screen to overwrite the current printer settings with the imported settings. ❖ To install the new printer settings sent remotely 1. Make sure the system displays the In Tray icon, . 2. Choose XML > Accept Clone, and then tap Yes on the confirmation screen to overwrite the current printer settings with the imported settings.

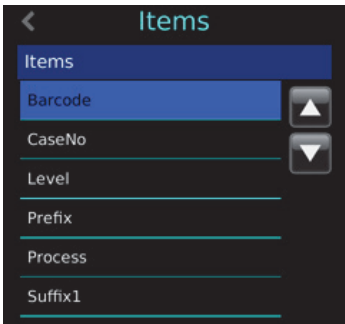
Table 8. Screens under the General menu (Sheet 2 of 2)

Name	Screen	Description
International	English is the default setting.  	Use the International screen to set the display language. ❖ To change the display language 1. On the International screen, tap the row. 2. Tap the language that you want to display. 3. Tap the Accept icon, .
Date & Time	 	Use the Date & Time screen to set the date and time. ❖ To change the date, time, or both 1. On the Date & Time screen, tap the row. 2. Tap the Up and Down arrows to change the date, time, or both. 3. Tap the Accept icon, .

Data Menu

Table 9 shows the main screens under the Data menu.

Table 9. Screens under the Data menu

Name	Screen	Description
Templates		For instructions, see “Templates” on page 40.
Data Translators		For instructions, see “Data Translators” on page 35.
Data Items		For instructions, see “Data Items” on page 32.

Using the Data Commands

This section describes how to use the following data commands (see also Table 9):

- Data Items
- Data Translators
- Templates

Note You can tap the Cancel icon, , at any time to return to the previous screen.

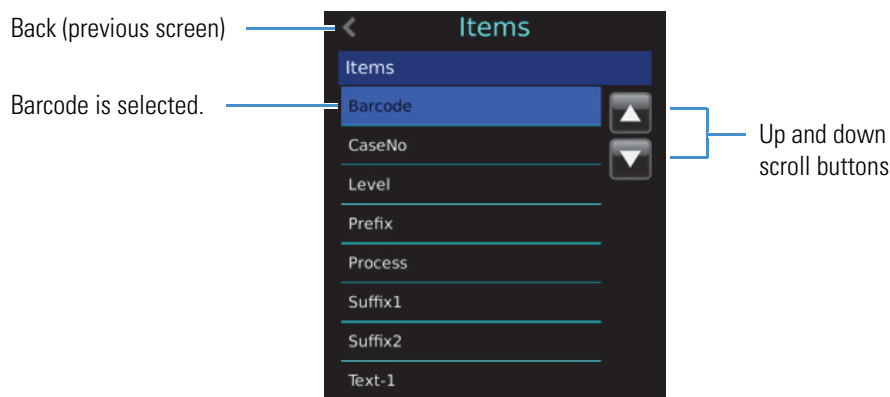
Data Items

Use data items to store various types of data that appear in the templates. For example, the following procedure creates a new data item (barcode).

❖ To add a barcode item

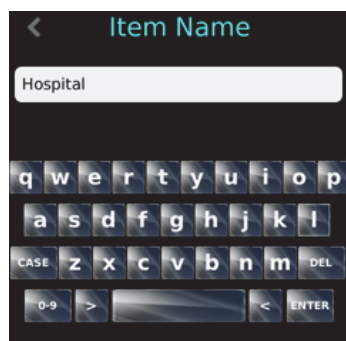
1. On the Home screen, tap the **Setup** icon, , and then choose **Data > Data Items** to display the Items screen (Figure 20).

Figure 20. Items screen (Barcode item selected)



2. Tap **Barcode**, and then tap the **Add** icon, , to display the Item Name screen (Figure 21).

Figure 21. Item Name screen

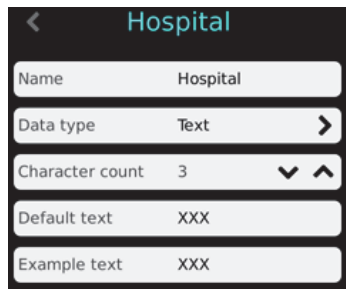


3. Type a name for the new item (for example, **Hospital**).

4. When you are ready, tap the **Accept** icon, .

The data item template appears with “Hospital” as the new screen name ([Figure 22](#)).

Figure 22. Template for the “Hospital” barcode item



5. Tap each template field that you want to edit ([Table 10](#)).

Table 10. Barcode template fields

Template field	Description
Name	Displays the item name.
Data Type	Select one of the following: - Text (default) - Numeric (numbers only) - List (see To add a list data type) - Note
Character Count	Enter the number of characters for the selected data type.
Default Text	Shows the defined default text. Tap to edit.
Example Text	Used for the template design only. Tap to edit.

6. Do one of the following:
- To add a list data type, follow the next procedure.
 - Tap the **Accept** icon, .

If you want to select “List” as the data type in [step 5](#) of the procedure “[To add a barcode item](#)” on [page 32](#), the following procedure shows an example of how to add to and select from the user-defined list values.

❖ **To add a list data type**

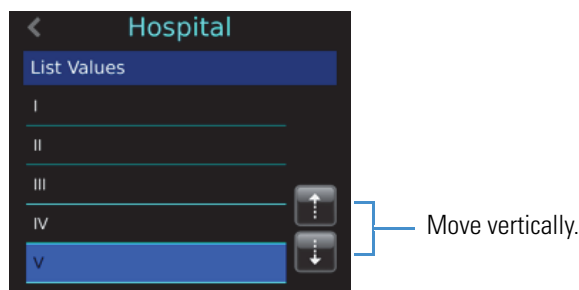
1. Continuing from the previous procedure, tap **Data Type** ([Figure 22](#) on [page 33](#)) to display the options ([Figure 23](#)).

Figure 23. List data types



2. Tap **List** to display the List Values screen ([Figure 24](#)).

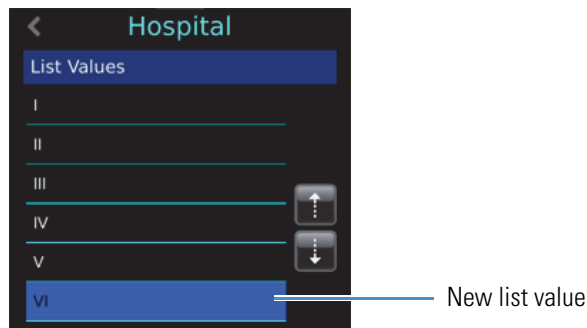
Figure 24. List Values screen



3. Tap the **Add** icon, , to display the Enter Name screen.
4. After you enter the new name, tap the **Accept** icon, .

The List Values screen displays the new list value ([Figure 25](#)).

Figure 25. Adjusted List Values screen



5. With the new list value selected (for example, VI), tap the **Accept** icon, .

Data Translators

Use the data translators to control how the system filters and formats incoming and outgoing data. As incoming data passes through the translator, it extracts sections and moves them into data items. For outgoing data, the translator builds a text string that consists of data items with or without delimiters (hyphens).

Delimited Data

Delimiters separate the data elements, which can vary in length, for example, H14-12345-01-0A.

- Incoming data example: “H14-12345-01-0A” scanned from a barcode translates into the following four data items.

Prefix:	H14	Suffix1:	01
CaseNo:	12345	Suffix2:	0A

- Outgoing data example: The text string “H14-12345-01-0A” translates to the following barcode.



Nondelimited Data

Data elements have fixed lengths (number of characters), for example, H1412345010A.

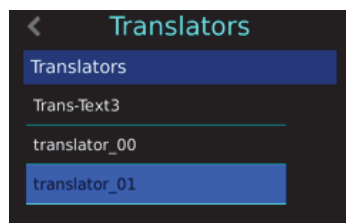
Adding a Translator for Delimited Data

Use the following procedure to add a data translator for delimited data.

❖ To add a translator for delimited data

1. On the Home screen, tap the **Setup** icon, , and then choose **Data > Data Translators** to display the Translators screen (Figure 26).

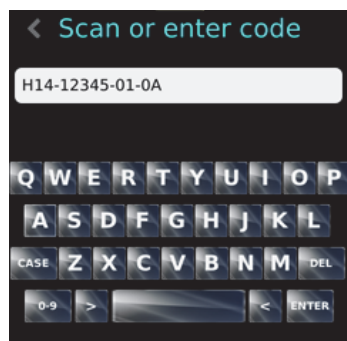
Figure 26. Translators screen



2. Tap the **Add** icon, , to display the Translator Name screen.

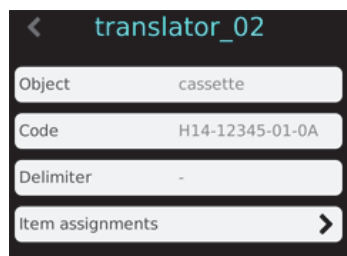
3. Type a name (for example, **translator_02**), and then tap the **Accept** icon, , to display the Scan or Enter Code screen.
4. Scan the code or manually enter it (for example, **H14-12345-01-0A**), inserting hyphens for the delimiter locations ([Figure 27](#)).

Figure 27. Scan or Enter Code screen (example H14-12345-01-0A)



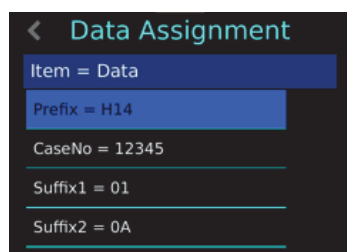
5. When you are ready, tap the **Accept** icon, , to display the translator data fields ([Figure 28](#)).

Figure 28. Translator template fields



6. Tap **Item Assignments** to display the Data Assignment screen ([Figure 29](#)).

Figure 29. Data Assignment screen (with delimiters)

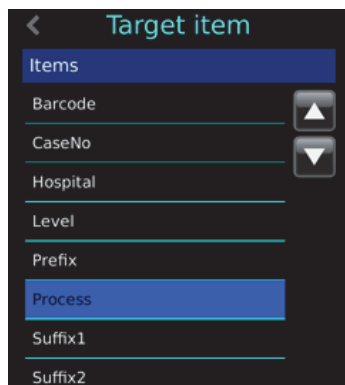


7. Make sure that the code separates into the correct data item fields.

[Figure 29](#) shows the example code separated into the default data items.

- If you need to edit the item name for a field, tap the field (for example, **Prefix**), and then tap the **Edit** icon, , to display the Target Item screen (Figure 30).

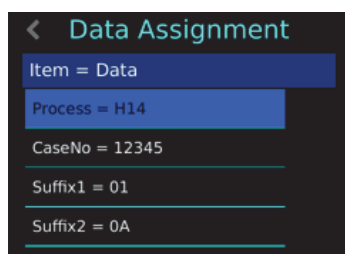
Figure 30. Target Item screen



- Tap the new item name (for example, **Process**), and then tap the **Accept** icon, .

The Data Assignment screen now shows “Process” as the item name for “H14” (Figure 31).

Figure 31. Adjusted Data Assignment screen



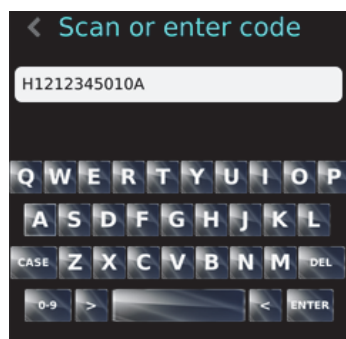
Adding a Translator for Fixed Length Data

Use the following procedure to add a data translator for fixed length data.

❖ To add a translator for delimited data

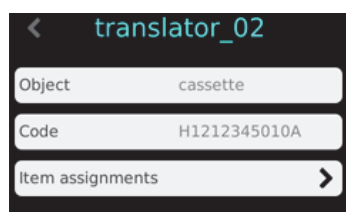
- On the Home screen, tap the **Setup** icon, , and then choose **Data > Data Translators** to display the Translators screen (Figure 26 on page 35).
- Tap the **Add** icon, , to display the Translator Name screen.
- Type a translator name, and then tap the **Accept** icon, , to display the Scan or Enter Code screen.
- Scan the code or manually enter it (for example, **H1212345010A**) (Figure 32).

Figure 32. Scan or Enter Code screen (example without delimiters)



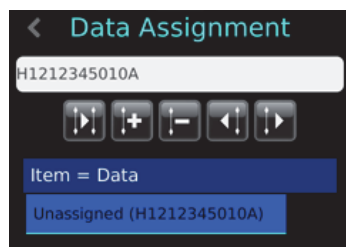
5. When you are ready, tap the **Accept** icon, , to display the translator data fields (Figure 33).

Figure 33. Translator template fields



6. Tap **Item Assignments** to display the Data Assignment screen (Figure 34).

Figure 34. Data Assignment screen (without delimiters)



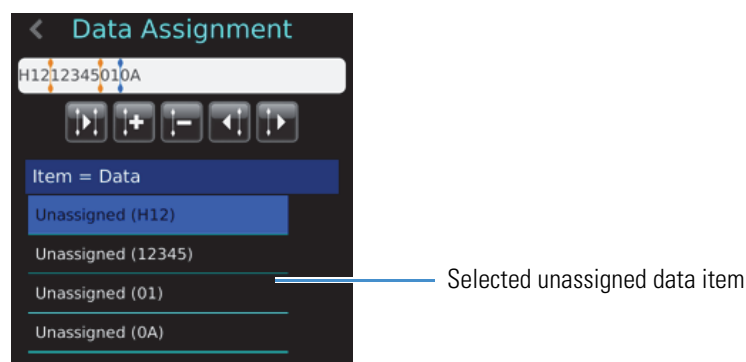
7. Add dividers to separate the data string into the required data elements.

Table 11 describes the divider control icons. When you select a divider, it turns blue. When you add a divider, the screen displays an unassigned data item.

Table 11. Divider icons

Icon	Meaning	Icon	Meaning
	Select the next divider.		Move the divider to the left.
	Add a new divider.		Move the divider to the right.
	Delete the selected divider.		

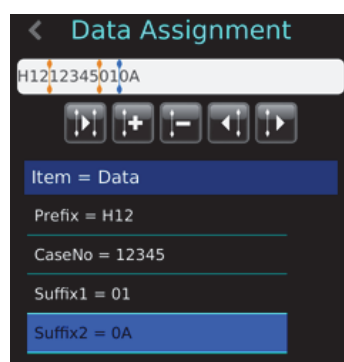
Figure 35. Data Assignment screen showing dividers and unassigned item types



8. Assign a data item (name) to each data element as follows:
 - a. Tap an unassigned data item, and then tap the **Edit** icon, , to display the Target Item screen.
 - b. Tap the applicable item name (for this example, **Prefix**), and then tap the **Accept** icon, .
 - c. Repeat [step 8a](#) and [step 8b](#) to assign the remaining item types.

[Figure 36](#) shows the assigned data items.

Figure 36. Data Assignment screen showing dividers and assigned item types



9. Tap the **Accept** icon, .

Templates

Use the templates to control how the system prints the data fields and barcodes. You can change the template design by using different fonts, font sizes, and barcodes.

- [Adding a Template](#)
- [Editing a Template](#)

Adding a Template

Use the following procedure to add a template design.

❖ To add a template

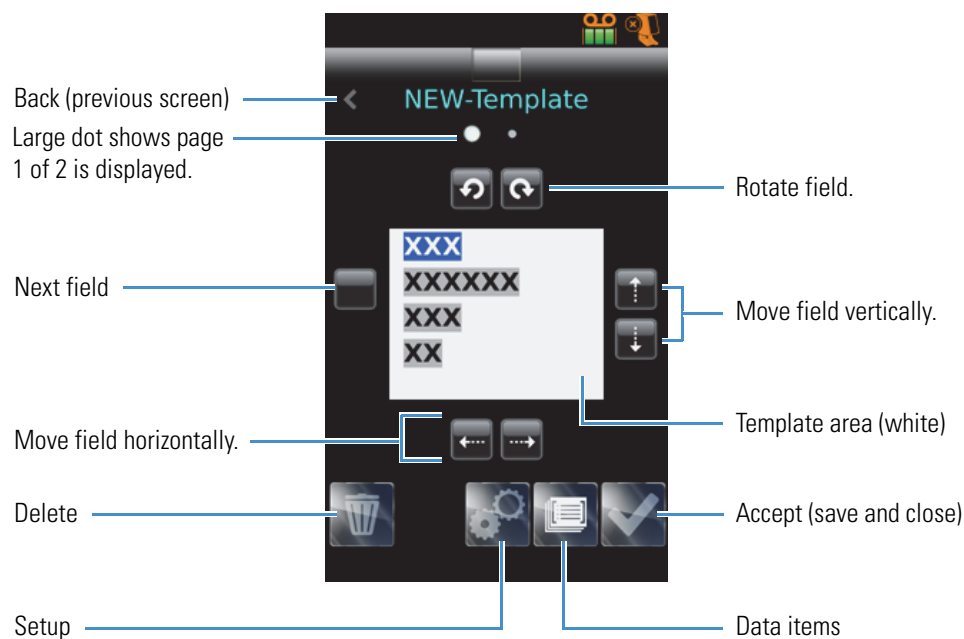
1. On the Home screen, tap the **Setup** icon, , and then choose **Data > Templates** to display the Templates screen ([Figure 37](#)).

Figure 37. Templates screen



2. Tap the **Add** icon, , to display the Template Name screen.
3. Type a template name (for example, **NEW-Template**), and then tap the **Accept** icon, , to display the Translators screen.
4. Tap the translator that you want to use, and then tap the **Accept** icon, , to display the template edit screen ([Figure 38](#)).

Figure 38. Template edit screen (page 1 of 2)



5. Do one of the following:

- If you want to change the template, follow the next procedure [Editing a Template](#).
- If the displayed template is acceptable, tap the **Accept** icon, .

Editing a Template

Use the following optional procedures, as applicable, to edit a template design.

- [To display the template for editing](#)
- [To edit the data field location](#)
- [To edit the data item font](#)
- [To edit the data item properties](#)
- [To add a data item to the template](#)
- [To add a barcode item to the template](#)

❖ **To display the template for editing**

1. On the Home screen, tap the **Setup** icon, , and then choose **Data > Templates** to display the Templates screen.
2. Tap the template that you want to edit, and then tap the **Edit** icon, , to display the template edit screen.

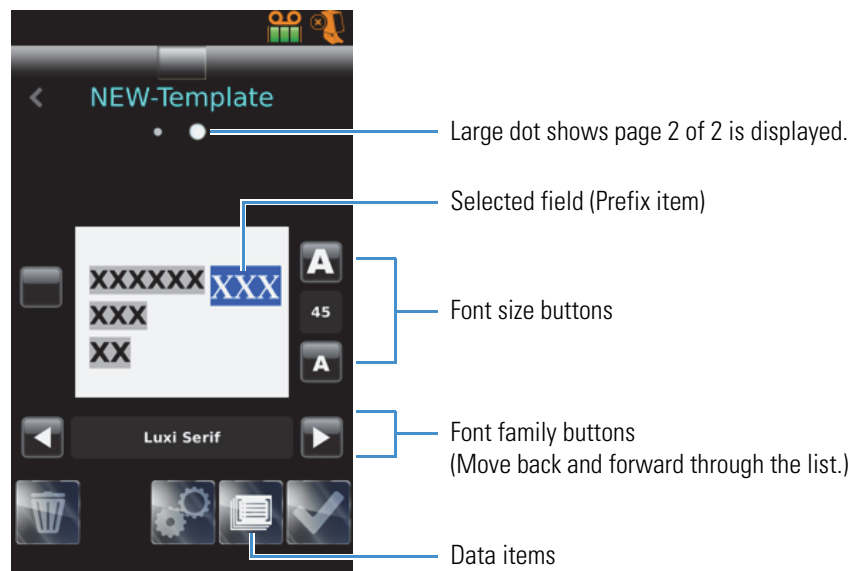
❖ **To edit the data field location**

1. Follow the procedure [To display the template for editing](#) to display the template edit screen.
2. Select and move the data fields as needed ([Figure 38](#) on [page 41](#)).
3. If you have other edits to make, see “[Editing a Template](#)” on [page 41](#).
4. After you finish the edits, tap the **Accept** icon, .

❖ **To edit the data item font**

1. Follow the procedure [To display the template for editing](#) to display the template edit screen.
2. Tap the smaller dot at the top of the screen to display page 2 ([Figure 39](#)).

Figure 39. Template edit screen (page 2 of 2)



3. Select the data fields and change the font family and size as needed.
4. If you have other edits to make, see “[Editing a Template](#)” on [page 41](#).
5. After you finish the edits, tap the **Accept** icon, .

❖ **To edit the data item properties**

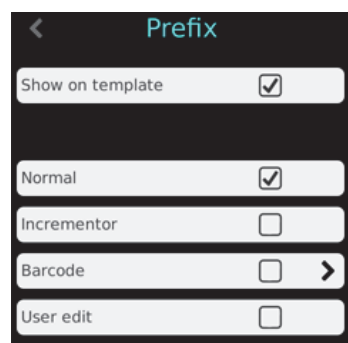
1. Follow the procedure “[To display the template for editing](#)” on [page 42](#) to display the template edit screen.
2. Tap the data item to check the item assignment that is displayed at the bottom of the screen¹ (not shown for this example, Prefix).
3. Tap the **Data Items** icon, , to display the Template Items screen with the template item selected (for this example, Prefix in [Figure 40](#)).

Figure 40. Template Items screen



4. Tap the **Edit** icon, , to display the available properties for this item ([Figure 41](#)).

Figure 41. Prefix item properties



5. Tap the check box for the item setting that you want.

For the barcode item, see [To add a barcode item to the template](#) for the additional settings.
6. If you have other edits to make, see “[Editing a Template](#)” on [page 41](#).
7. After you finish the edits, tap the **Accept** icon, .

¹ This document excludes the bottom of the screen information from all figures.

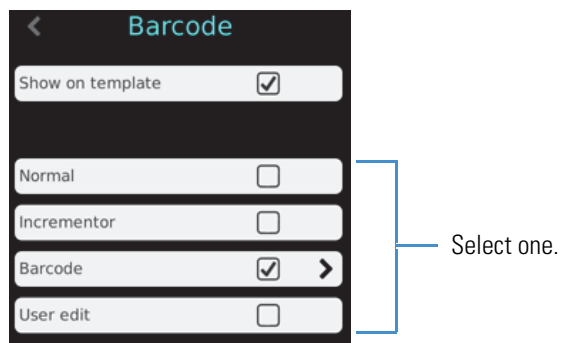
❖ **To add a data item to the template**

1. Follow the procedure “To display the template for editing” on page 42 to display the New Template screen.
2. Tap the **Data Items** icon, , to display the Template Items screen (Figure 40 on page 43).
3. Tap the **Add** icon, , to display the Select Item screen.
4. Tap the data item that you want to add, and then tap the **Accept** icon, .
5. If you have other edits to make, see “Editing a Template” on page 41.
6. After you finish the edits, tap the **Accept** icon, .

❖ **To add a barcode item to the template**

1. Follow the procedure “To display the template for editing” on page 42 to display the template edit screen.
2. Tap the **Data Items** icon, , to display the Template Items screen (Figure 40 on page 43).
3. Tap the **Barcode** item, and then tap the **Edit** icon, , to display the available properties (Figure 42).

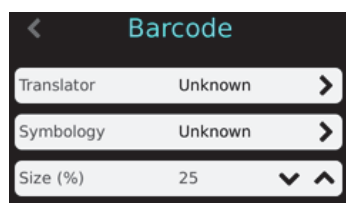
Figure 42. Barcode item properties



4. For the Barcode property, tap the **Forward** arrow to display additional settings (Figure 43).

For this example, the Translator and Symbology properties are “unknown.”

Figure 43. Additional barcode properties



5. Tap each unknown item, set the property, and then tap the **Accept** icon, .
6. After you set all of the properties, tap the **Accept** icon, .
7. If you have other edits to make, see [“Editing a Template”](#) on [page 41](#).
8. After you finished all edits, tap the **Accept** icon, .

Maintenance

This chapter describes the maintenance tasks for the Virtuoso Vial Identification System.

Contents

- [Cleaning the System](#)
- [Replacing the Printer Tape](#)

Cleaning the System

Follow these procedures as needed.

❖ To clean the system

1. Unplug the system from the wall outlet.
2. Clean the areas of the system as follows:
 - For the touch-screen display and barcode scanner window, use a soft cloth or paper towel with a suitable screen cleaner.
 - For the enclosure, use a soft cloth or paper towel with warm water and mild detergent (for example, Liquinox™).

Replacing the Printer Tape

To check the tape level or replace the used tape, follow this procedure. To order more tape, see [Chapter 8, “Replaceable Parts.”](#)

❖ To replace the printer tape

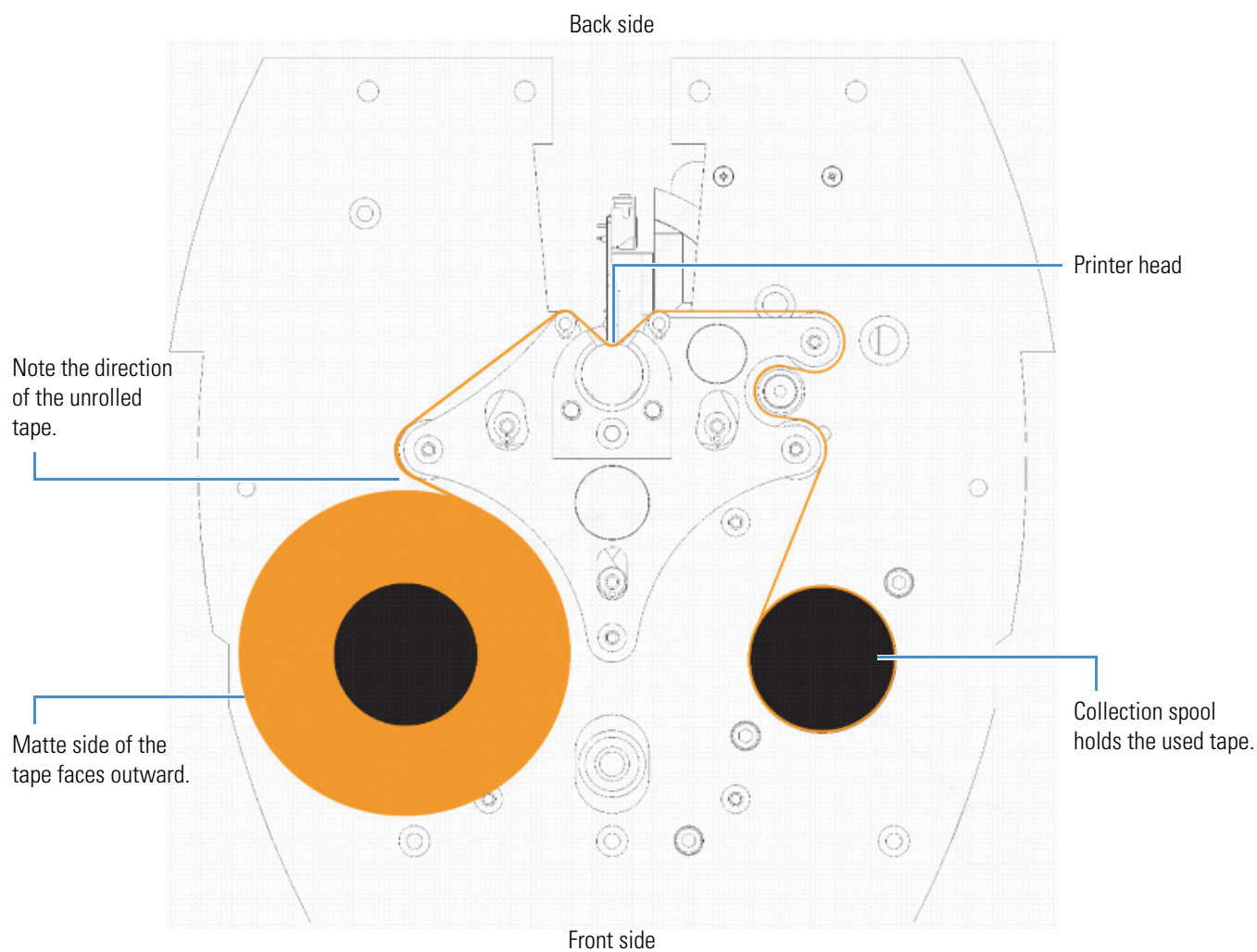
1. Unplug the system from the wall outlet.
2. Open the top of the system (a tool is not required).
3. Lift up the used tape from the collection spool ([Figure 44](#)) and discard.
4. Carefully feed the new tape into the system as shown in [Figure 44](#).

5. Close the top of the system.

If you want, you can repeat the vial print test (see [page 8](#)).

6. Plug the power cord into the wall outlet.

Figure 44. Routing the Virtuoso printer tape through the system (top view)



Replaceable Parts

This chapter lists the consumable and replaceable parts for the Virtuoso Vial Identification System and their corresponding part numbers. To order any of these parts, contact your local Thermo Fisher Scientific service representative or go to www.thermoscientific.com/virtuoso.

Contents

- [Spare Parts](#)
- [Accessories](#)
- [Consumables](#)

Spare Parts

Multivial holder, holds 10 vials, 33 cm (13 in.) long	60180-VT501
Printer tape, black	60180-VT500
Vial collection tray	60180-VT502

Accessories

AC power adapter	SP50008
Power supply cord	
Europe: CEE 7 plug	SP50010
United Kingdom: BS 1363 plug	SP50009
United States: NEMA 5-15 plug	SP50007

Consumables

Detergent, Liquinox, 4.5 L (1 gal)	Fisher Scientific 50-821-298
Screen guard (stick-on material for scanner window)	60180-VT503
Vials, glass, 2 mL	www.thermoscientific.com/virtuoso

Icons

This appendix defines the main touch-screen icons for the Virtuoso Vial Identification System.

- [Printer Status](#)
- [Commands](#)
- [Settings Menu](#)
- [General Menu](#)
- [Data Menu](#)

Printer Status

[Table 12](#) defines the printer status icons that appear at the top of the screen.

Table 12. Printer status icons

Icon	Meaning	Icon	Meaning
	System is busy.		Full tape level
	System is offline.		Low tape level
	System is ready.		Very low tape level
	New printer settings are available (see page 29).		

Commands

Table 13 defines the command icons that appear at the bottom of the screen.

Table 13. Command icons

Icon	Meaning	Icon	Meaning
	Opens the administrator Settings menu (see Table 14).		Index field: Increase
	Creates a sequence.		Index field: Decrease
	Opens a protocol.		Go to the previous screen. (Back) ^a
	Change a template.		Go to the next screen. (Forward) ^a
	Displays the Template (data) Items screen.		Adds an item.
	Accepts the change, and then returns the display to the previous screen.		Edits the selected item.
	Cancels the screen changes.		Deletes the selected item.

^a These icons also appear near the top of the screen.

Settings Menu

Table 14 defines the icons that appear in the Settings menu. When the system connects to a WiFi or Bluetooth network, the corresponding icon appears in the printer status area.

Table 14. Settings menu icons (Sheet 1 of 2)

Icon	Meaning	Icon	Meaning
	Network settings		User settings
	WiFi settings		Printer settings

Table 14. Settings menu icons (Sheet 2 of 2)

Icon	Meaning	Icon	Meaning
	Bluetooth settings		Displays the Data menu; see Table 16 .
	Displays the General menu; see Table 15 .		

General Menu

[Table 15](#) defines the icons that appear in the General menu.

Table 15. General submenu icons

Icon	Meaning	Icon	Meaning
	Printer information		Keyboard settings
	Software menu—Upgrade, XML, and Grossing Demo		Touch-screen display settings
	Language settings		Sound settings
	Date and time settings		Scanner (barcode reader) settings

Data Menu

[Table 16](#) defines the icons that appear in the Data menu.

Table 16. Data submenu icons

Icon	Meaning	Icon	Meaning
	Displays the settings for data items.		Displays the settings for templates.
	Displays the settings for data translators.		

Printer Specifications

This appendix lists the specifications for the Virtuoso Vial Identification System.

Item	Specification
Virtuoso system	
Dimensions	14 × 29.5 × 20 cm (<i>w × h × d</i>) (5.5 × 11.6 × 7.9 in.) (<i>w × h × d</i>)
Weight	3.8 kg (8.3 lb)
Input voltage	24 Vdc
Input current	1 A
Print resolution	300 dpi
Print speed	3–5 seconds per vial (full area)
Vial size	12 × 32 mm (0.5 × 1.26 in.)
Laboratory environment	
Altitude	Up to 2000 m (1.24 miles)
Pollution degree	2
Relative humidity (RH)	Maximum 80% RH for temperatures up to 31 °C (88 °F) decreasing linearly to 50% RH at 40 °C (104 °F)
Temperature	- Operating range: 5–40 °C (41–104 °F) - Recommended range: 15–30 °C (59–86 °F) Performance might deteriorate if you operate the system outside the recommended range. - Storage range: –25 to 45 °C (–13 to 113 °F) Store at these extreme low and high temperatures for short periods only.
Transient overvoltage category	II



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