User Guide

# MilliSentials™
# Lab Labeling System


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**MISELLABSA**
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Millipore®

## MilliSentials™ Lab Labeling System Printer



## MilliSentials™ Lab Labeling System Software V2



## Appendix: Setup of ZD620 Model Printer (Gen 1 Printer)

## Introduction

The MilliSentials™ Lab Labeling System is an intuitive labeling system combining laboratory grade adaptable labels, a compact printer with wireless network capability, and a custom developed software to streamline laboratory labeling workflows.

## What's in the Box


### Watch the Setup Video

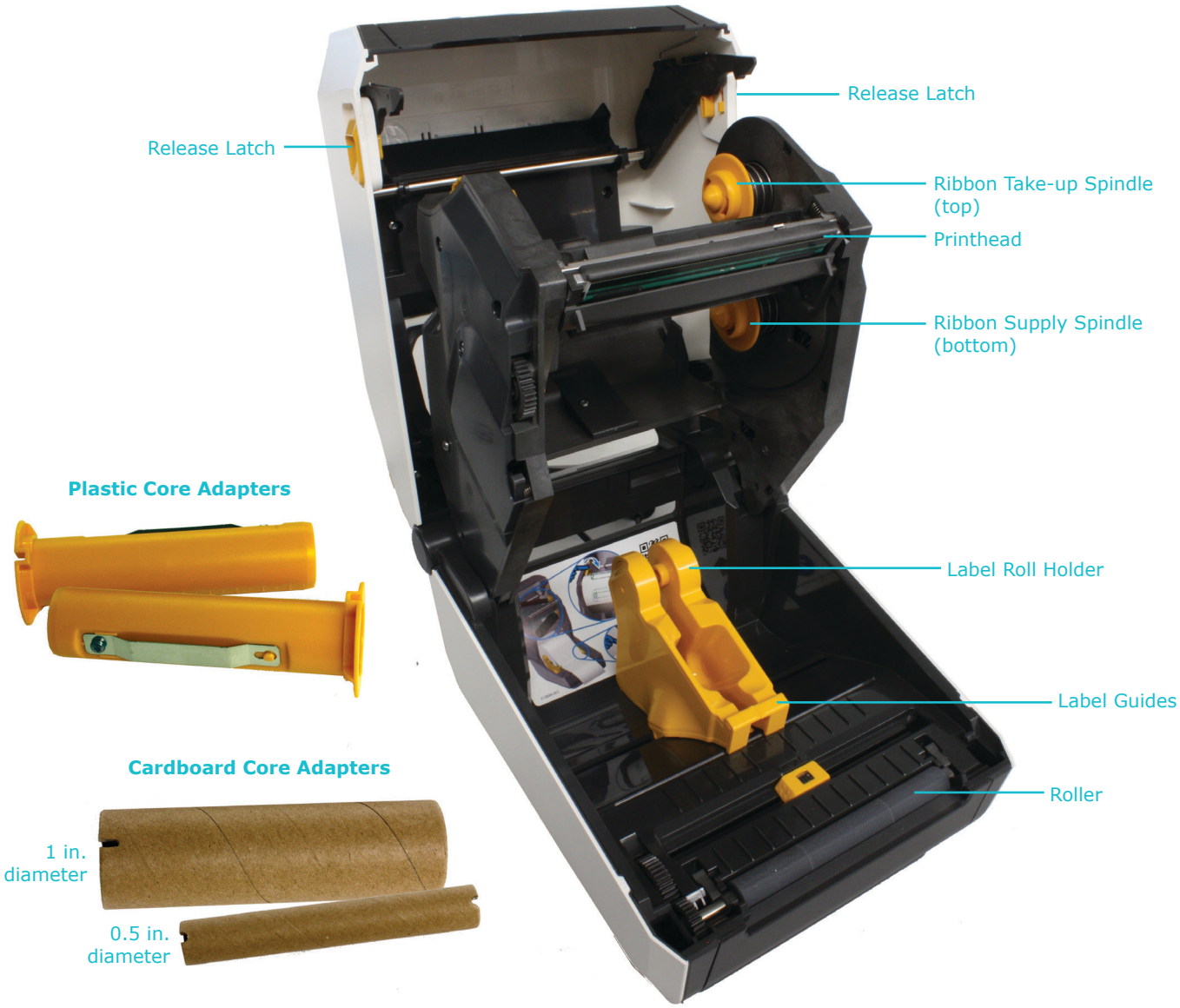
View the code using your smart phone's camera (iPhone® or Android™) to access the setup video webpage and watch the video for step by step instructions.

The video is also available at SigmaAldrich.com on the Setting up MilliSentials™ Lab Labeling System page.

### MilliSentials™ Lab Labeling System Software

Download the latest software here.

## Identify Internal Components



# Printer Ribbon Installation

The printer should be powered off and unplugged during this step. You will need:

- MilliSentials™ Lab Printer Ribbon (taken out of the bag but not unwrapped)
- One (1) plastic core adapter
- 1 in. diameter cardboard core adapter
- MilliSentials™ Lab Printer

**Note:** there are two (2) plastic core adapters included with your system. They are the same. Use only one for ribbon installation.

1. Open the printer by pulling the release latches on either side of the printer toward you until you hear a click. Lift the lid.

   **Note:** For ease-of-use the internal parts for ribbon and label installation are yellow.

2. Gently unwrap the clear plastic packaging, keeping it adhered onto the end of the ribbon.

   **Important:** Do not remove clear plastic layer.

3. Hold the ribbon so that the Zebra® logo inside the ribbon core faces to the right.

4. Hold the plastic core adapter so the notches are on the left, and slide it through the ribbon core. The ribbon should feed from the bottom (see drawing). Center the ribbon core on the plastic core adapter.

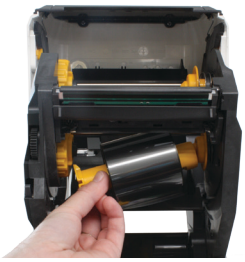
   **Note:** Inserting the plastic core adapter through the ribbon core requires some force.

Ribbon Orientation

Ribbon feeds from bottom

5. Locate the bottom supply spindles in the printer. With the right side of the loaded plastic core adapter, push against the right supply spindle spring. Match up the notches of the plastic core adapter to the supply spindle on the left.

Step 5



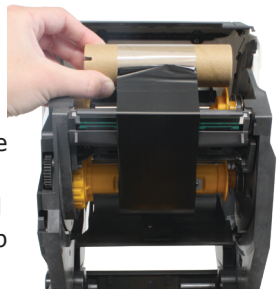
6. Unwrap the ribbon ensuring the adhesive packaging still remains attached.
7. Hold the 1 in. cardboard core adapter with the notches on the left.
8. With the adhesive from the ribbon packaging facing up, place the 1 in. cardboard adapter onto the adhesive so that it is centered.
9. Roll the adapter away from you to wind the excess around the cardboard core adapter until the end of the ribbon is visible.

   **Note:** If the plastic ribbon packing is removed while unpacking, use adhesive tape (or a MilliSentials™ Lab Adaptable Label) to secure the ribbon to the cardboard core adapter.

Step 6

10. Gently pull the cardboard core adapter and ribbon up and over the printhead. Push the right side of the cardboard core adapter into the right side take-up spindle spring. Match up and lock the notches of the cardboard core adapter into the take-up spindle on the left.

Step 10



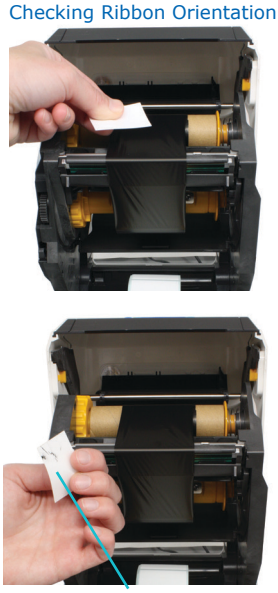
11. Take any slack out of the ribbon by gently turning the cardboard core adapter/take-up spindle away from you. The spindle will click as you roll it. Ribbon is now installed.

## TIP: Check Ribbon Orientation

To ensure that you've installed the ribbon correctly, peel one MilliSentials™ Lab Adaptable Label from the roll. With the adhesive facing down, gently place the adhesive onto exposed ribbon against the cardboard core adapter. Allow the label to adhere slightly to the ribbon, and then remove it.

- If the label adhesive has black markings from the ribbon, then the ribbon is installed in the correct orientation.
- If the label adhesive does not have black markings from the ribbon, the ribbon is upside-down. Repeat ribbon installation or watch the how-to video.

Checking Ribbon Orientation



## Adaptable Labels Installation

The printer should be powered off and unplugged for this step. You will need:

- MilliSentials™ Lab Adaptable Label Roll
- MilliSentials™ Lab Printer

1. Open the printer by pulling the release latches on either side of the printer toward you until you hear a click. Lift the lid.

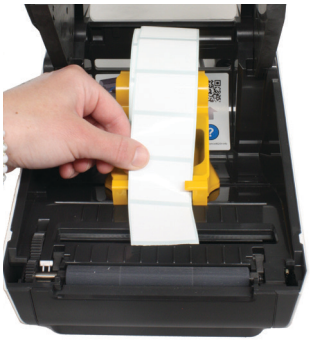
   **Note:** For ease-of-use the internal parts for ribbon and label installation are yellow.

2. Locate the Label Roll Holder in the base of the printer. It is comprised of two yellow brackets that slide apart so the label roll will fit between.

3. Hold the roll of labels so that the labels feed from the top (see drawing).

4. Slide the Label Roll Holder apart and place label roll between the two sides of the Label Roll Holder. Allow the Label Roll Holder to grasp the label roll core.


Step 5



5. Gently pull the labels towards you, threading the labels underneath the Label Guides to secure them.

6. Pull labels outward to slightly extend past the roller. If installed correctly, the label roll will roll smoothly in the Label Roll Holder.

7. The labels are now installed. Close the printer lid, press down firmly until it clicks into place. Part of the labels should be visible outside of the printer.

**Congratulations!**
**The printer ribbon and labels are installed.**
To close the printer lid, press down firmly until it clicks into place. If not firmly closed, the red "Head Open" warning will appear. Ensure that the printer head clicks into place.

**Note:** If the printer was ON during the installations, it will go into Pause Request Mode. To exit Pause Request Mode, press the PAUSE button. The PAUSE indicator light will turn off and the printer screen will display “Idle” under "Print Status".

**Note:** Every time the printer lid is opened, closed and exits Pause Request Mode, the printer will self-calibrate and roll out one (1) or more labels. To disable this feature, see *User Diagnostic Tools (p.34)*.

# Software and Computer Requirements

## Assigning a Host Computer

The computer that the MilliSentials™ Lab Labeling System Software is installed on is referred to as the host computer and should be used to connect to the printer. After installation and connection with the printer the host computer can be used to run the software and print labels. It is strongly recommended that a Microsoft® Windows® computer is used as a host computer for the MilliSentials™ Lab Labeling System. Mobile devices can be used to facilitate initial printer setup. Further, both mobile devices and Macintosh® (Mac) computers can be used to print labels through remote connection to the host computer, through the process described in *Remote Access on Mobile Devices (p.30)*. Host computers should have the minimum operating system described in the next section.

The MilliSentials™ Lab Labeling System Software does not need to be installed on other devices in order to print. Once connected to the printer, the host computer can also facilitate communications with other devices and computers in the lab through use of a network connection and web browser. For this reason, a computer that is already being used to run other lab equipment is a suitable choice as a host computer. Be sure this computer does not enter sleep mode.

## Operating System Requirements

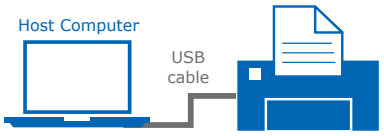
Minimum Operating System Requirements:

Microsoft® Windows® 10 OS
Software tested using OS version 22H2 build 19045.4170

## Printer Connectivity

There are three typical ways of setting up and connecting your printer to the host computer, and other devices:

### Simple Kiosk - Easiest Setup




Pros:

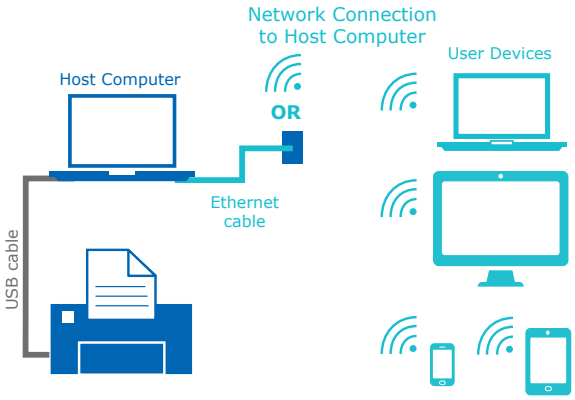
- Easiest setup option
- Quickest setup option

Cons:

- No wireless printing
- Computer is always required to be within proximity of the printer and takes up additional space
- One user at a time

To use this Host/Printer connection,
go to *Connecting the Printer via Hardwire (USB) (p.10)*

### Network Kiosk - Highest Flexibility




Pros:

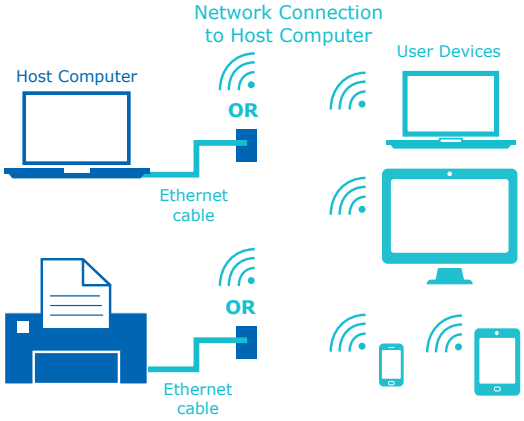
- Ability to print from any device wirelessly that is on the same network as the host computer
- Easiest way to print wirelessly
- Easy setup for host computer
- Quick way to gain access wirelessly

Cons:

- Requires reliable network connection
- Host computer is always required to be within proximity of the printer and takes up additional space
- Host computer must always be powered on and have software running
- Setup may require IT administrator assistance

To use this Host/Printer connection,
go to *Connecting the Printer via Hardwire (USB) (p.10)*

### Standalone Printer - Greatest Mobility




Pros:

- Ability to print from any device, anywhere, wirelessly
- Printer can move to different locations as laboratory needs arise

Cons:

- Most complex setup for host computer
- Requires reliable network connection
- Host computer must always be powered on and have software running
- Setup may require IT administrator assistance

To use this Host/Printer connection,
go to *Network Connections (p.10)* via wireless network or Ethernet

## **WARNING!** Does your printer look like this?


If so, all of the functionality remains the same, but the setup process is slightly different.
Proceed to *Appendix: Setup of ZD620 Model Printer (Gen 1 Printer) (p.42)* for the setup process.

## Install Software

The MilliSentials™ Lab Labeling System comes with a USB flash drive containing programs required to communicate with the printer.

### Windows® Computer

1. Plug the MilliSentials™ USB flash drive into the computer.
2. Wait for the drivers to load from the USB flash drive device (this may take a few moments).
3. To install the MilliSentials™ Lab Labeling System Software, navigate to and double click the application called **MilliSentials Lab Labeling System Software V2.exe**.
4. Select "run" or "allow access", if asked. **DO NOT extract the zip file**, extracting may prevent installation.

MilliSentials™
Lab Labeling System
Software V2

5. Installation may take up to 10 minutes.

   **Note:** If a security message pops up, click "run anyway" or "add certificate". You may need to contact IT administrator depending on your institution's security settings.
6. Restart the computer. A light blue icon will appear on your desktop.
7. You may remove the USB flash drive.

## Connecting the Printer via Hardwire (USB)

This is the easiest connection to setup and start printing labels. The printer will be connected directly to the computer.

Before starting, *Install Software (p.9)* must be completed.

### Windows® Host Computer

1. Plug the printer into a power source, long-press the power button to turn it on. It will take a minute to boot up.

   **Note:** If the screen is in Pause Request Mode and the PAUSE indicator light is on, press the PAUSE button.

2. Connect your printer to your host computer via USB cable.
3. Allow a few moments for the printer drivers to install.
4. Keep the host computer connected to the printer.

**TIP:** Test your printer connection by going into the "Printers & Scanners" menu on your Windows® computer and ensuring that ZDesigner ZD621-300dpi ZPL is on the list. If connected via USB, you can click on the printer name, go to "Manage" and the status in the pop-up should read "Idle".

After connection has been established, you are ready to print labels.
Skip to *MilliSentials™ Lab Labeling System Software V2 (p.12)*

## Network Connections

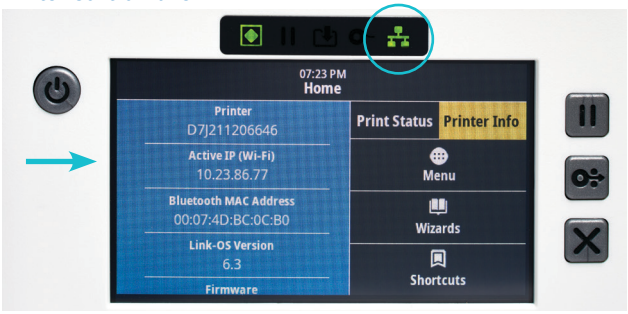
Your printer can communicate with the host computer through a wireless network or hardwired using Ethernet cables. Before starting, complete *Install Software (p.9)*.

**Note:** You may need to contact your IT administrator to setup a network connection to the printer.

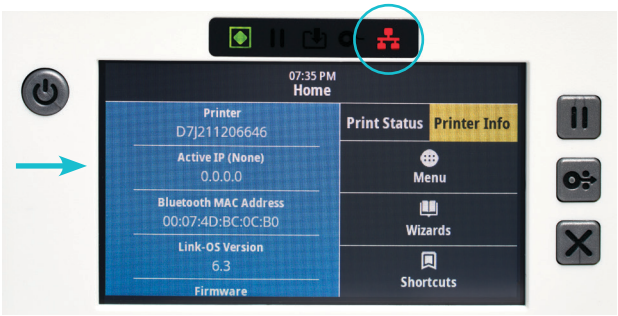
### Via Wireless Network

The IP address is displayed on the printer Touch LCD Screen, by pressing "Printer Info" from the Home screen. The IP address is displayed on the second line down, under "Active IP (Wi-Fi)".

Printer Control Panel




If the network connection is lost, the IP address will show only zeros and periods or the network indicator light will be red.



**Wireless Network with a Windows® Host Computer**

Your printer should be plugged in, powered on, and the USB cable should still be connected to the Windows® host computer and printer.

1. Use the Connection Wizard on the Touch LCD Screen. From "Print Status" or "Printer Info" under the Home screen, press "Wizards".
2. On the "Introduction" screen, press "Connection".
3. On the "Connection" screen, press "Start Connection".
4. On the "Network Settings: Primary Network" screen, check your wireless network and press on the check mark on the bottom right.
5. On the "Network Settings: Ports" screen, press on the check mark on the bottom right.
6. On the "Wired: Wired IP Protocol" screen, check DHCP and press on the check mark on the bottom right.
7. On the "Wi-Fi: Wi-Fi Country Code" screen, your country/region should automatically be detected and checked off. If not, check your country/region, and press on the check mark on the bottom right.
8. On the "Wi-Fi: Wi-Fi Security" screen, scroll and check on WPA PSK, and press on the check mark on the bottom right.

   **Note:** if you are using an open network and do not have a password, then scroll down to select "none" on this screen.
9. On the "Wi-Fi: WPA-PSK" screen, press on the box labeled "Pre-shared Key", and use the keyboard to enter the password of the wireless network you plan to use. Ensure "String" is highlighted in yellow. Then, press on the check mark to confirm and press on the check mark on the bottom right to continue.

   **Note:** if you are using an open network and do not have a password, then select HEX on the screen with the keyboard and press on the check mark to confirm.
10. On the "Wi-Fi: Wi-Fi Band" screen, check All and press on the check mark on the bottom right.
11. On the "Wi-Fi: ESSID" screen, press on the box labeled "ESSID", and use the keyboard to enter the name of your wireless network. Press on the check mark to confirm and then press on the check mark on the bottom right to continue to the optional Bluetooth™ Section of the Wizard.

Bluetooth™ Wizard

(Steps 12-15 of the Wizard are optional)

Bluetooth connection is only relevant if you wish to facilitate connection through a mobile device.

12. On the "Bluetooth: On/Off" screen, choose whether you would like the printer Bluetooth™ to be on or off.
13. On the "Bluetooth: Bluetooth Discovery" screen, choose whether you would like the printer to be discoverable via Bluetooth™ and press on the check mark on the bottom right to continue.
14. On the "Bluetooth: Friendly Name" screen, press on the box labeled "Friendly Name" to change from the default using the keyboard, and press the check mark to confirm, or keep the default name of the printer as is. Press the check mark on the bottom right to confirm.
15. On the "Bluetooth: Security" screen, choose the level of security you wish to have on your device, and press the check mark on the bottom right to confirm.
16. Once the NETWORK indicator light has turned green, you may disconnect the USB cable from the computer and printer.

After connection has been established, you are ready to print labels.
Skip to *MilliSentials™ Lab Labeling System Software V2 (p.12)*

## Via Ethernet

An Ethernet cable is not included with the MilliSentials™ Lab Labeling System.

**Note:** You may need to contact your IT administrator to setup a network connection to the printer.

The printer should be plugged in and powered on. The USB cable can be disconnected if it is still in place.

1. Connect one end of an Ethernet cable to the Ethernet port on the back of the printer. Connect the other end of the Ethernet cable into a functioning Ethernet wall outlet or a router.
2. It may take a few moments before the NETWORK indicator light on the printer will turn from red to green. An IP address will appear on the Touch LCD Screen, under "Printer Info".
3. Do not disconnect the Ethernet cable.

After connection has been established, you are ready to print labels.
Skip to *MilliSentials™ Lab Labeling System Software V2 (p.12)*

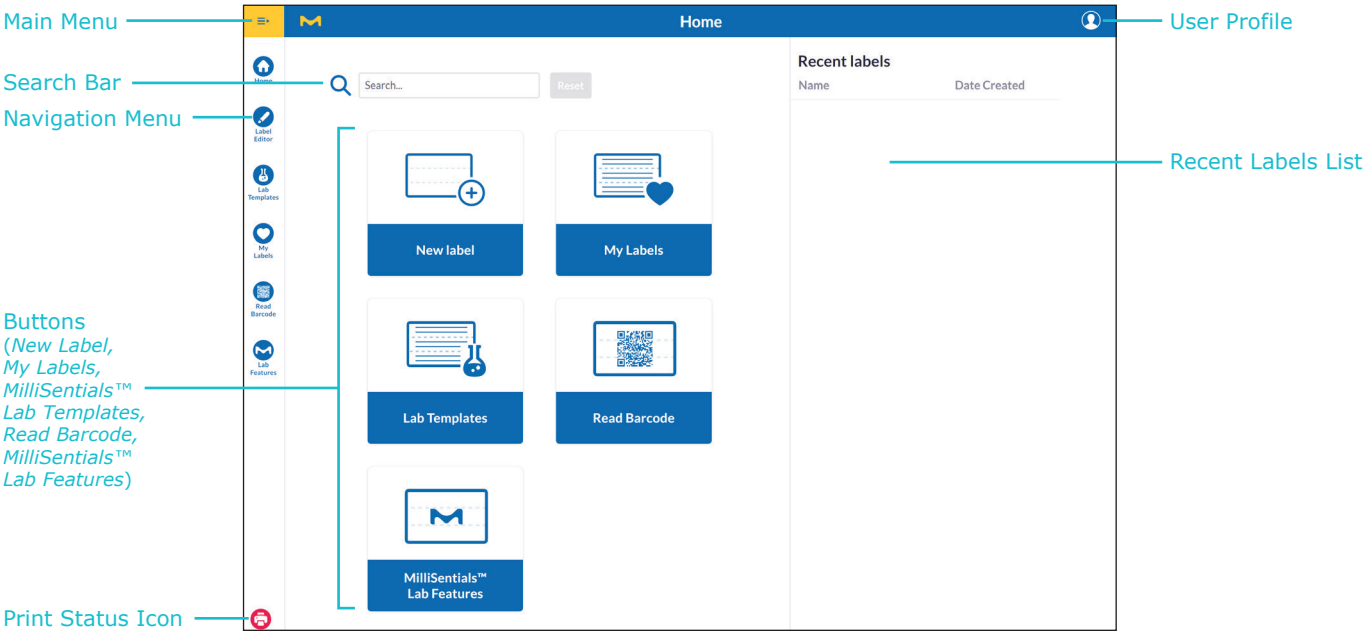
# MilliSentials™ Lab Labeling System Software V2

## Getting Started

In this section: Setup and edit user profile, connect your printer to the MilliSentials™ Lab Labeling System Software using either USB cable or wireless network/Ethernet connection, create a new blank label, add text and objects to the label, select label quantity and print.

**Note:** It is strongly recommended to create a user profile before connecting to your printer and creating labels.

### Home Screen




## Step 1: Create a user profile

1. Open the MilliSentials™ Lab Labeling System software from your device.
2. From **Home**, click **User Account**.
3. Click **Create Profile**.


User Account

4. Populate the required fields: Email, First Name, Last Name, User Initials.
   a. **User initials:** Add 2-3 characters for user initials. These will be reflected on your user profile button and will be used to automatically populate initials into label fields.
5. Personalize your user profile by choosing a color and a preferred language.

   **Note:** language will be updated within the program itself, but label text will be printed in English.
6. When finished, press **Save**.
7. Logout any time by clicking **Logout** from the **Main Menu** in the upper left-hand corner of the screen.


Main Menu

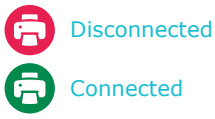
**Note:** Edit profile information anytime by clicking on **Profile** from **User Account**.

## Step 2: Connect to your printer

**Note:** Set up your printer hardware by following the instructions in *Install Software (p.9)*.

1. Once you have set up your printer and created a user profile, connect the MilliSentials™ Lab Labeling System Software to your printer by selecting Printer Settings from the Main Menu.
2. If your printer connected via hardwire (USB):
   a. You will see the name of your printer listed on the **Printer Settings Screen**. Select the printer name. The name of the printer will be either **Zebra ZDesigner ZD620-300dpi ZPL**, **Zebra ZDesigner ZD621-300dpi ZPL**, or a friendly name created during setup.
   b. Click **Update**.

3. If your printer is connected via network (wireless network/Ethernet):
    a. Select **Network Printer**.
    b. The "Enter IP address" prompt will appear. In the text box, type in the printer's IP address exactly as it appears on the printer screen.
    c. Click **Update**.
4. If you have successfully connected to your printer, then the **Printer Status Icon** in the lower left-hand corner of the Software will turn green, indicating it is ready to print.



Printer Status Icon

5. Switch your connection anytime by returning to the **Printer Settings Screen**.

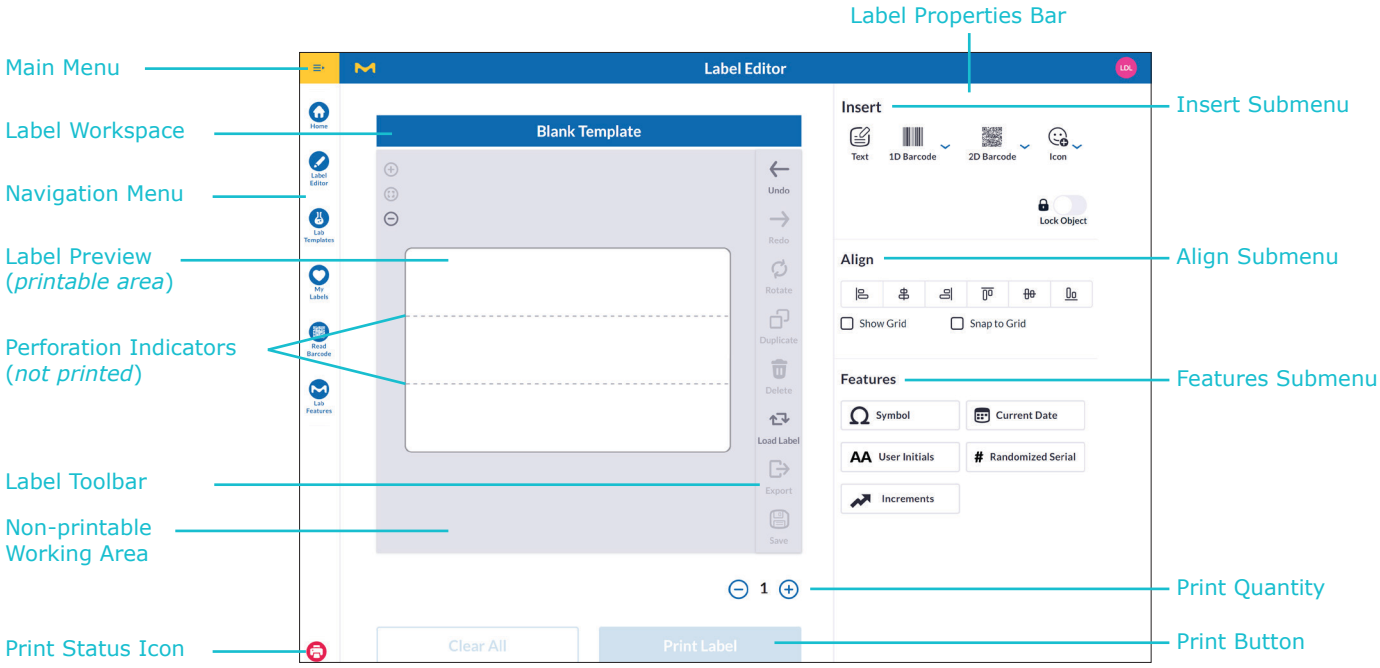
**Note:** The printer connection will be saved across user profiles and remain when the program is closed, as long as the connection to a network or USB cable connection is maintained on the device.

## Step 3: Create a new Blank Label

**Note:** There are multiple ways to create and print labels, which will be covered in later chapters, such as: creating a **MilliSentials™ Lab Template** (*page 19*), creating a label from a saved **My Label** or **Shared Label** (*page 22*), selecting and loading a **Recent Label** (*page 22*), creating a label from barcode information (*page 24*), creating **Child/Aliquot Labels** from **Parent/Reagent Labels** (*page 28*), and creating labels from a remotely connected mobile device (*page 30*).

1. From **Home**, select the **New Label** button.
2. The popup default is **Blank Label**. Select **Blank Label**.
3. The **Label Editor Screen** will open with the blank label. This is a freeform version of an individual MilliSentials™ Lab Adaptable label where the white space is the *printable area* and grey space is additional *non-printable working area*. The physical perforations of the label are marked with *perforation indicators* to help with alignment of elements (not printed).

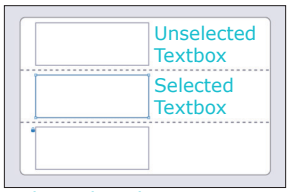
## Label Editor Screen




## Step 4: Add text and objects in the desired arrangement and format using the Label Properties Bar

1. Add text boxes and objects:
   a. Add a text box by selecting **Text** under **Insert Submenu** in the **Label Properties Bar**. Simply start typing, as the cursor will appear in the newly placed text box. After navigating out of the text box, double click again to add new text or edit existing text.
   b. Add an icon by selecting **Icon** under **Insert Submenu**.
   c. Add a 1D or 2D barcode by selecting **1D Barcode** or **2D Barcode** dropdown menus under **Insert Submenu**. Choose between different size options. For more details on barcoding, see *page 24*.
   d. Add a **Quick Element Feature** under **Features Submenu**. *Quick elements* allow the user to add information with a single click, such as the Current Date or a Symbol. Some information, such as Current Date, User Initials and Random Serial change depending on the conditions under which the label is created, loaded, edited or printed. They are identified using brackets [ ], which are for indication only and are not printed. **Quick Element Features** can be added within a string of text (inside a text box) or added separately as their own text box (for more information, see *page 17*.

2. Move, Align and Resize text and objects:
   a. To edit an object, select it by clicking on it. It will highlight it in blue.
   b. Move an object by selecting it, then clicking and dragging to the desired location.



Selected and unselected textboxes

   c. Resize an object by selecting it, then clicking on the corner or edges of the object and dragging to the desired size.
   d. Align selected objects manually, or by using the grid and/or align features under **Align Submenu** on the **Label Properties Bar**.

**Note:** Make sure to keep objects within the Label Preview (white printable area) space of the label. Any objects outside of the Label Preview or printable area will not be printed. Objects outside of the white printable area will be marked with a yellow notification.

## Step 5: Select Print Quantity

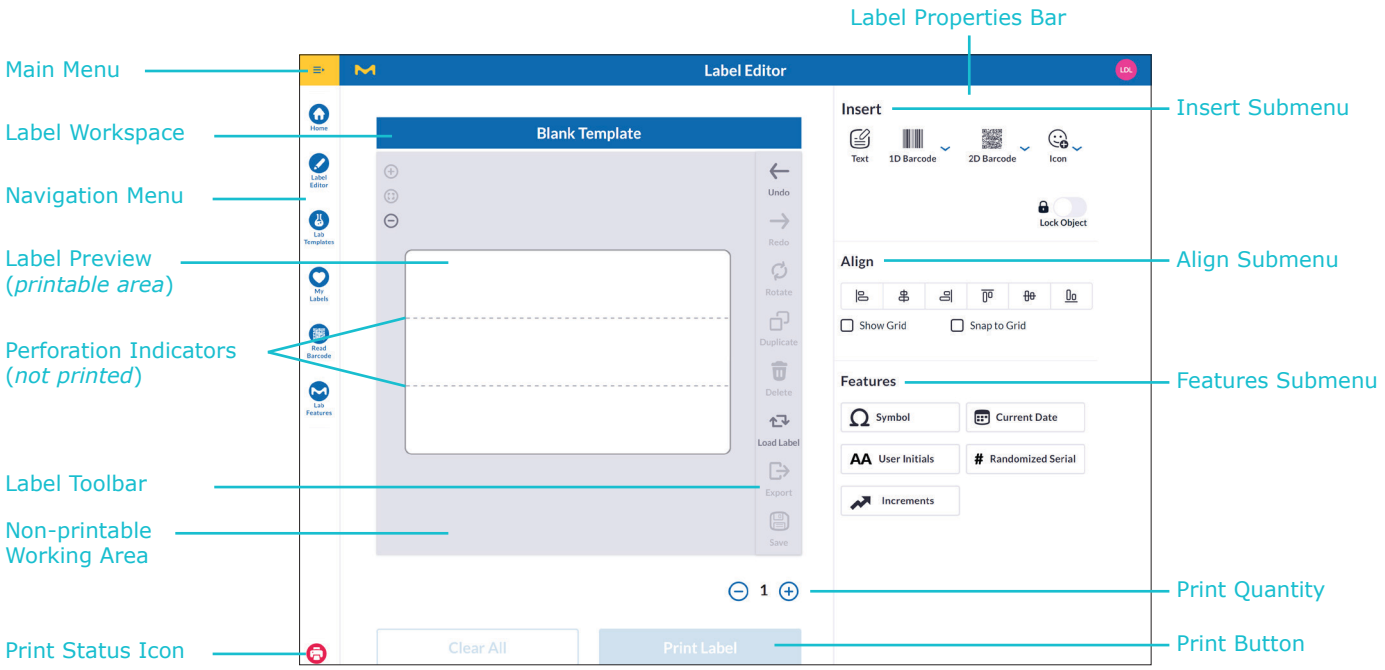
Choose the **+** or **–** to increase the number of copies of the full label to print.

**Note:** Up to 10 labels can be printed at one time.

## Step 6: Press Print Label

# Software Features

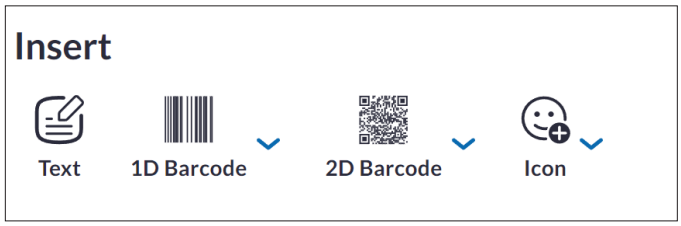
## Label Editor Screen




## Label Properties Bar

### Insert Submenu

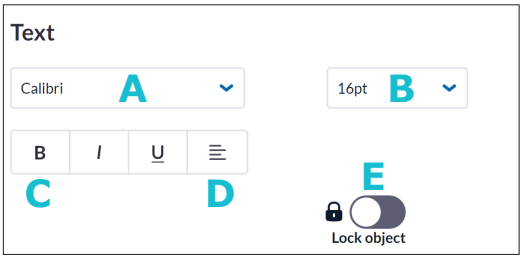
When opening a New Blank Label or if nothing is selected in the **Label Workspace**, only four options are visible at the top of the Insert Submenu:




- **Text:** Click to place a text box into the label.
- **1D Barcode:** Add a 1D Barcode into the label.
- **2D Barcode:** Add a 2D Barcode into the label.
- **Icon:** Click for a dropdown menu and choose from a variety of icons to place into the label. Icons can be moved or locked. Icons can be useful for personalization.

### Text Properties under Insert Submenu

The **Text Properties Menu** appears when a text box is selected (highlighted in blue) or if a cursor appears in the text box. The menu will appear whether a text box is locked or unlocked. This menu allows formatting of the content to an entire text box.




**A.** **Font type:** Seven fonts are available.

**B.** **Font Size:** Font sizes from 12 to 60 pt are available. Default size is 16 pt. When changing the font size, there is no need to highlight the text. All text will be changed in a selected text box when the size is changed. Note that the size of the text in a text box may change if more text than fits within text box bounds is added. This is to ensure proper fit within a text box.

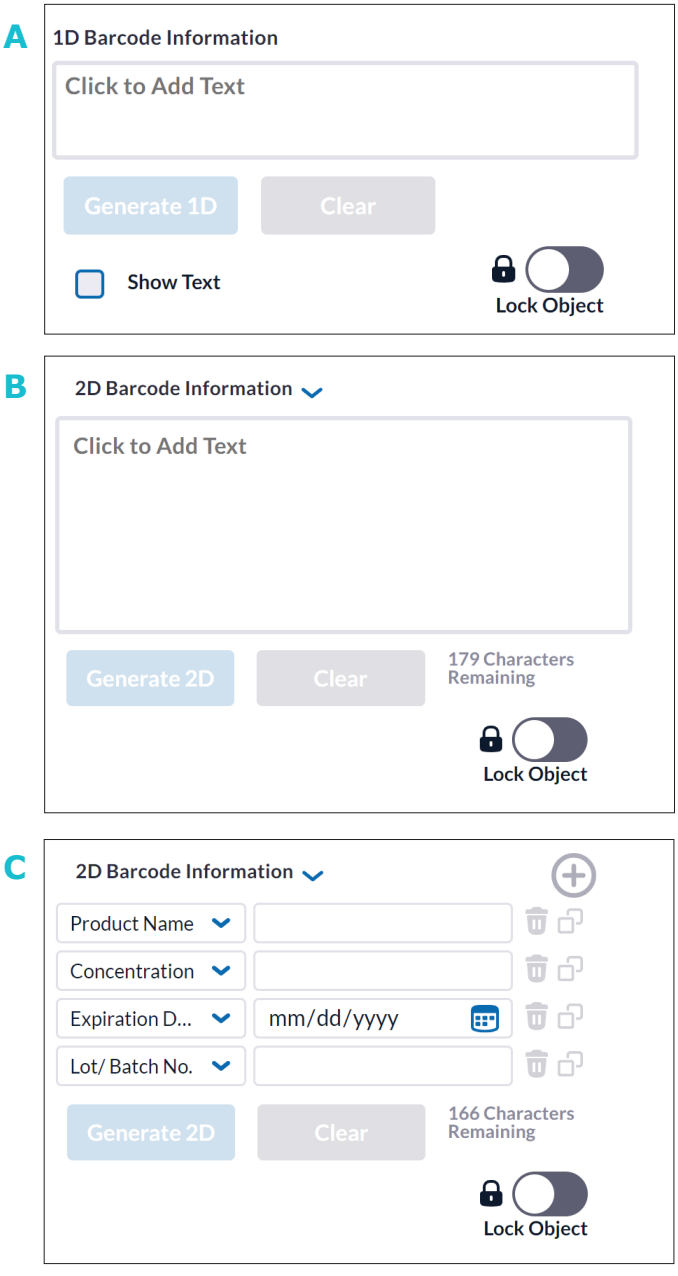
**C.** **Bold, Underline, Italicize:** Apply to an entire text box.

**D.** **Align:** Choose between Right Align, Left Align, or Center Align.

**E.** **Lock and Unlock Toggle:** Choose to lock a text box or object from being moved or re-sized. This is utilized for **MilliSentials™ Lab Templates** to avoid misprints and misalignment (see *page 19*).

## Barcode Properties under Insert Submenu

The Barcode Properties Menu is where barcode information is added and where the barcode is generated. The menu appears when a barcode is placed on a label and selected (highlighted in blue). Depending on the type of barcode (1D Barcode, 2D Barcode), this menu will have different options. See *page 24* for more details.



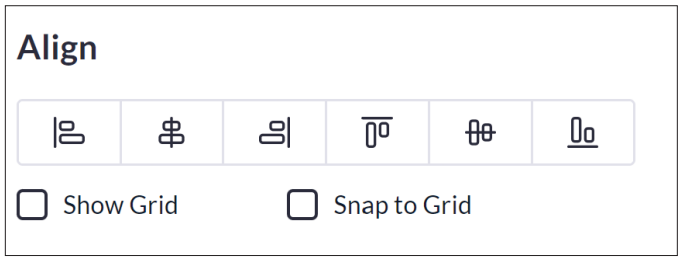

**A.** **1D Barcode Information:** When a 1D Barcode (horizontal or vertical) is selected, data can be added into the text box labeled 1D Barcode Information. Check **Show Text** to display barcode content on the label. Click **Generate 1D** to generate the barcode with that data.

**B.** **2D Barcode Information (Also called Plain Text; default setting):** Similar to 1D Barcodes, data can be added into a selected 2D Barcode (small or large) using the text box labeled 2D Barcode Information, with a larger real-time character count. Click **Generate 2D** to generate the barcode with that data.

**C.** **2D Barcode information (Also called Categories; access using dropdown):** Check the dropdown menu to enter Categories mode for a selected 2D barcode (small or large). This mode offers a tabular, controlled format for entering information into the barcode, using a series of identifiers and text boxes. In large 2D barcode formats, add, delete and customize categories as desired. For small 2D barcodes, the Categories are fixed. Click **Generate 2D** to generate the barcode with that data. Within the MilliSentials™ Lab Labeling System, barcodes created using Categories mode are read back with the same formatting. Categories is the default mode of adding information into MilliSentials™ Parent and Child Labels (See *page 28*).

### Align Submenu

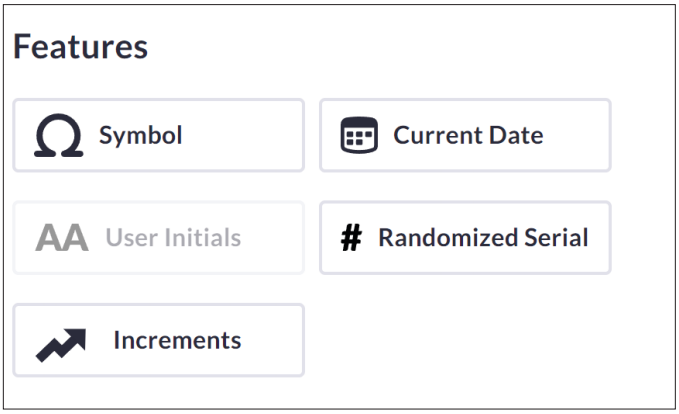
Choose alignment options for selected text boxes and objects in a label. This works for both single selected text boxes/objects and groups of selected text boxes/objects.




- **Alignment Buttons:** Align text boxes and objects relative to one another (if multiple objects are selected) or relative to the label (if one object is selected) within the label.
- **Show Grid Checkbox:** Check to display a grid on the label.
- **Snap to Grid Checkbox:** Check to snap a text box or object to the grid by clicking and dragging.

### Features Submenu

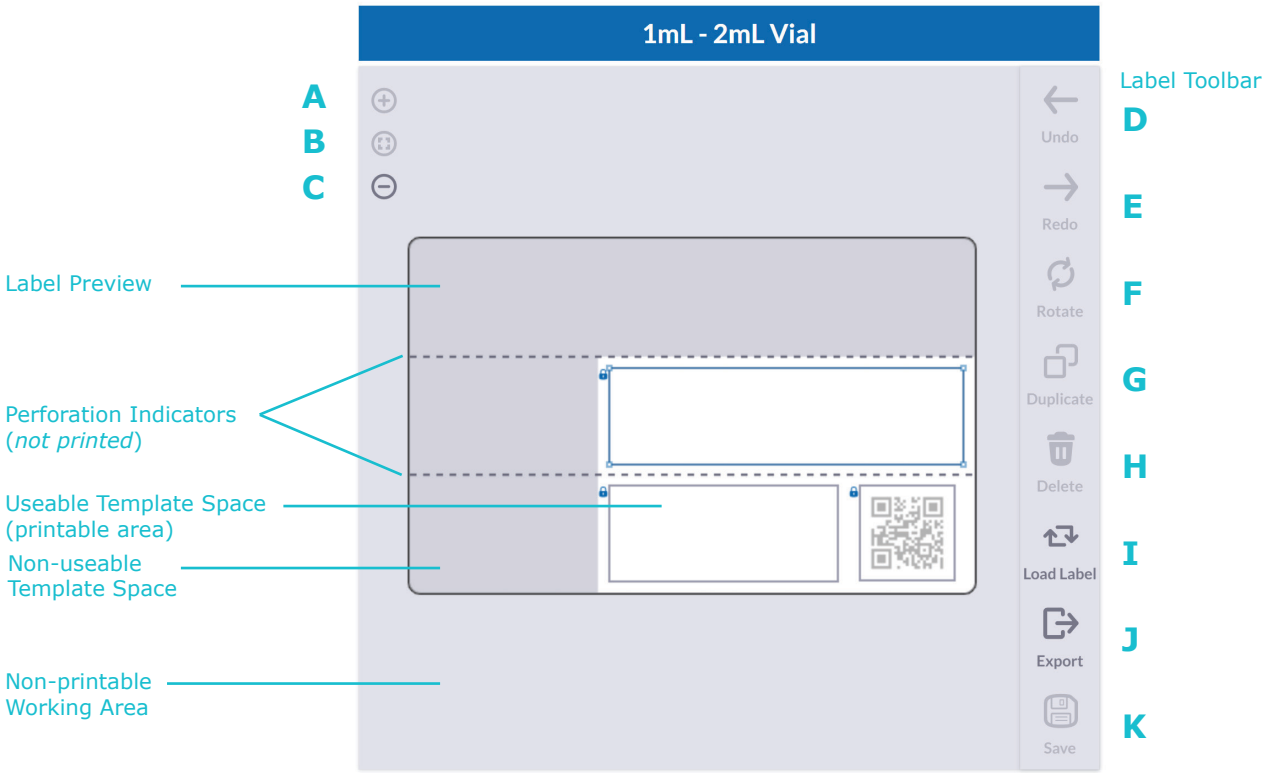
Five Quick Element Features are designed to streamline label and barcode creation. All Quick Element Features can be added within a string of text inside a text box (if selected), inside a barcode text box (if cursor is placed inside), or as their own text box on the label (if nothing is selected), denoted by brackets ([ ]).




- **Symbol:** Click to open a dropdown and choose from a list of common symbols. Note that due to printer hardware restrictions, some symbols may not print for certain fonts.
- **User Initials:** Automatically populate initials from User Profile into the label. This feature will automatically update if opened by a user profile with different initials, and will change if user initials are edited in User Profile Settings Screen (accessed through Main Menu).
- **Increment:** If entered onto a label, an increment will update by +1 for each copy of a label printed. Choose the starting digit (between 1–10). For example, if increment starting at 2 is added to the end of "Sample [2]", label 1 will print "Sample 2", label 2 will print "Sample 3", etc. This is useful when printing multiple copies of a label for a sample with multiple replicates.
- **Current Date:** Select to automatically populate the current date (from the computer system). Date will automatically update with current date if the label is loaded on a different day.
- **Randomized Serial:** Add a random serial number into a text box or barcode. Choose the total number of digits for the random number (between 1–15), and check whether they are strictly numeric or alphanumeric (Include Letters checkbox). If multiple copies of a label with a random number are printed, then each copy will print a unique random number.

## Label Workspace

### Label Workspace Toolbar




**A. Zoom In:** Zoom in by 100% (the default is 400%).

**B. Zoom Default:** Reset the zoom settings (the default is 400%).

**C. Zoom Out:** Zoom out by 100% (the default is 400%).

**D. Undo*:** Undo the previous action (up to 10 steps).

**E. Redo*:** Redo the previous action (up to 10 steps).

**F. Rotate*:** Rotate a selected text box or object clockwise by 90 degrees. Icons cannot be rotated.

**G. Duplicate*:** Duplicates a selected text box or object, including text within it.

**H. Delete*:** Deletes a selected text box or object.

**I. Load Label:** Opens the **Label and Template Selector Menu**. Select from the list of **My Labels**, **Shared Labels** or **MilliSentials™ Lab Templates** using the tabs. If data has been entered in the existing label, then there will be an option to transfer all data into the new label. Note that if transferred, errors in alignment may occur.

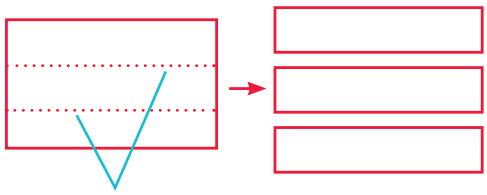
**J. Export:** Export the label, text and all other information into an image (PNG, JPEG) or PDF format to be used in external applications, such as electronic laboratory notebooks (ELN).

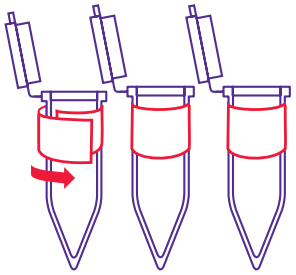
**K. Save/Update:** Saves the label and all associated data to the My Labels and/or Shared Labels lists. If the existing label was already saved and loaded from the My Labels or Shared Labels list, then saving will update the existing saved label with the information. The Save function cannot be used unless the user is logged in to a profile.

*Feature is disabled for text boxes and objects that are locked (such as in a MilliSentials™ Lab Template).

# MilliSentials™ Lab Templates

In this section: Learn about the different MilliSentials™ Lab Templates and how they are uniquely created for certain laboratory vessel types, match different vessels to appropriate Lab Templates, create a new Lab Template, edit and load existing Lab Templates, learn features of the Lab Template label preview.



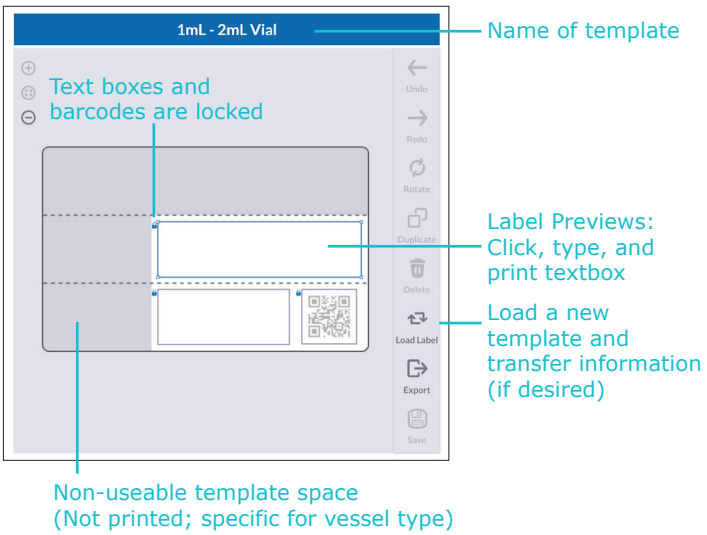




## Using the Millisentials™ Lab Adaptable Label Perforations

### What is a MilliSentials™ Lab Template?

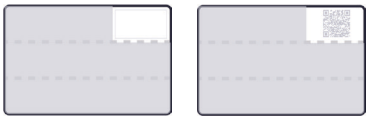
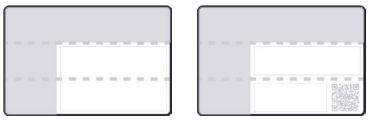
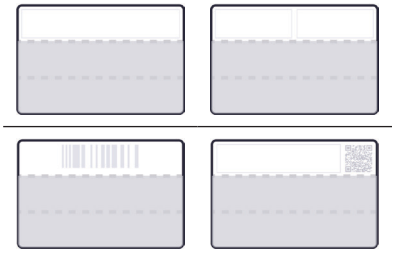
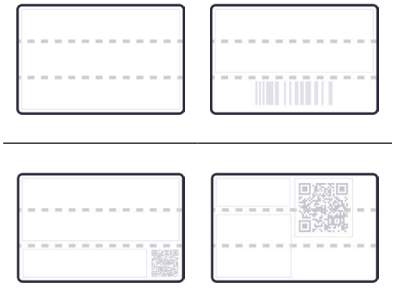
MilliSentials™ Lab Adaptable Labels are custom designed to have two horizontal perforations that split one, full-sized label into three, smaller labels. These perforations are designed to allow users to customize their label size to their vessel of interest. Likewise, MilliSentials™ Lab Templates are specifically designed to limit the printable area of the label to avoid covering text once applied to and wrapped around certain types of vessels and tubes. Further, all pre-defined text boxes and barcodes in Lab Templates are properly sized to limit mistakes while printing. Barcodes in Lab Templates are positioned, sized, and validated for successful reading with a barcode scanner, as curvature can interfere with proper barcode scanning.

### Create a MilliSentials™ Lab Template




1. From **Home**, select the **Lab Templates** button.
   a. **Lab Templates** can also be accessed from the **New Label** button to open the **Label Menu** and selecting the **Lab Templates** tab.
2. The Lab Templates List will appear. Scroll to view the various template types. Lab Templates include pre-defined and pre-sized text boxes, 1D barcodes, and 2D barcodes and are arranged by vessel type. Select the desired Lab Template to open it in the Label Workspace.

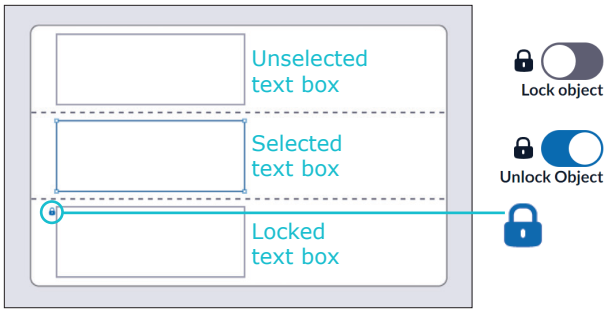
## MilliSentials™ Lab Templates and Suitable Lab Vessels

| Template Type and Description | Available Templates | Recommended Vessel(s) | Thumbnail Image |
|---|---|---|---|
| **0.5 mL-0.6 mL Vial Templates**<br>One-third of the full label, with significant wrap around area built into the Template. Up to three copies print on one, full label. | • Text<br>• 2D Barcode (small) | • 0.5-0.6 mL centrifuge tubes<br>• HPLC vials<br>**Note:** Recommended that 2D barcodes should contain 100 characters or less. |  |
| **1-2 mL Vial Templates**<br>Two-thirds of the full label with some wrap around area built into the Template. Discard the top perforation. | • Text<br>• 2D Barcode (small) | • 1 mL centrifuge tube<br>• 1.8-2.0 mL centrifuge tube |  |
| **Cryovial Templates**<br>Uses all three perforations with a small portion of wrapped around area denoted on the left side. | • Text<br>• 1D Barcode (vertical)<br>• 2D Barcode (small) | • Cryovials<br>• 1.8-2.0 mL centrifuge tubes |  |
| **Plate/Dish Templates**<br>One-third of the full label with no wrap around area. Up to three copies print on one, full label. | • Text – single column<br>• Text – double column<br>• 1D Barcode (horizontal)<br>• 2D Barcode (small) | • Microtiter plates (96-well, 384-well, etc.)<br>• Petri dish<br>**Note:** For best results reading 2D barcodes on Petri dishes, do not attempt to read barcode through the plastic of the cover. |  |
| **5 mL+ Templates**<br>Uses one, full label with no wrap around area. Use the perforation indicators as guides for alignment (these are not printed). | • Text<br>• 1D Barcode (horizontal)<br>• 2D Barcode (Small)<br>• 2D Barcode (Large) | • Large bottles and glassware, such as a beaker or media bottle<br>• 15 mL conical tube<br>• 50 mL conical tube<br>**Note**: Recommended that 2D barcodes should contain 250 characters or less for 15 mL conical tubes, and 560 characters or less for 50 mL conical tubes. |  |
| **Freeform**<br>Uses one, full label. Equivalent to New Blank Label. | • Full Label | • Appropriate for all 5 mL+ vessels |  |

## Key Features of MilliSentials™ Lab Templates

MilliSentials™ Lab Templates have certain unique properties over saved **My Labels**, **Shared Labels** or **New Blank Labels**.

- No need to format: All text boxes and barcodes built into **Lab Templates** are designed to perfectly fit into the printable label area. They do not have to be aligned, formatted or re-sized to fit. Changes can be made, if desired.
- Tested and validated: All templates have been tested to fit on the associated lab vessels without wrapping around to cover text. All barcodes in **Lab Templates** have been tested for successful reading with a barcode scanner after application onto their recommended lab vessel.
- Click, type and print: After selecting a new **Lab Template**, they render with an active cursor in the text box, so the label can be created as quickly as possible.
- Locked text boxes and objects: All text boxes and objects in a **Lab Template** default to being **Locked**, as indicated by a small blue padlock icon at the corner of each object. While text can be added into a text box or barcode and edited when in a **Locked** state, they cannot be re-sized or moved. This feature lowers the chance of misalignment or misprints.




**Important!** Text boxes and barcodes in a **MilliSentials™ Lab Template** cannot be unlocked. To unlock text boxes and barcodes in a **Lab Template**, save the label into the **My Labels** or **Shared Labels** list and open it again. The **Lock Object Toggle** will be available. Once a template is unlocked, the template header will turn to Freeform, indicating that the elements can be unlocked and moved.

**Note:** Upon saving a **Lab Template**, it will be designated as either a **My Label** or a **Shared Label**.

- **Unlocking objects in a Lab Template:** Objects cannot be unlocked unless saved as a My Label or Shared Label and opened again.
- **Unlocking objects in labels that are not Lab Templates:** Select the text box or object and click on the Lock Object Toggle in the Label Properties Bar. Clicking again will lock the object again.
- When in a **Locked** state, some additional editing features are unavailable: Rotate, Duplicate, and Delete (**Label Toolbar**), and Text, 1D Barcode, 2D Barcode and Icons (**Insert Submenu**).
- **Transfer information into a different template:** Since there are multiple templates for each vessel type, the choice to use a different Lab Template may occur after adding and editing an existing template. The MilliSentials™ Lab Labeling System Software allows transfer of existing data into a new template. To do this:

  1. Choose **Load Label** from the **Label Toolbar**.
  2. From the **Lab Templates** tab, choose the desired new template.
  3. Select **Yes** to transfer the data and open the new template.

  **Note:** When data is transferred from one template to a new template, alignment and/or formatting issues may occur, especially if the new template is a different vessel type than the existing template. If yellow notifications occur, then re-size or move objects to the useable template space in the label preview.


Yellow notification

# Saving and Accessing Labels

In this section: Save and access a favorite label or MilliSentials™ Lab Template, share and access a favorite label with other profiles, explore differences between My Labels, Shared Labels and MilliSentials™ Lab Templates, copy, delete and rename a saved label, export a label, Label Toolbar features.

## Save a Label or MilliSentials™ Lab Template to My Labels

1. A saved label is saved as a **My Label**. To save a favorite label to be accessed later, select **Save** from the **Label Toolbar**.
2. Name the label by entering a name in the text box on the **Save Label** popup.
3. The **Save a Copy to Shared Labels** toggle button, if toggled on, will copy the label under the **Shared Labels** tab so that it may be accessed by any other user profile, if desired. If not shared, then it can only be accessed when logged in to the user profile that created it.

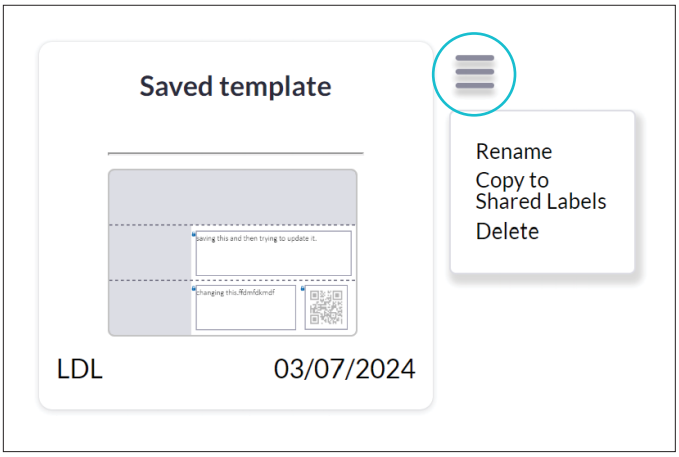
**Note: MilliSentials™ Lab Templates** may also be saved using this procedure. After saving to **My Labels** or **Shared Labels**, all text boxes and barcodes in a Lab Template can be unlocked, if desired (See *page 19*).

## Loading & Editing a Saved Label

1. From **Home**, select **My Labels**.
2. A list of all the saved labels (organized chronologically) will appear on the **My Labels** screen. The default tab is **My Labels**. For a list of shared labels by all user profiles (also organized chronologically), select the **Shared Labels** tab.
3. For ease of access, thumbnails of the saved label previews, label names, user profile initials and the date it was last edited are displayed.
   a. **Search Bar:** 
   
   A keyword search appears on the **My Labels** screen, **Lab Templates List**, and the **Home Screen** to make it easier to find a specific **Lab Template** or saved label. The **Search** utilizes both label name and label content. The **Search** includes all **Shared Labels**, **Recent Labels**, and **Lab Templates**, but does not include **My Labels** created by other user profiles unless they are shared.
4. Select the desired **My Label** or **Shared Label** thumbnail to open it in the **Label Workspace**.
5. When changes are made to the loaded label, press **Update** to save it.

   **Note:** This will update the existing saved label with the new content, thus overwriting it. If changes are made and **Update** is not selected, no changes will be made to the saved label.

## Label Functions in the My Labels and Shared Labels Screens




Label Thumbnail and Label Functions (circled) for a My Label. The Label Functions are different for Shared Labels.

- **Rename:** Select this to choose a new name or edit the label name. Press **Rename** to confirm.
- **Copy to Shared Labels (My Labels only):** Select this to copy a **My Label** into the **Shared Labels** list. This is particularly useful for collaborations.
- **Copy to My Labels (Shared Labels only):** Select this to copy a **Shared Label** into the **My Labels** list. This is particularly useful when user-specific changes to a saved template are needed, since updating a label will overwrite it.
- **Delete:** Select this to delete the **My Label** or **Shared Label**.

  **Important!** When a label is deleted, there is no way to access it again. Thus, if a **Shared Label** is deleted by one user profile, it is deleted for all user profiles.

**Note:** Saved labels, both **My Labels** and **Shared Labels** may also be accessed from the **Label Editor**, by selecting **Load Label** in the **Label Toolbar**. If within the twenty most recently accessed labels, they may also be loaded using the **Recent Labels List**. Remember, if not shared, a saved label may only be accessed when logged into the profile that created it.

## Recent Labels List

The **Recent Labels** list, on the right of the **Home** page, is a chronological list of the most recently worked on labels by a logged-in user profile. A label does not have to be saved in order to be accessed through **Recent Labels**, thus this function helps recover unsaved labels. After accessing a **Recent Label**, it may be edited, printed, saved, and shared as described in previous sections.

- **Recent Labels** are marked with a name and the date it was created or last accessed.
- The **Recent Labels** list includes the most recent twenty accessed labels. Any labels accessed or edited prior to that will not be displayed and will no longer be accessible.
- After working on a **Recent Label**, it is always recommended to save it to **My Labels** or **Shared Labels** if there is a chance it will be used at a later date, to avoid losing data.

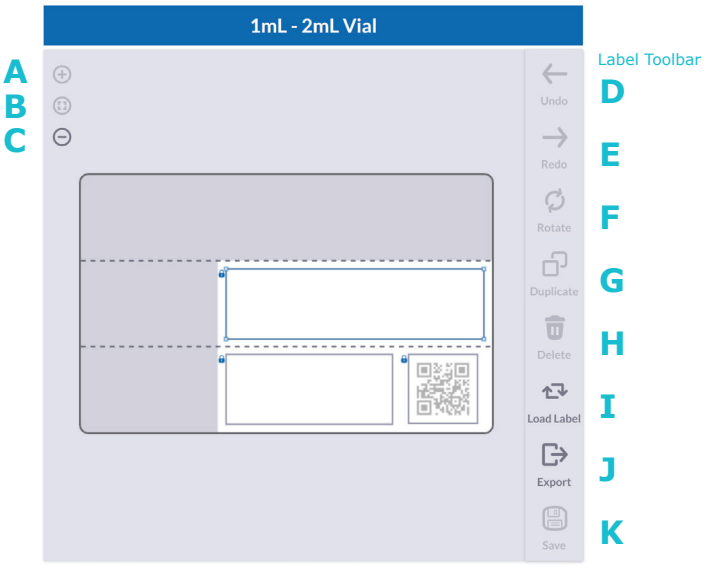
## Exporting a Label

Exporting a label is a strategy for record-keeping and is particularly useful in the case of barcoding applications (see *page 24*) and when the label contains information that needs to be recorded (such as in a lab notebook or electronic lab notebook, ELN).

1. Once a label is created, it can be exported by selecting **Export** from the **Label Toolbar**.
2. A file navigator will open. Navigate to the desired location on the computer and create a name for the label.
3. Choose the file format to be PNG, JPEG or PDF. Press **Save**.

**Important!** Exported file formats are meant for external applications only (such as ELN) and cannot be loaded back into the MilliSentials™ Lab Labeling System. Users should ensure that if barcodes need to be read at a later date in exported format, that the resolution is high enough for a barcode scanner to read. To save a MilliSentials™ Lab Label to be opened and edited using the Software later, utilize the **Save** or **Update** options in the **Label Toolbar**, as described previously in this section.

### Label Toolbar




**A. Zoom In:** Zoom in by 100% (the default is 400%)

**B. Zoom Default:** Reset the zoom settings (the default is 400%)

**C. Zoom Out:** Zoom out by 100% (the default is 400%)

**D. Undo*:** Undo the previous action (up to 10 steps)

**E. Redo*:** Redo the previous action (up to 10 steps)

**F. Rotate*:** Rotate a selected text box or object clockwise by 90 degrees. Icons cannot be rotated

**G. Duplicate*:** Duplicates a selected text box or object, including text within it

**H. Delete*:** Deletes a selected text box or object

**I. Load Label:** Opens the **Label and Template Selector Menu**. Select from the list of **My Labels**, **Shared Labels** or **MilliSentials™ Lab Templates** using the tabs. If data has been entered in the existing label, then there will be an option to transfer all data into the new label. Note that if transferred, errors in alignment may occur

**J. Export:** Export the label, text and all other information into an image (PNG, JPEG) or PDF format to be used in external applications, such as electronic laboratory notebooks (ELN)

**K. Save/Update:** Saves the label and all associated data to the My Labels and/or Shared Labels lists. If the existing label was already saved and loaded from the My Labels or Shared Labels list, then saving will update the existing saved label with the information. The save function cannot be used unless the user is logged in to a profile.

*Feature is disabled for text boxes and objects that are locked (such as in a MilliSentials™ Lab Template).

# Barcoding

In this section: The advantages of barcoding, the barcode types offered in the MilliSentials™ Lab Labeling System Software, how to choose the best barcode, how to insert barcodes, add/update/edit information in barcodes, read barcodes (using a barcode scanner), using the Read Barcode Screen.

## Why Barcode?

In the context of life sciences and biotechnology, barcoding is a useful strategy for tracking samples and the large amounts of data that may be associated with them. Depending on the type of data to be tracked, how it is organized, the existing infrastructure in the lab, type of barcode scanner available, and the type of barcode chosen, different tactics can be implemented into barcoded labels for sample tracking.

Two types of barcodes are available in the MilliSentials™ Lab Labeling System Software: Code 128, 1D barcode, and QR, 2D barcode. Details about each type of barcode is provided below.

A major difference between 1D and 2D barcodes is the way that scanners and mobile devices are able to read them. If using the wrong scanner or by applying a label incorrectly to a laboratory vessel, many issues can be encountered leading to misreads or an inability to read. All Lab Templates that utilize barcodes in the MilliSentials™ Lab Labeling System have been validated for successful scanning with the recommended barcode scanners on their recommended laboratory vessels (see Chapter 2 for a list of laboratory vessels).

The recommended barcode scanners for use with the MilliSentials™ Lab Labeling System Software are listed below. For more information and guidance on barcode scanners, see SigmaAldrich.com or contact Technical Assistance.

- Zebra Scanner 1, wired (DS4608-HC)
- Zebra Scanner 2, wireless (DS8178-HC)

## 1D Barcode (Code 128)

1D barcodes, also known as linear barcodes because of their appearance, are commonly used in the consumer industry to keep track of products and inventories. In the life sciences, biotechnology, and pharmaceutical industries, they are also used in the context of inventory tracking, consumables tracking, and tracking of patient wristbands. Code 128 is a subtype of 1D barcode most commonly used in the life sciences industry and can be read by most commercially available barcode scanners.

1D barcodes are often not used as a standalone sample tracking solution. The primary reason for this is that 1D barcodes are limited by the number and type of characters that can be included. The more characters, the longer the physical barcode becomes. Because of this, many barcodes include a serial number, simple string of text that can is used as a code that can be associated with another program, such as a spreadsheet or laboratory information management system (LIMS). For this reason, it is advantageous to use in tracking patient samples because codes are typically random and thus help to maintain confidentiality. For further applications support, visit SigmaAldrich.com or contact Technical Assistance.

## Inserting and Editing a 1D Barcode (Code 128)

1. In a new label, add a 1D barcode by selecting **1D Barcode** dropdown on the **Insert Submenu**.
2. Use the dropdown to choose between a horizontal or vertical barcode. A barcode can be also rotated after placement using the **Rotate** in the **Label Toolbar**, if desired. A vertical barcode can be useful for long, thin tubes.

   **Note:** While the vertical barcode has a reading efficiency of >90% on cryovials, be aware that there may be challenges with scanning a barcode if its lines perfectly overlap with a perforation. It is thus recommended to ensure that a printed vertical barcode can be scanned before applying it to the sample.
3. Once a 1D barcode is placed on the label and selected, a text box under the **Insert Submenu** will appear titled 1D Barcode Information. Enter desired information into the text box, keeping in mind that 1D barcodes have limited characters available*, in order to ensure that the 1D barcode will property fit into the space that the label size allows and avoid misprints.
4. Once finished, click on **Generate 1D**. This will turn the 1D barcode from grey to black in the **Label Preview**, and may update its size (depending on the number of characters entered). To edit information in the barcode and make changes, update the text in the 1D Barcode Information text box and click on **Generate 1D** again.

*Allotted Character Count (1D barcodes):
Vertical barcodes (20 numerical, 10 alphanumerical, 10 with letters only, 10 with special characters only);
Horizontal barcodes (20 numerical, 18 alphanumerical, 17 with letters only, 17 with special characters only).

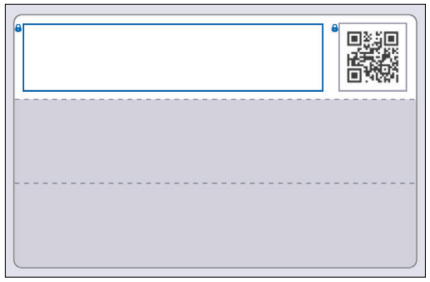
5. To show (and print) the text encoded in the 1D barcode on the label, check **Show Text**. This can be helpful for ensuring that data is transferred regardless of whether the scanning is successful.

   **Tip:** Random numbers, available in the **Features Submenu** can be especially helpful for putting information into a 1D barcode. To automatically generate a random number, select the **Randomized Serial** feature under the **Features Submenu** when the cursor is blinking inside the 1D Barcode Information text box. Choose the number of characters to include in the random number, and check **Include Letters**, if alphanumerical digits are desired. Numerical only digits are the default. Press **OK** to confirm.

6. Data entered into the 1D barcode will always be saved if the label is saved to **My Labels** or **Shared Labels**. Random numbers will also remain the same when the label is loaded again.

7. If multiple copies of a 1D barcode created using random serial numbers are printed, then each printed label copy will have a different random serial number encoded in the barcode.

## 2D Barcode (QR Code)



2D barcodes, especially QR codes, are commonly used in the consumer industry to encode large amounts of information and more often, to direct to another source of information (such as a webpage or database). These barcodes are read by scanners in two dimensions, hence their name and why they are often square in shape. Within the life science, biotechnology and pharmaceutical industries, 2D barcodes are often placed on products to provided detailed information about that product, such as catalog number, contents/composition, manufacturer, date produced, serial number, and other product identifiers. QR codes are one subtype of 2D barcode and the most well-known.

While 2D barcodes can certainly be utilized in the same way as 1D barcodes, they have an added advantage of additional information storage capacity. This is because the data encoded affects the barcode organization in two dimensions (called density), thus a 2D barcode is much less sensitive to changes in its physical size as it corresponds to added characters/information versus 1D barcodes. This is an advantage because, depending on the size and density of the 2D barcode, it is possible for the barcode itself to include enough information to standalone versus connect to an external database or spreadsheet. The **Aliquoting MilliSentials™ Lab Feature** takes advantage of this (see *page 28* for details). This is a useful tactic to gain significant information about a sample at the point of use. Additionally, 2D barcodes (especially QR codes) have an added benefit of connecting to external sources, such as webpages, shared documents and databases, where information can be updated in real-time without updating the barcode itself. It is important to note that the higher the density of the barcode, the more difficult it can be to read successfully with a barcode scanner, especially when applied onto rough or curved surfaces. For further applications support, visit SigmaAldrich.com or contact Technical Assistance.

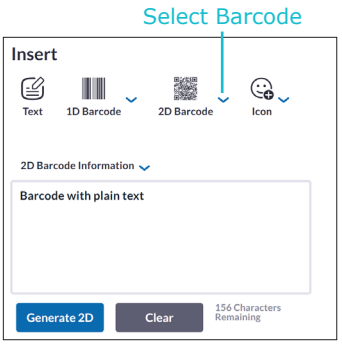
## Inserting and Editing a 2D Barcode (QR Code)

1. In a new label, add a 2D barcode by selecting **2D Barcode** dropdown on the **Insert Submenu**.

2. Use the dropdown to choose between a small or large 2D barcode. A small 2D barcode fits on one-third of a full label and is particularly useful for smaller lab vessels and plates/dishes. Depending on the amount of information entered into the barcode, a large 2D barcode can span one or both perforations in the MilliSentials™ Lab Adaptable Label. Large 2D barcodes can accommodate significantly more information than a small 2D barcode due to its larger size.

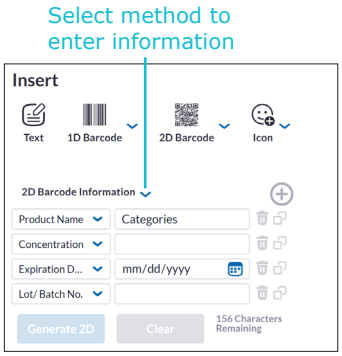
3. There are two ways enter information into a 2D barcode:

   a. **Enter information using Plain Text** (Default)**:** A text box under the **Insert Submenu** will appear titled 2D Barcode Information after a 2D barcode is placed on the **Label Preview** and selected. Type directly into the 2D Barcode information text box to add information. A real-time remaining character count will appear below the text box.




Plain Text

b. **Enter information using Categories** (Accessed using the 2D Barcode Information dropdown)**:** Use the dropdown to select Categories as the method of entering information. For details on entering Categories, see Features for 2D Barcode Categories, below.

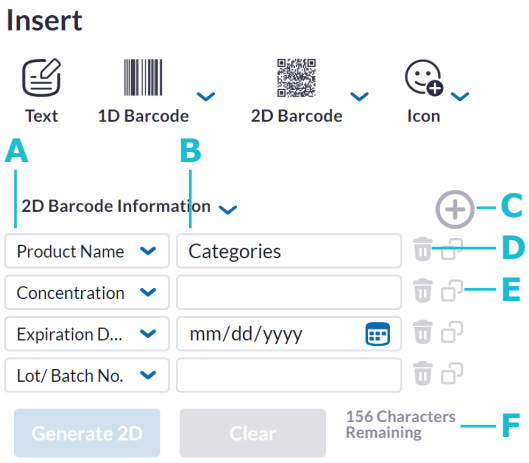


Categories

4. Once finished, click on **Generate 2D**. This will turn the barcode from grey to black in the **Label Preview**. To edit information in the barcode and make changes, update the text in the 2D Barcode Information (text box or Categories) and click on **Generate 2D** again.

## Features for 2D Barcode Categories

Entering information into a 2D barcode using the Categories feature has the added advantage of creating a list of specific sample identifiers. Rather than showing a string of text when scanned by a barcode scanner, which will occur is scanned outside of the MilliSentials™ Lab Labeling System Software, Categories scanned will be read back in the same tabular format in MilliSentials™ Lab Labeling System Software (see *"Reading Barcodes"*). This makes the barcode instantly and easily interpreted, allowing users to find the important information as quickly as possible.




**Insert Submenu** when a 2D barcode is placed and selected in the **Label Preview**. Categories are selected using the dropdown next to *2D Barcode Information*.

**A. Identifier**: Use the dropdown to choose from commonly used identifiers. Certain identifiers will appear as Categories defaults, which are different for each kind of 2D barcode.* When scanning a barcode generated using Categories, the MilliSentials™ Lab Labeling System will automatically parse the data by identifier. New Identifiers cannot be added onto the dropdown list.

**B. Category information:** Enter the information associated with the identifier chosen.

**Important!** 2D barcodes will not be generated if there are empty Categories. If **Generate 2D** is clicked when there are empty Categories, these will be highlighted in red. Enter information or delete to generate.

**C. Add:** Add a new Category (identifier and information associated with it) to the existing list of categories. When adding, keep in mind the overall character count allotted.

**D. Delete:** Delete a category identifier and its associated information.

**E. Duplicate:** Make a copy of the Category (identifier and information associated) to the existing list of Categories.

**F. Character count**:** The character count will demonstrate the remaining characters allotted in the barcode as information is entered in real-time.

*Default categories:

- For a small 2D barcodes: Product Name, Concentration, Expiration Date, Lot/Batch No. Note that the Add, Delete and Duplicate function is unavailable for small 2D barcodes due to the lower amount of allotted characters.
- For large 2D barcodes: Product Name, Concentration, Composition, Total Volume, Date, Lot/Batch No., Catalog No., Vendor
- For Parent Labels (See Chapter 5): Product Name, Composition, Concentration, Date, Lot/Batch No., Expiration Date, Prepared by
- For Child Labels (See Chapter 5): Product Name, Composition, Concentration, Date, Lot/Batch No., Expiration Date, Prepared by, Total Volume

**Allotted Character Counts:

- Small 2D barcodes: 140
  For those applied onto small tubes such as 0.5-0.6 mL tubes or HPLC vials, it is recommended to use 100 characters or less.
- For large 2D barcodes: 600

## Reading Barcodes

Both 1D and 2D barcodes are typically scanned using a wired or wireless barcode scanner or a mobile device. There are many barcode scanners that are commercially available; however, not all have the right technology to successfully scan both 1D and 2D barcodes.

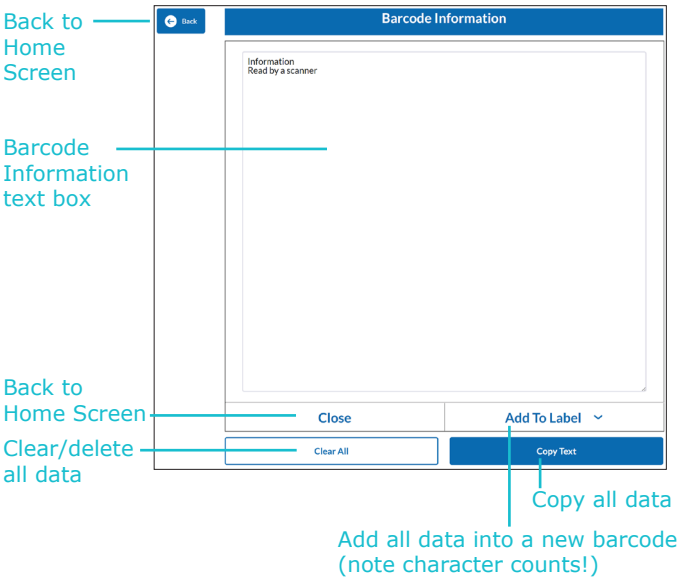
To ensure the maximum reading success and efficiency, all Lab Templates that utilize barcodes in the MilliSentials™ Lab Labeling System have been validated for successful scanning with the recommended barcode scanners (below) when applied to their recommended laboratory vessels (see *page 20* for a list of laboratory vessels). Further, they have the suitable specifications to accommodate the horizontal, vertical, small and large barcode sizes and types utilized in the Software. For more information and guidance on barcode scanners, see SigmaAldrich.com or contact Technical Service.

- Scanner 1, wired (DS4608-HC)
- Scanner 2, wireless (DS8178-HC)

**Important!** For best scanning data interpretation results, it is recommended to use the MilliSentials™ Lab Labeling Software to read both 1D and 2D barcodes generated while using the Software. Barcodes generated elsewhere can also be read with the Software, but the ideal formatting of the information in the **Read Barcode Screen** cannot be guaranteed.

**Note:** For best results on different vessel types, always apply barcoded labels flat and without wrinkles or creases. When wrapping barcoded labels around tubes, ensure the barcodes are not applied crooked or skewed, as this can impact scanning.

### To read a barcode:




1. Follow the instructions accompanying the barcode scanner to install the hardware.
2. Once a scanner is installed on the computer, from **Home**, select the **Read Barcode** button.
3. The **Read Barcode Screen** will appear and a cursor will be automatically blinking in the **Barcode Information** text box.
4. Scan barcode using the installed scanner.
5. The text encoded within the barcode will appear in the **Read Barcode Screen** as either a string of text (1D barcode, 2D barcode, Plain Text) or as tabular Categories (2D barcode, Categories).
6. Additional barcodes can be read. If the existing barcode information is not cleared or deleted from the Barcode Information text box, information associated with additional barcodes scanned will appended to the end of the existing text in a list.
7. If desired, copy the text, by selecting **Copy Text**. This will copy all of the text in the **Barcode Information** text box to the clipboard. Copy and paste into another label in the **Label Editor Screen**, or an external program, document or spreadsheet using CTRL+c command.
8. If desired, delete the text selecting it and pressing the backspace button on the keyboard, or delete all of the text by selecting **Clear All**.

### Add to Label

This unique feature of the **Read Barcode Screen** and Barcode Information text box is the ability to transfer the information from one or more scanned barcodes into a new label, using two clicks.

1. Populate the **Barcode Information** text box, by scanning one or more barcodes.
2. Select **Add To Label** dropdown.
3. From the dropdown, select the type of barcode desired (choose from horizonal 1D barcode, vertical 1D barcode, small 2D barcode and large 2D barcode).

   **Important!** Remember that each type of barcode has specific allotted character counts. If more characters are added to a label than allotted character counts, the data will automatically truncate to the proper character count.
4. The selected barcode type, encoded with the copied information, will be placed into the **Label Workspace**.
5. Copy, paste, edit, add, print and save the information as desired.

**Note:** After scanning multiple barcodes, **Add to Label** will be grayed out.

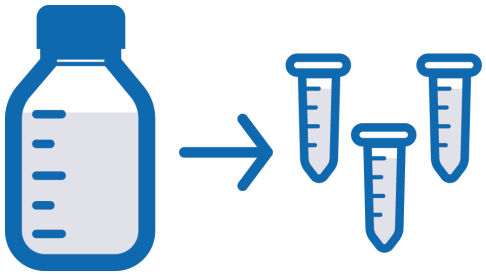
**Note:** The Add to Label feature will only apply to a single barcode scan and not multiple in series. If users wish to add multiple barcodes into a label, use the copy feature.

# MilliSentials™ Lab Features

In this section: How to automatically create labels for the aliquoting workflow using 2D barcodes, create a MilliSentials™ Parent Label for a reagent, transfer the information from the Parent Label (reagent) into a MilliSentials™ Child Label for an aliquoted sample by scanning the barcode.

## MilliSentials™ Parent and Child Labels

In life science research, it is common to take subsamples of a chemical, reagent or sample in order to process and utilize that reagent more effectively. A common example of this is aliquoting, commonly implemented in protein biology and cell culture workflows, where small subsamples, or aliquots are taken from a larger sample or reagent for storage and single-use purpose. For cell culture media supplements, antibodies and proteins, this process is often used to avoid excessive freeze-thaw cycles that may damage the samples. Typically, aliquoting involves taking subsamples from a large container/bottle and putting a smaller volume into several smaller containers (such as centrifuge tubes). Often times, the larger container is called the "Parent" or "Reagent" while the smaller is called the "Child" or "Aliquot".



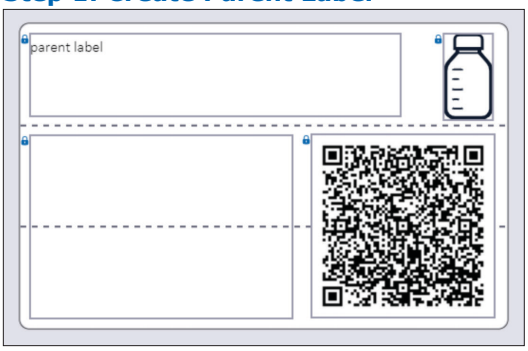
Aliquot Workflow

To accommodate this common workflow, the MilliSentials™ Lab Labeling System allows automatic creation and printing of **Child Labels** from a **Parent Label** utilizing 2D barcode information, through **MilliSentials™ Lab Features**.

This process is three steps:

1. Create, print and apply the Parent Label.
2. When ready to aliquot, read Parent Label using a recommended barcode scanner.
3. Edit (if needed), print and apply Child Labels.

### Step 1: Create Parent Label




**MilliSentials™ Parent Label**, also known as "Reagent Label" for aliquoting workflow

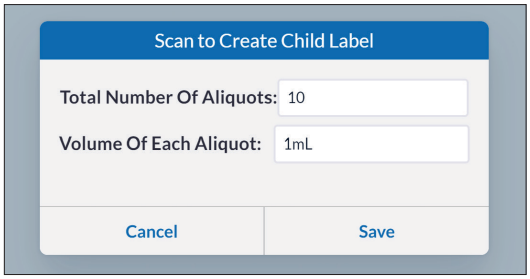
1. From **Home**, select **MilliSentials™ Lab Features** button.
2. Select the **Aliquot** button.
3. Select **Create Parent Label**.
4. A **Lab Template** will appear with text boxes, a large 2D barcode, and an icon that denotes the label as a **MilliSentials™ Parent** label.
5. Enter the desired information into the text boxes and format them as desired.

   **Note:** Since the MilliSentials™ Parent Label is a Lab Template, all text boxes and objects appear in the locked state and cannot be unlocked, to avoid misprints due to misalignment. Thus, some features in Label Toolbar are disabled. To unlock the text boxes or objects, save the label as a My Label or Shared Label, open it again and check the Lock Object Toggle.
6. Select the barcode to open **Categories*** feature (default for Parent & Child Labels).
7. Enter information for each **Category** (identifier and information associated). Delete, edit, and add Categories as necessary, keeping note of the real-time character count.
8. Click on **Generate 2D**. The 2D barcode will turn from grey to black in the **Label Preview**. Click **Generate 2D** every time information in the Categories is changed or edited.
9. Save to **My Labels** or **Shared Labels**, if desired.
10. Print and apply the label onto the parent reagent to be aliquoted at a later date.

*Default categories for Parent Labels: Product Name, Composition, Concentration, Date, Lot/Batch No., Expiration Date, Prepared by.

## Step 2: Read Parent Label barcode with a scanner

11. When ready to make aliquots, select **MilliSentials™ Lab Features** button from **Home**.
12. Select the **Aliquot** button.
13. Select **Create Child Label**.
14. Enter a numerical value for the **Total Number of Aliquots** in the prompt (this will be the number of copies of the Child Label that will be needed). Enter an alphanumerical value for the **Volume of Each Aliquot** (for example, 1 mL).




Scan a **MilliSentials™ Parent Label** to create a **Child Label** (Also known as an "Aliquot Label")

15. Press **Save**.
16. A prompt will appear to **Scan Parent Label Barcode**. Scan the **MilliSentials™ Parent Label** created in Step 1.
17. Scanning automatically triggers the transfer of information encoded in the **MilliSentials™ Parent Label** into a new **MilliSentials™ Child Label**, which will open in the Label Workspace.

## Step 3: Edit (if needed), print and apply Child Labels

18. Scanning triggers information transfer from the **Parent Label** into the **Child Label** in the **Label Workspace**. Because the aliquoting workflow typically involves transfer from a large to a small vessel, the **MilliSentials™ Child Label** is smaller, encompassing only one-third of a full label. It has a text box, a small 2D barcode, and an icon that denotes it as a **MilliSentials™ Child label**.


**MilliSentials™ Child Label**, also known as "Aliquot Label" for aliquoting workflow

**Note:** Since the **MilliSentials™ Child Label** is a **Lab Template**, all text boxes and objects appear in the locked state and cannot be unlocked, to avoid misprints due to misalignment. Thus, some features in **Label Toolbar** are disabled. To unlock the text boxes or objects, save the label as a **My Label** or **Shared Label**, open it again and check the **Lock Object Toggle**.

19. Enter desired information into the text boxes.
20. The 2D barcode Categories** are automatically populated from the **Parent Label**. Add, edit and format information as needed. If the **Lab Template** for the **Child Label** is not appropriately sized for the desired laboratory vessel, transfer all of the data into a new **Lab Template** using the **Load Label** function.
21. The **Print Quantity** is automatically set according to the Total Number of Aliquots entered in Step 2. Change if desired.
22. Press **Print** and apply the labels to the individual aliquots.
23. **Save** the **Child Labels**, if desired.

**Default Categories for Child Labels: Product Name, Composition, Concentration, Date, Lot/Batch No., Expiration Date, Prepared by, Total Volume

## Remote Access on Mobile Devices

In this chapter: **Requires internet connection!** The process for accessing the MilliSentials™ Lab Labeling System on a tablet, computer, or smartphone after initial download onto a Host Computer.

User devices separate from your host computer can be used to print if they are connected to the same network as the host computer. User devices can be Windows® computers, Mac® computers, tablets or smartphones.

Recommended browser versions:

| | |
|---|---|
| Windows® | Chrome, 125.0.6422.142 (Official Build) (64-bit) or higher |
| Mac® | Chrome 126.0.6478.115 (Official Build)<br>Safari 17.5 |
| Android® | Chrome, 15.22.32.29.arm64 or higher |
| iOS® | Chrome, 126.0.6478.54 or higher |

1. Set up host computer as described in the previous section, using either hardware (USB) connection or a network connection. Remember, the host computer must have Windows® 10 OS or higher installed.
2. Locate and write down the IPv4 Address of your host computer:
    a. Microsoft® Windows® 10 OS host computer
        1. Connect to a wireless network.
        2. Click on the network symbol in the bottom right-hand corner of your desktop, select your network name and click “properties”. On the pop up window, scroll down to locate and copy the IPv4 address.
    b. Microsoft® Windows® 11 OS host computer
        1. Connect to a wireless network.
        2. Click on the network symbol in the bottom right-hand corner of your desktop, select the right facing arrow next to the name of the network you are connected to.
        3. In the upper right corner of the wireless network menu, select the (i) symbol to get more detailed network information.
        4. In the pop up window, scroll down to locate the IPv4 address.
3. From your user device, which can be a Windows® or Mac® computer, Android® or iOS® mobile device, open the Google® Chrome™ browser and type the IP address in the address bar near the top of your browser, followed by :8080. For example, 12.123.23.123:8080
4. Press enter and the MilliSentials™ Lab Labeling system Software will load onto your screen.
5. Using the MilliSentials™ Lab Labeling system Software to create and print lab labels. Saving templates will save the file on the host computer (not your device).

**Note:** Formatting of the program on a small screen may look different than it does on a larger screen.

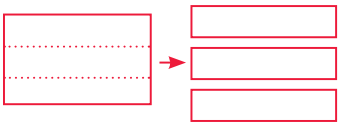
**Note:** The host computer must be running the MilliSentials™ Lab Labeling system Software. If your host computer is turned off or goes to sleep, you may not be able to connect successfully.

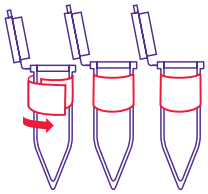
# MilliSentials™ Lab Adaptable Labels

In this chapter: Review MilliSentials™ Lab Adaptable labels features, how to use perforations and apply labels, and chemical, temperature and vessel material compatibility.

## MilliSentials™ Lab Adaptable Labels

MilliSentials™ Lab Adaptable Labels are custom designed to have two horizontal perforations that split one full sized label into three smaller labels. These perforations are designed to allow users to customize their label size to their vessel of interest.



0.5-0.6mL

- Apply the MilliSentials™ Lab Adaptable Labels onto surfaces at room temperature and in a dry environment.
- The MilliSentials™ Lab Adaptable Labels can be easily handled while wearing nitrile gloves. After applied, the label adhesive will become stronger over time. For best results (if possible), wrap the label fully around the desired vessel so that the label adhesive touches itself.

## Printed Label Compatibility

- In addition to printing, you can write on the MilliSentials™ Lab Adaptable Labels using permanent ink markers (Sharpie®) or ethanol-resistant pens. Consult the pen manufacturer for chemical and temperature resistance and compatibility of the ink.
- Printed lab labels have been tested for compatibility with common laboratory chemicals (see table).
- Printed lab labels have been tested for compatibility with temperatures commonly used in the lab on a variety of different surfaces for up to 1 year (see table). Boiling and autoclave conditions were tested for 30 minutes.

## Chemical Compatibility

- Water
- Isopropyl alcohol (≤95%)
- Ethanol (≤95%)
- Dimethyl- sulfoxide(≤70%)
- Methanol (≤95%)
- Acetonitrile (≤75%)
- Bleach (≤70%)
- Xylene (≤95%)
- Acetone (≤95%)

## Surface and Temperature Compatibility

| Surface | Recommended Compatible Temperature Range |
|---|---|
| Steel | -20 °C (freezer) to 20–25 °C (room temperature) |
| Polypropylene | -196 °C (liquid nitrogen) to 100 °C (boiling water) and withstands 30 minute autoclave cycle |
| Polyethylene | 4–8 °C (refrigerator) to 20–25 °C (room temperature) |
| Glass | 4–8 °C (refrigerator) to 100 °C (boiling water) and withstands 30 minute autoclave cycle |
| Cardboard | -80 °C (ultra-low temperature) to 20–25 °C (room temperature) |
| Styrofoam | -80 °C (ultra-low temperature) to 37 °C |
| Polycarbonate | 4–8 °C (refrigerator) to 20–25 °C (room temperature) |
| Polystyrene | -20 °C (freezer) to 37 °C |

# Troubleshooting

## FAQ

| Topic/Question | Cause | Answer/Suggested Fix |
|---|---|---|
| **Software Installation** | | |
| I have an older device that does not match the requirements. Can I still use it? | -- | The MilliSentials™ Lab Labeling System Software was optimized for the recommended operating systems and browser versions. We do not guarantee that the program will be optimized for other systems. |
| **Ribbon and Label Installation** | | |
| I unwrapped my ribbon so that the plastic wrapping is no longer attached. How can I install the ribbon? | -- | The plastic wrapping is used to attach the ribbon to the cardboard core adapter. As an alternative, you may use tape or a MilliSentials™ Lab Adaptable Label to attach the ribbon to the core. |
| Printer wasting 1 to 3 labels after closing the printer. | Printer is self calibrating. | We recommend keeping this on to ensure proper alignment but the feature can be disabled. See *Disable Self-Calibration (p.35).* |
| **Installing your Printer** | | |
| After installing the printer, the MilliSentials™ program did not show the printer name. | Printer drivers not compatible with computer operating system. | Check *Software and Computer Requirements (p.7)* to make sure your system is compatible with the printer and software. |
| | USB was disconnected. | Check the USB connection to the computer. If connected, unplug both ends of the cable and plug in again. |
| | The MilliSentials™ program was not restarted after initial installation. | Close MilliSentials™ Lab Labeling System Software and re-start your computer. Re-open the MilliSentials™ program. |
| **Label Alignment and Printer Settings** | | |
| I accidentally reset my printer. What should I do? | -- | See *Using the Print Wizard (p.35).* |
| My label text is misaligned slightly right/left or up and down. | A minor text adjustment may be necessary. | See *Making Minor Label Alignment Adjustments (p.34).* |
| **Setting up by Configuring Wireless Connectivity** | | |
| The network light never turned green and I never got an IP address. | Incorrect Country selected<br>Incorrect Network Name<br>Incorrect PSK (password) | Go through the steps for printer set up again. Ensure that the correct country is selected from the drop-down menu. Ensure that the network name (ESSID) is exactly how it appears on your network connection and the password is entered correctly with no typos. |
| | Network issue causing problems with wireless configuration. | If problem persists, try another wireless connection or contact your IT administrator. Use Simple Kiosk Mode via Hardwire (USB) printing in the meantime. |
| | IT Administrator or Security issue. | |

| Topic/Question | Cause | Answer/Suggested Fix |
|---|---|---|
| **Using MilliSentials™ Lab Labeling System Software V2** | | |
| My printer icon is red, even after updating my connection (on a host computer connected via USB). | USB cable not well connected. | Check the connection of your USB cable. |
| | IP address typo in the Settings menu or "update" not confirmed. | Ensure that you have the correct IP address (periods included) entered and that you've pressed "update" under the settings menu. |
| My printer icon is red, even after updating my connection (on a host computer connected via network). | Wireless connection spotty or unstable or Wireless connection dropped. | Check your network connection. The printer will provide occasional error messages if the connection is not stable. If the problem persists for wireless connection, try connecting using Simple Kiosk Mode via hardwire connection, as the connection may not be stable, and contact your IT administrator. |
| My printer icon is red, even after updating my connection (accessing a host computer from another device over network) | Lag time | Depending on your network, the connection to the printer may take a few moments to establish. |
| | Host computer not connected to the printer. | Go to "Settings" and ensure that printer connection is established. |
| | Host computer is asleep or locked and/or is not running the MilliSentials™ Lab Labeling System Software. | Ensure that the host computer is turned on and does not go to sleep, and that the MilliSentials™ Lab Labeling System Software is running. |
| | Accessing device not connected to the same network as host computer. | Check to make sure that your accessing device is connected to the same network as the host computer. |
| | Wireless connection spotty or unstable or Wireless connection dropped. | Check your network connection. The printer will provide occasional error messages if the connection is not stable. If the problem persists for wireless connection, try connecting using Simple Kiosk Mode via hardwire connection, as the connection may not be stable, and contact your IT administrator. |
| Fonts that I selected in the Software are not printing as expected. | Fonts not downloaded onto the printer hardware properly or completely. | Download fonts (see *User Diagnostic Tools (p.34)*) or contact Tech Support. |
| **Reading 1D and 2D Barcodes** | | |
| Barcode scanner is not reading my barcode correctly. | Distortion of the printed barcode by incorrect label application | Check that the barcode is not too curved on a rounded surface. Ensure that the recommended barcode is used for recommended vessel type. Check for wrinkles on the label stock after application of the label. |
| | External conditions prevent barcode reading | Check for layers of frost or liquid over the barcode and remove prior to scanning. |
| | Perforation disrupted barcode image | Ensure that the barcode was not printed over a perforation (specifically 1D vertical). Re-align and print again. Always read the barcode before applying onto vessel. |
| | Incorrect barcode scanner | Ensure that the recommended barcode scanners are used with the MilliSentials™ Lab Labeling System. |
| | Mobile device used to read the barcode | |
| | Barcode is too dense on a small tube or vial. | Reduce the number of characters in the barcode from 140 to 100 or less. Refer to MilliSentials™ Lab Templates and Suitable Lab Vessels to ensure the recommended characters are used. |

## User Diagnostic Tools

### Print a Configuration Label

*For Gen 1 Printers, see Troubleshooting Gen 1 Printer (p.46)*

1. From "Print Status" or "Printer Info" under the Home screen, press "Menu".
2. On the left hand side of the screen, press "Settings".
3. Scroll down to the "Print: System Settings" option. Upon pressing this option, the settings will print out over approximately 6 full labels.

   **Note:** The configuration labels will not be properly aligned when they print.

### Making Minor Label Alignment Adjustments

*For Gen 1 Printers, see Troubleshooting Gen 1 Printer (p.46)*

1. From "Print Status" or "Printer Info" under the Home screen, press "Menu".
2. On the right hand side of the screen where there are several icons, press on the printer icon (third option down).
3. On the left hand side of the screen, select "Image Adjust".
   - If misaligned up and down: Under "Vertical Label Offset", the value will be -40. Press the (+) or (-) button to change this value incrementally. Moving in the negative direction will raise the text and moving in the positive direction will lower the text.
   - If misaligned left and right: Under "Horizontal Label Offset", the value will be -240. Press the (+) or (-) button to change this value incrementally. Moving in the negative direction will move the text toward the right and moving in the positive direction will move the text toward the left.
4. Use the MilliSentials™ Lab Labeling System Software to print a test label. If still misaligned, make minor adjustments against using Step 3 until satisfactory.

### Download Fonts for MilliSentials™ Lab Labeling System V2

Only use when directed by Tech Support.

1. Plug the MilliSentials™ USB flash drive onto the computer.
2. Wait for the drivers to load from USB flash drive device (this may take a few moments).
3. Install **Zebra® Setup Utilities** by navigating to the flash drive folder. Double click on the Zebra Setup Utilities folder and double click on **zsu-1191325.exe**.
4. A set-up wizard will help you. Click through the set-up wizard to install.
5. Connect your printer to your host computer via USB cable.
6. Open Zebra® Setup Utilities on the host computer. If prompted, select **USB**.

   **Note:** If the user has previously installed Zebra® Setup Utilities for another printer in the lab, there will be a pop-up menu that lists the currently connected printer. Click on the green **Install New Printer** icon to set up the MilliSentials™ Lab Printer.

   a. A setup wizard will start. Click next.

   b. Select **Install Printer**.

   c. Under "printers", select printer **ZDesigner ZD621-300dpi ZPL** (for Gen 1 printer, select **ZDesigner ZD620-300dpi ZPL**).

   d. Under "available ports" scroll to the USB options. Highlight the correct USB port that the cable is connected to.

   **Note:** Confirm the USB port selected is correct.

   **Optional:** in the box where the printer name is listed, you may re-name the printer to make it easily identifiable. Click next.

   e. Keep the box next to "launch installation of Zebra® Font Downloader Setup Wizard" selected.

   f. Your printer will now appear on the Zebra® Setup Utilities home screen.

   **Note:** Refresh the printer list or restart the program if you do not see anything.

**Optional:** Send a command to the printer to check your connection. Do this by printing a test configuration label. In Zebra® Setup Utilities, highlight your newly installed printer by clicking on its icon. It will highlight in blue. Then, click on **Open Printer Tools**. Under **Print Tab** (default), click on **Print Configuration Label**. If the printer responds and prints, then all internal components are installed correctly and the printer has been installed on your host computer correctly. Note: The configuration labels will not be properly aligned when they print.

**For Fonts:**

1. Click on **Open Printer Tools**.
2. Click on **Action Tab**.
3. Select "Send File" command from the list provided. Then, click on '…' to pull up the File Navigator.
4. Navigate to the MilliSentials™ USB flash drive and select the folder labeled "zpl fonts".
5. Inside the folder will be a list of font types, starting with **ari000**.
6. Select **ari000** and press **Open**. This file will open in the Action Tab. Press "Send" to transfer that font type to the printer.
7. Repeat these steps for the 25 font files available on the MilliSentials™ USB flash drive.

   **Tip:** use the check list supplied by Tech Support to keep track of which font has been downloaded.

**Perform Sensor Calibration**

1. From "Print Status" or "Printer Info" under the Home screen, press "Menu".
2. On the right hand side of the screen where there are several icons, press on the printer icon (third option down).
3. On the left hand side of the screen, select "Sensors".
4. Select the "Manual Calibration" option and follow the on-screen directions, which involves 10 steps. This process will use 15-25 labels.

**Disable Self-Calibration**

*For Gen 1 Printers, see Troubleshooting Gen 1 Printer (p.46)*

Every time the printer head is opened, closed or exits Pause Request Mode, it will self-calibrate and roll out 1 to 3 labels. This is normal and helps the printer to calibrate correctly for optimal print alignment.

To disable this feature:

1. From "Print Status" or "Printer Info" under the Home screen, press "Menu".
2. On the left hand side of the screen, press the third option down, "Settings".
3. Scroll down to "Power Up Action" and select it.
4. Scroll down and select "No Motion". Press either the arrow in the upper left hand side of the screen, or the Home icon on the upper right hand side of the screen to exit.

   **Note:** Upon leaving Pause Request Mode, there will be no sound or label movement.

   **Note:** If this function is disabled, you must press the FEED button once or twice before printing so the printer senses the mark on the bottom of the label and the label is correctly aligned. If the printer is ever misaligned, you must press the FEED button once or twice to correct alignment.

**Using the Print Wizard**

Only use when directed by Tech Support

1. From "Print Status" or "Printer Info" under the Home screen, press "Wizards".
2. On the left hand side of the screen, choose "Print" (fourth Wizard down).
3. On the "Print: Introduction" screen, select Start Print.
4. On the "Print Quality: Print Type" screen, select Thermal Transfer, and press the check mark to confirm.
5. On the "Print Quality: Media Type" screen, select either Auto Detect or Mark (either will work for this printer) and press the check mark to confirm.
6. On the "Label Width (Dots)" screen, begin typing to enter a number. Enter 1280 with the keypad and press the check mark to confirm.
7. On the "Image Adjust: Media Handling" screen, select Tear Off, and press the check mark to confirm.
8. Ensure that your labels are correctly installed and resting over the sensor in the printer at this time during the Wizard. Press the check mark to continue.
9. If the printer head is not closed, close the printer head. Press the check mark to continue.
10. If you would like to try a test label, press the check mark. If not, select the 'x'. This step is optional.
11. On the "Image Adjust: Tear Line Offset" screen, use the (-) and (+) buttons to adjust the number to 0. Press the check mark to continue.
12. On the "Print Quality: Adjustment Method", select Set Manually and press the check mark to continue.
13. On the "Print Adjustments: Set Manually" screen, select Darkness and use the (-) and (+) buttons to adjust the number to 23. Press the check mark to continue. Select the Print Speed and use the (-) and (+) buttons to adjust the number to 2. Press the check mark to continue. You may also select Print Test Label if you wish to try printing with these settings (test labels are optional). When Print Adjustment settings have been changed, press the check mark to confirm.
14. The printer will provide a message that the Print Wizard is complete.
15. There are still some settings that need adjusting. From "Print Status" or "Printer Info" under the Home screen, press "Menu".
16. On the right hand side of the screen where there are several icons, press on the printer icon (third option down).
17. On the left hand side of the screen, select "Image Adjust".
18. Scroll down and select "Horizontal Label Offset". Use the (-) and (+) buttons to adjust the offset to -240 and press the check mark to confirm.
19. Scroll down and select "Vertical Label Offset". Use the (-) and (+) buttons to ajust the offset to -40 and press the check mark to confirm.
20. Return to the printer icon as in step 16, and scroll down to "Sensors". Ensure that the "Label Sensor" is set to 10, and that the "Sensor Type" is set to Reflective. Press the arrow in the upper left hand side of the screen or the Home icon in the upper right hand side of the screen to return to the Home screen.

**Load Factory Settings on the Printer**
Only use when directed by Tech Support.
*For Gen 1 Printers, see Troubleshooting Gen 1 Printer (p.46)*

1. From "Print Status" or "Printer Info" under the Home screen, press "Menu".
2. On the left hand side of the screen, press the third option down, "Settings".
3. Scroll down to "Restore System Defaults" and select it.
4. Select "Restore Printer" and press the check mark to confirm. This action will reset the printer settings back to default.
5. You may repeat steps 1-3 and select "Restore Network" if you wish.

**Adding a New Line After Reading a Barcode**
If using the recommended barcode scanners with the MilliSentials™ Lab Labeling System V2, it is possible to configure the settings of the scanner using the accompanying manufacturer's user guide. For reading multiple barcodes in sequence, it may be adventitious for the cursor to appear on a new line after each read. In order to configure the recommended scanners in this way, scan the barcode for your scanner below, or refer to the manufacturer's user guide.

DS4608-HC

DS8178-HC

# Specifications (Gen 2 MilliSentials™ Lab Printer)

## MilliSentials™ Lab Printer

| | |
|---|---|
| Length | 267 mm (10.5 in.) |
| Width | 202 mm (8.0 in.) |
| Height | 192 mm (7.6 in.) |
| Weight | 2.5 kg (5.5 lb) |
| Operating System | Link-OS® |
| Resolution | 12 dots per mm (300 dpi) |
| Memory | 512 MB Flash;<br>256 MB SDRAM |
| Maximum Print Width | 108 mm (4.26 in.) |
| Maximum Print Speed | 152 mm (6 in.) per second |
| Media Sensors | Full width, movable reflective/black mark sensor; multi-position transmissive/gap sensor |
| Firmware | ZPL II; EPL 2; XML; ZBI; PDF Direct |
| Communications | 802.11ac Wi-Fi® and Bluetooth® 4.1 (dual radio) |
| User Interface | 4.3" full color touch LCD Resolution:<br>480 wide x 272 high |
| Operating Temperature | 4.4–41 °C<br>(40–105 °F) |
| Operating Humidity | 10-90% non-condensing |
| Storage Temperature | -40–60 °C<br>(-40–140 °F) |
| Storage Humidity | 5–95% non-condensing |
| Cleaning Agents* for Housing | Isopropyl and ethyl alcohol, ammonium, hydrogen peroxide, phosphoric acid, bleach/sodium hypochlorite, sodium troclosene/sodium dichloroisocyanurate, mild dish soap |
| UV Compatibility | UV Compatible |
| Electrical | Auto-ranging (PFC Compliant) 100–240 VAC, 50–60 Hz |
| Warranty | 3-year Zebra® OneCare |

## MilliSentials™ Lab Adaptable Label Roll

| | |
|---|---|
| Label Length | 51.5 m (169 ft)<br>Maximum: 991 mm (39.0 in.) |
| Label Media Width | 46.8 mm (1.844 in.)<br>Range: 15–118 mm (0.595–4.65 in.) |
| Media Roll Size (Outer Diameter) | 120.6 mm (4.75 in.)<br>Maximum: 127 mm (5.00 in.) |
| Media Roll Size (Core Inner Diameter) | 25.4 mm (1 in.) core |

## Individual Adaptable Label

| | |
|---|---|
| Length | 28.5 mm (1.125 in.) |
| Width | 43.6 mm (1.72 in.) |
| Thickness | 1.27 mm (0.050 in.) |
| Length of one third label | 9.5 mm (0.375 in.) |
| Label Type | Continuous black mark |

## MilliSentials™ Lab Printer Ribbon

| | |
|---|---|
| Ribbon Length | 300 m (984 ft.) |
| Ribbon Size (Outside diameter) | 66 mm (2.6 in.) |
| Ribbon Ratio | 1:4 ribbon to media |
| Ribbon Width | 59.9 mm (2.36 in.)<br>Range: 33.8–109.2 mm (1.33–4.3 in.) |
| Ribbon Core (Inner Diameter) | 25.4 mm (1 in.) |

* Do not mix cleaning agents.

# Specifications (Gen 1 MilliSentials™ Lab Printer)

## MilliSentials™ Lab Printer

| | |
|---|---|
| Length | 267 mm (10.5 in.) |
| Width | 202 mm (8.0 in.) |
| Height | 192 mm (7.6 in.) |
| Weight | 2.5 kg (5.5 lb) |
| Operating System | Link-OS® |
| Resolution | 12 dots per mm (300 dpi) |
| Memory | 512 MB Flash;<br>256 MB SDRAM |
| Maximum Print Width | 108 mm (4.26 in.) |
| Maximum Print Speed | 152 mm (6 in.) per second |
| Firmware | ZPL II; EPL 2; XML; ZBI |
| Communications | 802.11ac Wi-Fi® and Bluetooth® 4.1 |
| User Interface | Color LCD<br>(320 x 240 resolution) |
| Operating Temperature | 4 °C to 41 °C<br>(40 °F to 105 °F) |
| Operating Humidity | 10-90% non-condensing |
| Storage Temperature | -40–60 °C<br>(-40–140 °F) |
| Storage Humidity | 5–95% non-condensing |
| Cleaning Agents* for Housing | Isopropyl and ethyl alcohol, ammonium, hydrogen peroxide, phosphoric acid, bleach/sodium hypochlorite, mild dish soap |
| UV Compatibility | UV Compatible |
| Electrical | Auto-ranging (PFC Compliant) 100–240 VAC, 50–60 Hz |
| Warranty | 3-year Zebra® OneCare |

## MilliSentials™ Lab Adaptable Label Roll

| | |
|---|---|
| Label Length | 51.5 m (169 ft)<br>Maximum: 991 mm (39.0 in.) |
| Label Media Width | 46.8 mm (1.844 in.)<br>Range: 15–118 mm (0.595–4.65 in.) |
| Media Roll Size (Outer Diameter) | 120.6 mm (4.75 in.)<br>Maximum: 127 mm (5.00 in.) |
| Media Roll Size (Core Inner Diameter) | 25.4 mm (1 in.) core |

## Individual Adaptable Label

| | |
|---|---|
| Length | 28.5 mm (1.125 in.) |
| Width | 43.6 mm (1.72 in.) |
| Thickness | 1.27 mm (0.050 in.) |
| Length of one third label | 9.5 mm (0.375 in.) |
| Label Type | Continuous black mark |

## MilliSentials™ Lab Printer Ribbon

| | |
|---|---|
| Ribbon Length | 300 m (984 ft.) |
| Ribbon Size (Outside diameter) | 66 mm (2.6 in.) |
| Ribbon Ratio | 1:4 ribbon to media |
| Ribbon Width | 59.9 mm (2.36 in.)<br>Range: 33.8–109.2 mm (1.33–4.3 in.) |
| Ribbon Core (Inner Diameter) | 25.4 mm (1 in.) |

* Do not mix cleaning agents.

## Glossary

**0.5-0.6 mL Tube (MilliSentials™ Lab Template):** A lab vessel size referenced in MilliSentials™ Lab Labeling System Software. This template is one third of a full label.

**1-2 mL Tube (MilliSentials™ Lab Template):** A lab vessel size referenced in MilliSentials™ Lab Labeling System Software. This template is two thirds of a full label.

**1D Barcode:** A type of barcode commonly used to keep track of products and inventories, also called linear barcodes due to their appearance. The length of the barcode is directly related to the number of characters encoded within it, and is thus not typically used as a standalone tracking solution. Often, Randomized Serial numbers are used to connect 1D barcodes and samples to an external database or spreadsheet.

**2D Barcode:** A type of barcode that is read by a barcode scanner in two dimensions. Used for encoding large amounts of information that can be accessed at the point of scanning, or direct to another source, such as through a webpage or database.

**5 mL+ Tube (MilliSentials™ Lab Template):** A lab vessel size referenced in MilliSentials™ Lab Labeling System Software. This template is one full label.

**Aliquot:** Commonly implemented in protein biology and cell culture workflows, aliquots are small subsamples taken from a larger sample or reagent for storage and single-use purpose. Often used to avoid freeze-thaw cycles.

**Aliquot Label:** (see *Child Label*)

**Authenticated User:** A user who has created a profile and is logged into the MilliSentials™ Lab Labeling System Software.

**Barcode Scanner:** An instrument used to scan and record data in a barcode. Barcode scanners can read only 1D barcodes, only 2D barcodes, or both and may be cordless and corded. There are two models recommended for use with the MilliSentials™ Lab Labeling System Software.

**Categories (2D Barcode Information):** A method of entering information into a 2D barcode in the MilliSentials™ Lab Labeling System Software, where data is entered into a more standardized, tabular format that can be read back by the Software in the same way in which it was entered, using a series of identifiers and textboxes. Categories is the default method of entering information for 2D barcodes in MilliSentials™ Lab Features, Parent and Child Labels.

**Category Defaults (Categories):** A pre-defined set of Category Identifiers in a 2D barcode. Defaults are different for small and large 2D barcodes, Parent Labels and Child Labels.

**Category Identifier (Categories):** A label that defines Category Information in a 2D barcode. There are several identifiers to choose from, such as Product Name, Lot Number, Expiration Date, Notes and many more.

**Category Information (Categories):** A textbox associated with a Category Identifier in a 2D barcode where data specific to the sample can be entered. Individual textboxes do not have character limits; however, the overall character count for the 2D barcode will count down in real-time as data is entered.

**Child Label:** A type of Lab Template created for aliquoting workflow for MilliSentials™ Lab Features. The Child Label is automatically created by scanning the barcode created on the Parent (or Reagent) Label and is meant for application onto smaller lab vessels.

**Code 128:** A very common subtype of 1D barcode. This subtype is used in the MilliSentials™ Lab Labeling System.

**Cryovial (MilliSentials™ Lab Template):** A lab vessel size referenced in the MilliSentials™ Lab Labeling System Software. This template spans the full label with some grey non-printable area on the left to allow for wrapping around the vial.

**Element:** (see *Object*)

**Ethernet Connection:** A network connection which uses a specific hardwired "Ethernet cable" to connect a printer or computer to a network outlet.

**Export:** Saving a label created in the MilliSentials™ Lab Labeling System Software into a different file format (choice of .PDF, .PNG, or .JPEG), and is a strategy for record-keeping in external programs such as electronic lab notebooks.

**Freeform (MilliSentials™ Lab Template):** A type of Lab Template that utilizes the full label area and does not include any locked elements. Also known as a *Blank Label*. Once objects in a MilliSentials™ Lab Template are unlocked, the Lab Template will change to a Freeform format, indicating that users are free to place, edit, and move objects as they wish.

**Full Label:** The full label is one label with all perforations intact, meant to fit on vessels that are larger than 5 mL volume. Freeform templates and blank labels use the full label.

**Gen 1 MilliSentials™ Lab Printer:** A MilliSentials™ Lab Printer with an LCD Screen and membrane buttons to access hardware settings. All printing features, connection options and Software compatibility is the same between Gen 1 and Gen 2 printers.

**Gen 2 MilliSentials™ Lab Printer:** A MilliSentials™ Lab Printer with a Touch LCD Screen to access hardware settings. All printing features, connection options and Software compatibility is the same between Gen 1 and Gen 2 printers.

**Generate Barcode:** The act of incorporating data into a 1D or 2D barcode. It is required to "Generate 1D" or "Generate 2D" every time data is entered into the barcode before printing. When a barcode is generated, it will go from gray to black in the Label Preview.

**Hardwire (USB) Connection:** A method to set up the Lab Labeling System, by connecting the host computer to the printer using a USB cable.

**Host Computer:** A Windows® computer that is used to install the printer and facilitates use of the MilliSentials™ Lab Labeling System Software.

**Increments:** A Quick Element Feature that starts on a numerical digit (chosen between 1-10) and increments up by +1 for every copy of a label printed. For example, if an increment starting at 2 is added to the end of "Sample" and two copies are printed, then the label will print "Sample 2" for copy 1 and "Sample 3" for copy 2.

**IP Address or IPv4:** The "IP" part of IP address stands for "Internet Protocol." The "address" part refers to a unique number that gets linked to all activity to or from that device. V4 is version 4. The printer IP Address appears on the Touch LCD Screen, under "Printer Info". If it is all zeros, the printer is not connected to the network.

**Lab Template:** (see *MilliSentials™ Lab Templates*)

**Linear Barcode:** (see *1D Barcode*)

**Lock Object:** An option on the right-hand Label Properties Bar that when toggled, locks and object to prevent it from being edited, moved or re-sized. Objects in MilliSentials™ Lab Templates are automatically loaded into the Label Workspace as locked. This reduces accidental misprints and misalignment. Locked objects are indicated as locked using a small icon in the lower left-hand corner.

**MilliSentials™ Lab Features:** Features in the MilliSentials™ Lab Labeling System Software that follow a unique process for printing and utilizing barcoded labels in order to streamline certain workflows in the lab, such as Aliquoting.

**MilliSentials™ Lab Templates:** Specifically designed to limit the printable area of the label preview to avoid covering text once applied to and wrapped around certain types of vessels and tubes. Text and barcodes included in Lab templates are pre-defined, sized, positioned and validated for successful barcode reading on the vessel they are created for, and printing without misalignment and/or misprints.

**My Labels:** A saved label in the MilliSentials™ Lab Labeling System Software, to be accessed later. My Labels can only be accessed by the user profile that created them, unless saved as a Shared Label.

**Network Connection via Wireless:** A wireless connection that provides communication to the network without the need for cables. This can be used to connect the printer and host computer as well as other devices.

**Non-printable Working Area:** The grey area in the Label Workspace. Objects can be moved in and out of this area when labels are in progress; however, any objects in this space will be marked with a yellow notification and will not be printed if the print button is pressed. This also occurs for objects partially in the non-printable working area.

**Non-useable Template Space:** Additional non-printable Working Area incorporated into the Label Preview of a MilliSentials™ Lab Template, in order to accommodate possible wrapped around area on the vessel for that Template. Any objects in this space will be marked with a yellow notification and will not be printed if the print button is pressed. This also occurs for objects partially in the non-useable template space.

**Object:** Textboxes, 2D barcodes, 1D barcodes, Icons, and Quick Elements that can be placed onto the Label Preview. Objects can be edited, aligned, moved, locked, unlocked and in some cases, re-sized.

**One third of a Label:** This refers to a single piece of the label after a full label has been split into three sections using the perforations. This format of the label is intended to be wrapped around a 0.5-0.6 mL vial or tube, or on a plate/dish, and can be used on other vessels.

**Parent Label:** A type of Lab Template created for aliquoting workflow for MilliSentials™ Lab Features. The Parent Label is the label for the reagent to be aliquoted (or subsampled) at a later date and contains a large amount of information.

**Perforation:** A row of small holes in a piece of paper or full label to make it easier to separate without use of scissors. The MilliSentials™ Lab Adaptable Labels have two horizontal perforations that allow users to seperate the label into thirds.

**Perforation Indicators:** Dotted lines in the Label Preview that indicate the location of the perforations once printed. Indicators are in the Preview to help with alignment and are not printed.

**Plate/Dish (MilliSentials™ Lab Template):** A lab vessel size referenced in MilliSentials™ Lab Labeling System Software. This template splits the full label into thirds and allows the text to fully span the label width.

**QR Code:** The most well-known subtype of 2D barcode. This subtype is used in the MilliSentials™ Lab Labeling System.

**Quick Element Feature:** Accessed under the Features Submenu as button, Quick Elements allow the user to add information into the Label Preview with a single click, as part of a string of text, in a barcode, or as their own textbox. Marked with brackets ([ ]) for indication only and are not printed.

**Randomized Serial:** A Quick Element Feature that adds a random serial number into a textbox or barcode. Choose the total number of digits (1-15) and check whether they are strictly numeric or alpha numeric (includes letters). Randomized Serial numbers change for every print, including multiple quantities.

**Read Barcode:** The act of collecting and documenting information collected in a 1D or 2D barcode, often using a Barcode Scanner or mobile phone camera.

**Reading Efficiency:** The percentage of printed barcodes that are successfully read using the recommended barcode scanners.

**Reagent Label:** (see *Parent Label*)

**Recent Labels:** A chronological list of the twenty most recently accessed, printed and/or saved labels that appears to the right of the Home Screen for logged in user profiles. Recent Labels include unsaved, or in-progress labels, which can be useful to avoid lost data. It is always recommended to save if it is expected to access a label at a later date.

**Remote Access:** A way of accessing the Windows® host computer through a browser on another user device (such as another computer, including a Mac®, a mobile device or a tablet). This is done using the IPv4 address of the Windows® host computer (not the printer).

**Ribbon:** The ribbon provides "ink"-like material that is transferred onto the labels during the thermal transfer printing process. The ribbon must be installed by the user.

**Scan Barcode:** (see *Read Barcode*)

**Shared Labels:** A saved label that was saved with the Shared Labels toggle button selected. Shared Labels are accessed on the Shared Labels List by all user profiles and unauthenticated users, not just the user profile that created them. Shared Labels may be edited or deleted by any other user profiles.

**Sidebar Menu/Main Menu:** The menu in the upper-left corner of the MilliSentials™ Lab Labeling System Software, represented by three lines. For authenticated users, this menu provides access to the Print Tab ("Print"), user profile preferences ("Profile"), printer connection settings ("Settings") and logout option ("Logout").

**Subsample:** (see *Aliquot*)

**Two thirds of a Label:** This refers to the lower two sections of the label kept together after the top perforation is discarded. This format of the label is intended to wrap around a 1-2 mL tubes and vials but can also be used on other vessels.

**Unauthenticated User:** In the MilliSentials™ Lab Labeling System Software, a user who is not logged into any profile. Unauthenticated users may still print but some features, including Save, are unavailable.

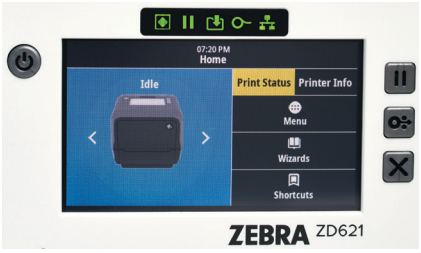
**Unlock Object:** An option on the right-hand Label Properties Bar that when toggled, unlocks an object that is locked. Upon unlocking an object in a MilliSentials™ Lab Template, it becomes "Freeform", meaning that additional objects can be edited, moved and in some cases, re-sized.

**Useable template space:** (see *Printable Working Area*)

**User Devices:** The user device communicates with the host computer to create and print lab labels. It must be on the same network as the host computer/printer and connected using IPv4 addresses in a browser. User devices can be Windows® computers, Mac® computers, tablets, or smart phones.

# Appendix: Setup of ZD620 Model Printer (Gen 1 Printer)


## **WARNING!** Does your printer look like this?




If so, all of the functionality remains the same, but the setup process is slightly different.
Proceed to *Install Software (p.9)* for the setup process.

## Install Software

The MilliSentials™ Lab Labeling System comes with a USB flash drive containing programs required to communicate with the printer.

ZEBRA Setup Utilities Software

MilliSentials™
Lab Labeling
System Software V2

### Windows® Computer

For information on Operating System requirements, see *Operating System Requirements (p.7)*.

1. Plug the MilliSentials™ USB flash drive into the computer.
2. Wait for the drivers to load from the USB flash drive device (this may take a few moments).
3. To install the MilliSentials™ Lab Labeling System Software, navigate to and double click the application called **MilliSentials Lab Labeling System Software V2.exe**.
4. Select "run" or "allow access", if asked. **DO NOT extract the zip file**, extracting may prevent installation.
5. Installation may take up to 10 minutes.

   **Note:** If a security message pops up, click "run anyway" or "add certificate". You may need to contact IT administrator depending on your institution's security settings.
6. Restart the computer. A light blue icon will appear on your desktop.
7. You may remove the USB flash drive.

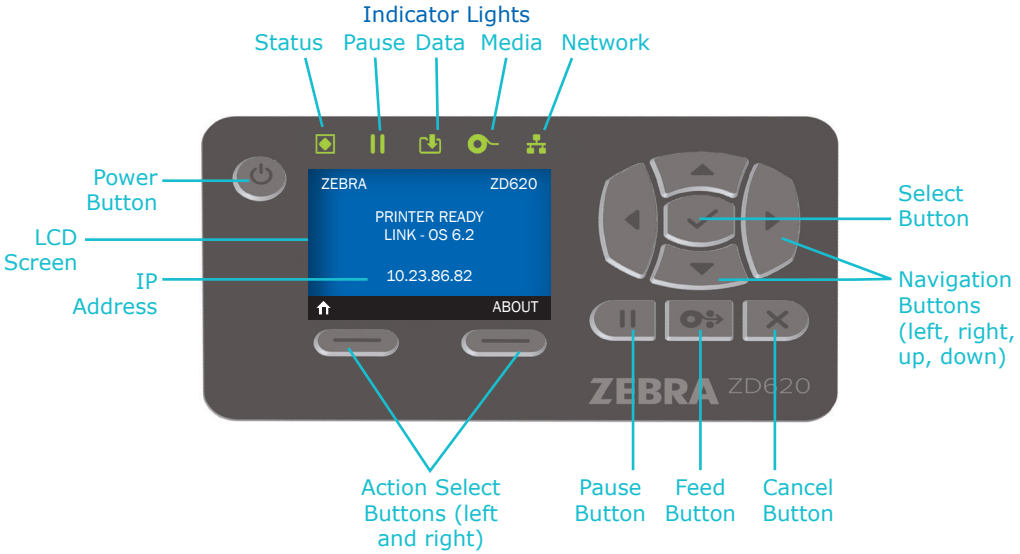
### Mobile Devices

1. Mobile devices include smart phones and tablets, Android or iOS, with Google® Chrome™ browser installed. Users can facilitate network connection of the printer using a mobile device, if desired. For this, the mobile device version of Zebra® Setup Utilities needs to be installed on your device. Install the application called "**Printer Setup Utilities**".
2. Go to Google Play® or Apple® App store, search "Printer Setup Utilities".
3. Click on **Printer Setup Utilities** and download it.

   **Note:** There is another app called "Zebra® Utilities". This is **NOT** the correct app and will not work to setup your printer.

Printer Setup Utilities App

## Control Panel




## Connecting the Printer via Hardwire (USB)

This is the easiest connection to setup and start printing labels. The printer will be connected directly to the computer.

Before starting, *Install Software (p.43)* must be completed.

### Windows® Host Computer

1. Plug the printer into a power source, long-press the power button to turn it on. It will take a minute to boot up.

   **Note:** If the paused mode indicator light is on, press the PAUSE button.

2. Connect your printer to your host computer via USB cable.
3. Open Zebra® Setup Utilities on the host computer. If prompted, select **USB**.

   **Note:** If the user has previously installed Zebra® Setup Utilities for another printer in the lab, there will be a pop-up menu that lists the currently connected printer. Click on the green **Install New Printer** icon to setup the MilliSentials™ Lab Printer.

4. A setup wizard will start. Click next.
5. Select **Install Printer**.
6. Under "printers", select printer **ZDesigner ZD620-300dpi ZPL**, click next.
7. Under "available ports" scroll to the USB options. Highlight the correct USB port that the cable is connected to.

   **Note:** Confirm the USB port selected is correct.

   **Optional:** In the box where the printer name is listed, you may re-name the printer to make it easily identifiable. Click next.

8. Uncheck the box next to "launch installation of Zebra® Font Downloader Setup Wizard". You do not need this program for setting up your MilliSentials™ Lab Printer.
9. Your printer will now appear on the Zebra® Setup Utilities home screen.

   **Note:** Refresh the printer list or restart the program if you do not see anything.

10. Test your printer installation by printing a test configuration report (see *User Diagnostic Tools (p.47)*).
11. Close Zebra® Setup Utilities. Keep the host computer connected to the printer.

After connection has been established, you are ready to print labels! Return to *page 12* for instructions on using the MilliSentials™ Lab Labeling System to create, edit, and save labels with and without barcodes, and for more details about the Millisentials™ Lab Adaptable labels.

## Network Connections

Your printer can communicate with the host computer through the network wirelessly or hardwired using Ethernet cables. Before starting, complete *Install Software (p.43)*.

**Note:** You may need to contact your IT administrator to setup a network connection to the printer.

## Via Wireless Network

The IP address is displayed on the printer LCD screen. If the network connection is lost, the IP address will show only zeros and periods or the network indicator light will be red.

Printer Control Panel


### Wireless Network with a Windows® Host Computer

**Note:** Your printer should be plugged in, powered on, and the USB cable should still be connected to the Windows® host computer and printer.

1. Open Zebra® Setup Utilities from the host computer.
2. If prompted, click **USB**. The home screen for Zebra® Setup Utilities will appear.
3. Highlight your printer by clicking on its icon (it will be highlighted in blue). By default, it will be called **ZDesigner ZD620-300dpi ZPL**, or it will have the name you gave it during the installation process.
4. Select **Configure Printer Connectivity** to launch a setup wizard.
   a. Select Wireless and click Next.
   b. Select DHCP and ensure Enabled is not checked. Then click Next.
5. Select the "Band" to be 802.11 a/b/g/n (2.4 GHz/5 GHz). Then click Next.
6. Select your "Country" from the drop-down menu. Then click Next.
7. Enter your network name under "ESSID".
8. Under "Security", go to the drop-down menu and select WPA-PSK/WPA2-PSK. Then click Next.

   **Note:** If you are using an open network and do not have a password, select none under "Security" drop-down menu.
9. Select String and then type your wireless networkd password under "PSK name". Then click Next.

   **Note:** If you are using an open network and do not have a password, leave Hex selected, do not put anything in the "PSK name" box, and click Next.
10. Click Next ("Advanced Settings" window), and then click Next again ("Final Stream" window).
11. Select Printer and then click Finish.
12. Your printer will restart, and load the information. This may take a few minutes. When complete, indicator lights will turn green, the LCD screen will display an IP address with numbers and the NETWORK indicator light will turn green.
13. Close the Zebra® Setup Utilities on the host computer and disconnect the USB cable from the computer and printer.

After connection has been established, you are ready to print labels!
Return to *page 12* for instructions on using the MilliSentials™ Lab Labeling System to create, edit, and save labels with and without barcodes, and for more details about the Millisentials™ Lab Adaptable labels.

After connection has been established, skip to *Remote Access on Mobile Devices (p.30).*

### Via Ethernet

An Ethernet cable is not included with the MilliSentials™ Lab Labeling System.

**Note:** You may need to contact your IT administrator to setup a network connection to the printer.

The printer should be plugged in and powered on. The USB cable can be disconnected if it is still in place.

1. Connect one end of an Ethernet cable to the Ethernet port on the back of the printer. Connect the other end of the Ethernet cable into a functioning Ethernet wall outlet or a router.
2. It may take a few moments before the network indicator light on the printer will turn from red to green. An IP address will appear on the LCD screen.
3. Do not disconnect the Ethernet cable.

After connection has been established, you are ready to print labels!
Return to *page 12* for instructions on using the MilliSentials™ Lab Labeling System to create, edit, and save labels with and without barcodes, and for more details about the Millisentials™ Lab Adaptable labels.

After connection has been established, skip to *Remote Access on Mobile Devices (p.30).*

# Troubleshooting Gen 1 Printer

## FAQ

| Topic/Question | Cause | Answer/Suggested Fix |
|---|---|---|
| **Software Installation** | | |
| After installing the printer, the MilliSentials program did not show the printer name. | Incorrect installation of the printer. | Check the installation of the printer by printing a configuration label. |
| | USB was disconnected or connected to a different USB port on the computer. | Check the installation of the printer by printing a configuration label. |
| | The MilliSentials™ program was not restarted after initial installation. | Close Zebra Setup Utilities and MilliSentials™ Lab Labeling System Software and re-start your computer. Re-open the MilliSentials program. |
| When setting up my printer and testing a configuration report, there was nothing that printed (Windows). | Wrong printer selected. | Repeat the installation process. Ensure that the correct printer name, ZD620 300dpi ZPL was selected. |
| | Wrong USB port selected. | Repeat the installation process. If multiple USB ports, there may be a list to choose from (USB001, USB002, etc.). Ensure the correct USB was chosen. |
| | USB cable disconnected or re-connected to the wrong port. | Ensure that the USB cable is connected to the same port as when the printer was installed and try printing another configuration report. |
| | Printer was turned off. | Repeat the installation process with the printer plugged in and turned on. |
| **Setting up by Configuring Wireless Connectivity** | | |
| I unwrapped my ribbon so that the plastic wrapping is no longer attached. How can I install the ribbon? | USB Cable not connected or not connected to the installation port. | Check to see if USB cable is connected and secure. Make sure that it is connected to the same port that was used to install the printer. |
| | Unreliable or spotty WiFi® network. | If your Wi-Fi network is not reliable, then it will affect your ability to print successfully. We suggest using another network, ethernet cable or Simple Kiosk Mode via hardwired (USB) connection. |
| | Printer installation process was unsuccessful. | From Zebra Setup Utilities, print a configuration report labels. If the labels do not print, then re-install the printer. |
| | IT Administrator or Security issue. | Contact your IT administrator. |
| **Label Alignment and Printer Settings** | | |
| I accidentally reset my printer. What should I do? | -- | See *Using Settings Reset File (p.47).* |
| My label text is misaligned slightly right/left or up and down. | A minor text adjustment may be necessary. | See *Making Minor Label Alignment Adjustments (p.47).* |

## User Diagnostic Tools

**Print a Configuration Label**

1. On the Zebra® Setup Utilities home screen, highlight your newly installed printer by clicking on its icon (it will highlight in blue).
2. Click on Open Printer Tools.
3. Under Print Tab (default tab), click on Print Configuration Label.
4. If the printer responds and prints, then all the internal components are installed correctly and the printer has been installed on your host computer correctly.

   **Note:** The configuration labels will not be properly aligned when they print.

**Making Minor Label Alignment Adjustments**

1. On the printer LCD screen, press the left action select button to enter the home menu.
2. Use the navigation buttons to highlight the settings menu (cog wheel icon).
3. Press the select button and enter the menu.
4. Press the left and right navigation buttons to move through the options.
   - If misaligned up and down: Under "label top", the value will be -45. Press the up and down navigation keys to change this in increments of 5. Values closer to zero will be raised and values further from zero will be lowered.
   - If misaligned left and right: Under "left position", the value should be 0. Press the up and down navigation keys to change this in increments of 5. Positive values will move the text toward the right and negative values will move the text toward the left.
5. Use the MilliSentials™ Lab Labeling System Software to print a test label. If still misaligned, make minor adjustments against using Step 4 until satisfactory.

**Perform Media Calibration**

1. On the printer LCD screen, press the left action select button to enter the home menu.
2. Use the navigation buttons to highlight the tools menu (tool icon).
3. Press the select button to enter the tools menu and press the left and right navigation buttons to move through the options.
4. Select "media cal" and follow the prompts on the printer LCD screen to perform the media calibration process. The process will use about 25-35 labels.

**Disable Self-Calibration**

Every time the printer head is opened, closed or exits paused mode, it will self-calibrate and roll out three (3) or more labels. This is normal and helps the printer to calibrate correctly for optimal print alignment. To disable this feature:

1. On the printer LCD screen, press the left action select button to enter the home menu.
2. Use the navigation buttons to highlight the tools menu (tool icon).
3. Press the select button and enter the tools menu.
4. Press the left and right navigation buttons to move through the options.
5. Under "power up action", push the up and down navigation buttons and select button to select "no motion".
6. Under "Head close action", push the up and down navigation buttons and select button to select "no motion."
7. Close the printer head.

   **Note:** Upon leaving paused mode, there will be no sound or label movement.

   **Note:** If this function is disabled, you must press the FEED button once or twice before printing so the printer senses the mark on the bottom of the label and the label is correctly aligned. If the printer is ever misaligned, you must press the FEED button once or twice to correct alignment.

**Using Settings Reset File**

Only use when directed by Tech Support.

1. Navigate to the USB flash drive and in the "Zebra Setup Utilities" folder, look for the ZD620mirror2.txt file.
2. Click and drag this file onto the desktop of your computer.
3. Open Zebra Setup Utilities and highlight your printer blue by clicking on its icon.
4. Go to "open printer tools".
5. In the "Action" tab, click on "send file".
6. In the lower part of the window, there will be a text box. Next to the text box will be a button with the '…' symbol. Click on this box to open your file navigator.
7. Find and select the ZD620mirror2.txt file and click on "open".
8. Back in the window, click "send".
9. The DATA indicator light on the printer will flash green very briefly to indicate that it has accepted the data.
10. The settings should now be changed on the printer.
11. You can repeat this step at any time.

**Load Factory Settings on the Printer**

Only use when directed by Tech Support.

1. On the printer LCD screen, press the left action select button to enter the home menu.
2. Use the navigation buttons to highlight the tools menu (tool icon).
3. Press the select button and enter the tools menu and press the left and right navigation buttons to move through the options.
4. On the "Load Factory Settings" screen click the right action select button to load settings.

## Product Ordering

Purchase online at SigmaAldrich.com.

| | Country | Catalogue Number |
|---|---|---|
| **MilliSentials™ Lab Labeling System**<br>Includes:<br>• MilliSentials™ Lab Printer (Gen 1 or Gen 2)<br>• AC power supply, power cord (country specific)<br>• USB cable<br>• USB flash drive<br>• MilliSentials™ Lab Adaptable Labels, 1615 labels (1 roll)<br>• MilliSentials™ Lab Ribbon, 1 ribbon (prints ~6000 labels)<br>• Two (2) cardboard core adapters, 1 inch and 0.5 inch (25.4 mm and 12.7 mm)<br>• Two (2) plastic core adapters | Taiwan | MISELLABST |
| | India | MISELLABSI |
| | APAC | MISELLABSA |
| | Japan | MISELLABSJ |
| | China | MISELLABSC |
| | Europe | MISELLABSE |
| | LATAM | MISELLABSL |
| | Argentina | MISELLABSR |
| | Brazil | MISELLABSB |
| | North America | MISELLABSN |

| Refills | Qty | Catalogue Number |
|---|---|---|
| MilliSentials™ Lab Adaptable Labels (1615 labels/roll) | 1 roll | MISELADLA |
| MilliSentials™ Lab Printer Ribbon (prints ~6000 labels) | 1 ea | MISELPRRI |

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